The BE1-51 Series of Time Overcurrent Relays is microprocessor-based to provide versatile overload and fault protection on 50Hz or 60Hz systems.

**ADVANTAGES**

- One relay can simultaneously monitor three phases plus neutral currents.
- 16 field selectable characteristic curves, including inverse, definite, $I^2t$, and BS 142 functions.
- Wide range sensing inputs with continuously adjustable pickup.
- Up to two instantaneous elements available.
- Large array of options, including voltage control and voltage restraint.
- Five year warranty.

**ADDITIONAL INFORMATION**

**INSTRUCTION MANUALS**
Request publication:
- BE1-51: 9137200997
- BE1-51/27C: 9137200998
- BE1-51/27R: 9137200999

**TIMING CURVES**
Request publication 9137200897

**STANDARDS, DIMENSIONS & ACCESSORIES**
Request Bulletin SDA
APPLICATION

THE BE1-51 SERIES

Time overcurrent relays provide phase and ground fault protection for distribution circuits, generators, transformers and other major components of the power system. The relays need to be capable of a wide range of pickup settings and characteristics in order to coordinate properly with other protective devices in the power system.

The BE1-51 family of time overcurrent relays provides single or multiple phase current sensing within a single unit. These relays feature a pickup setting range of 0.5 to 12 amperes and a variety of timing characteristics for proper coordination.

The overcurrent timing functions provide a means to coordinate with other protective devices and to discriminate between fault currents and transitory overloads. Table 1 illustrates typical applications. An extended range timing option is available which delays the standard functions by a timing factor of approximately 5.7. This further enhances flexibility in meeting application objectives.

The optional neutral defeat function allows neutral current sensing to be disabled. This allows the user to energize desired circuits and block tripping due to unbalanced currents reflected in the neutral circuit. After the circuits are balanced, the neutral defeat function would be switched off and neutral protection would be enabled. The built-in test (BIT) provides an operational check to confirm the integrity of outputs, LEDs and targets, and simplifies calibration.

INSTANTANEOUS OVERCURRENT MONITORING

One or two instantaneous outputs, individually adjustable for current level, may be specified as an aid in coordinating a relay scheme.

VOLTAGE CONTROL

The BE1-51/27C Time Overcurrent Relay provides voltage controlled backup phase fault protection for a generator and power system when protective devices located downstream from the generator fail to operate. The time overcurrent response is inhibited when the monitored system voltage is above the voltage control setting, allowing setting below load current levels. Instantaneous overcurrent response (if included) is not affected.

VOLTAGE RESTRAINT

Under fault conditions, system voltage may collapse to a low value compared to the relatively small voltage drop associated with overloads. The BE1-51/27R Time Overcurrent Relay with voltage restraint decreases the current pickup proportionally to this voltage reduction to increase overcurrent sensitivity of the relay during fault conditions. Neutral time overcurrent response and instantaneous overcurrent response (if included) are not affected.

<table>
<thead>
<tr>
<th>Function</th>
<th>Typical Protective Application</th>
<th>Special Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>Short Inverse, Generator, busses</td>
<td>Relatively short time, desirable where preserving system stability is a critical factor.</td>
</tr>
<tr>
<td>B2, E2</td>
<td>Long Inverse, Motors</td>
<td>Provides protection for starting surges and overloads of short duration.</td>
</tr>
<tr>
<td>B3</td>
<td>Definite Time, General use</td>
<td>Timing relatively independent of current. Useful in sequential tripping schemes.</td>
</tr>
<tr>
<td>B4</td>
<td>Moderately Inverse, Transmission and feeder lines. Useful in both phase and ground fault applications.</td>
<td>Accommodates moderate load changes, as may occur on parallel lines where one line may occasionally have to carry both loads.</td>
</tr>
<tr>
<td>B5, E4, E5</td>
<td>Inverse, Feeder lines, or backup protection for other types of relays</td>
<td>Provides additional variations of the inverse characteristic, thereby allowing flexibility in meeting load variations, in coordinating with other relays.</td>
</tr>
<tr>
<td>B6, E6</td>
<td>Very Inverse</td>
<td>Prevents tripping from motor starting currents. Provides protection against light, medium and heavy overloads.</td>
</tr>
<tr>
<td>B7, E7</td>
<td>Extremely Inverse</td>
<td>Provides a second set of the above listed curves with longer timing for increased flexibility.</td>
</tr>
<tr>
<td>B8</td>
<td>I2T</td>
<td>Motors</td>
</tr>
<tr>
<td>C1-C8</td>
<td>I2T with Limits</td>
<td>Motors</td>
</tr>
<tr>
<td>All of the above Extended Range</td>
<td>See B1 through C8 above</td>
<td>Provides a second set of the above listed curves with longer timing for increased flexibility.</td>
</tr>
</tbody>
</table>
FUNCTIONAL DESCRIPTION

