



# **MiCOM C232**

**Compact Bay Unit for  
Control and Monitoring  
with Protection Functions**

**Version -302-401/402/403/404-603**

**Technical Manual  
C232/EN M/A23**

**Volume 2**

**A Glossary**

**B List of Signals**

**C List of Bay Types**

**D Terminal Connection Diagrams**

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(Available only as a PDF file. Not included in the printed manual.)

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## Appendix A - Glossary

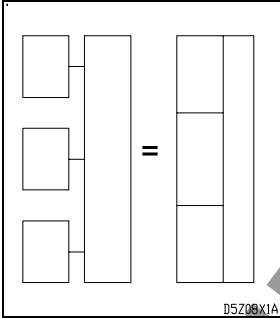
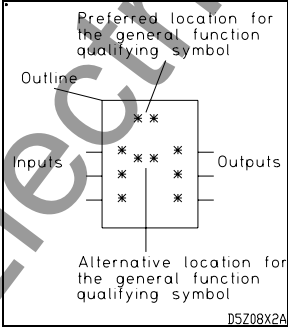
### A 1 Function Groups

|        |                                      |
|--------|--------------------------------------|
| CMD_1: | Signale pole commands                |
| COMM1: | Communication link 1                 |
| COMM2: | Communication link 2                 |
| COUNT: | Binary counts                        |
| DEV01: | Device 01 to Device 10               |
| to     |                                      |
| DEV10: |                                      |
| DTOC:  | Definite-time overcurrent protection |
| DVICE: | Device                               |
| FT_DA: | Fault data acquisition               |
| FT_RC: | Fault recording                      |
| IDMT:  | Inverse-time overcurrent protection  |
| ILOCK: | Interlocking logic                   |
| INP:   | Binary input                         |
| LED:   | LED indicators                       |
| LIMIT: | Limit monitoring                     |
| LOC:   | Local control panel                  |
| LOGIC: | Logic                                |
| MAIN:  | Main function                        |
| MEASI: | Measured data input                  |
| MT_RC: | Monitoring signal recording          |
| OP_RC: | Operating data recording             |
| OUTP:  | Binary and analog output             |
| PC:    | PC link                              |
| PSS:   | Parameter subset selection           |
| SFMON: | Self-monitoring                      |
| SIG_1: | Signale pole signals                 |
| TAPCH: | Tap changer control                  |

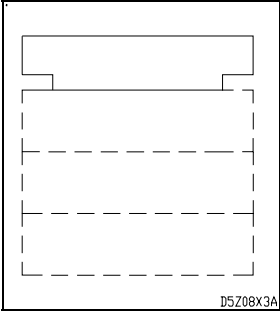
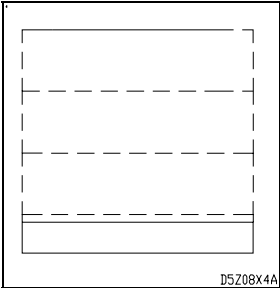
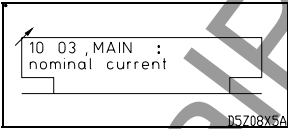
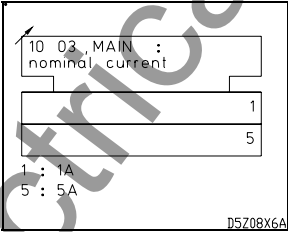
A 2
Symbols

Graphic symbols for block diagrams  
Binary elements according to DIN 40900 Part 12, September 1992,  
IEC 617-12: amended 1991  
Analog information processing according to DIN 40900 Part 13, January 1981

To document the linking of analog and binary signals, additional symbols have been used, taken from several DIN documents.  
As a rule, direction of the signal flow is from left to right and from top to bottom. Other flow directions are marked by an arrow. Input signals are listed on the left side of the signal flow, output signals on the right side.

| Symbol                                                                              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <p>To obtain more space for representing a group of related elements, contours of the elements may be joined or cascaded if the following rules are met:</p> <p>There is no functional linkage between elements whose common contour line is oriented in the signal flow direction.</p> <p>Note:<br/>This rule does not necessarily apply to configurations with two or more signal flow directions, such as for symbols with a control block and an output block.</p> <p>There exists at least one logical link between elements whose common contour line runs perpendicularly to the signal flow direction.</p> |
|  | <p><u>Components of a symbol</u><br/> A symbol consists of a contour or contour combination and one or more qualifiers.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

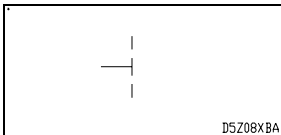
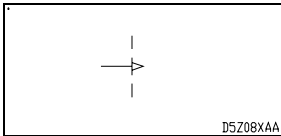
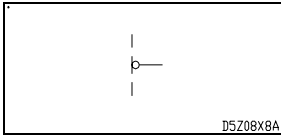
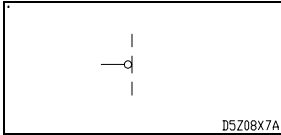
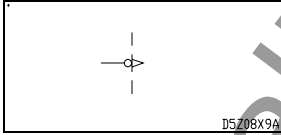
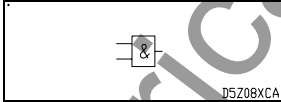
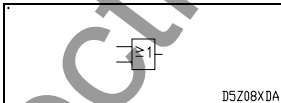
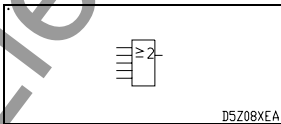
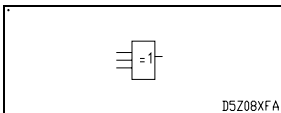
Appendix A - Glossary  
(continued)

| Symbol                                                                              | Description                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <p><u>Control block</u></p> <p>A control block contains an input function common to several symbols. It is used for the collective setting of several trigger elements, for example.</p>                                                      |
|   | <p><u>Output block</u></p> <p>An output block contains an output function common to several symbols.</p>                                                                                                                                      |
|  | <p><u>Settable control block</u></p> <p>The four digits represent the address under which the function shown in the text after the colon may be set via the local control panel.</p>                                                          |
|  | <p><u>Settable control block with function blocks</u></p> <p>The digits in the function block show the settings that are possible at this address.<br/>The text below the symbol shows the setting and the corresponding unit or meaning.</p> |

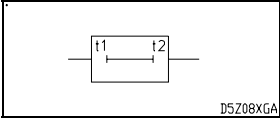
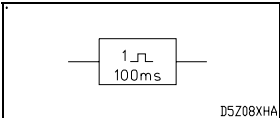
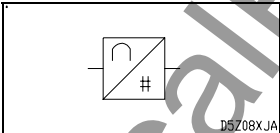
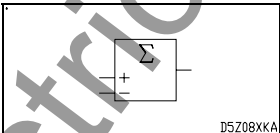
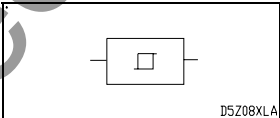
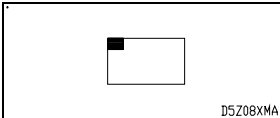


# Appendix A - Glossary

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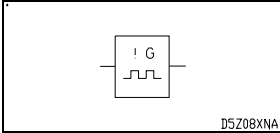
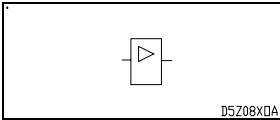
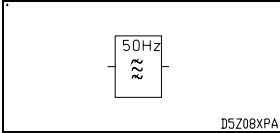
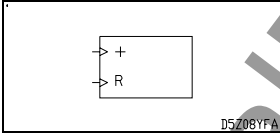
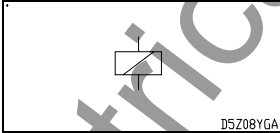
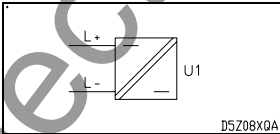
| Symbol                                                                                               | Description                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>DSZ08XBA</p>    | <p><u>Static input</u><br/>Only the state of the binary input variable is effective.</p>                                                                                                                                                      |
|  <p>DSZ08XAA</p>    | <p><u>Dynamic input</u><br/>Only the transition from value 0 to value 1 is effective.</p>                                                                                                                                                     |
|  <p>DSZ08X8A</p>    | <p><u>Negation of an output</u><br/>The value up to the border line is negated at the output.</p>                                                                                                                                             |
|  <p>DSZ08X7A</p>   | <p><u>Negation of an input</u><br/>The input value is negated before the border line.</p>                                                                                                                                                     |
|  <p>DSZ08X9A</p>  | <p><u>Dynamic input with negation</u><br/>Only the transition from value 1 to value 0 is effective.</p>                                                                                                                                       |
|  <p>DSZ08XCA</p>  | <p><u>AND element</u><br/>The output variable will be 1 only if all input variables are 1.</p>                                                                                                                                                |
|  <p>DSZ08XDA</p>  | <p><u>OR element</u><br/>The output variable will be 1 only if at least one input variable is 1.</p>                                                                                                                                          |
|  <p>DSZ08XE A</p> | <p><u>Threshold element</u><br/>The output variable will be 1 only if at least two input variables are 1. The number in the symbol may be replaced by any other number.</p>                                                                   |
|  <p>DSZ08XFA</p>  | <p><u>(m out of n) element</u><br/>The output variable will be 1 only if just one input variable is 1.</p> <p>The number in the symbol may be replaced by any other number if the number of inputs is increased or decreased accordingly.</p> |

Appendix A - Glossary  
(continued)

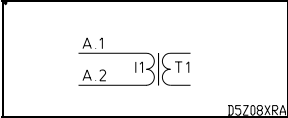
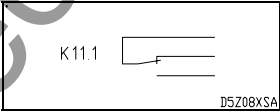
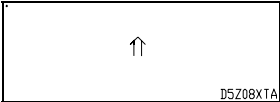
| Symbol                                                                                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>DSZ08XGA   | <p><u>Delay element</u></p> <p>The transition from value 0 to 1 at the output occurs after a time delay of <math>t_1</math> relative to the corresponding transition at the input.</p> <p>The transition from value 1 to 0 at the output occurs after a time delay of <math>t_2</math> relative to the corresponding transition at the input.</p> <p><math>t_1</math> and <math>t_2</math> may be replaced by the actual delay values (in seconds or strobe ticks).</p> |
| <br>DSZ08XHA   | <p><u>Monostable flip-flop</u></p> <p>The output variable will be 1 only if the input variable changes to 1. The output variable will remain 1 for 100 ms, independent of the duration of the input value 1 (non-retriggerable).</p> <p>Without a 1 in the function block the monostable flip-flop is retriggerable.</p> <p>The time is 100 ms in this example, but it may be changed to any other duration.</p>                                                        |
| <br>DSZ08XJA | <p><u>Analog-digital converter</u></p> <p>An analog input signal is converted to a binary signal.</p>                                                                                                                                                                                                                                                                                                                                                                   |
| <br>DSZ08XKA | <p><u>Subtractor</u></p> <p>The output variable is the difference between the two input variables.</p> <p>A <i>summing element</i> is obtained by changing the minus sign to a plus sign at the symbol input.</p>                                                                                                                                                                                                                                                       |
| <br>DSZ08XLA | <p><u>Schmitt Trigger with binary output signal</u></p> <p>The binary output variable will be 1 if the input signal exceeds a specific threshold. The output variable remains 1 until the input signal drops below the threshold again.</p>                                                                                                                                                                                                                             |
| <br>DSZ08XMA | <p><u>Memory, general</u></p> <p>Storage of a binary or analog signal.</p>                                                                                                                                                                                                                                                                                                                                                                                              |

# Appendix A - Glossary

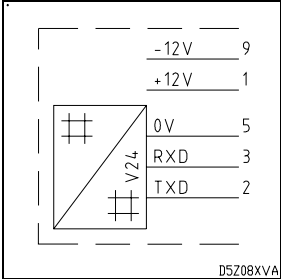
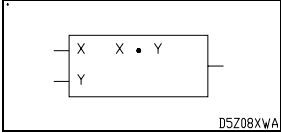
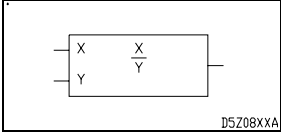
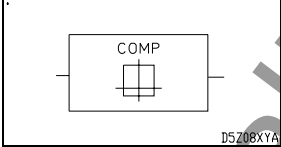
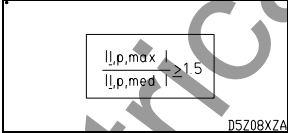
(continued)

| Symbol                                                                              | Description                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <p><u>Non-stable flip-flop</u><br/>When the input variable changes to 1, a pulse sequence is generated at the output.</p> <p>The ! to the left of the G indicates that the pulse sequence starts with the input variable transition (synchronized start).<br/>If there is a ! to the right of the G, the pulse sequence ends with the ending of the 1 signal at the input (synchronized stop).</p> |
|    | <p><u>Amplifier</u><br/>The output variable is 1 only if the input variable is also 1.</p>                                                                                                                                                                                                                                                                                                         |
|   | <p><u>Band pass filter</u><br/>The output only transmits the 50 Hz component of the input signals. All other frequencies (above and below 50 Hz) are attenuated.</p>                                                                                                                                                                                                                               |
|  | <p><u>Counter</u><br/>At the + input the input variable transitions from 0 to 1 are counted and stored in the function block.<br/>At the R(reset) input a transition of the input variable from 0 to 1 resets the counter to 0.</p>                                                                                                                                                                |
|  | <p><u>Electromechanical drive</u><br/>in general, here a relay, for example.</p>                                                                                                                                                                                                                                                                                                                   |
|  | <p><u>Signal level converter</u><br/>with electrical isolation between input and output.<br/>L+ = pos. voltage input<br/>L- = neg. voltage input<br/>U1 = device identifier</p>                                                                                                                                                                                                                    |

Appendix A - Glossary  
(continued)

| Symbol                                                                              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <p><u>Input transformer with phase and item identifiers</u><br/>(according to DIN EN 60445)</p> <p>Phase identifiers for current inputs:<br/>for A: A1 and A2<br/>for B: B1 and B2<br/>for C: C1 and C2<br/>for N: N1 and N2</p> <p>Phase identifiers for voltage inputs<br/>via transformer 1:<br/>for A: 1U<br/>for B: 1V<br/>for C: 1W<br/>for N: 1N<br/>via transformer 2:<br/>for A: 2U<br/>for B: 2V</p> <p>Item identifiers for current transformers:<br/>for A: T1<br/>for B: T2<br/>for C: T3<br/>for N: T4<br/>for voltage transformer 1:<br/>for A: T5<br/>for B: T6<br/>for C: T7<br/>for N: T8<br/>for <math>V_{G-N}</math> transformer: T90<br/>for voltage transformer 2:<br/>for A: T15</p> |
|  | <p><u>Change-over contact</u><br/>with item identifier</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|  | <p><u>Special symbol</u><br/>Output relay in normally-energized arrangement<br/>(‘closed-circuit operation’).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

Appendix A - Glossary  
(continued)

| Symbol                                                                              | Description                                                                                                                       |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
|    | <u>PC interface</u><br>with pin connections                                                                                       |
|    | <u>Multiplier</u><br>The output variable is the result of the multiplication of the two input variables.                          |
|   | <u>Divider</u><br>The output variable is the result of the division of the two input variables.                                   |
|  | <u>Comparator</u><br>The output variable becomes 1 only if the input variable(s) are equal to the function in the function block. |
|  | <u>Formula block</u><br>The output variable becomes 1 only if the input variable(s) satisfy the equation in the function block    |

## Appendix A - Glossary

(continued)

### A 3 Examples of Signal Names

All settings and signals relevant for protection are shown in the block diagrams of Chapter 3 as follows:

| Signal Name                                        | Description                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ◆ FT_RC: Fault recording n<br>305 100              | <u>Internal signal names</u> are not coded by a data model address. In the block diagrams they are marked with a diamond. The small figure underneath the signal name represents a code that is irrelevant to the user. The internal signal names used and their origins are listed in Appendix B. |
| DIST: VNG>> triggered<br>[ 036 015 ]               | Signal names coded by a data model address are represented by their address (shown in square brackets). Their origin is given in Chapters 7 and 8.                                                                                                                                                 |
| MAIN: General reset<br>[ 003 002 ]<br>➤ 1: Execute | A specific setting to be used later on is shown with its signal name, address, and the setting preceded by the setting arrow.                                                                                                                                                                      |

## Appendix A - Glossary

(continued)

### A 4 Symbols Used

| Symbol            | Meaning                                                                                       |
|-------------------|-----------------------------------------------------------------------------------------------|
| $t$               | Time duration                                                                                 |
| $V$               | Voltage, potential difference                                                                 |
| $\underline{V}$   | Complex voltage                                                                               |
| $I$               | Electrical current                                                                            |
| $\underline{I}$   | Complex current                                                                               |
| $\underline{Z}$   | Complex impedance                                                                             |
| $ \underline{Z} $ | Modulus of complex impedance                                                                  |
| $f$               | Frequency                                                                                     |
| $\delta$          | Temperature in °C                                                                             |
| $\Sigma$          | Sum, result                                                                                   |
| $\Omega$          | Unit of electrical resistance                                                                 |
| $\alpha$          | Angle                                                                                         |
| $\varphi$         | Phase angle. With subscripts: specific angle between a defined current and a defined voltage. |
| $\tau$            | Time constant                                                                                 |
| $\Delta T$        | Temperature difference in K                                                                   |

## Appendix B - List of Signals

### B 1 Internal Signal Names

|                             |                                 |
|-----------------------------|---------------------------------|
| COMM1: Communication error  | Fig. 3-8, 3-9, 3-10, 3-11, 3-12 |
| COMM1: Debounced signal     | Fig. 3-25                       |
| COMM1: Selected protocol    | Fig. 3-7                        |
| DEV01: Close cmd. rejection | Fig. 3-107                      |
| DEV01: Close request        | Fig. 3-106                      |
| DEV01: Enable BI close      | Fig. 3-107                      |
| DEV01: Enable BI open       | Fig. 3-107                      |
| DEV01: Enable SI Close      | Fig. 3-108                      |
| DEV01: Enable SI Open       | Fig. 3-108                      |
| DEV01: End close command    | Fig. 3-111                      |
| DEV01: End open command     | Fig. 3-111                      |
| DEV01: Latching time elaps. | Fig. 3-106                      |
| DEV01: Latching time runn.  | Fig. 3-106                      |
| DEV01: Open cmd. rejection  | Fig. 3-107                      |
| DEV01: Open request         | Fig. 3-106                      |
| DEV01: Protect. close cmd.  | Fig. 3-109                      |
| DEV01: Protection trip cmd. | Fig. 3-109                      |
| DEV01: Start runn.time mon. | Fig. 3-112                      |
| DEV01: Switch. device runn. | Fig. 3-111                      |
| DTOC: IN                    | Fig. 3-75                       |
| DTOC: Starting A            | Fig. 3-73                       |
| DTOC: Starting B            | Fig. 3-73                       |
| DTOC: Starting C            | Fig. 3-73                       |
| DTOC: Starting N            | Fig. 3-76                       |
| DTOC: t2 N                  | Fig. 3-78                       |
| DTOC: Pulse prolong. Runn.  | Fig. 3-78                       |
| FT_DA: Output meas. values  | Fig. 3-67                       |
| IDMT: IN                    | Fig. 3-89                       |
| IDMT: Starting A            | Fig. 3-86                       |
| IDMT: Starting B            | Fig. 3-86                       |
| IDMT: Starting C            | Fig. 3-86                       |
| LOC: Remote & local control | Fig. 3-5                        |
| LOC: Return t. selec. trg.  | Fig. 3-2                        |



## Appendix B - List of Signals

(continued)

|                             |            |
|-----------------------------|------------|
| MAIN: End Command           | Fig. 3-112 |
| MAIN: Block tim.st. IN,neg  | Fig. 3-47  |
| MAIN: DEVxx is a C.B.       | Fig. 3-28  |
| MAIN: Direct motor control  | Fig. 3-28  |
| MAIN: Enable IA             | Fig. 3-29  |
| MAIN: Enable IB             | Fig. 3-29  |
| MAIN: Enable IC             | Fig. 3-29  |
| MAIN: Enable I              | Fig. 3-29  |
| MAIN: Enable I, 3p          | Fig. 3-29  |
| MAIN: Enable VA-G           | Fig. 3-29  |
| MAIN: Enable VB-G           | Fig. 3-29  |
| MAIN: Enable VC-G           | Fig. 3-29  |
| MAIN: Enable VA-B           | Fig. 3-29  |
| MAIN: Enable VB-C           | Fig. 3-29  |
| MAIN: Enable VC-A           | Fig. 3-29  |
| MAIN: Enable VPG            | Fig. 3-29  |
| MAIN: Enable VPG, 3p        | Fig. 3-29  |
| MAIN: Enable VPP            | Fig. 3-29  |
| MAIN: Enable VPP, 3p        | Fig. 3-29  |
| MAIN: Blck.1 sel.functions  | Fig. 3-42  |
| MAIN: Blck.2 sel.functions  | Fig. 3-42  |
| MAIN: Block start. signal   | Fig. 3-47  |
| MAIN: Block. I>,klref,P>    | Fig. 3-48  |
| MAIN: Block. IN>,klref,N>   | Fig. 3-48  |
| MAIN: General starting int. | Fig. 3-48  |
| MAIN: Inrush stabil. trigg  | Fig. 3-40  |
| MAIN: Protection active     | Fig. 3-37  |
| MAIN: Reset LED             | Fig. 3-59  |
| MAIN: Starting A int.       | Fig. 3-47  |
| MAIN: Starting B int.       | Fig. 3-47  |
| MAIN: Starting C int.       | Fig. 3-47  |
| MAIN: Starting Ineg         | Fig. 3-47  |
| MAIN: Starting N int.       | Fig. 3-47  |
| MAIN: Time tag              | Fig. 3-58  |

## Appendix B - List of Signals

(continued)

### B 2 Telecontrol Interface per EN 60870-5-101 or IEC 870-5-101 (Companion Standard)

This section incorporates Section 8 of EN 60870-5-101 (1996), which includes a general definition of the telecontrol interface for substation control systems.

#### B 2.1 Interoperability

This application-based standard (companion standard) specifies parameter sets and other options from which subsets are to be selected in order to implement specific telecontrol systems. Certain parameters such as the number of octets in the COMMON ADDRESS of the ASDU are mutually exclusive. This means that only one value of the defined parameter is allowed per system. Other parameters, such as the listed set of different process information in the command and monitor direction, permit definition of the total number or of subsets that are suitable for the given application. This section combines the parameters given in the previous sections in order to facilitate an appropriate selection for a specific application. If a system is made up of several system components supplied by different manufacturers ("equipment stemming"), then it is necessary for all partners to agree on the selected parameters.

The boxes for the selected parameters should be checked.

**Note:** The overall definition of a system may also require individual selection of certain parameters for specific parts of a system such as individual selection of scaling factors for individually addressable measured values.

##### B 2.1.1 Network Configuration (Network-Specific Parameters)

- |                                                                           |                                                                         |
|---------------------------------------------------------------------------|-------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Point-to-point configuration          | <input checked="" type="checkbox"/> Multipoint-party line configuration |
| <input checked="" type="checkbox"/> Multiple point-to-point configuration | <input type="checkbox"/> Multipoint-star configuration                  |

## Appendix B - List of Signals

(continued)

### B 2.1.2 Physical Layer (Network-Specific Parameters)

#### Transmission Rate (Control Direction) <sup>1</sup>

| Unbalanced interface V.24/V.28<br>Standardized |             | Unbalanced interface V.24/V.28<br>Recommended with > 1 200 bit/s |             | Balanced interface X.24/X.27 |              |
|------------------------------------------------|-------------|------------------------------------------------------------------|-------------|------------------------------|--------------|
| <input type="checkbox"/>                       | 100 bit/s   | <input checked="" type="checkbox"/>                              | 2 400 bit/s | <input type="checkbox"/>     | 2 400 bit/s  |
| <input type="checkbox"/>                       | 200 bit/s   | <input checked="" type="checkbox"/>                              | 4 800 bit/s | <input type="checkbox"/>     | 56 000 bit/s |
| <input type="checkbox"/>                       | 300 bit/s   | <input checked="" type="checkbox"/>                              | 9 600 bit/s | <input type="checkbox"/>     | 64 000 bit/s |
| <input checked="" type="checkbox"/>            | 600 bit/s   |                                                                  |             | <input type="checkbox"/>     | 9 600 bit/s  |
| <input checked="" type="checkbox"/>            | 1 200 bit/s |                                                                  |             | <input type="checkbox"/>     | 19 200 bit/s |
|                                                |             |                                                                  |             | <input type="checkbox"/>     | 38 400 bit/s |

#### Transmission Rate (Monitor Direction) <sup>2</sup>

| Unbalanced interface V.24/V.28<br>Standardized |             | Unbalanced interface V.24/V.28<br>Recommended with > 1 200 bit/s |             | Balanced interface X.24/X.27 |              |
|------------------------------------------------|-------------|------------------------------------------------------------------|-------------|------------------------------|--------------|
| <input type="checkbox"/>                       | 100 bit/s   | <input checked="" type="checkbox"/>                              | 2 400 bit/s | <input type="checkbox"/>     | 2 400 bit/s  |
| <input type="checkbox"/>                       | 200 bit/s   | <input checked="" type="checkbox"/>                              | 4 800 bit/s | <input type="checkbox"/>     | 56 000 bit/s |
| <input type="checkbox"/>                       | 300 bit/s   | <input checked="" type="checkbox"/>                              | 9 600 bit/s | <input type="checkbox"/>     | 64 000 bit/s |
| <input checked="" type="checkbox"/>            | 600 bit/s   |                                                                  |             | <input type="checkbox"/>     | 9 600 bit/s  |
| <input checked="" type="checkbox"/>            | 1 200 bit/s |                                                                  |             | <input type="checkbox"/>     | 19 200 bit/s |
|                                                |             |                                                                  |             | <input type="checkbox"/>     | 38 400 bit/s |

<sup>1</sup> The transmission rates for control direction and monitor direction must be identical.

# Appendix B - List of Signals

(continued)

## B 2.1.3 Link Layer (Network-Specific Parameters)

Frame format FT 1.2, single character 1, and the fixed time-out interval are used exclusively in this companion standard.

| Link Transmission Procedure                                            | Address Field of the Link                                                                                                       |
|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <div><input checked="" type="checkbox"/> Balanced transmission</div>   | <div><input checked="" type="checkbox"/> Not present<br/>(balanced transmission only)</div>                                     |
| <div><input checked="" type="checkbox"/> Unbalanced transmission</div> | <div><input checked="" type="checkbox"/> One octet</div> <div><input checked="" type="checkbox"/> Two octets <sup>1</sup></div> |
| <div>Frame Length</div>                                                | <div><input checked="" type="checkbox"/> Structured</div>                                                                       |
| <div>240 Maximum length L (number of octets)</div>                     | <div><input checked="" type="checkbox"/> Unstructured</div>                                                                     |

<sup>1</sup> Balanced only.

# Appendix B - List of Signals

(continued)

## B 2.1.4 Application Layer

Transmission mode for application data

Mode 1 (least significant octet first), as defined in clause 4.10 of IEC 870-5-4, is used exclusively in this companion standard.

### Common Address of ASDU (System-Specific Parameter)

- ☒ One octet
- ☒ Two octets

### Information Object Address (System-Specific Parameter)

- ☒ One octet
- ☒ Two octets
- ☒ Three octets
- ☒ Structured
- ☒ Unstructured
- ☐

### Cause of Transmission (System-Specific Parameter)

- ☒ One octet
- ☒ Two octets (with originator address)

## Appendix B - List of Signals

(continued)

### Selection of Standard ASDUs

#### Process Information in Monitor Direction (Station-Specific Parameter)

|                                     |      |   |                                                          |           |
|-------------------------------------|------|---|----------------------------------------------------------|-----------|
| <input checked="" type="checkbox"/> | <1>  | = | Single-point information                                 | M_SP_NA_1 |
| <input checked="" type="checkbox"/> | <2>  | = | Single-point information with time tag                   | M_SP_TA_1 |
| <input checked="" type="checkbox"/> | <3>  | = | Double-point information                                 | M_DP_NA_1 |
| <input checked="" type="checkbox"/> | <4>  | = | Double-point information with time tag                   | M_DP_TA_1 |
| <input checked="" type="checkbox"/> | <5>  | = | Step position information                                | M_ST_NA_1 |
| <input checked="" type="checkbox"/> | <6>  | = | Step position information with time tag                  | M_ST_TA_1 |
| <input checked="" type="checkbox"/> | <7>  | = | Bit string of 32 bit                                     | M_BO_NA_1 |
| <input checked="" type="checkbox"/> | <8>  | = | Bit string of 32 bit with time tag                       | M_BO_TA_1 |
| <input checked="" type="checkbox"/> | <9>  | = | Measured value, normalized value                         | M_ME_NA_1 |
| <input checked="" type="checkbox"/> | <10> | = | Measured value, normalized value with time tag           | M_ME_TA_1 |
| <input checked="" type="checkbox"/> | <11> | = | Measured value, scaled value                             | M_ME_NB_1 |
| <input checked="" type="checkbox"/> | <12> | = | Measured value, scaled value with time tag               | M_ME_TB_1 |
| <input type="checkbox"/>            | <13> | = | Measured value, short floating point value               | M_ME_NC_1 |
| <input type="checkbox"/>            | <14> | = | Measured value, short floating point value with time tag | M_ME_TC_1 |
| <input checked="" type="checkbox"/> | <15> | = | Integrated totals                                        | M_IT_NA_1 |
| <input checked="" type="checkbox"/> | <16> | = | Integrated totals with time tag                          | M_IT_TA_1 |
| <input checked="" type="checkbox"/> | <17> | = | Event of protection equipment with time tag              | M_EP_TA_1 |

## Appendix B - List of Signals

(continued)

|                                     |      |   |                                                                         |            |
|-------------------------------------|------|---|-------------------------------------------------------------------------|------------|
| <input checked="" type="checkbox"/> | <18> | = | Packed start events of protection equipment with time tag               | ME_EP_TB_1 |
| <input checked="" type="checkbox"/> | <19> | = | Packed output circuit information of protection equipment with time tag | M_EP_TC_1  |
| <input type="checkbox"/>            | <20> | = | Packed single-point information with status change detection            | M_PS_NA_1  |
| <input type="checkbox"/>            | <21> | = | Measured value, normalized value without quality descriptor             | M_ME_ND_1  |

## Appendix B - List of Signals

(continued)

### Process Information in Monitor Direction <sup>1</sup> (Station-Specific Parameter)

|                                     |      |   |                                               |           |
|-------------------------------------|------|---|-----------------------------------------------|-----------|
| <input checked="" type="checkbox"/> | <45> | = | Single command                                | C_SC_NA_1 |
| <input checked="" type="checkbox"/> | <46> | = | Double command                                | C_DC_NA_1 |
| <input checked="" type="checkbox"/> | <47> | = | Regulating step command                       | C_IT_NA_1 |
| <input type="checkbox"/>            | <48> | = | Set point command, normalized value           | C_RC_NA_1 |
| <input type="checkbox"/>            | <49> | = | Set point command, scaled value               | C_SE_NB_1 |
| <input type="checkbox"/>            | <50> | = | Set point command, short floating point value | C_SE_NC_1 |
| <input type="checkbox"/>            | <51> | = | Bit string of 32 bit                          | C_BO_NA_1 |

### System Information in Monitor Direction (Station-Specific Parameter)

|                                     |      |   |                       |            |
|-------------------------------------|------|---|-----------------------|------------|
| <input checked="" type="checkbox"/> | <70> | = | End of initialization | ME_EI_NA_1 |
|-------------------------------------|------|---|-----------------------|------------|

<sup>1</sup> Incorrectly identified with control direction in IEC 870-5-101.



## Appendix B - List of Signals

(continued)

### System Information in Control Direction (Station-Specific Parameter)

|                                     |       |   |                                            |           |
|-------------------------------------|-------|---|--------------------------------------------|-----------|
| <input checked="" type="checkbox"/> | <100> | = | Interrogation command                      | C_IC_NA_1 |
| <input checked="" type="checkbox"/> | <101> | = | Counter interrogation command              | C_CI_NA_1 |
| <input checked="" type="checkbox"/> | <102> | = | Read command                               | C_RD_NA_1 |
| <input checked="" type="checkbox"/> | <103> | = | Clock synchronization command <sup>1</sup> | C_CS_NA_1 |
| <input checked="" type="checkbox"/> | <104> | = | Test command                               | C_TS_NB_1 |
| <input type="checkbox"/>            | <105> | = | Reset process command                      | C_RP_NC_1 |
| <input type="checkbox"/>            | <106> | = | Delay acquisition command                  | C_CD_NA_1 |

<sup>1</sup> The command procedure is formally processed, but there is no change in the local time in the station.

## Appendix B - List of Signals

(continued)

### Parameter in Control Direction (Station-Specific Parameter)

|                                     |       |   |                                                         |           |
|-------------------------------------|-------|---|---------------------------------------------------------|-----------|
| <input checked="" type="checkbox"/> | <110> | = | Parameter of measured value, normalized value           | P_ME_NA_1 |
| <input checked="" type="checkbox"/> | <111> | = | Parameter of measured value, scaled value               | P_ME_NB_1 |
| <input type="checkbox"/>            | <112> | = | Parameter of measured value, short floating point value | P_ME_NC_1 |
| <input type="checkbox"/>            | <113> | = | Parameter activation                                    | P_AC_NA_1 |

### File Transfer (Station-Specific Parameter)

|                          |       |   |                                                      |           |
|--------------------------|-------|---|------------------------------------------------------|-----------|
| <input type="checkbox"/> | <120> | = | File ready                                           | F_FR_NA_1 |
| <input type="checkbox"/> | <121> | = | Section ready                                        | F_SR_NA_1 |
| <input type="checkbox"/> | <122> | = | Call directory, select file, call file, call section | F_SC_NA_1 |
| <input type="checkbox"/> | <123> | = | Last section, last segment                           | F_LS_NA_1 |
| <input type="checkbox"/> | <124> | = | Ack file, ack section                                | F_AF_NA_1 |
| <input type="checkbox"/> | <125> | = | Segment                                              | F_SG_NA_1 |
| <input type="checkbox"/> | <126> | = | Directory                                            | F_DR_TA_1 |

# Appendix B - List of Signals

(continued)

## B 2.1.5 Basic Application Functions

### Station Initialization (Station-Specific Parameter)

☒ Remote initialization

### General Interrogation (System- or Station-Specific Parameter)

☒ Global

☒ Group 1

☒ Group 7

☒ Group 13

☒ Group 2

☒ Group 8

☒ Group 14

☒ Group 3

☒ Group 9

☒ Group 15

☒ Group 4

☒ Group 10

☒ Group 16

☒ Group 5

☒ Group 11

☒ Group 6

☒ Group 12

Addresses per group have to be defined.

### Clock Synchronization (Station-Specific Parameter)

☒ Clock synchronization

## Appendix B - List of Signals

(continued)

### Command Transmission (Object-Specific Parameter)

- |                                                                                                                                     |                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| <input checked="" type="checkbox"/> Direct command transmission                                                                     | <input checked="" type="checkbox"/> Select and execute command |
| <input type="checkbox"/> Direct set point command transmission                                                                      | <input type="checkbox"/> Select and execute set point command  |
| <input type="checkbox"/> No additional definition                                                                                   | <input type="checkbox"/> C_SE ACTTERM used                     |
| <input checked="" type="checkbox"/> Short pulse duration<br>(Execution duration determined by a system parameter in the outstation) |                                                                |
| <input checked="" type="checkbox"/> Long pulse duration<br>(Execution duration determined by a system parameter in the outstation)  |                                                                |
| <input checked="" type="checkbox"/> Persistent output                                                                               |                                                                |

### Transmission of Integrated Totals (Station- or Object-Specific Parameter)

- |                                                                  |                                                             |
|------------------------------------------------------------------|-------------------------------------------------------------|
| <input type="checkbox"/> Counter request                         | <input checked="" type="checkbox"/> General request counter |
| <input checked="" type="checkbox"/> Counter freeze without reset | <input checked="" type="checkbox"/> Request counter group 1 |
| <input type="checkbox"/> Counter freeze with reset               | <input checked="" type="checkbox"/> Request counter group 2 |
| <input type="checkbox"/> Counter reset                           | <input checked="" type="checkbox"/> Request counter group 3 |
| Addresses per group have to be specified                         | <input checked="" type="checkbox"/> Request counter group 4 |

# Appendix B - List of Signals

(continued)

## Parameter Loading (Object-Specific Parameter)

- ☒ Threshold value
- ☐ Smoothing factor
- ☐ Low limit for transmission of measured value
- ☐ High limit for transmission of measured value

## Parameter Activation (Object-Specific Parameter)

- ☐ Act/deact of persistent cyclic or periodic transmission of the addressed object

## File Transfer (Station-Specific Parameter)

- |                                                              |           |
|--------------------------------------------------------------|-----------|
| <input type="checkbox"/> File transfer in monitor direction] | F_FR_NA_1 |
| <input type="checkbox"/> File transfer in control direction] | F_FR_NA_1 |

## Appendix B - List of Signals

(continued)

### B 3 Communication Interface per IEC 60870-5-103

This section incorporates Section 8 of IEC 60870-5-103, including definitions applicable to the C232.

#### B 3.1 Interoperability

##### B 3.1.1 Physical Layer

###### B 3.1.1.1 Electrical Interface

- ☒ EIA RS 485
- ☒ No. of loads                      32 for one device

Note: EIA RS 485 defines the loads in such a way that 32 of them can be operated on one line. For detailed information see EIA RS 485, Section 3.

###### B 3.1.1.2 Optical Interface

- ☒ Glass fiber
- ☒ Plastic fiber
- ☒ <sup>1</sup> F-SMA connector
- ☒ <sup>2</sup> BFOC/2.5 connector

###### B 3.1.1.3 Transmission Rate

- ☒ 9 600 bit/s
- ☒ 19 200 bit/s

---

<sup>1</sup> F-SMA connector to be used with plastic fiber

<sup>2</sup> BFOC/2.5 connector to be used with glass fiber

# Appendix B - List of Signals

(continued)

## B 3.1.2 Link Layer

There are no selection options for the link layer.

## B 3.1.3 Application Layer

### B 3.1.3.1 Transmission Mode for Application Data

Mode 1 (least significant octet first) as defined in clause 4.10 of IEC 60870-5-4 is used exclusively in this companion standard.

### B 3.1.3.2 Common Address of ASDU

- ☒ One COMMON ADDRESS of ASDU (identical to the station address)
- ☐ More than one COMMON ADDRESS of ASDU

### B 3.1.3.3 Selection of Standard Information Numbers in Monitor Direction

#### B 3.1.3.3.1 System Functions in Monitor Direction

| INF                                     | Description                  |
|-----------------------------------------|------------------------------|
| <input checked="" type="checkbox"/> <0> | End of general interrogation |
| <input checked="" type="checkbox"/> <0> | Time synchronization         |
| <input checked="" type="checkbox"/> <2> | Reset FCB                    |
| <input checked="" type="checkbox"/> <3> | Reset CU                     |
| <input checked="" type="checkbox"/> <4> | Start / restart              |
| <input type="checkbox"/> <5>            | Power on                     |

## Appendix B - List of Signals

(continued)

### B 3.1.3.3.2 Status Indications in Monitor Direction

| Designations as in IEC 60870-5-103 Section 8 <sup>1</sup> |           |                           | Designations as in the Device Address List |                             |
|-----------------------------------------------------------|-----------|---------------------------|--------------------------------------------|-----------------------------|
| INF                                                       | Semantics |                           | Address                                    | Descriptor                  |
| <input type="checkbox"/>                                  | <16>      | Auto-recloser active      | 015 064                                    | ARC: Enabled                |
| <input type="checkbox"/>                                  | <17>      | Teleprotection active     | 015 008                                    | PSIG: Enabled               |
| <input checked="" type="checkbox"/>                       | <18>      | Protection active         | 003 030                                    | MAIN: Protection enabled    |
| <input checked="" type="checkbox"/>                       | <19>      | LED reset                 | 021 010                                    | MAIN: Reset indicat. USER   |
| <input checked="" type="checkbox"/>                       | <20>      | Monitor direction blocked | 037 075                                    | COMM1: Sig./meas.val.block. |
| <input checked="" type="checkbox"/>                       | <21>      | Test mode                 | 037 071                                    | MAIN: Test mode             |
| <input type="checkbox"/>                                  | <22>      | Local parameter setting   |                                            |                             |
| <input checked="" type="checkbox"/>                       | <23>      | Characteristic 1          | 036 090                                    | PSS: PS 1 active            |
| <input checked="" type="checkbox"/>                       | <24>      | Characteristic 2          | 036 091                                    | PSS: PS 2 active            |
| <input checked="" type="checkbox"/>                       | <25>      | Characteristic 3          | 036 092                                    | PSS: PS 3 active            |
| <input checked="" type="checkbox"/>                       | <26>      | Characteristic 4          | 036 093                                    | PSS: PS 4 active            |
| <input checked="" type="checkbox"/>                       | <27>      | Auxiliary input 1         | 034 000                                    | LOGIC: Input 1 EXT          |
| <input checked="" type="checkbox"/>                       | <28>      | Auxiliary input 2         | 034 001                                    | LOGIC: Input 2 EXT          |
| <input checked="" type="checkbox"/>                       | <29>      | Auxiliary input 3         | 034 002                                    | LOGIC: Input 3 EXT          |
| <input checked="" type="checkbox"/>                       | <30>      | Auxiliary input 4         | 034 003                                    | LOGIC: Input 4 EXT          |

<sup>1</sup> Different designations are used, for example, in IEC 60870-5-103 Annex A (phase A rather than L1).



## Appendix B - List of Signals

(continued)

### B 3.1.3.3.3 Monitoring Signals (Supervision Indications) in Monitor Direction

| Designations as in IEC 60870-5-103 Section 8 |                   |                            | Designations as in the Device Address List |                             |
|----------------------------------------------|-------------------|----------------------------|--------------------------------------------|-----------------------------|
| INF                                          | Semantics         |                            | Address                                    | Descriptor                  |
| <input type="checkbox"/>                     | <32>              | Measurand supervision I    | 040 087                                    | MCMON: Meas. circ. I faulty |
| <input type="checkbox"/>                     | <33>              | Measurand supervision V    | 040 087                                    | MCMON: Meas. circ. V faulty |
| <input type="checkbox"/>                     | <35>              | Phase sequence supervision | 038 049                                    | MCMON: Phase sequ. V faulty |
| <input checked="" type="checkbox"/>          | <36> <sup>1</sup> | Trip circuit supervision   | 041 200                                    | SFMON: Relay Kxx faulty     |
| <input type="checkbox"/>                     | <37>              | I>> back-up operation      |                                            |                             |
| <input type="checkbox"/>                     | <38>              | VT fuse failure            | 004 061                                    | MAIN: M.c.b. trip V EXT     |
| <input type="checkbox"/>                     | <39>              | Teleprotection disturbed   | 036 060                                    | PSIG: Telecom. faulty       |
| <input checked="" type="checkbox"/>          | <46>              | Group warning              | 036 100                                    | SFMON: Warning (relay)      |
| <input checked="" type="checkbox"/>          | <47>              | Group alarm                | 004 065                                    | MAIN: Blocked/faulty        |

<sup>1</sup> The message content is formed from the OR operation of the individual signals

## Appendix B - List of Signals

(continued)

### B 3.1.3.3.4 Earth Fault Indications in Monitor Direction

| Designations as in IEC 60870-5-103 Section 8 <sup>1</sup> |           |                                  | Designations as in the Device Address List |                            |
|-----------------------------------------------------------|-----------|----------------------------------|--------------------------------------------|----------------------------|
| INF                                                       | Semantics |                                  | Address                                    | Descriptor                 |
| <input type="checkbox"/>                                  | <48>      | Earth fault L1                   | 041 054                                    | MAIN: Ground fault A       |
| <input type="checkbox"/>                                  | <49>      | Earth fault L2                   | 041 055                                    | MAIN: Ground fault B       |
| <input type="checkbox"/>                                  | <50>      | Earth fault L3                   | 041 056                                    | MAIN: Ground fault C       |
| <input type="checkbox"/>                                  | <51>      | Earth fault forward, i.e. line   | 041 088                                    | MAIN: Gnd. fault forw./LS  |
| <input type="checkbox"/>                                  | <52>      | Earth fault reverse, i.e. busbar | 041 089                                    | MAIN: Gnd. fault backw./BS |

<sup>1</sup> Different designations are used, for example, in IEC 60870-5-103 Annex A (phase A rather than L1).

## Appendix B - List of Signals

(continued)

### B 3.1.3.3.5 Fault Indications in Monitor Direction

| Designations as in IEC 60870-5-103 Section 8 <sup>1</sup> |           |                                   | Designations as in the Device Address List |                            |
|-----------------------------------------------------------|-----------|-----------------------------------|--------------------------------------------|----------------------------|
| INF                                                       | Semantics |                                   | Address                                    | Descriptor                 |
| <input checked="" type="checkbox"/>                       | <64>      | Start /pick-up L1                 | 040 005                                    | MAIN: Starting A           |
| <input checked="" type="checkbox"/>                       | <65>      | Start /pick-up L2                 | 040 006                                    | MAIN: Starting B           |
| <input checked="" type="checkbox"/>                       | <66>      | Start /pick-up L3                 | 040 007                                    | MAIN: Starting C           |
| <input checked="" type="checkbox"/>                       | <67>      | Start /pick-up N                  | 040 008                                    | MAIN: Starting GF          |
| <input checked="" type="checkbox"/>                       | <68>      | General trip                      | 036 071                                    | MAIN: Gen. trip command 1  |
| <input type="checkbox"/>                                  | <69>      | Trip L1                           |                                            |                            |
| <input type="checkbox"/>                                  | <70>      | Trip L2                           |                                            |                            |
| <input type="checkbox"/>                                  | <71>      | Trip L3                           |                                            |                            |
| <input type="checkbox"/>                                  | <72>      | Trip I>> (back-up operation)      |                                            |                            |
| <input type="checkbox"/>                                  | <73>      | Fault location X in ohms          | 004 029                                    | FT_DA: Fault react., prim. |
| <input type="checkbox"/>                                  | <74>      | Fault forward/line                | 036 018                                    | SCDD: Fault P forward      |
| <input type="checkbox"/>                                  | <75>      | Fault reverse/busbar              | 036 019                                    | SCDD: Fault P backward     |
| <input type="checkbox"/>                                  | <76>      | Teleprotection signal transmitted | 036 035                                    | PSIG: Send (signal)        |
| <input type="checkbox"/>                                  | <77>      | Teleprotection signal received    | 037 029                                    | PSIG: Receive (signal)     |
| <input type="checkbox"/>                                  | <78>      | Zone 1                            |                                            |                            |
| <input type="checkbox"/>                                  | <79>      | Zone 2                            |                                            |                            |
| <input type="checkbox"/>                                  | <80>      | Zone 3                            |                                            |                            |
| <input type="checkbox"/>                                  | <81>      | Zone 4                            |                                            |                            |
| <input type="checkbox"/>                                  | <82>      | Zone 5                            |                                            |                            |

<sup>1</sup> Different designations are used, for example, in IEC 60870-5-103 Annex A (phase A rather than L1).

