



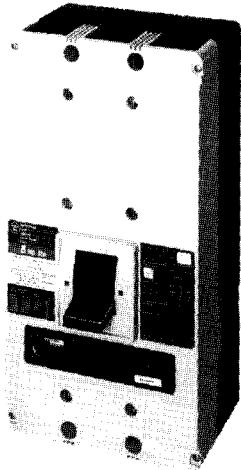
Cutler-Hammer
 Westinghouse &
 Cutler-Hammer Products
 Five Parkway Center
 Pittsburgh, Pennsylvania, U.S.A. 15220

Selection Data
29-120N

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March 1995
 Supersedes Selection Data 29-120N,
 pages 1-2, dated June 1994
 Mailed to: E, D, C/29-100A, 31-400A,
 31-500A

Westinghouse Series C[®] Molded Case Circuit Breakers N-Frame 400-1200 Amperes



Dimensions, Inches (mm)

| No. of Poles | Width | Height | Depth |
|--------------|--------------|----------|-----------|
| 2, 3 | 8.25 (210) | 16 (407) | 5.5 (140) |
| 4 | 11.125 (283) | 16 (407) | 5.5 (140) |

Approximate Shipping Weight, Lbs. (kg)

| Breaker Type | Complete Breaker | | |
|--------------|------------------|----------------|----------------|
| | Number of Poles | | |
| | 2 | 3 | 4 |
| ND, HND, NDC | 37 (16.783) | 45 (20.412) | 58 (26.308) |

STANDARDS

Series C molded case circuit breakers are designed to conform with the following standards:

- Australian Standard AS 2184, Molded Case Circuit Breakers
- British Standards Institution Standard BS 4752: Part 1, Switchgear and Control Gear Part 1: Circuit Breakers
- Canadian Standards Association Standard C22.2 No. 5, Service Entrance and Branch Circuit Breakers
- International Electrotechnical Commission Recommendations IEC 947-2, Circuit Breakers
- Japanese T-Mark Standard, Molded Case Circuit Breakers
- National Electrical Manufacturers Association Standards Publication No. AB1-1975, Molded Case Circuit Breakers
- South African Bureau of Standards, Standard SABS 156, Standard Specification for Molded Case Circuit Breakers
- Swiss Electro-Technical Association Standard SEV 947-2, Safety Regulations for Circuit Breakers
- Underwriters Laboratories, Inc., Standard UL 489, Molded Case Circuit Breakers and Circuit Breaker Enclosures, Including Marine Circuit Breakers File E7819
- Union Technique de l'Electricite Standard NF C 63-120, Low Voltage Switchgear and Control Gear Circuit Breaker Requirements
- Verband Deutscher Elektrotechniker (Association of German Electrical Engineers) Standard VDE 0660, Low Voltage Switchgear and Control Gear, Circuit Breakers

INTERRUPTING CAPACITY RATINGS

UL489 Interrupting Capacity Ratings

| Circuit Breaker Type | Number of Poles | Interrupting Capacity (Symmetrical Amperes) | | | | |
|----------------------|-----------------|---|-------|---------|--------|-------|
| | | Volts Ac (50/60Hz) | | | | |
| | | 240 | 277 | 480 | 600 | 125 |
| ND, CND | 2, 3, 4 | 65,000 | ... | 50,000 | 25,000 | ..... |
| HND, CHND | 2, 3, 4 | 100,000 | ..... | 65,000 | 35,000 | ..... |
| NDC, CNDC | 2, 3, 4 | 200,000 | ..... | 100,000 | 50,000 | ..... |

IEC 947-2 (P1) Interrupting Capacity Ratings

| Circuit Breaker Type | Number of Poles | Interrupting Capacity (Symmetrical Amperes) | | | |
|----------------------|-----------------|---|---------|---------|-------|
| | | Volts Ac (50/60Hz) | | | |
| | | 240 | 380 | 415 | 660 |
| ND, CND | 2, 3, 4 | 65,000 | 50,000 | 50,000 | ..... |
| | | 17,000 | 13,000 | 13,000 | ..... |
| HND, CHND | 2, 3, 4 | 100,000 | 65,000 | 65,000 | ..... |
| | | 25,000 | 17,000 | 17,000 | ..... |
| NDC, CNDC | 2, 3, 4 | 200,000 | 100,000 | 100,000 | ..... |
| | | 50,000 | 25,000 | 25,000 | ..... |

Conformance with these standards satisfies most local and international codes, assuming user acceptability and simplified application.

Series C molded case circuit breakers equal or exceed Federal Specification Classification W-C-375b requirements for the particular class associated with the circuit breaker frame being considered.



Westinghouse Series C Molded Case Circuit Breakers, N-Frame, 400-1200 Amperes

CATALOG NUMBERING SYSTEMS

This information is presented only as an aid to understanding catalog numbers. It is not to be used to build catalog numbers for circuit breakers or trip units.

Circuit Breaker/Frame Catalog Numbers

| Circuit Breaker/Frame Type | Number of Poles | Circuit Breaker/Frame Rating | Trip Type | Suffix |
|----------------------------|-----------------|------------------------------|-----------|-------------------------------------|
| ND | 2: 2 Poles | 8: 800 Amp | T33-LS | E: 100% R.P. protected (4-Pole) |
| HND | 3: 3 Poles | 12: 1200 Amp | T32-LSI | EH: 50% R.P. protected (4-Pole) |
| NDC | 4: 4 Poles | | T35-LSG | K: High Magnetic Molded Case Switch |
| CND | | | T36-LSIG | W: Without Terminals |
| CHND | | | | X: Load Only Terminals |
| CNDC | | | | Y: Line Only Terminals |

N-FRAME DIGITRIP SELECTION GUIDE

| Trip Unit Type | Digitrip RMS 310 | |
|-----------------------------------|----------------------|----------------------|
| RMS Sensing | Yes | |
| Breaker Type | | |
| Ampere Range | 400-1200A | |
| Interrupting Rating @480V | 35, 65, 100 (kA) | |
| 100% Rated | Available | |
| Protection | | |
| Ordering Options | LS, LSG | LSI, LSIG |
| Fixed Rating Plug (I_n) | Yes | Yes |
| Over Temperature Protection | Yes | Yes |
| Long Delay Protection | | |
| Adjustable Rating Plug (I_n) | Available | Available |
| Long Delay Pick Up | 0.5-1.0 [Ⓢ] | 0.5-1.0 [Ⓢ] |
| Long Delay Time I^2t (6 I_n) | 12 Secs. | 12 Secs. |
| Long Delay Thermal Memory | Yes | Yes |
| Short Delay Protection | | |
| Short Delay Pick Up | 200-800% | 200-800% |
| Short Delay Time I^2t | 100ms | No |
| Short Delay Time Flat | No | Inst.-300ms |
| Instantaneous Protection | | |
| Instantaneous Pick Up | No | 200-800% |
| Instantaneous Override | Yes | Yes |
| Ground Fault Protection | | |
| Ground Fault Pick Up | 200A-1200A | 200A-1200A |
| Ground Fault Delay Flat | Inst.-500ms | Inst.-500ms |
| Ground Fault Thermal Memory | Yes | Yes |
| Testing | | |
| Field Testing | STK2 Test Kit | STK2 Test Kit |

| Further Information | |
|-------------------------------|------------|
| Technical Data | TD 29-160 |
| Dimensions | DS 29-170N |
| Time/Current Curves | AD 29-167N |

[Ⓢ] Adjustable by rating plug.
 Note: I_n = Rating Plug Rating

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Page 3

June 1994
 New Information
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 31-500A

Series C[®] Molded Case Circuit Breakers N-Frame 400-1200 Amperes

Order as individual components: Breaker Frame, Rating Plug, Terminals

| Maximum Continuous Ampere Rating @ 40°C | Digitrip RMS 310 Circuit Breaker Frame Only | | | | Digitrip RMS 310 Rating Plug Only | | | Standard Terminals Only ^① See Page 11 for Optional Terminals |
|---|---|--|--|--|--|--|--|---|
| | Standard Interrupting Capacity 600 Volt Ac Rated 50 kAIC @ 480 Vac | | | | Ampere Rating | Fixed Rating Plugs | Adjustable Rating Plug | |
| | Standard | Options |  |  |  |  |  |  | Adjustable Ampere Ratings Catalog Number |
| | Adjustable Short Time Delay with I ² t Short Delay Ramp | Independently Adjustable Short Time Pickup and Delay | Adjustable Short Time Pickup with I ² t Short Delay and Ground Fault Protection | Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection | | | | |
| CATALOG NUMBERS | | | | | | | | |
| 2-Pole | | | | | | | | |
| 800 | ND2800T33W | ND2800T32W | ND2800T35W | ND2800T36W | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 3-Pole | | | | | | | | |
| 800 | ND3800T33W | ND3800T32W | ND3800T35W | ND3800T36W | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 4-Pole^② | | | | | | | | |
| 800 | ND4800T33W | ND4800T32W | | | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 2-Pole | | | | | | | | |
| 1200 | ND212T33W | ND212T32W | ND212T35W | ND212T36W | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 TA1200NB1 |
| 3-Pole | | | | | | | | |
| 1200 | ND312T33W | ND312T32W | ND312T35W | ND312T36W | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 TA1200NB1 |
| 4-Pole^② | | | | | | | | |
| 1200 | ND412T33W | ND412T32W | | | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 TA1200NB1 |

^① Two terminals are required per pole.
^② Neutral is in right pole.



Series C Molded Case Circuit Breakers, N-Frame, 400-1200 Amperes

Order as individual components: Breaker Frame, Rating Plug, Terminals

| Maximum Continuous Ampere Rating @ 40°C | Digitrip RMS 310 Circuit Breaker Frame Only | | | | Digitrip RMS 310 Rating Plug Only | | | Standard Terminals Only ^① See Page 11 for Optional Terminals |
|---|--|--|--|--|--|--|--|---|
| | High Interrupting Capacity 600 Volt Ac Rated 65 kAIC @ 480 Vac | | | | Ampere Rating | Fixed Rating Plugs | Adjustable Rating Plug | |
| | Standard | | Options | | | | | |
| | Adjustable Short Time Delay with I ² t Short Delay Ramp | Independently Adjustable Short Time Pickup and Delay | Adjustable Short Time Pickup with I ² t Short Delay and Ground Fault Protection | Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection | | | | |
| CATALOG NUMBERS | | | | | | | | |
| 2-Pole | | | | | | | | |
| 800 | HND2800T33W | HND2800T32W | HND2800T35W | HND2800T36W | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 3-Pole | | | | | | | | |
| 800 | HND3800T33W | HND3800T32W | HND3800T35W | HND3800T36W | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 4-Pole^② | | | | | | | | |
| 800 | HND4800T33W | HND4800T32W | | | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 2-Pole | | | | | | | | |
| 1200 | HND212T33W | HND212T32W | HND212T35W | HND212T36W | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 TA1200NB1 |
| 3-Pole | | | | | | | | |
| 1200 | HND312T33W | HND312T32W | HND312T35W | HND312T36W | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 A700 1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 TA1200NB1 |
| 4-Pole^② | | | | | | | | |
| 1200 | HND412T33W | HND412T32W | | | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 TA1200NB1 |

① Two terminals are required per pole.
② Neutral is in right pole.

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 Page 5

June 1994
 New Information
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 31-500A

Series C[®] Molded Case Circuit Breakers N-Frame 400-1200 Amperes

Order as individual components: Breaker Frame, Rating Plug, Terminals

| Maximum Continuous Ampere Rating @ 40°C | Digitrip RMS 310 Circuit Breaker Frame Only | | | | Digitrip RMS 310 Rating Plug Only | | | Standard Terminals Only ^① See Page 11 for Optional Terminals |
|---|--|--|--|--|--|--|---|---|
| | Ultra High Interrupting Capacity 600 Volt Ac Rated 100 kAIC @ 480 Vac | | | | Ampere Rating | Fixed Rating Plugs | Adjustable Rating Plug Adjustable Ampere Ratings Catalog Number | |
| | Standard | Options | | | | | | |
| | Adjustable Short Time Delay with I ² t Short Delay Ramp | Independently Adjustable Short Time Pickup and Delay | Adjustable Short Time Pickup with I ² t Short Delay and Ground Fault Protection | Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection | | | | |
| CATALOG NUMBERS | | | | | | | | |
| 2-Pole | | | | | | | | |
| 800 | NDC2800T33W | NDC2800T32W | NDC2800T35W | NDC2800T36W | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 3-Pole | | | | | | | | |
| 800 | NDC3800T33W | NDC3800T32W | NDC3800T35W | NDC3800T36W | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 4-Pole^② | | | | | | | | |
| 800 | NDC4800T33W | NDC4800T32W | | | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 2-Pole | | | | | | | | |
| 1200 | NDC212T33W | NDC212T32W | NDC212T35W | NDC212T36W | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 TA1200NB1 |
| 3-Pole | | | | | | | | |
| 1200 | NDC312T33W | NDC312T32W | NDC312T35W | NDC312T36W | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 TA1200NB1 |
| 4-Pole^② | | | | | | | | |
| 1200 | NDC412T33W | NDC412T32W | | | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 TA1200NB1 |

^① Two terminals are required per pole.
^② Neutral is in right pole.





Series C Molded Case Circuit Breakers, N-Frame, 400-1200 Amperes

100% RATED CIRCUIT BREAKERS

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at the 75°C ampacity. Order as individual components: Breaker Frame, Rating Plug, Terminals

| Maximum Continuous Ampere Rating @ 40°C | Digitrip RMS 310 Circuit Breaker Frame Only | | | | Digitrip RMS 310 Rating Plug Only | | | Standard Terminals Only ^① See Page 11 for Optional Terminals |
|---|---|--|--|--|--|--|---|---|
| | Standard Interrupting Capacity 600 Volt Ac Rated 50 kAIC @ 480 Vac | | | | Ampere Rating | Fixed Rating Plugs | Adjustable Rating Plug Adjustable Ampere Ratings Catalog Number | |
| | Standard | Options | | | | | | |
| | Adjustable Short Time Delay with I ² t Short Delay Ramp | Independently Adjustable Short Time Pickup and Delay | Adjustable Short Time Pickup with I ² t Short Delay and Ground Fault Protection | Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection | | | | |
| | CATALOG NUMBERS | | | | | | | |
| 2-Pole | | | | | | | | |
| 800 | CND2800T33W | CND2800T32W | CND2800T35W | CND2800T36W | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 3-Pole | | | | | | | | |
| 800 | CND3800T33W | CND3800T32W | CND3800T35W | CND3800T36W | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 4-Pole^② | | | | | | | | |
| 800 | CND4800T33W | CND4800T32W | | | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 2-Pole | | | | | | | | |
| 1200 | CND212T33W | CND212T32W | CND212T35W | CND212T36W | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 TA1200NB1 |
| 3-Pole | | | | | | | | |
| 1200 | CND312T33W | CND312T32W | CND312T35W | CND312T36W | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 TA1200NB1 |
| 4-Pole^② | | | | | | | | |
| 1200 | CND412T33W | CND412T32W | | | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 TA1200NB1 |

① Two terminals are required per pole.

② Neutral is in right pole.

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Series C[®] Molded Case Circuit Breakers N-Frame 400-1200 Amperes

100% RATED CIRCUIT BREAKERS

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at the 75°C ampacity. Order as individual components: Breaker Frame, Rating Plug, Terminals

| Maximum Continuous Ampere Rating @ 40°C | Digitrip RMS 310 Circuit Breaker Frame Only | | | | Digitrip RMS 310 Rating Plug Only | | | Standard Terminals Only ^① See Page 11 for Optional Terminals |
|---|--|--|--|--|--|--|--|---|
| | High Interrupting Capacity 600 Volt Ac Rated 65 kAIC @ 480 Vac | | | | Ampere Rating | Fixed Rating Plugs | Adjustable Rating Plug Adjustable Ampere Ratings Catalog Number | |
| | Standard | Options | | | | | | |
| | Adjustable Short Time Delay with I ² t Short Delay Ramp | Independently Adjustable Short Time Pickup and Delay | Adjustable Short Time Pickup with I ² t Short Delay and Ground Fault Protection | Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection | | | | |
| CATALOG NUMBERS | | | | | | | | |
| 2-Pole | | | | | | | | |
| 800 | CHND2800T33W | CHND2800T32W | CHND2800T35W | CHND2800T36W | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 3-Pole | | | | | | | | |
| 800 | CHND3800T33W | CHND3800T32W | CHND3800T35W | CHND3800T36W | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 4-Pole^② | | | | | | | | |
| 800 | CHND4800T33W | CHND4800T32W | | | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 2-Pole | | | | | | | | |
| 1200 | CHND212T33W | CHND212T32W | CHND212T35W | CHND212T36W | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 |
| 3-Pole | | | | | | | | |
| 1200 | CHND312T33W | CHND312T32W | CHND312T35W | CHND312T36W | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 |
| 4-Pole^② | | | | | | | | |
| 1200 | CHND412T33W | CHND412T32W | | | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 |

① Two terminals are required per pole.
 ② Neutral is in right pole.



Series C Molded Case Circuit Breakers, N-Frame, 400-1200 Amperes

100% RATED CIRCUIT BREAKERS

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at the 75°C ampacity. Order as individual components: Breaker Frame, Rating Plug, Terminals

| Maximum Continuous Ampere Rating @ 40°C | Digitrip RMS 310 Circuit Breaker Frame Only | | | | Digitrip RMS 310 Rating Plug Only | | | Standard Terminals Only ^① See Page 11 for Optional Terminals |
|---|--|--|--|--|--|--|---|---|
| | Ultra High Interrupting Capacity 600 Volt Ac Rated 100 kAIC @ 480 Vac | | | | Ampere Rating | Fixed Rating Plugs | Adjustable Rating Plug Adjustable Ampere Ratings Catalog Number | |
| | Standard | Options | | | | | | |
| | Adjustable Short Time Delay with I ² t Short Delay Ramp | Independently Adjustable Short Time Pickup and Delay | Adjustable Short Time Pickup with I ² t Short Delay and Ground Fault Protection | Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection | | | | |
| CATALOG NUMBERS | | | | | | | | |
| 2-Pole | | | | | | | | |
| 800 | CNDC2800T33W | CNDC2800T32W | CNDC2800T35W | CNDC2800T36W | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 3-Pole | | | | | | | | |
| 800 | CNDC3800T33W | CNDC3800T32W | CNDC3800T35W | CNDC3800T36W | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 4-Pole^② | | | | | | | | |
| 800 | CNDC4800T33W | CNDC4800T32W | ..... | ..... | 400 450 500 600 700 800 | 8NES400T 8NES450T 8NES500T 8NES600T 8NES700T 8NES800T | Adjustable Settings Are: 400, 500, 600, 800 A8NES800T1 | TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA700NB1 TA1000NB1 |
| 2-Pole | | | | | | | | |
| 1200 | CNDC212T33W | CNDC212T32W | CNDC212T35W | CNDC212T36W | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 TA1200NB1 |
| 3-Pole | | | | | | | | |
| 1200 | CNDC312T33W | CNDC312T32W | CNDC312T35W | CNDC312T36W | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 TA1200NB1 |
| 4-Pole^② | | | | | | | | |
| 1200 | CNDC412T33W | CNDC412T32W | | | 600 700 800 900 1000 1100 1200 | 12NES600T 12NES700T 12NES800T 12NES900T 12NES1000T 12NES1100T 12NES1200T | Adjustable Settings Are: 600, 800, 1000, 1200 A12NES1200T1 | TA700NB1 TA700NB1 TA1000NB1 TA1000NB1 TA1000NB1 TA1200NB1 TA1200NB1 |

① Two terminals are required per pole.
● Neutral is in right pole.

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Series C[®] Molded Case Circuit Breakers N-Frame 400-1200 Amperes

TYPE ND MOLDED CASE SWITCH CATALOG NUMBERS

| Continuous Ampere Rating @ 40°C | CATALOG NUMBERS | | |
|--|---|----------|---------------------|
| | 2-Pole | 3-Pole | 4-Pole ^① |
| | Complete with Standard Line and Load Terminals (shipped separately) | | |
| | Type ND - High Instantaneous (K) | | |
| 800 | ..... | ND3800WK | ND4800WK |
| | Type ND - High Instantaneous (K) | | |
| 1200 | ..... | ND312WK | ND412WK |

For UL listed, series tested molded case switch application data, refer to Cutler-Hammer.

SOLID STATE (ELECTRONIC) PORTABLE TEST KIT

The solid state (electronic) portable test kit provides verification of performance of all ratings of Electronic trip units installed in Series C circuit breakers while in service under varying load and/or phase imbalance. The test kit operates on 120-Volt, 50/60 Hz power; it includes complete instructions and test times for testing long time, short time/instantaneous operation and optional ground fault operation of the circuit breaker.

Ordering Information

| |
|----------------|
| CATALOG NUMBER |
| STK2 |

^① Neutral is in right pole.



Series C Molded Case Circuit Breakers, N-Frame, 400-1200 Amperes

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Series C[®] N-Frame Termination Accessories

LINE AND LOAD TERMINALS

Ordering Information

N-Frame circuit breakers use Cu/Al terminals as standard. When optional copper or Cu/Al terminals are required, order by catalog number. Specify if factory installation is required.

KEEPER NUT

Not required on N-Frame. Terminals are threaded.

Line and Load Terminal

| Maximum Breaker Amps | Terminal Body Material | Wire Type | AWG Wire Range/No. Conductors | Metric Wire Range mm ² | CATALOG NUMBERS |
|--|------------------------|-----------|-------------------------------|-----------------------------------|------------------------|
| Standard Cu/Al Pressure Terminals | | | | | |
| 700 | Aluminum | Cu/Al | (2) 1-500 MCM | 50-300 | TA700NB1 |
| 1000 | Aluminum | Cu/Al | (3) 3/0-400 MCM | 95-185 | TA1000NB1 ^① |
| 1200 | Aluminum | Cu/Al | (4) 4/0-500 MCM | 120-300 | TA1200NB1 ^① |
| 1200 | Aluminum | Cu/Al | (3) 500-750 MCM | 300-400 | TA1201NB1 ^② |
| Optional Copper and Cu/Al Pressure Type Terminals | | | | | |
| 700 | Copper | Cu | (2) 2/0-500 MCM | 70-300 | T700NB1 |
| 1000 | Copper | Cu | (3) 3/0-500 MCM | 95-300 | T1000NB1 |
| 1200 | Copper | Cu | (4) 3/0-400 MCM | 95-185 | T1200NB3 |

^① Terminal rating is Al9Cu.
^② Terminal rating is Al7Cu.



Series C N-Frame Termination Accessories

BASE MOUNTING HARDWARE

Hardware for surface mounting of circuit breakers is supplied only on request. Hardware consists of mounting screws and lock washers. Order hardware for circuit breaker pole configurations as required.

Ordering Information

Base mounting hardware is supplied at no charge when ordered with a circuit breaker. When ordering separately, refer to price list.

Imperial Thread

| Number of Poles | Description | CATALOG NUMBER |
|--------------------|--|----------------|
| 2-, 3-, and 4-pole | 0.3125-18 x 1.25 inch panhead steel screws and lock washers. | BMH5 |

HANDLE EXTENSION

Included with breaker.

| CATALOG NUMBER |
|----------------|
| HEX5 |

INTERPHASE BARRIERS

The interphase barriers provide additional electrical clearance between circuit breaker poles for special termination applications. The barriers are high dielectric insulating plates that are installed in the molded slots between the terminals. (Field installation only.)

| CATALOG NUMBER |
|----------------|
| IPB5 |

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Selection Data
29-120N
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Series C[®] N-Frame Accessories

GENERAL INFORMATION

All internal accessories are of the plug-in type and are listed for field installation under UL File E64983. ● Internal accessories for sealed circuit breakers are listed under UL File E7819 for factory installation only. The available plug-in accessories include the following:

- Alarm (Signal)/Lockout Switch
- Auxiliary Switch
- Shunt Trip
- Low Energy Shunt Trip
- Undervoltage Release Mechanism

Different accessory wiring options are available to satisfy most circuit breaker mounting applications. The standard wiring configuration is pigtail leads exiting the rear of the base directly behind the accessory. Optional configurations include a terminal block mounted on the same side of the base as the accessory, leads exiting the rear of the base where the accessory is mounted, and leads exiting the rear of the base on the side opposite the accessory. If accessory leads longer than 18 inches are required, side-mounted terminal blocks should be used.

Cover design permits field installation of external accessories such as key interlocks, padlockable handle lock hasp, and electrical or manual handle operations without modifying the cover.

To identify allowable accessory installation combinations, see page 14.



Typical Internal Plug-in Accessory Installed in N-Frame Circuit Breaker

① Some UL listings pending; refer to Cutler-Hammer.



Series C N-Frame Accessory Combinations

Different combinations of accessories can be supplied, depending on the types of accessories and the number of poles in the circuit breaker.

| Termination Accessories | Reference Page | 2, 3-Pole | | | 4-Pole | | | |
|-------------------------|----------------|-----------|------|-----|--------|------|-----|------|
| | | Lt. | Ctr. | Rt. | Lt. | Ctr. | Rt. | Neu. |
| Line and Load Terminals | 11 | | ● | | | | | ● |
| Base Mounting Hardware | 12 | | ● | | | | | ● |
| Handle Extension | 12 | | ● | | | | | ● |
| Interphase Barriers | 12 | | ● | | | | | ● |

Internal Accessories (Only 1 Internal Accessory Per Pole)

| Internal Accessories | Reference Page | 2, 3-Pole | | | 4-Pole | | | |
|--|----------------|-----------|------|-----|--------|------|-----|------|
| | | Lt. | Ctr. | Rt. | Lt. | Ctr. | Rt. | Neu. |
| Alarm Lockout (Make/Break) | 15 | ■ | | ■ | | | ■ | |
| Alarm Lockout (2Make/2Break) | 15 | ■ | | ■ | | | ■ | |
| Auxiliary Switch (1A, 1B) | 16 | ■ | | ■ | | | ■ | |
| Auxiliary Switch (2A, 2B) | 16 | ■ | | ■ | | | ■ | |
| Auxiliary Switch (3A, 3B) | 16 | ■ | | ■ | | | ■ | |
| Auxiliary Switch(1A, 1B)/Alarm Lockout | 16 | ■ | | ■ | | | ■ | |
| Auxiliary Switch (2A, 2B)/Alarm Lockout (Make/Break) | 16 | ■ | | ■ | | | ■ | |
| Shunt Trip—Standard | 17 | ■ | | | | | ■ | |
| Shunt Trip—Low Energy | 18 | ■ | | | | | ■ | |
| Undervoltage Release Mechanism | 19 | ■ | | | | | ■ | |

External Accessories

| External Accessories | Reference Page | 2, 3-Pole | | | 4-Pole | | | |
|--|----------------|-----------|------|-----|--------|------|-----|------|
| | | Lt. | Ctr. | Rt. | Lt. | Ctr. | Rt. | Neu. |
| Non-Padlockable Handle Block | 21 | | ■ | | | | ■ | |
| Padlockable Handle Lock Hasp | 21 | □ | | □ | | | □ | |
| Key Interlock Kit | 21 | □ | | □ | | | □ | |
| Sliding Bar Interlock—Requires 2 Breakers | 22 | | ● | | | | | |
| Walking Beam Interlock—Requires 2 Breakers | 22 | | ● | | | | | ● |
| Electrical (Motor) Operator | 23 | | ● | | | | | ● |
| Plug-In Adapters | 23 | | ● | | | | | ● |
| Rear Connecting Studs | 24 | | ● | | | | | ● |
| Panelboard Connecting Straps | 24 | | ● | | | | | ● |
| Handle Mechanism | 25 | | ● | | | | | ● |
| Solid-State (Electronic) Portable Test Kit | 9 | | ● | | | | | ● |

Modifications (Refer to Cutler-Hammer)

| Modifications | Reference Page | 2, 3-Pole | 4-Pole |
|--------------------------------|----------------|-----------|--------|
| Special Calibration | 27 | | |
| Moisture Fungus Treatment | 27 | ● | ● |
| Freeze-Tested Circuit Breakers | 27 | | |
| Marine Application | 27 | ● | ● |

- Applicable in indicated pole position
- May be mounted on left or right pole – not both
- Accessory available/Modification available

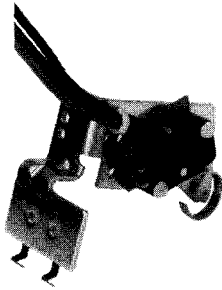
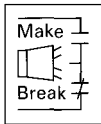
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Series C[®] N-Frame Internal Accessories

ALARM (SIGNAL)/LOCKOUT SWITCH



The alarm (signal)/lockout switch monitors circuit breaker trip status and provides remote signaling and interlocking capabilities when the circuit breaker trips. For 2-, 3-, and 4-pole circuit breakers, the alarm (signal)/lockout switch consists of one or two SPDT (single-pole double-throw) switches assembled to a plug-in module mounted in retaining slots in the top of the trip unit. The SPDT switch contacts are identified as make and break contacts. When the circuit breaker trips, the make contact closes and the break contact opens.

Electrical Rating Data^{①②}

| Maximum Voltage | Frequency | Maximum Current Amps | Dielectric Withstand Voltage |
|-----------------|-----------|----------------------|------------------------------|
| 600 | 50/60 Hz | 6 | 2500 |
| 125 | Dc | 0.5 ^③ | |
| 250 | Dc | 0.25 ^③ | |

Ordering Information

Alarm (Signal)/Lockout Switch

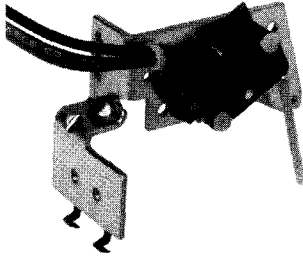
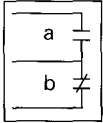
| Number of Contacts (Make and Break) | Mounting Location (Pole) | Factory Mounted | | | | Field Mounted | |
|-------------------------------------|----------------------------|------------------------------|-------------------|------------------|------------------|--------------------------------------|--------------------|
| | | Connection Type and Location | | | | Field Installation Kits ^④ | |
| | | 18-inch Pigtail Leads | | | Terminal Block | Pigtail Leads | Terminal Block |
| | | Same Side | Rear ^⑤ | Opposite Side | Same Side | | |
| | | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| 1 | Left Right ^⑤ | A1L5LA A1L5RA | A1L5LB A1L5RB | A1L5LC A1L5RC | A1L5LT A1L5RT | A1L5LPK A1L5RPK | A1L5LTK A1L5RTK |
| 2 | Left Right ^⑤ | A2L5LA A2L5RA | A2L5LB A2L5RB | ..... ..... | A2L5LT A2L5RT | A2L5LPK A2L5RPK | A2L5LTK A2L5RTK |

① Endurance — 3000 electrical operations plus 1000 mechanical operations.
② Pigtail wire size — No. 18 AWG (0.82 mm²).
③ Non-inductive load.
④ Listed with Underwriters Laboratories, Inc. for field installation under E64983.
⑤ Standard mounting location — leads exit rear of breaker.



Series C N-Frame Internal Accessories

AUXILIARY SWITCH



The auxiliary switch provides circuit breaker contact status information by monitoring the position of the molded crossbar containing the moving contact arms. The auxiliary switch is used for remote signaling and interlocking purposes, and consists of one or two SPDT switches assembled to a plug-in module mounted in retaining slots in the top of the trip unit. Each SPDT switch has one "a" and one "b" contact. When the circuit breaker contacts are open, the "a" contact is open and the "b" contact is closed.