The specifications on these pages define the many features and options that can be combined to exactly satisfy an application requirement. A block diagram (Figure 1) is included to show how various standard features, as well as the options, relate to each other.

INPUTS

Current Sensing
In most models, two ranges are included (HIGH/LOW), each with its own pair of input terminals. Note: Units with three-phase-and-neutral sensing have single input ranges only. The current sensing characteristics at 100/120 Vac, 50/60 Hz, are shown in Table 2.

Voltage Sensing (BE1-51/27C and BE1-51/27R)
The voltage input (when specified) imposes a less than nominal burden on the sensing transformers. The input is compatible with 100/120 Vac circuits, and is rated for 160 volts continuously at 50/60Hz ± 10 Hz.

Power Supply Inputs
One of five power supply types may be selected to provide internal operating power. These are described in Table 3.

<table>
<thead>
<tr>
<th>Type</th>
<th>O</th>
<th>P</th>
<th>R</th>
<th>S</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Voltage</td>
<td>48Vdc</td>
<td>125 Vdc</td>
<td>24 Vdc</td>
<td>48 Vdc</td>
<td>250 Vdc</td>
</tr>
<tr>
<td></td>
<td>120 Vac</td>
<td>125 Vdc</td>
<td>230 Vdc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burden</td>
<td>6.6 W</td>
<td>6.7 W</td>
<td>7.2 W</td>
<td>5.0 W</td>
<td>7.8 W</td>
</tr>
<tr>
<td></td>
<td>12.8 VA</td>
<td>19.8 VA</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All ac references are at 50/60 Hz.

OUTPUTS

All output contacts are rated as follows:

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Resistive</th>
<th>Inductive</th>
</tr>
</thead>
<tbody>
<tr>
<td>120/240 Vac</td>
<td>Make 30 A for 0.2 seconds, carry 7 A continuously, break 7 A.</td>
<td>Make and carry 30 A for 0.2 seconds, carry 7 A continuously, break 0.3 A.</td>
</tr>
<tr>
<td>250 Vdc</td>
<td>Make and carry 30 A for 0.2 seconds, carry 7 A continuously, break 0.3 A.</td>
<td>Make and carry 15 A for 0.2 seconds, carry 7 A continuously, break 0.1 A.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Resistive</th>
</tr>
</thead>
<tbody>
<tr>
<td>120/240 Vac, 125 Vdc/250 Vdc</td>
<td>Make and carry 30 A for 0.2 seconds, carry 7 A continuously, break 0.3 A (L/R = 0.04).</td>
</tr>
</tbody>
</table>

| TAP SELECTOR: | The time overcurrent pickup point is selected using a 10-position TAP SWITCH. Along with the TAP CAL control (described below), this allows simultaneous precise settings for all phase elements. A similar set of controls independently adjusts neutral pickup (if specified). |

| PANEL CONTROLS AND INDICATORS |

| Table 2 - Sensing Burdens |

<table>
<thead>
<tr>
<th>SENSING INPUT TYPE</th>
<th>MAXIMUM CONTINUOUS CURRENT</th>
<th>BURDEN AT MAX. TAP VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-Phase</td>
<td>20A</td>
<td>Less than 0.1 ohm per phase or neutral</td>
</tr>
<tr>
<td>Two-Phase and Neutral</td>
<td>20A</td>
<td></td>
</tr>
<tr>
<td>Three-Phase</td>
<td>20A</td>
<td></td>
</tr>
<tr>
<td>Three-Phase and Neutral</td>
<td>20A</td>
<td></td>
</tr>
</tbody>
</table>

(*) The maximum 1 second current rating is 50 x the maximum tap current selected, or 500A, whichever is less. For ratings other than those specified by time curves, rating is calculated as follows:

\[ I = \frac{50 \times \text{tap value or 500A, whichever is less}}{\sqrt{T}} \]

where, \( I \) = maximum current, \( T \) = Time of current flow in seconds.