## Appendix B - List of Signals

(continued)

| Designations as in IEC 60870-5-103 Section 8 <sup>1</sup> |           |                          | Designations as in the Device Address List |                            |
|-----------------------------------------------------------|-----------|--------------------------|--------------------------------------------|----------------------------|
| INF                                                       | Semantics |                          | Address                                    | Descriptor                 |
| <input type="checkbox"/>                                  | <83>      | Zone 6                   |                                            |                            |
| <input checked="" type="checkbox"/>                       | <84>      | General start/pick-up    | 036 000                                    | MAIN: General starting     |
| <input type="checkbox"/>                                  | <85>      | Breaker failure          | 036 017                                    | CBF: CB failure            |
| <input type="checkbox"/>                                  | <86>      | Trip measuring system L1 |                                            |                            |
| <input type="checkbox"/>                                  | <87>      | Trip measuring system L2 |                                            |                            |
| <input type="checkbox"/>                                  | <88>      | Trip measuring system L3 |                                            |                            |
| <input type="checkbox"/>                                  | <89>      | Trip measuring system E  |                                            |                            |
| <input checked="" type="checkbox"/>                       | <90>      | Trip I>                  | 040 042                                    | MAIN: TripSig. tI>/tIrefP> |
| <input checked="" type="checkbox"/>                       | <91>      | Trip I>>                 | 040 011                                    | MAIN: Trip signal tI>>     |
| <input checked="" type="checkbox"/>                       | <92>      | Trip IN>                 | 040 043                                    | MAIN: TripSig tIN>/tIrefN> |
| <input checked="" type="checkbox"/>                       | <93>      | Trip IN>>                | 040 028                                    | MAIN: Trip signal tIN>>    |

## Appendix B - List of Signals

(continued)

### B 3.1.3.3.6 Auto-Reclosure Indications in Monitor Direction

| Designations as in IEC 60870-5-103 Section 8 |           |                         | Designations as in the Device Address List |                           |  |
|----------------------------------------------|-----------|-------------------------|--------------------------------------------|---------------------------|--|
| INF                                          | Semantics |                         | Address                                    | Descriptor                |  |
| <input type="checkbox"/>                     | <128>     | CB 'on' by AR           | 037 007                                    | ARC: (Re)close signal HSR |  |
| <input type="checkbox"/>                     | <129>     | CB 'on' by long-time AR | 037 006                                    | ARC: (Re)close signal TDR |  |
| <input type="checkbox"/>                     | <130>     | AR blocked              | 037 008                                    | ARC: Not ready            |  |

### B 3.1.3.3.7 Measurands in Monitor Direction

| Designations as in IEC 60870-5-103 Section 8 |                    |                                                                | Designations as in the Device Address List |                            |  |
|----------------------------------------------|--------------------|----------------------------------------------------------------|--------------------------------------------|----------------------------|--|
| INF                                          | Semantics          |                                                                | Address                                    | Descriptor                 |  |
| <input checked="" type="checkbox"/>          | <144> <sup>1</sup> | Measurand I                                                    | 006 041                                    | MAIN: Current B p.u.       |  |
| <input checked="" type="checkbox"/>          | <145> <sup>2</sup> | Measurands I, V                                                | 006 041                                    | MAIN: Current B p.u.       |  |
|                                              |                    |                                                                | 005 045                                    | MAIN: Voltage A-B p.u.     |  |
| <input checked="" type="checkbox"/>          | <146> <sup>3</sup> | Measurands I, V, P, Q                                          | 006 041                                    | MAIN: Current B p.u.       |  |
|                                              |                    |                                                                | 005 045                                    | MAIN: Voltage A-B p.u.     |  |
|                                              |                    |                                                                | 004 051                                    | MAIN: Active power P p.u.  |  |
|                                              |                    |                                                                | 004 053                                    | MAIN: Reac. power Q p.u.   |  |
| <input checked="" type="checkbox"/>          | <147> <sup>4</sup> | Measurands I <sub>N</sub> , V <sub>EN</sub>                    | 005 011                                    | MAIN: Current Σ(IP) p.u.   |  |
|                                              |                    |                                                                | 005 013                                    | MAIN: Volt. Σ(VPG)/√3 p.u. |  |
| <input checked="" type="checkbox"/>          | <148> <sup>5</sup> | Measurands I <sub>L1,2,3</sub> , V <sub>L1,2,3</sub> , P, Q, f | 005 041                                    | MAIN: Current A p.u.       |  |
|                                              |                    |                                                                | 006 041                                    | MAIN: Current B p.u.       |  |
|                                              |                    |                                                                | 007 041                                    | MAIN: Current C p.u.       |  |
|                                              |                    |                                                                | 005 043                                    | MAIN: Voltage A-G p.u.     |  |
|                                              |                    |                                                                | 006 043                                    | MAIN: Voltage B-G p.u.     |  |
|                                              |                    |                                                                | 007 043                                    | MAIN: Voltage C-G p.u.     |  |
|                                              |                    |                                                                | 004 051                                    | MAIN: Active power P p.u.  |  |
|                                              |                    |                                                                | 004 053                                    | MAIN: Reac. power Q p.u.   |  |
|                                              |                    |                                                                | 004 040                                    | MAIN: Frequency f          |  |

<sup>1</sup> Only when COMM1: Transm. enab. cycl. data is set at "ASDU 3.1 per IEC"

<sup>2</sup> Only when COMM1: Transm. enab. cycl. data is set at "ASDU 3.2 per IEC"

<sup>3</sup> Only when COMM1: Transm. enab. cycl. data is set at "ASDU 3.3 per IEC"

<sup>4</sup> Only when COMM1: Transm. enab. cycl. data is set at "ASDU 3.4 per IEC"

<sup>5</sup> Only when COMM1: Transm. enab. cycl. data is set at "ASDU 9 per IEC"

## Appendix B - List of Signals

(continued)

### B 3.1.3.3.8 Generic Functions in Monitor Direction

#### Designations as in IEC 60870-5-103 Section 8

##### INF

##### Semantics

|                          |       |                                                       |
|--------------------------|-------|-------------------------------------------------------|
| <input type="checkbox"/> | <240> | Read headings of all defined groups                   |
| <input type="checkbox"/> | <241> | Read values or attributes of all entries of one group |
| <input type="checkbox"/> | <243> | Read directory of a single entry                      |
| <input type="checkbox"/> | <244> | Read value or attribute of a single entry             |
| <input type="checkbox"/> | <245> | End of general interrogation of generic data          |
| <input type="checkbox"/> | <249> | Write entry with confirmation                         |
| <input type="checkbox"/> | <250> | Write entry with execution                            |
| <input type="checkbox"/> | <251> | Write entry aborted                                   |

# Appendix B - List of Signals

(continued)

## B 3.1.3.4 Selection of Standard Information Numbers in Control Direction

### B 3.1.3.4.1 System Functions in Control Direction

Designations as in IEC 60870-5-103 Section 8

| INF                                     | Semantics                           |
|-----------------------------------------|-------------------------------------|
| <input checked="" type="checkbox"/> <0> | Initiation of general interrogation |
| <input checked="" type="checkbox"/> <0> | Time synchronization                |

### B 3.1.3.4.2 General Commands in Control Direction

Designations as in IEC 60870-5-103 Section 8

| INF                                                   | Semantics                 |
|-------------------------------------------------------|---------------------------|
| <input type="checkbox"/> <16>                         | Auto-recloser on/off      |
| <input type="checkbox"/> <17>                         | Teleprotection on/off     |
| <input checked="" type="checkbox"/> <18>              | Protection on/off         |
| <input checked="" type="checkbox"/> <19>              | LED reset                 |
| <input checked="" type="checkbox"/> <23> <sup>1</sup> | Activate characteristic 1 |
| <input checked="" type="checkbox"/> <24> <sup>2</sup> | Activate characteristic 2 |
| <input checked="" type="checkbox"/> <25> <sup>3</sup> | Activate characteristic 3 |
| <input checked="" type="checkbox"/> <26> <sup>4</sup> | Activate characteristic 4 |

Designations as in the Device Address List

| Address | Descriptor                |
|---------|---------------------------|
| 015 060 | ARC: General enable USER  |
| 015 004 | PSIG: General enable USER |
| 003 030 | MAIN: Protection enabled  |
| 021 010 | MAIN: Reset indicat. USER |
| 003 060 | PSS: Param.subs.sel. USER |
| 003 060 | PSS: Param.subs.sel. USER |
| 003 060 | PSS: Param.subs.sel. USER |
| 003 060 | PSS: Param.subs.sel. USER |

<sup>1</sup> Switches PSS: Select PS USER to "Parameter set 1"  
<sup>2</sup> Switches PSS: Select PS USER to "Parameter set 2"  
<sup>3</sup> Switches PSS: Select PS USER to "Parameter set 3"  
<sup>4</sup> Switches PSS: Select PS USER to "Parameter set 4"

## Appendix B - List of Signals

(continued)

### B 3.1.3.4.3 Generic Functions in Control Direction

#### Designations as in IEC 60870-5-103 Section 8

##### INF

##### Semantics

|                          |       |                                                       |
|--------------------------|-------|-------------------------------------------------------|
| <input type="checkbox"/> | <240> | Read headings of all defined groups                   |
| <input type="checkbox"/> | <241> | Read values or attributes of all entries of one group |
| <input type="checkbox"/> | <243> | Read directory of a single entry                      |
| <input type="checkbox"/> | <244> | Read value or attribute of a single entry             |
| <input type="checkbox"/> | <245> | General interrogation of generic data                 |
| <input type="checkbox"/> | <248> | Write entry                                           |
| <input type="checkbox"/> | <249> | Write entry with confirmation                         |
| <input type="checkbox"/> | <250> | Write entry with execution                            |
| <input type="checkbox"/> | <251> | Write entry abort                                     |



# Appendix B - List of Signals

(continued)

## B 3.1.3.5 Basic Application Functions

- ☒ Test mode
- ☒ Blocking of monitor direction
- ☒ Disturbance data
- ☐ Generic services
- ☒ Private data

## B 3.1.3.6 Miscellaneous

Measured values are transmitted both with ASDU 3 and ASDU 9. As defined in Sec. 7.2.6.8, the maximum MVAL can be either 1.2 or 2.4 times the rated value. In ASDU 3 and ASDU 9, different ratings may not be used; in other words, there is only one choice for each measurand.

| Measurand                                                    | Measured value                                | Max. MVAL =<br>nom. value multiplied by |                                     |
|--------------------------------------------------------------|-----------------------------------------------|-----------------------------------------|-------------------------------------|
|                                                              |                                               | 1.2                                     | or 2.4                              |
| Designations as in<br>IEC 60870-5-103 Section 8 <sup>1</sup> | Designations as in the<br>Device Address List |                                         |                                     |
| Current L1                                                   | Current A                                     | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| Current L2                                                   | Current B                                     | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| Current L3                                                   | Current C                                     | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| Voltage L1-E                                                 | Voltage A-G                                   | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| Voltage L2-E                                                 | Voltage B-G                                   | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| Voltage L3-E                                                 | Voltage C-G                                   | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| Active power P                                               | Active power P                                | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| Reactive power Q                                             | Reactive power Q                              | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| Frequency f                                                  | Frequency f                                   | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| Voltage L1-L2                                                | Voltage A-B                                   | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |

<sup>1</sup> IEC 60870-5-103 Annex also uses phase A rather than L1.

## Appendix B - List of Signals

(continued)

### B 4 Communication Interface per DNP3.0

#### B 4.1 Device Profile Px30

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>DNP V3.00</b><br><b>DEVICE PROFILE DOCUMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                          |
| Vendor Name: AREVA Energietechnik GmbH.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                          |
| Device Name: Px30 Protective Relays Series                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                          |
| Highest DNP Level Supported:<br>For Requests: Level 2<br>For Responses: Level 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Device Function:<br><input type="checkbox"/> Master <input checked="" type="checkbox"/> Slave                            |
| <p>Notable objects, functions, and/or qualifiers supported in addition to the Highest DNP Levels Supported (the complete list is described in the attached table):</p> <ul style="list-style-type: none"><li>• For static object requests, request qualifier codes 00 and 01 (start-stop), 07 and 08 (limited quantity), and 17 and 28 (index) are supported in addition to request qualifier code 06 (no range)</li><li>• Static object requests sent with qualifiers 00, 01, 06, 07, or 08, will be responded with qual. 00 or 01.</li><li>• Static object requests sent with qualifiers 17 or 28 will be responded with qualifiers 17 or 28.</li><li>• Object 34, Analog Input Reporting Dead band read and write is supported</li><li>• For Objects 30, 32, 34, 40, 41 short floating point variations are supported.</li><li>• For change-event object requests, qualifiers 17 or 28 are always responded.</li><li>• 16-bit, 32-bit or short floating point Analog Change Events with Time may be requested.</li><li>• Assign Class function is supported for Binary- and Analog Input Events.</li><li>• The read function code for Object 50 (Time and Date), variation 1, is supported.</li></ul> |                                                                                                                          |
| Maximum Data Link Frame Size (octets):<br>Transmitted: 292<br>Received: 292                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Maximum Application Fragment Size (octets):<br>Transmitted: 2048<br>Received: 2048                                       |
| Maximum Data Link Re-tries:<br><input type="checkbox"/> None<br><input type="checkbox"/> Fixed at 2<br><input checked="" type="checkbox"/> Configurable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Maximum Application Layer Re-tries:<br><input checked="" type="checkbox"/> None<br><input type="checkbox"/> Configurable |
| Requires Data Link Layer Confirmation:<br><input type="checkbox"/> Never<br><input type="checkbox"/> Always<br><input type="checkbox"/> Sometimes<br><input checked="" type="checkbox"/> Configurable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                          |
| Requires Application Layer Confirmation:<br><input type="checkbox"/> Never (*)<br><input type="checkbox"/> Always (not recommended)<br><input checked="" type="checkbox"/> When reporting Event Data<br><input checked="" type="checkbox"/> When sending multi-fragment responses<br><input type="checkbox"/> Sometimes<br><input type="checkbox"/> Configurable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                          |

## Appendix B - List of Signals

(continued)

|                                                                                                                                                                                                                                                                                                     |                                                                            |                                                                                                                                                                                                                                                                                                            |                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Timeouts while waiting for:                                                                                                                                                                                                                                                                         |                                                                            |                                                                                                                                                                                                                                                                                                            |                                                  |
| Data Link Confirm                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> None <input type="checkbox"/> Fixed at            | <input type="checkbox"/> Variable                                                                                                                                                                                                                                                                          | <input checked="" type="checkbox"/> Configurable |
| Complete Appl. Fragment                                                                                                                                                                                                                                                                             | <input checked="" type="checkbox"/> None <input type="checkbox"/> Fixed at | <input type="checkbox"/> Variable                                                                                                                                                                                                                                                                          | <input type="checkbox"/> Configurable            |
| Application Confirm                                                                                                                                                                                                                                                                                 | <input type="checkbox"/> None <input type="checkbox"/> Fixed at            | <input type="checkbox"/> Variable                                                                                                                                                                                                                                                                          | <input checked="" type="checkbox"/> Configurable |
| Complete Appl. Response                                                                                                                                                                                                                                                                             | <input checked="" type="checkbox"/> None <input type="checkbox"/> Fixed at | <input type="checkbox"/> Variable                                                                                                                                                                                                                                                                          | <input type="checkbox"/> Configurable            |
| Others                                                                                                                                                                                                                                                                                              |                                                                            |                                                                                                                                                                                                                                                                                                            |                                                  |
| Inter-character Delay:                                                                                                                                                                                                                                                                              | default: 4 character times at sel. baud rate                               | <input checked="" type="checkbox"/> Configurable                                                                                                                                                                                                                                                           |                                                  |
| Select/Operate Arm Timeout:                                                                                                                                                                                                                                                                         | default: 30s                                                               | <input checked="" type="checkbox"/> Configurable                                                                                                                                                                                                                                                           |                                                  |
| Need Time Interval:                                                                                                                                                                                                                                                                                 | default: 1 min                                                             | <input checked="" type="checkbox"/> Configurable                                                                                                                                                                                                                                                           |                                                  |
| Sends/Executes Control Operations:                                                                                                                                                                                                                                                                  |                                                                            |                                                                                                                                                                                                                                                                                                            |                                                  |
| WRITE Binary Outputs                                                                                                                                                                                                                                                                                | <input checked="" type="checkbox"/> Never <input type="checkbox"/> Always  | <input type="checkbox"/> Sometimes                                                                                                                                                                                                                                                                         | <input type="checkbox"/> Configurable            |
| SELECT/OPERATE                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> Never <input checked="" type="checkbox"/> Always  | <input type="checkbox"/> Sometimes                                                                                                                                                                                                                                                                         | <input type="checkbox"/> Configurable            |
| DIRECT OPERATE                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> Never <input checked="" type="checkbox"/> Always  | <input type="checkbox"/> Sometimes                                                                                                                                                                                                                                                                         | <input type="checkbox"/> Configurable            |
| DIRECT OPERATE - NO ACK                                                                                                                                                                                                                                                                             | <input type="checkbox"/> Never <input checked="" type="checkbox"/> Always  | <input type="checkbox"/> Sometimes                                                                                                                                                                                                                                                                         | <input type="checkbox"/> Configurable            |
| Count > 1                                                                                                                                                                                                                                                                                           | <input checked="" type="checkbox"/> Never <input type="checkbox"/> Always  | <input type="checkbox"/> Sometimes                                                                                                                                                                                                                                                                         | <input type="checkbox"/> Configurable            |
| Pulse On                                                                                                                                                                                                                                                                                            | <input type="checkbox"/> Never <input checked="" type="checkbox"/> Always  | <input type="checkbox"/> Sometimes                                                                                                                                                                                                                                                                         | <input type="checkbox"/> Configurable            |
| Pulse Off                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> Never <input checked="" type="checkbox"/> Always  | <input type="checkbox"/> Sometimes                                                                                                                                                                                                                                                                         | <input type="checkbox"/> Configurable            |
| Latch On                                                                                                                                                                                                                                                                                            | <input type="checkbox"/> Never <input checked="" type="checkbox"/> Always  | <input type="checkbox"/> Sometimes                                                                                                                                                                                                                                                                         | <input type="checkbox"/> Configurable            |
| Latch Off                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> Never <input checked="" type="checkbox"/> Always  | <input type="checkbox"/> Sometimes                                                                                                                                                                                                                                                                         | <input type="checkbox"/> Configurable            |
| Queue                                                                                                                                                                                                                                                                                               | <input checked="" type="checkbox"/> Never <input type="checkbox"/> Always  | <input type="checkbox"/> Sometimes                                                                                                                                                                                                                                                                         | <input type="checkbox"/> Configurable            |
| Clear Queue                                                                                                                                                                                                                                                                                         | <input checked="" type="checkbox"/> Never <input type="checkbox"/> Always  | <input type="checkbox"/> Sometimes                                                                                                                                                                                                                                                                         | <input type="checkbox"/> Configurable            |
| Reports Binary Input Change Events when no specific variation requested:                                                                                                                                                                                                                            |                                                                            | Reports time-tagged Binary Input Change Events when no specific variation requested:                                                                                                                                                                                                                       |                                                  |
| <input type="checkbox"/> Never<br><input checked="" type="checkbox"/> Only time-tagged, var 2<br><input type="checkbox"/> Only non-time-tagged<br><input type="checkbox"/> Configurable to send both, one or the other (attach explanation)                                                         |                                                                            | <input type="checkbox"/> Never<br><input checked="" type="checkbox"/> Binary Input Change With Time<br><input type="checkbox"/> Binary Input Change With Relative Time<br><input type="checkbox"/> Configurable (attach explanation)                                                                       |                                                  |
| Sends Unsolicited Responses:                                                                                                                                                                                                                                                                        |                                                                            | Sends Static Data in Unsolicited Responses:                                                                                                                                                                                                                                                                |                                                  |
| <input checked="" type="checkbox"/> Never<br><input type="checkbox"/> Configurable (attach explanation)<br><input type="checkbox"/> Only certain objects<br><input type="checkbox"/> Sometimes (attach explanation)<br><input type="checkbox"/> ENABLE/DISABLE UNSOLICITED Function codes supported |                                                                            | <input checked="" type="checkbox"/> Never<br><input type="checkbox"/> When Device Restarts<br><input type="checkbox"/> When Status Flags Change<br><br>No other options are permitted.                                                                                                                     |                                                  |
| Default Counter Object/Variation:                                                                                                                                                                                                                                                                   |                                                                            | Counters Roll Over at:                                                                                                                                                                                                                                                                                     |                                                  |
| <input type="checkbox"/> No Counters Reported<br><input type="checkbox"/> Configurable (attach explanation)<br><input checked="" type="checkbox"/> Default Object 20<br>Default Variation 6<br><input checked="" type="checkbox"/> Point-by-point list attached                                     |                                                                            | <input type="checkbox"/> No Counters Reported<br><input type="checkbox"/> Configurable (attach explanation)<br><input checked="" type="checkbox"/> 16 Bits<br><input type="checkbox"/> 32 Bits<br><input type="checkbox"/> Other Value<br><input checked="" type="checkbox"/> Point-by-point list attached |                                                  |
| Sends Multi-Fragment Responses: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                                                                                                 |                                                                            |                                                                                                                                                                                                                                                                                                            |                                                  |

## Appendix B - List of Signals

(continued)

### B 4.2 Implementation Table

| Object        |                  |                                          | REQUEST              |                       | RESPONSE             |                       |
|---------------|------------------|------------------------------------------|----------------------|-----------------------|----------------------|-----------------------|
| Object Number | Variation Number | Description                              | Function Codes (dec) | Qualifier Codes (hex) | Function Codes (dec) | Qualifier Codes (hex) |
| 1             | 0                | Binary Input - Any Variation             | 1, 22                | 0,001,06,07,08,17,28  |                      |                       |
| 1             | 1                | Binary Input                             | 1, 22                | 00,01,06,07,08,17,28  | 129                  | 00,01,17,28           |
| 1             | 2                | Binary Input with Status                 | 1, 22                | 00,01,06,07,08,17,28  | 129                  | 00,01,17,28           |
| 2             | 0                | Binary Input Change - Any Variation      | 1                    | 06,07,08              | 129                  |                       |
| 2             | 1                | Binary Input Change without Time         | 1                    | 06,07,08              | 129                  | 17,28                 |
| 2             | 2                | Binary Input Change with Time            | 1                    | 06,07,08              | 129                  | 17,28                 |
| 10            | 0                | Binary Output - All Variations           | 1                    | 00,01,06,07, 08,17,28 |                      |                       |
| 10            | 2                | Binary Output Status                     | 1                    | 00,01,06,07, 08,17,28 | 129                  | 00,01,17,28           |
| 12            | 1                | Control Relay Output Block               | 3,4,5,6              | 00,01,07,08, 17,28    | 129                  | echo                  |
| 20            | 0                | Binary Counter                           | 1,7,8                | 00,01,06,07, 08,17,28 |                      |                       |
| 20            | 1                | 32-Bit Binary Counter with Flag          | 1,7,8                | 00,01,06,07, 08,17,28 | 129                  | 00,01,17,28           |
| 20            | 2                | 16-Bit Binary Counter with Flag          | 1,7,8                | 00,01,06,07, 08,17,28 | 129                  | 00,01,17,28           |
| 20            | 5                | 32-Bit Binary Counter without Flag       | 1,7,8                | 00,01,06,07, 08,17,28 | 129                  | 00,01,17,28           |
| 20            | 6                | 16-Bit Binary Counter Without Flag       | 1,7,8                | 00,01,06,07, 08,17,28 | 129                  | 00,01,17,28           |
| 21            | 0                | Frozen Counter                           | 1                    | 00,01,06,07, 08,17,28 |                      |                       |
| 21            | 1                | 32-Bit Frozen Counter with Flag          | 1                    | 00,01,06,07, 08,17,28 | 129                  | 00,01,17,28           |
| 21            | 2                | 16-Bit Frozen Counter with Flag          | 1                    | 00,01,06,07, 08,17,28 | 129                  | 00,01,17,28           |
| 21            | 9                | 32-Bit Frozen Counter without Flag       | 1                    | 00,01,06,07, 08,17,28 | 129                  | 00,01,17,28           |
| 21            | 10               | 16-Bit Frozen Counter without Flag       | 1                    | 00,01,06,07, 08,17,28 | 129                  | 00,01,17,28           |
| 30            | 0                | Analog Input - All Variations            | 1                    | 00,01,06,07, 08,17,28 |                      |                       |
| 30            | 1                | 32-Bit Analog Input                      | 1                    | 00,01,06,07, 08,17,28 | 129                  | 00,01,17,28           |
| 30            | 2                | 16-Bit Analog Input                      | 1                    | 00,01,06,07, 08,17,28 | 129                  | 00,01,17,28           |
| 30            | 3                | 32-Bit Analog Input without Flag         | 1                    | 00,01,06,07, 08,17,28 | 129                  | 00,01,17,28           |
| 30            | 4                | 16-Bit Analog Input without Flag         | 1                    | 00,01,06,07, 08,17,28 | 129                  | 00,01,17,28           |
| 30            | 5                | Short Float Analog Input                 | 1                    | 00,01,06,07, 08,17,28 | 129                  | 00,01,17,28           |
| 32            | 0                | Analog Change Event - All Variations     | 1, 22                | 06,07,08              |                      |                       |
| 32            | 1                | 32-Bit Analog Change Event without Time  | 1, 22                | 06,07,08              | 129                  | 17,28                 |
| 32            | 2                | 16-Bit Analog Change Event without Time  | 1, 22                | 06,07,08              | 129                  | 17,28                 |
| 32            | 3                | 32-Bit Analog Change Event with Time     | 1, 22                | 06,07,08              | 129                  | 17,28                 |
| 32            | 4                | 16-Bit Analog Change Event with Time     | 1, 22                | 06,07,08              | 129                  | 17,28                 |
| 32            | 5                | Short Float Ana. Change Ev. without Time | 1                    | 06,07,08              | 129                  | 17,28                 |
| 32            | 7                | Short Float Ana. Change Event with Time  | 1                    | 06,07,08              | 129                  | 17,28                 |

## Appendix B - List of Signals

(continued)

| Object        |                  |                                           | REQUEST                 |                       | RESPONSE             |                       |
|---------------|------------------|-------------------------------------------|-------------------------|-----------------------|----------------------|-----------------------|
| Object Number | Variation Number | Description                               | Function Codes (dec)    | Qualifier Codes (hex) | Function Codes (dec) | Qualifier Codes (hex) |
| 34            | 0                | Analog Input Reporting Dead band – All V. | 1                       | 06,07,08              | 129                  |                       |
| 34            | 1                | 16 Bit Analog Input Reporting Dead band   | 1,2                     | 00,01,06,07,08        | 129                  | 00,01,17,28           |
| 34            | 2                | 32 Bit Analog Input Reporting Dead-end    | 1,2                     | 00,01,06,07,08        | 129                  | 00,01,17,28           |
| 34            | 3                | Short Float Analog Input Rep. Dead band   | 1,2                     | 00,01,06,07,08        | 129                  | 00,01,17,28           |
| 40            | 0                | Analog Output Status – All Variations     | 1                       | 06,07,08              |                      |                       |
| 40            | 1                | 32-Bit Analog Output Status               | 1                       | 06,07,08              | 129                  | 00,01,17,28           |
| 40            | 2                | 16-Bit Analog Output Status               | 1                       | 06,07,08              | 129                  | 00,01,17,28           |
| 40            | 3                | Short Float Analog Output Status          | 1                       | 06,07,08              | 129                  | 00,01,17,28           |
| 41            | 1                | 32-Bit Analog Output Block                | 3,4,5,6                 | 00,01,07,08, 17,28    | 129                  | echo                  |
| 41            | 2                | 16-Bit Analog Output Block                | 3,4,5,6                 | 00,01,07,08, 17,28    | 129                  | echo                  |
| 41            | 3                | Short Float Analog Output Block           | 3,4,5,6                 | 00,01,07,08, 17,28    | 129                  | echo                  |
| 50            | 0                | Time and Date - All Variations            | 1                       | 00,01,06,07, 08,17,28 |                      | 00,01,17,28           |
| 50            | 1                | Time and Date                             | 1,2                     | 00,01,06,07, 08,17,28 | 129                  | 00,01,17,28           |
| 52            | 2                | Time Delay Fine                           |                         |                       | 129                  | 7                     |
| 60            | 0                | Class 0,1,2,3 Data                        | 1                       | 06                    |                      |                       |
| 60            | 1                | Class 0 Data                              | 1                       | 06                    | 129                  | 00,01                 |
| 60            | 2                | Class 1 Data                              | 1, 22                   | 06,07,08              | 129                  | 17, 28                |
| 60            | 3                | Class 2 Data                              | 1, 22                   | 06,07,08              | 129                  | 17,28                 |
| 60            | 4                | Class 3 Data                              | 1, 22                   | 06,07,08              | 129                  | 17,28                 |
| 80            | 1                | Internal Indications                      | 2                       | 00 (index = 7)        |                      |                       |
|               |                  | No Object (function code only)            | 13<br>Cold<br>Restart   |                       |                      |                       |
|               |                  | No Object (function code only)            | 14<br>Warm<br>Restart   |                       |                      |                       |
|               |                  | No Object (function code only)            | 23<br>Delay<br>Measure. |                       |                      |                       |

## Appendix B - List of Signals

(continued)

### B 4.3 Data Objects

#### B 4.3.1 Binary Input Points

| Static (Steady-State)                                      |                                                                                                                                         |
|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Static (Steady-State) Object Number                        | 1                                                                                                                                       |
| Change Event Object Number                                 | 2                                                                                                                                       |
| Request Function Codes supported                           | 1 (read), 22 (assign class)                                                                                                             |
| Static Variation reported when variation 0 requested       | 1 (Binary Input without status)                                                                                                         |
| Change Event Variation reported when variation 0 requested | 2 (Binary Input Change with Time)                                                                                                       |
| Maximum Number of Binary Input Points                      | 64, may depends on device type                                                                                                          |
| Assignment of Signals to Index                             | Configurable, the user may select the wanted binary inputs from a table with all offered binary inputs; the index arises from the order |
| Data Class Of Change Event                                 | Configurable for every datapoint, alterable by the master with the assign class function                                                |

#### B 4.3.2 Binary Output Points and Control Relay Output Blocks

| Binary Output Status Points                           |                                                                                                                                           |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Object Number                                         | 10                                                                                                                                        |
| Request Function Codes supported                      | 1 (read)                                                                                                                                  |
| Default Variation reported when variation 0 requested | 2 (Binary Output Status)                                                                                                                  |
| Control Relay Output Blocks                           |                                                                                                                                           |
| Object Number                                         | 12                                                                                                                                        |
| Request Function Codes supported                      | 3 (select), 4 (operate), 5 (direct operate), 6 (direct operate, noack)                                                                    |
| Maximum Number of Binary Output Points                | 32, may depends on device type                                                                                                            |
| Assignment of Signals to Index                        | configurable, the user may select the wanted binary outputs from a table with all offered binary outputs; the index arises from the order |

## Appendix B - List of Signals

(continued)

There are two types of binary outputs:

1. binary outputs to coils;  
These outputs may be controlled by pulses. The state of the output is not reflected in the Binary Output object.
2. logical binary outputs;  
These outputs reflect memory contents (settings). The state of these signals can be read in the Binary Output Object.

In addition we distinguish:

1. unipolar electrical device  
Unipolar devices have one contact and can be controlled with latch on/off or pulse on.
2. bipolar electrical device  
Bipolar electrical devices have two contacts: one to switch e.g. the breaker on and another to switch it off. Bipolar electrical devices are represented by two indexes in Binary Outputs and the state of the device by two indexes in Binary Input.

Rules:

- Only one control operation is accepted per request;
- Pulse Off, Queued, Clear, Count and Off Time are not supported (Count always 1);
- If On Time  $\leq$  2000ms the short time parameter in the device is used (default 2000ms) else the long time parameter is used (default 20000ms);
- If the Trip/Close field is used, all other fields are don't care. The standard control procedure to control a (air) circuit-breaker is used (terminate command when the return information or timeout occurred).
- The Trip/Close command can be send either to the index of the on-contact or the off-contact of a bipolar device, the control operation performed depends only on the Trip/Close field. This makes the slave compatible to both addressing issues of a master: 2 and 1 Point(s) Per Address.
- In addition a bipolar Device can be controlled by Latch On/Pulse On commands to the corresponding index of the contact to be compatible to masters that don't use Trip/Close operations.

The following table illustrates the performed control operations:

| Operation   | Destination           |                                     |                                                           |                                                          |
|-------------|-----------------------|-------------------------------------|-----------------------------------------------------------|----------------------------------------------------------|
|             | index unipolar device | index logical output (e.g. setting) | index off-contact of a bipolar device / transformer raise | index on-contact of a bipolar device / transformer lower |
| Pulse ON    | pulse on              | set persistent to logical 1         | switch off / raise                                        | switch on / lower                                        |
| Pulse OFF   | not supported         | not supported                       | not supported                                             | not supported                                            |
| Latch ON    | Persistent output on  | set persistent to logical 1         | switch off / raise                                        | switch on / lower                                        |
| Latch OFF   | Persistent output off | set persistent to logical 0         | not supported                                             | not supported                                            |
| Trip/Raise  | not supported         | not supported                       | switch off / raise                                        | switch off/ raise                                        |
| Close/Lower | not supported         | not supported                       | switch on / lower                                         | switch on / lower                                        |

## Appendix B - List of Signals

(continued)

### B 4.3.3 Counters

The following table lists both Binary Counters (Object 20) and Frozen Counters (Object 21). When a freeze function is performed on a Binary Counter point, the frozen value is available in the corresponding Frozen Counter point.

| Binary Counters                                      |                                                                                                                                    |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Static (Steady-State) Object Number                  | 20                                                                                                                                 |
| Request Function Codes supported                     | 1 (read), 7 (freeze), 8 (freeze noack)                                                                                             |
| Static Variation reported when variation 0 requested | 6 (16-Bit Binary Counter without Flag)                                                                                             |
| Data Class                                           | Binary Counters belong to class 0                                                                                                  |
| Frozen Counters                                      |                                                                                                                                    |
| Static (Steady-State) Object Number                  | 21                                                                                                                                 |
| Request Function Codes supported                     | 1 (read)                                                                                                                           |
| Static Variation reported when variation 0 requested | 10 (16-Bit Frozen Binary without Flag)                                                                                             |
| Maximum Number of Counters                           | 16, may depends on device type                                                                                                     |
| Assignment of Counters to Index                      | configurable, the user may select the wanted binary inputs from a table with all offered counters; the index arises from the order |



## Appendix B - List of Signals

(continued)

### B 4.3.4 Analog Inputs

| Analog Inputs                                                     |                                                                                                                                         |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Static (Steady-State) Object Number                               | 30                                                                                                                                      |
| Change Event Object Number                                        | 32                                                                                                                                      |
| Reporting Dead band Object Number                                 | 34                                                                                                                                      |
| Request Function Codes supported                                  | 1 (read), 2 (write, dead bands only), 22 (assign class)                                                                                 |
| Static Variation reported when variation 0 requested              | 2 (16-Bit Analog Input)                                                                                                                 |
| Change Event Variation reported when variation 0 requested        | 2 (Analog Change Event w/o Time)                                                                                                        |
| Reporting Dead band Variation reported when variation 0 requested | 1 (16-Bit Reporting Dead band)                                                                                                          |
| Maximum Number of Analog Input Points                             | 32, may depends on device type                                                                                                          |
| Assignment of Signals to Index                                    | configurable, the user may select the wanted binary inputs from a table with all offered analog inputs; the index arises from the order |
| Data Class Of Change Event                                        | configurable for every datapoint, alterable by the master with the assign class function                                                |

Regarding the event handling there are two types of measurements:

1. Continuous measurements;  
For this measurement only the latest change is queued.
2. Disturbance measurements;  
For these measurements every change is queued.

## Appendix B - List of Signals

(continued)

### B 4.3.5 Analog Output Status and Analog Output Control Blocks

| Analog Output Status Points                           |                                                                                                                                     |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Object Number                                         | 40                                                                                                                                  |
| Request Function Codes supported                      | 1 (read)                                                                                                                            |
| Default Variation reported when variation 0 requested | 2 (16-Bit Analog Output Status)                                                                                                     |
| Analog Output Blocks                                  |                                                                                                                                     |
| Object Number                                         | 41                                                                                                                                  |
| Request Function Codes supported                      | 3 (select), 4 (operate), 5 (direct operate), 6 (direct operate, noack)                                                              |
| Maximum Number of Analog Output Points                | 16, may depends on device type                                                                                                      |
| Assignment of Signals to Index                        | configurable, the user may select the wanted binary inputs a table with all offered analog outputs; the index arises from the order |

The Analog Output Status object is used for analog settings. The actual values are reflected in the Analog Output Status object.

More than one Analog Output Block operations are accepted per request.

## Appendix B - List of Signals

(continued)

### B 4.3.6 Internal Indications

The following table lists Internal Indications (IINs), and the conditions that would cause them. Standard DNP3 IINs are reported in every response message

| Internal Indications             |                     |
|----------------------------------|---------------------|
| Object Number                    | 80                  |
| Request Function Codes supported | 1 (read), 2 (write) |

| Point Index | Descriptions and Conditions                                                                                                                                               | Writeable ? |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 0           | IIN1-0 All Stations – set after a broadcast message (any message using a destination address of 0xffff0 or above) has been received.                                      | No          |
| 1           | IIN1-1 Class 1 event data available.                                                                                                                                      | No          |
| 2           | IIN1-2 Class 2 event data available.                                                                                                                                      | No          |
| 3           | IIN1-3 Class 3 event data available.                                                                                                                                      | No          |
| 4           | IIN1-4 Time synchronization required.                                                                                                                                     | No          |
| 5           | IIN1-5 Local mode. Set when control is in local mode or command direction is blocked.                                                                                     | No          |
| 6           | IIN1-6 Device Trouble. Set when the group alarm condition is active.                                                                                                      | No          |
| 7           | IIN1-7 Device restart. Set after device restart.                                                                                                                          | Yes         |
| 8           | IIN2-0 Function Unknown. Generally means that the function code (octet 2 of the request header) cannot be processed.                                                      | No          |
| 9           | IIN2-1 Object Unknown. Generally means that the function code could be processed but the object group / variation could not be processed.                                 | No          |
| 10          | IIN2-2 Parameter Error. Generally indicates that both the function code and object group / variation could be processed but that the qualifier / range field is in error. | No          |
| 11          | IIN2-3 Buffer Overflow. Indicates that an event buffer has overflowed, and that change events, of at least one type, have been lost.                                      | No          |
| 12          | IIN2-4 Already Executing. – not supported, always 0                                                                                                                       | No          |
| 13          | IIN2-5 Bad configuration. – not supported, always 0                                                                                                                       | No          |
| 14          | IIN2-6 Reserved. Always 0.                                                                                                                                                | No          |
| 15          | IIN2-7 Reserved. Always 0.                                                                                                                                                | No          |

## Appendix B - List of Signals

(continued)

### B 5 Communication Interface per MODBUS

This section is based on "Communication's Rules for AREVA devices on a MODBUS network", Issue E, 04/01/2000.

#### B 5.1 Protocol

|           |                                                                                    |
|-----------|------------------------------------------------------------------------------------|
| Master    | Device which could initiate transactions (called 'queries')                        |
| Slave     | Devices which return a message (called a 'response') to queries send by the master |
| Response  | Message returned by slaves                                                         |
| Broadcast | Command to all slaves                                                              |

#### B 5.2 Serial Transmission Modes

C232 is supporting RTU Mode.

##### B 5.2.1 RTU Mode

|                   |                                                                                                                                                                      |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Coding System     | 8-bit binary, hexadecimal 0-9, A-F<br>Two hexadecimal characters contained in each 8-bit field of a message                                                          |
| Bits per Byte     | 1 start bit<br>8 data bit, least significant bit sent first<br>1 bit for even/ odd parity; no bit for no parity<br>1 stop bit if parity is used; 2 bits if no parity |
| Error Check Field | Cyclical Redundancy Check (CRC)                                                                                                                                      |

##### B 5.2.2 RTU Framing

| START       | ADDRESS | FUNCTION | DATA       | CRC CHECK | END         |
|-------------|---------|----------|------------|-----------|-------------|
| T1-T2-T3-T4 | 8 Bits  | 8 Bits   | n x 8 Bits | 16 Bits   | T1-T2-T3-T4 |

|           |                                                                                                 |
|-----------|-------------------------------------------------------------------------------------------------|
| START     | Silent interval of at least 3,5 character times                                                 |
| ADDRESS   | Address field, Slave device addresses 1 to 247, Address 0 is used for broadcast address         |
| FUNCTION  | Function field                                                                                  |
| DATA      | Optional data field constructed using sets of two hexadecimal digits depending on function code |
| CRC CHECK | 16 Bit CRC value                                                                                |
| END       | Silent interval of at least 3,5 character times                                                 |

## Appendix B - List of Signals

(continued)

### B 5.3 Function Codes

| Function Code (hex) | Subfunction Code (hex) | Name                                   | Description                                                                                                                                                                                                        |
|---------------------|------------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01                  |                        | Read Coil Status                       | Reads binary information                                                                                                                                                                                           |
| 02                  |                        | Read Input Status                      | Reads binary information (refer to function code 01 hex)                                                                                                                                                           |
| 03                  |                        | Read Holding register                  | Reads binary information, analog information (measurements), events and records                                                                                                                                    |
| 04                  |                        | Read Holding register                  | Reads binary information, analog information (measurements), events and records (refer to function code 03 hex)                                                                                                    |
| 05                  |                        | Force Single Coil                      | Writes binary information                                                                                                                                                                                          |
| 06                  |                        | Preset Register                        | Writes analog commands and acknowledges events and transmission of records                                                                                                                                         |
| 07                  |                        | Read Exception Status                  | Reads status information                                                                                                                                                                                           |
| 08                  |                        | Diagnostics                            | Diagnostic functions                                                                                                                                                                                               |
|                     | 00                     | Return Query Data                      | The data passed in the query data field is to be returned (looped back) in the response                                                                                                                            |
|                     | 01                     | Restart Communications Option          | Restarts slaves communication port<br>Resets all event logs, brings port out of 'Listen Only' mode.                                                                                                                |
|                     | 04                     | Force Listen Only Mode                 | Forces slave to 'Listen Only' mode:<br>Isolates slave from the communication network. No response is returned.<br>Only function "Restart Communication option" (Function code 8, Subfunction 1) will be processed. |
|                     | 10                     | Clear Counters and Diagnostic Register | Clears all counters and diagnostic registers                                                                                                                                                                       |
|                     | 11                     | Return Bus Message Count               | Quantity of messages detected by the slave                                                                                                                                                                         |
|                     | 12                     | Return Bus Communication Error         | Quantity of CRC errors encountered by the slave since last restart                                                                                                                                                 |
|                     | 13                     | Return Bus Exception Count             | Quantity of MODBUS Exception Responses.                                                                                                                                                                            |
|                     | 14                     | Return Slave Message Count             | Quantity of messages addressed to the slave                                                                                                                                                                        |
|                     | 15                     | Return Slave No Response Count         | Quantity of messages addressed to the slave without response                                                                                                                                                       |
|                     | 17                     | Return Slave Busy Count                | Quantity of messages addressed to the slave which returned a Slave Device Busy exception response                                                                                                                  |
|                     | 18                     | Return Bus Character Overrun Count     | Quantity of messages addressed to the slave which could not be managed due to character overrun condition                                                                                                          |
| 16                  |                        | Preset Multiple Registers              | Time synchronisation                                                                                                                                                                                               |

## Appendix B - List of Signals

(continued)

### B 5.4 Mapping

The "AREVA" mapping of the MODBUS protocol implementation as of "\Parameters\Config.Parameters\COMM1\MODBUS Prot. Variant" is given below:

| MODBUS Addresses (hex) | Description                                                       | Function codes                    |
|------------------------|-------------------------------------------------------------------|-----------------------------------|
| 0401                   | System information                                                | FC 03, FC 04                      |
| 0401                   | Acknowledgment (events, disturbance records, long-term recording) | FC 06                             |
| 0801                   | Time synchronisation                                              | FC 16                             |
| 1001 ... 2000          | Binary information<br>Binary commands                             | FC 01, FC 02, FC 03, FC 04, FC 05 |
| 3601 ... 4000          | Event transmission                                                | FC 03, FC 04                      |
| 4001 ... 5000          | Analog information<br>Analog commands                             | FC 03, FC 04, FC 06               |

In addition the mapping of variant "AREVA D" as of "\Parameter\Config.Parameter\COMM1\ MODBUS Prot. Variant" is given below:

| MODBUS Adresses (hex) | 0XXXX                                               | 1XXXX                                              | 3XXXX                                                | 4XXXX                                                                   |
|-----------------------|-----------------------------------------------------|----------------------------------------------------|------------------------------------------------------|-------------------------------------------------------------------------|
| X0001...X0100         | rfu                                                 | rfu                                                | Operating data measurments acc. to IEC 60870-5-103   | Time, Date<br>Event management                                          |
| X0101...X0200         | rfu                                                 | rfu                                                | Events                                               | Registers for control and monitoring of switchgear devices              |
| X0201...X0300         | rfu                                                 | rfu                                                | Events                                               | Reserved for registers for control and monitoring of switchgear devices |
| X0301...X0400         | Commands and signals acc. to 'm-out of-n' selection | Signals acc. to 'm-out of-n' selection             | Parameter (read only) acc. to 'm-out of-n' selection | Parameter (read/ write) acc. to 'm-out of-n' selection                  |
| X0401...X0800         | Single-pole commands and signals                    | Information on LOC commands (single-pole commands) | rfu                                                  | rfu                                                                     |
| X0801...X1000         | rfu                                                 | rfu                                                | rfu                                                  | rfu                                                                     |
| X1001...X1700         | rfu                                                 | Single-pole information                            | rfu                                                  | rfu                                                                     |

## Appendix B - List of Signals

(continued)

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# Appendix C - List of Bay Types

## Key

### Sorting the Bay Types

The bay types are sorted by the criteria listed below. These criteria are encoded in the first three characters of the bay type code (example: A11.100.R01) given in brackets after the Bay Type No. (example: 2). Sorting is first by "Type of bay" in the order given below, then within each group by the second and third character in ascending order.

- Type of bay
  - A - Feeder bays
  - L - Bus sectionalizer bay
  - Q - Bus coupler bay
  - K - Bus coupler and sectionalizer bay
  - M - Busbar measurement bay
  - E - Busbar grounding bay
  - X - Other bay type
- Number of busbars
  - 1 - Single busbar
  - 2 - Double busbar
  - 9 - Without busbar / other configurations
- Equipment
  - 1 - Bays with switch truck or withdrawable switchgear assembly
  - 2 - Bays with two circuit breakers or switch disconnectors on switch trucks or withdrawable switchgear assembly
  - 3 - Bays with stationary switchgear units
  - 5 - Bays with stationary switchgear units and three-position disconnector
  - 9 - Other bay types

**Bay Type No.:** This number indicates the value to be set at MAIN: Type of bay (folder "Para/Conf") in order to configure the unit for the selected bay type.

### Special Designations for External Devices:

Mot.relay: Motor relay  
Shunt wd. Shunt winding



## Appendix C - List of Bay Types

(continued)

**Table "Assignment of Binary Inputs and Output Relays"**

|                          |                                                                                                                                                                                                                                                                                                                                  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Column "Switchgear unit" | This column begins with the designation for the external device (switchgear unit). The function group follows in brackets. The function group encompasses all setting options for monitoring the switchgear unit and its signals. "Open" and "Close(d)" indicate the signal message or control direction of the switchgear unit. |
| Column "Binary Input":   | The "Open" or "Closed" signal should be connected to the binary input U xxxx. The connection points of the binary input U xxxx are shown in the terminal connection diagrams.                                                                                                                                                    |
| Column "Output relay"    | The "Open" or "Close" control of the switchgear unit is effected via output relay K xxxx. The connection points of the output relay K xxxx are shown in the terminal connection diagrams.                                                                                                                                        |

### Assignment of the designators to the binary inputs

| Model 1 | Model 2 | Model 3 | Model 4 | Model 4 with additional I/O | Binary inputs |
|---------|---------|---------|---------|-----------------------------|---------------|
| U 201   | U 201   | U 201   | U 201   | U 201                       | U 2A          |
| U 202   | U 202   | U 202   | U 202   | U 202                       | U 2B          |
| U 203   | U 203   | U 203   | U 203   | U 203                       | U 2C          |
| U 204   | U 204   | U 204   | U 204   | U 204                       | U 2D          |
| U 205   | U 205   | U 205   | U 205   | U 205                       | U 2E          |
| U 206   | U 206   | U 206   | U 206   | U 206                       | U 2F          |
| U 213   | U 207   | U 207   | U 213   | U 207                       | U 2G          |
| U 214   | U 208   | U 208   | U 214   | U 208                       | U 2H          |
| U 215   | U 209   | U 209   | U 215   | U 209                       | U 2I          |
| U 216   | U 210   | U 210   | U 216   | U 210                       | U 2J          |
| -       | U 213   | U 211   | U 220   | U 211                       | U 2K          |
| -       | U 214   | U 212   | -       | U 212                       | U 2L          |
| -       | U 215   | U 213   | -       | U 213                       | U 2M          |
| -       | U 216   | U 214   | -       | U 214                       | U 2N          |
| -       | U 217   | U 215   | -       | U 215                       | U 2O          |
| -       | U 218   | U 216   | -       | U 216                       | U 2P          |
| -       | U 219   | U 217   | -       | U 217                       | U 2Q          |
| -       | -       | U 218   | -       | U 218                       | U 2R          |
| -       | -       | U 219   | -       | U 219                       | U 2S          |
| -       | -       | U 220   | -       | U 220                       | U 2T          |

## Appendix C - List of Bay Types

(continued)

### Assignment of the designators to the binary inputs

| Model 1 | Model 2 | Model 3 | Model 4 | Model 4 with additional I/O | Output relais |
|---------|---------|---------|---------|-----------------------------|---------------|
| K 201   | K 201   | K 201   | K 201   | K 201                       | K 2A          |
| K 202   | K 202   | K 202   | K 202   | K 202                       | K 2B          |
| -       | K 203   | K 203   | K 207   | K 203                       | K 2C          |
| -       | K 204   | K 204   | K 208   | K 204                       | K 2D          |
| -       | K 205   | K 205   | K 209   | K 205                       | K 2E          |
| -       | K 206   | K 206   | K 210   | K 206                       | K 2F          |
| -       | -       | K 207   | K 211   | K 207                       | K 2G          |
| -       | -       | K 208   | K 212   | K 208                       | K 2H          |
| -       | -       | K 209   |         | K 209                       | K 2I          |
| -       | -       | K 210   |         | K 210                       | K 2J          |
| -       | -       | K 211   |         | K 211                       | K 2K          |
| -       | -       | K 212   |         | K 212                       | K 2L          |

**Table "Bay Interlock Equations for Operation without Station Interlocking"**

#### Note!

The interlock equations are stored at substation control level, not at unit level.