Electrical Rating Data^{①②}

| Maximum Voltage | Frequency | Maximum Current Amps | Dielectric Withstand Voltage |
|-----------------|-----------|----------------------|------------------------------|
| 600 | 50/60 Hz | 6 | 2500 |
| 125 | Dc | 0.5 ^③ | |
| 250 | Dc | 0.25 ^③ | |

Ordering Information

Auxiliary Switch

| Number of Sets of Contacts (1A and 1B) | Mounting Location (Pole) | Factory Mounted | | | | Field Mounted | |
|--|--------------------------|------------------------------|-------------------|-----------------|-----------|--------------------------------------|----------------|
| | | Connection Type and Location | | | | Field Installation Kits ^④ | |
| | | 18-inch Pigtail Leads | | Terminal Block | | Pigtail Leads | Terminal Block |
| | | Same Side | Rear ^⑤ | Opposite Side | Same Side | | |
| CATALOG NUMBERS | | | | CATALOG NUMBERS | | | |
| 1 | Left | A1X5LA | A1X5LB | A1X5LC | A1X5LT | A1X5LPK | A1X5LTK |
| | Right ^⑤ | A1X5RA | A1X5RB | A1X5RC | A1X5RT | A1X5RPK | A1X5RTK |
| 2 | Left | A2X5LA | A2X5LB | ..... | A2X5LT | A2X5LPK | A2X5LTK |
| | Right ^⑤ | A2X5RA | A2X5RB | ..... | A2X5RT | A2X5RPK | A2X5RTK |
| 3 | Left | A3X5LA | A3X5LB | ..... | A3X5LT | A3X5LPK | A3X5LTK |
| | Right ^⑤ | A3X5RA | A3X5RB | ..... | A3X5RT | A3X5RPK | A3X5RTK |

Auxiliary Switch-Alarm (Signal)/Lockout (ASL) Switch Combination

Each catalog number listed in the following table includes one or two auxiliary switches and one alarm switch.

| Number of Sets of Contacts | Mounting Location (Pole) | Factory Mounted | | | | Field Mounted | |
|----------------------------|--------------------------|------------------------------|-------------------|-----------------|-----------|--------------------------------------|----------------|
| | | Connection Type and Location | | | | Field Installation Kits ^④ | |
| | | 18-inch Pigtail Leads | | Terminal Block | | Pigtail Leads | Terminal Block |
| | | Same Side | Rear ^⑤ | Opposite Side | Same Side | | |
| CATALOG NUMBERS | | | | CATALOG NUMBERS | | | |
| 1A, 1B and 1 Make/1 Break | Left | AA115LA | AA115LB | ..... | AA115LT | AA115LPK | AA115LTK |
| | Right ^⑤ | AA115RA | AA115RB | ..... | AA115RT | AA115RPK | AA115RTK |
| 2A, 2B and 1 Make/1 Break | Left | AA215LA | AA215LB | ..... | AA215LT | AA215LPK | AA215LTK |
| | Right ^⑤ | AA215RA | AA215RB | ..... | AA215RT | AA215RPK | AA215RTK |

- ① Endurance — 3000 electrical operations plus 1000 mechanical operations.
- ② Pigtail wire size — No. 18 AWG (0.82 mm²).
- ③ Non-inductive load.
- ④ Listed with Underwriters Laboratories, Inc. for field installation under E64983.
- ⑤ Standard mounting location — leads exit rear of breaker.

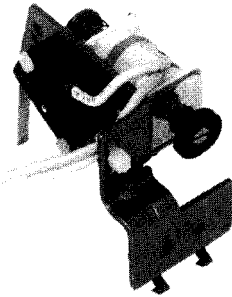
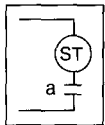
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Series C® N-Frame Internal Accessories

SHUNT TRIP



The shunt trip provides remote controlled tripping of the circuit breaker. The shunt trip consists of an intermittent rated solenoid with a tripping plunger and a cutoff switch assembled to a plug-in module. When required for ground fault protection applications, certain ac rated shunt trips, as noted, are suitable for operation at 55 percent of rated voltage.

Electrical Rating Data^{①②③}

| 50-60 Hz | | | Dc | | |
|------------------|---------------------------|------|----------------|---------------------------|------|
| Supply Voltage | Minimum Operating Voltage | VA | Supply Voltage | Minimum Operating Voltage | VA |
| 24 | 16.8 | 200 | 24 | 16.8 | 170 |
| 48 | 33.6 | 830 | 48 | 33.6 | 710 |
| 60 | | 1280 | 60 | | 1105 |
| 110 ^④ | 60 | 100 | 110 | 77 | 110 |
| 120 ^④ | | 120 | 120 | | 130 |
| 127 ^④ | | 140 | 125 | | 140 |
| 208 ^④ | | 420 | ... | .. | .... |
| 220 ^④ | | 470 | ... | .. | .... |
| 240 ^④ | | 550 | ... | .. | .... |
| 380 | 266 | 95 | 220 | 154 | 41 |
| 400 | | 108 | 250 | .. | 54 |
| 415 | | 120 | ... | .. | .... |
| 440 | | 136 | ... | .. | .... |
| 480 | 336 | 40 | ... | .. | .... |
| 525 | | 50 | ... | .. | .... |
| 550 | | 50 | ... | .. | .... |
| 600 | | 70 | ... | .. | .... |

Ordering Information

Select shunt trip catalog number for the voltage within the indicated voltage range. Shunt trip coils are designed to be applied at specific ac or dc voltages within the voltage range shown. Electrical ratings are also shown on applicable circuit breaker accessory nameplates.

Shunt Trip

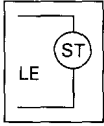
| Voltage Rating (ac Freq = 50/60 Hz) | Factory Mounted | | | | Field Mounted | |
|---|------------------------------|-------------------|---------------|----------------|--------------------------------------|----------------|
| | Connection Type and Location | | | | Field Installation Kits ^⑤ | |
| | 18-inch Pigtail Leads | | | Terminal Block | Pigtail Leads | Terminal Block |
| | Same Side | Rear ^⑥ | Opposite Side | Same Side | | |
| | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| Left Pole Mounting Ac/Dc Ratings ^⑥ | | | | | | |
| 24 Vac/24 Vdc | SNT5LA03 | SNT5LB03 | SNT5LC03 | SNT5LT03 | SNT5LP03K | SNT5LT03K |
| 48-60 Vac | SNT5LA05 | SNT5LB05 | SNT5LC05 | SNT5LT05 | SNT5LP05K | SNT5LT05K |
| 110-240 Vac ^④ | SNT5LA11 | SNT5LB11 | SNT5LC11 | SNT5LT11 | SNT5LP11K | SNT5LT11K |
| 110-125 Vdc | SNT5LA26 | SNT5LB26 | SNT5LC26 | SNT5LT26 | SNT5LP26K | SNT5LT26K |
| 380-440 Vac/ 220-250 Vdc | SNT5LA14 | SNT5LB14 | SNT5LC14 | SNT5LT14 | SNT5LP14K | SNT5LT14K |
| 480-600 Vac | SNT5LA18 | SNT5LB18 | SNT5LC18 | SNT5LT18 | SNT5LP18K | SNT5LT18K |
| 48-60 Vdc | SNT5LA23 | SNT5LB23 | SNT5LC23 | SNT5LT23 | SNT5LP23K | SNT5LT23K |

- ① Approximate unlatching time — 6 milliseconds.
- Approximate total circuit breaker contact opening time — 18 milliseconds.
- ③ Endurance — 3000 electrical operations plus 1000 mechanical operations.
- ④ Supply voltages suitable for use with Class 1 GFP devices. Marking label included with accessory kits.
- ⑤ Listed with Underwriters Laboratories, Inc. for field installation under E64983.
- ⑥ Standard mounting location — leads exit rear of breaker.



Series C N-Frame Internal Accessories

LOW ENERGY SHUNT TRIP



Low energy shunt trip devices are designed to operate from low energy output signals from dedicated current sensors typically applied in ground fault protection schemes. However, with a proper control voltage source, they may be applied in place of conventional trip devices for special applications. Flux paths surrounding permanent magnets used in the shunt trip assembly hold a charged spring poised in readiness to operate the circuit breaker trip mechanism. When a 100 microfarad capacitor charged to 28 Vdc is discharged through the shunt trip coil, the resultant flux opposes the permanent magnet flux field, which releases the stored energy in the spring to trip the circuit breaker. As the circuit breaker resets, the reset arm is actuated by the circuit breaker handle, resetting the shunt trip. The plug-in module is mounted in retaining slots in the top of the trip unit. Coil is intermittent-rated only. Cutoff provisions required in control circuit.

Ordering Information

Select shunt trip catalog number for the voltage within the indicated voltage range. Shunt trip coils are designed to be applied at specific ac or dc voltages within the voltage range shown. Electrical ratings are also shown on applicable circuit breaker accessory nameplates.

Low Energy Shunt Trip^①

| Mounting Positions | Factory Mounted | | | | Field Mounted | |
|------------------------|------------------------------|-------------------|---------------|----------------|--------------------------------------|----------------|
| | Connection Type and Location | | | | Field Installation Kits ^② | |
| | 18-inch Pigtail Leads | | | Terminal Block | Pigtail Leads | Terminal Block |
| | Same Side | Rear ^③ | Opposite Side |  |  |  | Same Side |
| | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| Left Pole ^③ | LST5LA | LST5LB | LST5LC | LST5LT | LST5LPK | LST5LTK |

- ① Cutoff provisions required in control circuit.
- ② Listed with Underwriters Laboratories, Inc. for field installation under E64983.
- ③ Standard mounting location – leads exit rear of breaker.

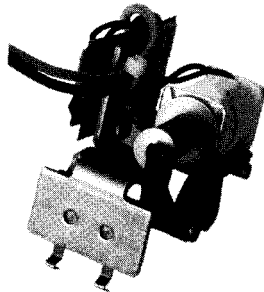
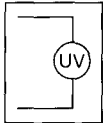
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Mailed to: E, D, C/29-100A, 31-400A,
31-500A

Series C[®] N-Frame Internal Accessories

UNDervOLTAGE RELEASE MECHANISM



The undervoltage release mechanism monitors a voltage (typically a line voltage) and trips the circuit breaker when the voltage falls to between 70 and 35 percent of the solenoid coil rating.

The undervoltage release mechanism consists of a continuous rated solenoid with a plunger and tripping lever assembled to a plug-in module. The tab on the tripping lever resets the undervoltage release mechanism when normal voltage has been restored and the circuit breaker handle is moved to the reset (OFF) position. With no voltage applied to the undervoltage release mechanism, the circuit breaker contacts will not touch when a closing operation is attempted.

NOTE: Undervoltage release mechanism accessories are not designed for, and should not be used as, circuit interlocks.

Ordering Information

Select handle reset undervoltage release mechanism catalog number for the voltage within the indicated voltage range. Undervoltage release mechanism coils are designed to be applied at specific ac or dc voltages within the voltage range shown. Performance data is shown on applicable circuit breaker accessory nameplates.

Electrical Rating Data ^①

| 50/60 Hz | | | | | Dc | | | | |
|----------------|-----------------|-------|----------------|------|----------------|-----------------|------|----------------|-----|
| Supply Voltage | Dropout Voltage | | Pickup Voltage | VA | Supply Voltage | Dropout Voltage | | Pickup Voltage | VA |
| | Min. | Max. | Max. | Min. | | Max. | Max. | | |
| 12 | 4.2 | 8.4 | 10.2 | 1.9 | 12 | 4.2 | 8.4 | 10.2 | 1.6 |
| 24 | 8.4 | 16.8 | 20.4 | 3.9 | 24 | 8.4 | 16.8 | 20.4 | 3.1 |
| 48 | 21 | 33.6 | 40.8 | 2.5 | 48 | 21 | 33.6 | 40.8 | 2.0 |
| 60 | | | | 3.8 | 60 | | | | 3.1 |
| 110 | 44.5 | 77 | 93.5 | 1.8 | 110 | 44.5 | 77 | 93.5 | 1.6 |
| 120 | | | | 2.1 | 120 | | | | 1.9 |
| 127 | | | | 2.4 | 125 | | | | 2.2 |
| 208 | 84 | 145.6 | 176.8 | 2.7 | 220 | 87.5 | 154 | 187 | 3.1 |
| 220 | | | | 3.1 | | | | | |
| 240 | | | | 3.8 | 250 | ... | ... | ... | 4.0 |
| 380 | 175 | 266 | 323 | 3.4 | ... | ... | ... | ... | ... |
| 415 | | | | 4.0 | ... | ... | ... | ... | ... |
| 480 | | | | 4.6 | ... | ... | ... | ... | ... |
| 500 | | | | 5.4 | ... | ... | ... | ... | ... |

Undervoltage Release Mechanism

| Voltage Rating (ac Freq = 50/60 Hz) | Factory Mounted | | | | Field Mounted | |
|--|------------------------------|-------------------|---------------|----------------|-----------------|----------------|
| | Connection Type and Location | | | | | |
| | 18-inch Pigtail Leads | | | Terminal Block | | |
| | Same Side | Rear ^③ | Opposite Side | Same Side | Pigtail Leads | Terminal Block |
| | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| Left Pole Mounting ● Ac Ratings | | | | | | |
| 12 Vac | UVH5LA02 | UVH5LB02 | UVH5LC02 | UVH5LT02 | UVH5LP02K | UVH5LT02K |
| 24 Vac | UVH5LA03 | UVH5LB03 | UVH5LC03 | UVH5LT03 | UVH5LP03K | UVH5LT03K |
| 48-60 Vac | UVH5LA05 | UVH5LB05 | UVH5LC05 | UVH5LT05 | UVH5LP05K | UVH5LT05K |
| 110-127 Vac | UVH5LA08 | UVH5LB08 | UVH5LC08 | UVH5LT08 | UVH5LP08K | UVH5LT08K |
| 208-240 Vac | UVH5LA11 | UVH5LB11 | UVH5LC11 | UVH5LT11 | UVH5LP11K | UVH5LT11K |
| 380-500 Vac | UVH5LA29 | UVH5LB29 | UVH5LC29 | UVH5LT29 | UVH5LP29K | UVH5LT29K |
| Left Pole Mounting ● Dc Ratings | | | | | | |
| 12 Vdc | UVH5LA20 | UVH5LB20 | UVH5LC20 | UVH5LT20 | UVH5LP20K | UVH5LT20K |
| 24 Vdc | UVH5LA21 | UVH5LB21 | UVH5LC21 | UVH5LT21 | UVH5LP21K | UVH5LT21K |
| 48-60 Vdc | UVH5LA23 | UVH5LB23 | UVH5LC23 | UVH5LT23 | UVH5LP23K | UVH5LT23K |
| 110-125 Vdc | UVH5LA26 | UVH5LB26 | UVH5LC26 | UVH5LT26 | UVH5LP26K | UVH5LT26K |
| 220-250 Vdc | UVH5LA28 | UVH5LB28 | UVH5LC28 | UVH5LT28 | UVH5LP28K | UVH5LT28K |

^① Endurance: 3000 electrical operations plus 1000 mechanical operations.

● Listed with Underwriters Laboratories, Inc. for field installation under E64983.

^③ Standard mounting location — leads exit rear of breaker.



Series C N-Frame Internal Accessories

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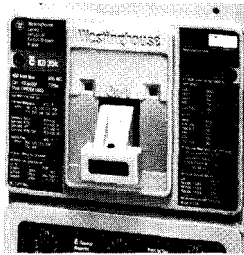
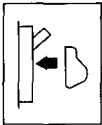
Selection Data
29-120N

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New Information
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Series C[®] N-Frame External Accessories

NON-PADLOCKABLE HANDLE BLOCK



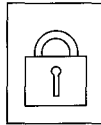
The nonlockable handle block secures the circuit breaker handle in either the ON or OFF position. (Trip-free operation allows the circuit breaker to trip when the handle block holds the circuit breaker handle in the ON position.) The device is positioned over the circuit breaker handle and secured by a setscrew to deter accidental operation of the circuit breaker handle. (Field installation only.)

Ordering Information
One per circuit breaker.

CATALOG NUMBER

LKD4

PADLOCKABLE HANDLE LOCK HASP^①



The padlockable handle lock hasp allows the handle to be locked in the ON or OFF position. (Trip-free operation allows the circuit breaker to trip when the handle lock holds the circuit breaker handle in the ON position.) The hasp mounts on the circuit breaker cover within the trimline. The cover is predrilled on both sides of the operating handle so that the hasp can be mounted on either side of the handle. The hasp will accommodate up to three padlocks with 1/4 inch (6mm) shackles. (Field installation only.)

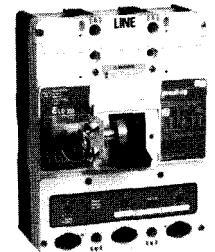
Ordering Information

The padlockable handle lock hasp can be mounted on either side of the operating handle. One per circuit breaker; field installation only.

CATALOG NUMBER

PLK5

KEY INTERLOCK KIT (Lock Not Included)



The key interlock is used to externally lock the circuit breaker handle in the OFF position. When the key interlock is locked, an extended deadbolt blocks movement of the circuit breaker handle. Uniquely coded keys are removable only with the deadbolt extended. Each coded key controls a group of circuit breakers for a given specific customer installation.

The key interlock assembly consists of a mounting kit and a purchaser supplied deadbolt lock. The mounting kit comprises a mounting plate, which is secured to the circuit breaker cover in either the left- or right-pole position; key interlock mounting hardware; and a wire seal. Specific mounting kits are required for individual key interlock types. (Field installation only.)

Ordering Information

Key interlock mounting kits are for field installation only. Select mounting kit catalog numbers to match type of lock used. Key interlocks are supplied by customer.

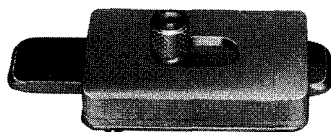
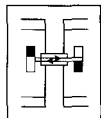
| Lock Manufacturer | Lock Type | Bolt Projection in Withdrawn Position | KIT CAT. NO. |
|-------------------|-----------|---------------------------------------|--------------|
| Superior | B4003-1 | 3/8 inch | |
| Kirk | F | 3/8 inch | KYK4 |
| Square D | SF | None | |
| Federal Pioneer | VF | 3/8 inch | |
| Castell | K or QK | 3/8 inch | CTK4 |

^① Underwriters Laboratories, Inc. listing pending under UL File E7819.



Series C N-Frame External Accessories

SLIDING BAR INTERLOCK



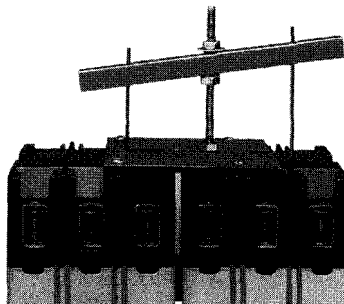
The sliding bar interlock provides mechanical interlocking between two adjacent 2- or 3-pole circuit breakers. It is installed on the enclosure cover between the circuit breakers. When the sliding bar interlock handle is moved from one side to the other, a bar extends to alternately block movement of the circuit breaker handles and prevents both circuit breakers from being switched to ON at the same time. Sliding bar interlocks are not UL-listed. (Field installation only.)

Ordering Information

The sliding bar interlock is available for mounting between two adjacent 2- or 3-pole circuit breakers with circuit breaker center line spacing at 8½ inches, and enclosure front panel thickness of ½ or ¾ inches. (For field installation only.)

| |
|----------------|
| CATALOG NUMBER |
| SBK5 |

WALKING BEAM INTERLOCK



The walking beam interlock provides mechanical interlocking between two adjacent circuit breakers of the same pole configuration. The walking beam interlock mounts on a bracket behind and between the circuit breakers. A plunger on each end of the beam is inserted through an access hole in the backplate and base of each circuit breaker. The walking beam interlock prevents both circuit breakers from being switched to ON at the same time. When a walking beam interlock is installed, the wiring troughs in the back of the circuit breaker case are blocked by the plungers and cannot be used for cross wiring. Factory-modified circuit breakers are required for this application.

Ordering Information

The walking beam interlock is available for mounting between two adjacent circuit breakers spaced ¼ inch apart and having the same pole configuration. The two circuit breakers must be factory modified to accept the walking beam interlock assembly (suitable for use with either 2- and 3-pole circuit breakers). With properly modified circuit breakers, the walking beam interlock is suitable for field installation under UL File E64983. Order circuit breakers of the type and rating required, modified for field installation of the walking beam interlock.

| |
|----------------|
| CATALOG NUMBER |
| WBL5 |

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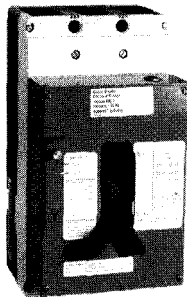
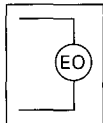




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Series C[®] N-Frame External Accessories

ELECTRICAL (MOTOR) OPERATOR



The motor operator allows the circuit breaker to be opened, closed, or reset remotely. It also has a lock-off capability and provisions for manual operation.

The motor operator contains a reversible motor connected to a ball screw. The ball screw drives the circuit breaker handle. Limit switches and relays are used to control the motor.

Since the motor operator is equipped with control relays, only a momentary control signal is required to close or open the circuit breaker. Once an operation is initiated, the control relays seal in and the motor operator completes its operation. The relays carry the motor current. The control momentary switches only provide the signal.

The motor operator is UL listed as a recognized component suitable for field installation on all type N-frame circuit breakers and molded case switches under UL File E64124.

From the point of energization of the closing mechanism at 85% voltage, the closing time is 30 cycles \pm 10%.

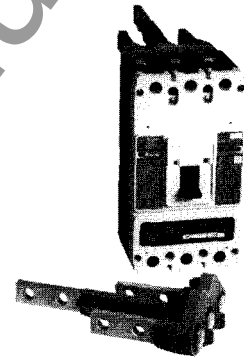
Electrical Rating Data ①②③④

| Voltage ^⑤ (V) | Frequency | Inrush Current (A) | Fuse (A) |
|--------------------------|-----------|--------------------|----------|
| 120 | 50/60 Hz | 25 | 6 |
| 208 | | 21 | |
| 240 | | 19 | 4 |
| 480 | | | |
| 48 | Dc | 80 | |
| 125 | | 13 | |

Ordering Information

| Operating Voltage | Frequency | Pigtail Leads |
|--------------------------|-----------|-----------------|
| | | CATALOG NUMBERS |
| 120 208 240 480 | 50/60 Hz | EOP5T07 |
| | | EOP5T09 |
| | | EOP5T11 |
| | | EOP5T15 |
| 48 125 | Dc | EOP5T22 |
| | | EOP5T26 |

PLUG-IN ADAPTERS



For rear connected applications such as switchboards. Facilitates ease of installation and front removal of breaker. Includes conductor for mounting on breaker, plug-in mounting blocks with matching conductor, rear studs and mounting hardware.

Ordering Information

Order two mounting blocks style number when line and load are required; order one mounting block style number when either line or load is required.

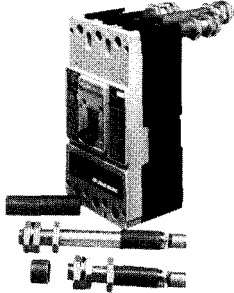
| Continuous Current Rating (Amperes) | STYLE NUMBERS | | |
|-------------------------------------|---------------|------------|--------|
| | 2-Pole | 3-Pole | 4-Pole |
| 1200 | 2614D53G03 | 2614D53G04 | ... |

① Underwriters Laboratories listed under UL File E64983.
 ② The electrical operator design has been endurance tested for 2,500 electrical operations.
 ③ Frequency: 50/60 Hz.
 ④ Maximum operating time: 12 cycles max.
 ⑤ Tolerance: +10%, -15% of nominal voltage.



Series C N-Frame External Accessories

REAR CONNECTING STUDS^①



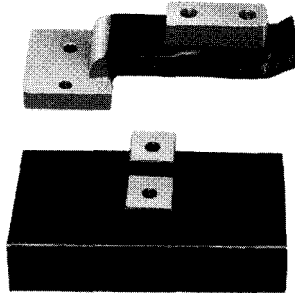
Rear connecting studs are available in several sizes to accommodate specific fixed-mounted circuit breaker applications.

Ordering Information

For complete stud assembly, order a stud and appropriate tube based on thickness of customer's mounting panel. A short stud must be assembled adjacent to a long stud to maintain clearances required by Underwriters' Laboratories, Inc. Two studs are required per pole.

| Stud Ampere Rating | Diameter, Inches and Thread | Extension Back of Breaker, Inches | STUD STYLE NUMBERS |
|--------------------|-----------------------------|-----------------------------------|--------------------|
| 800 | 1 1/8-12 | 5 1/2 | 623B222G01 |
| 800 | 1 1/8-12 | 8 | 623B222G02 |
| 800 | 1 1/8-12 | 10 1/2 | 623B222G03 |
| 1200 | 1 1/4-12 | 5 1/2 | 373B375G04 |
| 1200 | 1 1/4-12 | 10 1/2 | 373B375G03 |

PANELBOARD CONNECTING STRAPS



For connecting line end of breakers to panelboard bus.

Ordering Information

Panelboard connecting straps are available to meet the needs of most standard panelboard applications. Style numbers for mounting brackets for CDP panelboard installations are also included.

Refer to panelboard manufacturer for compatibility.

Panelboard Connecting Straps

| Ampere Rating | Connector Type | Style Number |
|--------------------|----------------|--------------|
| Bus Spacing 3 1/2" | | |
| 1200 | Short | 505C606G04 |
| 1200 | Medium | 505C606G05 |
| 1200 | Long | 505C606G06 |

Mounting Bracket

Four (4) Required

| STYLE NUMBER |
|--------------|
| 315C270H01 |

^① Not UL listed.

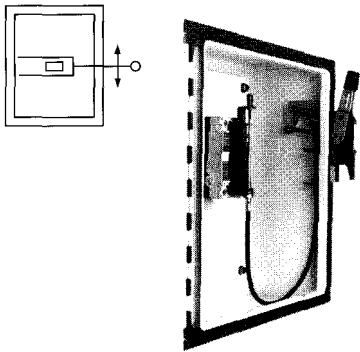
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June 1994
New Information
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Series C[®] N-Frame External Accessories

FLEX SHAFT™ HANDLE MECHANISM



The Flex Shaft type handle mechanism is an extra heavy-duty handle mechanism designed for mounting in flange-type enclosures. An operating handle, flexible shaft, and mechanism are required for standard application.

The handle can be locked in the RESET position with up to three padlocks. The handle is suitable for NEMA 1, 3R, 4, 4X, and 12 fabricated enclosures. It is supplied for mounting in right-hand flange enclosures. The handle fits the industry standard cutout.

Three lengths of shafts are available for use with the wide range of depths of various enclosures (4 ft. through 6 ft.). These choices enable this mechanism to be mounted in various depth, width, and height enclosures. Note: when selecting the length of shaft, ensure minimum bending radius of 5 inches is maintained to operate properly.

The standard method of shipment includes the mechanism preset at the factory; however, minor field adjustments may be required.

Ordering Information

Catalog Number includes complete assembly consisting of handle, flexible shaft, operating mechanism, and hardware kit to fit industry standard flange cutout.

| Circuit Breaker | Length of Flex Shaft (in feet) | CATALOG NUMBERS |
|-----------------|--------------------------------|-----------------|
| N-Frame | 4 | F5S04 |
| | 5 | F5S05 |
| | 6 | F5S06 |

Note: NEMA 4/4X handle mechanisms are available. Add suffix X to complete catalog number.

Accessories

Standard Door Hardware (Required Adapter Kit Below)

| CATALOG NUMBERS | Latch | Panel Height |
|-----------------|---------|--------------|
| DH1R | 2 point | Up to 30 in. |
| DH2R | 2 point | Up to 40 in. |
| DH3R | 3 point | Over 40 in. |

Door Hardware Adapter Kit (Required on Standard Door Hardware)

| CATALOG NUMBERS |
|-----------------|
| AMTDHA |

Door Hardware for Hoffman A - 25 Enclosure

Kit consists of special door hardware and door interlock pin. Available for right hand flange mounting only.

| CATALOG NUMBERS | Latch | Panel Height |
|-----------------|---------|--------------|
| HDH-2R | 2 point | Up to 40 in. |
| HDH-3R | 3 point | Over 40 in. |



Series C N-Frame External Accessories

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Series C[®] N-Frame Modifications

SPECIAL CALIBRATION^①

Refer specific requests to Cutler-Hammer for availability.

MOISTURE-FUNGUS TREATMENT

All Series C circuit breaker cases are molded from glass-polyester which does not support the growth of fungus. Any parts which are susceptible to the growth of fungus will require special treatment.

Order by description.
Refer to price list.

FREEZE-TESTED CIRCUIT BREAKERS

Refer specific requests to Cutler-Hammer for availability.

MARINE APPLICATION

N-Frame circuit breakers can be supplied to meet the following marine specifications:

U.S. Coast Guard CFR 46
ABS – American Bureau of Shipping
IEEE 45

These specifications generally require molded case circuit breakers to be supplied with 50°C ambient calibration, and plug-in adapter kits. When plug-in adapter kits are used, no terminals need be supplied.

N-Frame circuit breakers can also be supplied to meet UL489 Supplement SA (Marine Use) and UL489 Supplement SB (Naval Use).

UL489 Supplement SA applies to vessels over 65 feet in length. Requirements include 40°C ambient calibration, special labeling, and no use of aluminum conductors or terminals.

UL489 Supplement SB requires 50°C ambient calibration, vibration testing, special nameplating, and no use of aluminum conductors or terminals.

Order by description.
Refer to Cutler-Hammer for pricing.

^① Not listed with Underwriters Laboratories, Inc.



Series C N-Frame Modifications

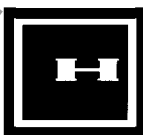
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Westinghouse Series C̄ Circuit Breakers

R-Frame 2500 Amperes
UL/CSA 600 Volts AC
IEC 947-2 690 Volts AC

Introducing a new 2500 ampere
molded case circuit breaker for cost
effective main breaker switchboard
applications. Available with a full line
of Digitrip RMS Trip Units.



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EATON

Westinghouse Series C̄ Circuit Breakers

R-Frame 2500 Amperes
UL/CSA 600 Volts AC
IEC 947-2 690 Volts AC

The Series C̄ world class circuit breaker family, state-of-the-art in circuit protection, has been enhanced with the introduction of the three-pole, 2500 ampere R-Frame. It meets UL, CSA, IEC 947-2, and most other major electrical standards worldwide.

The R-Frame provides higher interrupting capabilities and enhanced performance characteristics that were previously available only in physically larger breakers.

As with other members of the Series C̄ family, R-Frame provides design flexibility, safety, unmatched performance, and outstanding value.

Solid State Protection

The R-Frame is available with Digitrip RMS electronic trip units that provide cost effective, reliable protection and selective coordination as well as current and energy monitoring with built-in communications.

Digitrip RMS 310 electronic trip units, with fixed or adjustable rating plugs, are available in four styles (LS, LSI, LSG, LSIG).

As an option, the R-Frame is also available with full function Digitrip RMS 510, 610, and 810 electronic trip units.

Digitrip RMS 510 offers nine curve shaping adjustments with LED cause of trip indication and integral trip/no trip testing in six styles (LI, LS, LSI, LIG, LSG, LSIG).

In addition, both Digitrip RMS 610 and 810 Trip Units have a large four digit alphanumeric display for reading phase and ground current values in amperes.

Digitrip RMS 810 Trip Units provide built-in IMPACC communications to Westinghouse IQ metering and monitoring devices.

Interrupting Ratings

| Circuit Breaker Type 3-Pole | Interrupting Ratings rms Symmetrical kA | | |
|--------------------------------|--|-----|-----|
| | Volts AC 50/60 Hz | | |
| | 240 | 480 | 600 |
| UL/CSA | | | |
| RD | 125 | 65 | 50 |
| RDC | 200 | 100 | 65 |
| | Volts AC 50/60 Hz | | |
| | 380 | 415 | 690 |
| IEC 947-2 | | | |
| RW | I_{cu} | 65 | 65 |
| | I_{cs} | 33 | 33 |
| | | 25 | 13 |

R-Frame with Digitrip RMS 310 Trip Unit

| | Trip Unit Type | Catalog Number |
|-----------|----------------|----------------|
| UL/CSA | LS | RD325T33W |
| | LSI | RD325T32W |
| | LSG | RD325T35W |
| | LSIG | RD325T36W |
| | LS | RDC325T33W |
| | LSI | RDC325T32W |
| | LSG | RDC325T35W |
| | LSIG | RDC325T36W |
| IEC 947-2 | LS | RW325T33W |
| | LSI | RW325T32W |
| | LSG | RW325T35W |
| | LSIG | RW325T36W |

| Rating Plugs | |
|---|------------|
| 2500 Fixed | 25RES25T |
| 1200/1600/2000/2500 Amperes Adjustable | A25RES25T1 |

Accessories

| Description | Catalog Number | |
|--|------------------------|-------------------|
| | Field Installation Kit | Factory Installed |
| 120 Volt AC Shunt Trip | SNT6P08K | SNT6RA08 |
| 1M, 1B Alarm Switch | A1L6RPK | A1L6RA |
| 2M, 2B Alarm Switch | A2L6RPK | A2L6RA |
| Terminal Block | TBRDK | TBRD |
| 2A, 2B Auxiliary Switch | A2X6RPK | A2X6RA |
| 4A, 4B Auxiliary Switch | A4X6RPK | A4X6RA |
| 120 Volt AC Undervoltage Release, Handle Reset | UVH6RP08K | UVH6RA08 |
| Key Interlock Provision for Use with: | | |
| Superior | } KYK6 ^① | — |
| Kirk | | |
| Federal Pioneer | | |
| Square D | | |
| Castell | CTK6 ^① | — |
| Portable Electronic Test Kit | STK2 | |

^① Key interlock supplied by customer.

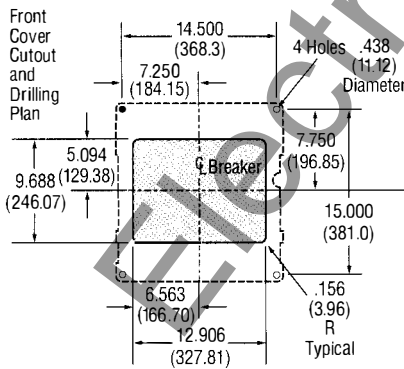
Modular Accessories

Plug-in accessories, internally mounted, are UL listed for either factory or field installation. All accessories are provided with pigtail leads as standard. Features such as these support efficient inventory management efforts and value added services.