Table 2 - Sensing Burdens
SPECIFICATIONS, continued

NUMBER OF PHASES SENSED IS DEPENDENT ON INPUT SENSING TYPE. SEE STYLE IDENTIFICATION CHART.

TIMING TYPES Z1, Z2, AND Z3. LOCATED INTERNALLY FOR SELECTION OF TIMING TYPES B1-BB AND C1-CB OR E2-E7. SEE STYLE IDENTIFICATION CHART.

CIRCUIT PATH FOR TYPE "A" TARGETS (INTERNALLY OPERATED).

CIRCUIT PATH FOR TYPE "B" TARGETS (CURRENT OPERATED).

Figure 1 - Functional Block Diagram
TAP CAL CONTROL: This control provides fine adjustment of the overcurrent pickup point between TAP selector settings. When the TAP CAL control is fully clockwise, the actual pickup will be within ±5% of the indicated TAP selector setting.

- **Time Overcurrent Pickup**
  - ±2% of pickup setting
- **Measuring Accuracy**
  - Better that 92% of pickup level

TIME DIAL: This pair of thumbwheel selectors determines the time delay between the sensing of a phase overcurrent condition and a relay trip. The time delay is selected over the range of 00 to 99. For relays with extended timing range (Option 2-D or 2-E), the actual time delay will be approximately 5.7 times the value shown in the curves.

- **Time Delay Accuracy**
  - ±5% of the characteristic curve value with repeatability of ±2%

All phases of multiphase styles are set simultaneously and will exhibit the same time-current characteristic. The neutral element TIME DIAL is independently set.

TIMING INDICATOR: For each phase (or neutral) specified, there is an LED to indicate when the sensed current exceeds the time overcurrent pickup setting unless the voltage control (if present) is above the preselected inhibit level.

POWER INDICATOR: A front panel LED illuminates to indicate the power supply is providing the internal operating voltages.

TARGET INDICATORS: Targets may be specified to indicate which phase (or neutral) element initiated the overcurrent condition, and which protective function caused an output (TIME, INST 1, or INST 2).

Instantaneous Overcurrent
A front panel control provides the instantaneous overcurrent element with adjustment over the range of 1 to 40 times the phase overcurrent pickup point selected by the TAP selector/TAP CAL control. When the setting is exceeded, the inst. 1 output relay energizes (Figure 3). This element is not affected by the voltage control circuit of the BE1-51/27C or the voltage restraint circuit of the BE1-51/27R.
SPECIFICATIONS, continued

An additional independent control (Option 1-2) provides pickup point adjustment for a second instantaneous function. (This option is available on all BE1-51 relays and single-phase BE1-51/27C and BE1-51/27R units.)

For relays including neutral sensing, an independent control adjusts the neutral instantaneous overcurrent pickup point.

- **Instantaneous Overcurrent Pickup Measuring Accuracy**: ±2% of pickup setting
- **Instantaneous Overcurrent Dropout Ratio**: Better than 98% of pickup level
- **Voltage Sensing Measuring Accuracy (BE1-51/27C and BE1-51/27R Only)**: ±2% of sensed voltage

**Push-to-Energize-Output Pushbutton (Option 2-C or 2-E)**
Applying a thin non-conducting rod through a hole in the front panel energizes trip relays for testing the external trip circuits.

**Power Supply Status Output (Option 3-6)**
The power supply status output relay is energized and its NC output contact is opened when power is applied to the relay. Normal internal relay operating voltage maintains the power supply status output relay continuously energized with its output contact open. If the power supply output voltage falls below the requirements of proper operation, the power supply output relay is de-energized, closing the NC output contact.

**SURGE WITHSTAND**

**ENVIRONMENT**
- Operating temperature range: -40°C to +70°C (-40°F to +158°F)
- Storage temperature range: -65°C to +100°C (-85°F to +212°F)

**VIBRATION**
In standard tests, the relay has withstood 2g in each of three mutually perpendicular planes, swept over the range of 10 to 500 Hz for a total of six sweeps, 15 minutes each sweep, without structural damage or degradation of performance.

**SHOCK**
In standard tests, the relay has withstood 15g in each of three mutually perpendicular axes without structural damage or degradation of performance.