Symbols used in the Boolean interlock equations:

/: Negation

O: Switchgear unit "Open"

I: Switchgear unit "Closed"

X: Switchgear unit in intermediate position

FctBI1: Function block 1, configuration at MAIN: Fct.asg. fct.block.1 (Folder "Para/Func/Ctrl")

FctBI2: Function block 2, configuration at MAIN: Fct.asg. fct.block.2 (Folder "Para/Func/Ctrl")

# Appendix C - List of Bay Types

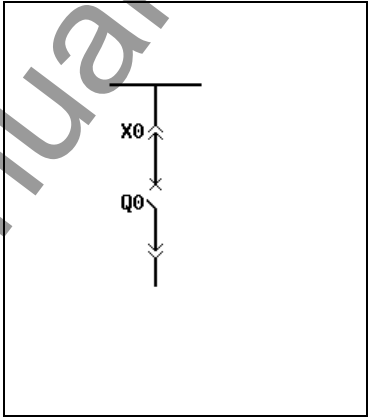
(continued)

## Bay Type No. 2 (A11.100.R01)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

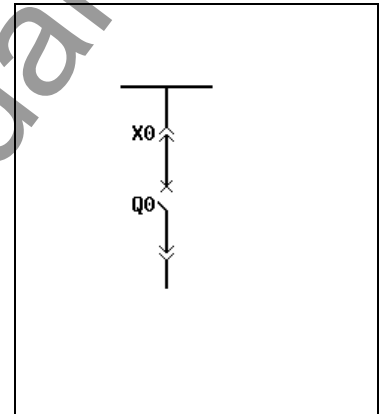
(continued)

### Bay Type No. 3 (A11.100.R02)

Feeder bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0)$                                                    |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0)$                                                    |

## Appendix C - List of Bay Types

(continued)

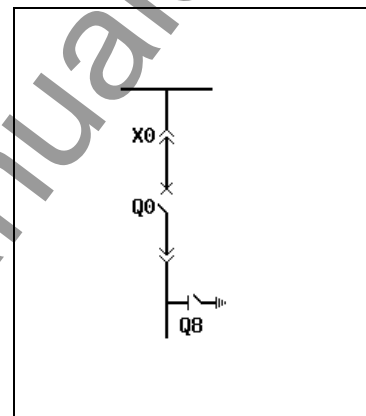
### Bay Type No. 546

(A11.101.M03)

Feeder bay with circuit breaker, single busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q8 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                    |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                      |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                    |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                      |

## Appendix C - List of Bay Types

(continued)

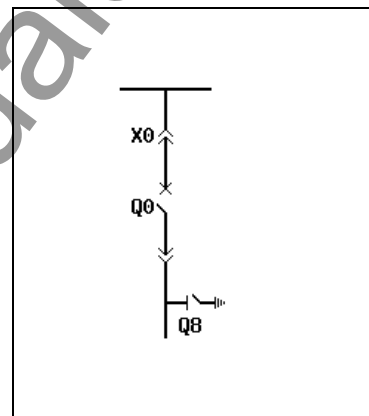
### Bay Type No. 4

(A11.101.R01)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q8 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

# Appendix C - List of Bay Types

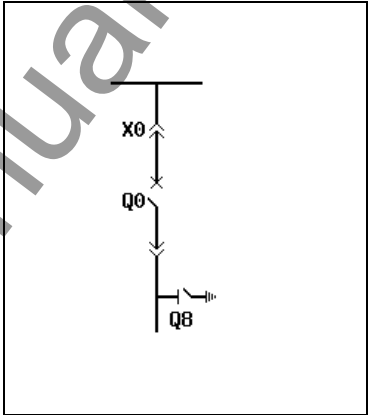
(continued)

## Bay Type No. 5 (A11.101.R02)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                      |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                      |

## Appendix C - List of Bay Types

(continued)

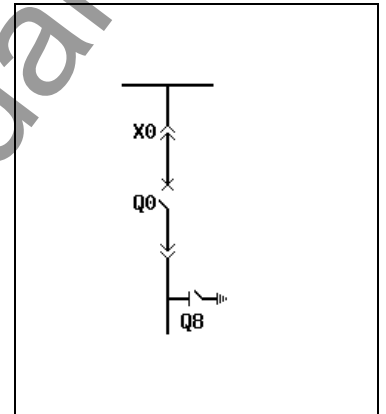
### Bay Type No. 6

(A11.101.R03)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                    |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                      |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                    |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                      |



# Appendix C - List of Bay Types

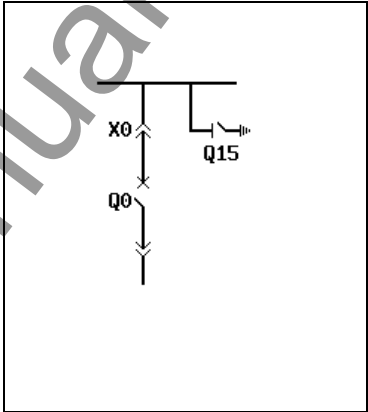
(continued)

## Bay Type No. 523 (A11.108.R01)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q15 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                         |
|-----------------|-------------|----------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ (Q15=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                         |
|-----------------|-------------|----------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ (Q15=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

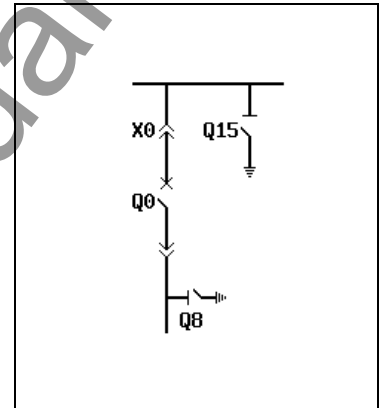
### Bay Type No. 549

(A11.109.M03)

Feeder bay with circuit breaker, single busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q8 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Q15 (DEV04)                     | Open      | U 2I         | /            |
|                                 | Close (d) | U 2J         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                         |
|-----------------|-------------|----------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ (Q15=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                                   |
| X0              | Open        | $(Q0=0)$                                                                   |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0) \ \& \ (Q15=0)$                                      |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                         |
|-----------------|-------------|----------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ (Q15=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                                   |
| X0              | Open        | $(Q0=0)$                                                                   |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0) \ \& \ (Q15=0)$                                      |

# Appendix C - List of Bay Types

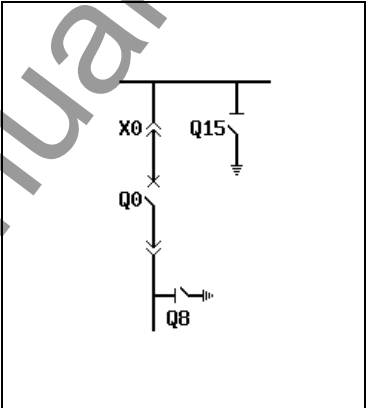
(continued)

## Bay Type No. 244 (A11.109.R01)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q8 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q15 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

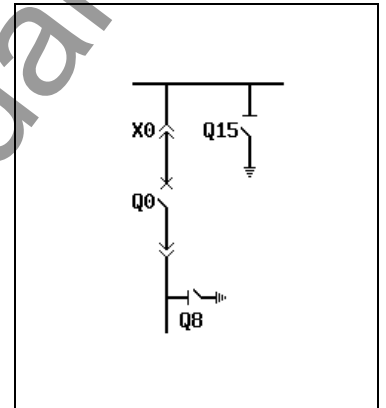
(continued)

### Bay Type No. 544 (A11.109.R03)

Feeder bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q15 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                         |
|-----------------|-------------|----------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ (Q15=0) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                                   |
| X0              | Open        | $(Q0=0)$                                                                   |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0) \ \& \ (Q15=0)$                                      |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                         |
|-----------------|-------------|----------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ (Q15=0) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                                   |
| X0              | Open        | $(Q0=0)$                                                                   |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0) \ \& \ (Q15=0)$                                      |

# Appendix C - List of Bay Types

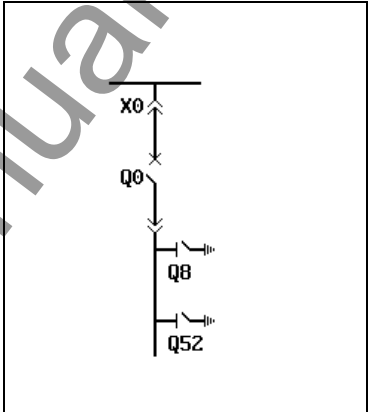
(continued)

## Bay Type No. 567 (A11.132.R01)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q8 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q52 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

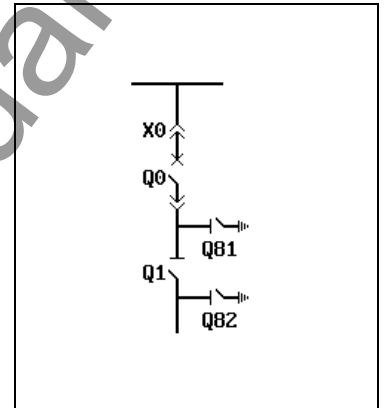
(continued)

### Bay Type No. 521 (A11.134.R02.1)

Feeder bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q1 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q81 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q82 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                            |
|-----------------|-------------|-----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (Q1=X) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                                      |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                        |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                            |
|-----------------|-------------|-----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (Q1=X) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                                      |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                        |

## Appendix C - List of Bay Types

(continued)

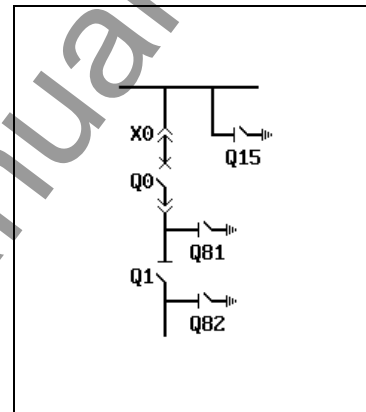
### Bay Type No. 519

(A11.135.R02.1)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q1 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q81 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q82 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |
| Q15 (DEV06)     | Open      | U 2K         | /            |
|                 | Close (d) | U 2L         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                           |
|-----------------|-------------|--------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (Q1=X) \ \& \ (Q15=0) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                                                     |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                       |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                           |
|-----------------|-------------|--------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (Q1=X) \ \& \ (Q15=0) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                                                     |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                       |

## Appendix C - List of Bay Types

(continued)

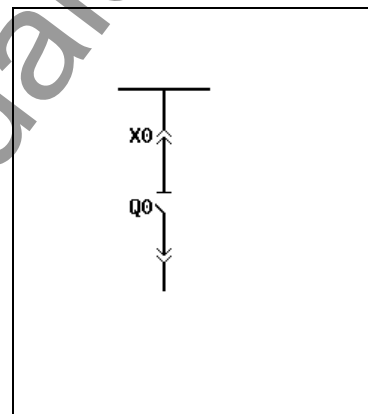
### Bay Type No. 7

(A11.200.R01)

Feeder bay with switch disconnecter, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |



# Appendix C - List of Bay Types

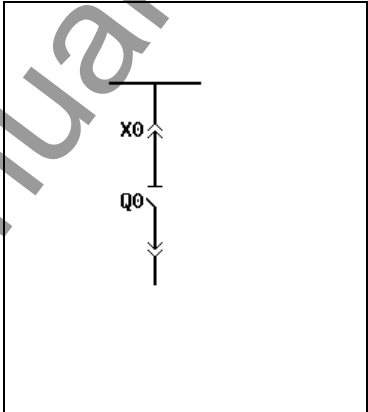
(continued)

## Bay Type No. 8 (A11.200.R02)

Feeder bay with switch disconnector, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0)$                                                    |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0)$                                                    |

## Appendix C - List of Bay Types

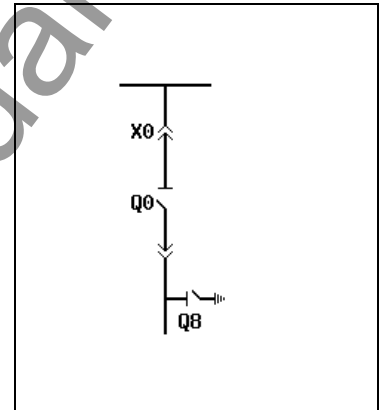
(continued)

### Bay Type No. 9 (A11.201.R01)

Feeder bay with switch disconnecter, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q8 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

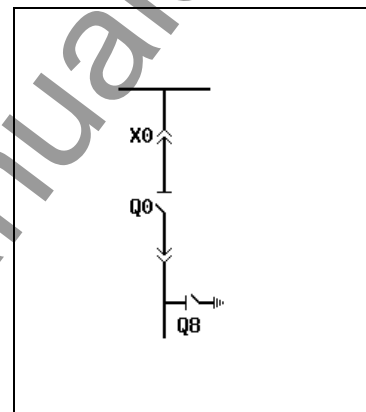
### Bay Type No. 10

(A11.201.R02)

Feeder bay with switch disconnector, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                      |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                      |

## Appendix C - List of Bay Types

(continued)

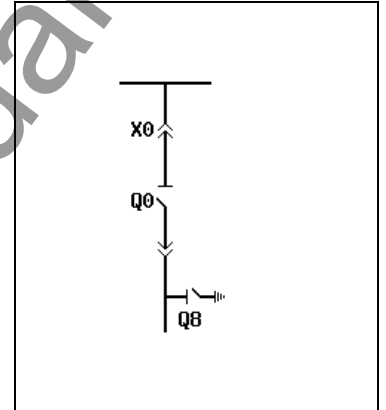
### Bay Type No. 11

(A11.201.R03)

Feeder bay with switch disconnecter, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                    |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                      |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                    |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                      |

# Appendix C - List of Bay Types

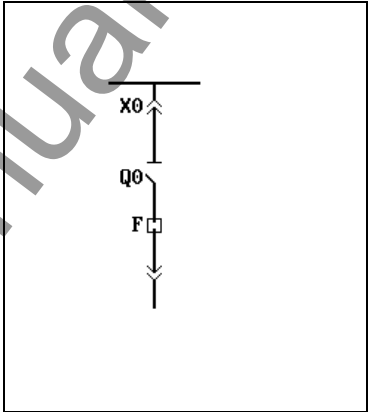
(continued)

## Bay Type No. 12 (A11.400.R01)

Feeder bay with switch disconnecter / fuse unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)             | Open      | U 2C         | /            |
|                        | Close (d) | U 2D         | /            |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

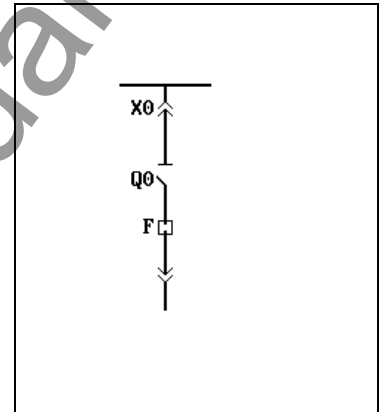
### Bay Type No. 13

(A11.400.R02)

Feeder bay with switch disconnecter / fuse unit, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0)$                                                    |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0)$                                                    |

# Appendix C - List of Bay Types

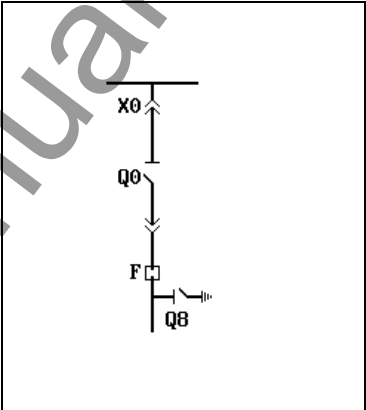
(continued)

## Bay Type No. 14 (A11.401.R01)

Feeder bay with switch disconnecter / fuse unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)             | Open      | U 2C         | /            |
|                        | Close (d) | U 2D         | /            |
| Q8 (DEV03)             | Open      | U 2E         | /            |
|                        | Close (d) | U 2F         | /            |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

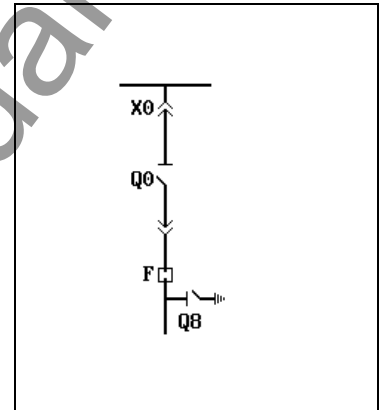
### Bay Type No. 15

(A11.401.R02)

Feeder bay with switch disconnecter / fuse unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)             | Open      | U 2E         | /            |
|                        | Close (d) | U 2F         | /            |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                      |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                      |



## Appendix C - List of Bay Types

(continued)

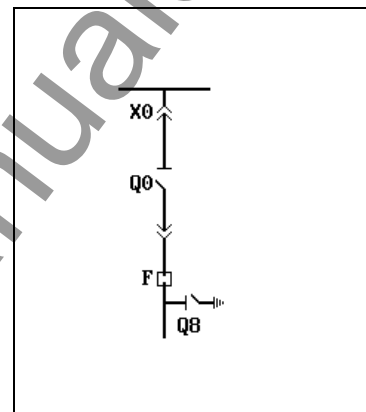
### Bay Type No. 16

(A11.401.R03)

Feeder bay with switch disconnecter / fuse unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)             | Open      | U 2E         | K 2E         |
|                        | Close (d) | U 2F         | K 2F         |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                    |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                      |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                    |
| X0              | Open        | $(Q0=0)$                                                    |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                      |

## Appendix C - List of Bay Types

(continued)

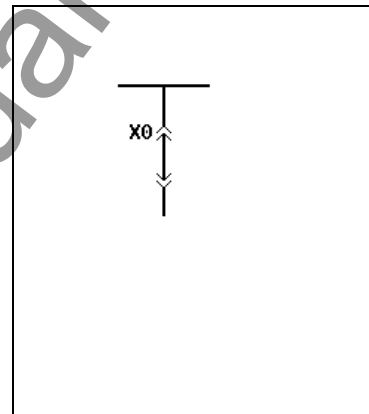
### Bay Type No. 17

(A11.900.R01)

Feeder bay with other switchgear unit, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                     | Binary input | Output relay |
|-------------------------------------|--------------|--------------|
| X0 (DEV01)<br><br>Open<br>Close (d) | U 2A<br>U 2B | K 2A<br>K 2B |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

# Appendix C - List of Bay Types

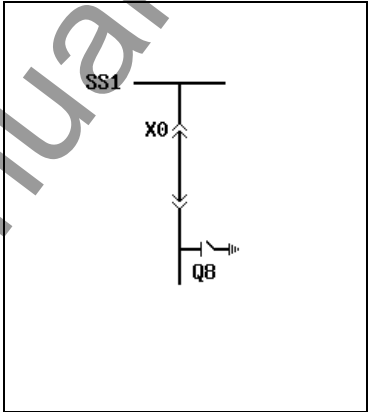
(continued)

## Bay Type No. 504 (A11.901.R00)

Feeder bay with other switchgear unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| X0 (DEV02)      | Open      | U 2C         | //           |
|                 | Close (d) | U 2D         |              |
| Q8 (DEV03)      | Open      | U 2E         | //           |
|                 | Close (d) | U 2F         |              |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

(continued)

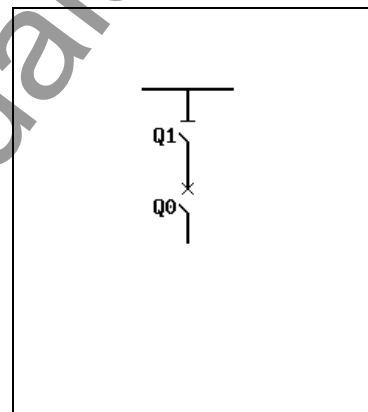
### Bay Type No. 541

(A13.104.R01)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                       |
|-----------------|-------------|------------------------------------------|
| Q0              | Close (d)   | $\neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                       |
|-----------------|-------------|------------------------------------------|
| Q0              | Close (d)   | $\neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

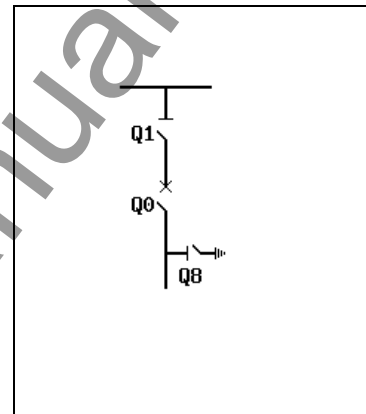
### Bay Type No. 18

(A13.105.M03)

Feeder bay with circuit breaker, single busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                    |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                    |

## Appendix C - List of Bay Types

(continued)

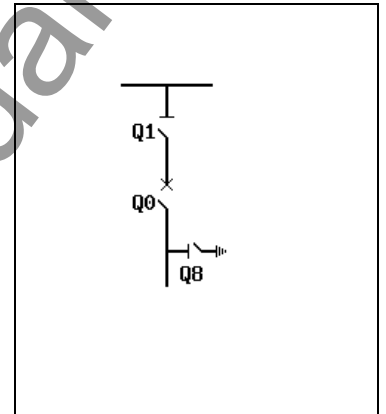
### Bay Type No. 19

(A13.105.R01)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q8 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

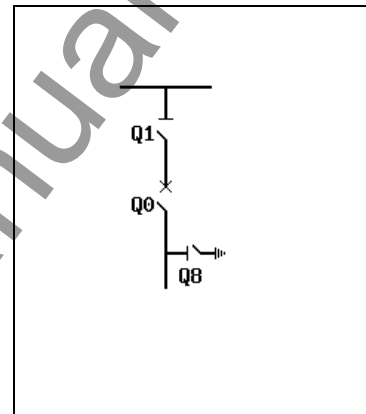
### Bay Type No. 20

(A13.105.R02)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |

## Appendix C - List of Bay Types

(continued)

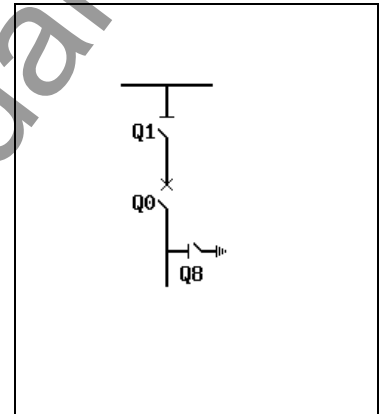
### Bay Type No. 21

(A13.105.R03)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                    |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                    |



## Appendix C - List of Bay Types

(continued)

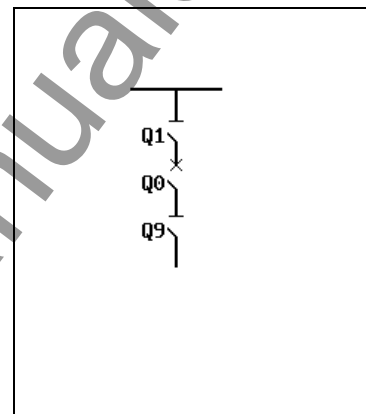
### Bay Type No. 557

(A13.106.R03)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q9 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                       |
|                 | Close (d)   | $(Q0=0)$                                                                       |
| Q9              | Open        | $(Q0=0)$                                                                       |
|                 | Close (d)   | $(Q0=0)$                                                                       |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                       |
|                 | Close (d)   | $(Q0=0)$                                                                       |
| Q9              | Open        | $(Q0=0)$                                                                       |
|                 | Close (d)   | $(Q0=0)$                                                                       |

## Appendix C - List of Bay Types

(continued)

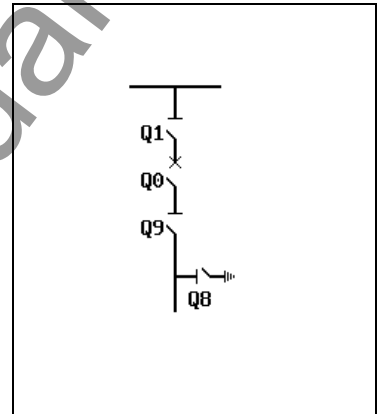
### Bay Type No. 22

(A13.107.M04)

Feeder bay with circuit breaker, single busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                       | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q9 (DEV03)                       | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| Q8 (DEV04)                       | Open      | U 2I         | K 2I         |
|                                  | Close (d) | U 2J         | K 2J         |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                       |
|                 | Close (d)   | $(Q0=0)$                                                                       |
| Q8              | Close (d)   | $(Q9=0)$                                                                       |
| Q9              | Open        | $(Q0=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                       |
|                 | Close (d)   | $(Q0=0)$                                                                       |
| Q8              | Close (d)   | $(Q9=0)$                                                                       |
| Q9              | Open        | $(Q0=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                         |

# Appendix C - List of Bay Types

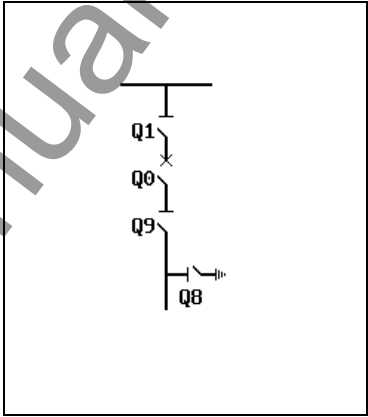
(continued)

## Bay Type No. 23 (A13.107.R01)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q9 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q8 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

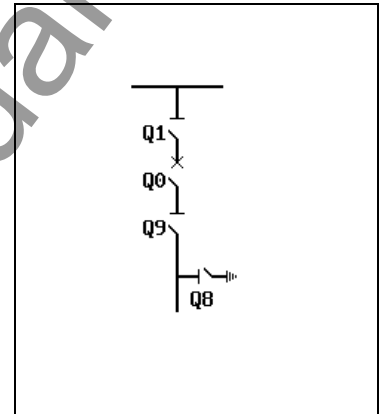
### Bay Type No. 24

(A13.107.R03)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q9 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                       |
|                 | Close (d)   | $(Q0=0)$                                                                       |
| Q9              | Open        | $(Q0=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                       |
|                 | Close (d)   | $(Q0=0)$                                                                       |
| Q9              | Open        | $(Q0=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                         |

## Appendix C - List of Bay Types

(continued)

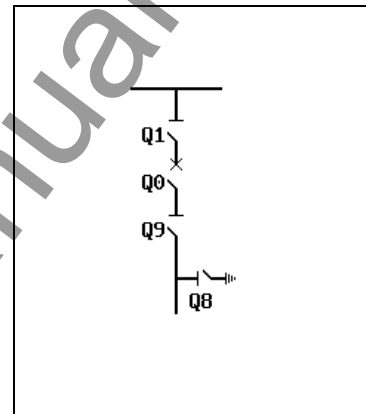
### Bay Type No. 25

(A13.107.R04)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q9 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                       |
|                 | Close (d)   | $(Q0=0)$                                                                       |
| Q8              | Close (d)   | $(Q9=0)$                                                                       |
| Q9              | Open        | $(Q0=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                       |
|                 | Close (d)   | $(Q0=0)$                                                                       |
| Q8              | Close (d)   | $(Q9=0)$                                                                       |
| Q9              | Open        | $(Q0=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                         |

## Appendix C - List of Bay Types

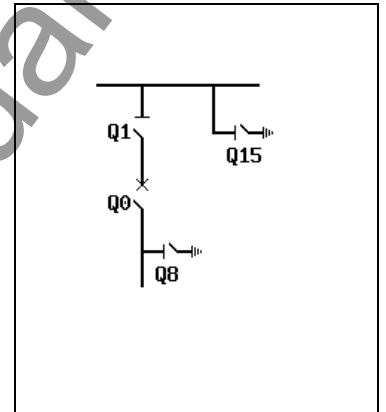
(continued)

### Bay Type No. 508 (A13.111.R03)

Feeder bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q15 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                       |
|-----------------|-------------|------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ (Q15=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                                 |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0) \ \& \ (Q15=0)$                                                    |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                   |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                       |
|-----------------|-------------|------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ (Q15=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                                 |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0) \ \& \ (Q15=0)$                                                    |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                   |

# Appendix C - List of Bay Types

(continued)

## Bay Type No. 26 (A13.200.R01)

Feeder bay with switch disconnecter, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |                   | Binary input | Output relay |
|-----------------|-------------------|--------------|--------------|
| Q0 (DEV01)      | Open<br>Close (d) | U 2A<br>U 2B | K 2A<br>K 2B |

### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

(continued)

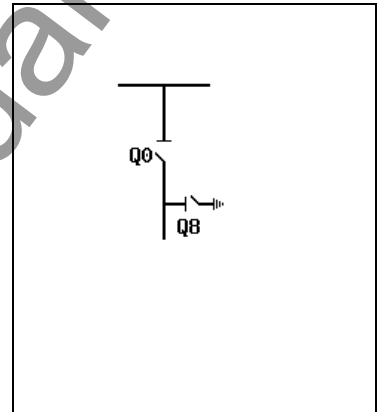
### Bay Type No. 27

(A13.201.M02)

Feeder bay with switch disconnecter, single busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q8 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                               |
|-----------------|-------------|--------------------------------------------------|
| Q0              | Close (d)   | $(Q8=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q8              | Close (d)   | $(Q0=0)$                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                               |
|-----------------|-------------|--------------------------------------------------|
| Q0              | Close (d)   | $(Q8=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q8              | Close (d)   | $(Q0=0)$                                         |



# Appendix C - List of Bay Types

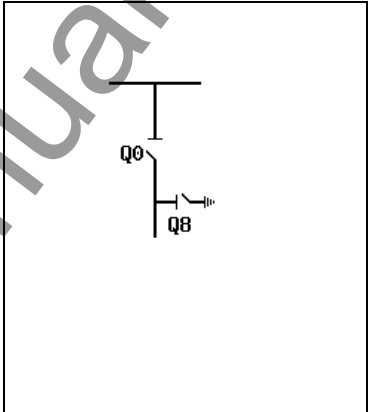
(continued)

## Bay Type No. 28 (A13.201.R01)

Feeder bay with switch disconnecter, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q8 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                             |
|-----------------|-------------|------------------------------------------------|
| Q0              | Close (d)   | $(Q8=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                             |
|-----------------|-------------|------------------------------------------------|
| Q0              | Close (d)   | $(Q8=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

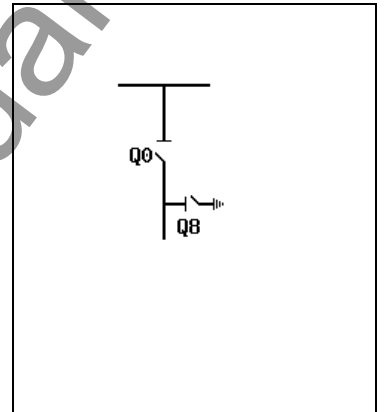
### Bay Type No. 29

(A13.201.R02)

Feeder bay with switch disconnecter, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q8 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                               |
|-----------------|-------------|--------------------------------------------------|
| Q0              | Close (d)   | $(Q8=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q8              | Close (d)   | $(Q0=0)$                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                               |
|-----------------|-------------|--------------------------------------------------|
| Q0              | Close (d)   | $(Q8=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q8              | Close (d)   | $(Q0=0)$                                         |

## Appendix C - List of Bay Types

(continued)

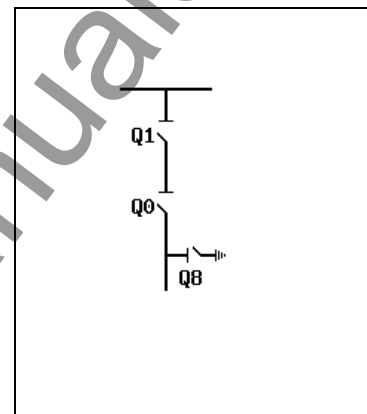
### Bay Type No. 30

(A13.205.M03)

Feeder bay with switch disconnecter, single busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                    |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                    |

## Appendix C - List of Bay Types

(continued)

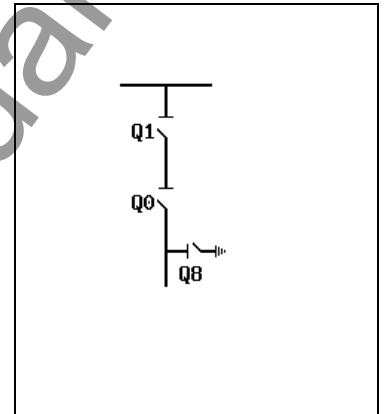
### Bay Type No. 31

(A13.205.R01)

Feeder bay with switch disconnecter, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q8 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

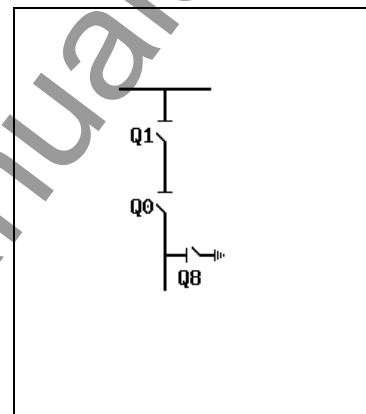
### Bay Type No. 32

(A13.205.R02)

Feeder bay with switch disconnector, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |

## Appendix C - List of Bay Types

(continued)

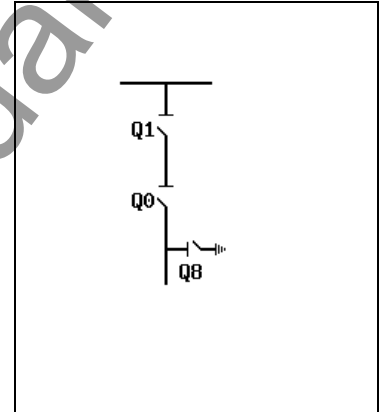
### Bay Type No. 33

(A13.205.R03)

Feeder bay with switch disconnecter, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                    |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                    |

# Appendix C - List of Bay Types

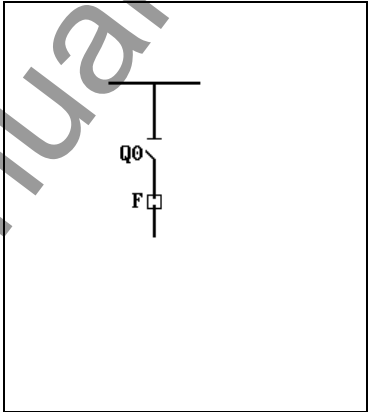
(continued)

## Bay Type No. 34 (A13.400.R01)

Feeder bay with switch disconnecter / fuse unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

(continued)

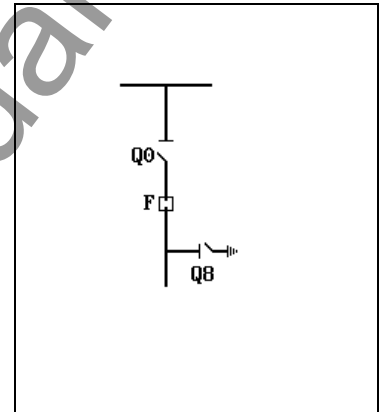
### Bay Type No. 35

(A13.401.M02)

Feeder bay with switch disconnecter / fuse unit, single busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q8 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| F (SIG_1: Signal S011)          |           | U 2K         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                               |
|-----------------|-------------|--------------------------------------------------|
| Q0              | Close (d)   | $(Q8=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q8              | Close (d)   | $(Q0=0)$                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                               |
|-----------------|-------------|--------------------------------------------------|
| Q0              | Close (d)   | $(Q8=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q8              | Close (d)   | $(Q0=0)$                                         |



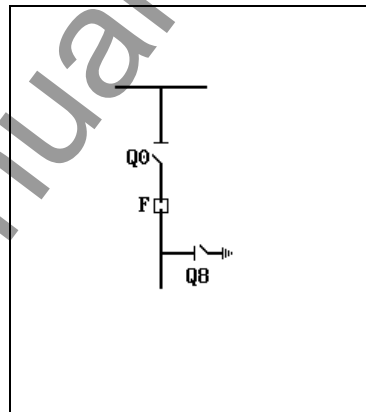
(continued)

(A13.401.R01)

Feeder bay with switch disconnecter / fuse unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |                   | Binary input | Output relay |
|------------------------|-------------------|--------------|--------------|
| Q0 (DEV01)             | Open<br>Close (d) | U 2A<br>U 2B | K 2A<br>K 2B |
| Q8 (DEV02)             | Open<br>Close (d) | U 2C<br>U 2D | /<br>/       |
| F (SIG_1: Signal S011) |                   | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                               |
|-----------------|-------------|--------------------------------------------------|
| Q0              | Close(d)    | $(Q8=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

## Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                               |
|-----------------|-------------|--------------------------------------------------|
| Q0              | Close(d)    | $(Q8=0) \ \& \ / (FctBl1=I) \ \& \ / (FctBl2=I)$ |

## Appendix C - List of Bay Types

(continued)

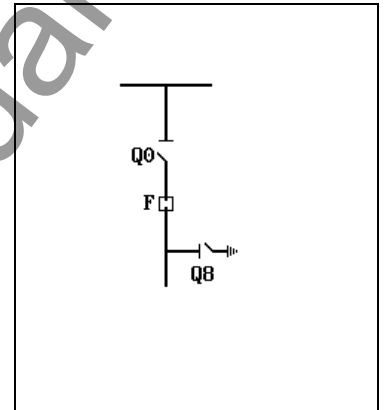
### Bay Type No. 37

(A13.401.R02)

Feeder bay with switch disconnecter / fuse unit, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q8 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                               |
|-----------------|-------------|--------------------------------------------------|
| Q0              | Close (d)   | $(Q8=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q8              | Close (d)   | $(Q0=0)$                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                               |
|-----------------|-------------|--------------------------------------------------|
| Q0              | Close (d)   | $(Q8=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q8              | Close (d)   | $(Q0=0)$                                         |

## Appendix C - List of Bay Types

(continued)

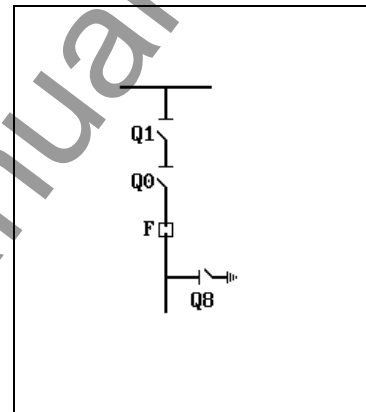
### Bay Type No. 38

(A13.405.M03)

Feeder bay with switch disconnecter / fuse unit, single busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                       | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q8 (DEV03)                       | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| F (SIG_1: Signal S011)           |           | U 2K         | /            |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                    |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                    |

## Appendix C - List of Bay Types

(continued)

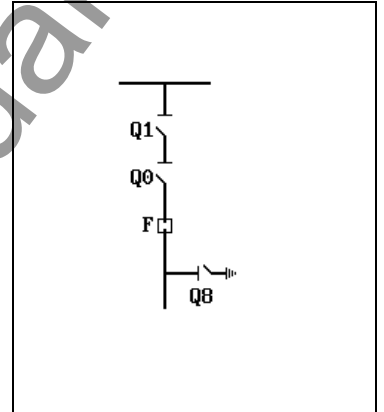
### Bay Type No. 39

(A13.405.R01)

Feeder bay with switch disconnecter / fuse unit, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)             | Open      | U 2C         | /            |
|                        | Close (d) | U 2D         | /            |
| Q8 (DEV03)             | Open      | U 2E         | /            |
|                        | Close (d) | U 2F         | /            |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

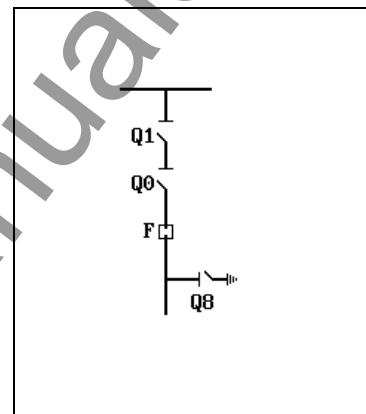
### Bay Type No. 40

(A13.405.R02)

Feeder bay with switch disconnecter / fuse unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)             | Open      | U 2E         | /            |
|                        | Close (d) | U 2F         | /            |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |

## Appendix C - List of Bay Types

(continued)

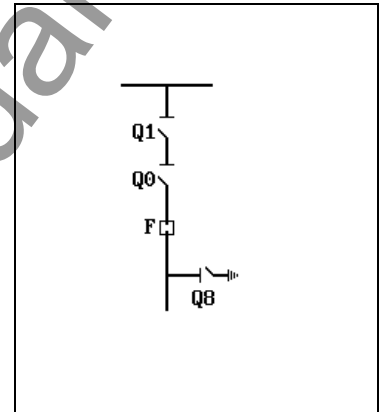
### Bay Type No. 41

(A13.405.R03)

Feeder bay with switch disconnecter / fuse unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)             | Open      | U 2E         | K 2E         |
|                        | Close (d) | U 2F         | K 2F         |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                    |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                        |
|-----------------|-------------|---------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                    |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                    |

## Appendix C - List of Bay Types

(continued)

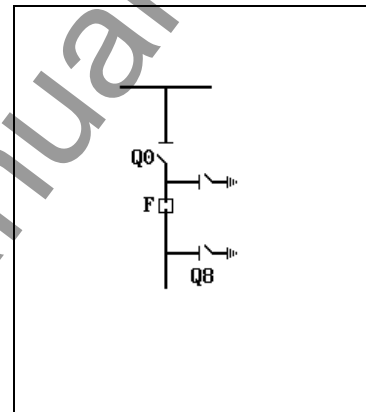
### Bay Type No. 503

(A13.432.R02)

Feeder bay with switch disconnecter / fuse unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q8 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                             |
|-----------------|-------------|------------------------------------------------|
| Q0              | Close (d)   | $(Q8=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |
| Q8              | Close (d)   | $(Q0=0)$                                       |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                             |
|-----------------|-------------|------------------------------------------------|
| Q0              | Close (d)   | $(Q8=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |
| Q8              | Close (d)   | $(Q0=0)$                                       |

## Appendix C - List of Bay Types

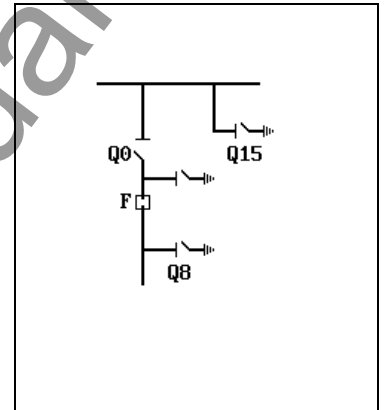
(continued)

### Bay Type No. 507 (A13.433.R02)

Feeder bay with switch disconnecter / fuse unit, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q8 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| Q15 (DEV03)            | Open      | U 2E         | /            |
|                        | Close (d) | U 2F         | /            |
| F (SIG_1: Signal S011) |           | U 2G         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                            |
|-----------------|-------------|---------------------------------------------------------------|
| Q0              | Close (d)   | $(Q8=0) \ \& \ (Q15=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |
| Q8              | Close (d)   | $(Q0=0)$                                                      |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                            |
|-----------------|-------------|---------------------------------------------------------------|
| Q0              | Close (d)   | $(Q8=0) \ \& \ (Q15=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |
| Q8              | Close (d)   | $(Q0=0)$                                                      |



# Appendix C - List of Bay Types

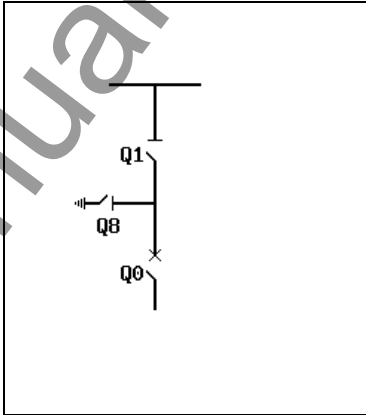
(continued)

## Bay Type No. 220 (A15.105.M02)

Feeder bay with circuit breaker, single busbar,direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV03)                      | Open      | U 2G         | /            |
|                                 | Close (d) | U 2H         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                              |
|-----------------|-------------|-------------------------------------------------|
| Q0              | Open        | (Q8=0)                                          |
|                 | Close (d)   | / (Q1=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |
| Q1              | Open        | (Q0=0)                                          |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                 |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                              |
|-----------------|-------------|-------------------------------------------------|
| Q0              | Open        | (Q8=0)                                          |
|                 | Close (d)   | / (Q1=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |
| Q1              | Open        | (Q0=0)                                          |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                 |

## Appendix C - List of Bay Types

(continued)

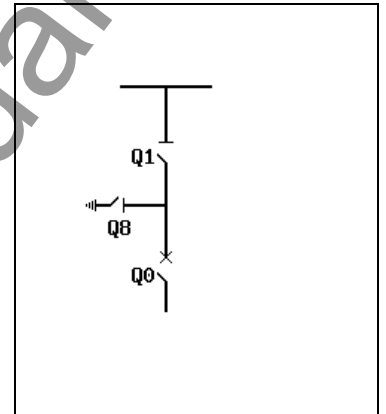
### Bay Type No. 42

(A15.105.M03)

Feeder bay with circuit breaker, single busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                              |
|-----------------|-------------|-------------------------------------------------|
| Q0              | Open        | (Q8=0)                                          |
|                 | Close (d)   | / (Q1=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |
| Q1              | Open        | (Q0=0)                                          |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                 |
| Q8              | Open        | (Q0=I)                                          |
|                 | Close (d)   | (Q0=0) & (Q1=0) & / (FctB11=I) & / (FctB12=I)   |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                              |
|-----------------|-------------|-------------------------------------------------|
| Q0              | Open        | (Q8=0)                                          |
|                 | Close (d)   | / (Q1=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |
| Q1              | Open        | (Q0=0)                                          |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                 |
| Q8              | Open        | (Q0=I)                                          |
|                 | Close (d)   | (Q0=0) & (Q1=0) & / (FctB11=I) & / (FctB12=I)   |

# Appendix C - List of Bay Types

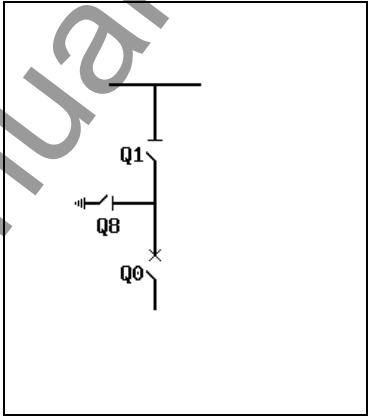
(continued)

## Bay Type No. 43 (A15.105.R01)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q8 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                              |
|-----------------|-------------|-------------------------------------------------|
| Q0              | Open        | (Q8=0)                                          |
|                 | Close (d)   | / (Q1=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                              |
|-----------------|-------------|-------------------------------------------------|
| Q0              | Open        | (Q8=0)                                          |
|                 | Close (d)   | / (Q1=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |

## Appendix C - List of Bay Types

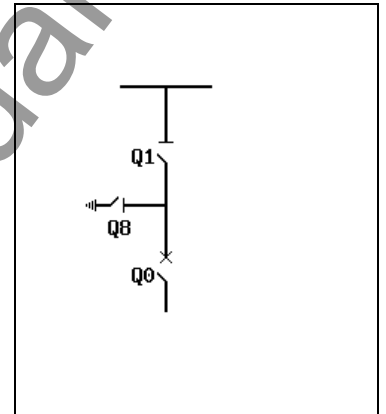
(continued)

### Bay Type No. 221 (A15.105.R02)

Feeder bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                              |
|-----------------|-------------|-------------------------------------------------|
| Q0              | Open        | (Q8=0)                                          |
|                 | Close (d)   | / (Q1=X) & (Q8=0) & / (FctBl1=I) & / (FctBl2=I) |
| Q1              | Open        | (Q0=0)                                          |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                 |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                              |
|-----------------|-------------|-------------------------------------------------|
| Q0              | Open        | (Q8=0)                                          |
|                 | Close (d)   | / (Q1=X) & (Q8=0) & / (FctBl1=I) & / (FctBl2=I) |
| Q1              | Open        | (Q0=0)                                          |
|                 | Close (d)   | (Q0=0)                                          |

## Appendix C - List of Bay Types

(continued)

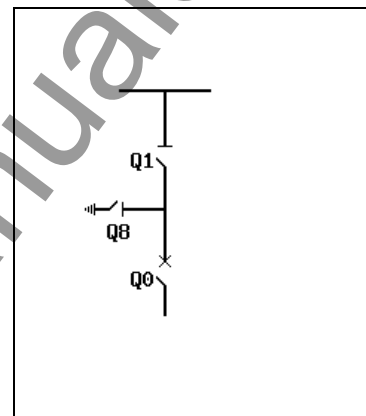
### Bay Type No. 44

(A15.105.R03)

Feeder bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                              |
|-----------------|-------------|-------------------------------------------------|
| Q0              | Open        | (Q8=0)                                          |
|                 | Close (d)   | / (Q1=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |
| Q1              | Open        | (Q0=0)                                          |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                 |
| Q8              | Open        | (Q0=I)                                          |
|                 | Close (d)   | (Q0=0) & (Q1=0) & / (FctB11=I) & / (FctB12=I)   |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                              |
|-----------------|-------------|-------------------------------------------------|
| Q0              | Open        | (Q8=0)                                          |
|                 | Close (d)   | / (Q1=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |
| Q1              | Open        | (Q0=0)                                          |
|                 | Close (d)   | (Q0=0)                                          |
| Q8              | Open        | (Q0=I)                                          |
|                 | Close (d)   | (Q0=0) & (Q1=0) & / (FctB11=I) & / (FctB12=I)   |

## Appendix C - List of Bay Types

(continued)

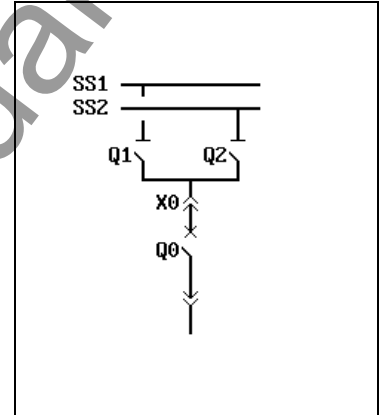
### Bay Type No. 45

(A21.104.M04)

Feeder bay with circuit breaker, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| X0 (DEV04)                      | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |

# Appendix C - List of Bay Types

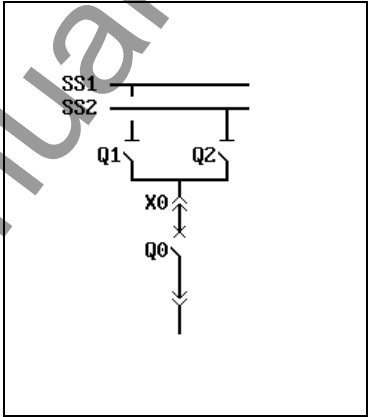
(continued)

## Bay Type No. 46 (A21.104.R01)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q2 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| X0 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |

## Appendix C - List of Bay Types

(continued)

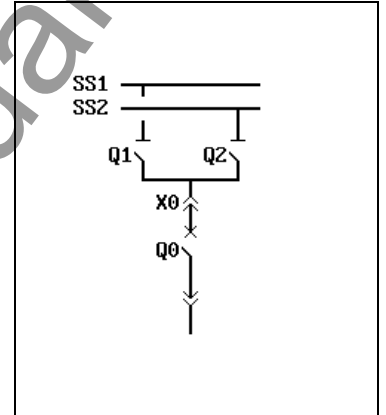
### Bay Type No. 47

(A21.104.R03)

Feeder bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |



## Appendix C - List of Bay Types

(continued)

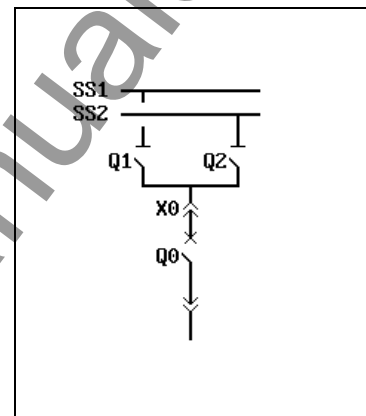
### Bay Type No. 48

(A21.104.R04)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |

## Appendix C - List of Bay Types

(continued)

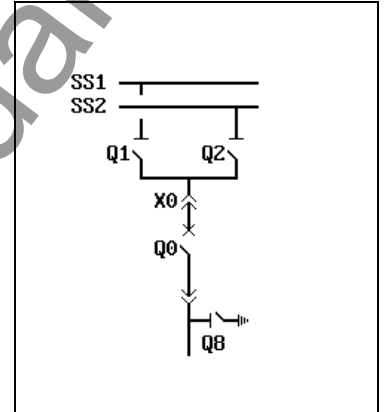
### Bay Type No. 49

(A21.105.M05)

Feeder bay with circuit breaker, double busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| X0 (DEV04)                      | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| Q8 (DEV05)                      | Open      | U 2K         | K 2K         |
|                                 | Close (d) | U 2L         | K 2L         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| Q8              | Close (d)   | $(X0=0)$                                                                                          |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                                                          |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |

# Appendix C - List of Bay Types

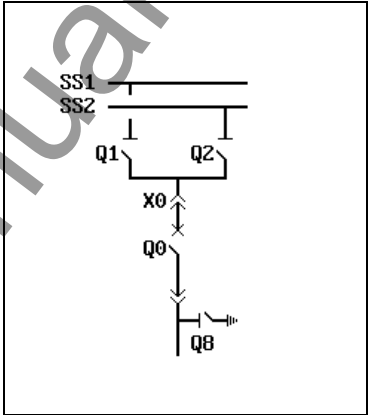
(continued)

## Bay Type No. 50 (A21.105.R01)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q2 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| X0 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

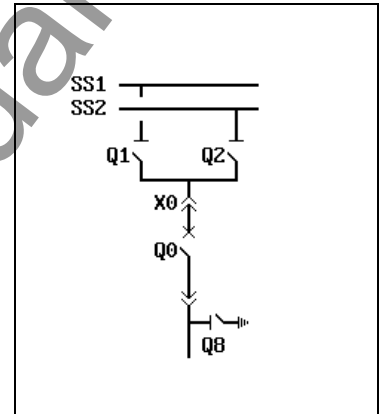
### Bay Type No. 51

(A21.105.R03)

Feeder bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

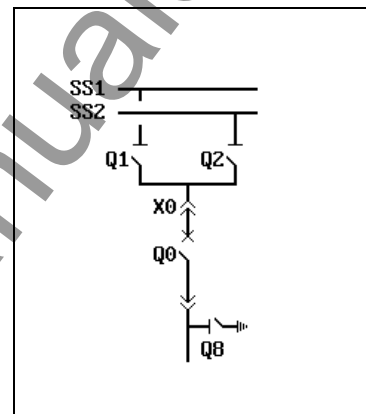
### Bay Type No. 52

(A21.105.R04)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |

## Appendix C - List of Bay Types

(continued)

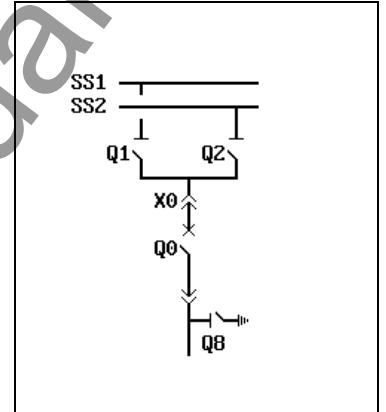
### Bay Type No. 53

(A21.105.R05)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q8 (DEV05)      | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| Q8              | Close (d)   | $(X0=0)$                                                                                          |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                                                          |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |

## Appendix C - List of Bay Types

(continued)

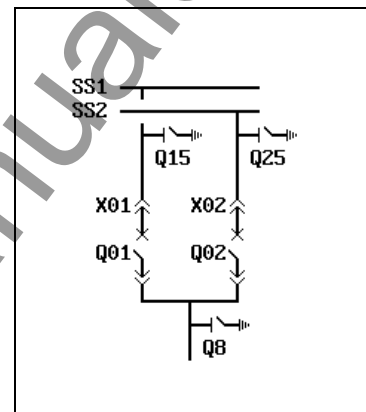
### Bay Type No. 526

(A21.125.R02)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| X02 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |
| Q15 (DEV06)     | Open      | U 2K         | /            |
|                 | Close (d) | U 2L         | /            |
| Q25 (DEV07)     | Open      | U 2M         | /            |
|                 | Close (d) | U 2N         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q02             | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q02             | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

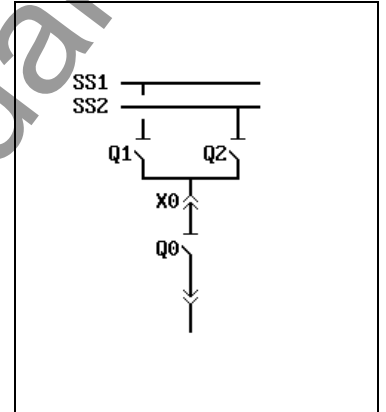
### Bay Type No. 54

(A21.204.M04)

Feeder bay with switch disconnecter, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| X0 (DEV04)                      | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |



# Appendix C - List of Bay Types

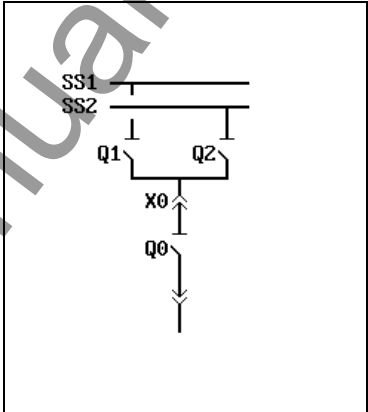
(continued)

## Bay Type No. 55 (A21.204.R01)

Feeder bay with switch disconnector, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q2 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| X0 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

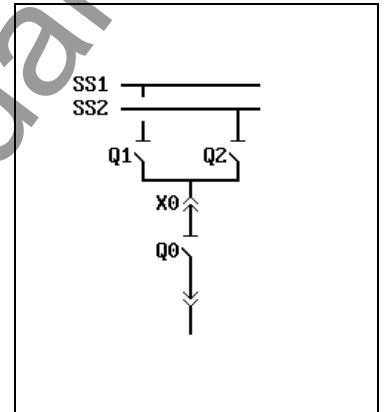
### Bay Type No. 56

(A21.204.R03)

Feeder bay with switch disconnecter, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

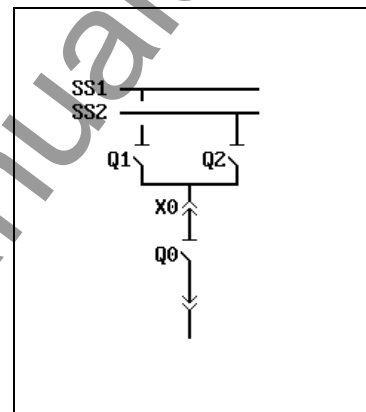
### Bay Type No. 57

(A21.204.R04)

Feeder bay with switch disconnecter, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |

## Appendix C - List of Bay Types

(continued)

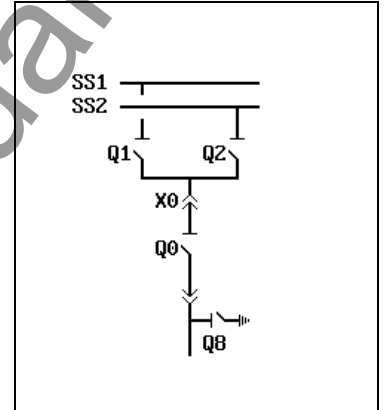
### Bay Type No. 58

(A21.205.M05)

Feeder bay with switch disconnecter, double busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| X0 (DEV04)                      | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| Q8 (DEV05)                      | Open      | U 2K         | K 2K         |
|                                 | Close (d) | U 2L         | K 2L         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| Q8              | Close (d)   | $(X0=0)$                                                                                          |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                                                          |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |

# Appendix C - List of Bay Types

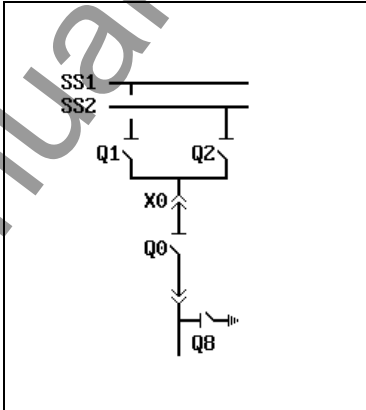
(continued)

## Bay Type No. 59 (A21.205.R01)

Feeder bay with switch disconnector, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q2 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| X0 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

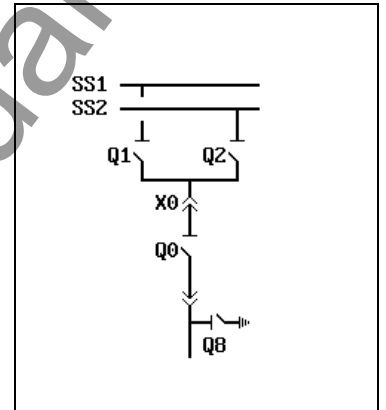
### Bay Type No. 60

(A21.205.R03)

Feeder bay with switch disconnecter, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

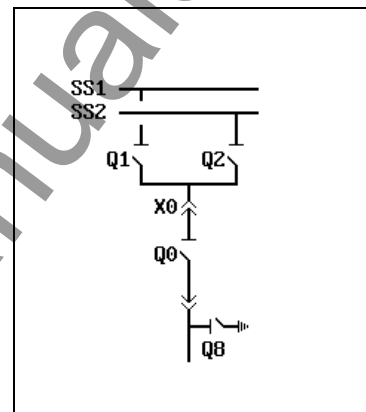
### Bay Type No. 61

(A21.205.R04)

Feeder bay with switch disconnector, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |

## Appendix C - List of Bay Types

(continued)

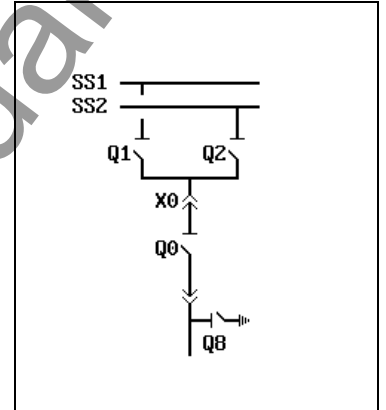
### Bay Type No. 62

(A21.205.R05)

Feeder bay with switch disconnecter, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q8 (DEV05)      | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| Q8              | Close (d)   | $(X0=0)$                                                                                          |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                                                          |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |



## Appendix C - List of Bay Types

(continued)

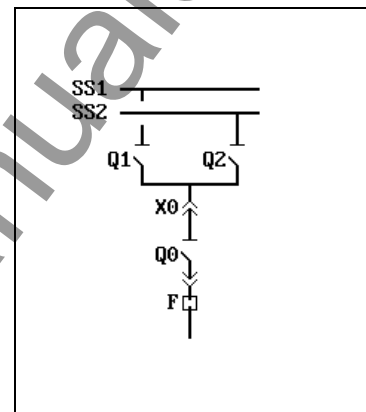
### Bay Type No. 63

(A21.404.M04)

Feeder bay with switch disconnecter / fuse unit, double busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| X0 (DEV04)                      | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| F (SIG_1: Signal S011)          |           | U 2K         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |

## Appendix C - List of Bay Types

(continued)

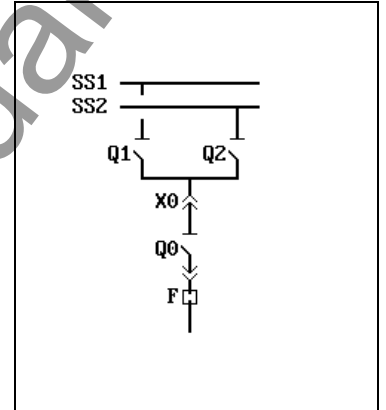
### Bay Type No. 64

(A21.404.R01)

Feeder bay with switch disconnecter / fuse unit, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)             | Open      | U 2C         | /            |
|                        | Close (d) | U 2D         | /            |
| Q2 (DEV03)             | Open      | U 2E         | /            |
|                        | Close (d) | U 2F         | /            |
| X0 (DEV04)             | Open      | U 2G         | /            |
|                        | Close (d) | U 2H         | /            |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

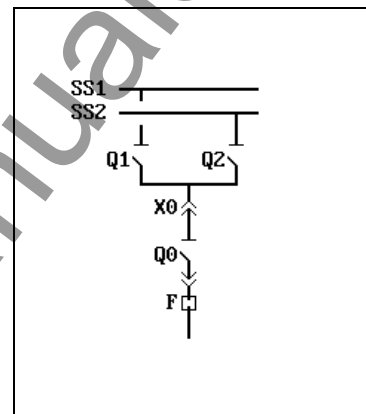
### Bay Type No. 65

(A21.404.R03)

Feeder bay with switch disconnecter / fuse unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)             | Open      | U 2E         | K 2E         |
|                        | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)             | Open      | U 2G         | /            |
|                        | Close (d) | U 2H         | /            |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

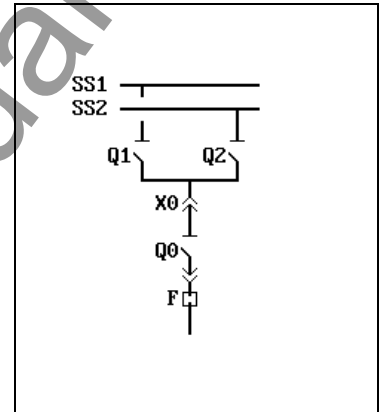
### Bay Type No. 66

(A21.404.R04)

Feeder bay with switch disconnecter / fuse unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)             | Open      | U 2E         | K 2E         |
|                        | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)             | Open      | U 2G         | K 2G         |
|                        | Close (d) | U 2H         | K 2H         |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |

## Appendix C - List of Bay Types

(continued)

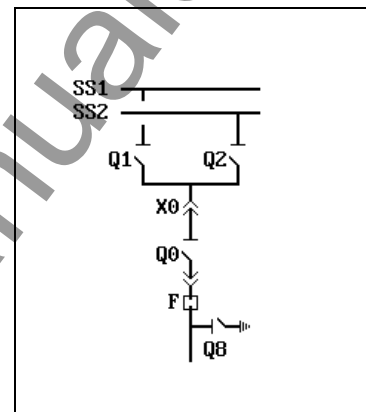
### Bay Type No. 67

(A21.405.M05)

Feeder bay with switch disconnector / fuse unit, double busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                       | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                       | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| X0 (DEV04)                       | Open      | U 2I         | K 2I         |
|                                  | Close (d) | U 2J         | K 2J         |
| Q8 (DEV05)                       | Open      | U 2K         | K 2K         |
|                                  | Close (d) | U 2L         | K 2L         |
| F (SIG_1: Signal S011)           |           | U 2D         | /            |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| Q8              | Close (d)   | $(X0=0)$                                                                                          |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                                                          |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |

## Appendix C - List of Bay Types

(continued)

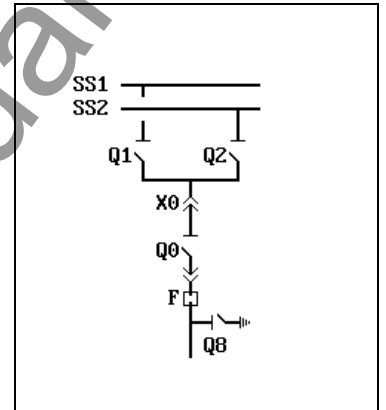
### Bay Type No. 68

(A21.405.R01)

Feeder bay with switch disconnecter / fuse unit, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)             | Open      | U 2C         | /            |
|                        | Close (d) | U 2D         | /            |
| Q2 (DEV03)             | Open      | U 2E         | /            |
|                        | Close (d) | U 2F         | /            |
| X0 (DEV04)             | Open      | U 2G         | /            |
|                        | Close (d) | U 2H         | /            |
| Q8 (DEV05)             | Open      | U 2I         | /            |
|                        | Close (d) | U 2J         | /            |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

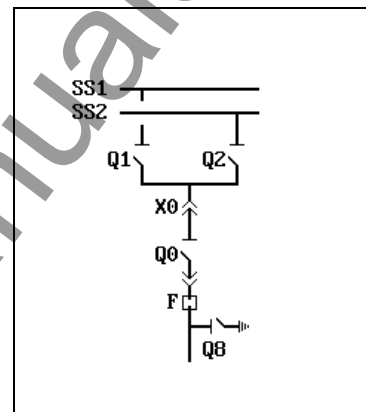
### Bay Type No. 69

(A21.405.R03)

Feeder bay with switch disconnector / fuse unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)             | Open      | U 2E         | K 2E         |
|                        | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)             | Open      | U 2G         | /            |
|                        | Close (d) | U 2H         | /            |
| Q8 (DEV05)             | Open      | U 2I         | /            |
|                        | Close (d) | U 2J         | /            |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

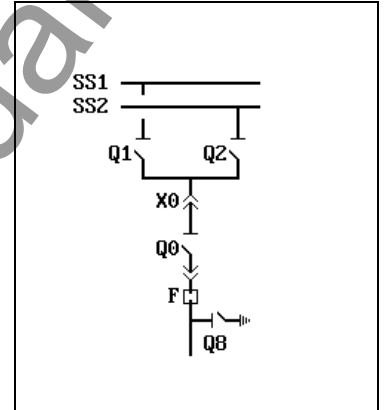
### Bay Type No. 70

(A21.405.R04)

Feeder bay with switch disconnecter / fuse unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)             | Open      | U 2E         | K 2E         |
|                        | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)             | Open      | U 2G         | K 2G         |
|                        | Close (d) | U 2H         | K 2H         |
| Q8 (DEV05)             | Open      | U 2I         | /            |
|                        | Close (d) | U 2J         | /            |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |



## Appendix C - List of Bay Types

(continued)

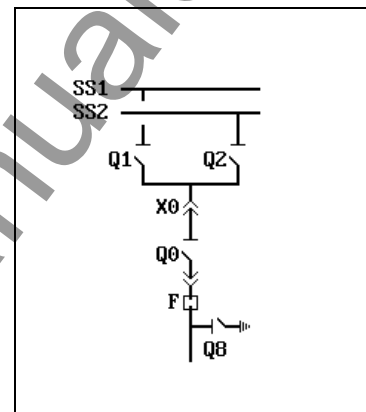
### Bay Type No. 71

(A21.405.R05)

Feeder bay with switch disconnector / fuse unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)             | Open      | U 2E         | K 2E         |
|                        | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)             | Open      | U 2G         | K 2G         |
|                        | Close (d) | U 2H         | K 2H         |
| Q8 (DEV05)             | Open      | U 2I         | K 2I         |
|                        | Close (d) | U 2J         | K 2J         |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| Q8              | Close (d)   | $(X0=0)$                                                                                          |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X0=0)$                                                                                          |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                |

## Appendix C - List of Bay Types

(continued)

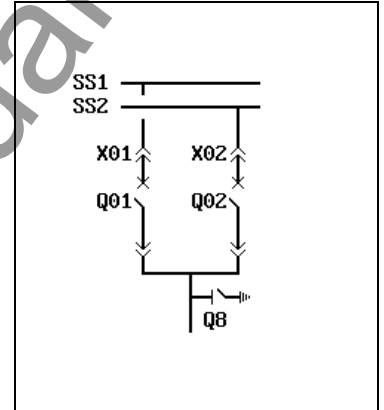
### Bay Type No. 72

(A22.101.R02)

Feeder bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| X02 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                  |
|-----------------|-------------|-------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $(Q02=0) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $(Q01=0) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                   |
|-----------------|-------------|----------------------------------------------------------------------|
| Q01             | Close (d)   | $/ (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $/ (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

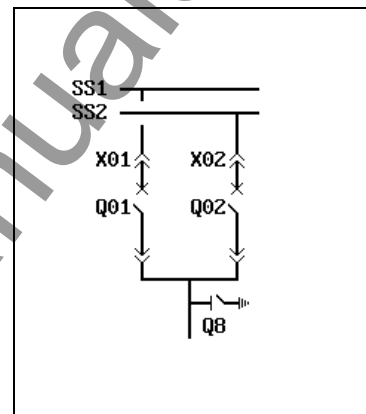
### Bay Type No. 73

(A22.101.R04)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X02 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                  |
|-----------------|-------------|-------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $(Q02=0) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $(Q01=0) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| X01             | Open        | $(Q01=0)$                                                                           |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q8=0)$                                                             |
| X02             | Open        | $(Q02=0)$                                                                           |
|                 | Close (d)   | $(Q02=0) \ \& \ (Q8=0)$                                                             |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                   |
|-----------------|-------------|----------------------------------------------------------------------|
| Q01             | Close (d)   | $/ (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $/ (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| X01             | Open        | $(Q01=0)$                                                            |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q8=0)$                                              |
| X02             | Open        | $(Q02=0)$                                                            |
|                 | Close (d)   | $(Q02=0) \ \& \ (Q8=0)$                                              |

## Appendix C - List of Bay Types

(continued)

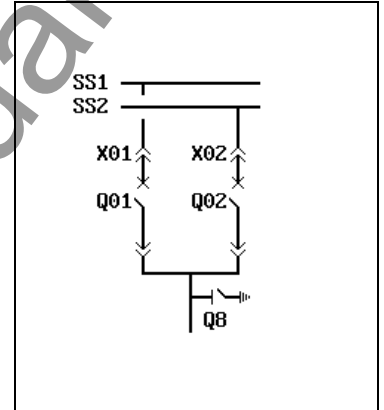
### Bay Type No. 74

(A22.101.R05)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X02 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q8 (DEV05)      | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                  |
|-----------------|-------------|-------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $(Q02=0) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $(Q01=0) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q8              | Close (d)   | $(X01=0) \ \& \ (X02=0)$                                                            |
| X01             | Open        | $(Q01=0)$                                                                           |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q8=0)$                                                             |
| X02             | Open        | $(Q02=0)$                                                                           |
|                 | Close (d)   | $(Q02=0) \ \& \ (Q8=0)$                                                             |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                   |
|-----------------|-------------|----------------------------------------------------------------------|
| Q01             | Close (d)   | $/ (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $/ (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q8              | Close (d)   | $(X01=0) \ \& \ (X02=0)$                                             |
| X01             | Open        | $(Q01=0)$                                                            |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q8=0)$                                              |
| X02             | Open        | $(Q02=0)$                                                            |
|                 | Close (d)   | $(Q02=0) \ \& \ (Q8=0)$                                              |

## Appendix C - List of Bay Types

(continued)

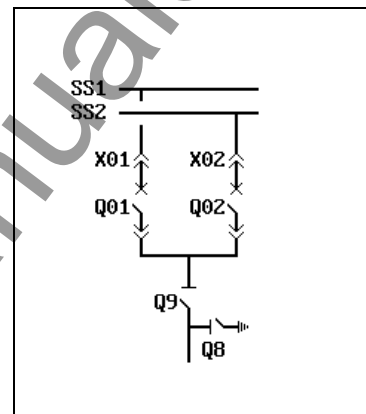
### Bay Type No. 75

(A22.103.R02)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| X02 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q9 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |
| Q8 (DEV06)      | Open      | U 2K         | /            |
|                 | Close (d) | U 2L         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $(Q02=0) \ \& \ / (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $(Q01=0) \ \& \ / (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                   |
|-----------------|-------------|--------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $/ (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $/ (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

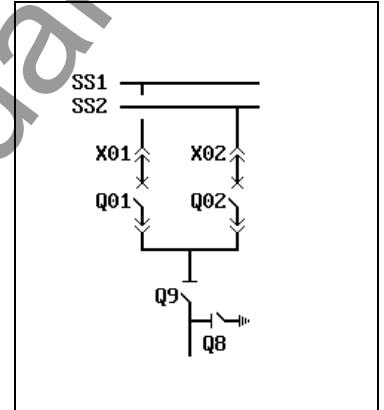
### Bay Type No. 76

(A22.103.R03)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| X02 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q9 (DEV05)      | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |
| Q8 (DEV06)      | Open      | U 2K         | /            |
|                 | Close (d) | U 2L         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $(Q02=0) \ \& \ / (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $(Q01=0) \ \& \ / (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q9              | Open        | $(Q01=0) \ \& \ (Q02=0)$                                                                            |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$                                                              |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                   |
|-----------------|-------------|--------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $/ (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $/ (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q9              | Open        | $(Q01=0) \ \& \ (Q02=0)$                                                             |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$                                               |

## Appendix C - List of Bay Types

(continued)

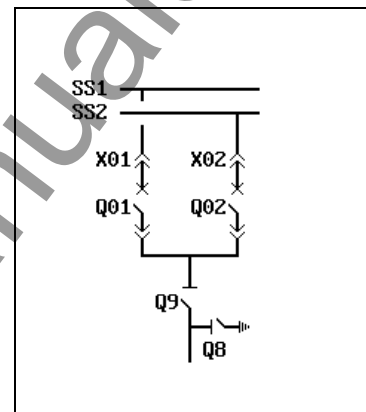
### Bay Type No. 77

(A22.103.R05)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X02 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q9 (DEV05)      | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |
| Q8 (DEV06)      | Open      | U 2K         | /            |
|                 | Close (d) | U 2L         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $(Q02=0) \ \& \ / (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $(Q01=0) \ \& \ / (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q9              | Open        | $(Q01=0) \ \& \ (Q02=0)$                                                                            |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$                                                              |
| X01             | Open        | $(Q01=0)$                                                                                           |
|                 | Close (d)   | $(Q01=0)$                                                                                           |
| X02             | Open        | $(Q02=0)$                                                                                           |
|                 | Close (d)   | $(Q02=0)$                                                                                           |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                   |
|-----------------|-------------|--------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $/ (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $/ (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q9              | Open        | $(Q01=0) \ \& \ (Q02=0)$                                                             |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$                                               |
| X01             | Open        | $(Q01=0)$                                                                            |
|                 | Close (d)   | $(Q01=0)$                                                                            |
| X02             | Open        | $(Q02=0)$                                                                            |
|                 | Close (d)   | $(Q02=0)$                                                                            |

## Appendix C - List of Bay Types

(continued)

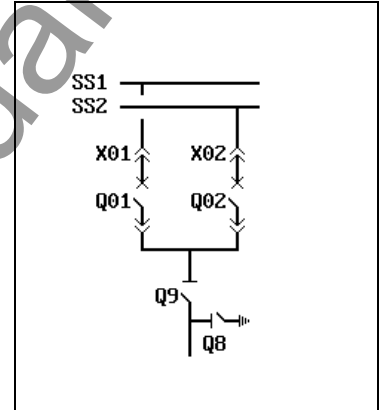
### Bay Type No. 78

(A22.103.R06)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X02 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q9 (DEV05)      | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |
| Q8 (DEV06)      | Open      | U 2K         | K 2K         |
|                 | Close (d) | U 2L         | K 2L         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $(Q02=0) \ \& \ / (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $(Q01=0) \ \& \ / (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q8              | Close (d)   | $(Q9=0)$                                                                                            |
| Q9              | Open        | $(Q01=0) \ \& \ (Q02=0)$                                                                            |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$                                                              |
| X01             | Open        | $(Q01=0)$                                                                                           |
|                 | Close (d)   | $(Q01=0)$                                                                                           |
| X02             | Open        | $(Q02=0)$                                                                                           |
|                 | Close (d)   | $(Q02=0)$                                                                                           |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                   |
|-----------------|-------------|--------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $/ (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $/ (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q8              | Close (d)   | $(Q9=0)$                                                                             |
| Q9              | Open        | $(Q01=0) \ \& \ (Q02=0)$                                                             |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$                                               |
| X01             | Open        | $(Q01=0)$                                                                            |
|                 | Close (d)   | $(Q01=0)$                                                                            |
| X02             | Open        | $(Q02=0)$                                                                            |
|                 | Close (d)   | $(Q02=0)$                                                                            |



## Appendix C - List of Bay Types

(continued)

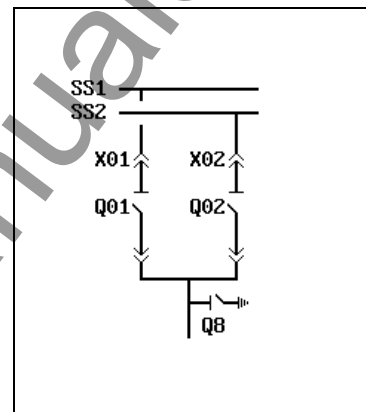
### Bay Type No. 79

(A22.201.R02)

Feeder bay with switch disconnector, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| X02 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                  |
|-----------------|-------------|-------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $(Q02=0) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $(Q01=0) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                   |
|-----------------|-------------|----------------------------------------------------------------------|
| Q01             | Close (d)   | $/ (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $/ (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

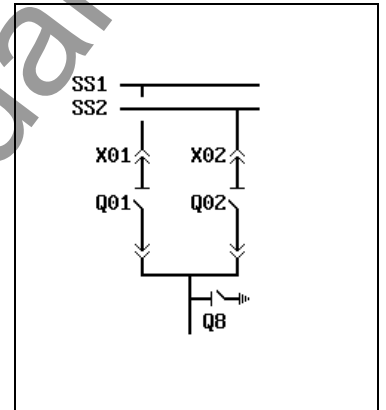
### Bay Type No. 80

(A22.201.R04)

Feeder bay with switch disconnecter, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X02 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                  |
|-----------------|-------------|-------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $(Q02=0) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $(Q01=0) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| X01             | Open        | $(Q01=0)$                                                                           |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q8=0)$                                                             |
| X02             | Open        | $(Q02=0)$                                                                           |
|                 | Close (d)   | $(Q02=0) \ \& \ (Q8=0)$                                                             |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                   |
|-----------------|-------------|----------------------------------------------------------------------|
| Q01             | Close (d)   | $/ (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $/ (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| X01             | Open        | $(Q01=0)$                                                            |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q8=0)$                                              |
| X02             | Open        | $(Q02=0)$                                                            |
|                 | Close (d)   | $(Q02=0) \ \& \ (Q8=0)$                                              |

## Appendix C - List of Bay Types

(continued)

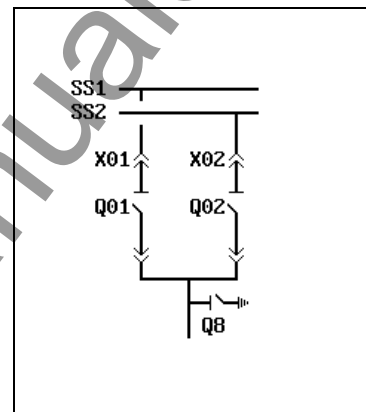
### Bay Type No. 81

(A22.201.R05)

Feeder bay with switch disconnector, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X02 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q8 (DEV05)      | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                  |
|-----------------|-------------|-------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $(Q02=0) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $(Q01=0) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q8              | Close (d)   | $(X01=0) \ \& \ (X02=0)$                                                            |
| X01             | Open        | $(Q01=0)$                                                                           |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q8=0)$                                                             |
| X02             | Open        | $(Q02=0)$                                                                           |
|                 | Close (d)   | $(Q02=0) \ \& \ (Q8=0)$                                                             |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                   |
|-----------------|-------------|----------------------------------------------------------------------|
| Q01             | Close (d)   | $/ (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $/ (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q8              | Close (d)   | $(X01=0) \ \& \ (X02=0)$                                             |
| X01             | Open        | $(Q01=0)$                                                            |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q8=0)$                                              |
| X02             | Open        | $(Q02=0)$                                                            |
|                 | Close (d)   | $(Q02=0) \ \& \ (Q8=0)$                                              |

## Appendix C - List of Bay Types

(continued)

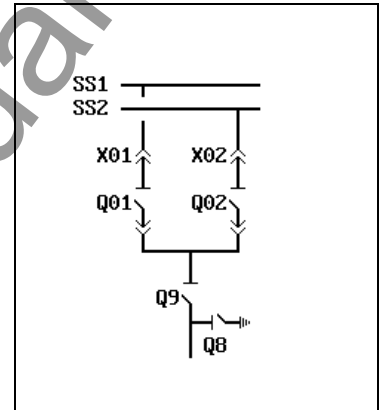
### Bay Type No. 82

(A22.203.R02)

Feeder bay with switch disconnecter, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| X02 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q9 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |
| Q8 (DEV06)      | Open      | U 2K         | /            |
|                 | Close (d) | U 2L         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $(Q02=0) \ \& \ / (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $(Q01=0) \ \& \ / (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                   |
|-----------------|-------------|--------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $/ (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $/ (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

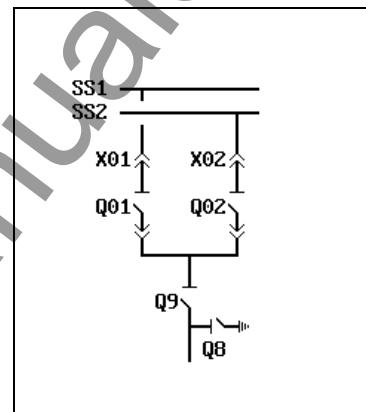
### Bay Type No. 83

(A22.203.R03)

Feeder bay with switch disconnector, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| X02 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q9 (DEV05)      | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |
| Q8 (DEV06)      | Open      | U 2K         | /            |
|                 | Close (d) | U 2L         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $(Q02=0) \ \& \ / (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $(Q01=0) \ \& \ / (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q9              | Open        | $(Q01=0) \ \& \ (Q02=0)$                                                                            |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$                                                              |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                   |
|-----------------|-------------|--------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $/ (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $/ (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q9              | Open        | $(Q01=0) \ \& \ (Q02=0)$                                                             |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$                                               |

## Appendix C - List of Bay Types

(continued)

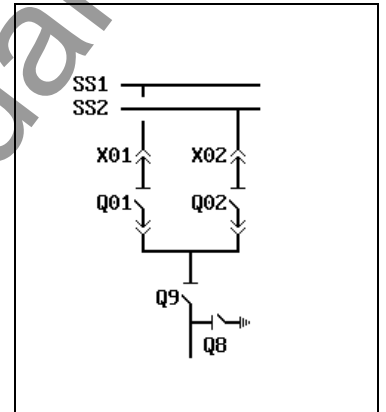
### Bay Type No. 84

(A22.203.R05)

Feeder bay with switch disconnecter, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X02 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q9 (DEV05)      | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |
| Q8 (DEV06)      | Open      | U 2K         | /            |
|                 | Close (d) | U 2L         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                             |
|-----------------|-------------|------------------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $(Q02=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |
| Q02             | Close (d)   | $(Q01=0) \ \& \ /(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |
| Q9              | Open        | $(Q01=0) \ \& \ (Q02=0)$                                                                       |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$                                                         |
| X01             | Open        | $(Q01=0)$                                                                                      |
|                 | Close (d)   | $(Q01=0)$                                                                                      |
| X02             | Open        | $(Q02=0)$                                                                                      |
|                 | Close (d)   | $(Q02=0)$                                                                                      |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                              |
|-----------------|-------------|---------------------------------------------------------------------------------|
| Q01             | Close (d)   | $/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |
| Q02             | Close (d)   | $/(Q9=X) \ \& \ /(X01=X) \ \& \ /(X02=X) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |
| Q9              | Open        | $(Q01=0) \ \& \ (Q02=0)$                                                        |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$                                          |
| X01             | Open        | $(Q01=0)$                                                                       |
|                 | Close (d)   | $(Q01=0)$                                                                       |
| X02             | Open        | $(Q02=0)$                                                                       |
|                 | Close (d)   | $(Q02=0)$                                                                       |

# Appendix C - List of Bay Types

(continued)

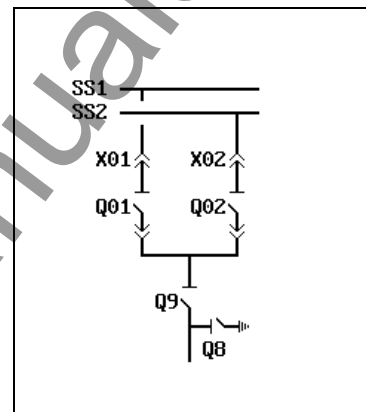
## Bay Type No. 85

(A22.203.R06)

Feeder bay with switch disconnector, double busbar

## Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X02 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q9 (DEV05)      | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |
| Q8 (DEV06)      | Open      | U 2K         | K 2K         |
|                 | Close (d) | U 2L         | K 2L         |



## Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $(Q02=0) \ \& \ / (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $(Q01=0) \ \& \ / (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q8              | Close (d)   | $(Q9=0)$                                                                                            |
| Q9              | Open        | $(Q01=0) \ \& \ (Q02=0)$                                                                            |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$                                                              |
| X01             | Open        | $(Q01=0)$                                                                                           |
|                 | Close (d)   | $(Q01=0)$                                                                                           |
| X02             | Open        | $(Q02=0)$                                                                                           |
|                 | Close (d)   | $(Q02=0)$                                                                                           |

## Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                   |
|-----------------|-------------|--------------------------------------------------------------------------------------|
| Q01             | Close (d)   | $/ (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q02             | Close (d)   | $/ (Q9=X) \ \& \ / (X01=X) \ \& \ / (X02=X) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q8              | Close (d)   | $(Q9=0)$                                                                             |
| Q9              | Open        | $(Q01=0) \ \& \ (Q02=0)$                                                             |
|                 | Close (d)   | $(Q01=0) \ \& \ (Q02=0) \ \& \ (Q8=0)$                                               |
| X01             | Open        | $(Q01=0)$                                                                            |
|                 | Close (d)   | $(Q01=0)$                                                                            |
| X02             | Open        | $(Q02=0)$                                                                            |
|                 | Close (d)   | $(Q02=0)$                                                                            |

## Appendix C - List of Bay Types

(continued)

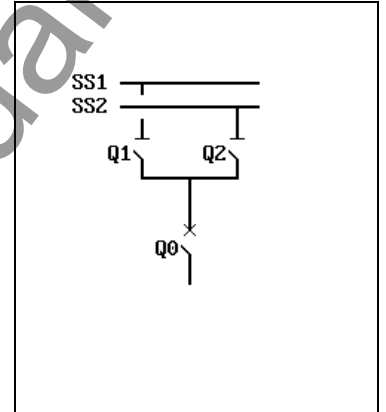
### Bay Type No. 86

(A23.104.M03)

Feeder bay with circuit breaker, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |          | Binary input | Output relay |
|---------------------------------|----------|--------------|--------------|
| Q0 (DEV01)                      | Open     | U 2A         | K 2A         |
|                                 | Close(d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open     | U 2E         | K 2E         |
|                                 | Close(d) | U 2F         | K 2F         |
| Q2 (DEV03)                      | Open     | U 2G         | K 2G         |
|                                 | Close(d) | U 2H         | K 2H         |
| Mot.relay (SIG_1: Signal S012)  |          | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |          | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |          | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close(d)    | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                         |
|                 | Close(d)    | $(Q0=0) \ \& \ (Q2=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                         |
|                 | Close(d)    | $(Q0=0) \ \& \ (Q1=0)$                                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close(d)    | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |



# Appendix C - List of Bay Types

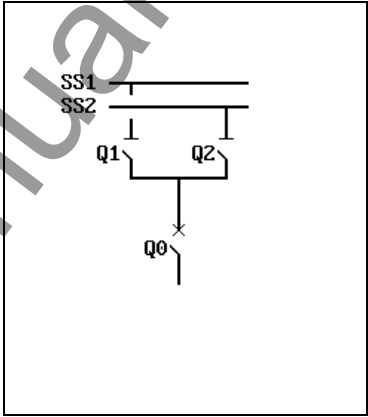
(continued)

## Bay Type No. 87 (A23.104.R01)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q2 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

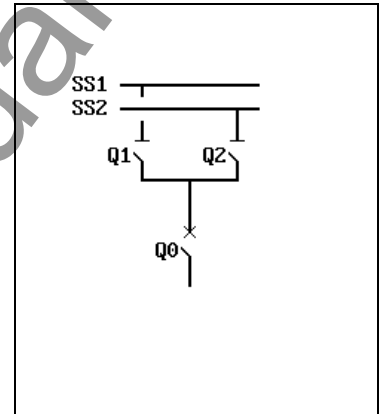
### Bay Type No. 88

(A23.104.R03)

Feeder bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

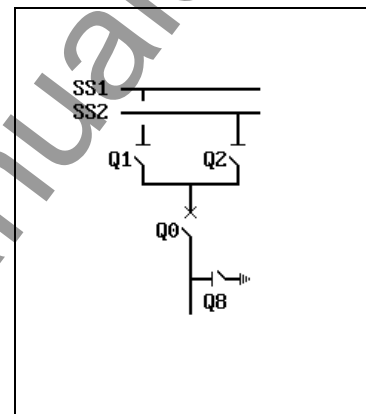
### Bay Type No. 89

(A23.105.M04)

Feeder bay with circuit breaker, double busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                       | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                       | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| Q8 (DEV04)                       | Open      | U 2I         | K 2I         |
|                                  | Close (d) | U 2J         | K 2J         |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$                                                         |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Close (d)   | $(Q8=0)$                                                                                     |
| Q2              | Close (d)   | $(Q8=0)$                                                                                     |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                         |

## Appendix C - List of Bay Types

(continued)

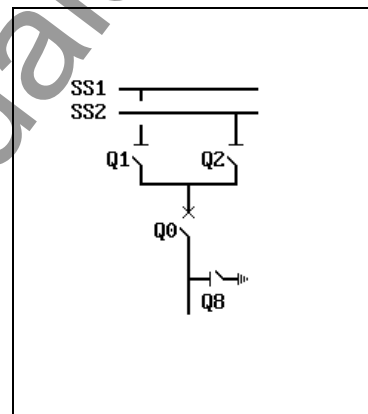
### Bay Type No. 90

(A23.105.R01)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q2 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q8 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

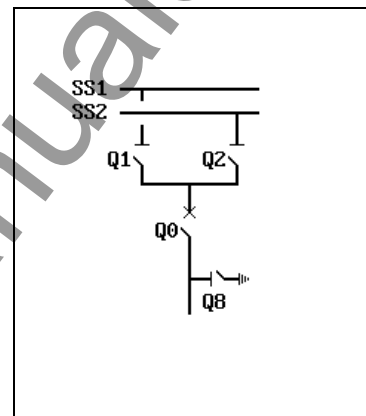
### Bay Type No. 91

(A23.105.R03)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$                                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Close (d)   | $(Q8=0)$                                                                                     |
| Q2              | Close (d)   | $(Q8=0)$                                                                                     |

## Appendix C - List of Bay Types

(continued)

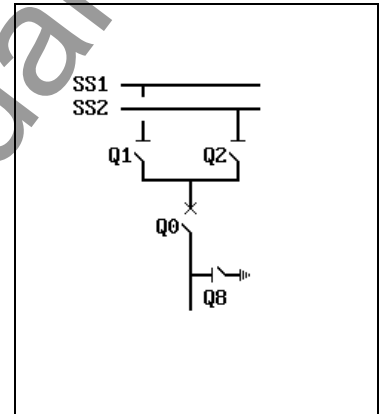
### Bay Type No. 92

(A23.105.R04)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$                                                         |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Close (d)   | $(Q8=0)$                                                                                     |
| Q2              | Close (d)   | $(Q8=0)$                                                                                     |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                         |

## Appendix C - List of Bay Types

(continued)

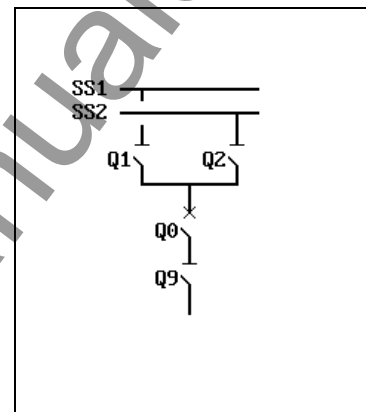
### Bay Type No. 93

(A23.106.M04)

Feeder bay with circuit breaker, double busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                       | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                       | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| Q9 (DEV04)                       | Open      | U 2I         | K 2I         |
|                                  | Close (d) | U 2J         | K 2J         |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0)$                                                                                          |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0)$                                                                                          |

## Appendix C - List of Bay Types

(continued)

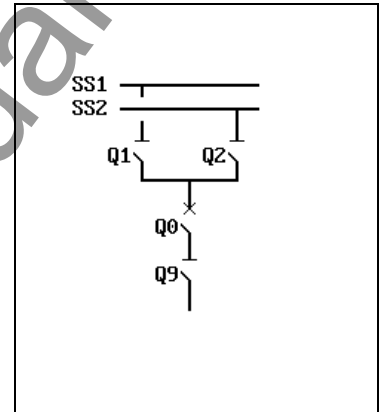
### Bay Type No. 94

(A23.106.R01)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q2 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q9 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |



## Appendix C - List of Bay Types

(continued)

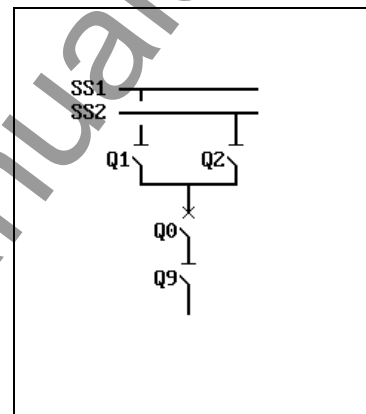
### Bay Type No. 95

(A23.106.R04)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q9 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0)$                                                                                          |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0)$                                                                                          |

## Appendix C - List of Bay Types

(continued)

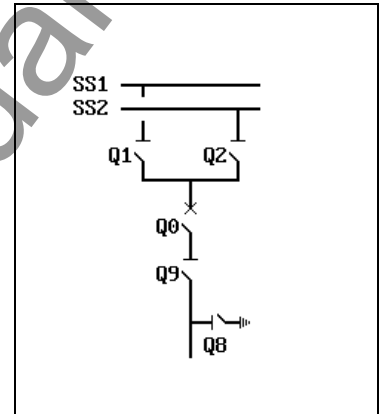
### Bay Type No. 96

(A23.107.M05)

Feeder bay with circuit breaker, double busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Q9 (DEV04)                      | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| Q8 (DEV05)                      | Open      | U 2K         | K 2K         |
|                                 | Close (d) | U 2L         | K 2L         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| Q8              | Close (d)   | $(Q9=0)$                                                                                          |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(Q9=0)$                                                                                          |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                            |

# Appendix C - List of Bay Types

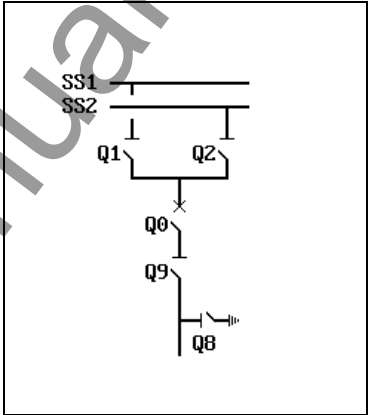
(continued)

## Bay Type No. 97 (A23.107.R01)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q2 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q9 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

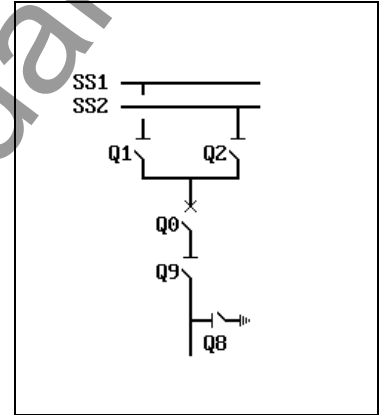
### Bay Type No. 98

(A23.107.R04)

Feeder bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q9 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                            |

## Appendix C - List of Bay Types

(continued)

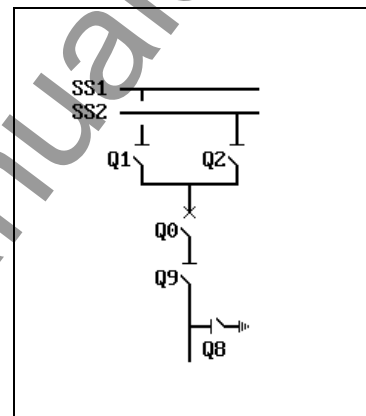
### Bay Type No. 99

(A23.107.R05)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q9 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q8 (DEV05)      | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| Q8              | Close (d)   | $(Q9=0)$                                                                                          |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(Q9=0)$                                                                                          |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                            |

## Appendix C - List of Bay Types

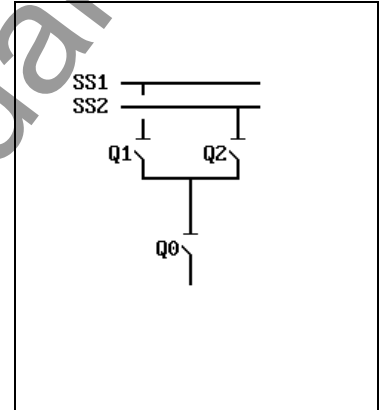
(continued)

### Bay Type No. 100 (A23.204.M03)

Feeder bay with switch disconnecter, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

# Appendix C - List of Bay Types

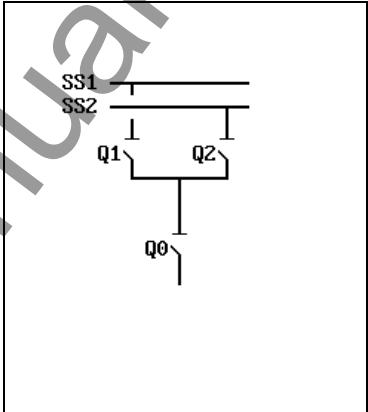
(continued)

## Bay Type No. 101 (A23.204.R01)

Feeder bay with switch disconnector, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q2 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

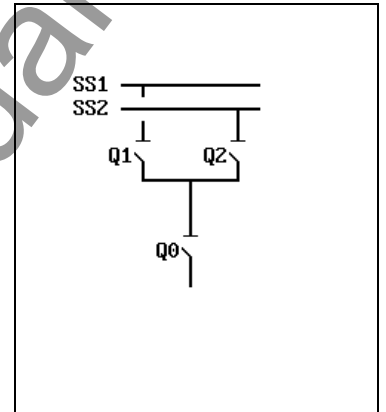
(continued)

### Bay Type No. 102 (A23.204.R03)

Feeder bay with switch disconnecter, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |



## Appendix C - List of Bay Types

(continued)

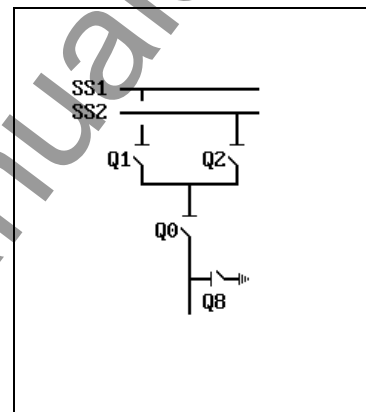
### Bay Type No. 103

(A23.205.M04)

Feeder bay with switch disconnector, double busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                       | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                       | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| Q8 (DEV04)                       | Open      | U 2I         | K 2I         |
|                                  | Close (d) | U 2J         | K 2J         |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$                                                         |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Close (d)   | $(Q8=0)$                                                                                     |
| Q2              | Close (d)   | $(Q8=0)$                                                                                     |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                         |

## Appendix C - List of Bay Types

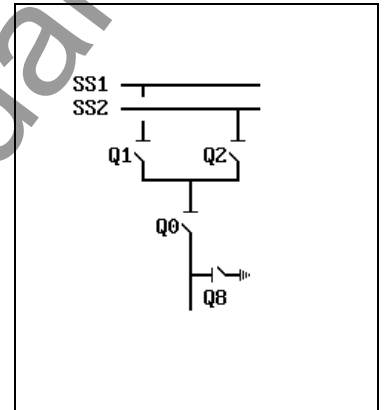
(continued)

### Bay Type No. 104 (A23.205.R01)

Feeder bay with switch disconnecter, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q2 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q8 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

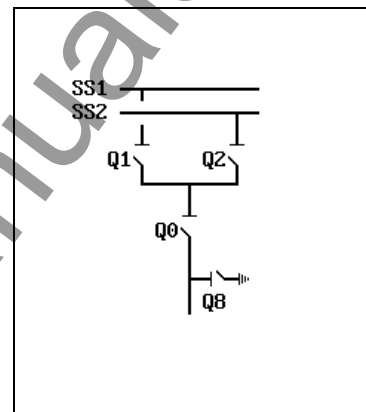
### Bay Type No. 105

(A23.205.R03)

Feeder bay with switch disconnector, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$                                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Close (d)   | $(Q8=0)$                                                                                     |
| Q2              | Close (d)   | $(Q8=0)$                                                                                     |

## Appendix C - List of Bay Types

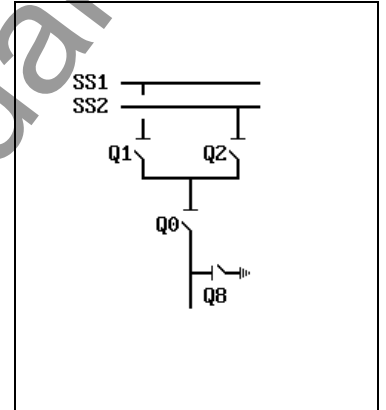
(continued)

### Bay Type No. 106 (A23.205.R04)

Feeder bay with switch disconnecter, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$                                                         |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Close (d)   | $(Q8=0)$                                                                                     |
| Q2              | Close (d)   | $(Q8=0)$                                                                                     |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                         |

## Appendix C - List of Bay Types

(continued)

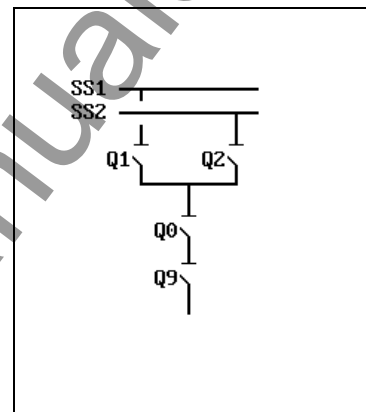
### Bay Type No. 107

(A23.206.M04)

Feeder bay with switch disconnecter, double busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                       | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                       | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| Q9 (DEV04)                       | Open      | U 2I         | K 2I         |
|                                  | Close (d) | U 2J         | K 2J         |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0)$                                                                                          |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0)$                                                                                          |

## Appendix C - List of Bay Types

(continued)