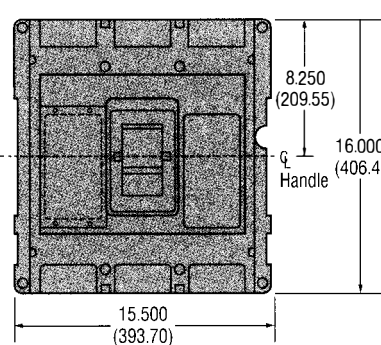
Field Testing

Digitrip RMS 310 Trip Units are provided with test points for functional field testing with a portable electronic test kit.

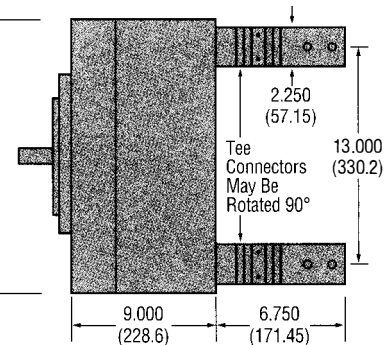
R-Frame Dimensions—Inches (mm)



Front View – Rear Connected



Side View



Dimensions not to be used for construction purposes unless approved.

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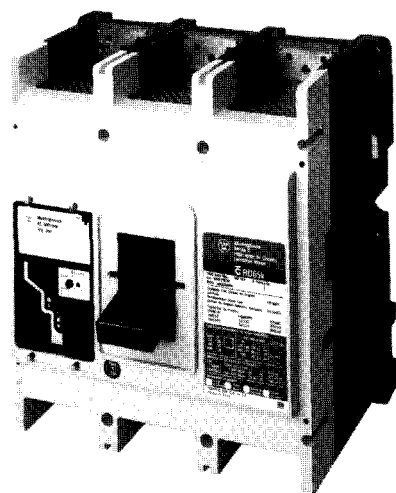
Selection Data

29-120R

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March 1995
Supersedes Selection Data 29-120R,
pages 1-2, dated June 1994
Mailed to: E, D, C/29-100A, 31-400A,
31-500A

Westinghouse Series C[®] Molded Case Circuit Breakers R-Frame 800-2500 Amperes



Dimensions, Inches (mm)

| No. of Poles | Width | Height | Depth |
|--------------|------------|----------|------------|
| 3 | 15.5 (394) | 16 (406) | 9.75 (248) |
| 4 | 20 (508) | 16 (406) | 9.75 (248) |

Approximate Shipping Weight, Lbs. (kg)

| Breaker Type | Number of Poles | |
|--------------|-----------------|----------|
| | 3 | 4 |
| 1600A | | |
| RD, CRD | 102 | 135 |
| RDC, CRDC | (46.266) | (61.235) |
| 2000A | | |
| RD, RDC | 102 | 135 |
| | (46.266) | (61.235) |
| 2000A | | |
| CRD, CRDC | 130 | 175 |
| | (58.967) | (79.378) |
| 2500A | | |
| RD, RDC | 135 | 182 |
| | (61.235) | (82.553) |

STANDARDS

Series C molded case circuit breakers are designed to conform with the following standards:

- Australian Standard AS 2184, Molded Case Circuit Breakers
- British Standards Institution Standard BS 4752: Part 1, Switchgear and Control Gear Part 1: Circuit Breakers
- Canadian Standards Association Standard C22.2 No. 5, Service Entrance and Branch Circuit Breakers
- International Electrotechnical Commission Recommendations IEC 947-2, Circuit Breakers
- Japanese T-Mark Standard, Molded Case Circuit Breakers
- National Electrical Manufacturers Association Standards Publication No. AB1-1975, Molded Case Circuit Breakers
- South African Bureau of Standards, Standard SABS 156, Standard Specification for Molded Case Circuit Breakers
- Swiss Electro-Technical Association Standard SEV 947-2, Safety Regulations for Circuit Breakers
- Underwriters Laboratories, Inc., Standard UL 489, Molded Case Circuit Breakers and Circuit Breaker Enclosures, Including Marine Circuit Breakers File E7819
- Union Technique de l'Electricite Standard NF C 63-120, Low Voltage Switchgear and Control Gear Circuit Breaker Requirements
- Verband Deutscher Elektrotechniker (Association of German Electrical Engineers) Standard VDE 0660, Low Voltage Switchgear and Control Gear, Circuit Breakers

INTERRUPTING CAPACITY RATINGS

UL489 Interrupting Capacity Ratings

| Circuit Breaker Frame | Number of Poles | Interrupting Capacity (Symmetrical Amperes) | | | |
|-----------------------|-----------------|---|-------|-----|-----|
| | | Volts Ac (50/60 Hz) | | | |
| | | 240 | 277 | 480 | 600 |
| RD | 3, 4 | 125 | ..... | 65 | 50 |
| CRD ① | 3, 4 | 125 | ..... | 65 | 50 |
| RDC | 3, 4 | 200 | ..... | 100 | 65 |
| CRDC ① | 3, 4 | 200 | ..... | 100 | 65 |

IEC 947-2 Interrupting Rating (Sym. Amperes kA) ②

| Circuit Breaker Type | Number of Poles | U _e (Volts Ac 50/60 Hz) | | | |
|----------------------|-----------------|------------------------------------|-----------------|-----------------|-----------------|
| | | 380 | | 415 | |
| | | I _{cu} | I _{cs} | I _{cu} | I _{cs} |
| RD | 3, 4 | 65 | 33 | 65 | 33 |
| RDC | 3, 4 | 100 | 50 | 100 | 50 |

Conformance with these standards satisfies most local and international codes, assuming user acceptability and simplified application.

Series C molded case circuit breakers equal or exceed Federal Specification Classification W-C-375b requirements for the particular class associated with the circuit breaker frame being considered.

① 100% Rated versions.
② Utilization Category A circuit breakers.



Westinghouse Series C Molded Case Circuit Breakers, R-Frame, 800-2500 Amperes

CATALOG NUMBERING SYSTEM

This information is presented only as an aid to understanding catalog numbers. It is not to be used to build catalog numbers for circuit breakers or trip units.

Digitrip RMS 310 Frame Type Catalog Numbers

| RD | 3 | 16 | T32 | W |
|------------|-----------------|----------------------------------|----------------------------|--------------------------------|
| Frame Type | Number of Poles | Circuit Breakers/ Frame Amperage | Trip Type | Suffix |
| RD | 3: 3 Poles | 16: 1600A | T32: Digitrip RMS 310 LSI | W: Without terminals |
| RDC | 4: 4 Poles | 20: 2000A | T53: Digitrip RMS 510 LS | P: 100% Protected Neutral Pole |
| CRD | | 25: 2500A | T65: Digitrip RMS 610 LSG | R: Ground Fault Remote |
| CRDC | | | T86: Digitrip RMS 810 LSIG | K: Molded Case Switch |

R-FRAME DIGITRIP SELECTION GUIDE

| Trip Unit Type | Digitrip RMS 310 | Digitrip RMS 510 | Digitrip RMS 610 | Digitrip RMS 810 | Digitrip RMS 910 |
|--|------------------------|------------------------|---------------------------------|---------------------------------|---------------------------------|
| RMS Sensing | Yes | Yes | Yes | Yes | Yes |
| Protection | | | | | |
| Ordering Options | LS, LSG | LSI, LSIG | LI, LS, LSI, LIG, LSG, LSIG | LI, LS, LSI, LIG, LSG, LSIG | LI, LS, LSI, LIG, LSG, LSIG |
| Fixed Rating Plug (I _n) | Yes | Yes | Yes | Yes | Yes |
| Over Temperature Protection | Yes | Yes | Yes | Yes | Yes |
| Long Delay Protection | | | | | |
| Adjustable Rating Plug (I _n) | Yes | Yes | No | No | No |
| Long Delay Pick Up | 0.5-1.0 ⁽²⁾ | 0.5-1.0 ⁽²⁾ | 0.5-1.0(I _r) | 0.5-1.0(I _r) | 0.5-1.0(I _r) |
| Long Delay Time 12T (6 I _n) | 12 secs. | 12 secs. | 2-24 secs. | 2-24 secs. | 2-24 secs. |
| Long Delay Thermal Memory | Yes | Yes | Yes | Yes | Yes |
| High Load Alarm | No | No | No | 0.85(I _r) | 0.85(I _r) |
| Short Delay Protection | | | | | |
| Short Delay Pick Up | 200-800% | 200-800% | 200-600% S1&S2(I _r) | 200-600% S1&S2(I _r) | 200-600% S1&S2(I _r) |
| Short Delay Time 12T | 100ms | No | 100-500ms | 100-500ms | 100-500ms |
| Short Delay Time Flat | No | Inst.-300ms | 100-500ms | 100-500ms | 100-500ms |
| Short Delay Time Zone | No | No | Yes | Yes | Yes |
| Selective Interlocking | No | No | Yes | Yes | Yes |
| Instantaneous Protection | | | | | |
| Instantaneous Discriminator | No | 200-800% | 200-600% M1&M2 | 200-600% M1&M2 | 200-600% M1&M2 |
| Instantaneous Override | Yes | Yes | Yes ⁽³⁾ | Yes | Yes ⁽³⁾ |
| Ground Fault Protection | | | | | |
| Ground Fault Pick Up ⁽¹⁾ | Varies | Varies | 25-100%(I _g) | 25-100%(I _g) | 25-100%(I _g) |
| Ground Fault Delay 12T | No | No | 100-500ms | 100-500ms | 100-500ms |
| Ground Fault Delay Flat | No | Inst.-500ms | 100-500ms | 100-500ms | 100-500ms |
| Ground Fault Zone | No | No | Yes | Yes | Yes |
| Selective Interlocking | No | No | Yes | Yes | Yes |
| Ground Fault Thermal Memory | Yes | Yes | Yes | Yes | Yes |
| System Diagnostics | | | | | |
| Cause of Trip LEDs | No | No | Yes | Yes | Yes |
| Magnitude of Trip Information | No | No | No | Yes | Yes |
| Remote Signal Contacts | No | No | No | Yes | Yes |
| System Monitoring | | | | | |
| Digital Display | No | No | No | Yes | Yes |
| Current | No | No | No | Yes | Yes |
| Voltage | No | No | No | No | No |
| Power and Energy | No | No | No | No | Yes |
| Power Quality - Harmonics | No | No | No | No | Yes |
| Power Factor | No | No | No | No | Yes (over IMPACC only) |
| Communications | | | | | |
| IMPACC | No | No | No | No | Yes |
| Testing | | | | | |
| Field Testing | STK2 | STK2 | Integral | Integral | Integral |

⁽¹⁾ Not to exceed 1200 amps.

⁽²⁾ Adjust by rating plug.

⁽³⁾ LS/LSG only.

Note: I_s = Sensor Rating

I_n = Rating Plug Rating

I_r = Long Delay Pick Up Setting

R-frame circuit breakers are available as frame (which includes trip unit), rating plug and terminals.

Further Information

Technical Data TD 29-160
Dimensions DS 29-170R
Time/Current Curves AD 29-167R

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 Pittsburgh, Pennsylvania, U.S.A. 15220

Selection Data
29-120R

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March 1995
 Supersedes Selection Data 29-120R,
 pages 3-4, dated June 1994
 Mailed to: E, D, C/29-100A, 31-400A,
 31-500A

Westinghouse Series C[®] Molded Case Circuit Breakers R-Frame 800-2500 Amperes

600-VOLT AC RATED DIGITRIP RMS 310 ELECTRONIC CIRCUIT BREAKER WITH INTERCHANGEABLE RATING PLUG

Order as individual components: Breaker Frame (which includes Trip Unit) and Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | Digitrip RMS 310 Rating Plug Only | | |
|---|---|-----------|-----------|-----------|---|---|---|
| | Standard Interrupting Capacity 600-Volt Ac Rated 65 kAIC @ 480 Vac | | | | Ampere Rating | Fixed Rating Plugs | Adjustable Rating Plug Adjustable Ampere Ratings Catalog Number |
| | L - Adjustable Long Delay Pickup (By Adjustable Rating Plug) S - Adjustable Short Delay Pickup With Fixed Short Delay Time (I ² t Response) or Adjustable Short Delay Time (Flat Response) I - Adjustable Instantaneous Pickup by Setting Short Delay Time to Instantaneous G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Delay (Flat Response) | | | | | | |
| | LS | LSI | LSG | LSIG | | | |
| CATALOG NUMBERS | | | | | | | |
| 3-Pole | | | | | | | |
| 1600 ① | RD316T33W | RD316T32W | RD316T35W | RD316T36W | 800 1000 1200 1250 1400 1500 1600 | 16RES08T 16RES10T 16RES12T 16RES125T 16RES14T 16RES15T 16RES16T | Adjustable Settings are: 800, 1000, 1200, 1600 A16RES16T1 |
| 2000 | RD320T33W | RD320T32W | RD320T35W | RD320T36W | 1000 1200 1250 1400 1600 2000 | 20RES10T 20RES12T 20RES125T 20RES14T 20RES16T 20RES20T | Adjustable Settings are: 1000, 1200, 1600, 2000 A20RES20T1 |
| 2500 | RD325T33W | RD325T32W | RD325T35W | RD325T36W | 1200 1250 1600 2000 2500 | 25RES12T 25RES125T 25RES16T 25RES20T 25RES25T | Adjustable Settings are: 1200, 1600, 2000, 2500 A25RES25T1 |
| 4-Pole ② | | | | | | | |
| 1600 ① | RD416T33W | RD416T32W | ..... | ..... | 800 1000 1200 1250 1400 1500 1600 | 16RES08T 16RES10T 16RES12T 16RES125T 16RES14T 16RES15T 16RES16T | Adjustable Settings are: 800, 1000, 1200, 1600 A16RES16T1 |
| 2000 | RD420T33W | RD420T32W | ..... | ..... | 1000 1200 1250 1400 1600 2000 | 20RES10T 20RES12T 20RES125T 20RES14T 20RES16T 20RES20T | Adjustable Settings are: 1000, 1200, 1600, 2000 A20RES20T1 |
| 2500 | RD425T33W | RD425T32W | ..... | ..... | 1200 1250 1600 2000 2500 | 25RES12T 25RES125T 25RES16T 25RES20T 25RES25T | Adjustable Settings are: 1200, 1600, 2000, 2500 A25RES25T1 |

① For SCR application use 2000-amp frame.

② Unprotected right pole neutral. Add "P" to catalog number for 100% protected right pole neutral, i.e., "RD416T33PW".



Westinghouse Series C Molded Case Circuit Breakers, R-Frame, 800-2500 Amperes

600-VOLT AC RATED DIGITRIP RMS 310 ELECTRONIC CIRCUIT BREAKER WITH INTERCHANGEABLE RATING PLUG

Order as individual components: Breaker Frame, Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | Digitrip RMS 310 Rating Plug Only | | |
|---|---|------------|------------|------------|---|---|---|
| | High Interrupting Capacity 600-Volt Ac Rated 65 kAIC @ 480 Vac | | | | Ampere Rating | Fixed Rating Plugs | Adjustable Rating Plug Adjustable Ampere Ratings Catalog Number |
| | L - Adjustable Long Delay Pickup (By Adjustable Rating Plug) S - Adjustable Short Delay Pickup With Fixed Short Delay Time (I ² t Response) or Adjustable Short Delay Time (Flat Response) I - Adjustable Instantaneous Pickup by Setting Short Delay Time to Instantaneous G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Delay (Flat Response) | | | | | | |
| LS LSI LSG LSIG CATALOG NUMBERS | | | | | | | |
| 3-Pole | | | | | | | |
| 1600 ① | RDC316T33W | RDC316T32W | RDC316T35W | RDC316T36W | 800 1000 1200 1250 1400 1500 1600 | 16RES08T 16RES10T 16RES12T 16RES125T 16RES14T 16RES15T 16RES16T | Adjustable Settings are: 800, 1000, 1200, 1600 A16RES16T1 |
| 2000 | RDC320T33W | RDC320T32W | RDC320T35W | RDC320T36W | 1000 1200 1250 1400 1600 2000 | 20RES10T 20RES12T 20RES125T 20RES14T 20RES16T 20RES20T | Adjustable Settings are: 1000, 1200, 1600, 2000 A20RES20T1 |
| 2500 | RDC325T33W | RDC325T32W | RDC325T35W | RDC325T36W | 1200 1250 1600 2000 2500 | 25RES12T 25RES125T 25RES16T 25RES20T 25RES25T | Adjustable Settings are: 1200, 1600, 2000, 2500 A25RES25T1 |
| 4-Pole ● | | | | | | | |
| 1600 ① | RDC416T33W | RDC416T32W | ..... | ..... | 800 1000 1200 1250 1400 1500 1600 | 16RES08T 16RES10T 16RES12T 16RES125T 16RES14T 16RES15T 16RES16T | Adjustable Settings are: 800, 1000, 1200, 1600 A16RES16T1 |
| 2000 | RDC420T33W | RDC420T32W | ..... | ..... | 1000 1200 1250 1400 1600 2000 | 20RES10T 20RES12T 20RES125T 20RES14T 20RES16T 20RES20T | Adjustable Settings are: 1000, 1200, 1600, 2000 A20RES20T1 |
| 2500 | RDC425T33W | RDC425T32W | ..... | ..... | 1200 1250 1600 2000 2500 | 25RES12T 25RES125T 25RES16T 25RES20T 25RES25T | Adjustable Settings are: 1200, 1600, 2000, 2500 A25RES25T1 |

① For SCR application use 2000-amp frame.

② Unprotected right pole neutral. Add "P" to catalog number for 100% protected right pole neutral, i.e., "RDC416T33PW".

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March 1995
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 Mailed to: E, D, C/29-100A, 31-400A,
 31-500A

Westinghouse Series C[®] Molded Case Circuit Breakers R-Frame 800-2500 Amperes

100% RATED DIGITRIP RMS 310 CIRCUIT BREAKERS

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at 75°C ampacity.

Order as individual components: Breaker Frame, Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | Digitrip RMS 310 Rating Plug Only | | |
|---|---|------------|------------|------------|---|---|---|
| | Standard Interrupting Capacity 600-Volt Ac Rated 65 kAIC @ 480 Vac | | | | Ampere Rating | Fixed Rating Plugs | Adjustable Rating Plug Adjustable Ampere Ratings Catalog Number |
| | L - Adjustable Long Delay Pickup (By Adjustable Rating Plug) S - Adjustable Short Delay Pickup With Fixed Short Delay Time (I ² t Response) or Adjustable Short Delay Time (Flat Response) I - Adjustable Instantaneous Pickup by Setting Short Delay Time to Instantaneous G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Delay (Flat Response) | | | | | | |
| | LS | LSI | LSG | LSIG | | | |
| | CATALOG NUMBERS | | | | | | |
| 3-Pole | | | | | | | |
| 1600 ① | CRD316T33W | CRD316T32W | CRD316T35W | CRD316T36W | 800 1000 1200 1250 1400 1500 1600 | 16RES08T 16RES10T 16RES12T 16RES125T 16RES14T 16RES15T 16RES16T | Adjustable Settings are: 800, 1000, 1200, 1600 A16RES16T1 |
| 2000 | CRD320T33W | CRD320T32W | CRD320T35W | CRD320T36W | 1000 1200 1250 1400 1600 2000 | 20RES10T 20RES12T 20RES125T 20RES14T 20RES16T 20RES20T | Adjustable Settings are: 1000, 1200, 1600, 2000 A20RES20T1 |
| 4-Pole ● | | | | | | | |
| 1600 ① | CRD416T33W | CRD416T32W | ..... | ..... | 800 1000 1200 1250 1400 1500 1600 | 16RES08T 16RES10T 16RES12T 16RES125T 16RES14T 16RES15T 16RES16T | Adjustable Settings are: 800, 1000, 1200, 1600 A16RES16T1 |
| 2000 | CRD420T33W | CRD420T32W | ..... | ..... | 1000 1200 1250 1400 1600 2000 | 20RES10T 20RES12T 20RES125T 20RES14T 20RES16T 20RES20T | Adjustable Settings are: 1000, 1200, 1600, 2000 A20RES20T1 |

① For SCR application use 2000-amp frame.

② Unprotected right pole neutral. Add "P" to catalog number for 100% protected right pole neutral, i.e., "CRD416T33PW".

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Westinghouse Series C Molded Case Circuit Breakers, R-Frame, 800-2500 Amperes

100% RATED DIGITRIP RMS 310 CIRCUIT BREAKERS

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at 75°C ampacity.

Order as individual components: Breaker Frame, Rating Plug

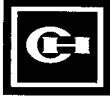
| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | Digitrip RMS 310 Rating Plug Only | | |
|---|--|-------------|-------------|-------------|---|---|---|
| | High Interrupting Capacity 600-Volt Ac Rated 65 kAIC @ 480 Vac | | | | Ampere Rating | Fixed Rating Plugs | Adjustable Rating Plug Adjustable Ampere Ratings Catalog Number |
| | L - Adjustable Long Delay Pickup (By Adjustable Rating Plug) | | | | | | |
| | S - Adjustable Short Delay Pickup With Fixed Short Delay Time (I ² t Response) or Adjustable Short Delay Time (Flat Response) | | | | | | |
| I - Adjustable Instantaneous Pickup by Setting Short Delay Time to Instantaneous | | | | | | | |
| G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Delay (Flat Response) | | | | | | | |
| LS LSI LSG LSIG | | | | | | | |
| CATALOG NUMBERS | | | | | | | |
| 3-Pole | | | | | | | |
| 1600 ① | CRDC316T33W | CRDC316T32W | CRDC316T35W | CRDC316T36W | 800 1000 1200 1250 1400 1500 1600 | 16RES08T 16RES10T 16RES12T 16RES125T 16RES14T 16RES15T 16RES16T | Adjustable Settings are: 800, 1000, 1200, 1600 A16RES16T1 |
| 2000 | CRDC320T33W | CRDC320T32W | CRDC320T35W | CRDC320T36W | 1000 1200 1250 1400 1600 2000 | 20RES10T 20RES12T 20RES125T 20RES14T 20RES16T 20RES20T | Adjustable Settings are: 1000, 1200, 1600, 2000 A20RES20T1 |
| 4-Pole ② | | | | | | | |
| 1600 ① | CRDC416T33W | CRDC416T32W | ..... | ..... | 800 1000 1200 1250 1400 1500 1600 | 16RES08T 16RES10T 16RES12T 16RES125T 16RES14T 16RES15T 16RES16T | Adjustable Settings are: 800, 1000, 1200, 1600 A16RES16T1 |
| 2000 | CRDC420T33W | CRDC420T32W | ..... | ..... | 1000 1200 1250 1400 1600 2000 | 20RES10T 20RES12T 20RES125T 20RES14T 20RES16T 20RES20T | Adjustable Settings are: 1000, 1200, 1600, 2000 A20RES20T1 |

① For SCR application use 2000-amp frame.

② Unprotected right pole neutral. Add "P" to catalog number for 100% protected right pole neutral, i.e., "CRDC416T33PW".

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 New Information
 Mailed to: E, D, C/29-100A, 31-400A,
 31-500A

Westinghouse Series C[®] Molded Case Circuit Breakers R-Frame 800-2500 Amperes

600-VOLT AC RATED DIGITRIP RMS 510 ELECTRONIC CIRCUIT BREAKER WITH INTERCHANGEABLE RATING PLUG

Order as individual components: Breaker Frame (which includes Trip Unit) and Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | | | Digitrip Rating Plug Only | |
|---|---|-----------|-----------|-----------|-----------|-----------|---------------------------------|--|
| | Standard Interrupting Capacity 600-Volt Ac Rated 65 kAIC @ 480 Vac | | | | | | Fixed Rating Plug | |
| | L - Adjustable Long Delay Pickup (I _r) With Adjustable Long Delay Time S - Adjustable Short Delay Pickup With Adjustable Short Delay Time (I ² t or Flat Response) I - Adjustable Instantaneous Pickup G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Time Delay (I ² t or Flat Response) | | | | | | Rated Current (I _n) | Catalog Number |
| LI | LS | LSI | LIG | LSG | LSIG | | | |
| CATALOG NUMBERS | | | | | | | | |
| 3-Pole | | | | | | | | |
| 1600 | RD316T51W | RD316T53W | RD316T52W | RD316T54W | RD316T55W | RD316T56W | 800 1000 1200 1600 | RP6R16A080 RP6R16A100 RP6R16A120 RP6R16A160 |
| 2000 | RD320T51W | RD320T53W | RD320T52W | RD320T54W | RD320T55W | RD320T56W | 1000 1200 1600 2000 | RP6R20A100 RP6R20A120 RP6R20A160 RP6R20A200 |
| 2500 | RD325T51W | RD325T53W | RD325T52W | RD325T54W | RD325T55W | RD325T56W | 1600 2000 2500 | RP6R25A160 RP6R25A200 RP6R25A250 |

Order as individual components: Breaker Frame, Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | | | Digitrip Rating Plug Only | |
|---|---|------------|------------|------------|------------|------------|---------------------------------|--|
| | High Interrupting Capacity 600-Volt Ac Rated 100 kAIC @ 480 Vac | | | | | | Fixed Rating Plug | |
| | L - Adjustable Long Delay Pickup (I _r) With Adjustable Long Delay Time S - Adjustable Short Delay Pickup With Adjustable Short Delay Time (I ² t or Flat Response) I - Adjustable Instantaneous Pickup G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Time Delay (I ² t or Flat Response) | | | | | | Rated Current (I _n) | Catalog Number |
| LI | LS | LSI | LIG | LSG | LSIG | | | |
| CATALOG NUMBERS | | | | | | | | |
| 3-Pole | | | | | | | | |
| 1600 | RDC316T51W | RDC316T53W | RDC316T52W | RDC316T54W | RDC316T55W | RDC316T56W | 800 1000 1200 1600 | RP6R16A080 RP6R16A100 RP6R16A120 RP6R16A160 |
| 2000 | RDC320T51W | RDC320T53W | RDC320T52W | RDC320T54W | RDC320T55W | RDC320T56W | 1000 1200 1600 2000 | RP6R20A100 RP6R20A120 RP6R20A160 RP6R20A200 |
| 2500 | RDC325T51W | RDC325T53W | RDC325T52W | RDC325T54W | RDC325T55W | RDC325T56W | 1600 2000 2500 | RP6R25A160 RP6R25A200 RP6R25A250 |



Westinghouse Series C Molded Case Circuit Breakers, R-Frame, 800-2500 Amperes

100% RATED DIGITRIP RMS 510 CIRCUIT BREAKERS

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at 75°C ampacity.

Order as individual components: Breaker Frame, Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | | | Digitrip Rating Plug Only | |
|---|---|------------|------------|------------|------------|------------|------------------------------|--|
| | Standard Interrupting Capacity 600-Volt Ac Rated 65 kAIC @ 480 Vac | | | | | | Fixed Rating Plug | |
| | L - Adjustable Long Delay Pickup (I_L) With Adjustable Long Delay Time S - Adjustable Short Delay Pickup With Adjustable Short Delay Time (I^2t or Flat Response) I - Adjustable Instantaneous Pickup G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Time Delay (I^2t or Flat Response) | | | | | | Rated Current (I_n) | Catalog Number |
| | LI | LS | LSI | LIG | LSG | LSIG | | |
| CATALOG NUMBERS | | | | | | | | |
| 3-Pole | | | | | | | | |
| 1600 | CRD316T51W | CRD316T53W | CRD316T52W | CRD316T54W | CRD316T55W | CRD316T56W | 800 1000 1200 1600 | RP6R16A080 RP6R16A100 RP6R16A120 RP6R16A160 |
| 2000 | CRD320T51W | CRD320T53W | CRD320T52W | CRD320T54W | CRD320T55W | CRD320T56W | 1000 1200 1600 2000 | RP6R20A100 RP6R20A120 RP6R20A160 RP6R20A200 |

Order as individual components: Breaker Frame, Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | | | Digitrip Rating Plug Only | |
|---|---|-------------|-------------|-------------|-------------|-------------|------------------------------|--|
| | High Interrupting Capacity 600-Volt Ac Rated 100 kAIC @ 480 Vac | | | | | | Fixed Rating Plug | |
| | L - Adjustable Long Delay Pickup (I_L) With Adjustable Long Delay Time S - Adjustable Short Delay Pickup With Adjustable Short Delay Time (I^2t or Flat Response) I - Adjustable Instantaneous Pickup G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Time Delay (I^2t or Flat Response) | | | | | | Rated Current (I_n) | Catalog Number |
| | LI | LS | LSI | LIG | LSG | LSIG | | |
| CATALOG NUMBERS | | | | | | | | |
| 3-Pole | | | | | | | | |
| 1600 | CRDC316T51W | CRDC316T53W | CRDC316T52W | CRDC316T54W | CRDC316T55W | CRDC316T56W | 800 1000 1200 1600 | RP6R16A080 RP6R16A100 RP6R16A120 RP6R16A160 |
| 2000 | CRDC320T51W | CRDC320T53W | CRDC320T52W | CRDC320T54W | CRDC320T55W | CRDC320T56W | 1000 1200 1600 2000 | RP6R20A100 RP6R20A120 RP6R20A160 RP6R20A200 |

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Selection Data
29-120R

Page 6.3

March 1995
 New Information
 Mailed to: E, D, C/29-100A, 31-400A,
 31-500A

Westinghouse Series C[®] Molded Case Circuit Breakers R-Frame 800-2500 Amperes

600-VOLT AC RATED DIGITRIP RMS 610 ELECTRONIC CIRCUIT BREAKER WITH INTERCHANGEABLE RATING PLUG

Order as individual components: Breaker Frame (which includes Trip Unit) and Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | | | Digitrip Rating Plug Only | |
|---|---|-----------|-----------|-----------|-----------|-----------|---------------------------------|--|
| | Standard Interrupting Capacity 600-Volt Ac Rated 65 kAIC @ 480 Vac | | | | | | Fixed Rating Plug | |
| | L - Adjustable Long Delay Pickup (I _r) With Adjustable Long Delay Time S - Adjustable Short Delay Pickup With Adjustable Short Delay Time (I ² t or Flat Response) I - Adjustable Instantaneous Pickup G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Time Delay (I ² t or Flat Response) | | | | | | Rated Current (I _n) | Catalog Number |
| LI | LS | LSI | LIG | LSG | LSIG | | | |
| CATALOG NUMBERS | | | | | | | | |
| 3-Pole | | | | | | | | |
| 1600 | RD316T61W | RD316T63W | RD316T62W | RD316T64W | RD316T65W | RD316T66W | 800 1000 1200 1600 | RP6R16A080 RP6R16A100 RP6R16A120 RP6R16A160 |
| 2000 | RD320T61W | RD320T63W | RD320T62W | RD320T64W | RD320T65W | RD320T66W | 1000 1200 1600 2000 | RP6R20A100 RP6R20A120 RP6R20A160 RP6R20A200 |
| 2500 | RD325T61W | RD325T63W | RD325T62W | RD325T64W | RD325T65W | RD325T66W | 1600 2000 2500 | RP6R25A160 RP6R25A200 RP6R25A250 |

Order as individual components: Breaker Frame, Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | | | Digitrip Rating Plug Only | |
|---|---|------------|------------|------------|------------|------------|---------------------------------|--|
| | High Interrupting Capacity 600-Volt Ac Rated 100 kAIC @ 480 Vac | | | | | | Fixed Rating Plug | |
| | L - Adjustable Long Delay Pickup (I _r) With Adjustable Long Delay Time S - Adjustable Short Delay Pickup With Adjustable Short Delay Time (I ² t or Flat Response) I - Adjustable Instantaneous Pickup G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Time Delay (I ² t or Flat Response) | | | | | | Rated Current (I _n) | Catalog Number |
| LI | LS | LSI | LIG | LSG | LSIG | | | |
| CATALOG NUMBERS | | | | | | | | |
| 3-Pole | | | | | | | | |
| 1600 | RDC316T61W | RDC316T63W | RDC316T62W | RDC316T64W | RDC316T65W | RDC316T66W | 800 1000 1200 1600 | RP6R16A080 RP6R16A100 RP6R16A120 RP6R16A160 |
| 2000 | RDC320T61W | RDC320T63W | RDC320T62W | RDC320T64W | RDC320T65W | RDC320T66W | 1000 1200 1600 2000 | RP6R20A100 RP6R20A120 RP6R20A160 RP6R20A200 |
| 2500 | RDC325T61W | RDC325T63W | RDC325T62W | RDC325T64W | RDC325T65W | RDC325T66W | 1600 2000 2500 | RP6R25A160 RP6R25A200 RP6R25A250 |



Westinghouse Series C Molded Case Circuit Breakers, R-Frame, 800-2500 Amperes

100% RATED DIGITRIP RMS 610 CIRCUIT BREAKERS

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at 75°C ampacity.