**WEIGHT**
- Single-phase: 13.0 lb max (5.9 kg)
- Three-phase: 14.0 lb max (6.4 kg)
- Two-phase-and-neutral: 14.0 lb max (6.4 kg)
- Three-phase-and-neutral: 14.4 lb max (7.2 kg)

**AGENCY RATINGS**
UL recognized per Standard 508, UL File number E97033.

*Figure 2 - Voltage Restraint Characteristic (BE1-51/27R)*

*Figure 3 - Typical Instantaneous Function Response Time*
CONNECTIONS

Figure 4 - Control Circuits

Figure 5 - Single-Phase and Three-Phase Current Sensing

Figure 6 - Three-Phase-with-Neutral Current Sensing

Figure 7 - Two-Phase-and-Neutral Current Sensing
CONNECTIONS, continued

Figure 8 - Single-Phase Voltage Sensing (BE1-51/27C and BE1-51/27R)

Figure 9 - 3-Phase 3-Wire Voltage Sensing (BE1-51/27C and BE1-51/27R)

Figure 10 - 3-Phase 4-Wire Voltage Sensing (BE1-51/27C and BE1-51/27R)

LEGEND

51/27 OVERCURRENT RELAY WITH VOLTAGE CONTROL/RESTRAINT, MODELS BE1-51/27C AND BE1-51/27R

52 POWER CIRCUIT BREAKER
ORDERING

MODEL NUMBER
BE1-51, BE1-51/27C, and BE1-51/27R
Time Overcurrent Relays

STYLE NUMBER
The style number appears on the front panel, drawout cradle, and inside the case assembly. This style number is an alphanumeric combination of characters identifying the features included in a particular unit. The sample style number below illustrates the manner in which the various features are designated. The Style Number Identification Charts located at the end of this publication define each of the options and characteristics available for this device.

SAMPLE STYLE NUMBER: H3E Z3P B1C1F
The style number above describes a BE1-51 Time Overcurrent with Voltage Control Relay having the following features.

(H) 3-phase and neutral current
(3) 1.5 to 12 ampere time overcurrent pickup range
(E) All output contacts are normally open.
(Z3) B and C type time curves, integrated timing.
(P) Internal operating power is obtained from an external 125 Vdc or 100/120 Vac source.
(B) All targets are current operated.
(1) One Instantaneous Overcurrent element for each sensing input.
(C) Push-to-energize switches are included to verify external output connections.
(1) Normally open auxiliary output contacts operate concurrently with the time overcurrent output relay.
(F) The relay case is configured for flush mounting.

NOTE: Description of a relay must include both the model number and the complete style number as shown below.

HOW TO ORDER
Designate the model number followed by the complete style number.

BE1-51, Style No. 00000000000
BE1-51/27C, Style No. 00000000000
BE1-51/27R, Style No. 000000 00000

Complete the style number by selecting one feature from each column of the Style Number Identification Chart and entering its designation letter or number into the appropriate square. (Two squares are used to indicate time delay characteristics.) All squares must be completed.

STANDARD ACCESSORIES
The following standard accessories are available for the BE1-51, BE1-51/27C, and BE1-51/27R Time Overcurrent Relays.

Test Plug
Order Test Plug, Basler Electric part number 10095. (Two plugs may be required for complete testing capabilities).

Extender Board
The Extender Board will permit troubleshooting of the P.C. boards outside the relay cradle. Order Basler part number 9165500100.
ORDERING, continued

STYLE NUMBER IDENTIFICATION CHART

<table>
<thead>
<tr>
<th>BE1-51 MODEL NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SENSING INPUT TYPE</td>
</tr>
<tr>
<td>G) Three-phase current</td>
</tr>
<tr>
<td>H) Three-phase and neutral current</td>
</tr>
<tr>
<td>I) Two-phase and neutral current with Neutral Defeat</td>
</tr>
<tr>
<td>K) Single-phase Current</td>
</tr>
<tr>
<td>W) Three-phase and neutral current with Neutral Defeat</td>
</tr>
<tr>
<td>X) Two-Phase and Neutral Current</td>
</tr>
</tbody>
</table>

| OUTPUTS |
| E) NO contacts |
| G) NC contacts |

| TIMING |
| Z1 Switch selectable B & C curves |
| Z2 Switch selectable B & E curves |
| Z3 Switch selectable B & C curves with integrating algorithm |