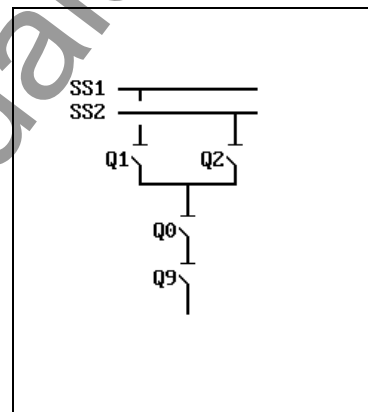
### Bay Type No. 108

(A23.206.R01)

Feeder bay with switch disconnecter, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q2 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q9 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

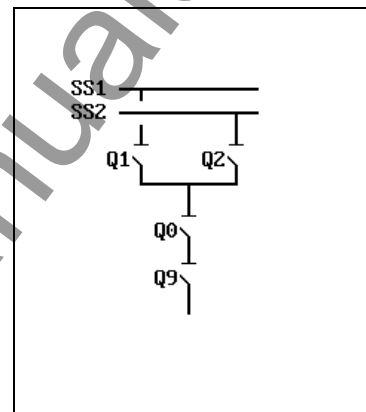
### Bay Type No. 109

(A23.206.R04)

Feeder bay with switch disconnecter, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q9 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0)$                                                                                          |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0)$                                                                                          |

## Appendix C - List of Bay Types

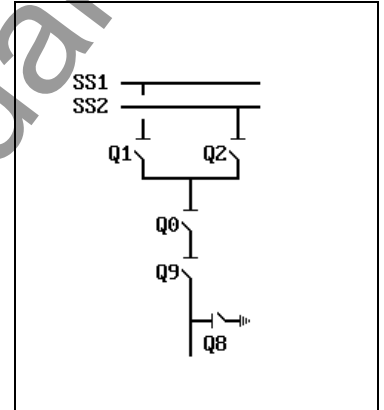
(continued)

### Bay Type No. 110 (A23.207.M05)

Feeder bay with switch disconnecter, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Q9 (DEV04)                      | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| Q8 (DEV05)                      | Open      | U 2K         | K 2K         |
|                                 | Close (d) | U 2L         | K 2L         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| Q8              | Close (d)   | $(Q9=0)$                                                                                          |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(Q9=0)$                                                                                          |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                            |



# Appendix C - List of Bay Types

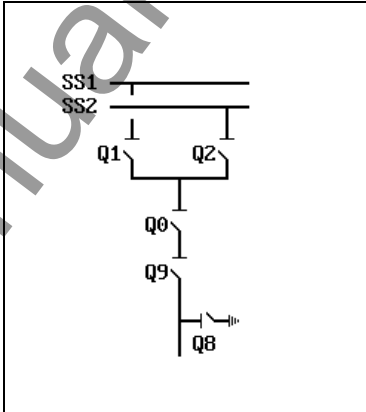
(continued)

## Bay Type No. 111 (A23.207.R01)

Feeder bay with switch disconnecter, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q2 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q9 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |

## Appendix C - List of Bay Types

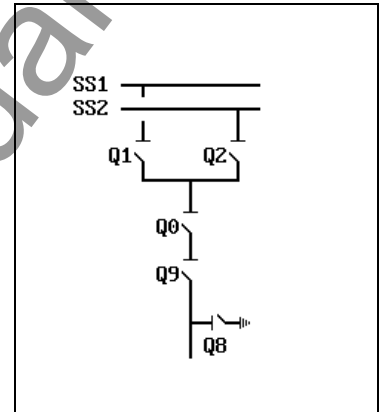
(continued)

### Bay Type No. 112 (A23.207.R04)

Feeder bay with switch disconnecter, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q9 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                            |

## Appendix C - List of Bay Types

(continued)

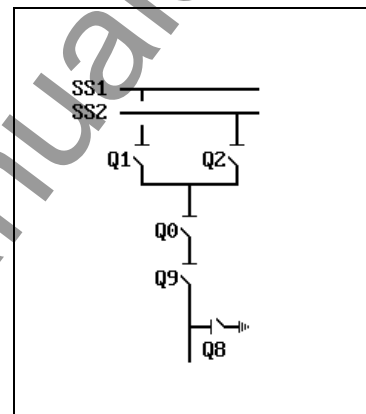
### Bay Type No. 113

(A23.207.R05)

Feeder bay with switch disconnector, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q9 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q8 (DEV05)      | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                            |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                            |
| Q8              | Close (d)   | $(Q9=0)$                                                                                          |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                |
|-----------------|-------------|---------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (Q9=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(Q9=0)$                                                                                          |
| Q9              | Open        | $(Q0=0)$                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                            |

## Appendix C - List of Bay Types

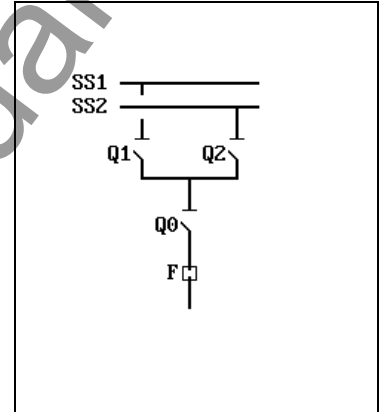
(continued)

### Bay Type No. 114 (A23.404.M03)

Feeder bay with switch disconnecter / fuse unit, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| F (SIG_1: Signal S011)          |           | U 2K         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

# Appendix C - List of Bay Types

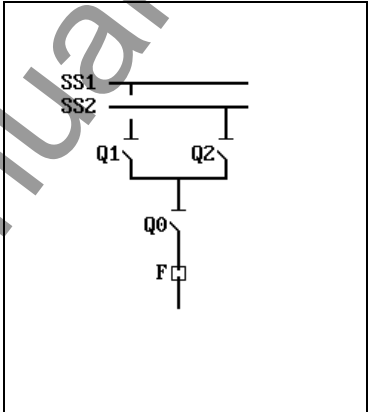
(continued)

## Bay Type No. 115 (A23.404.R01)

Feeder bay with switch disconnecter / fuse unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)             | Open      | U 2C         | /            |
|                        | Close (d) | U 2D         | /            |
| Q2 (DEV03)             | Open      | U 2E         | /            |
|                        | Close (d) | U 2F         | /            |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

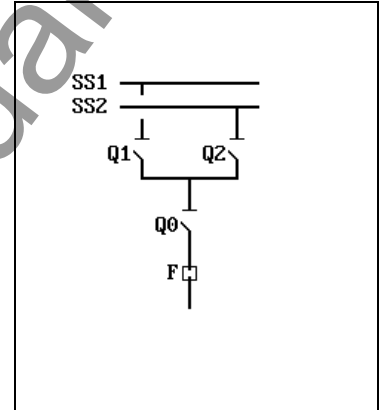
(continued)

### Bay Type No. 116 (A23.404.R03)

Feeder bay with switch disconnecter / fuse unit, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)             | Open      | U 2E         | K 2E         |
|                        | Close (d) | U 2F         | K 2F         |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                             |
|-----------------|-------------|--------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |

## Appendix C - List of Bay Types

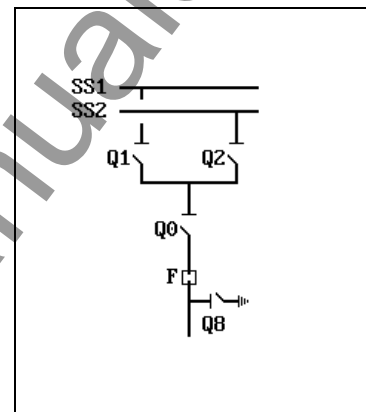
(continued)

### Bay Type No. 117 (A23.405.M04)

Feeder bay with switch disconnecter / fuse unit, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Q8 (DEV04)                      | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| F (SIG_1: Signal S011)          |           | U 2K         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$                                                         |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Close (d)   | $(Q8=0)$                                                                                     |
| Q2              | Close (d)   | $(Q8=0)$                                                                                     |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                         |

## Appendix C - List of Bay Types

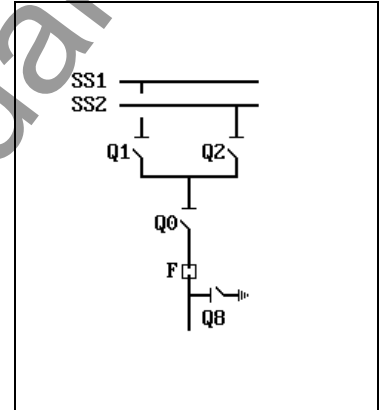
(continued)

### Bay Type No. 118 (A23.405.R01)

Feeder bay with switch disconnecter / fuse unit, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)             | Open      | U 2C         | /            |
|                        | Close (d) | U 2D         | /            |
| Q2 (DEV03)             | Open      | U 2E         | /            |
|                        | Close (d) | U 2F         | /            |
| Q8 (DEV04)             | Open      | U 2G         | /            |
|                        | Close (d) | U 2H         | /            |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |



## Appendix C - List of Bay Types

(continued)

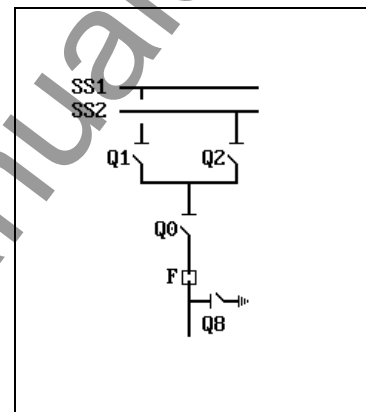
### Bay Type No. 119

(A23.405.R03)

Feeder bay with switch disconnecter / fuse unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)             | Open      | U 2E         | K 2E         |
|                        | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)             | Open      | U 2G         | /            |
|                        | Close (d) | U 2H         | /            |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$                                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Close (d)   | $(Q8=0)$                                                                                     |
| Q2              | Close (d)   | $(Q8=0)$                                                                                     |

## Appendix C - List of Bay Types

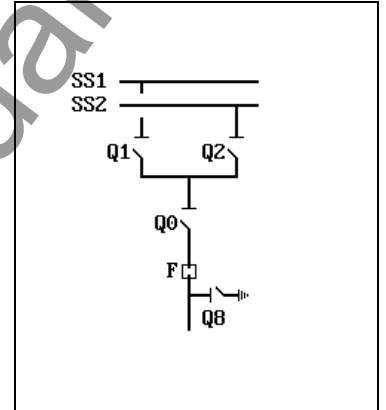
(continued)

### Bay Type No. 120 (A23.405.R04)

Feeder bay with switch disconnecter / fuse unit, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q0 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)             | Open      | U 2E         | K 2E         |
|                        | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)             | Open      | U 2G         | K 2G         |
|                        | Close (d) | U 2H         | K 2H         |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$                                                         |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Close (d)   | $(Q8=0)$                                                                                     |
| Q2              | Close (d)   | $(Q8=0)$                                                                                     |
| Q8              | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                         |

## Appendix C - List of Bay Types

(continued)

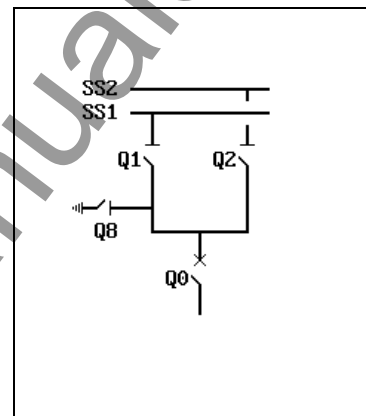
### Bay Type No. 222

(A25.105.M03.1)

Feeder bay with circuit breaker, double busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                       | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                       | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| Q8 (DEV04)                       | Open      | U 2I         | /            |
|                                  | Close (d) | U 2J         | /            |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                         |
|-----------------|-------------|------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                     |
|                 | Close (d)   | / (Q1=X) & / (Q2=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |
| Q1              | Open        | (Q0=0) & (Q2=0)                                            |
|                 | Close (d)   | (Q0=0) & (Q2=0) & (Q8=0)                                   |
| Q2              | Open        | (Q0=0) & (Q1=0)                                            |
|                 | Close (d)   | (Q0=0) & (Q1=0) & (Q8=0)                                   |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                         |
|-----------------|-------------|------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                     |
|                 | Close (d)   | / (Q1=X) & / (Q2=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |
| Q1              | Close (d)   | (Q8=0)                                                     |
| Q2              | Close (d)   | (Q8=0)                                                     |

## Appendix C - List of Bay Types

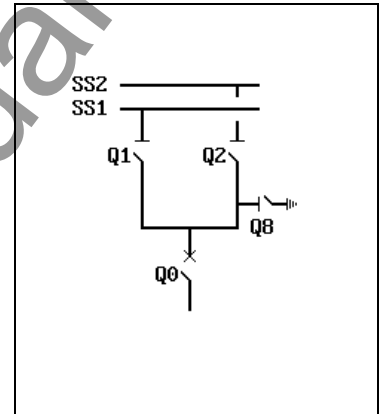
(continued)

### Bay Type No. 223 (A25.105.M03.2)

Feeder bay with circuit breaker, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Q8 (DEV04)                      | Open      | U 2I         | /            |
|                                 | Close (d) | U 2J         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q8=0)$                                                                                     |
|                 | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$                                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q8=0)$                                                                                     |
|                 | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Close (d)   | $(Q8=0)$                                                                                     |
| Q2              | Close (d)   | $(Q8=0)$                                                                                     |

# Appendix C - List of Bay Types

(continued)

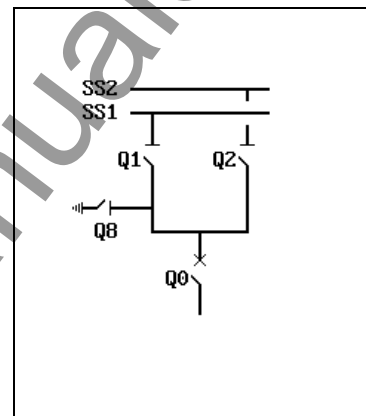
## Bay Type No. 121

(A25.105.M04.1)

Feeder bay with circuit breaker, double busbar,direct motor control

## Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Q8 (DEV04)                      | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



## Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                         |
|-----------------|-------------|------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                     |
|                 | Close (d)   | / (Q1=X) & / (Q2=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |
| Q1              | Open        | (Q0=0) & (Q2=0)                                            |
|                 | Close (d)   | (Q0=0) & (Q2=0) & (Q8=0)                                   |
| Q2              | Open        | (Q0=0) & (Q1=0)                                            |
|                 | Close (d)   | (Q0=0) & (Q1=0) & (Q8=0)                                   |
| Q8              | Open        | (Q0=I) & (Q1=0) & (Q2=0)                                   |
|                 | Close (d)   | (Q0=0) & (Q1=0) & (Q2=0) & / (FctB11=I) & / (FctB12=I)     |

## Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                         |
|-----------------|-------------|------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                     |
|                 | Close (d)   | / (Q1=X) & / (Q2=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |
| Q1              | Close (d)   | (Q8=0)                                                     |
| Q2              | Close (d)   | (Q8=0)                                                     |
| Q8              | Open        | (Q0=I) & (Q1=0) & (Q2=0)                                   |
|                 | Close (d)   | (Q0=0) & (Q1=0) & (Q2=0) & / (FctB11=I) & / (FctB12=I)     |

## Appendix C - List of Bay Types

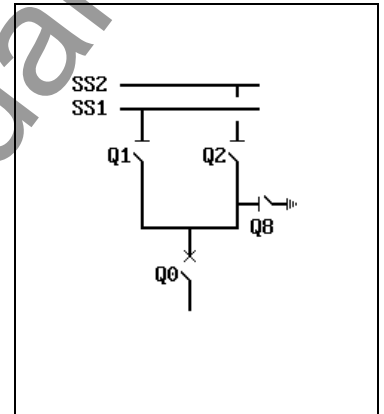
(continued)

### Bay Type No. 122 (A25.105.M04.2)

Feeder bay with circuit breaker, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)                       | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q2 (DEV03)                       | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| Q8 (DEV04)                       | Open      | U 2I         | K 2I         |
|                                  | Close (d) | U 2J         | K 2J         |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                     |
|-----------------|-------------|--------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                 |
|                 | Close (d)   | /(Q1=X) & /(Q2=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I) |
| Q1              | Open        | (Q0=0) & (Q2=0)                                        |
|                 | Close (d)   | (Q0=0) & (Q2=0) & (Q8=0)                               |
| Q2              | Open        | (Q0=0) & (Q1=0)                                        |
|                 | Close (d)   | (Q0=0) & (Q1=0) & (Q8=0)                               |
| Q8              | Open        | (Q0=I) & (Q1=0) & (Q2=0)                               |
|                 | Close (d)   | (Q0=0) & (Q1=0) & (Q2=0) & /(FctB11=I) & /(FctB12=I)   |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                     |
|-----------------|-------------|--------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                 |
|                 | Close (d)   | /(Q1=X) & /(Q2=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I) |
| Q1              | Close (d)   | (Q8=0)                                                 |
| Q2              | Close (d)   | (Q8=0)                                                 |
| Q8              | Open        | (Q0=I) & (Q1=0) & (Q2=0)                               |
|                 | Close (d)   | (Q0=0) & (Q1=0) & (Q2=0) & /(FctB11=I) & /(FctB12=I)   |

# Appendix C - List of Bay Types

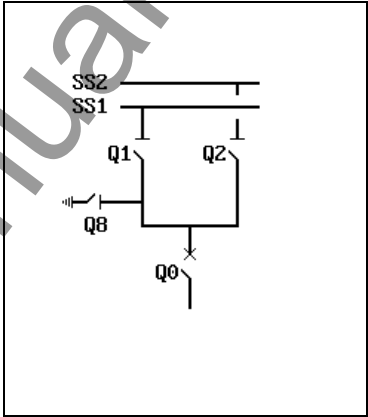
(continued)

## Bay Type No. 123 (A25.105.R01.1)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q2 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q8 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                         |
|-----------------|-------------|------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                     |
|                 | Close (d)   | / (Q1=X) & / (Q2=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                         |
|-----------------|-------------|------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                     |
|                 | Close (d)   | / (Q1=X) & / (Q2=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |

## Appendix C - List of Bay Types

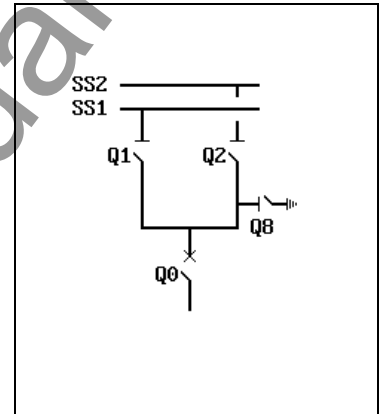
(continued)

### Bay Type No. 124 (A25.105.R01.2)

Feeder bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q2 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q8 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                         |
|-----------------|-------------|------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                     |
|                 | Close (d)   | / (Q1=X) & / (Q2=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                         |
|-----------------|-------------|------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                     |
|                 | Close (d)   | / (Q1=X) & / (Q2=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |



## Appendix C - List of Bay Types

(continued)

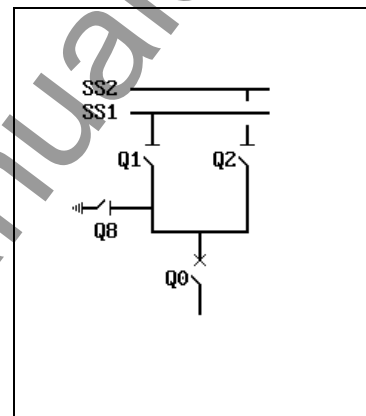
### Bay Type No. 224

(A25.105.R03.1)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q8=0)$                                                                                     |
|                 | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$                                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q8=0)$                                                                                     |
|                 | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Close (d)   | $(Q8=0)$                                                                                     |
| Q2              | Close (d)   | $(Q8=0)$                                                                                     |

## Appendix C - List of Bay Types

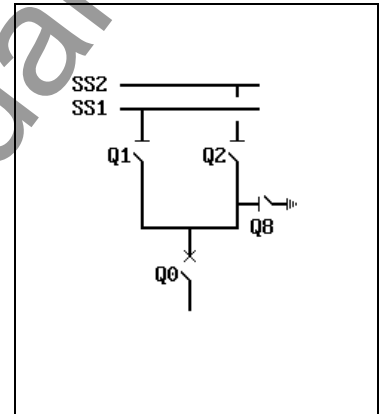
(continued)

### Bay Type No. 225 (A25.105.R03.2)

Feeder bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q8=0)$                                                                                     |
|                 | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$                                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q8=0)$                                                                                     |
|                 | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Close (d)   | $(Q8=0)$                                                                                     |
| Q2              | Close (d)   | $(Q8=0)$                                                                                     |

# Appendix C - List of Bay Types

(continued)

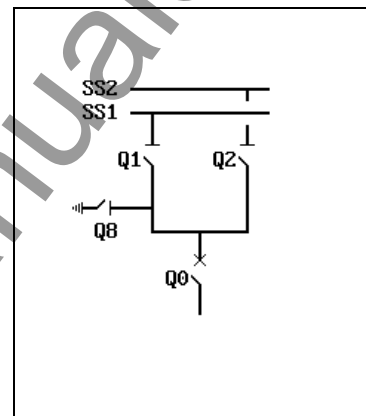
## Bay Type No. 125

(A25.105.R04.1)

Feeder bay with circuit breaker, double busbar

## Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



## Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q8=0)$                                                                                     |
|                 | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$                                                         |
| Q8              | Open        | $(Q0=I) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$           |

## Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q8=0)$                                                                                     |
|                 | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Close (d)   | $(Q8=0)$                                                                                     |
| Q2              | Close (d)   | $(Q8=0)$                                                                                     |
| Q8              | Open        | $(Q0=I) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$           |

## Appendix C - List of Bay Types

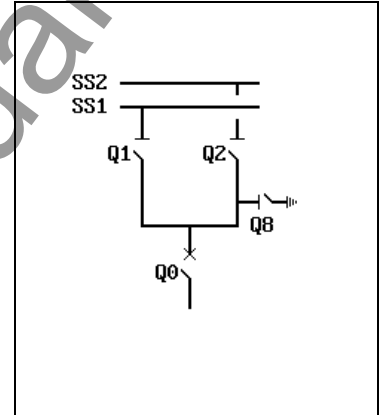
(continued)

### Bay Type No. 126 (A25.105.R04.2)

Feeder bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q8=0)$                                                                                     |
|                 | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0) \ \& \ (Q8=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q8=0)$                                                         |
| Q8              | Open        | $(Q0=I) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$           |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                           |
|-----------------|-------------|----------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q8=0)$                                                                                     |
|                 | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Close (d)   | $(Q8=0)$                                                                                     |
| Q2              | Close (d)   | $(Q8=0)$                                                                                     |
| Q8              | Open        | $(Q0=I) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$           |

# Appendix C - List of Bay Types

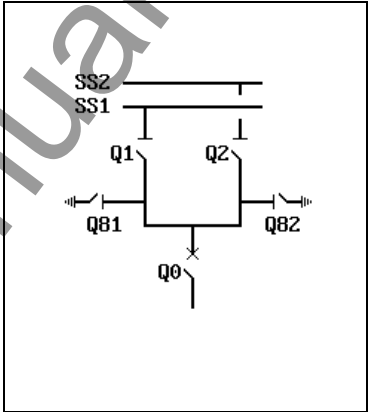
(continued)

## Bay Type No. 127 (A25.128.R01)

Feeder bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q2 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q81 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q82 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                               |
|-----------------|-------------|--------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q81=0) \ \& \ (Q82=0)$                                                                         |
|                 | Close (d)   | $/ (Q1=X) \ \& \ / (Q2=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                               |
|-----------------|-------------|--------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q81=0) \ \& \ (Q82=0)$                                                                         |
|                 | Close (d)   | $/ (Q1=X) \ \& \ / (Q2=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

## Appendix C - List of Bay Types

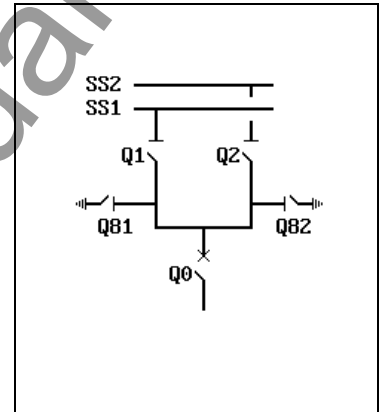
(continued)

### Bay Type No. 128 (A25.128.R05)

Feeder bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q81 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q82 (DEV05)     | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                           |
|-----------------|-------------|--------------------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q81=0) \ \& \ (Q82=0)$                                                                                     |
|                 | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0) \ \& \ (Q2=0)$                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                         |
| Q2              | Open        | $(Q0=0) \ \& \ (Q1=0)$                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                         |
| Q81             | Open        | $(Q0=I) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$                           |
| Q82             | Open        | $(Q0=I) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$                           |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                           |
|-----------------|-------------|--------------------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q81=0) \ \& \ (Q82=0)$                                                                                     |
|                 | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Close (d)   | $(Q81=0) \ \& \ (Q82=0)$                                                                                     |
| Q2              | Close (d)   | $(Q81=0) \ \& \ (Q82=0)$                                                                                     |
| Q81             | Open        | $(Q0=I) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$                           |
| Q82             | Open        | $(Q0=I) \ \& \ (Q1=0) \ \& \ (Q2=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$                           |

# Appendix C - List of Bay Types

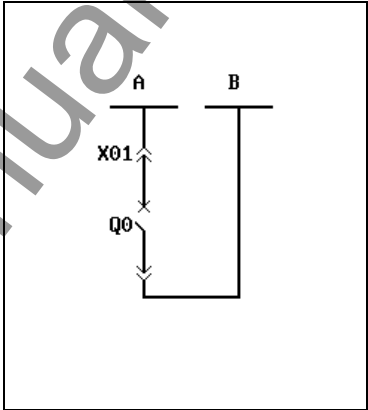
(continued)

## Bay Type No. 133 (L11.100.R01)

Bus sectionalizer bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X01 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

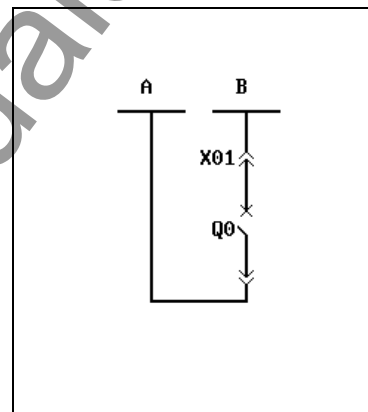
### Bay Type No. 553

(L11.100.R01.2)

Bus sectionalizer bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X01 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |



# Appendix C - List of Bay Types

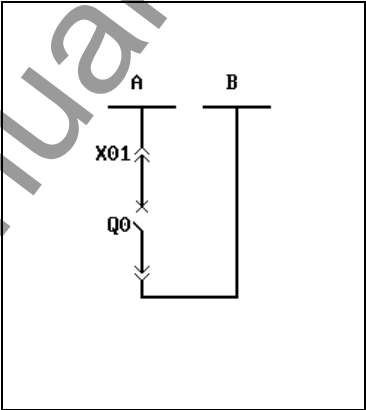
(continued)

## Bay Type No. 134 (L11.100.R02)

Bus sectionalizer bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X01 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X01             | Open        | $(Q0=0)$                                                     |
|                 | Close (d)   | $(Q0=0)$                                                     |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X01             | Open        | $(Q0=0)$                                                     |
|                 | Close (d)   | $(Q0=0)$                                                     |

## Appendix C - List of Bay Types

(continued)

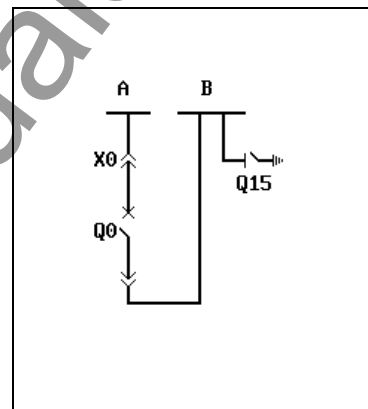
### Bay Type No. 528

(L11.102.R01)

Bus sectionalizer bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q15 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                         |
|-----------------|-------------|----------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ (Q15=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                         |
|-----------------|-------------|----------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ (Q15=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

# Appendix C - List of Bay Types

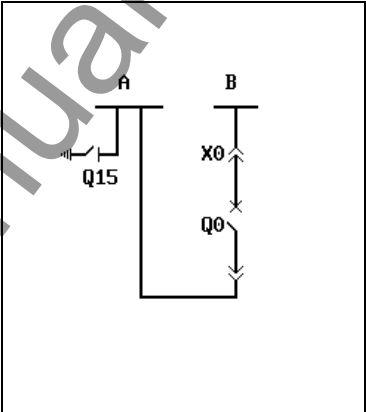
(continued)

## Bay Type No. 542 (L11.102.R01.2)

Bus sectionalizer bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q15 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                         |
|-----------------|-------------|----------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ (Q15=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                         |
|-----------------|-------------|----------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ (Q15=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

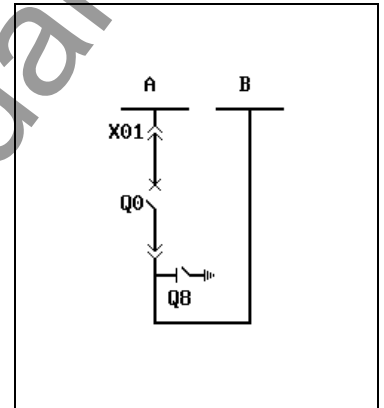
(continued)

### Bay Type No. 135 (L11.104.R01)

Bus sectionalizer bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X01 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q8 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

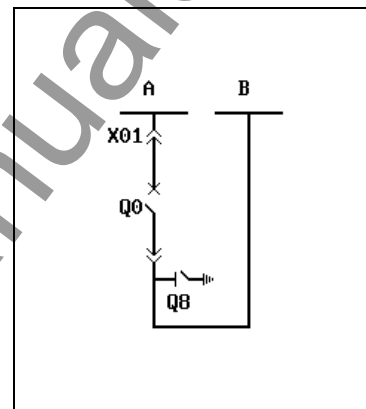
### Bay Type No. 136

(L11.104.R02)

Bus sectionalizer bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X01 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)      | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X01             | Open        | $(Q0=0)$                                                     |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                       |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X01             | Open        | $(Q0=0)$                                                     |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                       |

## Appendix C - List of Bay Types

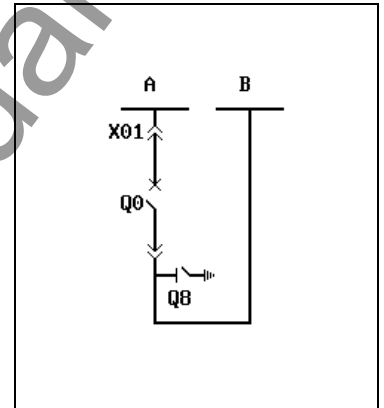
(continued)

### Bay Type No. 137 (L11.104.R03)

Bus sectionalizer bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X01 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q8 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q8              | Close (d)   | $(X01=0) \ \& \ (Q8=I)$                                      |
| X01             | Open        | $(Q0=0)$                                                     |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                       |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q8              | Close (d)   | $(X01=0)$                                                    |
| X01             | Open        | $(Q0=0)$                                                     |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                       |

## Appendix C - List of Bay Types

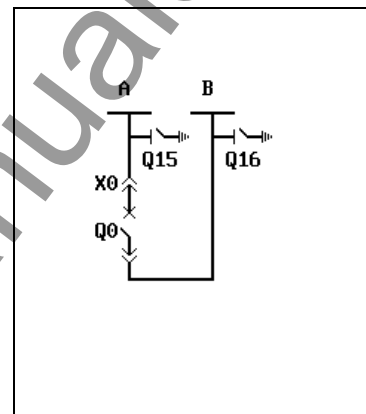
(continued)

### Bay Type No. 547 (L11.112.M04)

Bus sectionalizer bay with circuit breaker, single busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)                       | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q15 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| Q16 (DEV04)                      | Open      | U 2I         | K 2I         |
|                                  | Close (d) | U 2J         | K 2J         |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                        |
|-----------------|-------------|-------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q15             | Close (d)   | $(Q15=I)$                                                                                 |
| Q16             | Close (d)   | $(Q16=I)$                                                                                 |
| X0              | Open        | $(Q0=0)$                                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0) \ \& \ (Q16=0)$                                                    |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                        |
|-----------------|-------------|-------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0)$                                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0) \ \& \ (Q16=0)$                                                    |

## Appendix C - List of Bay Types

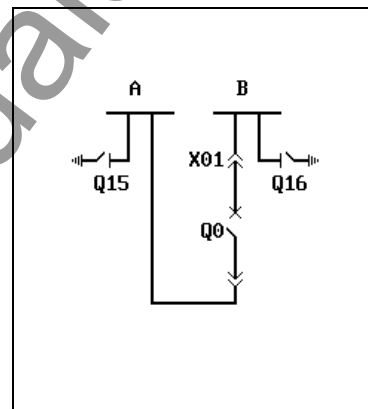
(continued)

### Bay Type No. 564 (L11.112.R01.2)

Bus sectionalizer bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X01 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q15 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q16 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                         |
|-----------------|-------------|--------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |



# Appendix C - List of Bay Types

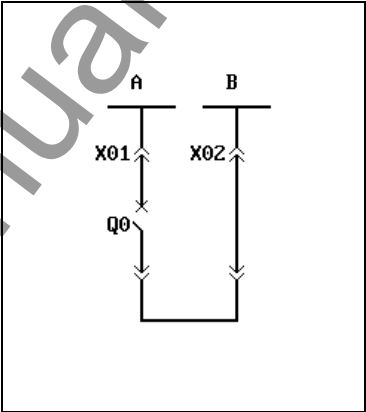
(continued)

## Bay Type No. 138 (L11.116.R01)

Bus sectionalizer bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X01 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| X02 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

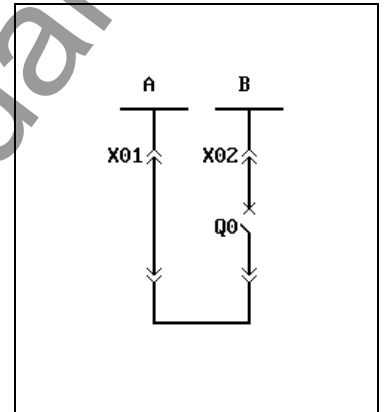
(continued)

### Bay Type No. 545 (L11.116.R01.2)

Bus sectionalizer bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X01 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| X02 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

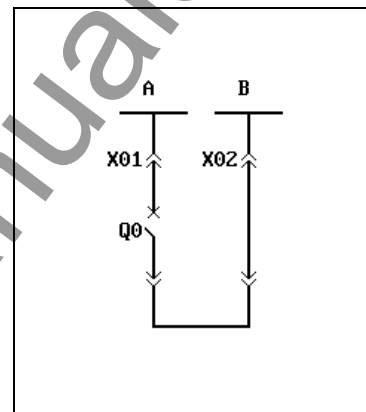
(continued)

### Bay Type No. 139 (L11.116.R03)

Bus sectionalizer bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X01 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X02 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X01             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0)$                                                                         |
| X02             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0)$                                                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X01             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0)$                                                                         |
| X02             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0)$                                                                         |

## Appendix C - List of Bay Types

(continued)

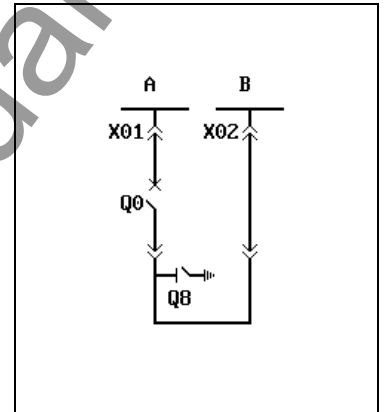
### Bay Type No. 548

(L11.120.M03)

Bus sectionalizer bay with circuit breaker, single busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q8 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| X01 (DEV03)                     | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| X02 (DEV04)                     | Open      | U 2I         | /            |
|                                 | Close (d) | U 2J         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X01=0) \ \& \ (X02=0)$                                                         |
| X01             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                           |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X01=0) \ \& \ (X02=0)$                                                         |
| X01             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                           |

## Appendix C - List of Bay Types

(continued)

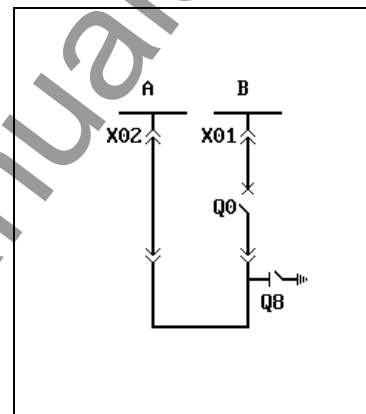
### Bay Type No. 552

(L11.120.M03.2)

Bus sectionalizer bay with circuit breaker, single busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q8 (DEV02)                       | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| X01 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| X02 (DEV04)                      | Open      | U 2I         | /            |
|                                  | Close (d) | U 2J         | /            |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X01=0) \ \& \ (X02=0)$                                                         |
| X01             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                           |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X01=0) \ \& \ (X02=0)$                                                         |
| X01             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                           |

## Appendix C - List of Bay Types

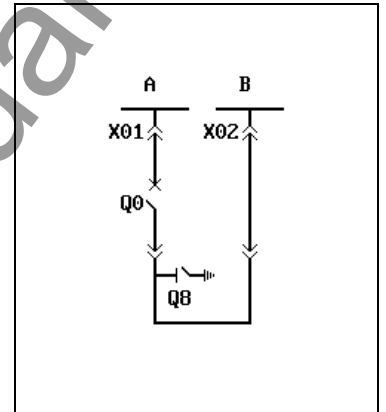
(continued)

### Bay Type No. 140 (L11.120.R01)

Bus sectionalizer bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X01 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| X02 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q8 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

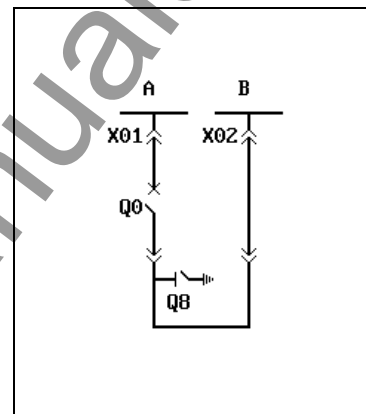
### Bay Type No. 543

(L11.120.R03)

Bus sectionalizer bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X01 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X02 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q8 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X01=0) \ \& \ (X02=0)$                                                         |
| X01             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                           |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X01=0) \ \& \ (X02=0)$                                                         |
| X01             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                           |

## Appendix C - List of Bay Types

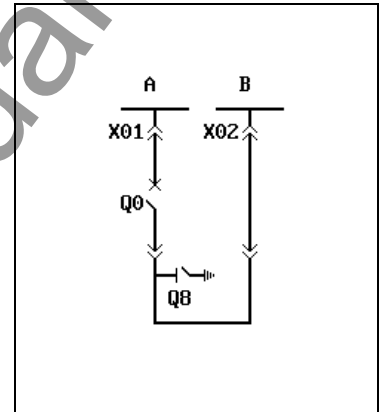
(continued)

### Bay Type No. 141 (L11.120.R03)

Bus sectionalizer bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X01 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X02 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X01             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                           |
| X02             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                           |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X01             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                           |
| X02             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                           |



## Appendix C - List of Bay Types

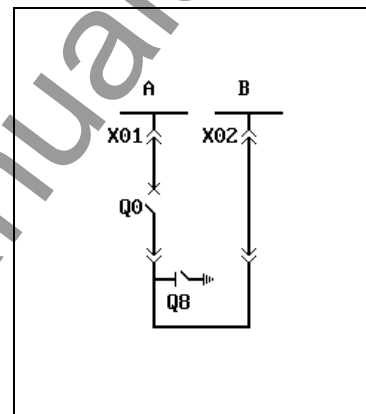
(continued)

### Bay Type No. 142 (L11.120.R04)

Bus sectionalizer bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X01 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X02 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X01=0) \ \& \ (X02=0)$                                                         |
| X01             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                           |
| X02             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                           |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q8              | Close (d)   | $(X01=0) \ \& \ (X02=0)$                                                         |
| X01             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                           |
| X02             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                           |

## Appendix C - List of Bay Types

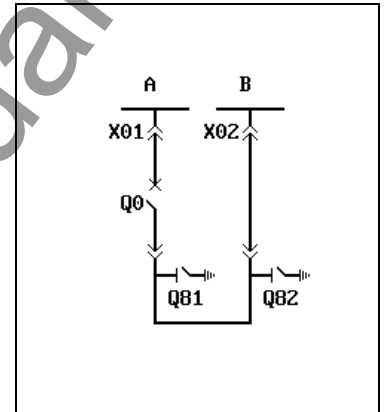
(continued)

### Bay Type No. 558 (L11.128.R01)

Bus sectionalizer bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X01 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| X02 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q81 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q82 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

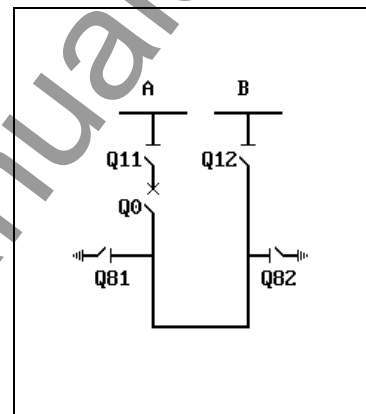
### Bay Type No. 143

(L13.113.M03)

Bus sectionalizer bay with circuit breaker, single busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q12 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| Q81 (DEV04)                      | Open      | U 2I         | /            |
|                                  | Close (d) | U 2J         | /            |
| Q82 (DEV05)                      | Open      | U 2K         | /            |
|                                  | Close (d) | U 2L         | /            |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |
| Q12             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |
| Q12             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |

## Appendix C - List of Bay Types

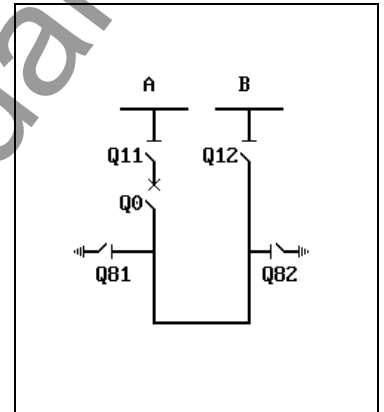
(continued)

### Bay Type No. 144 (L13.113.M05)

Bus sectionalizer bay with circuit breaker, single busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q12 (DEV03)                     | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Q81 (DEV04)                     | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| Q82 (DEV05)                     | Open      | U 2K         | K 2K         |
|                                 | Close (d) | U 2L         | K 2L         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |
| Q12             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |
| Q81             | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                                         |
| Q82             | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |
| Q12             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |
| Q81             | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                                         |
| Q82             | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                                         |

# Appendix C - List of Bay Types

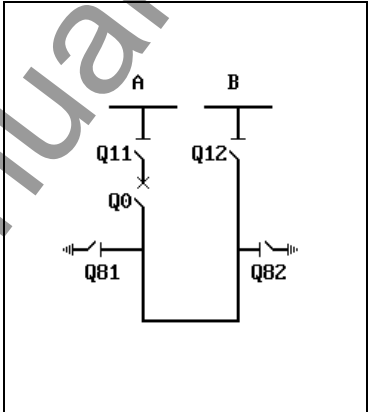
(continued)

## Bay Type No. 145 (L13.113.R01)

Bus sectionalizer bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q12 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q81 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q82 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

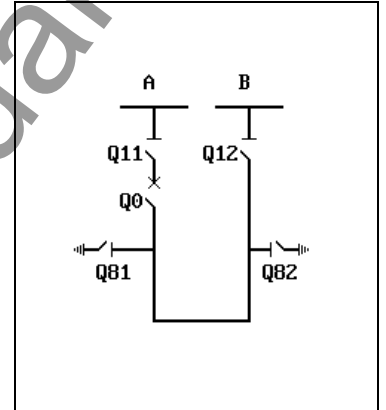
(continued)

### Bay Type No. 146 (L13.113.R03)

Bus sectionalizer bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q12 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q81 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q82 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |
| Q12             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |
| Q12             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |

## Appendix C - List of Bay Types

(continued)

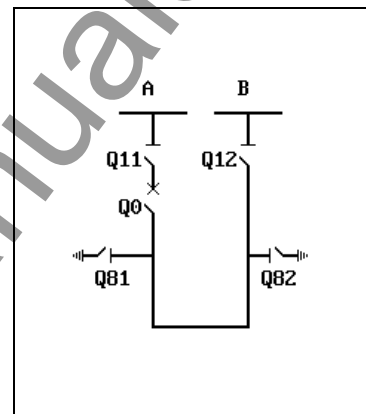
### Bay Type No. 517

(L13.113.R03.2)

Bus sectionalizer bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q12 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q81 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q82 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |
| Q81             | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |
| Q81             | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                                         |

## Appendix C - List of Bay Types

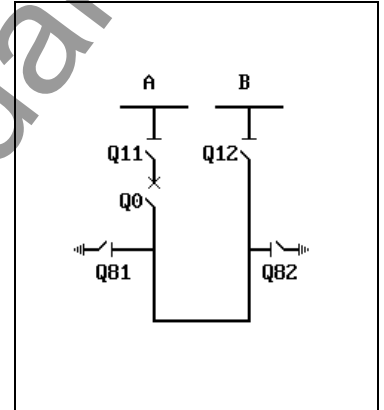
(continued)

### Bay Type No. 147 (L13.113.R05)

Bus sectionalizer bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q12 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q81 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q82 (DEV05)     | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |
| Q12             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |
| Q81             | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                                         |
| Q82             | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                                         |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q81=0) \ \& \ (Q82=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |
| Q12             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q81=0) \ \& \ (Q82=0)$                                                                         |
| Q81             | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                                         |
| Q82             | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                                         |



# Appendix C - List of Bay Types

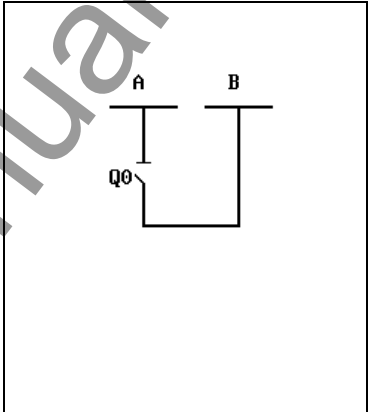
(continued)

## Bay Type No. 148 (L13.200.R01)

Bus sectionalizer bay with switch disconnecter, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |                   | Binary input | Output relay |
|-----------------|-------------------|--------------|--------------|
| Q0 (DEV01)      | Open<br>Close (d) | U 2A<br>U 2B | K 2A<br>K 2B |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

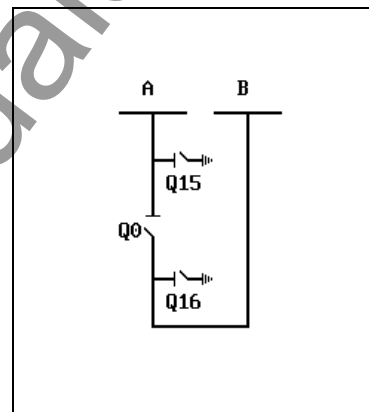
(continued)

### Bay Type No. 149 (L13.202.R01)

Bus sectionalizer bay with switch disconnecter, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q15 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q16 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                             |
|-----------------|-------------|----------------------------------------------------------------|
| Q0              | Close (d)   | $(Q15=0) \ \& \ (Q16=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                             |
|-----------------|-------------|----------------------------------------------------------------|
| Q0              | Close (d)   | $(Q15=0) \ \& \ (Q16=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

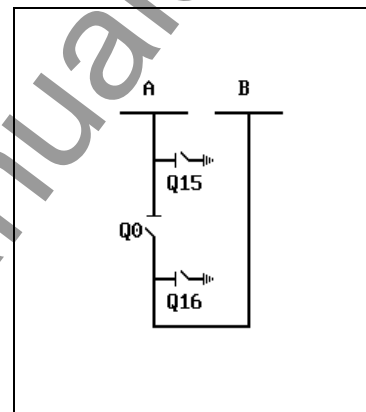
### Bay Type No. 150

(L13.202.R03)

Bus sectionalizer bay with switch disconnecter, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q15 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q16 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                             |
|-----------------|-------------|----------------------------------------------------------------|
| Q0              | Close (d)   | $(Q15=0) \ \& \ (Q16=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |
| Q15             | Close (d)   | $(Q0=0) \ \& \ (Q15=I)$                                        |
| Q16             | Close (d)   | $(Q0=0) \ \& \ (Q16=I)$                                        |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                             |
|-----------------|-------------|----------------------------------------------------------------|
| Q0              | Close (d)   | $(Q15=0) \ \& \ (Q16=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |
| Q15             | Close (d)   | $(Q0=0)$                                                       |
| Q16             | Close (d)   | $(Q0=0)$                                                       |

## Appendix C - List of Bay Types

(continued)

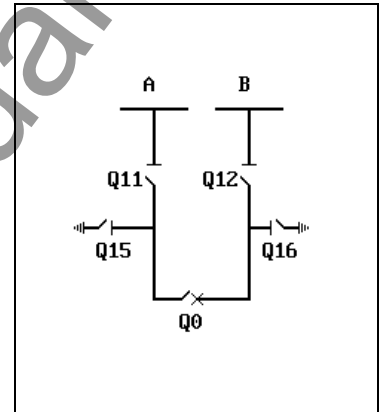
### Bay Type No. 226

(L15.113.M03)

Bus sectionalizer bay with circuit breaker, single busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q12 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| Q15 (DEV04)                      | Open      | U 2I         | /            |
|                                  | Close (d) | U 2J         | /            |
| Q16 (DEV05)                      | Open      | U 2K         | /            |
|                                  | Close (d) | U 2L         | /            |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                             |
|-----------------|-------------|------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                       |
|                 | Close (d)   | $/(Q11=X) \ \& \ /(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                        |
| Q12             | Open        | $(Q0=0)$                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q16=0)$                                                                        |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                             |
|-----------------|-------------|------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                       |
|                 | Close (d)   | $/(Q11=X) \ \& \ /(Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                        |
| Q12             | Open        | $(Q0=0)$                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q16=0)$                                                                        |

## Appendix C - List of Bay Types

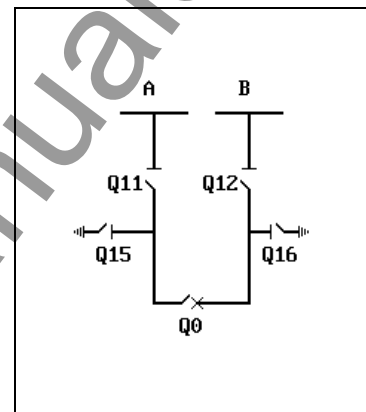
(continued)