Order as individual components: Breaker Frame, Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | | | Digitrip Rating Plug Only | |
|---|---|------------|------------|------------|------------|------------|------------------------------|--|
| | Standard Interrupting Capacity 600-Volt Ac Rated 65 kAIC @ 480 Vac | | | | | | Fixed Rating Plug | |
| | L - Adjustable Long Delay Pickup (I_L) With Adjustable Long Delay Time S - Adjustable Short Delay Pickup With Adjustable Short Delay Time (I^2t or Flat Response) I - Adjustable Instantaneous Pickup G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Time Delay (I^2t or Flat Response) | | | | | | Rated Current (I_n) | Catalog Number |
| LI | LS | LSI | LIG | LSG | LSIG | | | |
| CATALOG NUMBERS | | | | | | | | |
| 3-Pole | | | | | | | | |
| 1600 | CRD316T61W | CRD316T63W | CRD316T62W | CRD316T64W | CRD316T65W | CRD316T66W | 800 1000 1200 1600 | RP6R16A080 RP6R16A100 RP6R16A120 RP6R16A160 |
| 2000 | CRD320T61W | CRD320T63W | CRD320T62W | CRD320T64W | CRD320T65W | CRD320T66W | 1000 1200 1600 2000 | RP6R20A100 RP6R20A120 RP6R20A160 RP6R20A200 |

Order as individual components: Breaker Frame, Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | | | Digitrip Rating Plug Only | |
|---|---|-------------|-------------|-------------|-------------|-------------|------------------------------|--|
| | High Interrupting Capacity 600-Volt Ac Rated 100 kAIC @ 480 Vac | | | | | | Fixed Rating Plug | |
| | L - Adjustable Long Delay Pickup (I_L) With Adjustable Long Delay Time S - Adjustable Short Delay Pickup With Adjustable Short Delay Time (I^2t or Flat Response) I - Adjustable Instantaneous Pickup G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Time Delay (I^2t or Flat Response) | | | | | | Rated Current (I_n) | Catalog Number |
| LI | LS | LSI | LIG | LSG | LSIG | | | |
| CATALOG NUMBERS | | | | | | | | |
| 3-Pole | | | | | | | | |
| 1600 | CRDC316T61W | CRDC316T63W | CRDC316T62W | CRDC316T64W | CRDC316T65W | CRDC316T66W | 800 1000 1200 1600 | RP6R16A080 RP6R16A100 RP6R16A120 RP6R16A160 |
| 2000 | CRDC320T61W | CRDC320T63W | CRDC320T62W | CRDC320T64W | CRDC320T65W | CRDC320T66W | 1000 1200 1600 2000 | RP6R20A100 RP6R20A120 RP6R20A160 RP6R20A200 |

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Selection Data
29-120R
 Page 6.5

March 1995
 New Information
 Mailed to: E, D, C/29-100A, 31-400A,
 31-500A

Westinghouse Series C[®] Molded Case Circuit Breakers R-Frame 800-2500 Amperes

600-VOLT AC RATED DIGITRIP RMS 810 ELECTRONIC CIRCUIT BREAKER WITH INTERCHANGEABLE RATING PLUG

Order as individual components: Breaker Frame (which includes Trip Unit) and Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | | | Digitrip Rating Plug Only | |
|---|---|-----------|-----------|-----------|-----------|-----------|---------------------------------|--|
| | Standard Interrupting Capacity 600-Volt Ac Rated 65 kAIC @ 480 Vac | | | | | | Fixed Rating Plug | |
| | L - Adjustable Long Delay Pickup (I _r) With Adjustable Long Delay Time S - Adjustable Short Delay Pickup With Adjustable Short Delay Time (I ² t or Flat Response) I - Adjustable Instantaneous Pickup G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Time Delay (I ² t or Flat Response) | | | | | | Rated Current (I _n) | Catalog Number |
| LI | LS | LSI | LIG | LSG | LSIG | | | |
| CATALOG NUMBERS | | | | | | | | |
| 3-Pole | | | | | | | | |
| 1600 | RD316T81W | RD316T83W | RD316T82W | RD316T84W | RD316T85W | RD316T86W | 800 1000 1200 1600 | RP6R16A080 RP6R16A100 RP6R16A120 RP6R16A160 |
| 2000 | RD320T81W | RD320T83W | RD320T82W | RD320T84W | RD320T85W | RD320T86W | 1000 1200 1600 2000 | RP6R20A100 RP6R20A120 RP6R20A160 RP6R20A200 |
| 2500 | RD325T81W | RD325T83W | RD325T82W | RD325T84W | RD325T85W | RD325T86W | 1600 2000 2500 | RP6R25A160 RP6R25A200 RP6R25A250 |

Order as individual components: Breaker Frame, Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | | | Digitrip Rating Plug Only | |
|---|---|------------|------------|------------|------------|------------|---------------------------------|--|
| | High Interrupting Capacity 600-Volt Ac Rated 100 kAIC @ 480 Vac | | | | | | Fixed Rating Plug | |
| | L - Adjustable Long Delay Pickup (I _r) With Adjustable Long Delay Time S - Adjustable Short Delay Pickup With Adjustable Short Delay Time (I ² t or Flat Response) I - Adjustable Instantaneous Pickup G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Time Delay (I ² t or Flat Response) | | | | | | Rated Current (I _n) | Catalog Number |
| LI | LS | LSI | LIG | LSG | LSIG | | | |
| CATALOG NUMBERS | | | | | | | | |
| 3-Pole | | | | | | | | |
| 1600 | RDC316T81W | RDC316T83W | RDC316T82W | RDC316T84W | RDC316T85W | RDC316T86W | 800 1000 1200 1600 | RP6R16A080 RP6R16A100 RP6R16A120 RP6R16A160 |
| 2000 | RDC320T81W | RDC320T83W | RDC320T82W | RDC320T84W | RDC320T85W | RDC320T86W | 1000 1200 1600 2000 | RP6R20A100 RP6R20A120 RP6R20A160 RP6R20A200 |
| 2500 | RDC325T81W | RDC325T83W | RDC325T82W | RDC325T84W | RDC325T85W | RDC325T86W | 1600 2000 2500 | RP6R25A160 RP6R25A200 RP6R25A250 |



Westinghouse Series C Molded Case Circuit Breakers, R-Frame, 800-2500 Amperes

100% RATED DIGITRIP RMS 810 CIRCUIT BREAKERS

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at 75°C ampacity.

Order as individual components: Breaker Frame, Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | | | Digitrip Rating Plug Only | |
|---|---|------------|------------|------------|------------|------------|------------------------------|--|
| | Standard Interrupting Capacity 600-Volt Ac Rated 65 kAIC @ 480 Vac | | | | | | Fixed Rating Plug | |
| | L - Adjustable Long Delay Pickup (I_L) With Adjustable Long Delay Time S - Adjustable Short Delay Pickup With Adjustable Short Delay Time (I^2t or Flat Response) I - Adjustable Instantaneous Pickup G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Time Delay (I^2t or Flat Response) | | | | | | Rated Current (I_n) | Catalog Number |
| | LI | LS | LSI | LIG | LSG | LSIG | | |
| CATALOG NUMBERS | | | | | | | | |
| 3-Pole | | | | | | | | |
| 1600 | CRD316T81W | CRD316T83W | CRD316T82W | CRD316T84W | CRD316T85W | CRD316T86W | 800 1000 1200 1600 | RP6R16A080 RP6R16A100 RP6R16A120 RP6R16A160 |
| 2000 | CRD320T81W | CRD320T83W | CRD320T82W | CRD320T84W | CRD320T85W | CRD320T86W | 1000 1200 1600 2000 | RP6R20A100 RP6R20A120 RP6R20A160 RP6R20A200 |

Order as individual components: Breaker Frame, Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | | | Digitrip Rating Plug Only | |
|---|---|-------------|-------------|-------------|-------------|-------------|------------------------------|--|
| | High Interrupting Capacity 600-Volt Ac Rated 100 kAIC @ 480 Vac | | | | | | Fixed Rating Plug | |
| | L - Adjustable Long Delay Pickup (I_L) With Adjustable Long Delay Time S - Adjustable Short Delay Pickup With Adjustable Short Delay Time (I^2t or Flat Response) I - Adjustable Instantaneous Pickup G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Time Delay (I^2t or Flat Response) | | | | | | Rated Current (I_n) | Catalog Number |
| | LI | LS | LSI | LIG | LSG | LSIG | | |
| CATALOG NUMBERS | | | | | | | | |
| 3-Pole | | | | | | | | |
| 1600 | CRDC316T81W | CRDC316T83W | CRDC316T82W | CRDC316T84W | CRDC316T85W | CRDC316T86W | 800 1000 1200 1600 | RP6R16A080 RP6R16A100 RP6R16A120 RP6R16A160 |
| 2000 | CRDC320T81W | CRDC320T83W | CRDC320T82W | CRDC320T84W | CRDC320T85W | CRDC320T86W | 1000 1200 1600 2000 | RP6R20A100 RP6R20A120 RP6R20A160 RP6R20A200 |

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Selection Data
29-120R
 Page 6.7

March 1995
 New Information
 Mailed to: E, D, C/29-100A, 31-400A,
 31-500A

Westinghouse Series C[®] Molded Case Circuit Breakers R-Frame 800-2500 Amperes

600-VOLT AC RATED DIGITRIP RMS 910 ELECTRONIC CIRCUIT BREAKER WITH INTERCHANGEABLE RATING PLUG

Order as individual components: Breaker Frame (which includes Trip Unit) and Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | | | Digitrip Rating Plug Only | |
|---|---|-----------|-----------|-----------|-----------|-----------|---------------------------------|--|
| | Standard Interrupting Capacity 600-Volt Ac Rated 65 kAIC @ 480 Vac | | | | | | Fixed Rating Plug | |
| | L - Adjustable Long Delay Pickup (I _r) With Adjustable Long Delay Time S - Adjustable Short Delay Pickup With Adjustable Short Delay Time (I ² t or Flat Response) I - Adjustable Instantaneous Pickup G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Time Delay (I ² t or Flat Response) | | | | | | Rated Current (I _n) | Catalog Number |
| | LI | LS | LSI | LIG | LSG | LSIG | | |
| | CATALOG NUMBERS | | | | | | | |
| 3-Pole | | | | | | | | |
| 1600 | RD316T91W | RD316T93W | RD316T92W | RD316T94W | RD316T95W | RD316T96W | 800 1000 1200 1600 | RP6R16A080 RP6R16A100 RP6R16A120 RP6R16A160 |
| 2000 | RD320T91W | RD320T93W | RD320T92W | RD320T94W | RD320T95W | RD320T96W | 1000 1200 1600 2000 | RP6R20A100 RP6R20A120 RP6R20A160 RP6R20A200 |
| 2500 | RD325T91W | RD325T93W | RD325T92W | RD325T94W | RD325T95W | RD325T96W | 1600 2000 2500 | RP6R25A160 RP6R25A200 RP6R25A250 |

Order as individual components: Breaker Frame, Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | | | Digitrip Rating Plug Only | |
|---|---|------------|------------|------------|------------|------------|---------------------------------|--|
| | High Interrupting Capacity 600-Volt Ac Rated 100 kAIC @ 480 Vac | | | | | | Fixed Rating Plug | |
| | L - Adjustable Long Delay Pickup (I _r) With Adjustable Long Delay Time S - Adjustable Short Delay Pickup With Adjustable Short Delay Time (I ² t or Flat Response) I - Adjustable Instantaneous Pickup G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Time Delay (I ² t or Flat Response) | | | | | | Rated Current (I _n) | Catalog Number |
| | LI | LS | LSI | LIG | LSG | LSIG | | |
| | CATALOG NUMBERS | | | | | | | |
| 3-Pole | | | | | | | | |
| 1600 | RDC316T91W | RDC316T93W | RDC316T92W | RDC316T94W | RDC316T95W | RDC316T96W | 800 1000 1200 1600 | RP6R16A080 RP6R16A100 RP6R16A120 RP6R16A160 |
| 2000 | RDC320T91W | RDC320T93W | RDC320T92W | RDC320T94W | RDC320T95W | RDC320T96W | 1000 1200 1600 2000 | RP6R20A100 RP6R20A120 RP6R20A160 RP6R20A200 |
| 2500 | RDC325T91W | RDC325T93W | RDC325T92W | RDC325T94W | RDC325T95W | RDC325T96W | 1600 2000 2500 | RP6R25A160 RP6R25A200 RP6R25A250 |



Westinghouse Series C Molded Case Circuit Breakers, R-Frame, 800-2500 Amperes

100% RATED DIGITRIP RMS 910 CIRCUIT BREAKERS

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at 75°C ampacity.

Order as individual components: Breaker Frame, Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | | | Digitrip Rating Plug Only | |
|---|---|-------------|-------------|-------------|-------------|-------------|---------------------------------|--|
| | High Interrupting Capacity 600-Volt Ac Rated 100 kAIC @ 480 Vac | | | | | | Fixed Rating Plug | |
| | L - Adjustable Long Delay Pickup (I _l) With Adjustable Long Delay Time S - Adjustable Short Delay Pickup With Adjustable Short Delay Time (I ² t or Flat Response) I - Adjustable Instantaneous Pickup G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Time Delay (I ² t or Flat Response) | | | | | | Rated Current (I _n) | Catalog Number |
| | LI | LS | LSI | LIG | LSG | LSIG | | |
| CATALOG NUMBERS | | | | | | | | |
| 3-Pole | | | | | | | | |
| 1600 | CRDC316T91W | CRDC316T93W | CRDC316T92W | CRDC316T94W | CRDC316T95W | CRDC316T96W | 800 1000 1200 1600 | RP6R16A080 RP6R16A100 RP6R16A120 RP6R16A160 |
| 2000 | CRDC320T91W | CRDC320T93W | CRDC320T92W | CRDC320T94W | CRDC320T95W | CRDC320T96W | 1000 1200 1600 2000 | RP6R20A100 RP6R20A120 RP6R20A160 RP6R20A200 |

Order as individual components: Breaker Frame, Rating Plug

| Maximum Continuous Ampere Rating @ 40°C | Circuit Breaker Frame Only | | | | | | Digitrip Rating Plug Only | |
|---|---|------------|------------|------------|------------|------------|---------------------------------|--|
| | Standard Interrupting Capacity 600-Volt Ac Rated 65 kAIC @ 480 Vac | | | | | | Fixed Rating Plug | |
| | L - Adjustable Long Delay Pickup (I _l) With Adjustable Long Delay Time S - Adjustable Short Delay Pickup With Adjustable Short Delay Time (I ² t or Flat Response) I - Adjustable Instantaneous Pickup G - Adjustable Ground Fault Pickup With Adjustable Ground Fault Time Delay (I ² t or Flat Response) | | | | | | Rated Current (I _n) | Catalog Number |
| | LI | LS | LSI | LIG | LSG | LSIG | | |
| CATALOG NUMBERS | | | | | | | | |
| 3-Pole | | | | | | | | |
| 1600 | CRD316T91W | CRD316T93W | CRD316T92W | CRD316T94W | CRD316T95W | CRD316T96W | 800 1000 1200 1600 | RP6R16A080 RP6R16A100 RP6R16A120 RP6R16A160 |
| 2000 | CRD320T91W | CRD320T93W | CRD320T92W | CRD320T94W | CRD320T95W | CRD320T96W | 1000 1200 1600 2000 | RP6R20A100 RP6R20A120 RP6R20A160 RP6R20A200 |

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Selection Data
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June 1994
 Supersedes Frame Book 29-106, pages 1-32,
 dated August 1991
 Mailed to: E, D, C/29-100A, 31-400A,
 31-500A

Series C[®] Molded Case Circuit Breakers R-Frame 800-2500 Amperes

TYPE RD MOLDED CASE SWITCH CATALOG NUMBERS

| Continuous Ampere Rating @ 40°C ^① | Complete without Terminals | |
|---|---|---------|
| | 3-Pole | 4-Pole |
| | CATALOG NUMBERS | |
| | Type RD – High Instantaneous (K) | |
| 1600 | RD316WK | RD416WK |
| | Type RD – High Instantaneous (K) | |
| 2000 | RD320WK | RD420WK |
| | Type RD – High Instantaneous (K) | |
| 2500 | ..... | ..... |

For UL listed, series tested molded case switch application data, refer to Cutler-Hammer.

SOLID-STATE (ELECTRONIC) PORTABLE TEST KIT

The solid-state (electronic) portable test kit provides verification of performance of all ratings of Electronic trip units installed in Series C circuit breakers while in service under varying load and/or phase imbalance. The test kit operates on 120-volt, 50/60 Hz power; it includes complete instructions and test times for testing long time, short time/instantaneous operation and optional ground fault operation of the circuit breaker.

Ordering Information

| |
|----------------|
| CATALOG NUMBER |
| STK2 |

www.ElectricalPart.com



Series C Molded Case Circuit Breakers, R-Frame, 800-2500 Amperes

www.ElectricalPartManuals.com

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June 1994
 Supersedes Frame Book 29-106, pages 1-32,
 dated August 1991
 Mailed to: E, D, C/29-100A, 31-400A,
 31-500A

Series C[®] R-Frame Termination Accessories

LINE AND LOAD TERMINALS

Line and load terminals provide wire connecting capabilities for specific ranges of continuous current ratings and wire types. All terminals comply with Underwriters Laboratories, Inc. Standards UL486A and UL486B and CSA C22.2 No. 65M. Unless otherwise specified, R-frame circuit breaker line load terminals are shipped separately for field installation.

Ordering Information

R-frame circuit breakers have Cu/Al terminals as standard and Cu only terminals as an option. Specify if factory installation is required.

BASE MOUNTING HARDWARE

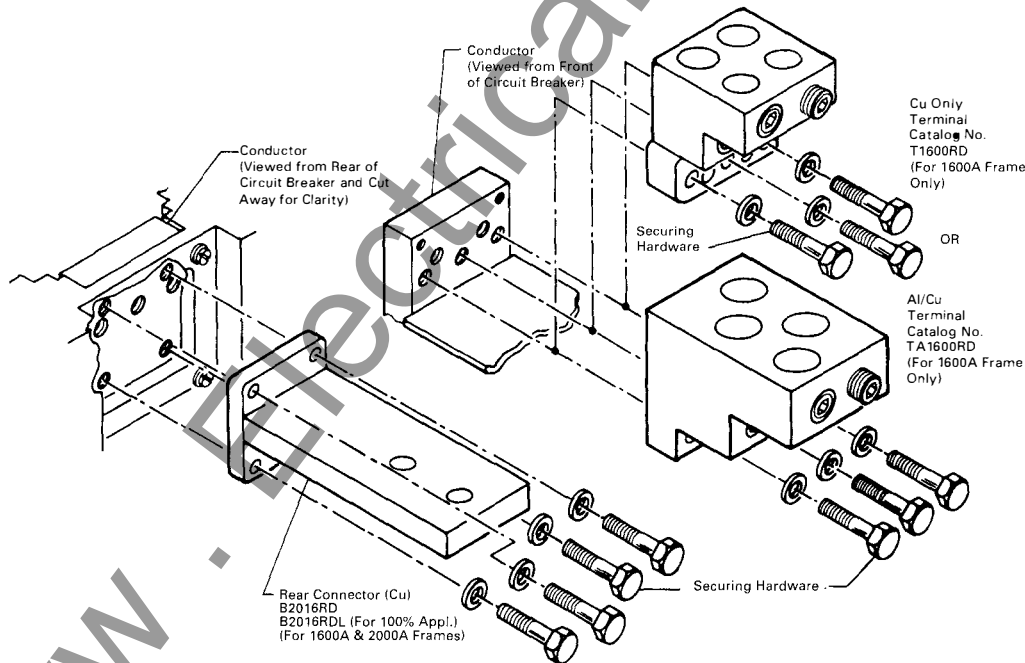
Supplied by customer.

HANDLE EXTENSION

Included with breaker.

| |
|----------------|
| CATALOG NUMBER |
| HEX6 |

| CATALOG NUMBERS | Maximum Breaker Amps | Terminal Body Material | Wire Type | Hardware | AWG/MCM Wire Range/No. Conductors | Metric Wire Range mm ² |
|------------------------|----------------------|------------------------|-----------|----------|-----------------------------------|-----------------------------------|
| Wire Terminal | | | | | | |
| TA1600RD | 1600 | Aluminum | Cu/Al | English | 500-1000 (4) | 300-500 |
| T1600RD | 1600 | Copper | Cu | English | 1-600 (4) | 50-300 |
| TA2000RD | 2000 | Aluminum | Cu/Al | English | 2-600 (6) | 35-300 |
| Rear Connectors | | | | | | |
| B2016RD | 2000 | Copper | ..... | English | ..... | ..... |
| B2016RDL ① | 2000 | Copper | ..... | English | ..... | ..... |
| B2500RD ● | 2500 | Copper | ..... | English | ..... | ..... |



① For use with 100% rated 1600A and 2000A frame. Do not order separately unless for replacement purposes. Is included in breaker carton when 100% rated device is ordered.
 ② For use with 2500-amp frame. Do not order separately unless for replacement purposes. Included in breaker carton when 2500A breaker is ordered.



Series C R-Frame Termination Accessories

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dated August 1991
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31-500A

Series C[®] R-Frame Accessories

GENERAL INFORMATION

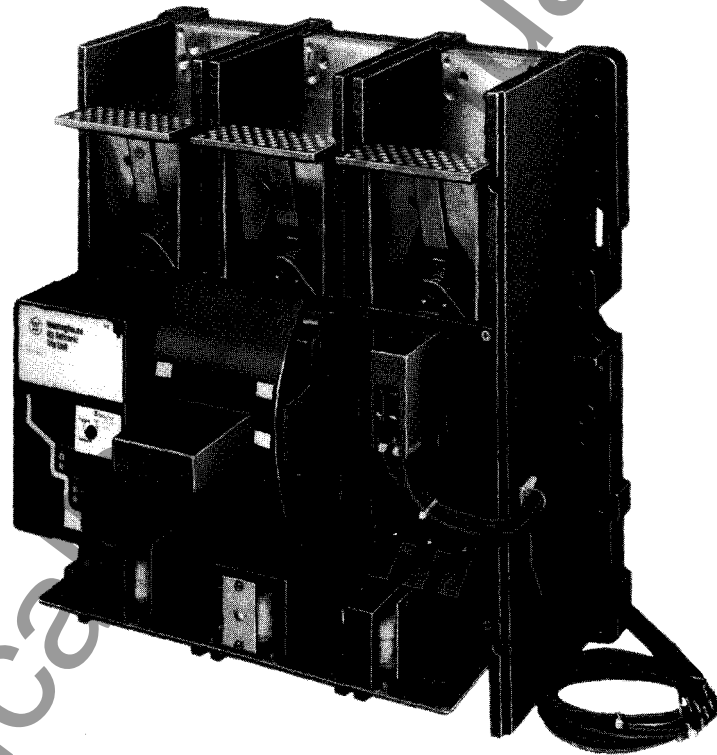
All internal accessories are of the plug-in type installed in an accessory deck mounted in the right-hand pole of the circuit breaker only. Internal accessories are listed for field installation under UL File E64983. The available plug-in internal accessories include the following:

- Alarm (Signal)/Lockout Switch
- Auxiliary Switch
- Shunt Trip
- Low Energy Shunt Trip
- Undervoltage Release Mechanism

For external connections, 18-inch long pigtail leads exit the right-side of the circuit breaker next to the accessory deck. An optional configuration includes a terminal block mounted on the right-side of the base.

Cover design permits field installation of external accessories such as key interlocks and electrical or manual handle operations without modifying the cover.

To identify allowable accessory installation combinations, see page 12.



Typical Internal Plug-in Accessory Installed in R-Frame Circuit Breaker



Series C R-Frame Accessory Combinations

Different combinations of accessories can be supplied, depending on the types of accessories and the number of poles in the circuit breaker.

| Termination Accessories | Reference Page | 3-Pole | | | 4-Pole | | | |
|-------------------------|-------------------|--------|------|-----|--------|------|-----|------|
| | | Lt. | Ctr. | Rt. | Lt. | Ctr. | Rt. | Neu. |
| Line and Load Terminals | 9 | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Base Mounting Hardware | 9 | | | | | | | |
| Handle Extension ① | 9 | | ■ | | | ■ | | |

Internal Accessories

| | | | | | | | | |
|--------------------------------|----|--|--|---|--|--|--|---|
| Alarm Lockout (Make/Break) | 13 | | | ■ | | | | ■ |
| Alarm Lockout (2Make/2Break) | 13 | | | ■ | | | | ■ |
| Auxiliary Switch (2A, 2B) | 14 | | | ■ | | | | ■ |
| Auxiliary Switch (4A, 4B) | 14 | | | ■ | | | | ■ |
| Shunt Trip-Standard | 15 | | | ■ | | | | ■ |
| Shunt Trip-Low Energy | 16 | | | ■ | | | | ■ |
| Undervoltage Release Mechanism | 17 | | | ■ | | | | ■ |
| Accessory Terminal Block ② | 18 | | | ■ | | | | ■ |

External Accessories

| | | | | | | | | |
|--|----|--|---|--|--|---|--|---|
| Padlockable Handle Lock Hasp | 19 | | ● | | | ● | | |
| Key Interlock Kit | 19 | | ■ | | | | | ■ |
| Electrical (Motor) Operator | 21 | | ■ | | | | | ■ |
| Drawout Cassette | 22 | | ● | | | | | |
| Handle Mechanism | 23 | | ■ | | | | | ■ |
| Solid State (Electronic) Portable Test Kit | 7 | | ● | | | | | ● |

Modifications (Refer to Cutler-Hammer)

| | | | | | | | | |
|--------------------------------|----|--|---|--|--|--|--|---|
| Special Calibration | 25 | | ● | | | | | ● |
| Moisture Fungus Treatment | 25 | | ● | | | | | ● |
| Freeze-Tested Circuit Breakers | 25 | | ● | | | | | ● |
| Marine Application | 25 | | ● | | | | | ● |

① Included with breaker.

② Mounts outside breaker.

- Applicable in indicated pole position.
- Accessory available/Modification available.

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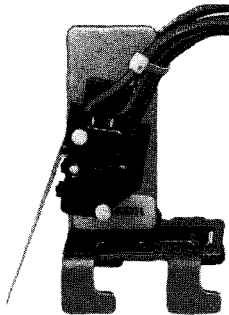
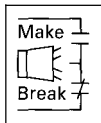
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Series C[®] R-Frame Internal Accessories

ALARM (SIGNAL)/LOCKOUT SWITCH



The alarm (signal)/lockout switch monitors circuit breaker trip status and provides remote signaling and interlocking capabilities when the circuit breaker trips. The alarm (signal)/lockout switch consists of one or two SPDT (single-pole double-throw) switches arranged in a plug-in module that mounts in retaining slots in the accessory panel. The SPDT switch contacts are identified as make and break contacts. When the circuit breaker trips, the make contact closes and the break contact opens.

Electrical Rating Data ^{① ②}

| Maximum Voltage | Frequency | Maximum Current Amps |
|-----------------|-----------|----------------------|
| 600 | 50/60 Hz | 6.0 |
| 125 | Dc | 0.5 ^③ |
| 250 | Dc | 0.25 ^③ |

Ordering Information

Alarm (Signal)/Lockout Switch

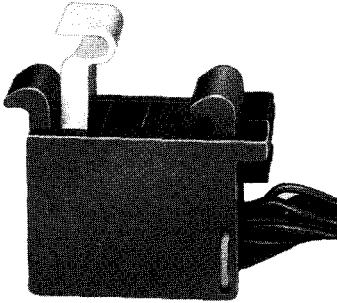
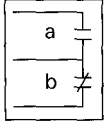
| Number of Contacts (Make and Break) | Factory Mounted | Field Mounted |
|-------------------------------------|------------------------------|--------------------------------------|
| | Connection Type and Location | Field Installation Kits ^④ |
| | 18-inch Pigtail Leads | Pigtail Leads |
| | CATALOG NUMBERS ^⑤ | CATALOG NUMBERS ^⑤ |
| 1 | A1L6RA | A1L6RPK |
| 2 | A2L6RA | A2L6RPK |

^① Endurance: 500 electrical operations plus 2500 mechanical operations.
^② Pigtail wire size: No. 18 AWG (0.82 mm²). Leads are red, black and blue.
^③ Non-inductive load.
^④ Listed with Underwriters Laboratories, Inc. for field installation under E64983.
^⑤ A maximum of three ASL plug-in modules may be installed in a circuit breaker.



Series C R-Frame Internal Accessories

AUXILIARY SWITCH



The auxiliary switch provides circuit breaker contact status information by monitoring the position of the contact arm assembly. The auxiliary switch is used for remote signaling and interlocking purposes, and consists of two or four SPDT switches arranged in a plug-in module that mounts in retaining slots in the accessory deck. Each SPDT switch has one "a" and one "b" contact. When the circuit breaker contacts are open, the "a" contact is open and the "b" contact is closed.

Electrical Rating Data ① ●

| Maximum Voltage | Frequency | Maximum Current Amps |
|-----------------|-----------|----------------------|
| 600 | 50/60 Hz | 6.0 |
| 125 | Dc | 0.5 ③ |
| 250 | Dc | 0.25 ③ |

Ordering Information

Auxiliary Switch

| Number of Contacts (A and B) | Factory Mounted | Field Mounted |
|------------------------------|--|---|
| | Connection Type and Location 18-inch Pigtail Leads CATALOG NUMBERS ⑤ | Field Installation Kits ④ Pigtail Leads CATALOG NUMBERS ⑤ |
| 2 | A2X6RA | A2X6RPK |
| 4 | A4X6RA | A4X6RPK |

① Endurance: 500 electrical operations plus 2500 mechanical operations.

② Pigtail wire size: No. 18 AWG (0.82 mm²). Leads are red, black and blue.

③ Non-inductive load.

④ Listed with Underwriters Laboratories, Inc. for field installation under E64983.

⑤ A maximum of two auxiliary switches (any combination of 2a/2b or 4a/4b plug-in modules may be installed in a circuit breaker.

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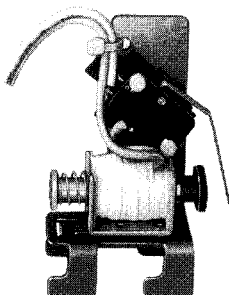
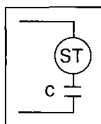
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Series C[®] R-Frame Internal Accessories

SHUNT TRIP



The shunt trip provides remote tripping of the circuit breaker. The shunt trip consists of an intermittent rated solenoid with a tripping plunger and a cutoff switch arranged in a plug-in module that mounts in retaining slots in the accessory panel.

Electrical Rating Data

| Catalog Suffix | Application Ratings | | Electrical Operating Ratings ①②●④⑤⑥ | | | | | | |
|----------------|---------------------|----------------|--|-------------------------------|--------------------|--------------------------------|--------------------------------|------|---|
| | Voltage (V) | Frequency (Hz) | Supply Voltage (V) | Minimum Operating Voltage (V) | I _p (A) | I _{rms} at 0.250s (A) | I _{rms} at 0.033s (A) | VA | One Minute Dielectric Withstand Voltage (V) |
| 03/03K | 24 | 50/60 | 24 | 16.8 | 71.1 | | | | |
| | 24 | DC | 24 | 16.8 | | 36.1 | | 870 | 1050 |
| 05/05K | 48-60 | 50/60 | 48 | 33.6 | 13.1 | | 9.2 | 450 | 1120 |
| | | | 60 | | 17.2 | | 12.2 | 740 | |
| 11/11K ⑦ | 110-240 | 50/60 | 110 | 60.5 | 4.2 | | 3.0 | 330 | 1480 |
| | | | 120 | | 4.5 | | 3.2 | 390 | |
| | | | 127 | | 4.6 | | 3.3 | 430 | |
| | | | 208 | | 7.9 | | 5.6 | 1170 | |
| | | | 220 | | 8.5 | | 6.0 | 1370 | |
| | | | 240 | | 8.7 | | 6.1 | 1470 | |
| 14/14K | 380-440 | 50/60 | 380 | 266.0 | 4.5 | | 3.2 | 1220 | 1880 |
| | | | 415 | | 5.0 | | 3.6 | 1500 | |
| | | | 440 | | 5.3 | | 3.7 | 1640 | |
| | 220-250 | Dc | 220 | 154.0 | | 2.4 | | 530 | 1500 |
| | | | 250 | | | 2.7 | | 680 | |
| 18/18K | 480-600 | 50/60 | 480 | 336.0 | 0.6 | | .4 | 200 | 2200 |
| | | | 525 | | 0.7 | | .5 | 270 | |
| | | | 550 | | 0.7 | | .5 | 280 | |
| | | | 600 | | 0.8 | | .6 | 360 | |
| 23/23K | 48-60 | Dc | 48 | 33.6 | | 9.8 | | 470 | 1120 |
| | | | 60 | | | 11.6 | | 700 | |
| 26/26K | 110-125 | Dc | 110 | 77.0 | | 3.3 | | 370 | 1250 |
| | | | 120 | | | 3.6 | | 440 | |
| | | | 125 | | | 3.8 | | 480 | |

Ordering Information

Select shunt trip catalog number for the voltage within the indicated voltage range. Shunt trip coils are designed to be applied at specific ac or dc voltages within the voltage range shown. Electrical ratings are also shown on applicable circuit breaker accessory name-plates.