| POWER SUPPLY |
| D) 48 Vdc |
| P) 125 Vdc |
| R) 24 Vdc |
| S) 48 Vdc or by jumper, 125 Vdc |
| D) 250 Vdc |
| 230 Vac |

| OPTION 1 |
| B) None |
| C) One input |
| D) Two inputs |

| OPTION 2 |
| N) None |
| C) Push-to-energize outputs |
| D) Extended limiting range |
| E) Extended limiting range and push-to-energize outputs |

| OPTION 3 |
| N) None |
| A) Auxiliary timed output NO |
| B) Auxiliary timed output NC |
| C) Auxiliary timed output SPDT |
| D) Power supply status output |

If Target is B, Output must be E.
Not available if Timing option is Z2.
All relays are supplied in an S1 size case.

Table 2 - Timing Choices with Available Curves

<table>
<thead>
<tr>
<th>Timing Choices</th>
<th>Z1</th>
<th>Z2</th>
<th>Z3 (Integrating)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Inverse</td>
<td>Short Inverse</td>
<td>Short Inverse</td>
<td></td>
</tr>
<tr>
<td>Long Inverse</td>
<td>Long Inverse</td>
<td>Long Inverse</td>
<td></td>
</tr>
<tr>
<td>Definite Time</td>
<td>Definite Time</td>
<td>Definite Time</td>
<td></td>
</tr>
<tr>
<td>Moderately Inverse</td>
<td>Moderately Inverse</td>
<td>Moderately Inverse</td>
<td></td>
</tr>
<tr>
<td>Inverse Time</td>
<td>Inverse Time</td>
<td>Inverse Time</td>
<td></td>
</tr>
<tr>
<td>Very Inverse</td>
<td>Very Inverse</td>
<td>Very Inverse</td>
<td></td>
</tr>
<tr>
<td>Extremely Inverse</td>
<td>Extremely Inverse</td>
<td>Extremely Inverse</td>
<td></td>
</tr>
<tr>
<td>Pt</td>
<td>BS142 Long Inverse</td>
<td>Pt</td>
<td></td>
</tr>
<tr>
<td>Pt Limit 1</td>
<td>BS142 Inverse (1 sec)</td>
<td>Pt Limit 1</td>
<td></td>
</tr>
<tr>
<td>Pt Limit 2</td>
<td>BS142 Inverse (2 sec)</td>
<td>Pt Limit 2</td>
<td></td>
</tr>
<tr>
<td>Pt Limit 3</td>
<td>BS142 Very Inverse</td>
<td>Pt Limit 3</td>
<td></td>
</tr>
<tr>
<td>Pt Limit 4</td>
<td>BS142 Extremely Inverse</td>
<td>Pt Limit 4</td>
<td></td>
</tr>
<tr>
<td>Pt Limit 5</td>
<td>Pt Limit 5</td>
<td>Pt Limit 5</td>
<td></td>
</tr>
<tr>
<td>Pt Limit 6</td>
<td>Pt Limit 6</td>
<td>Pt Limit 6</td>
<td></td>
</tr>
<tr>
<td>Pt Limit 7</td>
<td>Pt Limit 7</td>
<td>Pt Limit 7</td>
<td></td>
</tr>
<tr>
<td>Pt Limit 8</td>
<td>Pt Limit 8</td>
<td>Pt Limit 8</td>
<td></td>
</tr>
</tbody>
</table>
ORDERING, continued

STYLE NUMBER IDENTIFICATION CHART

BE1-51/27C

MODEL NO.

SENSING INPUT TYPE
- A: Three-phase Current (3-phase, 3-wire voltage control)
- D: Three-phase and neutral current (3-wire voltage control)
- I: Two-phase and neutral current (3-wire voltage control)
- J: Three-phase and neutral current (3-phase, 3-wire voltage control)
- L: Single-phase Current
- P: Three-phase current (3-phase, 4-wire voltage control)
- R: Three-phase and neutral current (3-phase, 4-wire voltage control)
- S: Single-phase current

OUTPUTS
- E: NO contacts
- G: NC contacts

SENSING INPUT RANGE
- Three-Phase and Neutral Sensing
  - 0.5 - 4.0 A phase
  - 0.5 - 4.0 A neutral
  - 0.5 - 4.0 A Neutral