### Bay Type No. 151 (L15.113.M05)

Bus sectionalizer bay with circuit breaker, single busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q12 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| Q15 (DEV04)                      | Open      | U 2I         | K 2I         |
|                                  | Close (d) | U 2J         | K 2J         |
| Q16 (DEV05)                      | Open      | U 2K         | K 2K         |
|                                  | Close (d) | U 2L         | K 2L         |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                                       |
|                 | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                                        |
| Q12             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q16=0)$                                                                                        |
| Q15             | Open        | $(Q0=I) \ \& \ (Q12=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I) \ \& \ (Q15=I)$            |
| Q16             | Open        | $(Q0=I) \ \& \ (Q11=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q12=0) \ \& \ (Q11=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I) \ \& \ (Q16=I)$            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                                       |
|                 | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                                        |
| Q12             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q16=0)$                                                                                        |
| Q15             | Open        | $(Q0=I) \ \& \ (Q12=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$                           |
| Q16             | Open        | $(Q0=I) \ \& \ (Q11=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q12=0) \ \& \ (Q11=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$                           |

## Appendix C - List of Bay Types

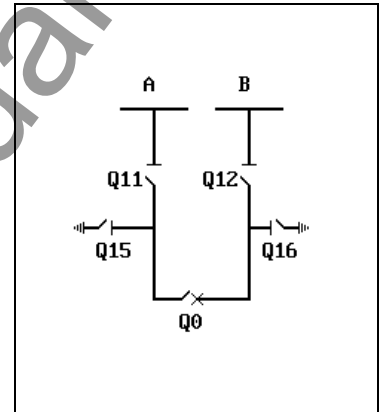
(continued)

### Bay Type No. 152 (L15.113.R01)

Bus sectionalizer bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q12 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q15 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q16 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                           |
|                 | Close (d)   | $/ (Q11=X) \ \& \ / (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                           |
|                 | Close (d)   | $/ (Q11=X) \ \& \ / (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

## Appendix C - List of Bay Types

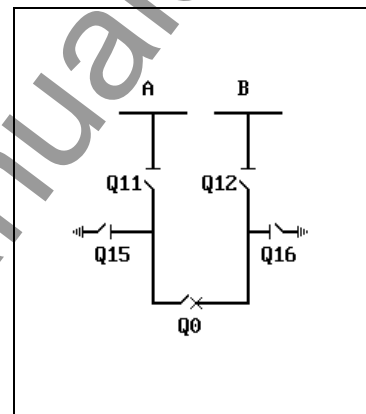
(continued)

### Bay Type No. 227 (L15.113.R03)

Bus sectionalizer bay with circuit breaker, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q12 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q15 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q16 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                                       |
|                 | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                                        |
| Q12             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q16=0)$                                                                                        |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                                       |
|                 | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                                        |
| Q12             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q16=0)$                                                                                        |

## Appendix C - List of Bay Types

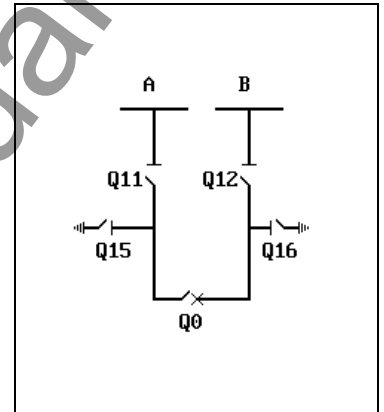
(continued)

### Bay Type No. 153 (L15.113.R05)

Bus sectionalizer bay with circuit breaker, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q12 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q15 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q16 (DEV05)     | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                                       |
|                 | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                                        |
| Q12             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q16=0)$                                                                                        |
| Q15             | Open        | $(Q0=I) \ \& \ (Q12=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I) \ \& \ (Q15=I)$            |
| Q16             | Open        | $(Q0=I) \ \& \ (Q11=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q12=0) \ \& \ (Q11=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I) \ \& \ (Q16=I)$            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                                       |
|                 | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                                        |
| Q12             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q16=0)$                                                                                        |
| Q15             | Open        | $(Q0=I) \ \& \ (Q12=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$                           |
| Q16             | Open        | $(Q0=I) \ \& \ (Q11=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q12=0) \ \& \ (Q11=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$                           |



## Appendix C - List of Bay Types

(continued)

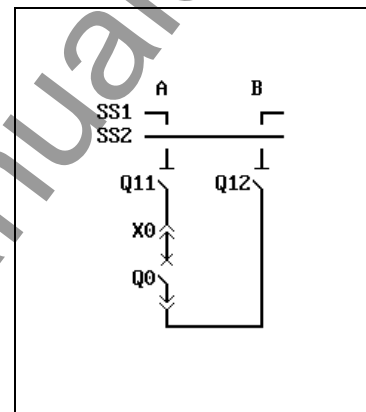
### Bay Type No. 154

(L21.101.M04.1)

Bus sectionalizer bay with circuit breaker, double busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q12 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| X0 (DEV04)                       | Open      | U 2I         | K 2I         |
|                                  | Close (d) | U 2J         | K 2J         |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q12             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                              |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q12             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                              |

## Appendix C - List of Bay Types

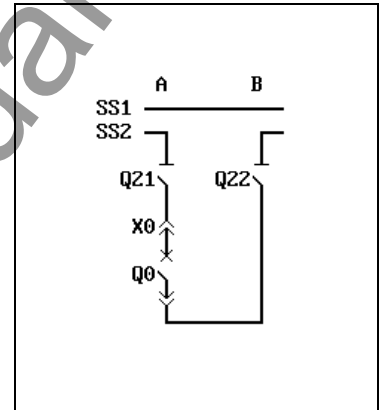
(continued)

### Bay Type No. 155 (L21.101.M04.2)

Bus sectionalizer bay with circuit breaker, double busbar,direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q21 (DEV02)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q22 (DEV03)                     | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| X0 (DEV04)                      | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q21=X) \ \& \ \neg (Q22=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q21             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q22             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=0)$                                                              |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q21=X) \ \& \ \neg (Q22=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q21             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q22             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=0)$                                                              |

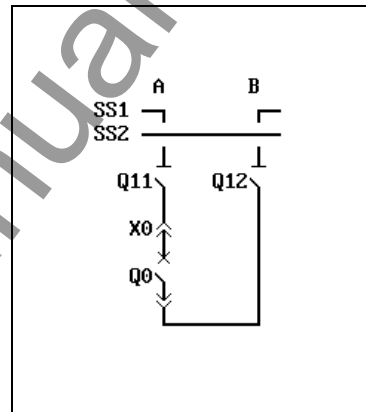
(continued)

(L21.101.R01.1)

Bus sectionalizer bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |                   | Binary input | Output relay |
|-----------------|-------------------|--------------|--------------|
| Q0 (DEV01)      | Open<br>Close (d) | U 2A<br>U 2B | K 2A<br>K 2B |
| Q11 (DEV02)     | Open<br>Close (d) | U 2C<br>U 2D | /<br>/       |
| Q12 (DEV03)     | Open<br>Close (d) | U 2E<br>U 2F | /<br>/       |
| X0 (DEV04)      | Open<br>Close (d) | U 2G<br>U 2H | /<br>/       |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                              |
|-----------------|-------------|---------------------------------------------------------------------------------|
| Q0              | Close(d)    | $/(Q11=X) \ \& \ /(Q12=X) \ \& \ /(X0=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$ |

## Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                              |
|-----------------|-------------|---------------------------------------------------------------------------------|
| Q0              | Close(d)    | $/(Q11=X) \ \& \ /(Q12=X) \ \& \ /(X0=X) \ \& \ /(FctBl1=I) \ \& \ /(FctBl2=I)$ |

## Appendix C - List of Bay Types

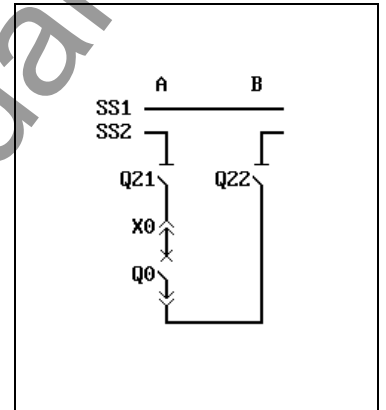
(continued)

### Bay Type No. 157 (L21.101.R01.2)

Bus sectionalizer bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q21 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q22 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| X0 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q21=X) \ \& \ \neg (Q22=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q21=X) \ \& \ \neg (Q22=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

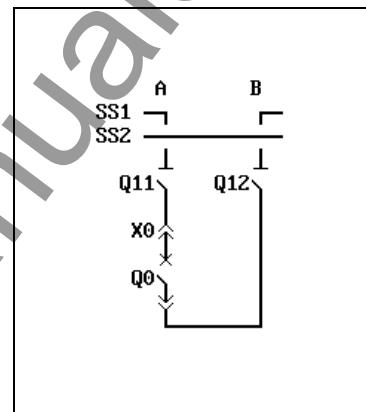
### Bay Type No. 158

(L21.101.R03.1)

Bus sectionalizer bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q12 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q12             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q12             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |

## Appendix C - List of Bay Types

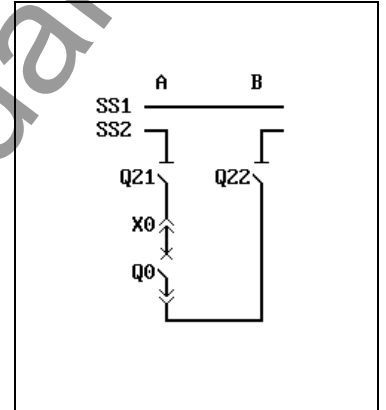
(continued)

### Bay Type No. 159 (L21.101.R03.2)

Bus sectionalizer bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q21 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q22 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q21=X) \ \& \ \neg (Q22=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q21             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q22             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q21=X) \ \& \ \neg (Q22=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q21             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q22             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |

## Appendix C - List of Bay Types

(continued)

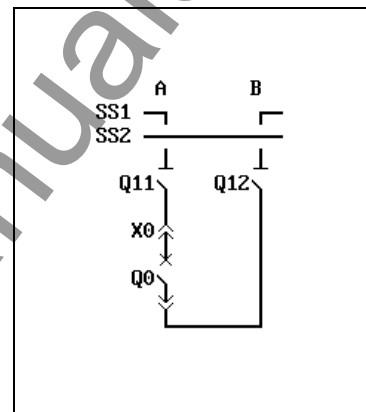
### Bay Type No. 160

(L21.101.R04.1)

Bus sectionalizer bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q12 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q12             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                              |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q12             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=0)$                                                              |

## Appendix C - List of Bay Types

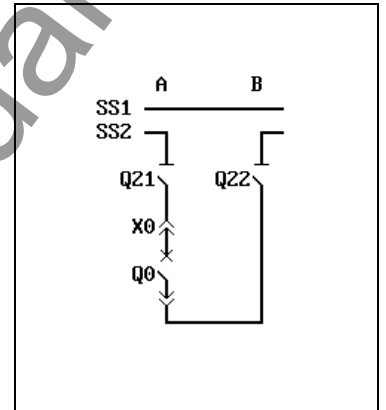
(continued)

### Bay Type No. 161 (L21.101.R04.2)

Bus sectionalizer bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q21 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q22 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q21=X) \ \& \ \neg (Q22=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q21             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q22             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=0)$                                                              |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q21=X) \ \& \ \neg (Q22=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q21             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q22             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=0)$                                                              |



## Appendix C - List of Bay Types

(continued)

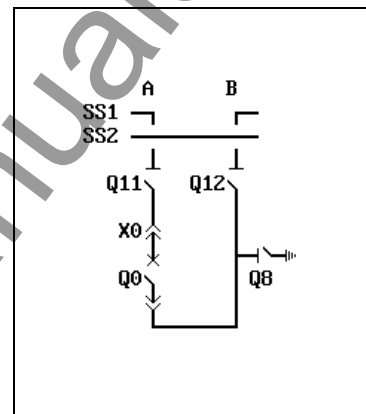
### Bay Type No. 513

(L21.109.R03.1)

Bus sectionalizer bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q12 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                                |
|-----------------|-------------|-------------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ \neg (X0=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                                            |
| Q12             | Open        | $(Q0=0)$                                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                                            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                                |
|-----------------|-------------|-------------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ \neg (X0=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                                            |
| Q12             | Open        | $(Q0=0)$                                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                                            |

## Appendix C - List of Bay Types

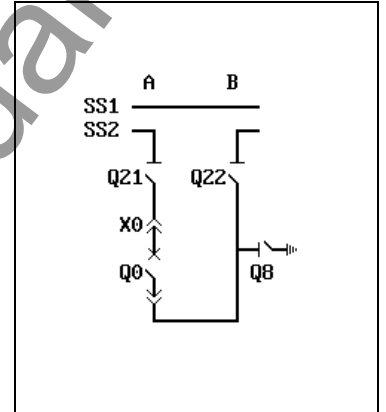
(continued)

### Bay Type No. 514 (L21.109.R03.2)

Bus sectionalizer bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q21 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q22 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q8 (DEV05)      | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                                |
|-----------------|-------------|-------------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q21=X) \ \& \ \neg (Q22=X) \ \& \ \neg (X0=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q21             | Open        | $(Q0=0)$                                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                                            |
| Q22             | Open        | $(Q0=0)$                                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                                            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                                |
|-----------------|-------------|-------------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q21=X) \ \& \ \neg (Q22=X) \ \& \ \neg (X0=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q21             | Open        | $(Q0=0)$                                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                                            |
| Q22             | Open        | $(Q0=0)$                                                                                                          |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                                            |

# Appendix C - List of Bay Types

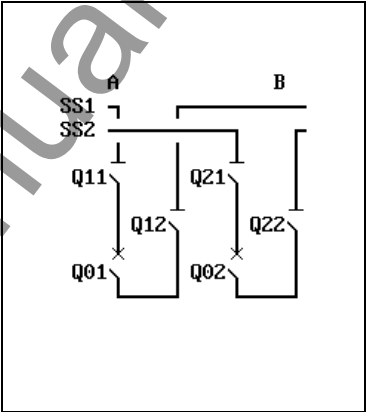
(continued)

## Bay Type No. 162 (L23.101.R02)

Bus sectionalizer bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q11 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q12 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q21 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |
| Q22 (DEV06)     | Open      | U 2K         | /            |
|                 | Close (d) | U 2L         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q01             | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q02             | Close (d)   | $\neg (Q21=X) \ \& \ \neg (Q22=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q01             | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q02             | Close (d)   | $\neg (Q21=X) \ \& \ \neg (Q22=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |

## Appendix C - List of Bay Types

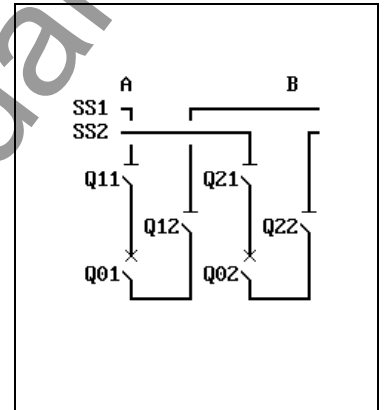
(continued)

### Bay Type No. 163 (L23.101.R06)

Bus sectionalizer bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q01 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q02 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q11 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q12 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q21 (DEV05)     | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |
| Q22 (DEV06)     | Open      | U 2K         | K 2K         |
|                 | Close (d) | U 2L         | K 2L         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q01             | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q02             | Close (d)   | $\neg (Q21=X) \ \& \ \neg (Q22=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q11             | Open        | $(Q01=0)$                                                                        |
|                 | Close (d)   | $(Q01=0)$                                                                        |
| Q12             | Open        | $(Q01=0)$                                                                        |
|                 | Close (d)   | $(Q01=0)$                                                                        |
| Q21             | Open        | $(Q02=0)$                                                                        |
|                 | Close (d)   | $(Q02=0)$                                                                        |
| Q22             | Open        | $(Q02=0)$                                                                        |
|                 | Close (d)   | $(Q02=0)$                                                                        |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q01             | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q02             | Close (d)   | $\neg (Q21=X) \ \& \ \neg (Q22=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |
| Q11             | Open        | $(Q01=0)$                                                                        |
|                 | Close (d)   | $(Q01=0)$                                                                        |
| Q12             | Open        | $(Q01=0)$                                                                        |
|                 | Close (d)   | $(Q01=0)$                                                                        |
| Q21             | Open        | $(Q02=0)$                                                                        |
|                 | Close (d)   | $(Q02=0)$                                                                        |
| Q22             | Open        | $(Q02=0)$                                                                        |
|                 | Close (d)   | $(Q02=0)$                                                                        |

# Appendix C - List of Bay Types

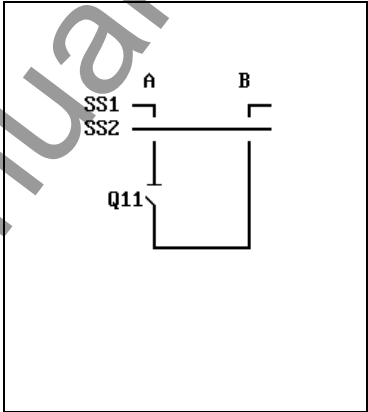
(continued)

## Bay Type No. 554 (L23.901.M01.1)

Bus sectionalizer bay with other switchgear unit, double busbar,direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q11 (DEV01)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

(continued)

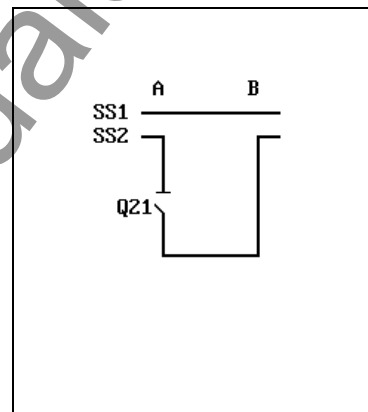
### Bay Type No. 555

(L23.901.M01.2)

Bus sectionalizer bay with other switchgear unit, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |          | Binary input | Output relay |
|---------------------------------|----------|--------------|--------------|
| Q21 (DEV01)                     | Open     | U 2E         | K 2E         |
|                                 | Close(d) | U 2F         | K 2F         |
| Mot.relay (SIG_1: Signal S012)  |          | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |          | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |          | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

# Appendix C - List of Bay Types

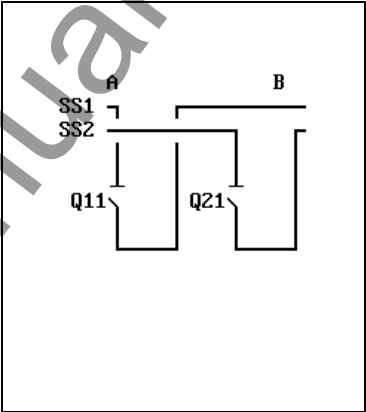
(continued)

## Bay Type No. 164 (L23.901.R02)

Bus sectionalizer bay with other switchgear unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q11 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q21 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q11             | Open        | (Q11=0)            |
|                 | Close (d)   | (Q11=I)            |
| Q21             | Open        | (Q21=0)            |
|                 | Close (d)   | (Q21=I)            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

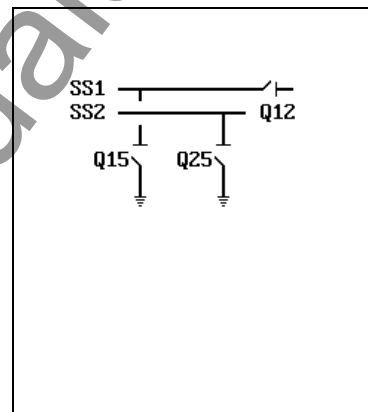
(continued)

### Bay Type No. 242 (L23.903.M01.3)

Bus sectionalizer bay with other switchgear unit, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q12 (DEV01)                     | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q15 (DEV02)                     | Open      | U 2E         | /            |
|                                 | Close (d) | U 2F         | /            |
| Q25 (DEV03)                     | Open      | U 2G         | /            |
|                                 | Close (d) | U 2H         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q12             | Open        | (Q12=0)            |
|                 | Close (d)   | (Q12=I)            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |



# Appendix C - List of Bay Types

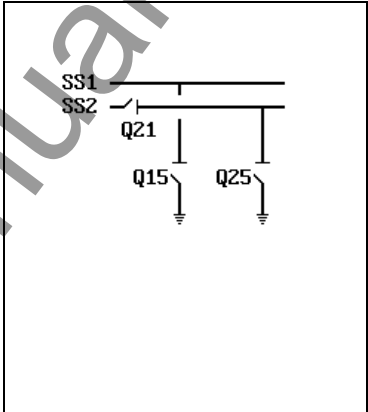
(continued)

## Bay Type No. 243 (L23.903.M01.4)

Bus sectionalizer bay with other switchgear unit, double busbar,direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q21 (DEV01)                     | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q15 (DEV02)                     | Open      | U 2E         | /            |
|                                 | Close (d) | U 2F         | /            |
| Q25 (DEV03)                     | Open      | U 2G         | /            |
|                                 | Close (d) | U 2H         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q21             | Open        | (Q21=0)            |
|                 | Close (d)   | (Q21=I)            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

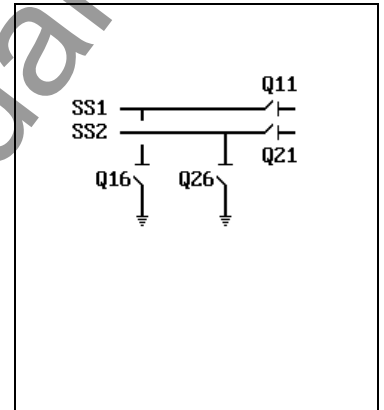
(continued)

### Bay Type No. 511 (L23.903.M02)

Bus sectionalizer bay with other switchgear unit, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q11 (DEV01)                     | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q21 (DEV02)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q16 (DEV03)                     | Open      | U 2G         | /            |
|                                 | Close (d) | U 2H         | /            |
| Q26 (DEV04)                     | Open      | U 2I         | /            |
|                                 | Close (d) | U 2J         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q11             | Open        | (Q11=0)            |
|                 | Close (d)   | (Q11=I)            |
| Q21             | Open        | (Q21=0)            |
|                 | Close (d)   | (Q21=I)            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

(continued)

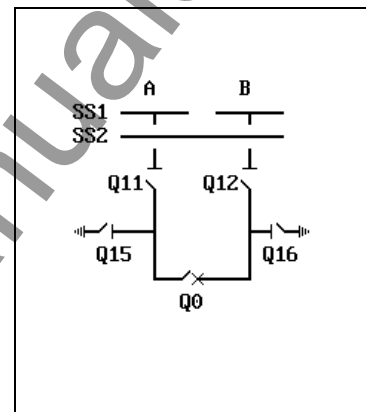
### Bay Type No. 228

(L25.113.M03.1)

Bus sectionalizer bay with circuit breaker, double busbar,direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q12 (DEV03)                     | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Q15 (DEV04)                     | Open      | U 2I         | /            |
|                                 | Close (d) | U 2J         | /            |
| Q16 (DEV05)                     | Open      | U 2K         | /            |
|                                 | Close (d) | U 2L         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                           |
|                 | Close (d)   | $/ (Q11=X) \ \& \ / (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                            |
| Q12             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q16=0)$                                                                            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                           |
|                 | Close (d)   | $/ (Q11=X) \ \& \ / (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                            |
| Q12             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q16=0)$                                                                            |

## Appendix C - List of Bay Types

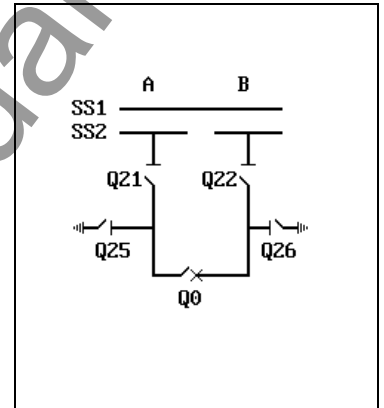
(continued)

### Bay Type No. 229 (L25.113.M03.2)

Bus sectionalizer bay with circuit breaker, double busbar,direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q21 (DEV02)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q22 (DEV03)                     | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Q25 (DEV04)                     | Open      | U 2I         | /            |
|                                 | Close (d) | U 2J         | /            |
| Q26 (DEV05)                     | Open      | U 2K         | /            |
|                                 | Close (d) | U 2L         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q25=0) \ \& \ (Q26=0)$                                                                           |
|                 | Close (d)   | $/ (Q21=X) \ \& \ / (Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q21             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q25=0)$                                                                            |
| Q22             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q26=0)$                                                                            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q25=0) \ \& \ (Q26=0)$                                                                           |
|                 | Close (d)   | $/ (Q21=X) \ \& \ / (Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q21             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q25=0)$                                                                            |
| Q22             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q26=0)$                                                                            |

# Appendix C - List of Bay Types

(continued)

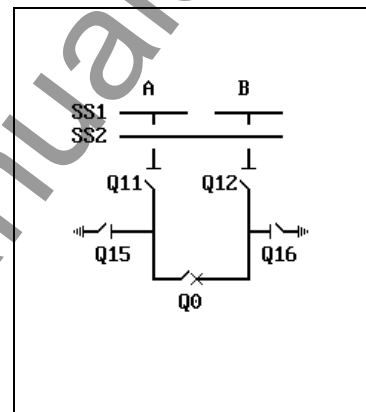
## Bay Type No. 165

(L25.113.M05.1)

Bus sectionalizer bay with circuit breaker, double busbar,direct motor control

## Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q12 (DEV03)                     | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Q15 (DEV04)                     | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| Q16 (DEV05)                     | Open      | U 2K         | K 2K         |
|                                 | Close (d) | U 2L         | K 2L         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



## Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                           |
|                 | Close (d)   | $/ (Q11=X) \ \& \ / (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                            |
| Q12             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q16=0)$                                                                            |
| Q15             | Open        | $(Q0=I) \ \& \ (Q12=I)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=I) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I) \ \& \ (Q15=I)$      |
| Q16             | Open        | $(Q0=I) \ \& \ (Q11=I)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q12=0) \ \& \ (Q11=I) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I) \ \& \ (Q16=I)$      |

## Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                           |
|                 | Close (d)   | $/ (Q11=X) \ \& \ / (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                            |
| Q12             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q16=0)$                                                                            |
| Q15             | Open        | $(Q0=I) \ \& \ (Q12=I)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=I) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$                     |
| Q16             | Open        | $(Q0=I) \ \& \ (Q11=I)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q12=0) \ \& \ (Q11=I) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$                     |

## Appendix C - List of Bay Types

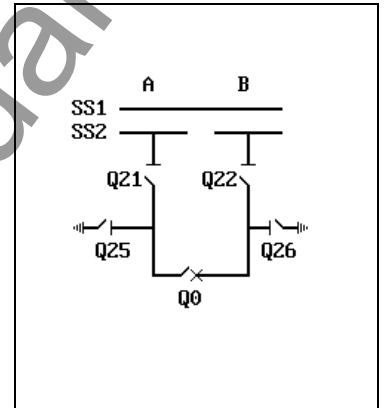
(continued)

### Bay Type No. 166 (L25.113.M05.2)

Bus sectionalizer bay with circuit breaker, double busbar,direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q21 (DEV02)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q22 (DEV03)                     | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Q25 (DEV04)                     | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| Q26 (DEV05)                     | Open      | U 2K         | K 2K         |
|                                 | Close (d) | U 2L         | K 2L         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q25=0) \ \& \ (Q26=0)$                                                                           |
|                 | Close (d)   | $/ (Q21=X) \ \& \ / (Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q21             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q25=0)$                                                                            |
| Q22             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q26=0)$                                                                            |
| Q25             | Open        | $(Q0=I) \ \& \ (Q22=I)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=I) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I) \ \& \ (Q25=I)$      |
| Q26             | Open        | $(Q0=I) \ \& \ (Q21=I)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q22=0) \ \& \ (Q21=I) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I) \ \& \ (Q26=I)$      |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q25=0) \ \& \ (Q26=0)$                                                                           |
|                 | Close (d)   | $/ (Q21=X) \ \& \ / (Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q21             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q25=0)$                                                                            |
| Q22             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q26=0)$                                                                            |
| Q25             | Open        | $(Q0=I) \ \& \ (Q22=I)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=I) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$                     |
| Q26             | Open        | $(Q0=I) \ \& \ (Q21=I)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q22=0) \ \& \ (Q21=I) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$                     |

# Appendix C - List of Bay Types

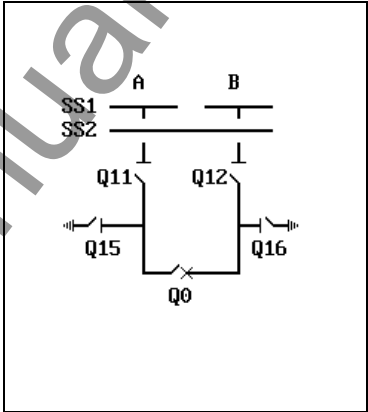
(continued)

## Bay Type No. 167 (L25.113.R01.1)

Bus sectionalizer bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q12 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q15 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q16 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                           |
|                 | Close (d)   | $/ (Q11=X) \ \& \ / (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                           |
|                 | Close (d)   | $/ (Q11=X) \ \& \ / (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

## Appendix C - List of Bay Types

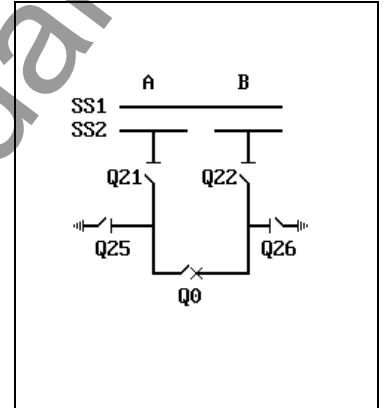
(continued)

### Bay Type No. 168 (L25.113.R01.2)

Bus sectionalizer bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q21 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q22 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q25 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q26 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q25=0) \ \& \ (Q26=0)$                                                                           |
|                 | Close (d)   | $/ (Q21=X) \ \& \ / (Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q25=0) \ \& \ (Q26=0)$                                                                           |
|                 | Close (d)   | $/ (Q21=X) \ \& \ / (Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |



## Appendix C - List of Bay Types

(continued)

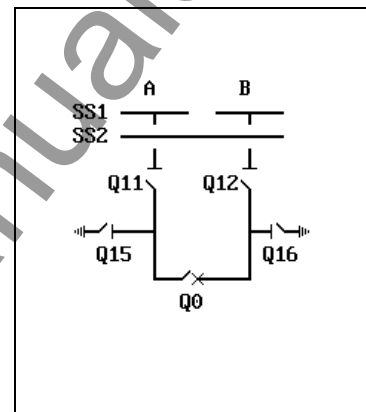
### Bay Type No. 230

(L25.113.R03.1)

Bus sectionalizer bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q12 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q15 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q16 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                           |
|                 | Close (d)   | $/ (Q11=X) \ \& \ / (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                            |
| Q12             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q16=0)$                                                                            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                           |
|                 | Close (d)   | $/ (Q11=X) \ \& \ / (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                            |
| Q12             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q16=0)$                                                                            |

## Appendix C - List of Bay Types

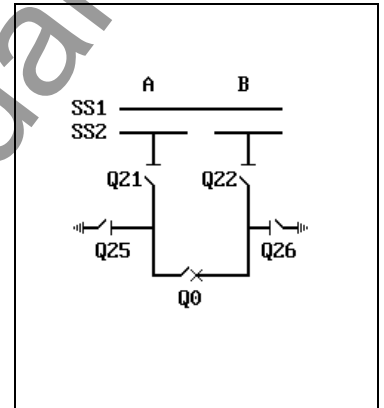
(continued)

### Bay Type No. 231 (L25.113.R03.2)

Bus sectionalizer bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q21 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q22 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q25 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q26 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q25=0) \ \& \ (Q26=0)$                                                                           |
|                 | Close (d)   | $/ (Q21=X) \ \& \ / (Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q21             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q25=0)$                                                                            |
| Q22             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q26=0)$                                                                            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q25=0) \ \& \ (Q26=0)$                                                                           |
|                 | Close (d)   | $/ (Q21=X) \ \& \ / (Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q21             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q25=0)$                                                                            |
| Q22             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q26=0)$                                                                            |

## Appendix C - List of Bay Types

(continued)

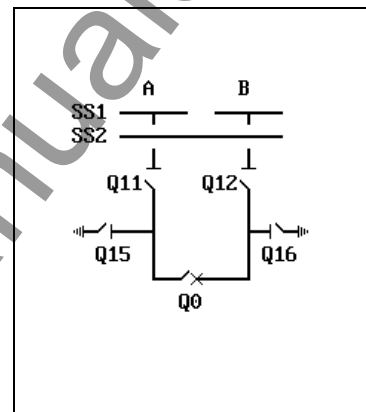
### Bay Type No. 169

(L25.113.R05.1)

Bus sectionalizer bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q11 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q12 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q15 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q16 (DEV05)     | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                                       |
|                 | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                                        |
| Q12             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q16=0)$                                                                                        |
| Q15             | Open        | $(Q0=I) \ \& \ (Q12=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I) \ \& \ (Q15=I)$            |
| Q16             | Open        | $(Q0=I) \ \& \ (Q11=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q12=0) \ \& \ (Q11=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I) \ \& \ (Q16=I)$            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q16=0)$                                                                                       |
|                 | Close (d)   | $\neg (Q11=X) \ \& \ \neg (Q12=X) \ \& \ (Q15=0) \ \& \ (Q16=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q11             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                                        |
| Q12             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q16=0)$                                                                                        |
| Q15             | Open        | $(Q0=I) \ \& \ (Q12=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q11=0) \ \& \ (Q12=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$                           |
| Q16             | Open        | $(Q0=I) \ \& \ (Q11=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q12=0) \ \& \ (Q11=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$                           |

## Appendix C - List of Bay Types

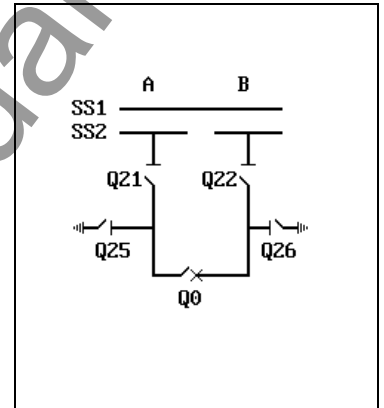
(continued)

### Bay Type No. 170 (L25.113.R05.2)

Bus sectionalizer bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q21 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q22 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q25 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q26 (DEV05)     | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q25=0) \ \& \ (Q26=0)$                                                                           |
|                 | Close (d)   | $/ (Q21=X) \ \& \ / (Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q21             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q25=0)$                                                                            |
| Q22             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q26=0)$                                                                            |
| Q25             | Open        | $(Q0=I) \ \& \ (Q22=I)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=I) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I) \ \& \ (Q25=I)$      |
| Q26             | Open        | $(Q0=I) \ \& \ (Q21=I)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q22=0) \ \& \ (Q21=I) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I) \ \& \ (Q26=I)$      |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q25=0) \ \& \ (Q26=0)$                                                                           |
|                 | Close (d)   | $/ (Q21=X) \ \& \ / (Q22=X) \ \& \ (Q25=0) \ \& \ (Q26=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |
| Q21             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q25=0)$                                                                            |
| Q22             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q26=0)$                                                                            |
| Q25             | Open        | $(Q0=I) \ \& \ (Q22=I)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q21=0) \ \& \ (Q22=I) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$                     |
| Q26             | Open        | $(Q0=I) \ \& \ (Q21=I)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q22=0) \ \& \ (Q21=I) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$                     |

# Appendix C - List of Bay Types

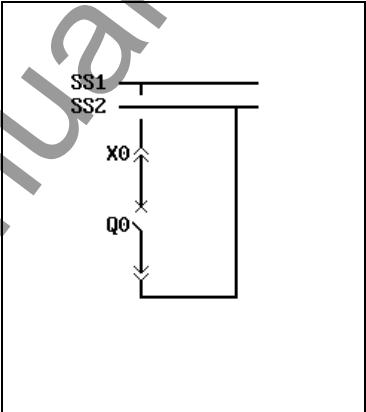
(continued)

## Bay Type No. 505 (Q21.100.R01)

Bus coupler bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |

## Appendix C - List of Bay Types

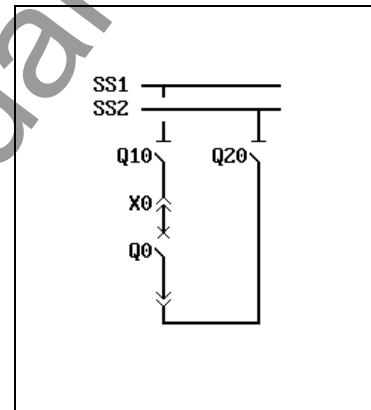
(continued)

### Bay Type No. 197 (Q21.101.M04)

Bus coupler bay with circuit breaker, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q20 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| X0 (DEV04)                       | Open      | U 2I         | K 2I         |
|                                  | Close (d) | U 2J         | K 2J         |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q20             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$                                                              |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q20             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$                                                              |

# Appendix C - List of Bay Types

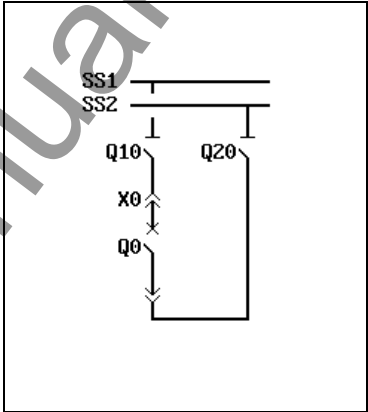
(continued)

## Bay Type No. 198 (Q21.101.R01)

Bus coupler bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q20 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| X0 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

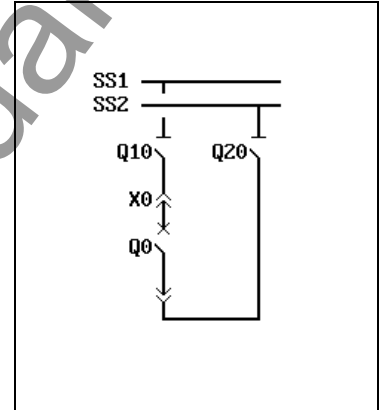
(continued)

### Bay Type No. 199 (Q21.101.R03)

Bus coupler bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q20 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q20             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q20             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |



## Appendix C - List of Bay Types

(continued)

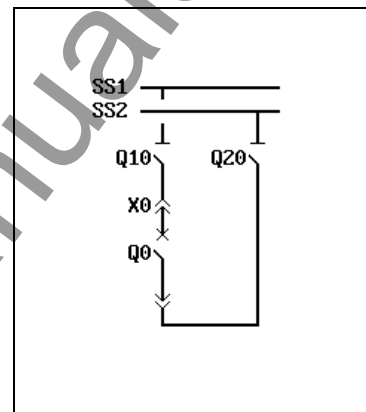
### Bay Type No. 200

(Q21.101.R04)

Bus coupler bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q20 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X0 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q20             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$                                                              |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q20             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$                                                              |

## Appendix C - List of Bay Types

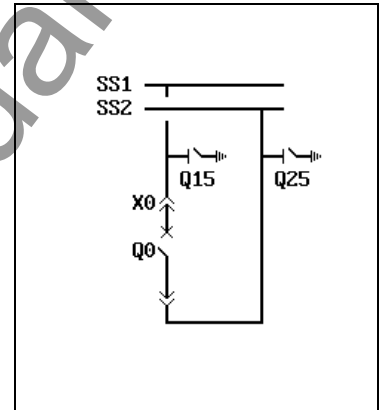
(continued)

### Bay Type No. 556 (Q21.112.M04)

Bus coupler bay with circuit breaker, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q15 (DEV02)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q25 (DEV03)                     | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| X0 (DEV04)                      | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                        |
|-----------------|-------------|-------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q15             | Close (d)   | $(Q15=I)$                                                                                 |
| Q25             | Close (d)   | $(Q25=I)$                                                                                 |
| X0              | Open        | $(Q0=0)$                                                                                  |
|                 | Close (d)   | $(Q0=0)$                                                                                  |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                        |
|-----------------|-------------|-------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0)$                                                                                  |
|                 | Close (d)   | $(Q0=0)$                                                                                  |

# Appendix C - List of Bay Types

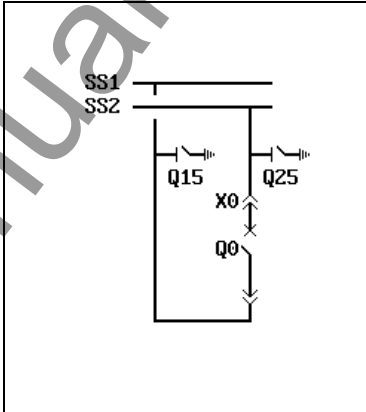
(continued)

## Bay Type No. 565 (Q21.112.M04.2)

Bus coupler bay with circuit breaker, double busbar,direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q15 (DEV02)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q25 (DEV03)                     | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| X0 (DEV04)                      | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                        |
|-----------------|-------------|-------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q15             | Close (d)   | $(Q15=I)$                                                                                 |
| Q25             | Close (d)   | $(Q25=I)$                                                                                 |
| X0              | Open        | $(Q0=0)$                                                                                  |
|                 | Close (d)   | $(Q0=0)$                                                                                  |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                        |
|-----------------|-------------|-------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| X0              | Open        | $(Q0=0)$                                                                                  |
|                 | Close (d)   | $(Q0=0)$                                                                                  |

## Appendix C - List of Bay Types

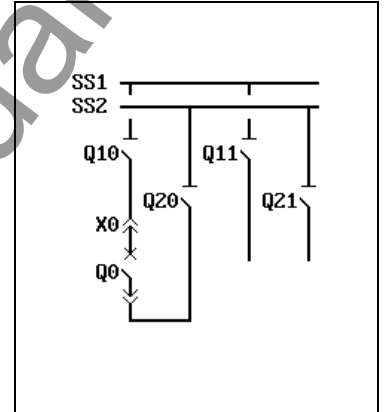
(continued)

### Bay Type No. 201 (Q21.117.R01)

Bus coupler bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q20 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q11 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q21 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |
| X0 (DEV06)      | Open      | U 2K         | /            |
|                 | Close (d) | U 2L         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

# Appendix C - List of Bay Types

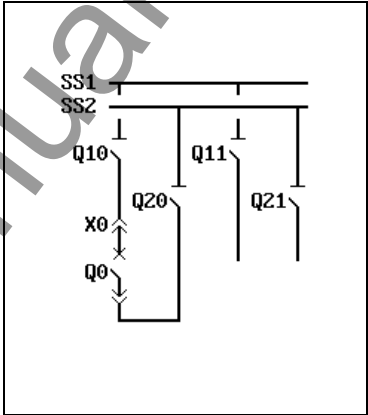
(continued)

## Bay Type No. 202 (Q21.117.R05)

Bus coupler bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q20 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q11 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q21 (DEV05)     | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |
| X0 (DEV06)      | Open      | U 2K         | /            |
|                 | Close (d) | U 2L         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q20             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q20             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |

## Appendix C - List of Bay Types

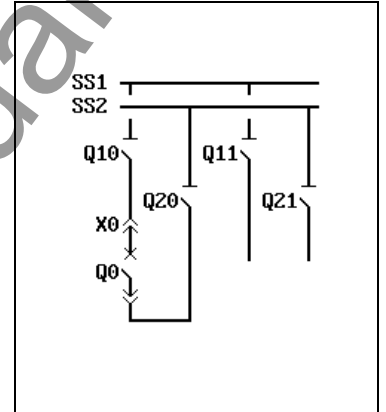
(continued)

### Bay Type No. 203 (Q21.117.R06)

Bus coupler bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q20 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q11 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q21 (DEV05)     | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |
| X0 (DEV06)      | Open      | U 2K         | K 2K         |
|                 | Close (d) | U 2L         | K 2L         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q20             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$                                                              |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                  |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (X0=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| Q20             | Open        | $(Q0=0)$                                                                                            |
|                 | Close (d)   | $(Q0=0)$                                                                                            |
| X0              | Open        | $(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$                                                              |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$                                                              |

# Appendix C - List of Bay Types

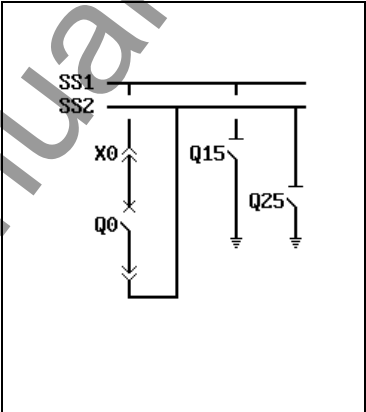
(continued)

## Bay Type No. 245 (Q21.132.R01)

Bus coupler bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q15 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q25 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                          |
|-----------------|-------------|-------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X0=X) \ \& \ \neg (FctBl1=I) \ \& \ \neg (FctBl2=I)$ |

## Appendix C - List of Bay Types

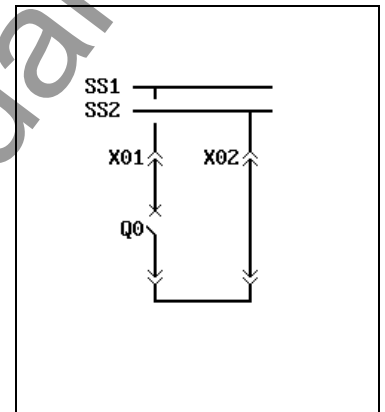
(continued)

### Bay Type No. 563 (Q21.133.R01)

Bus coupler bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| X01 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| X02 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (X01=X) \ \& \ \neg (X02=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |



## Appendix C - List of Bay Types

(continued)

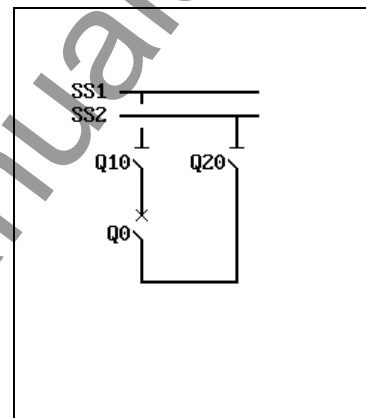
### Bay Type No. 204

(Q23.101.M03)

Bus coupler bay with circuit breaker, double busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q20 (DEV03)                     | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0)$                                                                         |
| Q20             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0)$                                                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0)$                                                                         |
| Q20             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0)$                                                                         |

## Appendix C - List of Bay Types

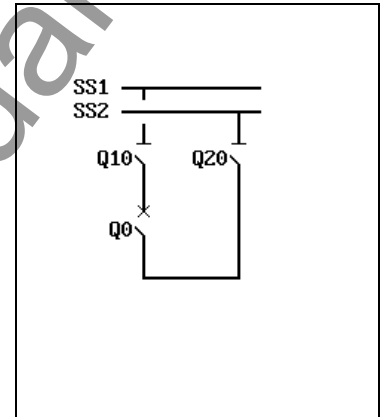
(continued)

### Bay Type No. 205 (Q23.101.R01)

Bus coupler bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q20 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

# Appendix C - List of Bay Types

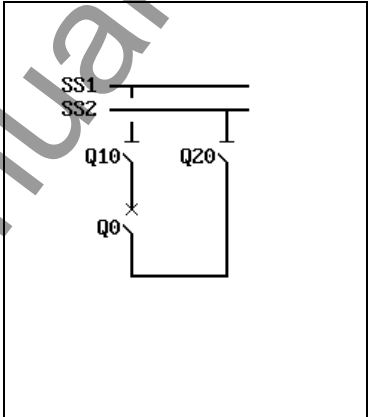
(continued)

## Bay Type No. 206 (Q23.101.R03)

Bus coupler bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q20 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0)$                                                                         |
| Q20             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0)$                                                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0)$                                                                         |
| Q20             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0)$                                                                         |

## Appendix C - List of Bay Types

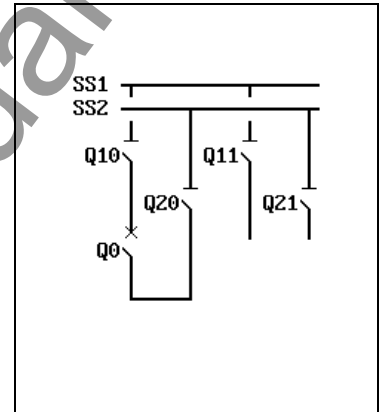
(continued)

### Bay Type No. 207 (Q23.117.R01)

Bus coupler bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q20 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q11 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q21 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

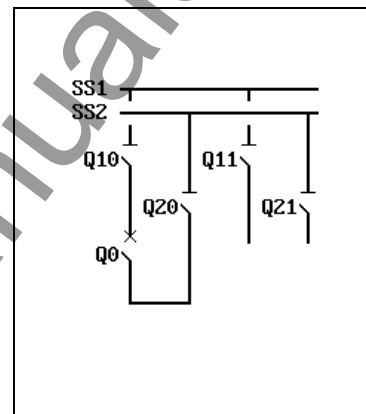
### Bay Type No. 208

(Q23.117.R05)

Bus coupler bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q20 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q11 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q21 (DEV05)     | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0)$                                                                         |
| Q20             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0)$                                                                         |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                               |
|-----------------|-------------|----------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0)$                                                                         |
| Q20             | Open        | $(Q0=0)$                                                                         |
|                 | Close (d)   | $(Q0=0)$                                                                         |

## Appendix C - List of Bay Types

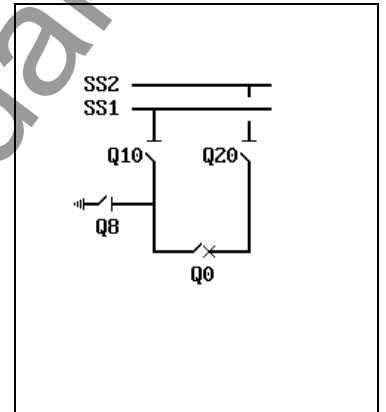
(continued)

### Bay Type No. 236 (Q25.105.M03)

Bus coupler bay with circuit breaker, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q20 (DEV03)                     | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Q8 (DEV04)                      | Open      | U 2I         | /            |
|                                 | Close (d) | U 2J         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                       |
|-----------------|-------------|----------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                   |
|                 | Close (d)   | /(Q10=X) & /(Q20=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I) |
| Q10             | Open        | (Q0=0)                                                   |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                          |
| Q20             | Open        | (Q0=0)                                                   |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                          |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                       |
|-----------------|-------------|----------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                   |
|                 | Close (d)   | /(Q10=X) & /(Q20=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I) |
| Q10             | Open        | (Q0=0)                                                   |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                          |
| Q20             | Open        | (Q0=0) & (Q8=0)                                          |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                          |

## Appendix C - List of Bay Types

(continued)

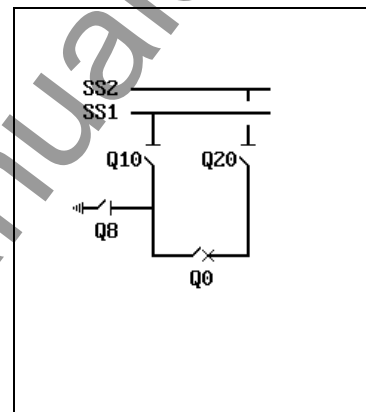
### Bay Type No. 209

(Q25.105.M04)