Shunt Trip

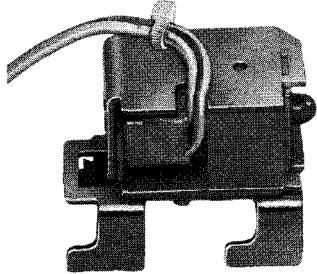
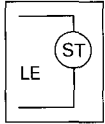
| Voltage Rating (Ac Freq = 50/60 Hz) | Factory Mounted | Field Mounted |
|---|--|--|
| | Connection Type and Location | Field Installation Kits ● |
| | 18-inch Pigtail Leads ⑨ | Pigtail Leads |
| | CATALOG NUMBERS ⑨ | CATALOG NUMBERS ⑨ |
| 24 Vac or 24 Vdc 48-60 Vac 110-240 Vac 380-440 Vac or 220-250 Vdc | SNT6RA03 SNT6RA05 SNT6RA11 SNT6RA14 | SNT6P03K SNT6P05K SNT6P11K SNT6P14K |
| 480-600 Vac 48-60 Vdc 110-125 Vdc | SNT6RA18 SNT6RA23 SNT6RA26 | SNT6P18K SNT6P23K SNT6P26K |

- Approximate unlatching time of 6 milliseconds.
- ② Average circuit breaker contact total opening time approximately 62 milliseconds, at rated voltage.
- ③ Endurance – 500 electrical operations and 2500 mechanical operations.
- ④ Shunt trip can be operated up to a maximum of six times per minute.
- ⑤ Maximum operating voltage – 110% of maximum voltage range rating.
- ⑥ Pigtail wire size – No. 18 AWG (0.82 mm²). Leads are yellow and white.
- Suitable for use with Class 1 GFP devices; marking label supplied with accessory kit.
- ⑥ Listed with Underwriters Laboratories, Inc. for field installation under E64983.
- ⑨ A maximum of two shunt trip plug-in modules may be installed in a circuit breaker.



Series C R-Frame Internal Accessories

LOW ENERGY SHUNT TRIP



Low Energy Shunt Trip (LEST) devices are designed to operate from low energy output signals from dedicated current sensors typically in ground fault protection schemes. However, with a proper control voltage source, they may be applied in place of conventional trip devices for special applications. The LEST consists of an intermittent-rated solenoid and a plunger assembled to a plug-in module. The plug-in module is mounted in slots in the accessories mounting deck in the right pole of the circuit breaker. When the solenoid is energized, the plunger extends and presses against the trip bar tripping the circuit breaker. The trip bar resets the LEST when the trip signal is removed and the circuit breaker handle is moved to the reset (extreme off) position. The leads are yellow and white.

The LEST is designed to trip the circuit breaker when a 100 microfarad capacitor charged to 28 Vdc is discharged through the solenoid.

Ordering Information

Select shunt trip catalog number for the preferred installation at 28 Vdc. Shunt trip coils are designed to be applied. Electrical ratings are also shown on applicable circuit breaker accessory nameplates.

Low Energy Shunt Trip ①

| Factory Mounted | Field Mounted |
|------------------------------|---------------------------|
| Connection Type and Location | Field Installation Kits ② |
| 18-inch Pigtail Leads | Pigtail Leads |
| CATALOG NUMBER ③ | CATALOG NUMBER ③ |
| LST6RA | LST6RPK |

- ① Cutoff provisions required in control circuit.
- ② Listed with Underwriters Laboratories, Inc., for field installation under E64983.
- ③ A maximum of two shunt trip plug-in modules may be installed in a circuit breaker.

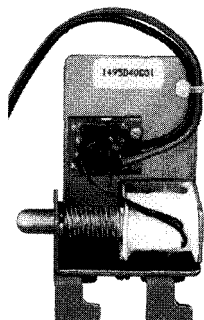
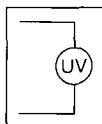
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Series C[®] R-Frame Internal Accessories

UNDervOLTAGE RELEASE MECHANISM



The undervoltage release mechanism monitors a voltage (typically a line voltage) and trips the circuit breaker when the voltage falls to between 70 and 35 percent of the solenoid coil rating.

NOTE: Undervoltage release mechanism accessories are not designed as circuit interlocks and are not recommended for use as such.

The undervoltage release mechanism consists of a continuous rated solenoid with a plunger mounted in a plug-in module. The trip bar resets the undervoltage release mechanism when normal voltage has been restored and the circuit breaker handle is moved to the reset (OFF) position. With no voltage applied to the undervoltage release mechanism, the circuit breaker contacts will not touch when a closing operation is attempted.

Ac Undervoltage Release Mechanism (Handle Reset) Ratings^{① ②}

| Catalog Suffix | Application Ratings Voltage (V) | Electrical Operating Ratings | | | | Approximate Operating Time (ms) | | | | |
|----------------|---------------------------------|---------------------------------|-------------------------------|-------|-------------------------|----------------------------------|--------------------------------|--|---|---|
| | | Supply Voltage (V) | Dropout Voltage (V) Min. Max. | | Pickup Voltage (V) Max. | VA | Min. ^③ UVR Response | Initiation ^④ Circuit Breaker Contact Separation | Maximum Circuit Breaker Contact Opening | Dielectric ^⑤ Withstand Voltage (V) |
| 02/02K | 12 | 12 | 4.2 | 8.4 | 10.2 | 2.3 | 5 | 46 | 77 | 1024 |
| 03/03K | 24 | 24 | 8.4 | 16.8 | 20.4 | 3.1 | 5 | 46 | 77 | 1048 |
| 05/05K | 48-60 | 48 60 | 21.0 | 33.6 | 40.8 | 3.4 6.0 | 5 | 46 | 77 | 1120 |
| 08/08K | 110-127 | 110 120 127 | 44.5 | 77.0 | 93.5 | 3.3 3.6 3.8 | 5 | 46 | 77 | 1254 |
| 11/11K | 208-240 | 208 220 240 | 84.0 | 145.6 | 176.8 | 4.2 6.6 7.2 | 5 | 46 | 77 | 1480 |
| 29/29K | 380-500 | 380 415 440 480 500 | 168.0 | 266.0 | 323.0 | 3.8 8.3 8.8 9.6 10.0 | 5 | 46 | 77 | 2000 |

Dc Undervoltage Release Mechanism (Handle Reset) Ratings^{① ②}

| Catalog Suffix | Application Ratings Voltage (V) | Electrical Operating Ratings | | | | Approximate Operating Time (ms) | | | | |
|----------------|---------------------------------|------------------------------|-------------------------------|-------|-------------------------|---------------------------------|--------------------------------|--|---|---|
| | | Supply Voltage (V) | Dropout Voltage (V) Min. Max. | | Pickup Voltage (V) Max. | VA | Min. ^③ UVR Response | Initiation ^④ Circuit Breaker Contact Separation | Maximum Circuit Breaker Contact Opening | Dielectric ^⑤ Withstand Voltage (V) |
| 20/20K | 12 | 12 | 4.2 | 8.4 | 10.2 | 3.4 | 5 | 46 | 77 | 1024 |
| 21/21K | 24 | 24 | 8.4 | 16.8 | 20.4 | 4.3 | 5 | 46 | 77 | 1048 |
| 23/23K | 48-60 | 48 60 | 21.0 | 33.6 | 40.8 | 4.8 7.2 | 5 | 46 | 77 | 1120 |
| 26/26K | 110-125 | 110 120 125 | 43.8 | 77.0 | 93.5 | 3.3 3.6 3.8 | 5 | 46 | 77 | 1250 |
| 28/28K | 220-250 | 220 250 | 87.5 | 154.0 | 187.0 | 6.6 7.5 | 5 | 46 | 77 | 1500 |

① Endurance – 500 electrical operations plus 2500 mechanical operations.
 ② Pigtail wire size – No. 18 AWG (0.82 mm²). Leads are orange and brown.
 ③ UVR will override a momentary voltage dip up to the response time shown.
 ④ Unlatching occurs 1 millisecond before circuit breaker contacts begin to separate.
 ⑤ For 1 minute.

Ordering information for undervoltage release mechanism on next page.



Series C R-Frame Internal Accessories

Ordering Information

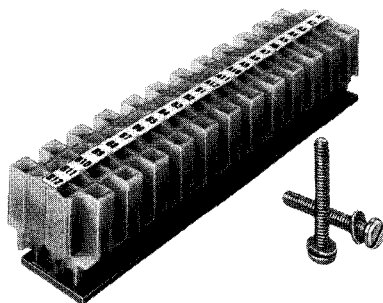
Select handle reset undervoltage release mechanism catalog number for the voltage within the indicated voltage range. Undervoltage release mechanism coils are designed to be applied at specific ac or dc voltages within the voltage range shown. Electrical ratings are shown on applicable circuit breaker accessory nameplates.

Undervoltage Release Mechanism

| Voltage Rating (Ac Freq = 50/60 Hz) | Factory Mounted | Field Mounted |
|--|------------------------------|------------------------------|
| | Connection Type and Location | |
| | 18-inch Pigtail Leads | Pigtail Leads |
| | CATALOG NUMBERS ^② | CATALOG NUMBERS ^② |
| 12 Vac | UVH6RA02 | UVH6RP02K |
| 24 Vac | UVH6RA03 | UVH6RP03K |
| 48-60 Vac | UVH6RA05 | UVH6RP05K |
| 110-127 Vac | UVH6RA08 | UVH6RP08K |
| 208-240 Vac | UVH6RA11 | UVH6RP11K |
| 380-500 Vac | UVH6RA29 | UVH6RP29K |
| 12 Vdc | UVH6RA20 | UVH6RP20K |
| 24 Vdc | UVH6RA21 | UVH6RP21K |
| 48-60 Vdc | UVH6RA23 | UVH6RP23K |
| 110-125 Vdc | UVH6RA26 | UVH6RP26K |
| 220-250 Vdc | UVH6RA28 | UVH6RP28K |

ACCESSORY TERMINAL BLOCK

(For Fixed Mounted Configuration)



Internal accessory wiring leads are normally supplied with pigtail leads (No. 18 AWG) that exit from the right-side of the circuit breaker. Where specified, fixed mounted accessory terminal blocks are available. A maximum of one 24-point terminal block can be installed on the right-side of the circuit breaker for the internal accessories.

Number of Control Wires For Each Internally Mounted Accessories

| Type of Accessory | Number of Contacts Per Single Accessory | Required Number of Wires |
|-----------------------------------|---|--------------------------|
| Auxiliary Switch | 2a/2b | 6 |
| | 4a/4b | 12 |
| Alarm (Signal)/ Lockout Switch | 1m/1b | 6 |
| | 2m/2b | 12 |
| Shunt Trip | N/A | 2 |
| Low Energy Shunt | N/A | 2 |
| Undervoltage Release Mechanism | N/A | 2 |

Ordering Information^③

| CATALOG NUMBERS | |
|-----------------|--------------------|
| TBRD | Factory Installed |
| TBRDK | Field Mounting Kit |

For convenience in determining the appropriate number of terminal block points required, refer to table at right.

- ① Listed with Underwriters Laboratories, Inc. for field installation under E64983.
- ② A maximum of two UVR plug-in modules may be installed in a circuit breaker.
- ③ One 24-point accessory terminal block provided with circuit breaker when ordered factory installed or shipped from warehouse as separate item when ordered for field installation. See Digitrip RMS master connection diagram (IL 29C714).

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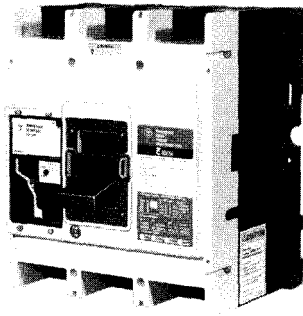
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Series C® R-Frame External Accessories

PADLOCKABLE HANDLE LOCK HASP



The padlockable handle lock hasp is used to externally lock the circuit breaker handle. Safety is ensured since the trip-free circuit breaker mechanism is capable of tripping when the handle is locked in the on position. The lock hasp is Underwriters Laboratories listed under File E7819.

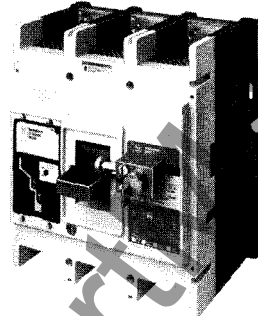
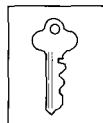
The lock hasp consists of a mounting plate and a lock plate. The two plates are connected by a hinge. When the lock plate is positioned to block the circuit breaker handle it may be secured by placing one or more padlock shackles through the hasp on the mounting plate. The lock hasp is designed to accept a maximum of three padlock shackles, each with a maximum diameter of 5/16 inch.

Factory mounted only.

Ordering Information

| CATALOG NUMBERS | |
|-----------------|---------|
| Lock On/Off | HLK6 |
| Lock Off Only | HLK6OFF |

KEY INTERLOCK KIT (Lock Not Included)



The key interlock is used to externally lock the circuit breaker handle in the OFF position. When the key interlock is locked, an extended deadbolt blocks movement of the circuit breaker handle. Uniquely coded keys are removable only with the deadbolt extended. Each coded key controls a group of circuit breakers for a given specific customer installation.

The key interlock assembly is Underwriters Laboratories, Inc. listed for field installation under UL file E7819 and consists of a mounting kit and a purchaser supplied deadbolt lock. The mounting kit comprises a mounting plate, which is secured to the circuit breaker cover in the right-pole position, key interlock mounting screws, and a wire seal. Specific mounting kits are required for individual key interlock types.

Ordering Information

Key interlock mounting kits are for field installation only. Select mounting kit catalog numbers to match type of lock used. Key interlocks are supplied by customer.

| Lock Manufacturer | Lock Type | Bolt Projection in Withdrawn Position | KIT CAT. NO. |
|-------------------|-----------|---------------------------------------|--------------|
| Superior | B-4003-1 | 1 inch | KYK6 |
| Kirk | F | 1 inch | KYK6 |
| Square D | SF | 1 inch | KYK6 |
| Federal Pioneer | VF | 1 inch | KYK6 |
| Castell | K or QK | 1 inch | CTK6 |



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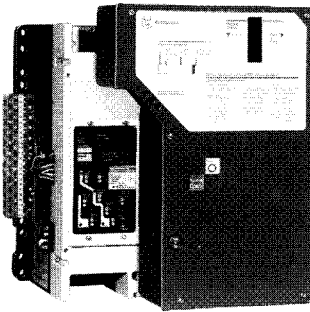
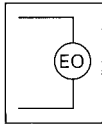




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Series C[®] R-Frame External Accessories

ELECTRICAL (MOTOR) OPERATOR



Available Motor Operator Ratings and Operating Conditions ① ② ③ ④

| Rated Voltage (V) ^⑤ | Frequency | Motor In-Rush Current (A) |
|--------------------------------|-----------|---------------------------|
| 120 | 50/60 Hz | 40 |
| 240 | 50/60 Hz | 27 |
| 48 | Dc | 53 |

Ordering Information

| Operating Voltage | Frequency | Factory Installed | Field Installation Kits |
|-------------------|-----------|-------------------|-------------------------|
| | | Terminal Blocks | |
| CATALOG NUMBERS | | | |
| 120 | 50/60 Hz | EOP6T08 | EOP6T08K |
| 240 | 50/60 Hz | EOP6T11 | EOP6T11K |
| 48 | Dc | EOP6T21 | EOP6T21K |

The motor operator allows the circuit breaker to be opened, closed, or reset remotely. It also has a lock-off capability and provisions for manual operation.

The motor operator contains a reversible motor connected to a ball screw. The ball screw drives the circuit breaker handle. Limit switches and relays are used to control the motor.

Since the motor operator is equipped with control relays, only a momentary control signal is required to close or open the circuit breaker. Once an operation is initiated, the control relays seal in and the motor operator completes its operation. The relays carry the motor current. The control momentary switches only provide the signal.

The motor operator is UL listed as a recognized component suitable for field installation on all type R-frame circuit breakers and molded case switches under UL File E64124.

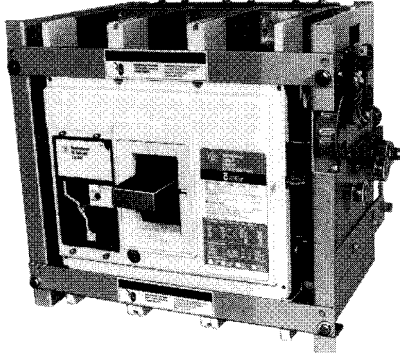
From the point of energization of the closing mechanism at 85% voltage, the closing time is 30 cycles \pm 10%.

- ① Operator is an intermittent duty device. The safe duty cycle (OFF to ON to OFF) should not exceed one per minute.
- ② Electric Operating time at rated voltage;
 - (a) To turn breaker ON - 1/2 second max.
 - (b) To turn breaker OFF - 1/2 second max.
- ③ Motor operating temperature; Class "A" temperature limits apply.
- ④ A minimum 1 kVA power source is recommended for motor operation.
- ⑤ Applied voltage should be no less than 85% or no more than 110% of rated.



Series C R-Frame External Accessories

DRAWOUT CASSETTE



Ordering Information

RD Drawout Cassette
65 KA/480 Vac version

Movable Mechanism

| |
|----------------|
| CATALOG NUMBER |
| RD20DOM |

Stationary Mechanism

| |
|----------------------------|
| CATALOG NUMBERS |
| RD20DOS (without shutters) |
| RD20DOSS (with shutters) |

RD Drawout Cassette
100 KA/480 Vac version

Movable Mechanism

| |
|----------------|
| CATALOG NUMBER |
| RDC20DOM |

Stationary Mechanism

| |
|-----------------------------|
| CATALOG NUMBERS |
| RDC20DOS (without shutters) |
| RDC20DOSS (with shutters) |

The drawout cassette is currently for use with the standard 3-pole 65 KA/480 Vac, 1600A and 2000A RD circuit breakers only. It consists of two separate components: the movable mechanism which is factory mounted to the circuit breaker frame (shown in figure) and the stationary mechanism which is housed in the cassette and shipped separately.

Note: Movable mechanism must be ordered with RD or RDC circuit breaker and is shipped mounted to circuit breaker frame. Stationary mechanism is ordered separately.

All internal accessories must be factory installed for use with drawout.

The drawout mechanism has four positions.

- Connected – The breaker is fully connected to the primary stabs and secondary contacts.
- Test – The breaker is not connected to the primary stab but is connected to the secondary contacts.
- Disconnected – Both the primary stabs and the secondary contacts are disconnected.
- Withdraw – The breaker can be removed from the cassette.

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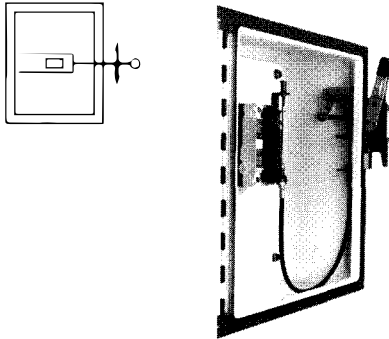
Selection Data
29-120R

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 dated August 1991
 Mailed to: E, D, C/29-100A, 31-400A,
 31-500A

Series C[®] R-Frame External Accessories

FLEX SHAFT™ HANDLE MECHANISM



The Flex Shaft type handle mechanism is an extra heavy duty handle mechanism designed for mounting in flange-type enclosures. An operating handle, flexible shaft, and mechanism are required for standard application.

The handle can be locked in the RESET position with up to three padlocks. The handle is suitable for NEMA 1, 3R, and 12 fabricated enclosures. It is supplied for mounting in right hand flange enclosures but can be easily converted for left hand mounting. The handle fits the industry standard cutout.

Three lengths of shafts are available for use with the wide range of depths of various enclosures (4 ft. through 6 ft.). These choices enable this mechanism to be mounted in various depth, width, and height enclosures. Note: when selecting the length of shaft, ensure minimum bending radius of 5 inches is maintained to operate properly.

The standard method of shipment includes the mechanism preset at the factory; however, minor field adjustments may be required.

Ordering Information

Catalog Number includes complete assembly consisting of handle, flexible shaft, operating mechanism, and door interlock hardware to fit industry standard flange cutout.

| Circuit Breaker | Length of Flex Shaft (in feet) | CATALOG NUMBERS |
|-----------------|--------------------------------|-----------------|
| R-Frame | 4 | F6S04 |
| | 5 | F6S05 |
| | 6 | F6S06 |

Note: NEMA 4/4X handle mechanisms are available. Add suffix X to complete catalog number.

Accessories

Standard Door Hardware (Required Adapter Kit Below)

| CATALOG NUMBER | Latch | Panel Height |
|----------------|---------|--------------|
| DH1R | 2 point | Up to 30 in. |
| DH2R | 2 point | Up to 40 in. |
| DH3R | 3 point | Over 40 in. |

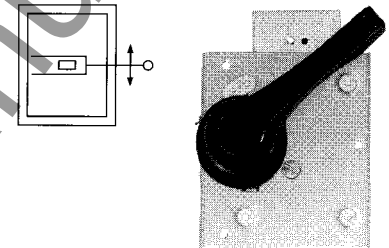
Door Hardware Adapter Kit (Required on Standard Door Hardware)

| CATALOG NUMBER |
|----------------|
| AMTDHA |

Door Hardware for Hoffman A - 25 Enclosure
 Kit consists of special door hardware and door interlock pin. Available for right hand flange mounting only.

| CATALOG NUMBERS | Latch | Panel Height |
|-----------------|---------|--------------|
| HDH-2R | 2 point | Up to 40 in. |
| HDH-3R | 3 point | Over 40 in. |

SLIDE PLATE HANDLE MECHANISM



The slide plate handle mechanism provides a means of externally operating a circuit breaker installed in a shallow depth enclosure. When applied to enclosures that are hinged on the right-hand side, the handle mechanism also functions as an enclosure locking device. The handle mechanism can be used in NEMA 1, and 12 enclosure applications; a special version can be used in NEMA 3, 4 and 5 enclosure applications. The handle mechanism will accept up to three padlock shackles each with a maximum diameter of 5/16 inch (7.94 mm). The handle mechanism is an Underwriters Laboratories, Inc. recognized component for panelboard accessories under UL File E56845.

Ordering Information

| STYLE NUMBERS | |
|----------------------------|------------|
| w/o Provision for Kirk Key | 505C294G03 |
| Provisions for Kirk Key | 505C294G04 |



Series C R-Frame External Accessories

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Series C[®] R-Frame Modifications

SPECIAL CALIBRATIONS^①

Special calibration price additions apply to ampere ratings not listed as standard.

Refer to Cutler-Hammer with specific requirements.

MOISTURE-FUNGUS TREATMENT

All series C circuit breaker cases are molded from glass-polyester which does not support the growth of fungus. Any parts which are susceptible to the growth of fungus will require special treatment.

Order by description.
Refer to price list.

FREEZE-TESTED CIRCUIT BREAKERS

The circuit breakers may be ordered with freeze testing.

Refer to Cutler-Hammer with specific requirements.

MARINE APPLICATIONS

R-frame circuit breakers can be supplied to meet the following marine specifications:
U.S. Coast Guard CFR 46
ABS – American Bureau of Shipping
IEEE 45

These specifications generally require molded case circuit breakers to be supplied with 50°C ambient calibration, special nameplating, and plug-in adaptor kits. When plug-in adaptor kits are used, no terminals need be supplied.

R-frame circuit breakers can also be supplied to meet UL489 Supplement SA (Marine Use) and UL489 Supplement SB (Naval Use).

UL489 Supplement SA applies to vessels over 65 feet in length. Requirements include 40°C ambient calibration, special labeling, and no use of aluminum conductors or terminals.

UL489 Supplement SB requires 50°C ambient calibration, vibration testings, special nameplating and no use of aluminum conductors or terminals.

Order by description.
Refer to Cutler-Hammer for pricing.

^① Not listed with Underwriters Laboratories, Inc.



Series C R-Frame External Modifications

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Selection Data
29-120C

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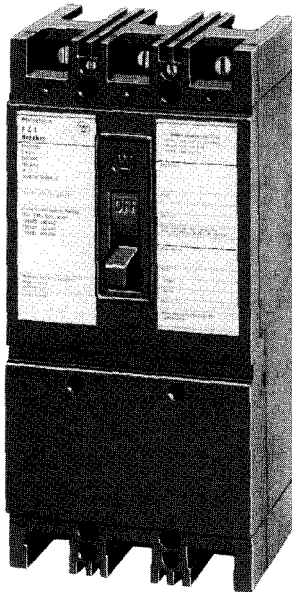
March 1995
Supersedes Technical Data 29-120,
pages 35-36, dated July, 1988
Mailed to: E, D, C/29-100A, 31-400A, 31-500A

Type FCL Current Limit-R Breakers,
100 Amperes

Type LCL Current Limit-R Breakers,
400 Amperes

Westinghouse AB DE-ION® Current Limiting Circuit Breakers 15-1600 Amperes

TYPE FCL CURRENT LIMIT-R THERMAL MAGNETIC, HIGH INTERRUPTING CAPACITY CURRENT LIMITING CIRCUIT BREAKERS



15 to 100 Amperes, 480 Volts Ac Non-Interchangeable Trip, Line and Load Terminals Included

| Maximum Continuous Ampere Rating @ 40°C | 2-Pole ^① | 3-Pole |
|---|---------------------|----------|
| | CATALOG NUMBERS | |
| 15 | FCL2015L | FCL3015L |
| 20 | FCL2020L | FCL3020L |
| 25 | FCL2025L | FCL3025L |
| 30 | FCL2030L | FCL3030L |
| 35 | FCL2035L | FCL3035L |
| 40 | FCL2040L | FCL3040L |
| 45 | FCL2045L | FCL3045L |
| 50 | FCL2050L | FCL3050L |
| 60 | FCL2060L | FCL3060L |
| 70 | FCL2070L | FCL3070L |
| 80 | FCL2080L | FCL3080L |
| 90 | FCL2090L | FCL3090L |
| 100 | FCL2100L | FCL3100L |

SPECIAL CALIBRATION^②

Special non-UL-listed calibrations are available for certain ambient temperatures other than 40°C and for frequencies other than 50/60 Hz or Dc. Reduced interrupting ratings will apply for 400 Hz applications.

See Application Data 29-160 for information regarding special conditions.

50°C Calibration^②

Add suffix "V" to catalog number for complete breaker, listed above, when ordering listed ampere ratings for breakers to be used in 50°C ambients.

SPECIAL BREAKERS

Magnetic only and ambient compensating breakers not available.

Approximate Shipping Weight, Lbs. (kg)

| | |
|--------|-----------|
| 2-Pole | 9 (4.082) |
| 3-Pole | 9 (4.082) |

Listed with Underwriters Laboratories, Inc. except as noted.

Type FCL breakers are not defined in Federal Specification W-C-375-b.

INTERRUPTING CAPACITY RATINGS

| Volts Ac (50/60 Hz) | Interrupting Capacity (Symmetrical Amperes) |
|---------------------|---|
| 240 | 200,000 |
| 480 | 150,000 |

On all 3-phase Delta, Ground B phase applications, refer to Cutler-Hammer.

LINE AND LOAD TERMINALS

Breakers listed include line and load terminals. Terminals are Underwriters Laboratories, Inc. listed for wire sizes and types listed below. When used with aluminum cable, use joint compound. To order optional aluminum terminals, add suffix "Z" to breaker catalog number listed.

| Maximum Breaker Amps | Wire Type | AWG Wire Range |
|--|-----------|----------------|
| Standard Pressure Terminals | | |
| 100 | Al/Cu | #14-1/0 |
| Optional Al/Cu Pressure Terminals | | |
| 50 | Al/Cu | #14-#4 |
| 100 | Al/Cu | #4-4/0 |

^① 2-pole breakers are supplied in 3-pole frames with current carrying parts omitted from the center pole.

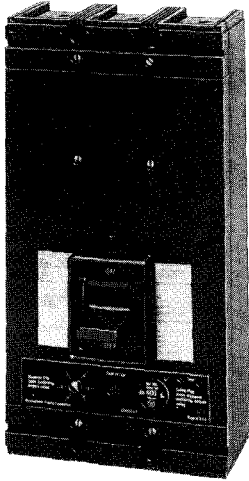
^② Not listed with Underwriters Laboratories, Inc.



Westinghouse AB DE-ION® Current Limiting Circuit Breakers, 15-1600 Amperes

TYPE LCL CURRENT LIMIT-R, HIGH INTERRUPTING CAPACITY CURRENT LIMITING CIRCUIT BREAKERS

125 to 400 Amperes, 600 Volts Ac with solid state trip units



Approximate Shipping Weight, Lbs. (kg)

| Standard | |
|-------------------|-------------|
| 2-Pole | 32 (14.515) |
| 3-Pole | 32 (14.515) |
| With Ground Fault | |
| 3-Pole | 36 (16.329) |

Listed with Underwriters Laboratories, Inc. except as noted.

Type LCL breakers are not defined in Federal Specification W-C-375-b.

INTERRUPTING CAPACITY RATINGS

| Volts Ac (50/60 Hz) | Interrupting Capacity (Symmetrical Amperes) |
|---------------------|---|
| 240 | 200,000 |
| 480 | 200,000 |
| 600 | 100,000 |

On all 3-phase Delta, Grounded B phase applications, refer to Cutler-Hammer.

- ① 2-pole breakers are supplied in 3-pole frames with current carrying parts omitted from the center pole.
- ② UL Inc. recognized component.
- ③ Terminals shipped separately from breaker.
- ④ Adjustable 75 to 100%.
- ⑤ Adjustable 50 to 100%.
- ⑥ Adjustable 70 to 100% except as noted.

Standard Breakers 600 Volts Ac, 50/60 Hz
Complete breaker requires frame, rating plug and terminals

| Frame Only | | | |
|---|--|-------------------------------------|---|
| Poles① | Standard (Long Delay Magnetic Trip and Current Limiting) | Magnetic Only② and Current Limiting | Long Delay, Magnetic Trip and Adjustable Short Delay Time (.08-.28 seconds), and Current Limiting |
| CATALOG NUMBERS | | | |
| Types LCL and LCLA 250 Ampere Frame (125-250 Amperes) | | | |
| 2 | LCL2250F | LCL2250FM | LCLA2250F |
| 3 | LCL3250F | LCL3250FM | LCLA3250F |
| Type LCL and LCLA 400 Ampere Frame (200-400 Amperes) | | | |
| 2 | LCL2400F | LCL2400FM | LCLA2400F |
| 3 | LCL3400F | LCL3400FM | LCLA3400F |

Breakers With Built-in Ground Fault Protection
Complete breaker requires frame, rating plug and terminals – extra current transformer included for neutral.

| Frame Only | | |
|---|---|---|
| Poles① | Standard (Long Delay, Magnetic Trip, Current Limiting, and Ground Fault Trip) | Long Delay, Magnetic Trip and Adjustable Short Delay Time (.06-.22 seconds), and Ground Fault Trip and Current Limiting |
| CATALOG NUMBERS | | |
| Types LCLG and LCLGA 250 Ampere Frame (125-250 Amperes) | | |
| 3 | LCLG3250F | LCLGA3250F |
| Types LCLG and LCLGA 400 Ampere Frame (200-400 Amperes) | | |
| 3 | LCLG3400F | LCLGA3400F |

TERMINALS③ (ORDER SEPARATELY)

Two terminals are required per pole. Terminals are Underwriters Laboratories, Inc. listed for wire type and range listed below. When used with aluminum cable, use joint compound.

| Maximum Breaker Amps | TERMINAL CATALOG NUMBERS | Wire Range, Type, No. of Cables |
|---|--------------------------|--|
| Standard Copper Pressure Terminals | | |
| 225 | T225LA | 1#6-350 MCM Cu |
| 400 | T401LA | 1#4-250 MCM Cu, plus 1 3/0-600 MCM Cu |
| Optional Al/Cu Pressure Terminals | | |
| 225 | TA225LA1 | 1#6-350 MCM Cu, or 1#4-350 MCM Al |
| 400 | TA400LA1 | 1#4-250 MCM Al/Cu, plus 1 3/0-600 MCM Al/Cu |

RATING PLUG SELECTION DATA

Rating plugs listed below are for both standard breakers and breakers with built-in ground fault protection.