OUTPUTS
- F: Three-phase current (3-phase, 3-wire voltage control)
- H: Three-phase and neutral current (3-wire voltage control)
- I: Three-phase and neutral current (3-phase, 3-wire voltage control)
- K: Single-phase Current
- M: Three-phase current (3-phase, 4-wire voltage control)
- N: Three-phase and neutral current (3-phase, 4-wire voltage control)
- O: Single-phase current

TIMING
- J: Switch selectable
- K: Switch selectable
- L: Switch selectable

POWER SUPPLY
- Q: 48 Vdc
- R: 125 Vdc
- S: 24 Vdc
- T: 110/120 Vac
- U: 250 Vdc

OPTION 1
- S: None
- T: One element
- U: Two elements

OPTION 2
- W: None
- X: Current operated targets
- Y: Current operated targets

OPTION 3
- Z: None
- A: Auxiliary output relay - NO
- B: Auxiliary output relay - NC
- C: Auxiliary output relay - SPOT

OPTION 4
- D: Power supply status output
- E: None
- F: Semi-flush mounting
- G: Projection mount

TARGETS
- H: None
- I: Internally operated targets
- J: Current operated targets

OPTION 1
- K: None
- L: One element
- M: Two elements

OPTION 3
- N: None
- O: Auxiliary output relay - NO
- P: Auxiliary output relay - NC
- Q: Auxiliary output relay - SPOT

OPTION 4
- R: Semi-flush mounting
- S: Projection mounting

If Target is B, Output must be E.

Option 1-2 is only available on single-phase units.

Option 3-5 is only available on single-phase units.

All relays are supplied in an S1 size case.
ORDERING, continued

STYLE NUMBER IDENTIFICATION CHART

SENSING INPUT TYPE

Single-Phase Current
- M) (Voltage restraint is 120Vac nominal, 60Hz)
- N) (Voltage restraint is 100Vac nominal, 50Hz)

Two-Phase and Neutral Current
- Y) (3-phase, 3-wire voltage restraint, 120Vac nominal, 60Hz)
- Z) (3-phase, 3-wire voltage restraint, 100Vac nominal, 50Hz)

Three-Phase Current
- B) (3-phase, 3-wire voltage restraint, 60Hz, 120Vac nominal)
- C) (3-phase, 4-wire voltage restraint, 50Hz, 100Vac nominal)
- R) (3-phase, 4-wire voltage restraint, 120Vac line-to-neutral nominal, 60Hz)
- S) (3-phase, 4-wire voltage restraint, 100Vac line-to-neutral nominal, 50Hz)

Three-Phase and Neutral Current
- E) (3-phase, 3-wire voltage restraint, 50Hz, 120Vac nominal)
- F) (3-phase, 3-wire voltage restraint, 50Hz, 100Vac nominal)
- U) (3-phase, 4-wire voltage restraint, 120Vac line-to-neutral nominal, 60Hz)
- W) (3-phase, 4-wire voltage restraint, 100Vac line-to-neutral nominal, 50Hz)

SENSING INPUT RANGE

Three-Phase and Neutral Sensing Units
- 0.5 - 4.0 A phase
- 0.5 - 4.0 A neutral

All Others
- 0.5 - 4.0 A phase
- 0.5 - 4.0 A neutral

OUTPUTS

- E) NO contacts
- G) NC contacts

POWERS SUPPLY

- 0) 48 Vdc
- 1) 125 Vdc
- 2) 100/120 Vac
- 3) 24 Vdc
- 4) 48 Vdc or by jumper.
- 5) 125 Vdc
- 6) 250 Vdc
- 7) 230 Vac

OPTION 1

- A) None
- B) Push-to-energize outputs
- C) Extended timing range
- D) Extended timing range and push-to-energize outputs

OPTION 2

- E) NO contacts
- F) NC contacts

OPTION 3

- G) None
- H) NO contacts
- I) Extended timing range and push-to-energize outputs

OPTION 4

- J) Semi-flush mounting
- K) Projection mounting

TARGETS

- A) Internally operated targets
- B) Current operated targets

OPTION

- 1) None
- 2) Auxiliary timed output
- 3) Auxiliary timed output
- 4) Auxiliary timed output

If Target is B, Output must be E.

Option 1-2 is only available on single-phase relays.

Option 3-5 is only available on single-phase relays.

All relays are supplied in an S1 size case.