Bus coupler bay with circuit breaker, double busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q20 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| Q8 (DEV04)                       | Open      | U 2I         | K 2I         |
|                                  | Close (d) | U 2J         | K 2J         |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                              |
|-----------------|-------------|-----------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                          |
|                 | Close (d)   | /(Q10=X) & /(Q20=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)        |
| Q10             | Open        | (Q0=0)                                                          |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                                 |
| Q20             | Open        | (Q0=0)                                                          |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                                 |
| Q8              | Open        | (Q0=I) & (Q20=I)                                                |
|                 | Close (d)   | (Q0=0) & (Q10=0) & (Q20=I) & /(FctB11=I) & /(FctB12=I) & (Q8=I) |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                       |
|-----------------|-------------|----------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                   |
|                 | Close (d)   | /(Q10=X) & /(Q20=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I) |
| Q10             | Open        | (Q0=0)                                                   |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                          |
| Q20             | Open        | (Q0=0) & (Q8=0)                                          |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                          |
| Q8              | Open        | (Q0=I) & (Q20=I)                                         |
|                 | Close (d)   | (Q0=0) & (Q10=0) & (Q20=I) & /(FctB11=I) & /(FctB12=I)   |

## Appendix C - List of Bay Types

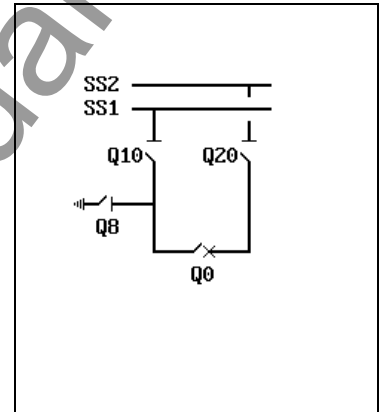
(continued)

### Bay Type No. 210 (Q25.105.R01)

Bus coupler bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q20 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q8 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                       |
|                 | Close (d)   | / (Q10=X) & / (Q20=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                       |
|                 | Close (d)   | / (Q10=X) & / (Q20=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |



## Appendix C - List of Bay Types

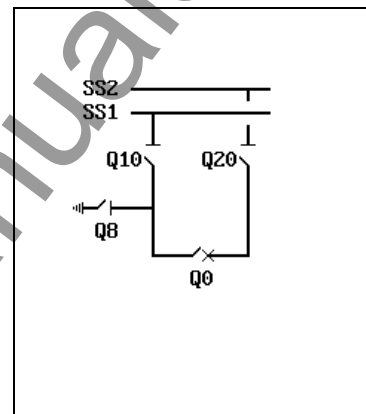
(continued)

### Bay Type No. 237 (Q25.105.R03)

Bus coupler bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q20 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                       |
|                 | Close (d)   | / (Q10=X) & / (Q20=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |
| Q10             | Open        | (Q0=0)                                                       |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                              |
| Q20             | Open        | (Q0=0)                                                       |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                              |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                       |
|                 | Close (d)   | / (Q10=X) & / (Q20=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |
| Q10             | Open        | (Q0=0)                                                       |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                              |
| Q20             | Open        | (Q0=0)                                                       |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                              |

## Appendix C - List of Bay Types

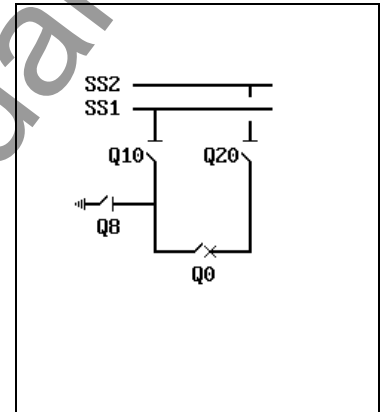
(continued)

### Bay Type No. 211 (Q25.105.R04)

Bus coupler bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q20 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                              |
|-----------------|-------------|-----------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                          |
|                 | Close (d)   | /(Q10=X) & /(Q20=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)        |
| Q10             | Open        | (Q0=0)                                                          |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                                 |
| Q20             | Open        | (Q0=0)                                                          |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                                 |
| Q8              | Open        | (Q0=I) & (Q20=I)                                                |
|                 | Close (d)   | (Q0=0) & (Q10=0) & (Q20=I) & /(FctB11=I) & /(FctB12=I) & (Q8=I) |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                       |
|-----------------|-------------|----------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                   |
|                 | Close (d)   | /(Q10=X) & /(Q20=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I) |
| Q10             | Open        | (Q0=0)                                                   |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                          |
| Q20             | Open        | (Q0=0)                                                   |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                          |
| Q8              | Open        | (Q0=I) & (Q20=I)                                         |
|                 | Close (d)   | (Q0=0) & (Q10=0) & (Q20=I) & /(FctB11=I) & /(FctB12=I)   |

## Appendix C - List of Bay Types

(continued)

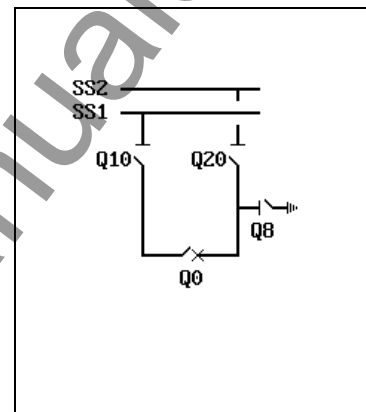
### Bay Type No. 238

(Q25.109.M03)

Bus coupler bay with circuit breaker, double busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q20 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| Q8 (DEV04)                       | Open      | U 2I         | /            |
|                                  | Close (d) | U 2J         | /            |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                       |
|                 | Close (d)   | / (Q10=X) & / (Q20=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |
| Q10             | Open        | (Q0=0)                                                       |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                              |
| Q20             | Open        | (Q0=0)                                                       |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                              |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                       |
|                 | Close (d)   | / (Q10=X) & / (Q20=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |
| Q10             | Open        | (Q0=0)                                                       |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                              |
| Q20             | Open        | (Q0=0)                                                       |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                              |

## Appendix C - List of Bay Types

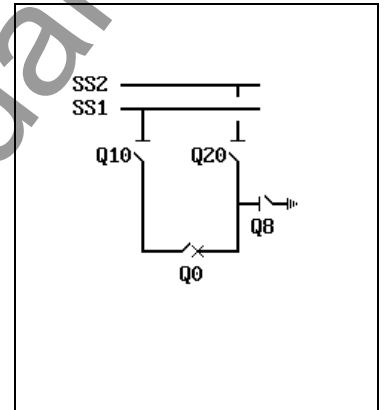
(continued)

### Bay Type No. 212 (Q25.109.M04)

Bus coupler bay with circuit breaker, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q20 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| Q8 (DEV04)                       | Open      | U 2I         | K 2I         |
|                                  | Close (d) | U 2J         | K 2J         |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                              |
|-----------------|-------------|-----------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                          |
|                 | Close (d)   | /(Q10=X) & /(Q20=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I)        |
| Q10             | Open        | (Q0=0)                                                          |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                                 |
| Q20             | Open        | (Q0=0)                                                          |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                                 |
| Q8              | Open        | (Q0=I) & (Q10=I)                                                |
|                 | Close (d)   | (Q0=0) & (Q20=0) & (Q10=I) & /(FctB11=I) & /(FctB12=I) & (Q8=I) |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                       |
|-----------------|-------------|----------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                   |
|                 | Close (d)   | /(Q10=X) & /(Q20=X) & (Q8=0) & /(FctB11=I) & /(FctB12=I) |
| Q10             | Open        | (Q0=0)                                                   |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                          |
| Q20             | Open        | (Q0=0)                                                   |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                          |
| Q8              | Open        | (Q0=I) & (Q10=I)                                         |
|                 | Close (d)   | (Q0=0) & (Q20=0) & (Q10=I) & /(FctB11=I) & /(FctB12=I)   |

# Appendix C - List of Bay Types

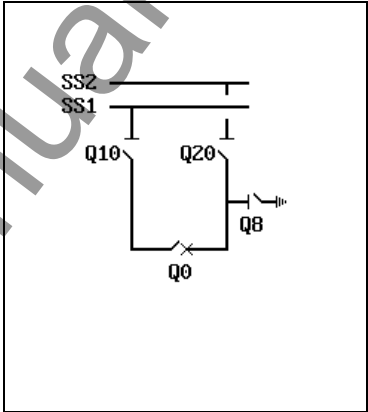
(continued)

## Bay Type No. 213 (Q25.109.R01)

Bus coupler bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q20 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q8 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                       |
|                 | Close (d)   | / (Q10=X) & / (Q20=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                       |
|                 | Close (d)   | / (Q10=X) & / (Q20=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |

## Appendix C - List of Bay Types

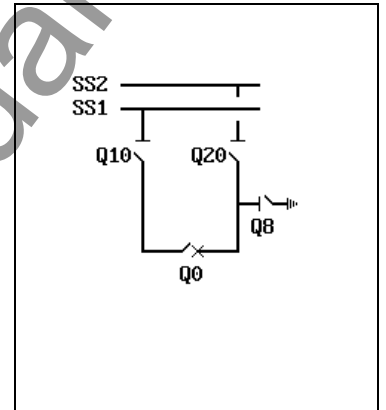
(continued)

### Bay Type No. 239 (Q25.109.R03)

Bus coupler bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q20 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)      | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                       |
|                 | Close (d)   | / (Q10=X) & / (Q20=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |
| Q10             | Open        | (Q0=0)                                                       |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                              |
| Q20             | Open        | (Q0=0)                                                       |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                              |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                           |
|-----------------|-------------|--------------------------------------------------------------|
| Q0              | Open        | (Q8=0)                                                       |
|                 | Close (d)   | / (Q10=X) & / (Q20=X) & (Q8=0) & / (FctB11=I) & / (FctB12=I) |
| Q10             | Open        | (Q0=0)                                                       |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                              |
| Q20             | Open        | (Q0=0)                                                       |
|                 | Close (d)   | (Q0=0) & (Q8=0)                                              |

# Appendix C - List of Bay Types

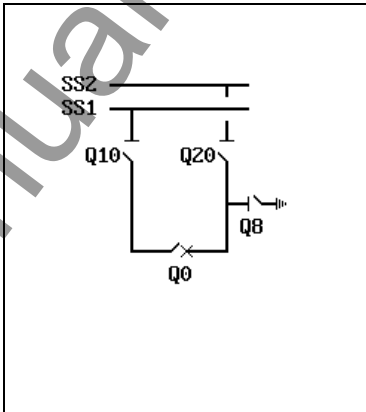
(continued)

## Bay Type No. 214 (Q25.109.R04)

Bus coupler bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q20 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q8 (DEV04)      | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q8=0)$                                                                                           |
|                 | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$     |
| Q10             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                             |
| Q20             | Open        | $(Q0=0)$                                                                                           |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                             |
| Q8              | Open        | $(Q0=I) \ \& \ (Q10=I)$                                                                            |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q20=0) \ \& \ (Q10=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I) \ \& \ (Q8=I)$ |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                             |
|-----------------|-------------|------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q8=0)$                                                                                       |
|                 | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ (Q8=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                         |
| Q20             | Open        | $(Q0=0)$                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q8=0)$                                                                         |
| Q8              | Open        | $(Q0=I) \ \& \ (Q10=I)$                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q20=0) \ \& \ (Q10=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$           |

## Appendix C - List of Bay Types

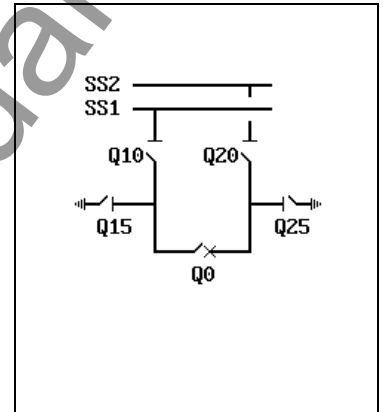
(continued)

### Bay Type No. 240 (Q25.113.M03)

Bus coupler bay with circuit breaker, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  |           | Binary input | Output relay |
|----------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                       | Open      | U 2A         | K 2A         |
|                                  | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                  | Close (d) | U 2F         | K 2F         |
| Q20 (DEV03)                      | Open      | U 2G         | K 2G         |
|                                  | Close (d) | U 2H         | K 2H         |
| Q15 (DEV04)                      | Open      | U 2I         | /            |
|                                  | Close (d) | U 2J         | /            |
| Q25 (DEV05)                      | Open      | U 2K         | /            |
|                                  | Close (d) | U 2L         | /            |
| Mot. relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011)  |           | /            | K 2D         |
| Mot. relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                             |
|-----------------|-------------|------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q25=0)$                                                                       |
|                 | Close (d)   | $/(Q10=X) \ \& \ /(Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                        |
| Q20             | Open        | $(Q0=0)$                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q25=0)$                                                                        |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                             |
|-----------------|-------------|------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q25=0)$                                                                       |
|                 | Close (d)   | $/(Q10=X) \ \& \ /(Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ /(FctB11=I) \ \& \ /(FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                        |
| Q20             | Open        | $(Q0=0)$                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q25=0)$                                                                        |



## Appendix C - List of Bay Types

(continued)

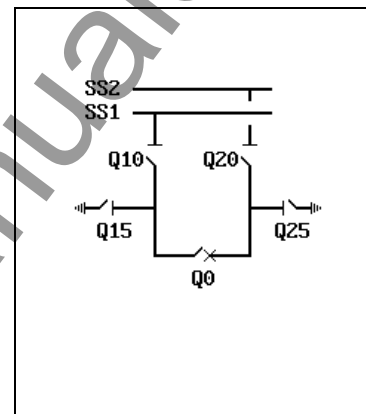
### Bay Type No. 215

(Q25.113.M05)

Bus coupler bay with circuit breaker, double busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q0 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q20 (DEV03)                     | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Q15 (DEV04)                     | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| Q25 (DEV05)                     | Open      | U 2K         | K 2K         |
|                                 | Close (d) | U 2L         | K 2L         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q25=0)$                                                                                       |
|                 | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                                        |
| Q15             | Open        | $(Q0=I) \ \& \ (Q20=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I) \ \& \ (Q15=I)$            |
| Q20             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q25=0)$                                                                                        |
| Q25             | Open        | $(Q0=I) \ \& \ (Q10=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q20=0) \ \& \ (Q10=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I) \ \& \ (Q25=I)$            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q25=0)$                                                                                       |
|                 | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                                        |
| Q15             | Open        | $(Q0=I) \ \& \ (Q20=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$                           |
| Q20             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q25=0)$                                                                                        |
| Q25             | Open        | $(Q0=I) \ \& \ (Q10=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q20=0) \ \& \ (Q10=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$                           |

## Appendix C - List of Bay Types

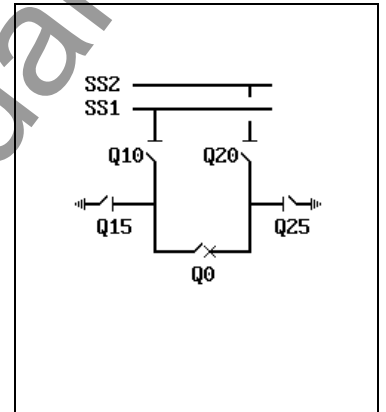
(continued)

### Bay Type No. 216 (Q25.113.R01)

Bus coupler bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |
| Q20 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q15 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q25 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q25=0)$                                                                           |
|                 | Close (d)   | $/ (Q10=X) \ \& \ / (Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                 |
|-----------------|-------------|----------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q25=0)$                                                                           |
|                 | Close (d)   | $/ (Q10=X) \ \& \ / (Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ / (FctB11=I) \ \& \ / (FctB12=I)$ |

## Appendix C - List of Bay Types

(continued)

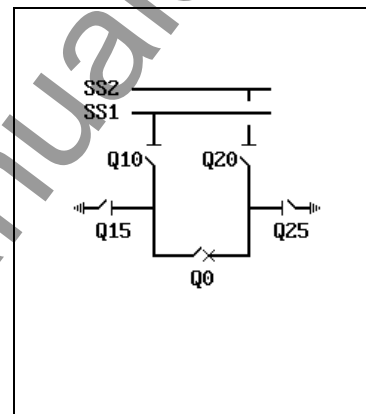
### Bay Type No. 241

(Q25.113.R03)

Bus coupler bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q20 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q15 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q25 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q25=0)$                                                                                       |
|                 | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                                        |
| Q20             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q25=0)$                                                                                        |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q25=0)$                                                                                       |
|                 | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                                        |
| Q20             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q25=0)$                                                                                        |

## Appendix C - List of Bay Types

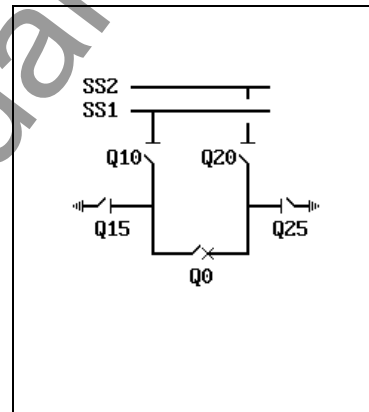
(continued)

### Bay Type No. 217 (Q25.113.R05)

Bus coupler bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q10 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q20 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q15 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q25 (DEV05)     | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q25=0)$                                                                                       |
|                 | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                                        |
| Q15             | Open        | $(Q0=I) \ \& \ (Q20=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I) \ \& \ (Q15=I)$            |
| Q20             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q25=0)$                                                                                        |
| Q25             | Open        | $(Q0=I) \ \& \ (Q10=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q20=0) \ \& \ (Q10=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I) \ \& \ (Q25=I)$            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                             |
|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|
| Q0              | Open        | $(Q15=0) \ \& \ (Q25=0)$                                                                                       |
|                 | Close (d)   | $\neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ (Q15=0) \ \& \ (Q25=0) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q10             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q15=0)$                                                                                        |
| Q15             | Open        | $(Q0=I) \ \& \ (Q20=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q10=0) \ \& \ (Q20=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$                           |
| Q20             | Open        | $(Q0=0)$                                                                                                       |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q25=0)$                                                                                        |
| Q25             | Open        | $(Q0=I) \ \& \ (Q10=I)$                                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q20=0) \ \& \ (Q10=I) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$                           |

# Appendix C - List of Bay Types

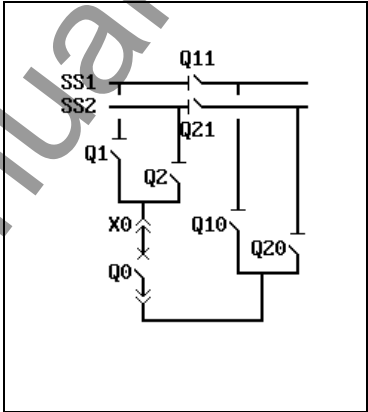
(continued)

## Bay Type No. 218 (K29.101.R02)

Bus coupler and sectionalizer bay with circuit breaker, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | /            |
|                 | Close (d) | U 2B         | /            |
| Q10 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q20 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q11 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |
| Q21 (DEV05)     | Open      | U 2I         | /            |
|                 | Close (d) | U 2J         | /            |
| X0 (DEV06)      | Open      | U 2K         | /            |
|                 | Close (d) | U 2L         | /            |
| Q1 (DEV07)      | Open      | U 2M         | /            |
|                 | Close (d) | U 2N         | /            |
| Q2 (DEV08)      | Open      | U 2O         | /            |
|                 | Close (d) | U 2P         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q10             | Open        | (Q0=0)             |
|                 | Close (d)   | (Q0=0) & (Q20=0)   |
| Q20             | Open        | (Q0=0)             |
|                 | Close (d)   | (Q0=0) & (Q10=0)   |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q10             | Open        | (Q0=0)             |
|                 | Close (d)   | (Q0=0) & (Q20=0)   |
| Q20             | Open        | (Q0=0)             |
|                 | Close (d)   | (Q0=0) & (Q10=0)   |

## Appendix C - List of Bay Types

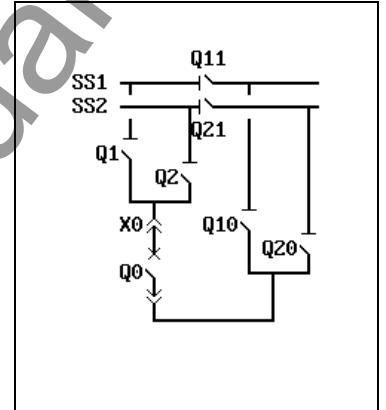
(continued)

### Bay Type No. 219 (K29.101.R06)

Bus coupler and sectionalizer bay with circuit breaker, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q0 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q1 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q2 (DEV03)      | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q11 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |
| Q21 (DEV05)     | Open      | U 2I         | K 2I         |
|                 | Close (d) | U 2J         | K 2J         |
| X0 (DEV06)      | Open      | U 2K         | K 2K         |
|                 | Close (d) | U 2L         | K 2L         |
| Q10 (DEV07)     | Open      | U 2M         | /            |
|                 | Close (d) | U 2N         | /            |
| Q20 (DEV08)     | Open      | U 2O         | /            |
|                 | Close (d) | U 2P         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                                                        |
|-----------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                                                                    |
| Q11             | Open        | $(Q0=I) \ \& \ (Q1=I) \ \& \ (Q10=I) \ \& \ (X0=I)$                                                                                       |
|                 | Close (d)   | $(Q0=I) \ \& \ (Q1=I) \ \& \ (Q10=I) \ \& \ (X0=I)$                                                                                       |
| Q2              | Open        | $(Q0=0)$                                                                                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                                                                    |
| Q21             | Open        | $(Q0=I) \ \& \ (Q2=I) \ \& \ (Q20=I) \ \& \ (X0=I)$                                                                                       |
|                 | Close (d)   | $(Q0=I) \ \& \ (Q2=I) \ \& \ (Q20=I) \ \& \ (X0=I)$                                                                                       |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$                                                                        |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation                                                                                                                        |
|-----------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Q0              | Close (d)   | $\neg (Q1=X) \ \& \ \neg (Q2=X) \ \& \ \neg (X0=X) \ \& \ \neg (Q10=X) \ \& \ \neg (Q20=X) \ \& \ \neg (FctB11=I) \ \& \ \neg (FctB12=I)$ |
| Q1              | Open        | $(Q0=0)$                                                                                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q2=0)$                                                                                                                    |
| Q11             | Open        | $(Q0=I) \ \& \ (Q1=I) \ \& \ (Q10=I) \ \& \ (X0=I)$                                                                                       |
|                 | Close (d)   | $(Q0=I) \ \& \ (Q1=I) \ \& \ (Q10=I) \ \& \ (X0=I)$                                                                                       |
| Q2              | Open        | $(Q0=0)$                                                                                                                                  |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0)$                                                                                                                    |
| Q21             | Open        | $(Q0=I) \ \& \ (Q2=I) \ \& \ (Q20=I) \ \& \ (X0=I)$                                                                                       |
|                 | Close (d)   | $(Q0=I) \ \& \ (Q2=I) \ \& \ (Q20=I) \ \& \ (X0=I)$                                                                                       |
| X0              | Open        | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$                                                                        |
|                 | Close (d)   | $(Q0=0) \ \& \ (Q1=0) \ \& \ (Q2=0) \ \& \ (Q10=0) \ \& \ (Q20=0)$                                                                        |

# Appendix C - List of Bay Types

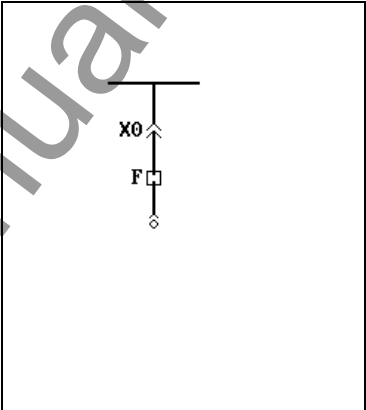
(continued)

## Bay Type No. 171 (M11.300.R00)

Busbar measurement bay with fuse unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| X0 (DEV01)             | Open      | U 2A         | //           |
|                        | Close (d) | U 2B         |              |
| F (SIG_1: Signal S011) |           | U 2K         | //           |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

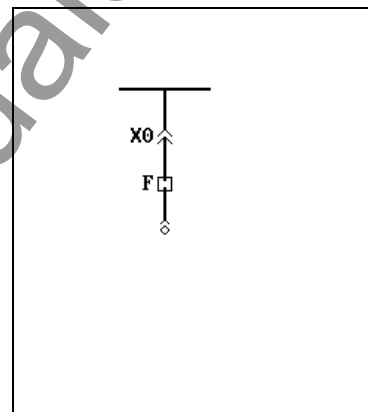
(continued)

### Bay Type No. 172 (M11.300.R01)

Busbar measurement bay with fuse unit, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                | Binary input         | Output relay      |
|--------------------------------|----------------------|-------------------|
| X0 (DEV01)<br>Open<br>Close(d) | U 2A<br>U 2B<br>U 2K | K 2A<br>K 2B<br>/ |
| F (SIG_1: Signal S011)         |                      |                   |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |



# Appendix C - List of Bay Types

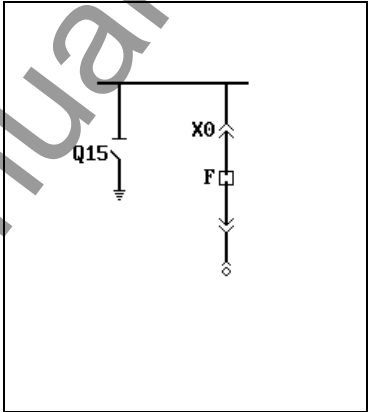
(continued)

## Bay Type No. 540 (M11.304.R02)

Busbar measurement bay with fuse unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q15 (DEV01)            | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| X0 (DEV02)             | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q15             | Close (d)   | (Q15=I)            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

# Appendix C - List of Bay Types

(continued)

## Bay Type No. 173 (M11.900.R00)

Busbar measurement bay with other switchgear unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                     | Binary input | Output relay |
|-------------------------------------|--------------|--------------|
| X0 (DEV01)<br><br>Open<br>Close (d) | U 2A<br>U 2B | //<br>//     |

### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

# Appendix C - List of Bay Types

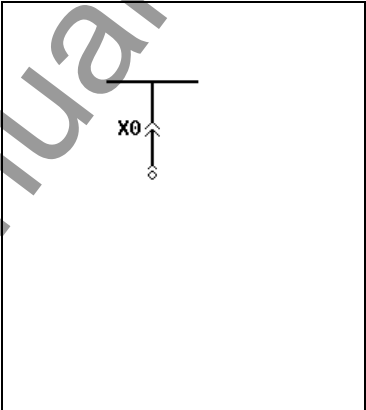
(continued)

## Bay Type No. 174 (M11.900.R01)

Busbar measurement bay with other switchgear unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |                   | Binary input | Output relay |
|-----------------|-------------------|--------------|--------------|
| X0 (DEV01)      | Open<br>Close (d) | U 2A<br>U 2B | K 2A<br>K 2B |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

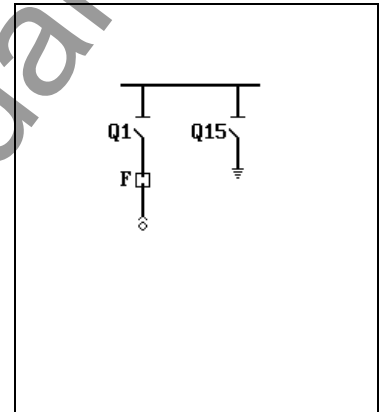
(continued)

### Bay Type No. 175 (M13.312.M02)

Busbar measurement bay with fuse unit, single busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q1 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q15 (DEV02)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| F (SIG_1: Signal S011)          |           | U 2K         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q15             | Close (d)   | (Q15=I)            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

# Appendix C - List of Bay Types

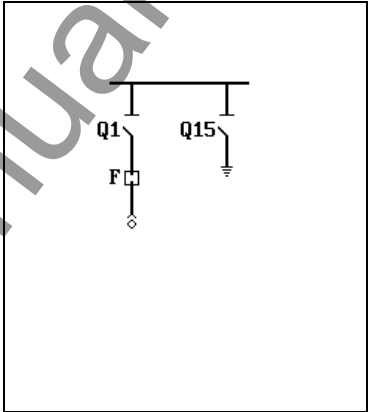
(continued)

## Bay Type No. 176 (M13.312.R01)

Busbar measurement bay with fuse unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q1 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q15 (DEV02)            | Open      | U 2C         | /            |
|                        | Close (d) | U 2D         | /            |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

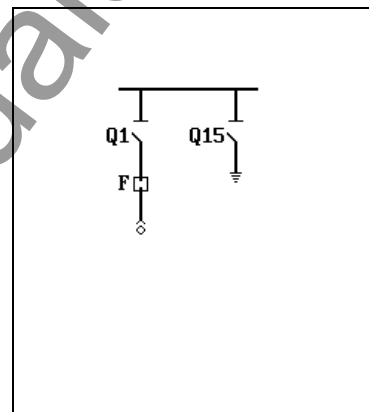
(continued)

### Bay Type No. 177 (M13.312.R02)

Busbar measurement bay with fuse unit, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit        |           | Binary input | Output relay |
|------------------------|-----------|--------------|--------------|
| Q1 (DEV01)             | Open      | U 2A         | K 2A         |
|                        | Close (d) | U 2B         | K 2B         |
| Q15 (DEV02)            | Open      | U 2C         | K 2C         |
|                        | Close (d) | U 2D         | K 2D         |
| F (SIG_1: Signal S011) |           | U 2K         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q15             | Close (d)   | (Q15=I)            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

# Appendix C - List of Bay Types

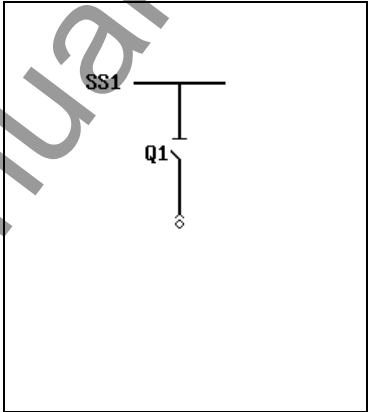
(continued)

## Bay Type No. 506 (M13.902.R00)

Busbar measurement bay with other switchgear unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |                   | Binary input | Output relay |
|-----------------|-------------------|--------------|--------------|
| Q1 (DEV01)      | Open<br>Close (d) | U 2A<br>U 2B | //<br>//     |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

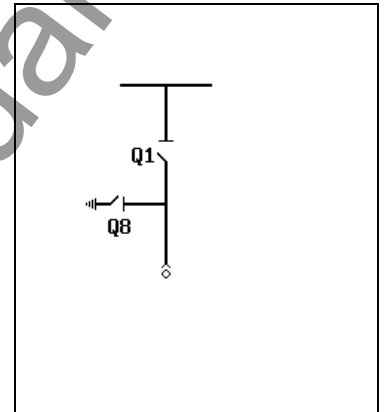
(continued)

### Bay Type No. 232 (M15.903.M01)

Busbar measurement bay with other switchgear unit, single busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q1 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q8 (DEV02)                      | Open      | U 2E         | /            |
|                                 | Close (d) | U 2F         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q1              | Close (d)   | (Q8=0)             |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q1              | Close (d)   | (Q8=0)             |



## Appendix C - List of Bay Types

(continued)

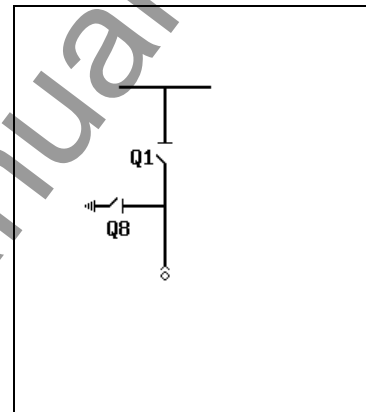
### Bay Type No. 178

(M15.903.M02)

Busbar measurement bay with other switchgear unit, single busbar, direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q1 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q8 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q1              | Close (d)   | (Q8=0)             |
| Q8              | Close (d)   | (Q1=0)             |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q1              | Close (d)   | (Q8=0)             |
| Q8              | Close (d)   | (Q1=0)             |

## Appendix C - List of Bay Types

(continued)

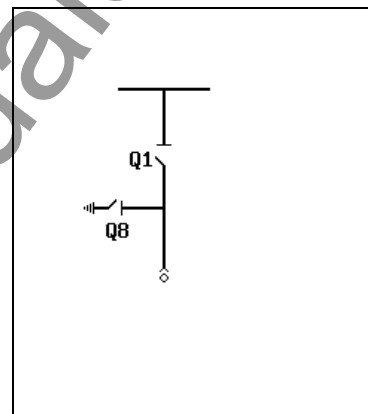
### Bay Type No. 233

(M15.903.R01)

Busbar measurement bay with other switchgear unit, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q1 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q8 (DEV02)      | Open      | U 2C         | /            |
|                 | Close (d) | U 2D         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q1              | Close (d)   | (Q8=0)             |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q1              | Close (d)   | (Q8=0)             |

# Appendix C - List of Bay Types

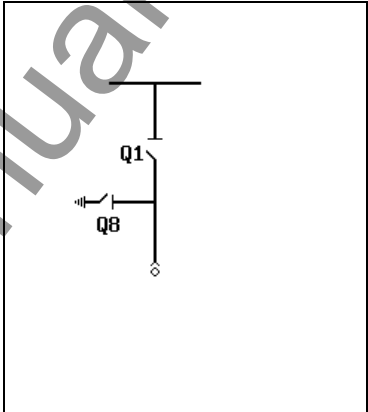
(continued)

## Bay Type No. 179 (M15.903.R02)

Busbar measurement bay with other switchgear unit, single busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q1 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q8 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q1              | Close (d)   | (Q8=0)             |
| Q8              | Close (d)   | (Q1=0)             |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q1              | Close (d)   | (Q8=0)             |
| Q8              | Close (d)   | (Q1=0)             |

## Appendix C - List of Bay Types

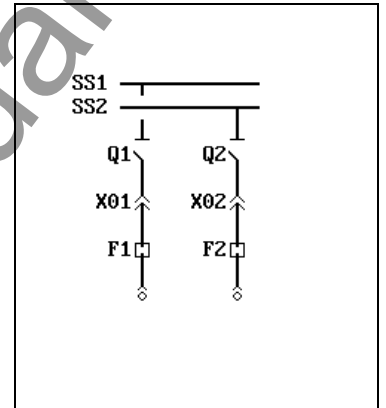
(continued)

### Bay Type No. 180 (M21.302.R02)

Busbar measurement bay with fuse unit, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit         |           | Binary input | Output relay |
|-------------------------|-----------|--------------|--------------|
| Q1 (DEV01)              | Open      | U 2A         | K 2A         |
|                         | Close (d) | U 2B         | K 2B         |
| Q2 (DEV02)              | Open      | U 2C         | K 2C         |
|                         | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)             | Open      | U 2E         | /            |
|                         | Close (d) | U 2F         | /            |
| X02 (DEV04)             | Open      | U 2G         | /            |
|                         | Close (d) | U 2H         | /            |
| F1 (SIG_1: Signal S011) |           | U 2K         | /            |
| F2 (SIG_1: Signal S012) |           | U 2L         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

(continued)

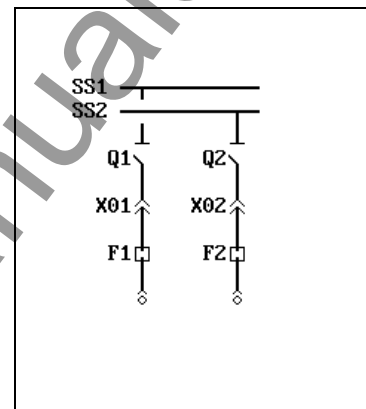
### Bay Type No. 181

(M21.302.R04)

Busbar measurement bay with fuse unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit         |           | Binary input | Output relay |
|-------------------------|-----------|--------------|--------------|
| Q1 (DEV01)              | Open      | U 2A         | K 2A         |
|                         | Close (d) | U 2B         | K 2B         |
| Q2 (DEV02)              | Open      | U 2C         | K 2C         |
|                         | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)             | Open      | U 2E         | K 2E         |
|                         | Close (d) | U 2F         | K 2F         |
| X02 (DEV04)             | Open      | U 2G         | K 2G         |
|                         | Close (d) | U 2H         | K 2H         |
| F1 (SIG_1: Signal S011) |           | U 2K         | /            |
| F2 (SIG_1: Signal S012) |           | U 2L         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| X01             | Open        | (Q1=0)             |
|                 | Close (d)   | (Q1=0)             |
| X02             | Open        | (Q2=0)             |
|                 | Close (d)   | (Q2=0)             |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| X01             | Open        | (Q1=0)             |
|                 | Close (d)   | (Q1=0)             |
| X02             | Open        | (Q2=0)             |
|                 | Close (d)   | (Q2=0)             |

## Appendix C - List of Bay Types

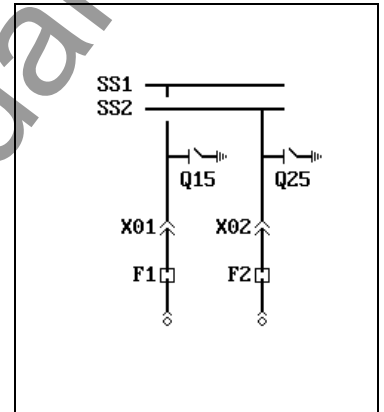
(continued)

### Bay Type No. 182 (M21.312.R02)

Busbar measurement bay with fuse unit, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit         |           | Binary input | Output relay |
|-------------------------|-----------|--------------|--------------|
| Q15 (DEV01)             | Open      | U 2A         | K 2A         |
|                         | Close (d) | U 2B         | K 2B         |
| Q25 (DEV02)             | Open      | U 2C         | K 2C         |
|                         | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)             | Open      | U 2E         | /            |
|                         | Close (d) | U 2F         | /            |
| X02 (DEV04)             | Open      | U 2G         | /            |
|                         | Close (d) | U 2H         | /            |
| F1 (SIG_1: Signal S011) |           | U 2K         | /            |
| F2 (SIG_1: Signal S012) |           | U 2L         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q15             | Close (d)   | (Q15=I)            |
| Q25             | Close (d)   | (Q25=I)            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

(continued)

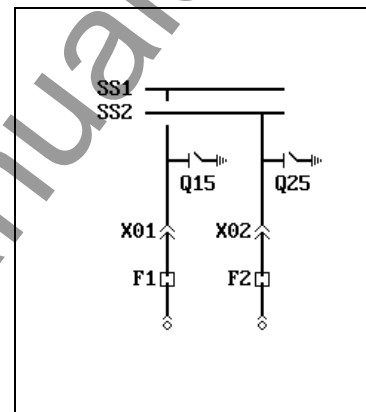
### Bay Type No. 183

(M21.312.R04)

Busbar measurement bay with fuse unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit         |           | Binary input | Output relay |
|-------------------------|-----------|--------------|--------------|
| Q15 (DEV01)             | Open      | U 2A         | K 2A         |
|                         | Close (d) | U 2B         | K 2B         |
| Q25 (DEV02)             | Open      | U 2C         | K 2C         |
|                         | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)             | Open      | U 2E         | K 2E         |
|                         | Close (d) | U 2F         | K 2F         |
| X02 (DEV04)             | Open      | U 2G         | K 2G         |
|                         | Close (d) | U 2H         | K 2H         |
| F1 (SIG_1: Signal S011) |           | U 2K         | /            |
| F2 (SIG_1: Signal S012) |           | U 2L         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q15             | Close (d)   | (Q15=I)            |
| Q25             | Close (d)   | (Q25=I)            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

(continued)

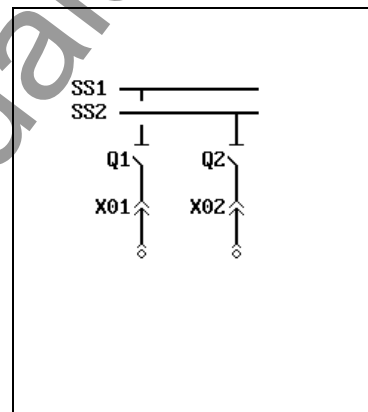
### Bay Type No. 184

(M21.902.R02)

Busbar measurement bay with other switchgear unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q1 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q2 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| X02 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |



## Appendix C - List of Bay Types

(continued)

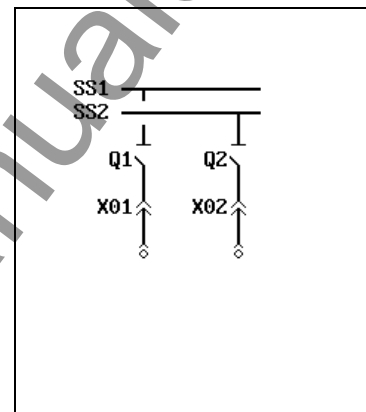
### Bay Type No. 185

(M21.902.R04)

Busbar measurement bay with other switchgear unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q1 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q2 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X02 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| X01             | Open        | (Q1=0)             |
|                 | Close (d)   | (Q1=0)             |
| X02             | Open        | (Q2=0)             |
|                 | Close (d)   | (Q2=0)             |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| X01             | Open        | (Q1=0)             |
|                 | Close (d)   | (Q1=0)             |
| X02             | Open        | (Q2=0)             |
|                 | Close (d)   | (Q2=0)             |

## Appendix C - List of Bay Types

(continued)

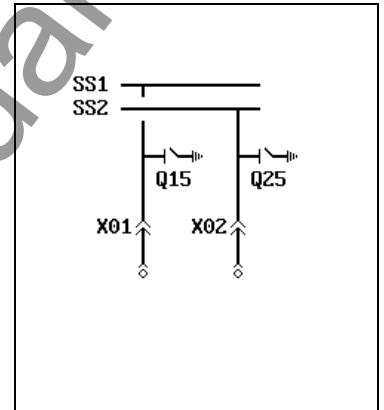
### Bay Type No. 186

(M21.912.R02)

Busbar measurement bay with other switchgear unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q15 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q25 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| X02 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q15             | Close (d)   | (Q15=I)            |
| Q25             | Close (d)   | (Q25=I)            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

# Appendix C - List of Bay Types

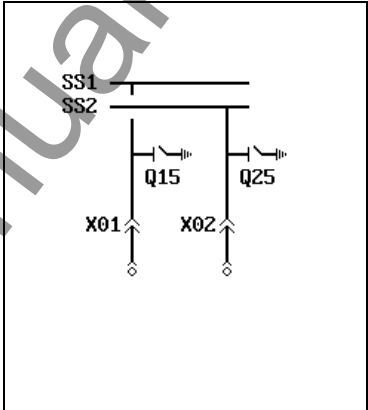
(continued)

## Bay Type No. 187 (M21.912.R04)

Busbar measurement bay with other switchgear unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q15 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q25 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| X01 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| X02 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q15             | Close (d)   | (Q15=I)            |
| Q25             | Close (d)   | (Q25=I)            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

(continued)

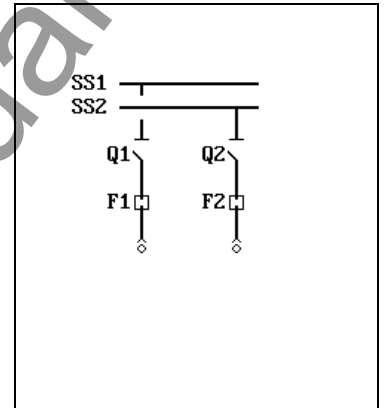
### Bay Type No. 188

(M23.302.R02)

Busbar measurement bay with fuse unit, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit         |           | Binary input | Output relay |
|-------------------------|-----------|--------------|--------------|
| Q1 (DEV01)              | Open      | U 2A         | K 2A         |
|                         | Close (d) | U 2B         | K 2B         |
| Q2 (DEV02)              | Open      | U 2C         | K 2C         |
|                         | Close (d) | U 2D         | K 2D         |
| F1 (SIG_1: Signal S011) |           | U 2K         | /            |
| F2 (SIG_1: Signal S012) |           | U 2L         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

# Appendix C - List of Bay Types

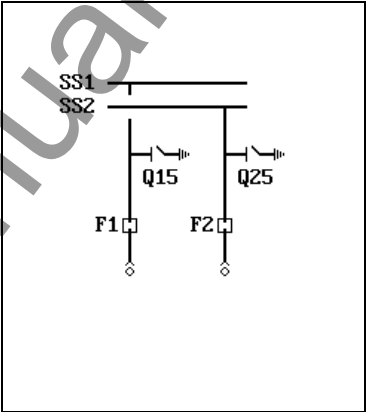
(continued)

## Bay Type No. 189 (M23.312.R02)

Busbar measurement bay with fuse unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit         |           | Binary input | Output relay |
|-------------------------|-----------|--------------|--------------|
| Q15 (DEV01)             | Open      | U 2A         | K 2A         |
|                         | Close (d) | U 2B         | K 2B         |
| Q25 (DEV02)             | Open      | U 2C         | K 2C         |
|                         | Close (d) | U 2D         | K 2D         |
| F1 (SIG_1: Signal S011) |           | U 2K         | /            |
| F2 (SIG_1: Signal S012) |           | U 2L         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q15             | Close (d)   | (Q15=I)            |
| Q25             | Close (d)   | (Q25=I)            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

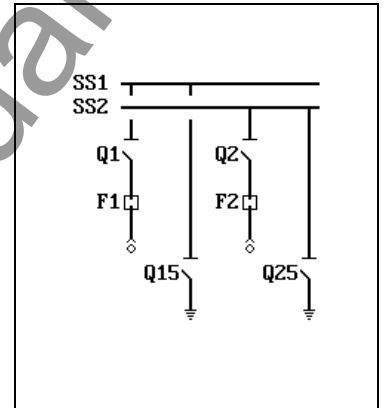
(continued)

### Bay Type No. 190 (M23.328.M04)

Busbar measurement bay with fuse unit, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q1 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q2 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q15 (DEV03)                     | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Q25 (DEV04)                     | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| F2 (SIG_1: Signal S010)         |           | U 2L         | /            |
| F1 (SIG_1: Signal S011)         |           | U 2K         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q15             | Close (d)   | (Q15=I)            |
| Q25             | Close (d)   | (Q25=I)            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

# Appendix C - List of Bay Types

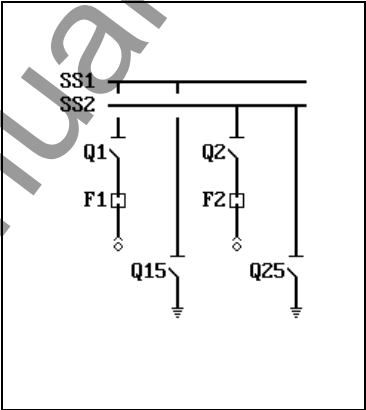
(continued)

## Bay Type No. 191 (M23.328.R02)

Busbar measurement bay with fuse unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit         |           | Binary input | Output relay |
|-------------------------|-----------|--------------|--------------|
| Q1 (DEV01)              | Open      | U 2A         | K 2A         |
|                         | Close (d) | U 2B         | K 2B         |
| Q2 (DEV02)              | Open      | U 2C         | K 2C         |
|                         | Close (d) | U 2D         | K 2D         |
| Q15 (DEV03)             | Open      | U 2E         | /            |
|                         | Close (d) | U 2F         | /            |
| Q25 (DEV04)             | Open      | U 2G         | /            |
|                         | Close (d) | U 2H         | /            |
| F1 (SIG_1: Signal S011) |           | U 2K         | /            |
| F2 (SIG_1: Signal S012) |           | U 2L         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

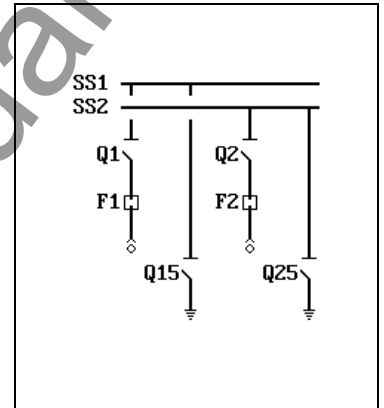
(continued)

### Bay Type No. 192 (M23.328.R04)

Busbar measurement bay with fuse unit, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit         |           | Binary input | Output relay |
|-------------------------|-----------|--------------|--------------|
| Q1 (DEV01)              | Open      | U 2A         | K 2A         |
|                         | Close (d) | U 2B         | K 2B         |
| Q2 (DEV02)              | Open      | U 2C         | K 2C         |
|                         | Close (d) | U 2D         | K 2D         |
| Q15 (DEV03)             | Open      | U 2E         | K 2E         |
|                         | Close (d) | U 2F         | K 2F         |
| Q25 (DEV04)             | Open      | U 2G         | K 2G         |
|                         | Close (d) | U 2H         | K 2H         |
| F1 (SIG_1: Signal S011) |           | U 2K         | /            |
| F2 (SIG_1: Signal S012) |           | U 2L         | /            |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q15             | Close (d)   | (Q15=I)            |
| Q25             | Close (d)   | (Q25=I)            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |



# Appendix C - List of Bay Types

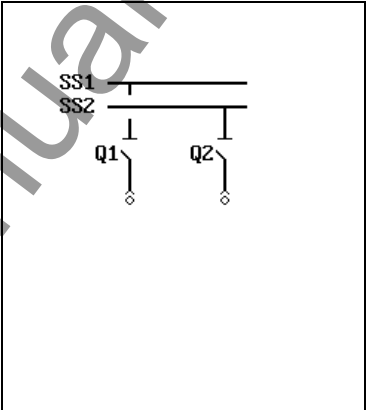
(continued)

## Bay Type No. 193 (M23.902.R02)

Busbar measurement bay with other switchgear unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q1 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q2 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

(continued)

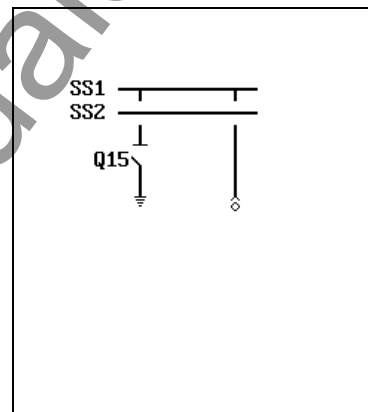
### Bay Type No. 559

(M23.904.R00)

Busbar measurement bay with other switchgear unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  | Binary input | Output relay |
|----------------------------------|--------------|--------------|
| Q15 (DEV01)<br>Open<br>Close (d) | U 2A<br>U 2B | //<br>//     |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

# Appendix C - List of Bay Types

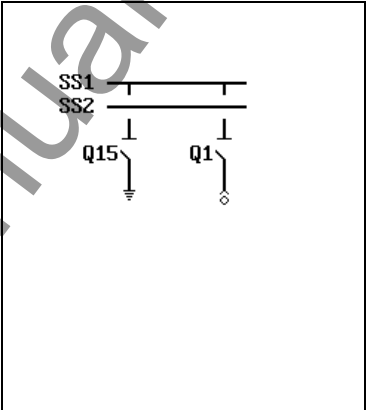
(continued)

## Bay Type No. 509 (M23.906.M01)

Busbar measurement bay with other switchgear unit, double busbar,direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q1 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q15 (DEV02)                     | Open      | U 2E         | /            |
|                                 | Close (d) | U 2F         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

(continued)