Rating Plugs Only (For 2 or 3 Pole Frames)

| Continu-ous Breaker Rating | Magnetic Trip Setting, Amperes | | Fixed Rating Plugs | Adjustable Rating Plugs ⑥ |
|---|--------------------------------|------|--------------------|---------------------------|
| | Low | High | | |
| CATALOG NUMBERS | | | | |
| Types LCL and LCLA 250 Ampere Frames | | | | |
| 125 | 375 | 1125 | 2LCL125 | ..... |
| 150 | 450 | 1350 | 2LCL150 | ..... |
| 175 | 525 | 1575 | 2LCL175 | A2LCL175④ |
| 200 | 600 | 1800 | 2LCL200 | A2LCL200 |
| 225 | 675 | 2025 | 2LCL225 | A2LCL225 |
| 250 | 750 | 2250 | 2LCL250 | A2LCL250⑤ |
| Types LCL and LCLA 400 Ampere Frames | | | | |
| 200 | 400 | 1600 | 4LCL200 | ..... |
| 225 | 450 | 1800 | 4LCL225 | ..... |
| 250 | 500 | 2000 | 4LCL250 | ..... |
| 275 | 550 | 2200 | 4LCL275 | ..... |
| 300 | 600 | 2400 | 4LCL300 | A4LCL300④ |
| 350 | 700 | 2800 | 4LCL350 | A4LCL350 |
| 400 | 800 | 3200 | 4LCL400 | A4LCL400⑤ |

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March 1995
New Information
Mailed to: E, D, C/29-100A, 31-400A, 31-500A

Type FCL Current Limit-R Breakers,
100 Amperes

Type LCL Current Limit-R Breakers,
400 Amperes

Westinghouse AB DE-ION® Current Limiting Circuit Breakers 15-1600 Amperes

ACCESSORIES FOR CURRENT LIMIT-R CIRCUIT BREAKERS

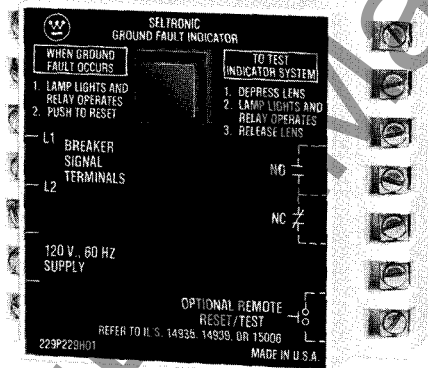
FIELD ATTACHMENTS^①

| Description | STYLE NUMBERS |
|--|---------------|
| Provision to trip flux transfer shunt trip from external 32 to 120 volt (Dc to 60 Hz) source ^② | 1372D49G22 |
| Provision to trip flux transfer shunt trip from external 240 to 600 Volts Ac 50/60 Hz source ^③ | 1372D49G32 |
| Provision to trip flux transfer shunt trip from external 32 to 120 volt (Dc to 60 Hz) source, plus a 1A-1B auxiliary switch ^② | 1372D49G15 |
| Provision to trip flux transfer shunt trip from external 240 to 600 volts Ac 50/60 Hz source, plus a 1A-1B auxiliary switch ^③ | 1372D49G25 |
| 1A-1B Auxiliary Switch | 1372D49G03 |
| Provision to trip flux transfer shunt trip from 24 Volts Dc | 1371D96G01 |

Field Testing

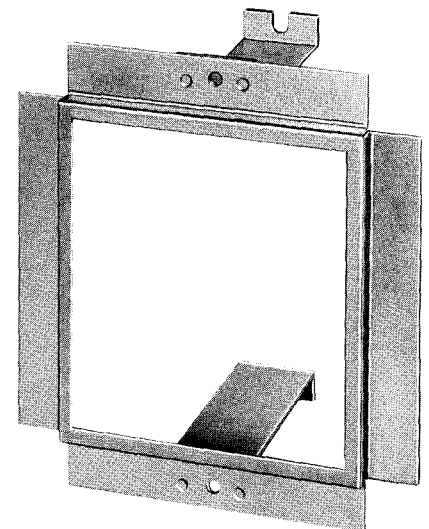
Type LCL breakers can be functionally tested by use of the electronic test kit STK2.

REMOTE GROUND FAULT TRIP INDICATOR^④



Face Mounting Bracket for Ground Fault Indicator

STYLE NUMBER
1264C67G01



The Seltronic Ground Fault indicator is a remotely mounted device with a combination indicating light/reset/test button that will light when the breaker trips on a Ground Fault. Tripping from overloads or short circuits will not activate the device. A separate 120-50/60 power source is required to power the light and internal relay which has 1 N.O. and 1 N.C. contacts for customer connected alarm etc. Designed for panel mounting, it can be face-mounted by ordering the optional mounting bracket below.

CATALOG NUMBER
GFAU

^① Only one of these attachments may be mounted per breaker.

^② Rated 48 volts minimum for ground fault applications.

^③ Not for ground fault applications.

^④ UL Inc. listed as a recognized component.



Westinghouse AB DE-ION[®] Current Limiting Circuit Breakers, 15-1600 Amperes
TYPE LCL CURRENT LIMIT-R, HIGH INTERRUPTING CAPACITY CURRENT LIMITING CIRCUIT BREAKERS

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Selection Data
29-120C

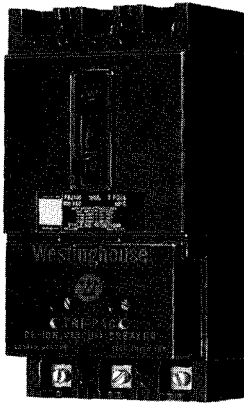
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March 1995
Supersedes Technical Data 29-120,
pages 35-36, dated July, 1988
Mailed to: E, D, C/29-100A, 31-400A, 31-500A

Type FB Tri-Pac Breakers, 100 Amperes
Type LA Tri-Pac Breakers, 400 Amperes

Westinghouse AB DE-ION® Current Limiting Circuit Breakers 15-1600 Amperes

TYPE FB TRI-PAC THERMAL MAGNETIC/CURRENT LIMITING BREAKERS



Approximate Shipping Weight, Lbs. (kg)

| Breaker | Complete Breaker | |
|------------|------------------|--------|
| | 2-Pole | 3-Pole |
| Tri-Pac FB | 10½ | 11½ |

Listed with Underwriters Laboratories, Inc. except as noted.

Tri-Pac FB breakers meet the requirements for Class 16a, 16b, 17a and 26a circuit breakers as defined in Federal Specification W-C-375b.

INTERRUPTING CAPACITY RATINGS

Underwriters Laboratories, Inc. Listed
600 Volts Ac Max.: 200,000 Amperes Sym.

Based on NEMA Test Procedures
250 Volt Dc Max.: 100,000 Amperes.

On all 3-phase Delta, Ground B phase applications, refer to Cutler-Hammer.

15-100 Amperes, 600 Volts Ac, 250 Volts Dc
Replaceable Current Limiters

| Maximum Continuous Ampere Rating @ 40°C | 2-Pole ^① | 3-Pole |
|---|--|----------|
| | CATALOG NUMBERS (Current Limiters Included) | |
| 15 | FB2015PL | FB3015PL |
| 20 | FB2020PL | FB3020PL |
| 30 | FB2030PL | FB3030PL |
| 40 | FB2040PL | FB3040PL |
| 50 | FB2050PL | FB3050PL |
| 60 | FB2060PL | FB3060PL |
| 70 | FB2070PL | FB3070PL |
| 90 | FB2090PL | FB3090PL |
| 100 | FB2100PL | FB3100PL |

SPECIAL CALIBRATION

Special non-UL-listed calibrations are available for certain ambient temperatures other than 40°C and for frequencies other than 50/60 Hz or Dc. Reduced interrupting ratings will apply for 400 Hz applications. Refer to Cutler-Hammer for maximum thermal calibration.

See Application Data 29-160 for information regarding special conditions.

50°C Calibration^②

Add suffix "V" to catalog number for complete breaker, listed above, when ordering listed ampere ratings for breakers to be used in 50°C ambients.

SPECIAL BREAKERS

Magnetic only and ambient compensating breakers not available.

LINE AND LOAD TERMINALS

Breakers listed include line and load terminals. Terminals are Underwriters Laboratories, Inc. listed for wire sizes and types listed below. When used with aluminum cable, use joint compound. To order optional aluminum terminals, add suffix "Z" to breaker catalog number listed.

| Maximum Breaker Amps | Wire Type | AWG Wire Range |
|--|-----------|----------------|
| Standard Pressure Terminals | | |
| 100 | Al/Cu | #14-1/0 |
| Optional Al/Cu Pressure Terminals | | |
| 50 | Al/Cu | #14-#4 |
| 100 | Al/Cu | #4-4/0 |

REPLACEMENT CURRENT LIMITERS AND HOUSING ASSEMBLY

Current Limiters: One required per pole.

| CATALOG NUMBER | Application |
|----------------|--|
| 100FBP06 | Supplied as standard in Type FB Tri-Pac breakers rated 15-100 amperes. Replaces 200 FBP03 formerly supplied on 15-40 ampere ratings, and 500FBP07 formerly supplied on 50-100 ampere ratings. |

Refer to Application Data 29-160 for complete application information.

Current Limiter Housing Assembly Complete with Current Limiters

| Ampere Rating | Poles | STYLE NUMBERS |
|---------------|-------|---------------|
| 15-100 | 2 | 176C593G09 |
| 15-100 | 3 | 176C593G10 |

^① 2-pole breakers are supplied in 3-pole frames with current carrying parts omitted from the center pole.

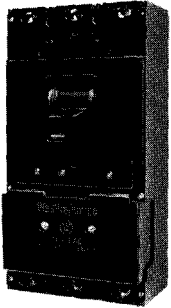
^② Not listed with Underwriters Laboratories, Inc.



Westinghouse AB DE-ION® Current Limiting Circuit Breakers, 15-1600 Amperes

TYPE LA TRI-PAC THERMAL MAGNETIC BREAKERS

70-400 Amperes, 600 Volts Ac, 250 Volts Dc, 2, 3 Poles, Interchangeable Trip, Replaceable Current Limiters



Approximate Shipping Weight, Lbs. (kg)

| Breaker | Complete Breaker | | Frame Only | | Trip Unit | |
|------------|------------------|--------|------------|--------|-----------|--------|
| | 2-Pole | 3-Pole | 2-Pole | 3-Pole | 2-Pole | 3-Pole |
| Tri-Pac LA | 29¾ | 34 | 23½ | 25 | 2¼ | 3 |

Listed with Underwriters Laboratories, Inc. except as noted.

Tri-Pac LA breakers meet the requirements for Class 16a, 16b, 17a and 26a circuit breakers as defined in Federal Specification W-C-375b.

INTERRUPTING CAPACITY RATINGS

Underwriters Laboratories, Inc. Listed
600 Volts Ac, Max.: 200,000 Amperes Sym.

Based on NEMA Test Procedures
250 Volts Dc Max.: 100,000 Amperes.

On all 3-phase Delta, Grounded B phase applications, refer to Cutler-Hammer.

CURRENT LIMITERS^①

Included with breaker, one required per pole.

| CATALOG NUMBERS | Application |
|------------------------|--|
| 200LAP08 | Supplied as standard on ratings through 200 amps. |
| 400LAP10 | Supplied as standard on 225 thru 400 amp ratings, optional on lower ratings when a higher "cross-over point" is desired. (Above two limiters replace 800LAP12 formerly supplied as standard on all ratings, 600LAP09 optional on all ratings thru 300 amps, 300LAP05 optional on ratings thru 150 amp, and special rating limiter 1000LAP14.) |
| 500LAP15 ^{②③} | Special rating where a higher "cross-over point" is desired on 200 amp and higher ratings (Replaces limiter 1500LAP20) |

Refer to Application Data 29-160 for more complete application information.

| Contin-uous Ampere Rating @40°C | Magnetic Trip Setting Amperes ^④ | | Complete Breaker | Shipped as Frame, Trip Units, Limiters and Terminals ^⑤ | | |
|--|--|------|--|---|----------------|-------------------------------------|
| | Low | High | Includes Pressure Type Copper Terminals ^⑤ | Frame Only | Trip Unit Only | Current Limiter 1 Required per Pole |
| CATALOG NUMBERS | | | | | | |
| 2 Poles, 600 Volts Ac, 250 Volts Dc | | | | | | |
| 70 | 350 | 700 | LA2070PR | LA2400PRF | LA2070PT | 200LAP08 |
| 90 | 450 | 900 | LA2090PR | LA2400PRF | LA2090PT | 200LAP08 |
| 100 | 500 | 1000 | LA2100PR | LA2400PRF | LA2100PT | 200LAP08 |
| 125 | 625 | 1250 | LA2125PR | LA2400PRF | LA2125PT | 200LAP08 |
| 150 | 750 | 1500 | LA2150PR | LA2400PRF | LA2150PT | 200LAP08 |
| 175 | 875 | 1750 | LA2175PR | LA2400PRF | LA2175PT | 200LAP08 |
| 200 | 1000 | 2000 | LA2200PR | LA2400PRF | LA2200PT | 200LAP08 |
| 225 | 1125 | 2250 | LA2225PR | LA2400PRF | LA2225PT | 400LAP10 |
| 250 | 1250 | 2500 | LA2250PR | LA2400PRF | LA2250PT | 400LAP10 |
| 300 | 1500 | 3000 | LA2300PR | LA2400PRF | LA2300PT | 400LAP10 |
| 350 | 1750 | 3500 | LA2350PR | LA2400PRF | LA2350PT | 400LAP10 |
| 400 | 2000 | 4000 | LA2400PR | LA2400PRF | LA2400PT | 400LAP10 |
| 3 Poles, 600 Volts Ac, 250 Volts Dc | | | | | | |
| 70 | 350 | 700 | LA3070PR | LA3400PRF | LA3070PT | 200LAP08 |
| 90 | 450 | 900 | LA3090PR | LA3400PRF | LA3090PT | 200LAP08 |
| 100 | 500 | 1000 | LA3100PR | LA3400PRF | LA3100PT | 200LAP08 |
| 125 | 625 | 1250 | LA3125PR | LA3400PRF | LA3125PT | 200LAP08 |
| 150 | 750 | 1500 | LA3150PR | LA3400PRF | LA3150PT | 200LAP08 |
| 175 | 875 | 1750 | LA3175PR | LA3400PRF | LA3175PT | 200LAP08 |
| 200 | 1000 | 2000 | LA3200PR | LA3400PRF | LA3200PT | 200LAP08 |
| 225 | 1125 | 2250 | LA3225PR | LA3400PRF | LA3225PT | 400LAP10 |
| 250 | 1250 | 2500 | LA3250PR | LA3400PRF | LA3250PT | 400LAP10 |
| 300 | 1500 | 3000 | LA3300PR | LA3400PRF | LA3300PT | 400LAP10 |
| 350 | 1750 | 3500 | LA3350PR | LA3400PRF | LA3350PT | 400LAP10 |
| 400 | 2000 | 4000 | LA3400PR | LA3400PRF | LA3400PT | 400LAP10 |

TERMINALS^⑤

Two terminals are required per pole. Terminals are Underwriters Laboratories, Inc. listed for wire size and type listed below. When used with aluminum conductors, use joint compound. To order optional aluminum terminals, add suffix "Z" to complete breaker catalog number.

| Maxi-mum Breaker Amps | TERMINAL CATALOG NUMBERS | Wire Range, Type, No. of Cables |
|---|--------------------------|--|
| Standard Copper Pressure Terminals | | |
| 225 | T225LA | 1 #6-350 MCM Cu |
| 225 ^⑦ | T225LBF | 1 #6-250 MCM Cu |
| 400 | T401LA | 1 #4-250 MCM Cu, plus 1 3/0-600 MCM Cu |
| Optional Al/Cu Pressure Terminals | | |
| 225 | TA225LA1 | 1 #6-350 MCM Cu, or 1 #4-350 MCM Cu/Al |
| 400 | TA400LA1 | 1 #4-250 MCM Al/Cu, plus 1 3/0-600 MCM Al/Cu |

- ① New limiters suitable for replacement in existing breakers by using plug-in conductor from old limiter (instructions included with limiter).
- ② Not listed with Underwriters Laboratories, Inc.
- ③ Protection based on 100,000 amp max. fault, 480 volts max.
- ④ Set on high side, adjustable to lower limits.
- ⑤ Terminals shipped separately from breakers.
- ⑥ 2-pole breakers or trips are supplied in 3-pole frames with current carrying parts omitted from the center pole.
- ⑦ Optional terminal.

SPECIAL CALIBRATION^②

Special non-UL-listed calibrations are available for certain ambient temperatures other than 40°C and for frequencies other than 50/60 Hz or Dc. Reduced interrupting ratings will apply for 400 Hz applications. Refer to Cutler-Hammer for maximum thermal calibration.

See Application Data 29-160 for information regarding special conditions.

50°C Calibration^②

Add suffix "V" to catalog number for complete breaker, listed above, when ordering listed ampere ratings for breakers to be used in 50°C ambients.

SPECIAL BREAKERS

Magnetic only Tri-Pac breakers are available on request. Refer to Application Data 29-160 for available trip ranges.

Ambient Compensating Breakers not available.

Saf-T-Vue breakers not available.



Cutler-Hammer
Westinghouse &
Cutler-Hammer Products
Five Parkway Center
Pittsburgh, Pennsylvania, U.S.A. 15220

Selection Data
29-120C

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March 1995
Supersedes Technical Data 29-120,
pages 37-38, dated May 1990
Mailed to: E, D, C/29-100A, 31-400A, 31-500A

Type NB Tri-Pac Breakers, 800 Amperes
Type PB Tri-Pac Breakers, 1600 Amperes

Westinghouse AB DE-ION® Current Limiting Circuit Breakers 15-1600 Amperes

TYPE NB TRI-PAC THERMAL MAGNETIC BREAKERS

300-800 Amperes, 600 Volts Ac, 250 Volts Dc^①, 2, 3 Poles, Interchangeable Trip, Replaceable Current Limiters



Approximate Shipping Weight, Lbs. (kg)

| Breaker | Complete Breaker | | Frame Only | | Trip Unit | |
|------------|------------------|--------|------------|--------|-----------|--------|
| | 2-Pole | 3-Pole | 2-Pole | 3-Pole | 2-Pole | 3-Pole |
| Tri-Pac NB | 62 | 75 | 58 | 65 | 3½ | 4 |

Listed with Underwriters Laboratories, Inc. except as noted.

Tri-Pac NB breakers meet the requirements for Class 16b, 17a and 26a circuit breakers as defined in Federal Specification W-C-375b.

INTERRUPTING CAPACITY RATINGS

Underwriters Laboratories, Inc. Listed
600 Volts Ac, Max.: 200,000 Amperes Sym.

Based on NEMA Test Procedures
250 Volts Dc Max. ●: 100,000 Amperes.

On all 3-phase Delta, Grounded B phase applications, refer to Cutler-Hammer.

CURRENT LIMITERS

Included with breaker, one required per pole.

| CATALOG NUMBERS | Application |
|-----------------|--|
| 500NBP12 | Supplied as standard on ratings thru 500 amps. |
| 800NBP20 | Supplied as standard on 600-800 amp ratings, or optional on lower ratings when a higher "cross-over point" is desired. |
| | Above two limiters replace 1000NBP14 formerly supplied on ratings up to 600 amps, 1500NBP20 supplied on 700 amp, and 2500NBP25 supplied on 800 amps. |

Refer to Application Data 29-160 for more complete application information.

| Contin-uous Ampere Rating @ 40°C | Magnetic Trip Setting, Amperes | | Complete Breaker | Shipped as Frame, Trip Unit, Limiters and Terminals | | |
|--|--------------------------------|------|--|---|----------------|-------------------------------------|
| | Low | High | Includes Pressure Type Copper Terminals ^② | Frame Only | Trip Unit Only | Current Limiter 1 Required Per Pole |
| CATALOG NUMBERS | | | | | | |
| 2-Poles, 600 Volts Ac, 250 Volts Dc^① | | | | | | |
| 300 | 1500 | 3000 | NB2300P | NB2800PF | NB2300PT | 500NBP12 |
| 350 | 1750 | 3500 | NB2350P | NB2800PF | NB2350PT | 500NBP12 |
| 400 ^④ | 2000 | 4000 | NB2400P | NB2800PF | NB2400PT | 500NBP12 |
| 500 ^④ | 2500 | 5000 | NB2500P | NB2800PF | NB2500PT | 500NBP12 |
| 600 ^④ | 3000 | 6000 | NB2600P | NB2800PF | NB2600PT | 800NBP20 |
| 700 ^④ | 3000 | 6000 | NB2700P | NB2800PF | NB2700PT | 800NBP20 |
| 800 ^④ | 3000 | 6000 | NB2800P | NB2800PF | NB2800PT | 800NBP20 |
| 3-Poles, 600 Volts Ac Only | | | | | | |
| 300 | 1500 | 3000 | NB3300P | NB3800PF | NB3300PT | 500NBP12 |
| 350 | 1750 | 3500 | NB3350P | NB3800PF | NB3350PT | 500NBP12 |
| 400 ^④ | 2000 | 4000 | NB3400P | NB3800PF | NB3400PT | 500NBP12 |
| 500 ^④ | 2500 | 5000 | NB3500P | NB3800PF | NB3500PT | 500NBP12 |
| 600 ^④ | 3000 | 6000 | NB3600P | NB3800PF | NB3600PT | 800NBP20 |
| 700 ^④ | 3000 | 6000 | NB3700P | NB3800PF | NB3700PT | 800NBP20 |
| 800 ^④ | 3000 | 6000 | NB3800P | NB3800PF | NB3800PT | 800NBP20 |

TERMINALS^②

Two terminals are required per pole. Terminals are Underwriters Laboratories, Inc. listed for wire size and type listed below. When used with aluminum conductors, use joint compound. To order optional aluminum terminals, add suffix "Z" to complete breaker catalog number.

| Maximum Ampere Rating | TERMINAL CATALOG NUMBERS | Wire Range, Type, No. of Cables |
|---|--------------------------|---------------------------------|
| Standard Copper Pressure Terminals | | |
| 350 | T350NB | 1 #1-600 MCM Cu |
| 700 | T700NB1 | 2 2/0-500 MCM Cu |
| 800 | T1000NB1 | 3 3/0-500 MCM Cu |
| Optional Al/Cu Pressure Terminals | | |
| 700 | TA700NB1 | 2 #1-500 MCM Al/Cu |
| 800 | TA1000NB1 | 3 3/0-400 MCM Al/Cu |
| 800 | TA1201NB1 | 3 500-750 MCM Al/Cu |

- ① Dc rating applies to 350 amperes maximum thermal or to magnetic only breakers.
- ② Shipped separately from breaker.
- ③ 2-pole breakers or trips are supplied in 3-pole frames with current carrying parts omitted from the center pole.
- ④ 60 Hertz Ac only.
- ⑤ Not listed with Underwriters Laboratories, Inc.

SPECIAL CALIBRATION^⑤

Special non-UL-listed calibrations are available for certain ambient temperatures other than 40°C and for frequencies other than 50/60 Hz or Dc. Reduced interrupting ratings will apply for 400 Hz applications. Refer to Cutler-Hammer for maximum thermal calibration.

See Application Data 29-160 for information regarding special conditions.

50°C Calibration^⑤

Add suffix "V" to catalog number for complete breaker, listed above, when ordering listed ampere ratings for breakers to be used in 50°C ambients.

SPECIAL BREAKERS

Magnetic only Tri-Pac breakers are available on request. Refer to Application Data 29-160 for available trip ranges.

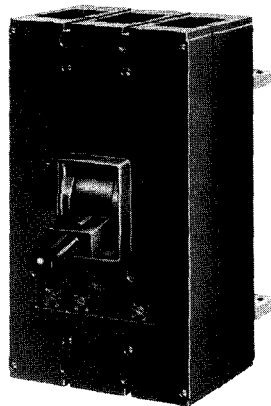
Ambient Compensating Breakers not available.

Saf-T-Vue breakers not available.



Westinghouse AB DE-ION[®] Current Limiting Circuit Breakers, 15-1600 Amperes

TYPE PB TRI-PAC THERMAL MAGNETIC/CURRENT LIMITING BREAKERS



600-1600 Amperes, 600 Volts, 60 Hertz Ac^①, 250 Volts Dc^②, 2, 3 Poles Interchangeable Trip, Replaceable Current Limiters

| Contin- uous Ampere Rating @ 40°C | Ac Magnetic Trip Setting (Set on High Side, Adjust- able to Lower Limits) | | Complete Breaker | Shipped as Frame, Trip Unit Current Limiters and Connectors | | |
|---|--|------|---|--|----------------|---|
| | Low | High | Includes Rear "T" Connectors ^③ | Frame Only | Trip Unit Only | Current Limiter 1 Required Per Pole |
| CATALOG NUMBERS | | | | | | |
| 2-Pole, 600 Volts Ac^④ | | | | | | |
| 600 | 1500 | 5000 | PB2600PR | PB21600PRF | PB2600PRT | 1000PBPR20 |
| 700 | 1500 | 5000 | PB2700PR | PB21600PRF | PB2700PRT | 1000PBPR20 |
| 800 | 1500 | 5000 | PB2800PR | PB21600PRF | PB2800PRT | 1000PBPR20 |
| 900 | 1500 | 5000 | PB2900PR | PB21600PRF | PB2900PRT | 1000PBPR20 |
| 1000 | 1500 | 5000 | PB21000PR | PB21600PRF | PB21000PRT | 1000PBPR20 |
| 1200 | 2000 | 6000 | PB21200PR | PB21600PRF | PB21200PRT | 1600PBPR30 |
| 1400 | 2500 | 7000 | PB21400PR | PB21600PRF | PB21400PRT | 1600PBPR30 |
| 1600 | 3000 | 8000 | PB21600PR | PB21600PRF | PB21600PRT | 1600PBPR30 |
| 3-Pole, 600 Volts Ac | | | | | | |
| 600 | 1500 | 5000 | PB3600PR | PB31600PRF | PB3600PRT | 1000PBPR20 |
| 700 | 1500 | 5000 | PB3700PR | PB31600PRF | PB3700PRT | 1000PBPR20 |
| 800 | 1500 | 5000 | PB3800PR | PB31600PRF | PB3800PRT | 1000PBPR20 |
| 900 | 1500 | 5000 | PB3900PR | PB31600PRF | PB3900PRT | 1000PBPR20 |
| 1000 | 1500 | 5000 | PB31000PR | PB31600PRF | PB31000PRT | 1000PBPR20 |
| 1200 | 2000 | 6000 | PB31200PR | PB31600PRF | PB31200PRT | 1600PBPR30 |
| 1400 | 2500 | 7000 | PB31400PR | PB31600PRF | PB31400PRT | 1600PBPR30 |
| 1600 | 3000 | 8000 | PB31600PR | PB31600PRF | PB31600PRT | 1600PBPR30 |

Approximate Shipping Weight, Lbs. (kg)

| Breaker | Complete Breaker | | Frame Only | | Trip Unit | |
|------------|------------------|--------|------------|--------|-----------|--------|
| | 2-Pole | 3-Pole | 2-Pole | 3-Pole | 2-Pole | 3-Pole |
| Tri-Pac PB | 148 | 179 | 106 | 120 | 18 | 23 |

Listed with Underwriters Laboratories, Inc. except as noted.

Tri-Pac PB breakers meet the requirements for Class 17a and 26a circuit breakers as defined in Federal Specification W-C-375b.

INTERRUPTING CAPACITY RATINGS

Underwriters Laboratories, Inc. Listed
600 Volts Ac, Max.: 200,000 Amperes Sym.

Based on NEMA Test Procedures
250 Volts Dc^②: 100,000 Amperes.

On all 3-phase Delta, Grounded B phase applications, refer to Cutler-Hammer.

CURRENT LIMITERS

Included with breaker, one required per pole.

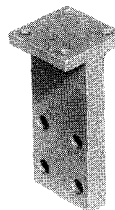
| CATALOG NUMBERS | Application |
|-----------------|--|
| 1000PBPR20 | Supplied as standard on ratings thru 1000 amps. (Replaces limiter 1500PBPR30 formerly supplied on 600 and 700 amp ratings, and 3000PBPR27 supplied on 800-1000 amp ratings.) |
| 1600PBPR30 | Supplied as standard on 1200-1600 amp ratings. Optional on lower ratings where a higher "cross-over point" is desired. (Replaces limiter 4000PBR30 formerly supplied on 1200-1400 amp ratings, and 5000PBPR42 supplied on 1600 amp ratings.) |

Refer to Application Data 29-160 for more complete application information.

BUS BAR CONNECTORS^⑤

"T" Connector for Cu/Al Bus
Two required per pole. For rear bus connection. Accepts up to four bus bolts. May be rotated 90°.

| |
|----------------|
| CATALOG NUMBER |
| BA2000PB |



CABLE CONNECTOR (Optional)

For "T" Connector. Accepts four 600 MCM copper cables.

| |
|--------------|
| STYLE NUMBER |
| 505C706G04 |



SPECIAL CALIBRATION

Special non-UL-listed calibrations are available for certain ambient temperatures other than 40°C and for frequencies other than 50/60 Hz or Dc. Reduced interrupting ratings will apply for 400 Hz applications. Refer to Cutler-Hammer for maximum thermal calibration.

See Application Data 29-160 for information regarding special conditions.

50°C Calibration^⑤

Add suffix "V" to catalog number for complete breaker, listed above, when ordering listed ampere ratings for breakers to be used in 50°C ambients.

SPECIAL BREAKERS^⑤

Magnetic Only Type Tri-Pacs: Available on request. Refer to Application Data 29-160 for average trip ranges.

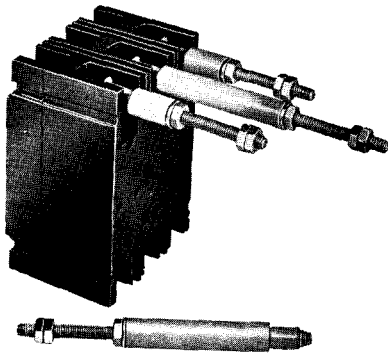
- ① Higher frequency calibration not available. Minimum of 50 Hertz calibration available on special order.
- ② 250 volts Dc rating applies only to magnetic only breakers.
- ③ Shipped separately from breaker.
- ④ 2-pole breakers are supplied in 3-pole frames with current carrying parts omitted from center pole.
- ⑤ Not listed with Underwriters Laboratories, Inc.



March 1995
Supersedes Technical Data 29-120
pages 49-51, dated May 1990
Mailed to: E, D, C/29-100A, 31-400A, 31-500A

Westinghouse AB DE-ION® Current Limiting Circuit Breaker Accessories

REAR CONNECTED STUDS^①



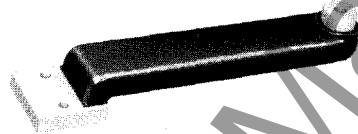
For complete stud assembly, order a stud and appropriate tube based on thickness of customer's mounting panel. A short stud must be assembled adjacent to a long stud to maintain clearances required by Underwriters Laboratories, Inc.^② Two studs are required per pole. Refer to DS 29-170 for stud sizes and extensions behind breaker.

| Mounting Panel Thickness, Inches | Stud | | Tube ^③ | |
|------------------------------------|--------|---------------|-------------------|---------------|
| | Length | STYLE NUMBERS | Length | STYLE NUMBERS |
| FCL and FB Tri-Pac Breakers | | | | |
| 1 | Short | 451D874G01 | 1 1/16 | 32B9446H20 |
| | Long | 451D874G02 | 3 3/16 | 32B9446H24 |
| 1 1/16 - 1 5/16 | Short | 451D874G01 | 1 3/8 | 32B9446H21 |
| | Long | 451D874G02 | 3 3/8 | 32B9446H25 |
| 3/8 - 5/8 | Short | 451D874G01 | 1 11/16 | 32B9446H22 |
| | Long | 451D874G02 | 4 1/16 | 32B9446H26 |
| 1/4 - 9/16 | Short | 451D874G01 | 2 | 32B9446H23 |
| | Long | 451D874G02 | 4 3/8 | 32B9446H27 |

| Stud Ampere Rating | Diameter, Inches and Thread | Extension Back of Breaker, Inches | Stud Style Numbers |
|---------------------------------|-----------------------------|-----------------------------------|--------------------|
| LCL, LA Tri-Pac Breakers | | | |
| 400+ | 3/4 - 16 | 5 15/32 | 05B7383G15 |
| 400+ | 3/4 - 16 | 7 31/32 | 05B7383G16 |
| 400+ | 3/4 - 16 | 10 15/32 | 05B7383G17 |
| NB Tri-Pac Breakers | | | |
| 450 | 1 1/4 - 12 | 5 1/2 | 623B222G01 |
| 450 | 1 1/4 - 12 | 8 | 623B222G02 |
| 450 | 1 1/4 - 12 | 10 1/2 | 623B222G03 |
| 800 | 1 1/4 - 12 | 5 1/2 | 623B375G04 |
| 800 | 1 1/4 - 12 | 10 1/2 | 623B375G03 |

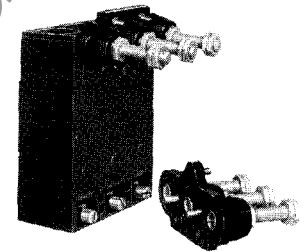
PANELBOARD CONNECTING STRAPS^①

For connecting line end of breakers to panelboard bus.



| Ampere Rating | Connector Type | STYLE NUMBERS |
|---|----------------|---------------|
| Power Panelboards (Convertible) | | |
| Tri-Pac FB and FCL Breakers Bus Spacing 3 1/2" | | |
| 50 | Center | 1253C72G01 |
| 50 | Outside | 1253C72G02 |
| 100 | Center | 1253C73G03 |
| 100 | Outside | 1253C73G04 |
| 150 | Center | 1253C73G01 |
| 150 | Outside | 1253C73G02 |
| 3-Pole Mounting Bracket | | 624B600H01 |
| 2-Pole Mounting Bracket | | 624B600H02 |
| LCL Breakers Bus Spacing 3 1/2" | | |
| 400 | Short | 1275C85G01 |
| 400 | Medium | 1275C85G02 |
| 400 | Long | 1275C85G03 |
| Mtg. Bracket Kit (1 Req'd) | | 751B044G01 |

PLUG-IN ADAPTER KITS



For rear connected applications such as switchboards. Facilitates ease of installation and front removal of breaker. Includes conductor for mounting on breaker, plug-in mounting blocks with matching conductor, rear studs and mounting hardware. Order 2 mounting blocks style number when line and load are required; order one mounting block style number when either line or load is required.

| Description | STYLE NUMBERS |
|--|---------------|
| FB Tri-Pac and FCL Breakers^⑤ | |
| 1 Mounting Block, Line or Load | |
| 2-Pole, 100 Ampere | 507C036G05 |
| 2-Pole, 150 Ampere | 507C036G06 |
| 3-Pole, 100 Ampere | 507C036G03 |
| 3-Pole, 150 Ampere | 507C036G04 |
| LCL Breakers | |
| 2 Mounting Blocks, Line and Load | |
| 2-Pole | 313C644G25 |
| 3-Pole | 313C644G26 |
| 1 Mounting Block, Line and Load | |
| 2-Pole | 450D010G15 |
| 3-Pole | 450D010G16 |
| NB Tri-Pac Breakers^① | |
| 1 Mounting Block, Line or Load | |
| NB Tri-Pac, 2 Poles | 2614D53G03 |
| NB Tri-Pac, 3 Poles | 2614D53G04 |
| Tri-Pac LA Breakers^① | |
| 2 Mounting Blocks, Line and Load | |
| 2-Pole | 313C644G41 |
| 3-Pole | 313C644G42 |
| 1 Mounting Block, Line Only | |
| 2-Pole | 450D010G17 |
| 3-Pole | 450D010G19 |
| 1 Mounting Block, Load Only | |
| 2-Pole | 450D010G18 |
| 3-Pole | 450D010G20 |

① Not Underwriters Laboratories, Inc. listed.
② 400 ampere LA studs of the same length have sufficient clearance; however, customer connections may make it necessary to use a short stud adjacent to a long stud.
③ Included at no charge when ordered with stud.
④ 150, 250, 300 and 400 amp frames only.
⑤ These plug-in adapter kits are UL listed as recognized components.

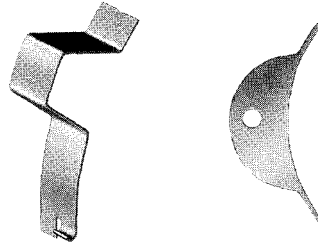


Westinghouse AB DE-ION® Current Limiting Circuit Breaker Accessories

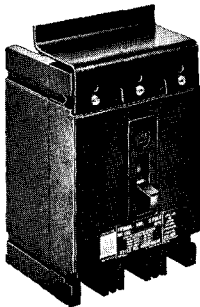
MOUNTING BLOCK FOR NB TRI-PAC BREAKERS^①

| Ampere Rating | No. of Poles | STYLE NUMBERS |
|---------------|--------------|---------------|
| NB Tri-Pac | | |
| 800 | 2 | 4990D16G04 |
| 800 | 3 | 4990D16G03 |

HANDLE LOCKS^①



EXTENDED LINE TERMINAL SHIELDS^①



For shielding line side terminal connections. One shield required per breaker. Order separately when needed. Sold only in lots of 10, including hardware.

| Breaker Frame | STYLE NUMBERS |
|-----------------|---------------|
| FB Tri-Pac, FCL | 625B229G01 |
| LA Tri-Pac | 314C420G05 |
| NB Tri-Pac | 208B996G02 |

Non-Padlockable

For prevention of unintentional operation of breaker. Fits over breaker handle and may be removed.

Padlockable

For prevention of unauthorized operation of breaker. Is non-removable once installed on breaker. Meets Underwriters Laboratories, Inc. and California Code requirements.

Note: All breakers are trip free and will trip with handle locks attached. Cannot be used when handle extension is used.

| Breaker Frame | STYLE NUMBERS |
|------------------------|---------------|
| Non-Padlockable | |
| FB Tri-Pac | 29B2721H01 |
| LA Tri-Pac | 1720101 |
| NB Tri-Pac | 1720101 |
| Padlockable | |
| FB Tri-Pac | 765A754G01 |
| LA Tri-Pac | 373B591G02 |

BASE MOUNTING HARDWARE

No charge when ordered with breaker. Order separately when needed.

| Breaker Frame | STYLE NUMBERS |
|-----------------|---------------|
| FB Tri-Pac, FCL | 21C6782G18 |
| LA Tri-Pac | 1614613 |
| NB Tri-Pac | 1091716 |
| PB Tri-Pac | 624B375G22 |

HANDLE EXTENSION

Included with frame.

| Breaker Frame | STYLE NUMBERS |
|---------------|---------------|
| FB Tri-Pac | 1251C65G01 |
| LA Tri-Pac | 372B399G01 |
| PB Tri-Pac | 315C882G01 |

^① Not Underwriters Laboratories, Inc. listed.

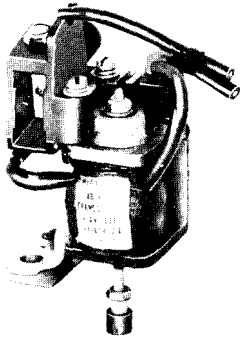
Cutler-Hammer
Westinghouse &
Cutler-Hammer Products
Five Parkway Center
Pittsburgh, Pennsylvania, U.S.A. 15220



March 1995
Supersedes Technical Data 29-120,
pages 52-54, dated May 1990
Mailed to: E, D, C/29-100A, 31-400A, 31-500A

Westinghouse AB DE-ION® Current Limiting Circuit Breaker Accessories

SHUNT TRIP



For tripping breaker from a remote point. A solenoid device mounts within breaker case. Breaker trips when coil is energized.

Shunt trips should not be used as circuit interlocks using maintained contact pilot devices.

A cut-off switch breaks the circuit to the momentary rated coil when breaker opens. Available for control voltages up to 250 volts Dc or 600 volts Ac. Voltage and frequency must be specified. Standard leads extend 18 in. outside of breaker. Longer leads may be specified.

Shunt Trip for Field Mounting^{①②③}

| Voltage/ Hertz | Breaker Type | | | | | |
|-------------------|---------------------|------------|------------|--------------------|------------|------------|
| | Right-Hand Mounting | | | Left-Hand Mounting | | |
| | FCL | NB Tri-Pac | PB Tri-Pac | FCL | NB Tri-Pac | PB Tri-Pac |
| | STYLE NUMBERS | | | | | |
| 600/50-60 Hz | 1369D80G15 | 2606D58G15 | 2606D58G15 | 1369D80G01 | 2606D58G01 | 2606D58G01 |
| 480/50-60 Hz | 1369D80G16 | 2606D58G16 | 2606D58G16 | 1369D80G02 | 2606D58G02 | 2606D58G02 |
| 240/50-60 Hz | 1369D80G17 | 2606D58G17 | 2606D58G17 | 1369D80G03 | 2606D58G03 | 2606D58G03 |
| 208/50-60 Hz | 1369D80G18 | 2606D58G18 | 2606D58G18 | 1369D80G04 | 2606D58G04 | 2606D58G04 |
| 120/50-60 Hz | 1369D80G19 | 2606D58G19 | 2606D58G19 | 1369D80G05 | 2606D58G05 | 2606D58G05 |
| 60/50-60 Hz | 1369D80G20 | 2606D58G20 | 2606D58G20 | 1369D80G06 | 2606D58G06 | 2606D58G06 |
| 48/50-60 Hz | 1369D80G21 | 2606D58G21 | 2606D58G21 | 1369D80G07 | 2606D58G07 | 2606D58G07 |
| 24/50-60 Hz | 1369D80G22 | 2606D58G22 | 2606D58G22 | 1369D80G08 | 2606D58G08 | 2606D58G08 |
| 250 Dc | 1369D80G23 | 2606D58G23 | 2606D58G23 | 1369D80G09 | 2606D58G09 | 2606D58G09 |
| 125 Dc | 1369D80G24 | 2606D58G24 | 2606D58G24 | 1369D80G10 | 2606D58G10 | 2606D58G10 |
| 60 Dc | 1369D80G25 | 2606D58G25 | 2606D58G25 | 1369D80G11 | 2606D58G11 | 2606D58G11 |
| 48 Dc | 1369D80G26 | 2606D58G26 | 2606D58G26 | 1369D80G12 | 2606D58G12 | 2606D58G12 |
| 24 Dc | 1369D80G27 | 2606D58G27 | 2606D58G27 | 1369D80G13 | 2606D58G13 | 2606D58G13 |
| 12 Dc | 1369D80G28 | 2606D58G28 | 2606D58G28 | 1369D80G14 | 2606D58G14 | 2606D58G14 |

Factory mounted shunt trips only can be supplied for FB Tri-Pac^{④⑤} and LA Tri-Pac breakers.

Left-Hand Mounting Kits for Type LCL Current Limiting Breakers^⑥

| Provision to trip flux transfer shunt trip from external 32 to 120 volt (Dc to 60 Hz) source. ^{⑦⑧} | STYLE NUMBERS |
|---|---------------|
| | 1372D49G22 |
| Provision to trip flux transfer shunt trip from external 240 to 600 volt (50/60 Hz) source. ^{⑧⑨} | 1372D49G32 |

Shunt Trip Coil Data for Type LCL Current Limiting Breakers

| Shunt Trip Voltage Rating | Coil Inrush | |
|---------------------------|-------------|--------------|
| | Amperes | Volt-Amperes |
| 120 Ac | .15 | 18 |

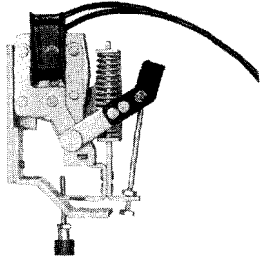
- ① 120 volt Ac ratings suitable for 55% pickup for ground fault applications.
- ② Not field mountable on non-automatic breakers (MCS).
- ③ Field mounting voids breakers' UL listing except on NB Tri-Pac and PB Tri-Pac.
- ④ Right-hand mounting only.
- ⑤ Not UL listed.
- ⑥ UL listing pending. Refer to Cutler-Hammer.
- ⑦ Rated 48 volts minimum for ground fault applications.
- ⑧ Also available factory mounted for 24 volt Dc. Order by description.
- ⑨ Not for ground fault.



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Westinghouse AB DE-ION Current Limiting Circuit Breaker Accessories

STANDARD UNDERVOLTAGE RELEASE^①



For undervoltage protection. A solenoid device mounts within breaker case. Coil must be energized before closing breaker. Trips breaker when voltage drops below 40 to 60% of coil rating. Picks up and seals in at 80% of coil rating. For line voltages up to 250 volts Dc or 600 volts Ac. Externally mounted resistors are supplied for certain ratings. Standard leads extend 18 in. outside of breaker. Longer leads may be specified. **Note:** U.V.R. attachments are not designed for, and should not be used as, circuit interlocks. For further information, refer to Cutler-Hammer.

Factory Mounted Undervoltage Releases^②
NB Tri-Pac and PB Tri-Pac undervoltage releases can be specified for factory mounting at the same price as the kit. These attachments have the leads out the side and are UL listed when factory mounted unless other non-UL listed modifications are used.

Factory mounted undervoltage releases only can be supplied for the following breakers: FB Tri-Pac^③, LA Tri-Pac and FCL; LCL 120 Volts Ac only.^④

Undervoltage Release Attachment Kits for Field Mounting^{⑤⑥}

| Attachment Voltage, Hertz | Breaker Type | | | |
|---------------------------|-------------------------|------------|------------------------|------------|
| | For Right-Hand Mounting | | For Left-Hand Mounting | |
| | NB Tri-Pac | PB Tri-Pac | NB Tri-Pac | PB Tri-Pac |
| 24 60 | ..... | ..... | ..... | ..... |
| 48 60 | ..... | 5674D29G16 | ..... | 5674D29G08 |
| 120 60 | 373D632G01 | 5674D29G09 | 373D632G05 | 5674D29G01 |
| 208 60 | 373D632G19 | 5674D29G10 | 373D632G20 | 5674D29G02 |
| 240 60 | 373D632G02 | 5674D29G11 | 373D632G06 | 5674D29G03 |
| 480 60 | 373D632G03 | 5674D29G13 | 373D632G07 | 5674D29G05 |
| 600 60 | 373D632G04 | 5674D29G14 | 373D632G08 | 5674D29G06 |
| 12 Dc | 372D032G01 | 4976D85G01 | 372D032G06 | 4976D85G11 |
| 24 Dc | 372D032G02 | 4976D85G02 | 372D032G07 | 4976D85G12 |
| 48 Dc | 372D032G03 | 4976D85G03 | 372D032G08 | 4976D85G13 |
| 60 Dc | ..... | 4976D85G04 | ..... | 4976D85G14 |
| 125 Dc | 372D032G04 | 4976D85G07 | 372D032G09 | 4976D85G17 |
| 250 Dc | 372D032G05 | 4976D85G08 | 372D032G10 | 4976D85G18 |

Undervoltage Release Coil Data

| Voltage Rating, Hertz | Breaker Type | | | | |
|-----------------------|--------------|--------------------------|----------|--------------|----------|
| | FB Tri-Pac | | | LCL | |
| | Coil Amperes | Series Resistance (Ohms) | Total VA | Coil Amperes | Total VA |
| 600 Ac | 0.020 | 25,000 | 12.0 | .. | .. |
| 480 Ac | 0.016 | 25,000 | 7.7 | .. | .. |
| 240 Ac | 0.021 | 6,000 | 5.1 | .. | .. |
| 208 Ac | 0.019 | 6,000 | 4.0 | .. | .. |
| 120 Ac | 0.023 | ..... | 2.8 | .05 | 6 |
| 60 Ac | 0.203 | 250 | 12.2 | .. | .. |
| 48 Ac | 0.245 | 150 | 11.8 | .. | .. |
| 24 Ac | 0.250 | 50 | 6.0 | .. | .. |
| 250 Ac | 0.026 | 5,000 | 6.5 | .. | .. |
| 125 Ac | 0.026 | ..... | 3.3 | .. | .. |
| 60 Ac | 0.248 | 200 | 14.9 | .. | .. |
| 48 Ac | 0.260 | 150 | 12.5 | .. | .. |
| 24 Ac | 0.141 | ..... | 3.4 | .. | .. |
| 12 Ac | 0.286 | ..... | 3.5 | .. | .. |

| Voltage Rating, Hertz | Breaker Type | | | | | |
|-----------------------|------------------------|-----------------------------------|----------|--------------|-----------------------------------|----------|
| | LA Tri-Pac, PB Tri-Pac | | | NB Tri-Pac | | |
| | Coil Amperes | External Series Resistance (Ohms) | Total VA | Coil Amperes | External Series Resistance (Ohms) | Total VA |
| 600 Ac | 0.029 | 20,000 | 17.4 | 0.016 | 35,000 | 9.6 |
| 480 Ac | 0.014 | ..... | 6.8 | 0.013 | 30,000 | 6.3 |
| 240 Ac | 0.036 | ..... | 8.7 | 0.013 | ..... | 3.2 |
| 208 Ac | 0.036 | ..... | 7.5 | 0.018 | ..... | 3.8 |
| 120 Ac | 0.073 | ..... | 8.8 | 0.023 | ..... | 2.8 |
| 48 Ac | 0.152 | ..... | 7.3 | ..... | ..... | ..... |
| 250 Dc | 0.035 | 5,000 | 8.8 | 0.013 | 16,500 | 3.3 |
| 125 Dc | 0.039 | 1,500 | 4.9 | 0.013 | 6,500 | 1.7 |
| 60 Dc | 0.034 | ..... | 2.1 | ..... | ..... | ..... |
| 48 Dc | 0.00 | ..... | 2.0 | 0.012 | 600 | 0.6 |
| 24 Dc | 0.069 | ..... | 1.7 | 0.023 | ..... | 0.6 |
| 12 Dc | 0.136 | ..... | 1.7 | 0.048 | ..... | 0.6 |

- ① Not UL listed.
- ② Right-hand mounting considered standard unless specified otherwise.
- ③ Right-hand mounting only.
- ④ UL listing pending.
- ⑤ Not field mountable on nonautomatic breakers (Molded case switches).
- ⑥ Field mounting voids UL listing of breaker except on NB Tri-Pac and PB Tri-Pac.

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March 1995
Supersedes Technical Data 29-120,
pages 55-56, dated May 1990, and page 57,
dated January 1990
Mailed to: E, D, C/29-100A, 31-400A, 31-500A

Westinghouse AB DE-ION® Current Limiting Circuit Breaker Accessories

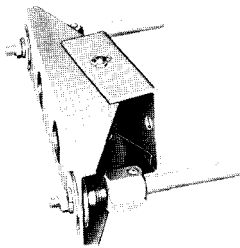
ALARM SWITCH

For light or alarm indication when breaker trips. Does not function with manual operation. Automatically resets when breaker is relatched. Standard leads extend 18 in. outside of breaker. Longer leads may be specified. Not field mountable.

| Breaker Frame | Normal Pole Mtg. | Contact Operation (Specific Type Desired) |
|---------------|-------------------|---|
| FCL | Center | Make or Break |
| LA Tri-Pac | Left | Make or Break |
| NB Tri-Pac | Left | Make or Break |
| PB Tri-Pac | Left | Make or Break |
| LCL | Left ^① | Make or Break |

Alarm Switch Contact Rating (Non Inductive)
LA Tri-Pac:
10 amps, 120 volt Ac; 5A, 240 volt Ac.

MECHANICAL INTERLOCKS^②

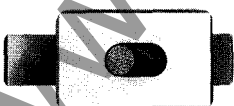


For mechanically interlocking a pair of breakers so that only one may be closed at one time, but both may be open simultaneously.

Walking Beam Type^{②③④}

Mounts on panel (not included) at rear of breaker. Standard breaker spacing:
LA Tri-Pac, NB Tri-Pac: 8½ in. center to center;
FB Tri-Pac: 4¾ in. center to center; PB Tri-Pac:
12¼ in. center to center. Order as a set of two special factory drilled breakers and 1 walking beam interlock. Specify breaker type, panel thickness and center-to-center dimension of breakers.

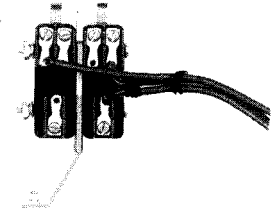
Sliding Bar Type (Field Mountable)^{②⑤}



Mounts on panel (not included) fitting over front of breakers. Standard breaker spacing:
LA Tri-Pac, NB Tri-Pac: 8½ in. ; FB Tri-Pac:
4¾ in. center to center.

AUXILIARY SWITCH^⑥

For auxiliary control circuits. Miniature switches mount within breaker. Commonly used for remote indication of open or closed breaker and electrically interlocking component control circuits. "A" contacts are closed when breaker is closed. "B" contacts are open when breaker is closed. Standard leads extend 18 in. outside of breaker. Longer leads may be specified.



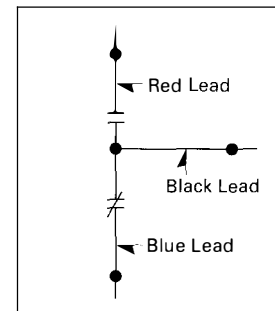
Auxiliary Switch Attachment Kits for Field Mounting^{⑦⑧}

| Breaker Type | For Right Hand Mounting | | For Left Hand Mounting | | Max. Ac Voltage Rating ^⑨ | Max. Non-Inductive Amps |
|--------------|-------------------------|------------|------------------------|------------|-------------------------------------|-------------------------|
| | 1A-1B | 2A-2B | 1A-1B | 2A-2B | | |
| | STYLE NUMBERS | | | | | |
| FCL | 1369D79G03 | ..... | 1369D79G03 | ..... | 240 | 5 |
| NB Tri-Pac | 4980D16G05 | 4980D16G06 | 4980D16G12 | 4980D16G13 | 480 | 10 |
| PB Tri-Pac | 2602D32G14 | 2602D32G15 | 2602D32G11 | 2602D32G12 | 480 | 10 |
| LCL | ..... | ..... | 1372D49G03 | 1372D49G06 | 480 | 6(10@240) |

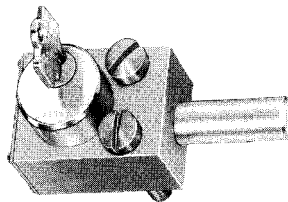
Factory Mounted Auxiliary Switches^⑥

All of the above auxiliary switches can be specified for factory mounting at the same price as listed for the kit. These attachments have the leads out the side of the breaker and are UL listed when factory mounted unless other non UL listed modifications are used (except as noted).

Factory mounted switches only can be supplied for the following breakers:
FB Tri-Pac^⑩, LA Tri-Pac.



KIRK KEY INTERLOCK^⑤



Availability: FB, LA, NB, PB Tri-Pacs.

Permits interlocking of two breakers or one breaker with other devices. Before breaker can be closed, key must be inserted and turned in breaker interlock. Breaker must be opened before key can be removed. It can then be inserted in interlock or other devices to permit their closure. Requests and orders should completely outline interlocking scheme, ultimate user and his address.

MOISTURE-FUNGUS-CORROSION TREATMENT^②

Treatment can be provided to meet customer's specific atmospheric conditions. Moisture-fungus treating material used meets JAN-T-152; treatment meets MIL-V-173a. Requests and orders should specify government specifications or conditions to be met.

- ① When alarm switch is used in conjunction with auxiliary switch, the auxiliary switch is rated 250 volts max., 5 amps max.
- ② Not UL listed.
- ③ Not available on draw-out breakers.
- ④ Not available for FCL or LCL breakers.
- ⑤ Not available on motor operated breakers.
- ⑥ Left-hand mounting is standard unless otherwise specified.
- ⑦ All switches are multiples of 1A-1B with a common electrical connection (See diagram above).
- ⑧ Field mounting voids UL listing of breaker except on NB Tri-Pac and PB Tri-Pac breakers.
- ⑨ For Dc applications refer to factory.
- ⑩ Righthand mounting only.



Westinghouse AB DE-ION® Current Limiting Circuit Breaker Accessories

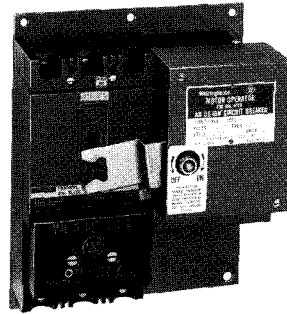
MOTOR OPERATORS

Motor operators provide complete remote control by means of a pushbutton or similar pilot device^②. Positive switching action is accomplished by use of an operating arm engaging the breaker handle. The unit is energized momentarily to actuate the lever arm moving it to either the "ON" or "OFF" position. The control is broken by an internal cutoff switch. Means for emergency manual operation is provided.

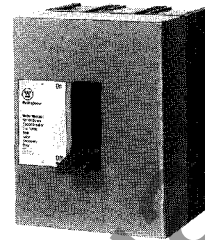
Motor operators are available with motors rated 120 volts Ac, 208 volts Ac, and 240 volts Ac.

The 480 volt operators utilize a 120 volt Ac motor in conjunction with a 480/240 to 120 volt dual voltage transformer. (On LA and larger operators, the transformer is supplied for separate mounting by the customer.)

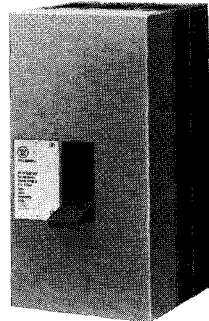
Note: The motor operator is intended only for infrequent operation in line with Underwriters Laboratories, Inc. endurance standard for AB molded case breakers.



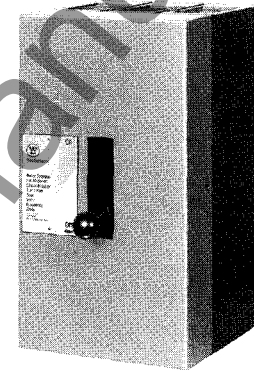
For FB Tri-Pac Breakers



For LA Tri-Pac Breakers



For NB Tri-Pac Breakers



For PB Tri-Pac Breakers

Motor Operator Selection

| Type Breaker | Ac Voltage | | | | Dc Voltage | |
|---------------|------------|------------|------------|------------|------------|------------|
| | 120 | 208 | 240 | 480 | 125 | 24 |
| STYLE NUMBERS | | | | | | |
| FCL | 656D148G15 | 656D148G10 | 656D148G17 | 656D148G17 | ..... | ..... |
| LCL | 5664D54G83 | 5664D54G86 | 5664D54G84 | 5664D54G85 | 5664D54G77 | 5664D54G88 |
| FB Tri-Pac | 656D148G11 | 656D148G04 | 656D148G13 | 656D148G13 | ..... | ..... |
| LA Tri-Pac | 2607D97G22 | 2607D97G25 | 2607D97G23 | 2607D97G24 | 2607D97G44 | ..... |
| NB Tri-Pac | 5664D54G65 | 5664D54G68 | 5664D54G66 | 5664D54G67 | 5664D54G82 | ..... |
| PB Tri-Pac | 5661D52G01 | 5661D52G04 | 5661D52G02 | 5661D52G03 | 5661D52G17 | ..... |

Back Mounting Plates

| Type Breaker | 120, 208, 240, 480 Volts Ac |
|--------------|-----------------------------|
| STYLE NUMBER | |
| FCL | 1282C01G01 |

Motor Data

| Type Breaker | Motor | Hp. | Inrush Current, Ampere (Peak) | | | Continuous Current (RMS) | | | Operating Time, Open or Close |
|--------------|-------------|------|-------------------------------|-----------|-----------|--------------------------|-----------|-----------|-------------------------------|
| | | | 120 Volts | 208 Volts | 240 Volts | 120 Volts | 208 Volts | 240 Volts | |
| FB Tri-Pac | Split Phase | 1/75 | 10 | 4 | 5 | 2.3 | 1.17 | 1.65 | 1.5 Seconds |
| LA Tri-Pac | Reversing | ... | 8 | 5 | 4 | .. | ... | ... | 12 Cycles |
| NB Tri-Pac | Reversing | ... | 11 | 7 | 6 | .. | ... | ... | 12 Cycles |
| PB Tri-Pac | Reversing | ... | 20 | 12 | 11 | .. | ... | ... | 10 Cycles |

① Ac voltage rated operators are UL listed as recognized components.

② The pilot device must be maintained contact type for FB Tri-Pac, FCL, mechanisms; momentary contact type for all others.

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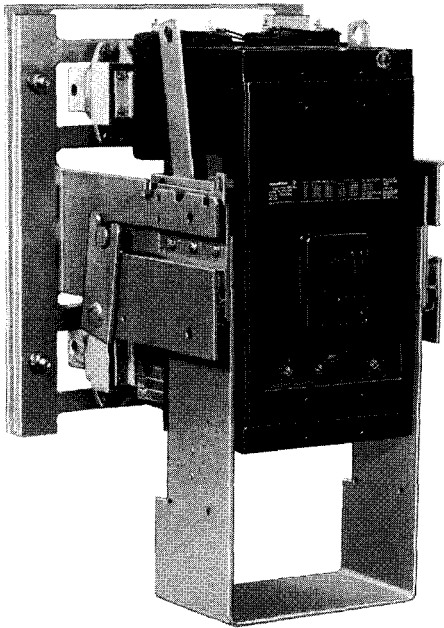
Selection Data
29-120C

Page 15

March 1995
 Supersedes Technical Data 29-120,
 page 58, dated January 1990
 Mailed to: E, D, C/29-100A, 31-400A, 31-500A

Westinghouse AB DE-ION® Current Limiting Circuit Breaker Accessories

DRAWOUT FRAME



These drawout frames are for use with standard 3-pole Westinghouse molded case circuit breakers. They consist of two separate parts; stationary mounting frame and movable carrier frame. Slide rails are drawer-type, and a screw mechanism is used to engage or withdraw the movable carrier frame.

The drawout frames have three positions: connected, test and disconnected. The frames do not include a safety tripping interlock, or secondary contacts. These are optional items and may be ordered at additional cost.

Breakers mounted in the drawout frames can be equipped with standard breaker accessories including shunt trip, undervoltage release, auxiliary switch, alarm switch and motor operator.

Secondary Contacts

These are used to disconnect auxiliary circuits when attachments such as shunt trip or motor operator are used. Available in multiples of four contacts with a maximum of 32 contacts for the NB Tri-Pac. They must be factory mounted. Order by description as similar to stationary or moving frame and specify number of contacts required.

Selection Data

| Breaker Type | Stationary Mounting Frame STYLE NUMBER | Movable Carrier Frame STYLE NUMBER |
|--------------|--|------------------------------------|
| NB Tri-Pac | 2603D85G09 | 2603D85G12 |

Standard Installation

Order one stationary mounting frame and one movable carrier frame.

Order breakers without terminals or rear connectors.

Order any attachments desired (shunt trip, undervoltage release, etc.)

Order secondary contacts as required:

- a shunt trip, undervoltage release or alarm switch requires two contacts;
- a 1A-1B auxiliary switch requires three contacts
- a motor operator requires a maximum of four contacts:
- others as required.

Racking Crank

A special crank to engage or withdraw the moving portion of the drawout. A standard 1/2 inch hex socket with extension can be used for this purpose.

| | |
|--------------|------------|
| STYLE NUMBER | 765A767G01 |
|--------------|------------|

Cell Switches Mounted on Draw-out Frames, All Ratings

Up to four switches can be provided. Order by description.

Each switch provides NO and NC contact that transfers before reaching the test position when being withdrawn, and after the test position when being racked in.

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Selection Data
29-120H

Page 1

January 1995
Supersedes Frame Book 29-111,
pages 1-20, dated May 1986, Frame Book
29-111A, pages 1-24, dated May 1987,
and Technical Data 29-120, pages 59-60,
dated March 1993
Mailed to: E, D, C/29-100A, 29-300A

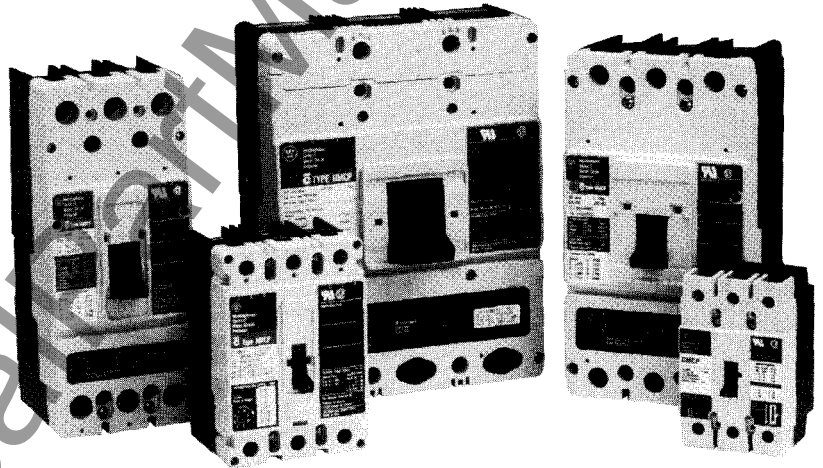
Series C[®] HMCP Motor Circuit Protectors 3-600 Amperes

GENERAL INFORMATION

Designated as the Westinghouse Types GMCP, HMCP, the Series C instantaneous-only motor circuit Protector (MCP) is available in ratings from 3A to 600A for motor starter sizes 0 through 6. The MCP is designed to comply with the applicable requirements of Underwriters Laboratories, Inc. Standard UL489, Canadian Standards Association Standard C22.2 No. 5, and International Electrotechnical Commission Recommendations IEC 157-1.

An innovative design of internal components allows higher MCP-starter combination interrupting ratings. The MCP is marked to permit proper electrical application within the assigned equipment ratings.

The MCP is a recognized component (UL File E7819) and complies with the applicable requirements of Underwriters Laboratories, Inc. Standard UL489. It is also designed to comply with the applicable requirements of Canadian Standards Association Standard C22.2 No. 5, and International Electrotechnical Commission Recommendations IEC 157-1.





Series C HMCP Motor Circuit Protectors, 3-600 Amperes

CATALOG NUMBERING SYSTEM

This information is presented only as an aid to understanding catalog numbers. It is not to be used to build catalog numbers for circuit breakers or trip units.