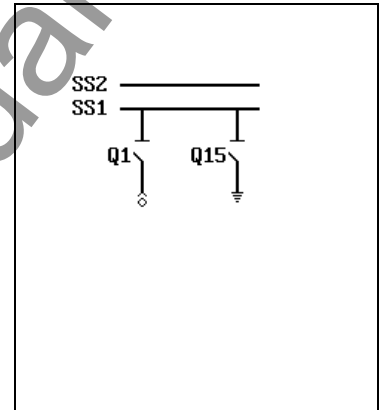
### Bay Type No. 529

(M23.906.M02)

Busbar measurement bay with other switchgear unit, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q1 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q15 (DEV02)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2G         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q15             | Close (d)   | (Q15=I)            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

# Appendix C - List of Bay Types

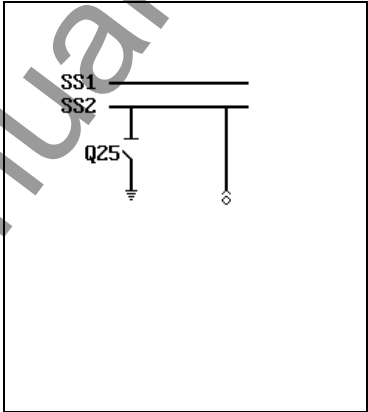
(continued)

## Bay Type No. 560 (M23.908.R00)

Busbar measurement bay with other switchgear unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |                   | Binary input | Output relay |
|-----------------|-------------------|--------------|--------------|
| Q25 (DEV01)     | Open<br>Close (d) | U 2A<br>U 2B | //<br>//     |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

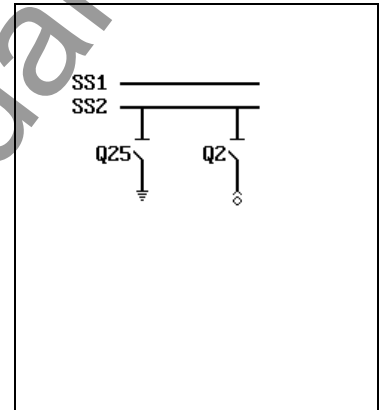
(continued)

### Bay Type No. 510 (M23.910.M01)

Busbar measurement bay with other switchgear unit, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q2 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q25 (DEV02)                     | Open      | U 2E         | /            |
|                                 | Close (d) | U 2F         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

# Appendix C - List of Bay Types

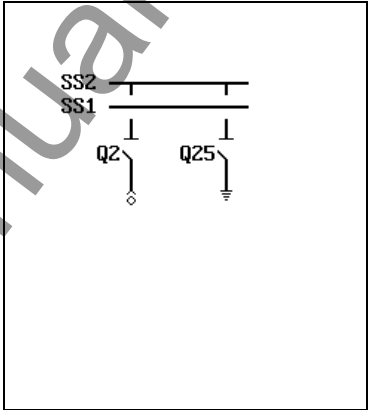
(continued)

## Bay Type No. 530 (M23.910.M02)

Busbar measurement bay with other switchgear unit, double busbar,direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q2 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q25 (DEV02)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2G         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q25             | Close (d)   | (Q25=I)            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

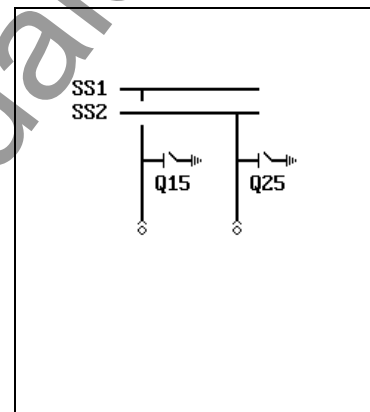
(continued)

### Bay Type No. 194 (M23.912.R02)

Busbar measurement bay with other switchgear unit, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q15 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q25 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q15             | Close (d)   | (Q15=I)            |
| Q25             | Close (d)   | (Q25=I)            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |



# Appendix C - List of Bay Types

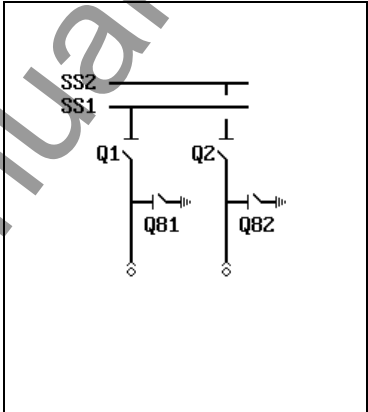
(continued)

## Bay Type No. 234 (M25.903.M02)

Busbar measurement bay with other switchgear unit, double busbar,direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q1 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q2 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q81 (DEV03)                     | Open      | U 2G         | /            |
|                                 | Close (d) | U 2H         | /            |
| Q82 (DEV04)                     | Open      | U 2I         | /            |
|                                 | Close (d) | U 2J         | /            |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q1              | Close (d)   | (Q81=0)            |
| Q2              | Close (d)   | (Q82=0)            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q1              | Close (d)   | (Q81=0)            |
| Q2              | Close (d)   | (Q82=0)            |

## Appendix C - List of Bay Types

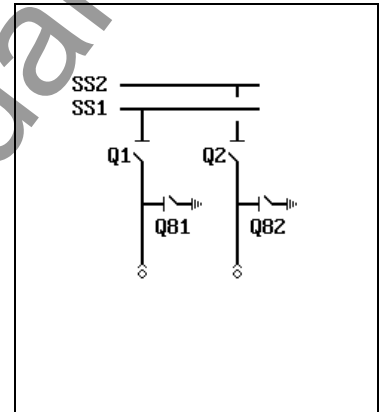
(continued)

### Bay Type No. 195 (M25.903.M04)

Busbar measurement bay with other switchgear unit, double busbar, direct motor control

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q1 (DEV01)                      | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q2 (DEV02)                      | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Q81 (DEV03)                     | Open      | U 2G         | K 2G         |
|                                 | Close (d) | U 2H         | K 2H         |
| Q82 (DEV04)                     | Open      | U 2I         | K 2I         |
|                                 | Close (d) | U 2J         | K 2J         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q1              | Close (d)   | (Q81=0)            |
| Q2              | Close (d)   | (Q82=0)            |
| Q81             | Close (d)   | (Q1=0)             |
| Q82             | Close (d)   | (Q2=0)             |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q1              | Close (d)   | (Q81=0)            |
| Q2              | Close (d)   | (Q82=0)            |
| Q81             | Close (d)   | (Q1=0)             |
| Q82             | Close (d)   | (Q2=0)             |

# Appendix C - List of Bay Types

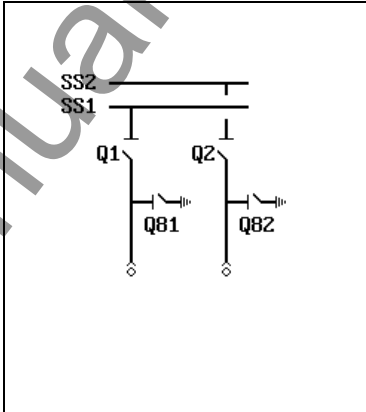
(continued)

## Bay Type No. 235 (M25.903.R02)

Busbar measurement bay with other switchgear unit, double busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q1 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q2 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q81 (DEV03)     | Open      | U 2E         | /            |
|                 | Close (d) | U 2F         | /            |
| Q82 (DEV04)     | Open      | U 2G         | /            |
|                 | Close (d) | U 2H         | /            |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q1              | Close (d)   | (Q81=0)            |
| Q2              | Close (d)   | (Q82=0)            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q1              | Close (d)   | (Q81=0)            |
| Q2              | Close (d)   | (Q82=0)            |

## Appendix C - List of Bay Types

(continued)

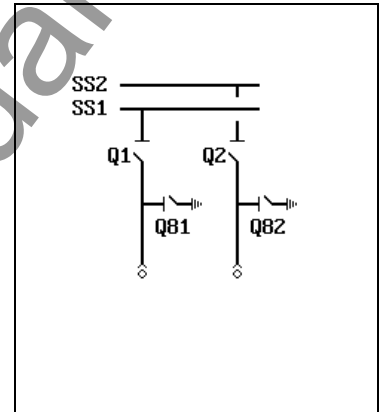
### Bay Type No. 196

(M25.903.R04)

Busbar measurement bay with other switchgear unit, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q1 (DEV01)      | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q2 (DEV02)      | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |
| Q81 (DEV03)     | Open      | U 2E         | K 2E         |
|                 | Close (d) | U 2F         | K 2F         |
| Q82 (DEV04)     | Open      | U 2G         | K 2G         |
|                 | Close (d) | U 2H         | K 2H         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q1              | Close (d)   | (Q81=0)            |
| Q2              | Close (d)   | (Q82=0)            |
| Q81             | Close (d)   | (Q1=0)             |
| Q82             | Close (d)   | (Q2=0)             |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q1              | Close (d)   | (Q81=0)            |
| Q2              | Close (d)   | (Q82=0)            |
| Q81             | Close (d)   | (Q1=0)             |
| Q82             | Close (d)   | (Q2=0)             |

# Appendix C - List of Bay Types

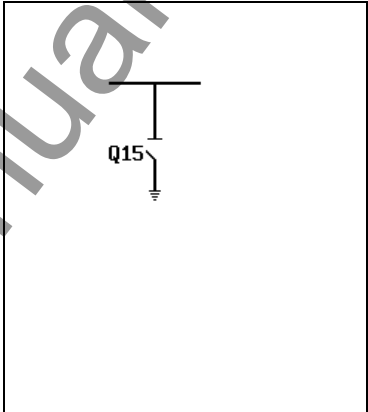
(continued)

## Bay Type No. 129 (E13.901.M01)

Busbar grounding bay with other switchgear unit, single busbar,direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q15 (DEV01)                     | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q15             | Close (d)   | (Q15=I)            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

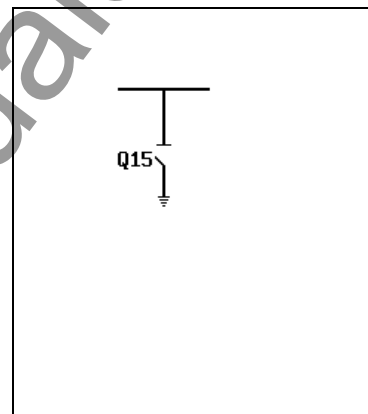
(continued)

### Bay Type No. 130 (E13.901.R01)

Busbar grounding bay with other switchgear unit, single busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit                  | Binary input | Output relay |
|----------------------------------|--------------|--------------|
| Q15 (DEV01)<br>Open<br>Close (d) | U 2A<br>U 2B | K 2A<br>K 2B |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q15             | Close (d)   | (Q15=I)            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

# Appendix C - List of Bay Types

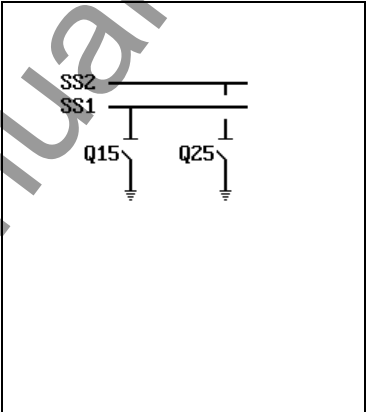
(continued)

## Bay Type No. 131 (E23.903.M02)

Busbar grounding bay with other switchgear unit, double busbar,direct motor control

### Assignment of Binary Inputs and Output Relays

| Switchgear unit                 |           | Binary input | Output relay |
|---------------------------------|-----------|--------------|--------------|
| Q15 (DEV01)                     | Open      | U 2A         | K 2A         |
|                                 | Close (d) | U 2B         | K 2B         |
| Q25 (DEV02)                     | Open      | U 2E         | K 2E         |
|                                 | Close (d) | U 2F         | K 2F         |
| Mot.relay (SIG_1: Signal S012)  |           | U 2C         | /            |
| Shunt wd. (CMD_1: Command C011) |           | /            | K 2D         |
| Mot.relay (CMD_1: Command C012) |           | /            | K 2C         |



### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q15             | Close (d)   | (Q15=I)            |
| Q25             | Close (d)   | (Q25=I)            |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

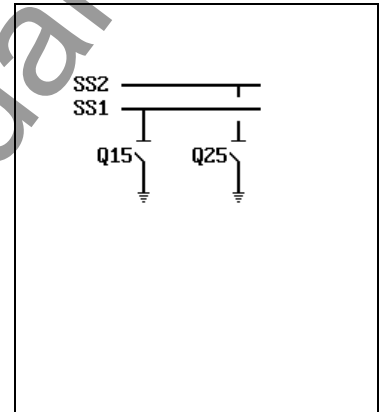
(continued)

### Bay Type No. 132 (E23.903.R02)

Busbar grounding bay with other switchgear unit, double busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit |           | Binary input | Output relay |
|-----------------|-----------|--------------|--------------|
| Q15 (DEV01)     | Open      | U 2A         | K 2A         |
|                 | Close (d) | U 2B         | K 2B         |
| Q25 (DEV02)     | Open      | U 2C         | K 2C         |
|                 | Close (d) | U 2D         | K 2D         |



#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation |
|-----------------|-------------|--------------------|
| Q15             | Close (d)   | (Q15=I)            |
| Q25             | Close (d)   | (Q25=I)            |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |



# Appendix C - List of Bay Types

(continued)

## Bay Type No. 1 (X99.901.R00)

Other bay type with other switchgear unit, without busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit | Binary input | Output relay |
|-----------------|--------------|--------------|
|                 |              |              |

### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

(continued)

### Bay Type No. 984 (X99.910.R02)

Other bay type with other switchgear unit, without busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit            | Binary input | Output relay |
|----------------------------|--------------|--------------|
| M001 (SIG_1: Signal S001)  | U 2A         | /            |
| M002 (SIG_1: Signal S002)  | U 2B         | /            |
| M003 (SIG_1: Signal S003)  | U 2C         | /            |
| M004 (SIG_1: Signal S004)  | U 2D         | /            |
| M005 (SIG_1: Signal S005)  | U 2E         | /            |
| M006 (SIG_1: Signal S006)  | U 2F         | /            |
| M007 (SIG_1: Signal S007)  | U 2M         | /            |
| M008 (SIG_1: Signal S008)  | U 2N         | /            |
| M009 (SIG_1: Signal S009)  | U 2O         | /            |
| M010 (SIG_1: Signal S010)  | U 2P         | /            |
| B001 (CMD_1: Command C001) | /            | K 2A         |
| B002 (CMD_1: Command C002) | /            | K 2B         |

| I  |                          | O  |
|----|--------------------------|----|
| 1  | <input type="checkbox"/> | 13 |
| 2  | <input type="checkbox"/> | 14 |
| 3  | <input type="checkbox"/> | 15 |
| 4  | <input type="checkbox"/> | 16 |
| 5  | <input type="checkbox"/> | 17 |
| 6  | <input type="checkbox"/> | 18 |
| 7  | <input type="checkbox"/> | 19 |
| 8  | <input type="checkbox"/> | 20 |
| 9  |                          |    |
| 10 |                          |    |
| 11 |                          |    |
| 12 |                          |    |

#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

# Appendix C - List of Bay Types

(continued)

## Bay Type No. 985 (X99.911.R06)

Other bay type with other switchgear unit, without busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit            | Binary input | Output relay |
|----------------------------|--------------|--------------|
| M001 (SIG_1: Signal S001)  | U 2A         | /            |
| M002 (SIG_1: Signal S002)  | U 2B         | /            |
| M003 (SIG_1: Signal S003)  | U 2C         | /            |
| M004 (SIG_1: Signal S004)  | U 2D         | /            |
| M005 (SIG_1: Signal S005)  | U 2E         | /            |
| M006 (SIG_1: Signal S006)  | U 2F         | /            |
| M007 (SIG_1: Signal S007)  | U 2G         | /            |
| M008 (SIG_1: Signal S008)  | U 2H         | /            |
| M009 (SIG_1: Signal S009)  | U 2I         | /            |
| M010 (SIG_1: Signal S010)  | U 2J         | /            |
| M011 (SIG_1: Signal S011)  | U 2M         | /            |
| M012 (SIG_1: Signal S012)  | U 2N         | /            |
| M013 (SIG_1: Signal S013)  | U 2O         | /            |
| M014 (SIG_1: Signal S014)  | U 2P         | /            |
| M015 (SIG_1: Signal S015)  | U 2Q         | /            |
| M016 (SIG_1: Signal S016)  | U 2R         | /            |
| M017 (SIG_1: Signal S017)  | U 2S         | /            |
| B001 (CMD_1: Command C001) | /            | K 2A         |
| B002 (CMD_1: Command C002) | /            | K 2B         |
| B003 (CMD_1: Command C003) | /            | K 2C         |
| B004 (CMD_1: Command C004) | /            | K 2D         |
| B005 (CMD_1: Command C005) | /            | K 2E         |
| B006 (CMD_1: Command C006) | /            | K 2F         |

|    |    |    |
|----|----|----|
| 1  | 13 | 0  |
| 2  | 14 | 1  |
| 3  | 15 | 2  |
| 4  | 16 | 3  |
| 5  | 17 | 4  |
| 6  | 18 | 5  |
| 7  | 19 | 6  |
| 8  | 20 | 7  |
| 9  |    | 8  |
| 10 |    | 9  |
| 11 |    | 10 |
| 12 |    | 11 |
|    |    | 12 |

### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

(continued)

### Bay Type No. 986

(X99.912.R12)

Other bay type with other switchgear unit, without busbar

### Assignment of Binary Inputs and Output Relays

| Switchgear unit            | Binary input | Output relay |
|----------------------------|--------------|--------------|
| M001 (SIG_1: Signal S001)  | U 2A         | /            |
| M002 (SIG_1: Signal S002)  | U 2B         | /            |
| M003 (SIG_1: Signal S003)  | U 2C         | /            |
| M004 (SIG_1: Signal S004)  | U 2D         | /            |
| M005 (SIG_1: Signal S005)  | U 2E         | /            |
| M006 (SIG_1: Signal S006)  | U 2F         | /            |
| M007 (SIG_1: Signal S007)  | U 2G         | /            |
| M008 (SIG_1: Signal S008)  | U 2H         | /            |
| M009 (SIG_1: Signal S009)  | U 2I         | /            |
| M010 (SIG_1: Signal S010)  | U 2J         | /            |
| M011 (SIG_1: Signal S011)  | U 2K         | /            |
| M012 (SIG_1: Signal S012)  | U 2L         | /            |
| M013 (SIG_1: Signal S013)  | U 2M         | /            |
| M014 (SIG_1: Signal S014)  | U 2N         | /            |
| M015 (SIG_1: Signal S015)  | U 2O         | /            |
| M016 (SIG_1: Signal S016)  | U 2P         | /            |
| M017 (SIG_1: Signal S017)  | U 2Q         | /            |
| M018 (SIG_1: Signal S018)  | U 2R         | /            |
| M019 (SIG_1: Signal S019)  | U 2S         | /            |
| M020 (SIG_1: Signal S020)  | U 2T         | /            |
| B001 (CMD_1: Command C001) | /            | K 2A         |
| B002 (CMD_1: Command C002) | /            | K 2B         |
| B003 (CMD_1: Command C003) | /            | K 2C         |
| B004 (CMD_1: Command C004) | /            | K 2D         |
| B005 (CMD_1: Command C005) | /            | K 2E         |
| B006 (CMD_1: Command C006) | /            | K 2F         |
| B007 (CMD_1: Command C007) | /            | K 2G         |
| B008 (CMD_1: Command C008) | /            | K 2H         |
| B009 (CMD_1: Command C009) | /            | K 2I         |
| B010 (CMD_1: Command C010) | /            | K 2J         |
| B011 (CMD_1: Command C011) | /            | K 2K         |
| B012 (CMD_1: Command C012) | /            | K 2L         |

|    |                          |    |
|----|--------------------------|----|
| I  |                          | 0  |
| 1  | <input type="checkbox"/> | 1  |
| 2  | <input type="checkbox"/> | 2  |
| 3  | <input type="checkbox"/> | 3  |
| 4  | <input type="checkbox"/> | 4  |
| 5  | <input type="checkbox"/> | 5  |
| 6  | <input type="checkbox"/> | 6  |
| 7  | <input type="checkbox"/> | 7  |
| 8  | <input type="checkbox"/> | 8  |
| 9  | <input type="checkbox"/> | 9  |
| 10 | <input type="checkbox"/> | 10 |
| 11 | <input type="checkbox"/> | 11 |
| 12 | <input type="checkbox"/> | 12 |

### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

### Bay Interlock Equations for Operation with Station Interlocking

# Appendix C - List of Bay Types

(continued)

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

## Appendix C - List of Bay Types

(continued)

### Bay Type No. 987 (X99.913.R08)

Other bay type with other switchgear unit, without busbar

#### Assignment of Binary Inputs and Output Relays

| Switchgear unit            | Binary input | Output relay |
|----------------------------|--------------|--------------|
| M001 (SIG_1: Signal S001)  | U 2A         | /            |
| M002 (SIG_1: Signal S002)  | U 2B         | /            |
| M003 (SIG_1: Signal S003)  | U 2C         | /            |
| M004 (SIG_1: Signal S004)  | U 2D         | /            |
| M005 (SIG_1: Signal S005)  | U 2E         | /            |
| M006 (SIG_1: Signal S006)  | U 2F         | /            |
| M007 (SIG_1: Signal S007)  | U 2M         | /            |
| M008 (SIG_1: Signal S008)  | U 2N         | /            |
| M009 (SIG_1: Signal S009)  | U 2O         | /            |
| M010 (SIG_1: Signal S010)  | U 2P         | /            |
| M011 (SIG_1: Signal S011)  | U 2T         | /            |
| B001 (CMD_1: Command C001) | /            | K 2A         |
| B002 (CMD_1: Command C002) | /            | K 2B         |
| B003 (CMD_1: Command C003) | /            | K 2G         |
| B004 (CMD_1: Command C004) | /            | K 2H         |
| B005 (CMD_1: Command C005) | /            | K 2I         |
| B006 (CMD_1: Command C006) | /            | K 2J         |
| B007 (CMD_1: Command C007) | /            | K 2K         |
| B008 (CMD_1: Command C008) | /            | K 2L         |

| I  |                          |    |                          | 0  |                          |
|----|--------------------------|----|--------------------------|----|--------------------------|
| 1  | <input type="checkbox"/> | 13 | <input type="checkbox"/> | 1  | <input type="checkbox"/> |
| 2  | <input type="checkbox"/> | 14 | <input type="checkbox"/> | 2  | <input type="checkbox"/> |
| 3  | <input type="checkbox"/> | 15 | <input type="checkbox"/> | 3  |                          |
| 4  | <input type="checkbox"/> | 16 | <input type="checkbox"/> | 4  |                          |
| 5  | <input type="checkbox"/> | 17 |                          | 5  |                          |
| 6  | <input type="checkbox"/> | 18 |                          | 6  |                          |
| 7  |                          | 19 |                          | 7  | <input type="checkbox"/> |
| 8  |                          | 20 | <input type="checkbox"/> | 8  | <input type="checkbox"/> |
| 9  |                          |    |                          | 9  | <input type="checkbox"/> |
| 10 |                          |    |                          | 10 | <input type="checkbox"/> |
| 11 |                          |    |                          | 11 | <input type="checkbox"/> |
| 12 |                          |    |                          | 12 | <input type="checkbox"/> |

#### Bay Interlock Equations for Operation without Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

#### Bay Interlock Equations for Operation with Station Interlocking

| Switchgear unit | Control O/C | Interlock equation              |
|-----------------|-------------|---------------------------------|
|                 |             | Interlock equations not defined |

**Appendix C - List of Bay Types**  
(continued)

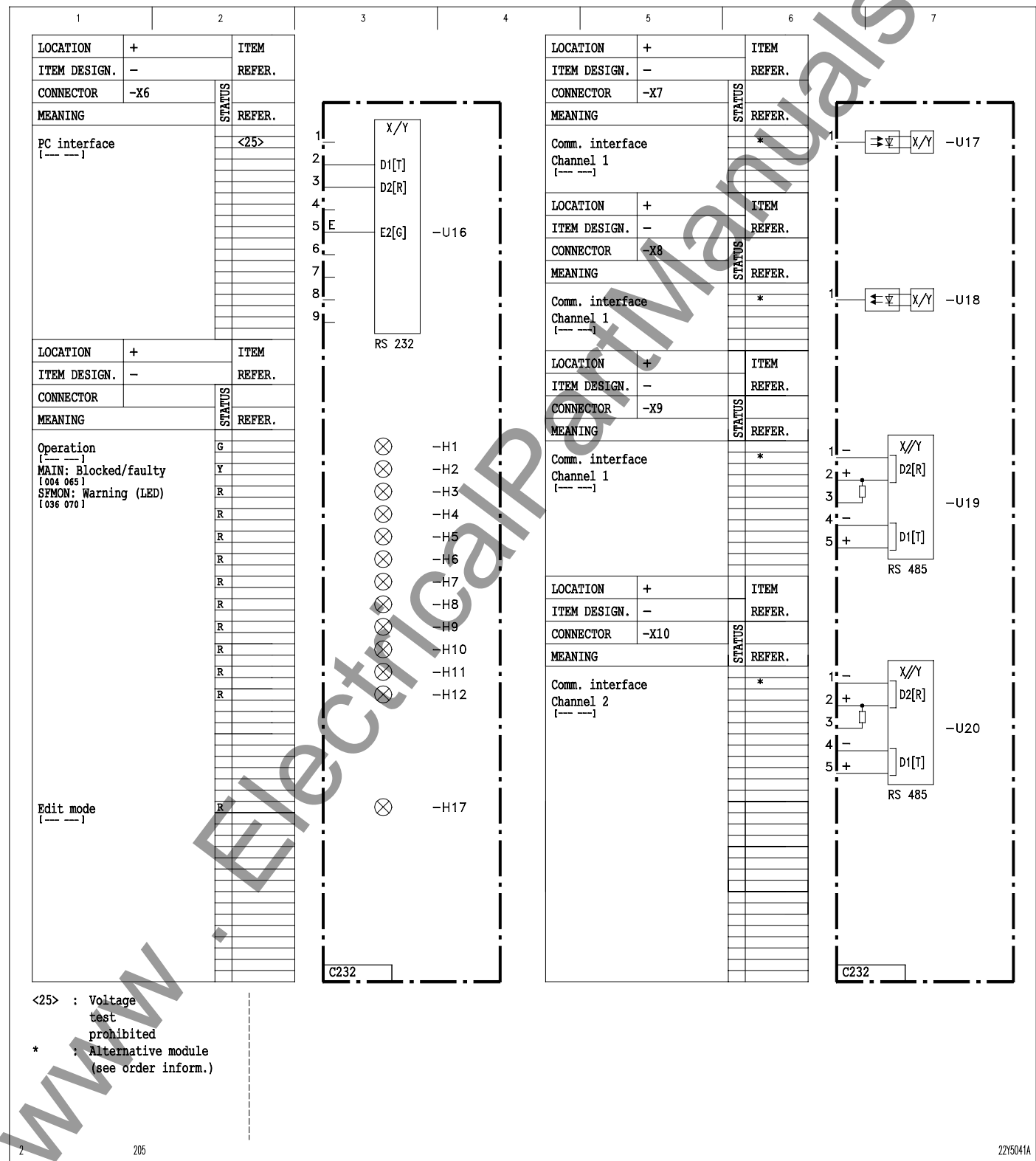
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### D 1.1 Model 1





Appendix D - Terminal Connection Diagrams
(continued)



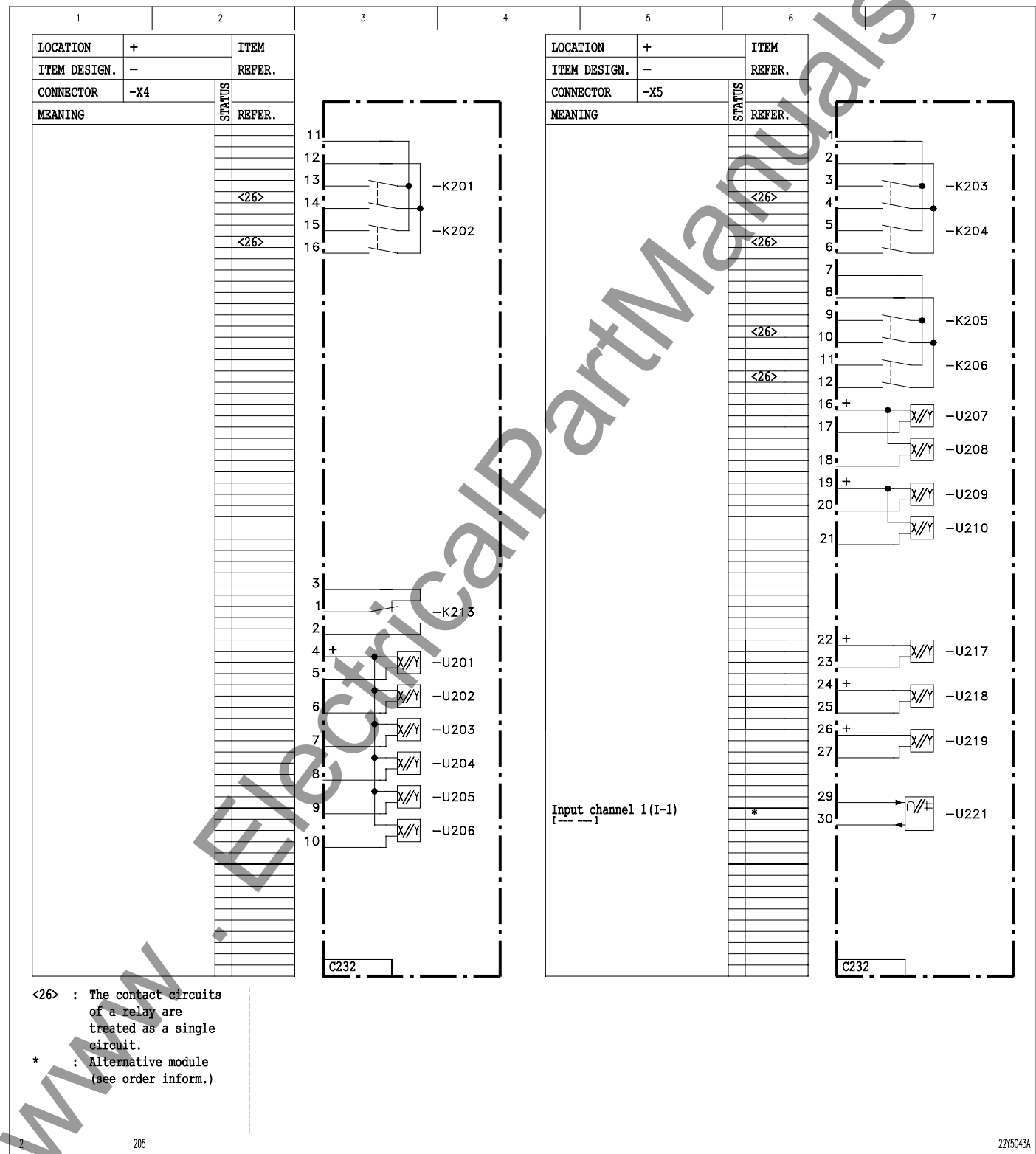
D-2 Terminal connection diagram C232, diagram C232.401 (part 2 of 2)

(continued)

[illegible]

D-3 Terminal connection diagram C232, diagram C232.402 (part 1 of 3)

Appendix D - Terminal Connection Diagrams
(continued)



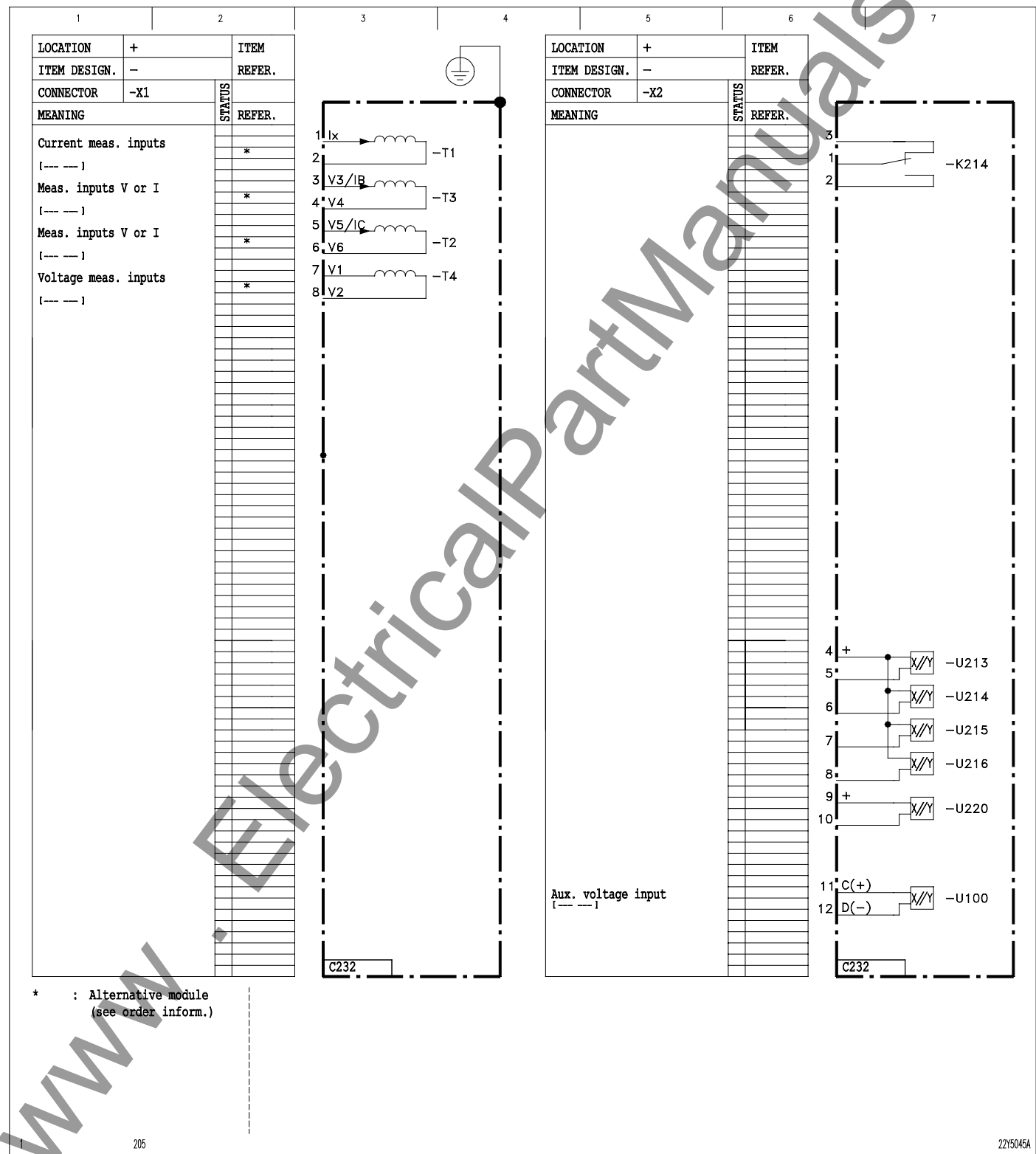
D-4 Terminal connection diagram C232, diagram C232.402 (part 2 of 3)

(continued)

D-5 Terminal connection diagram C232, diagram C232.402 (part 3 of 3)

Appendix D - Terminal Connection Diagrams
(continued)

D 1.3 Model 3

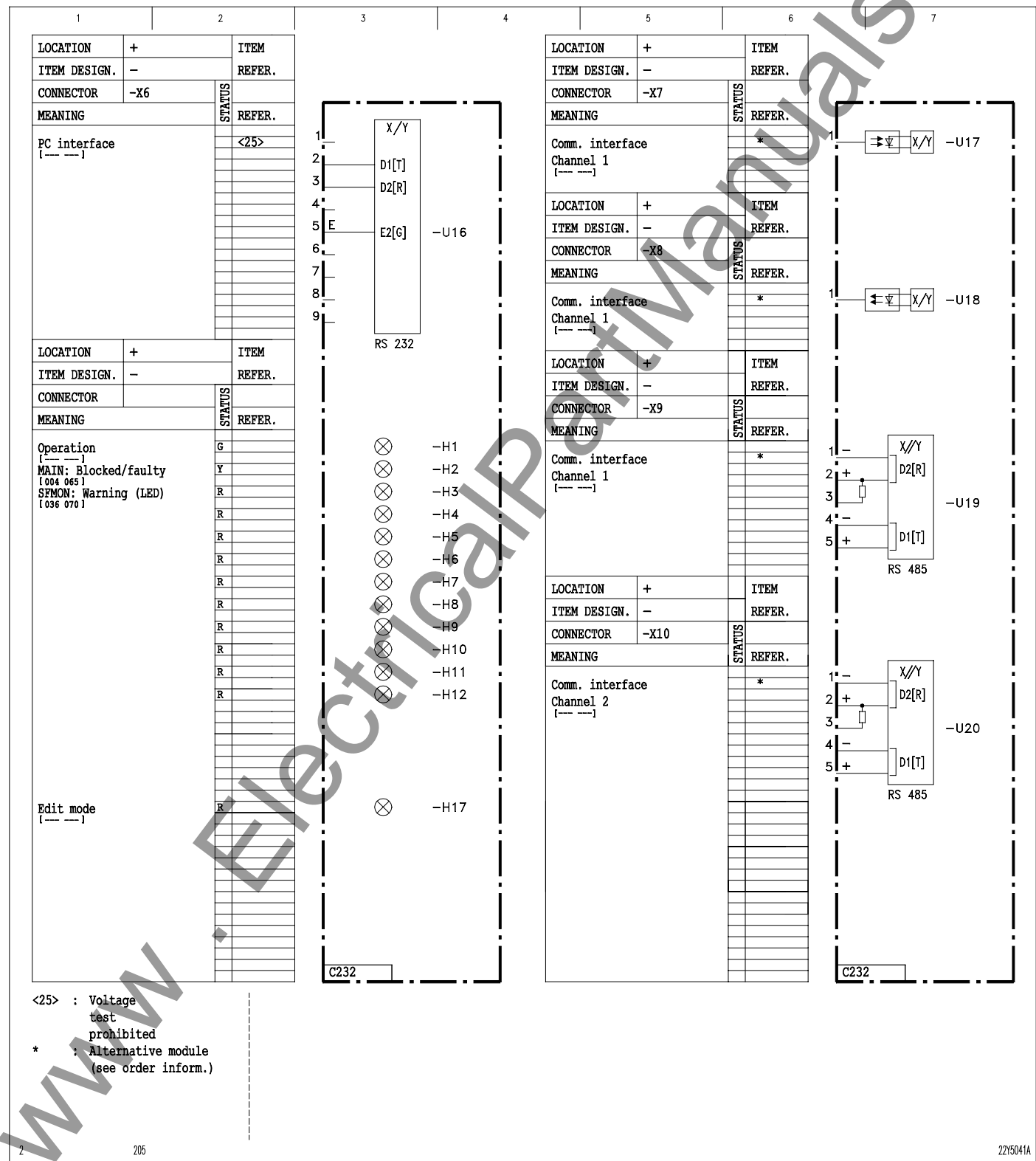


D-6 Terminal connection diagram C232, diagram C232.403 (part 1 of 3)

(continued)

*D-7 Terminal connection diagram C232, diagram C232.403 (part 2 of 3)*

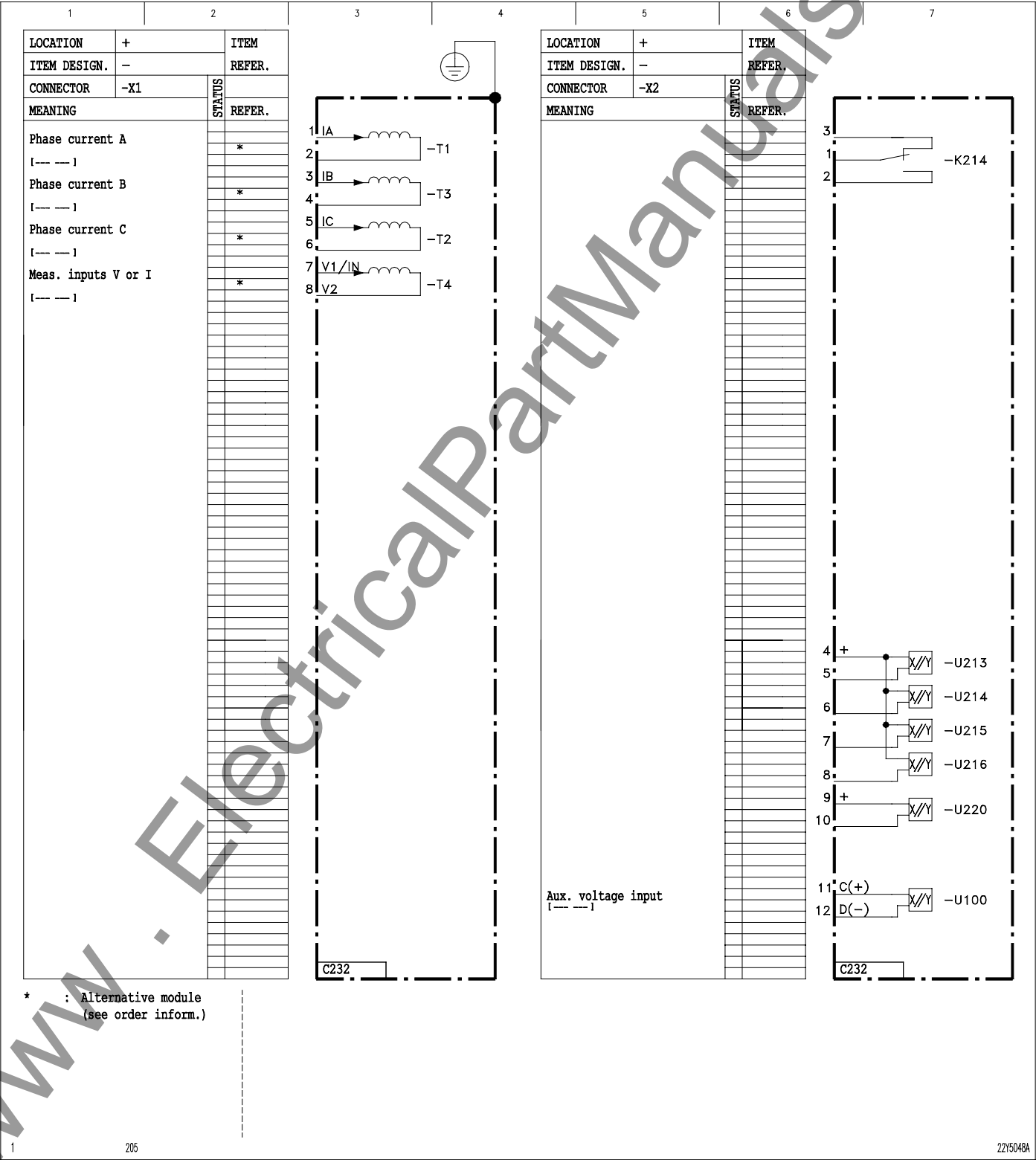
Appendix D - Terminal Connection Diagrams
(continued)



D-8 Terminal connection diagram C232, diagram C232.403 (part 3 of 3)

Appendix D - Terminal Connection Diagrams  
(continued)

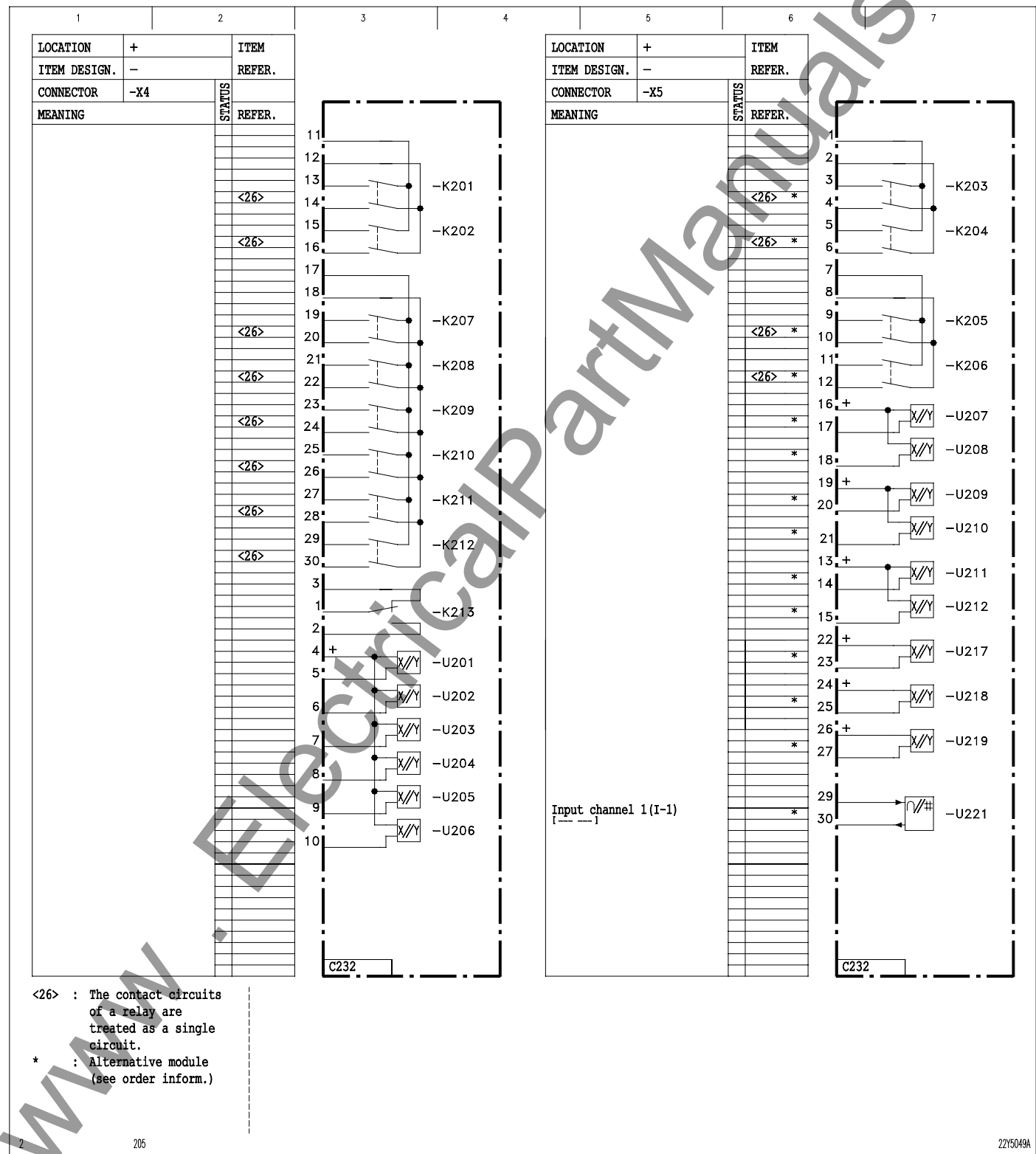
D 1.4 Model 4



D-9 Terminal connection diagram C232, diagram C232.404 (part 1 of 3)

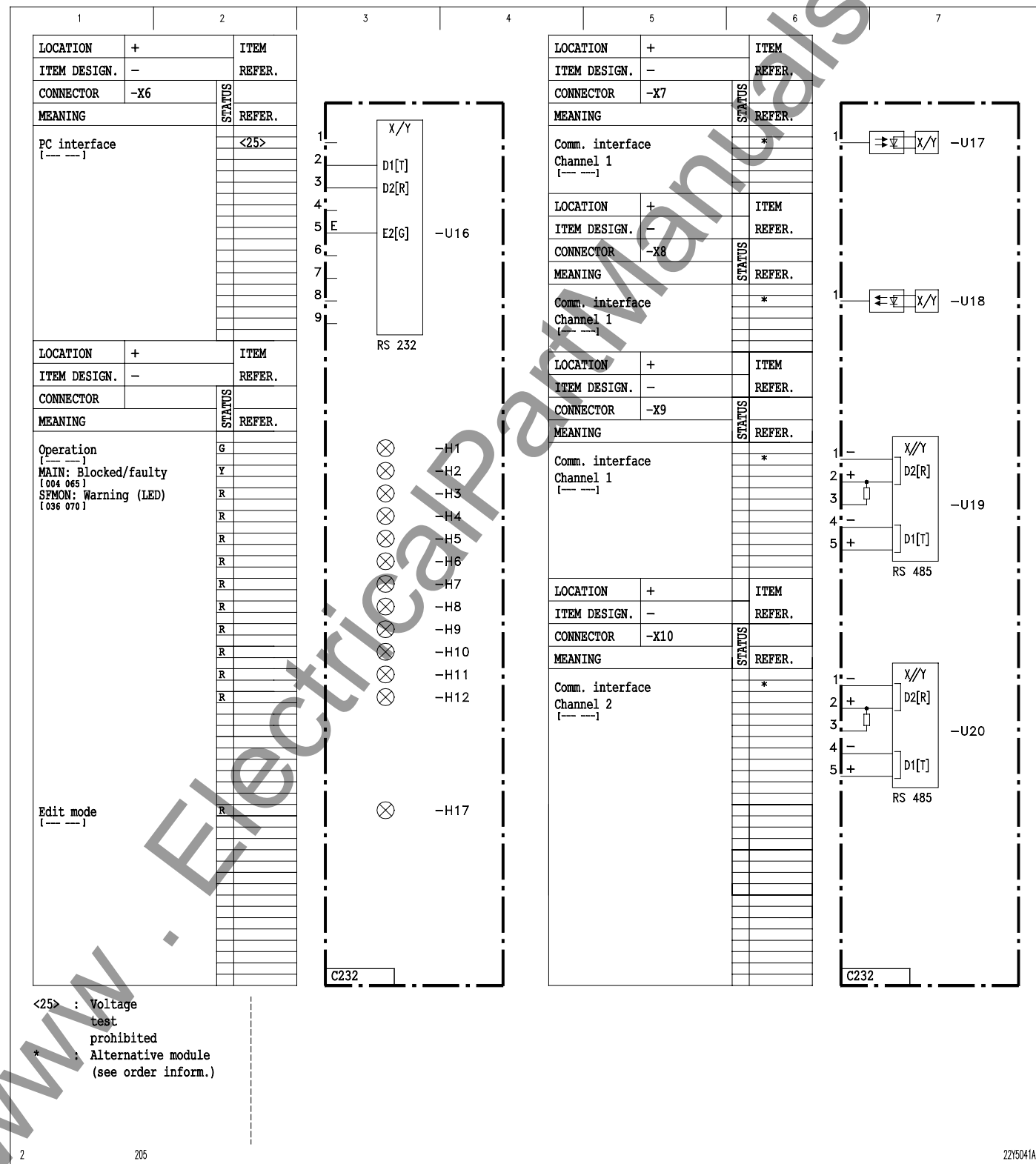


Appendix D - Terminal Connection Diagrams
(continued)



D-10 Terminal connection diagram C232, diagram C232.404 (part 2 of 3)

Appendix D - Terminal Connection Diagrams  
(continued)



D-11 Terminal connection diagram C232, diagram C232.404 (part 3 of 3)

## Appendix D - Terminal Connection Diagrams

(continued)

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