Motor Circuit Protector Catalog Numbers

| HMCP | 003 | A0 | C |
|-------------------------------|------------------------------|---|--|
| Motor Circuit Protective Type | Continuous Ampere Rating | Magnetic Trip Range/ NEMA Starter Size | Suffix |
| HMCP: 3 Pole | 003 | A0: 9-30/0 | C: Non Aluminum Terminals |
| HM2P: 2 Pole ^① | 007 | C0: 21-70/0 | W: W/O Terminals |
| HMCPs: 3 Pole | 015 | E0: 45-150/0 | X: Load Terminals Only |
| | 025 | D0: 40-60/0 | Y: Line Terminals Only |
| | 030 | H1: 90-300/1 | S: Stainless Steel Terms (150A Frame Only) |
| | 050 | G2: 80-120/2 | No Suffix: Standard Terminals on Line and Load |
| | 070 | K2: 150-500/2 | |
| | 100 | J2: 115-170/2 | |
| | 150 | M2: 210-700/2 | |
| | 250 | L3: 160-240/3 | |
| | 400 | R3: 300-1000/3 | |
| | | T4: 450-1500/4 | |
| | | U4: 750-2500/4 | |
| | | A5: 350-700/5 | |
| | | C5: 450-900/5 | |
| | | D5: 500-1000/5 | |
| | | F5: 625-1250/5 | |
| | | G5: 750-1500/5 | |
| | | J5: 875-1750/5 | |
| | K5: 1000-2000/5 | | |
| | L5: 1125-2250/5 | | |
| | W5: 1250-2500/5 | | |
| | N5: 1500-3000/5 | | |
| | R5: 1750-3500/5 | | |
| | X5: 2000-4000/5 | | |
| 600 | L6: 1800-6000/6 (Electronic) | | |

| GMCP | 003 | A0 | C |
|---------------------------------|--------------------------|---|---------------------------|
| Motor Circuit Protective Device | Continuous Ampere Rating | Magnetic Trip Range/ NEMA Starter Size | Suffix |
| GMCP: 3 Pole | 003 | A0: 15-30/0 | C: Non Aluminum Terminals |
| | 007 | C0: 35-70/0 | |
| | 015 | E0: 75-150/0 | |
| | 030 | H1: 150-300/1 | |
| | 050 | K2: 250-500/2 | |
| | 060 | J2: 300-600/2 | |
| | 063 | M2: 320-630/2 | |

| Further Information | |
|---------------------------|------------|
| Technical Data | TD 29-160 |
| Dimensions | DS 29-170H |
| Time/Current Curves | AD 29-167H |

^① On J- and K-Frame HMCP's only.

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 Pittsburgh, Pennsylvania, U.S.A. 15220



January 1995
Supersedes Frame Book 29-111,
pages 1-20, dated May 1986, Frame Book
29-111A, pages 1-24, dated May 1987,
and Technical Data 29-120, pages 59-60,
dated March 1993
Mailed to: E, D, C/29-100A, 29-300A

Series C[®] HMCP Motor Circuit Protectors 3-600 Amperes

G-FRAME

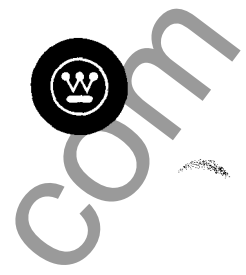
| MCP CATALOG NUMBERS | NEMA Starter Size | Continuous Amps | Cam Setting | Motor Full Load Current Amperes ^① | MCP Trip Setting |
|---------------------|-------------------|-----------------|-------------|--|------------------|
| GMCP003A0C | 0 | 3 | A | 1.1 - 1.2 | 15 |
| | | | B | 1.3 - 1.5 | 18 |
| | | | C | 1.6 - 1.7 | 21 |
| | | | D | 1.8 - 1.9 | 24 |
| | | | E | 2.0 - 2.2 | 27 |
| | | | F | 2.3 - 2.5 | 30 |
| GMCP007C0C | 0 | 7 | A | 2.6 - 3.1 | 35 |
| | | | B | 3.2 - 3.6 | 42 |
| | | | C | 3.7 - 3.9 | 49 |
| | | | D | 4.3 - 4.7 | 56 |
| | | | E | 4.8 - 5.2 | 63 |
| GMCP015E0C | 0 | 15 | A | 5.7 - 6.8 | 75 |
| | | | B | 6.9 - 7.9 | 90 |
| | | | C | 8.0 - 9.1 | 105 |
| | | | D | 9.2 - 10.3 | 120 |
| | | | E | 10.4 - 11.4 | 135 |
| | | | F | 11.5 - 12.6 | 150 |
| GMCP030H1C | 1 | 30 | A | 11.5 - 13.7 | 150 |
| | | | B | 13.8 - 16.0 | 180 |
| | | | C | 16.1 - 18.3 | 210 |
| | | | D | 18.4 - 20.6 | 240 |
| | | | E | 20.7 - 22.9 | 270 |
| | | | F | 23.0 - 25.2 | 300 |
| GMCP050K2C | 2 | 50 | A | 19.3 - 22.9 | 250 |
| | | | B | 23.0 - 26.8 | 300 |
| | | | C | 26.9 - 30.6 | 350 |
| | | | D | 30.7 - 34.5 | 400 |
| | | | E | 34.6 - 38.3 | 450 |
| | | | F | 38.4 - 42.1 | 500 |
| GMCP060J2C | 3 | 60 | A | 23.1 - 27.5 | 300 |
| | | | B | 27.7 - 32.2 | 360 |
| | | | C | 32.3 - 36.7 | 420 |
| | | | D | 36.9 - 41.4 | 480 |
| | | | E | 41.5 - 46.0 | 540 |
| | | | F | 46.2 - 50.5 | 600 |
| GMCP063M2C | 3 | 63 | A | 24.2 - 32.1 | 320 |
| | | | B | 29.1 - 34.8 | 380 |
| | | | C | 33.9 - 39.4 | 440 |
| | | | D | 38.8 - 46.4 | 500 |
| | | | E | 43.6 - 48.9 | 570 |
| | | | F | 48.5 - 53.7 | 630 |

F-FRAME

| MCP CATALOG NUMBERS | NEMA Starter Size | Continuous Amps | Cam Setting | Motor Full Load Current Amperes ^① | MCP Trip Setting ^② |
|---------------------|-------------------|-----------------|-------------|--|-------------------------------|
| HMCP003A0 | 0 | 3 | A | .69 - .91 | 9 |
| | | | B | .92 - 1.0 | 12 |
| | | | C | 1.1 - 1.2 | 15 |
| | | | D | 1.3 - 1.5 | 18 |
| | | | E | 1.6 - 1.7 | 21 |
| | | | F | 1.8 - 1.9 | 24 |
| | | | G | 2.0 - 2.2 | 27 |
| | | | H | 2.3 - 2.5 | 30 |
| HMCP007C0 | 0 | 7 | A | 1.5 - 2.0 | 21 |
| | | | B | 2.1 - 2.5 | 28 |
| | | | C | 2.6 - 3.1 | 35 |
| | | | D | 3.2 - 3.6 | 42 |
| | | | E | 3.7 - 3.9 | 49 |
| | | | F | 4.3 - 4.7 | 56 |
| | | | G | 4.8 - 5.2 | 63 |
| | | | H | 5.3 - 5.7 | 70 |
| HMCP015E0 | 0 | 15 | A | 3.4 - 4.5 | 45 |
| | | | B | 4.6 - 5.6 | 60 |
| | | | C | 5.7 - 6.8 | 75 |
| | | | D | 6.9 - 7.9 | 90 |
| | | | E | 8.0 - 9.1 | 105 |
| | | | F | 9.2 - 10.3 | 120 |
| | | | G | 10.4 - 11.4 | 135 |
| | | | H | 11.5 - 12.6 | 150 |
| HMCP030H1 | 1 | 30 | A | 6.9 - 9.1 | 90 |
| | | | B | 9.2 - 11.4 | 120 |
| | | | C | 11.5 - 13.7 | 150 |
| | | | D | 13.8 - 16.0 | 180 |
| | | | E | 16.1 - 18.3 | 210 |
| | | | F | 18.4 - 20.6 | 240 |
| | | | G | 20.7 - 22.9 | 270 |
| | | | H | 23.0 - 25.2 | 300 |
| HMCP050K2 | 2 | 50 | A | 11.5 - 15.2 | 150 |
| | | | B | 15.3 - 19.1 | 200 |
| | | | C | 19.2 - 22.9 | 250 |
| | | | D | 23.0 - 26.8 | 300 |
| | | | E | 26.9 - 30.6 | 350 |
| | | | F | 30.7 - 34.5 | 400 |
| | | | G | 34.6 - 38.3 | 450 |
| | | | H | 38.4 - 42.1 | 500 |
| HMCP070M2 | 2 | 70 | A | 16.1 - 21.4 | 210 |
| | | | B | 21.5 - 26.8 | 280 |
| | | | C | 26.9 - 32.2 | 350 |
| | | | D | 32.3 - 37.5 | 420 |
| | | | E | 37.6 - 42.9 | 490 |
| | | | F | 43.0 - 48.3 | 560 |
| | | | G | 48.4 - 53.7 | 630 |
| | | | H | 53.8 - 59.1 | 700 |
| HMCP100R3 | 3 | 100 | A | 23.0 - 30.6 | 300 |
| | | | B | 30.7 - 38.3 | 400 |
| | | | C | 38.4 - 46.0 | 500 |
| | | | D | 46.1 - 53.7 | 600 |
| | | | E | 53.8 - 61.4 | 700 |
| | | | F | 61.5 - 69.1 | 800 |
| | | | G | 69.2 - 76.8 | 900 |
| | | | H | 76.9 - 84.5 | 1000 |

① Motor FLA ranges are typical. The corresponding trip setting is at 13 times the minimum FLA value shown. Where a 13 times setting is required for an intermediate FLA value, alternate cam settings and/or MCP ratings should be used.

② For Dc applications, actual trip levels are approximately 40% higher than values shown.



Series C HMCP Motor Circuit Protectors, 3-600 Amperes

F-FRAME (continued)

| MCP CATALOG NUMBERS | NEMA Starter Size | Continuous Amps | Cam Setting | Motor Full Load Current Amperes● | MCP Trip Setting② |
|---------------------|-------------------|-----------------|-------------|----------------------------------|-------------------|
| HMCP150T4 | 4 | 150 | A | 34.6 - 46.0 | 450 |
| | | | B | 46.1 - 57.5 | 600 |
| | | | C | 57.6 - 69.1 | 750 |
| | | | D | 69.2 - 80.6 | 900 |
| | | | E | 80.7 - 92.2 | 1050 |
| | | | F | 92.3 - 103.7 | 1200 |
| | | | G | 103.8 - 115.2 | 1350 |
| | | | H | 115.3 - 126.7 | 1500 |
| HMCP150U4 | 4 | 150 | A | 57.0 - 75.0 | 750 |
| | | | B | 76.0 - 95.0 | 1000 |
| | | | C | 96.0 - 114.0 | 1250 |
| | | | D | 115.0 - 130.7 | 1500 |
| | | | E | ③ | 1750 |
| | | | F | ③ | 2000 |
| | | | G | ③ | 2250 |
| | | | H | ③ | 2500 |

MCPs for Application With Motor Starters Equipped With Electronic Overload Relays

| MCP CATALOG NUMBERS | NEMA Starter Size | Continuous Amps | Cam Setting | Motor Full Load Current Amperes① | MCP Trip Setting② |
|---------------------|-------------------|-----------------|-------------|----------------------------------|-------------------|
| HMCP003A0 | 0 | 3 | A | .69 - .91 | 9 |
| | | | B | .92 - 1.0 | 12 |
| | | | C | 1.1 - 1.2 | 15 |
| | | | D | 1.3 - 1.5 | 18 |
| | | | E | 1.6 - 1.7 | 21 |
| | | | F | 1.8 - 1.9 | 24 |
| | | | G | 2.0 - 2.2 | 27 |
| | | | H | 2.3 - 2.5 | 30 |
| HMCP007C0 | 0 | 7 | A | 1.5 - 2.0 | 21 |
| | | | B | 2.1 - 2.5 | 28 |
| | | | C | 2.6 - 3.1 | 35 |
| | | | D | 3.2 - 3.6 | 42 |
| | | | E | 3.7 - 3.9 | 49 |
| | | | F | 4.3 - 4.7 | 56 |
| | | | G | 4.8 - 5.2 | 63 |
| | | | H | 5.3 - 5.7 | 70 |
| HMCP015E0C | 0 | 15 | A | 3.4 - 4.5 | 45 |
| | | | B | 4.6 - 5.6 | 60 |
| | | | C | 5.7 - 6.8 | 75 |
| | | | D | 6.9 - 7.9 | 90 |
| | | | E | 8.0 - 9.1 | 105 |
| | | | F | 9.2 - 10.3 | 120 |
| | | | G | 10.4 - 11.4 | 135 |
| | | | H | 11.5 - 12.6 | 150 |
| HMCP030H1C | 1 | 30 | A | 6.9 - 9.1 | 90 |
| | | | B | 9.2 - 11.4 | 120 |
| | | | C | 11.5 - 13.7 | 150 |
| | | | D | 13.8 - 16.0 | 180 |
| | | | E | 16.1 - 18.3 | 210 |
| | | | F | 18.4 - 20.6 | 240 |
| | | | G | 20.7 - 22.9 | 270 |
| | | | H | 23.0 - 25.2 | 300 |
| HMCP050K2C | 2 | 50 | A | 11.5 - 15.2 | 150 |
| | | | B | 15.3 - 19.1 | 200 |
| | | | C | 19.2 - 22.9 | 250 |
| | | | D | 23.0 - 26.8 | 300 |
| | | | E | 26.9 - 30.6 | 350 |
| | | | F | 30.7 - 34.5 | 400 |
| | | | G | 34.6 - 38.3 | 450 |
| | | | H | 38.4 - 42.1 | 500 |
| HMCP100R3C | 3 | 100 | A | 23.0 - 30.6 | 300 |
| | | | B | 30.7 - 38.3 | 400 |
| | | | C | 38.4 - 46.0 | 500 |
| | | | D | 46.1 - 53.7 | 600 |
| | | | E | 53.8 - 61.4 | 700 |
| | | | F | 61.5 - 69.1 | 800 |
| | | | G | 69.2 - 76.8 | 900 |
| | | | H | 76.9 - 84.5 | 1000 |
| HMCP150T4C | 4 | 150 | A | 34.6 - 46.0 | 450 |
| | | | B | 46.1 - 57.5 | 600 |
| | | | C | 57.6 - 69.1 | 750 |
| | | | D | 69.2 - 80.6 | 900 |
| | | | E | 80.7 - 92.2 | 1050 |
| | | | F | 92.3 - 103.7 | 1200 |
| | | | G | 103.8 - 115.2 | 1350 |
| | | | H | 115.3 - 126.7 | 1500 |
| HMCP150U4C | 4 | 150 | A | 57.0 - 75.0 | 750 |
| | | | B | 76.0 - 95.0 | 1000 |
| | | | C | 96.0 - 114.0 | 1250 |
| | | | D | 115.0 - 130.7 | 1500 |
| | | | E | ③ | 1750 |
| | | | F | ③ | 2000 |
| | | | G | ③ | 2250 |
| | | | H | ③ | 2500 |

Special Low Magnetic Protection Application MCP

| MCP CATALOG NUMBERS | NEMA Starter Size | Continuous Amps | Cam Setting | Motor Full Load Current Amperes① | MCP Trip Setting② |
|---------------------|-------------------|-----------------|-------------|----------------------------------|-------------------|
| HMCP025D0 | — | 25A | A | — | 40 |
| | | | B | — | 43 |
| | | | C | — | 46 |
| | | | D | — | 49 |
| | | | E | — | 52 |
| | | | F | — | 55 |
| | | | G | — | 58 |
| | | | H | — | 60 |
| HMCP050G2 | — | 50A | A | — | 80 |
| | | | B | — | 87 |
| | | | C | — | 93 |
| | | | D | — | 98 |
| | | | E | — | 103 |
| | | | F | — | 109 |
| | | | G | — | 115 |
| | | | H | — | 120 |
| HMCP070J2 | — | 70A | A | — | 115 |
| | | | B | — | 122 |
| | | | C | — | 130 |
| | | | D | — | 139 |
| | | | E | — | 145 |
| | | | F | — | 153 |
| | | | G | — | 160 |
| | | | H | — | 170 |
| HMCP100L3 | — | 100A | A | — | 160 |
| | | | B | — | 174 |
| | | | C | — | 185 |
| | | | D | — | 196 |
| | | | E | — | 207 |
| | | | F | — | 218 |
| | | | G | — | 229 |
| | | | H | — | 240 |

- ① Motor FLA ranges are typical. The corresponding trip setting is at 13 times the minimum FLA value shown. Where a 13 times setting is required for an intermediate FLA value, alternate cam settings and/or MCP ratings should be used.
- ② For Dc applications, actual trip levels are approximately 40% higher than values shown.
- ③ Settings above 130 amps are for special applications. N.E.C. Article 430-110(a) requires the ampere rating of the disconnecting means to be not less than 115% of the motor full load ampere rating.



January 1995
 Supersedes Frame Book 29-111,
 pages 1-20, dated May 1986, Frame Book
 29-111A, pages 1-24, dated May 1987,
 and Technical Data 29-120, pages 59-60,
 dated March 1993
 Mailed to: E, D, C/29-100A, 29-300A

Series C[®] HMCP Motor Circuit Protectors 3-600 Amperes

J-FRAME

| MCP CATALOG NUMBERS● | NEMA Starter Size | Continu-ous Amps | Cam Setting | Motor Full Load Current Amperes② | MCP Trip Setting③ |
|----------------------|-------------------|------------------|-------------|----------------------------------|-------------------|
| HMCP250A5 | 4 | 250 | A | 27.0 - 30.7 | 350 |
| | | | B | 30.8 - 33.8 | 400 |
| | | | C | 33.9 - 36.9 | 440 |
| | | | D | 37.0 - 40.3 | 480 |
| | | | E | 40.4 - 43.8 | 525 |
| | | | F | 43.9 - 46.9 | 570 |
| | | | G | 47.0 - 50.7 | 610 |
| | | | H | 50.8 - 53.8 | 660 |
| | | | I | 53.9 - 57.2 | 700 |
| HMCP250C5 | 5 | 250 | A | 34.7 - 38.8 | 450 |
| | | | B | 38.9 - 43.4 | 505 |
| | | | C | 43.5 - 47.6 | 565 |
| | | | D | 47.7 - 52.2 | 620 |
| | | | E | 52.3 - 56.5 | 680 |
| | | | F | 56.6 - 60.7 | 735 |
| | | | G | 60.8 - 64.9 | 790 |
| | | | H | 65.0 - 69.2 | 845 |
| | | | I | 69.3 - 73.5 | 900 |
| HMCP250D5 | 5 | 250 | A | 38.5 - 43.4 | 500 |
| | | | B | 43.5 - 48.0 | 565 |
| | | | C | 48.1 - 53.0 | 625 |
| | | | D | 53.1 - 57.6 | 690 |
| | | | E | 57.7 - 62.3 | 750 |
| | | | F | 62.4 - 67.3 | 810 |
| | | | G | 67.4 - 71.9 | 875 |
| | | | H | 72.0 - 76.9 | 935 |
| | | | I | 77.0 - 81.6 | 1000 |
| HMCP250F5 | 5 | 250 | A | 48.1 - 53.8 | 625 |
| | | | B | 53.9 - 59.9 | 700 |
| | | | C | 60.0 - 66.1 | 780 |
| | | | D | 66.2 - 72.3 | 860 |
| | | | E | 72.4 - 78.4 | 940 |
| | | | F | 78.5 - 83.8 | 1020 |
| | | | G | 83.9 - 89.9 | 1090 |
| | | | H | 90.0 - 96.1 | 1170 |
| | | | I | 96.2 - 102.0 | 1250 |
| HMCP250G5 | 5 | 250 | A | 57.7 - 64.6 | 750 |
| | | | B | 64.7 - 71.9 | 840 |
| | | | C | 72.0 - 79.2 | 935 |
| | | | D | 79.3 - 86.5 | 1030 |
| | | | E | 86.6 - 93.8 | 1125 |
| | | | F | 93.9 - 101.1 | 1220 |
| | | | G | 101.2 - 108.4 | 1315 |
| | | | H | 108.5 - 115.3 | 1410 |
| | | | I | 115.4 - 122.4 | 1500 |

| MCP CATALOG NUMBERS● | NEMA Starter Size | Continu-ous Amps | Cam Setting | Motor Full Load Current Amperes● | MCP Trip Setting③ |
|----------------------|-------------------|------------------|-------------|----------------------------------|-------------------|
| HMCP250J5 | 5 | 250 | A | 67.4 - 75.3 | 875 |
| | | | B | 75.4 - 83.8 | 980 |
| | | | C | 83.9 - 92.3 | 1090 |
| | | | D | 92.4 - 100.7 | 1200 |
| | | | E | 100.8 - 109.2 | 1310 |
| | | | F | 109.3 - 117.6 | 1420 |
| | | | G | 117.7 - 126.1 | 1530 |
| | | | H | 126.2 - 134.6 | 1640 |
| | | | I | 134.7 - 142.8 | 1750 |
| HMCP250K5 | 5 | 250 | A | 77.0 - 86.5 | 1000 |
| | | | B | 86.6 - 96.1 | 1125 |
| | | | C | 96.2 - 105.7 | 1250 |
| | | | D | 105.8 - 115.3 | 1375 |
| | | | E | 115.4 - 124.9 | 1500 |
| | | | F | 125.0 - 134.6 | 1625 |
| | | | G | 134.7 - 144.2 | 1750 |
| | | | H | 144.3 - 153.8 | 1875 |
| | | | I | 153.9 - 163.3 | 2000 |
| HMCP250L5 | 5 | 250 | A | 86.6 - 97.3 | 1125 |
| | | | B | 97.4 - 108.4 | 1265 |
| | | | C | 108.5 - 118.8 | 1410 |
| | | | D | 118.9 - 129.9 | 1545 |
| | | | E | 130.0 - 140.7 | 1690 |
| | | | F | 140.8 - 151.5 | 1830 |
| | | | G | 151.6 - 162.3 | 1970 |
| | | | H | 162.4 - 173.0 | 2110 |
| | | | I | 173.1 - 183.6 | 2250 |
| HMCP250W5 | 5 | 250 | A | 96.2 - 108.0 | 1250 |
| | | | B | 108.1 - 119.9 | 1405 |
| | | | C | 120.0 - 132.3 | 1560 |
| | | | D | 132.4 - 144.2 | 1720 |
| | | | E | 144.3 - 156.1 | 1875 |
| | | | F | 156.2 - 168.0 | 2030 |
| | | | G | 168.1 - 179.9 | 2185 |
| | | | H | 180.0 - 192.3 | 2340 |
| | | | I | 192.4 - 204.0 | 2500 |

① Three-pole catalog numbers shown. Two-pole catalog numbers begin with "HM2P" in place of "HMCP".

② Motor FLA ranges are typical. The corresponding trip setting is at 13 times the minimum FLA value shown. Where a 13 times setting is required for an intermediate FLA value, alternate cam settings and/or MCP ratings should be used.

③ For dc applications, actual trip levels are approximately 40% higher than values shown.



Series C HMCP Motor Circuit Protectors, 3-600 Amperes

K-FRAME

| MCP CATALOG NUMBERS ^① | NEMA Starter Size | Contin-uous Amps | Cam Setting | Motor Full Load Current Amperes ^② | MCP Trip Setting ^③ | MCP CATALOG NUMBERS ^① | NEMA Starter Size | Contin-uous Amps | Cam Setting | Motor Full Load Current Amperes ^② | MCP Trip Setting ^③ |
|----------------------------------|-------------------|------------------|-------------|--|-------------------------------|----------------------------------|-------------------|------------------|---------------|--|-------------------------------|
| HMCP400D5 | 5 | 400 | A | 38.5 - 43.4 | 500 | HMCP400L5 | 5 | 400 | A | 86.6 - 97.3 | 1125 |
| | 5 | | B | 43.5 - 48.0 | 565 | | B | | 97.4 - 108.4 | 1265 | |
| | 5 | | C | 48.1 - 53.0 | 625 | | C | | 108.5 - 118.8 | 1410 | |
| | 5 | | D | 53.1 - 57.6 | 690 | | D | | 118.9 - 129.9 | 1545 | |
| | 5 | | E | 57.7 - 62.3 | 750 | | E | | 130.0 - 140.7 | 1690 | |
| | 5 | | F | 62.4 - 67.3 | 810 | | F | | 140.8 - 151.5 | 1830 | |
| | 5 | | G | 67.4 - 71.9 | 875 | | G | | 151.6 - 162.3 | 1970 | |
| | 5 | | H | 72.0 - 76.9 | 935 | | H | | 162.4 - 173.0 | 2110 | |
| | | | I | 77.0 - 81.6 | 1000 | I | 173.1 - 183.6 | 2250 | | | |
| HMCP400F5 | 5 | 400 | A | 48.1 - 53.8 | 625 | HMCP400W5 | 5 | 400 | A | 96.2 - 108.0 | 1250 |
| | 5 | | B | 53.9 - 59.9 | 700 | | B | | 108.1 - 119.9 | 1405 | |
| | 5 | | C | 60.0 - 66.1 | 780 | | C | | 120.0 - 132.3 | 1560 | |
| | 5 | | D | 66.2 - 72.3 | 860 | | D | | 132.4 - 144.2 | 1720 | |
| | 5 | | E | 72.4 - 78.4 | 940 | | E | | 144.3 - 156.1 | 1875 | |
| | 5 | | F | 78.5 - 83.8 | 1020 | | F | | 156.2 - 168.0 | 2030 | |
| | 5 | | G | 83.9 - 89.9 | 1090 | | G | | 168.1 - 179.9 | 2185 | |
| | 5 | | H | 90.0 - 96.1 | 1170 | | H | | 180.0 - 192.3 | 2340 | |
| | | | I | 96.2 - 102.0 | 1250 | I | 192.4 - 204.0 | 2500 | | | |
| HMCP400G5 | 5 | 400 | A | 57.7 - 64.6 | 750 | HMCP400N5 | 5 | 400 | A | 115.4 - 129.9 | 1500 |
| | 5 | | B | 64.7 - 71.9 | 840 | | B | | 130.0 - 144.2 | 1690 | |
| | 5 | | C | 72.0 - 79.2 | 935 | | C | | 144.3 - 158.4 | 1875 | |
| | 5 | | D | 79.3 - 86.5 | 1030 | | D | | 158.5 - 173.0 | 2060 | |
| | 5 | | E | 86.6 - 93.8 | 1125 | | E | | 173.1 - 187.6 | 2250 | |
| | 5 | | F | 93.9 - 101.1 | 1220 | | F | | 187.7 - 201.9 | 2440 | |
| | 5 | | G | 101.2 - 108.4 | 1315 | | G | | 202.0 - 216.1 | 2625 | |
| | 5 | | H | 108.5 - 115.3 | 1410 | | H | | 216.2 - 230.7 | 2810 | |
| | | | I | 115.4 - 122.4 | 1500 | I | 230.8 - 244.9 | 3000 | | | |
| HMCP400J5 | 5 | 400 | A | 67.4 - 75.3 | 875 | HMCP400R5 | 5 | 400 | A | 134.7 - 151.5 | 1750 |
| | 5 | | B | 75.4 - 83.8 | 980 | | B | | 151.6 - 168.4 | 1970 | |
| | 5 | | C | 83.9 - 92.3 | 1090 | | C | | 168.5 - 185.3 | 2190 | |
| | 5 | | D | 92.4 - 100.7 | 1200 | | D | | 185.4 - 201.9 | 2410 | |
| | 5 | | E | 100.8 - 109.2 | 1310 | | E | | 202.0 - 218.8 | 2625 | |
| | 5 | | F | 109.3 - 117.6 | 1420 | | F | | 218.9 - 235.7 | 2845 | |
| | 5 | | G | 117.7 - 126.1 | 1530 | | G | | 235.8 - 252.6 | 3065 | |
| | 5 | | H | 126.2 - 134.6 | 1640 | | H | | 252.7 - 269.2 | 3285 | |
| | | | I | 134.7 - 142.8 | 1750 | I | 269.3 - 285.7 | 3500 | | | |
| HMCP400K5 | 5 | 400 | A | 77.0 - 86.5 | 1000 | HMCP400X5 | 5 | 400 | A | 153.9 - 173.0 | 2000 |
| | 5 | | B | 86.6 - 96.1 | 1125 | | B | | 173.1 - 192.3 | 2250 | |
| | 5 | | C | 96.2 - 105.7 | 1250 | | C | | 192.4 - 211.5 | 2500 | |
| | 5 | | D | 105.8 - 115.3 | 1375 | | D | | 211.6 - 230.7 | 2750 | |
| | 5 | | E | 115.4 - 124.9 | 1500 | | E | | 230.8 - 249.9 | 3000 | |
| | 5 | | F | 125.0 - 134.6 | 1625 | | F | | 250.0 - 269.2 | 3250 | |
| | 5 | | G | 134.7 - 144.2 | 1750 | | G | | 269.3 - 288.4 | 3500 | |
| | 5 | | H | 144.3 - 153.8 | 1875 | | H | | 288.5 - 307.6 | 3750 | |
| | | | I | 153.9 - 163.3 | 2000 | I | 307.7 - 326.9 | 4000 | | | |

L-FRAME^④

| MCP CATALOG NUMBERS | NEMA Starter Size | Contin-uous Amps | Cam Setting | Motor Full Load Current Amperes ^② | MCP Trip Setting |
|---------------------|-------------------|------------------|-------------|--|------------------|
| HMCP600L6W | 6 | 600 | A | 138.5 - 184.5 | 1800 |
| | 6 | | B | 184.6 - 230.7 | 2400 |
| | 6 | | C | 230.8 - 276.8 | 3000 |
| | 6 | | D | 276.9 - 323.0 | 3600 |
| | 6 | | E | 323.1 - 369.1 | 4200 |
| | 6 | | F | 369.2 - 415.3 | 4800 |
| | 6 | | G | 415.4 - 461.4 | 5400 |
| | 6 | | H | 461.5 - 507.7 | 6000 |

- ① Three-pole catalog numbers shown. Two-pole catalog numbers begin with "HM2P" in place of "HMCP".
- ② Motor FLA ranges are typical. The corresponding trip setting is at 13 times the minimum FLA value shown. Where a 13 times setting is required for an intermediate FLA value, alternate cam settings and/or MCP ratings should be used.
- ③ For dc applications, actual trip levels are approximately 40% higher than values shown.
- ④ Equipped with electronic trip device.

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29-111A, pages 1-24, dated May 1987,
and Technical Data 29-120, pages 59-60,
dated March 1993
Mailed to: E, D, C/29-100A, 29-300A

Series C[®] F-Frame HMCP Termination Accessories

LINE AND LOAD TERMINALS

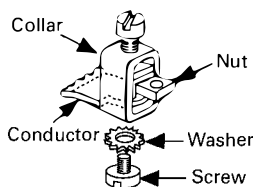
Line and load terminals provide wire connecting capabilities for specific ranges of continuous current ratings and wire types. Terminals comply with Underwriters Laboratories, Inc., Standard UL486A or UL486B. Unless otherwise specified, F-frame MCPs are factory equipped with line and load terminals only.

Ordering Information

F-frame MCPs have line and load terminals only as standard equipment. When non-standard or optional line and/or load terminals are required, order by style number (no charge when ordered with MCP). Specify if factory installation required.

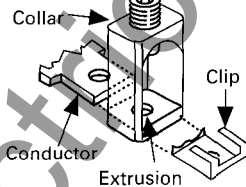
Line and Load Terminals

| Maximum Breaker Amps | Terminal Body Material | Wire Type | AWG Wire Range | Metric Wire Range mm ² | CATALOG NUMBERS Package of 3 Terminals |
|---|------------------------|-----------|----------------|-----------------------------------|---|
| Standard Pressure Type Terminals | | | | | |
| 100 | Aluminum | Cu/Al | #14-1/0 | 2.5-50 | 3TA100FD |
| 225 | Aluminum | Cu/Al | #4-4/0 | 25-95 | 3TA225FD |
| Optional Pressure Terminals | | | | | |
| 50 | Aluminum | Cu/Al | #14-#4 | 2.5-16 | 3TA50FB |
| 100 | Steel | Cu/Al | #14-1/0 | 2.5-50 | 3T100FB |
| 150 | Stainless Steel | Cu | #4-4/0 | 25-95 | 3T150FB |



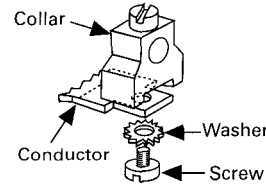
**3T100FB
3T150FB**

Insert collar enclosing conductor as shown. Locate nut on top of conductor and tighten securely with screw and washer. **Caution:** Collar must surround conductor.



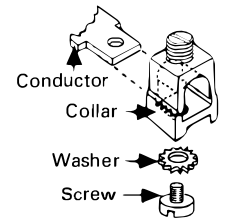
3TA225FD

Insert collar enclosing conductor and center on extrusion on collar. Install clip with legs on top of conductor and snap end around bottom of collar.



3TA50FB

Assemble collar on top of conductor as shown. Tighten securely with screw and washer.



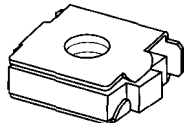
3TA100FD

Collar slides onto conductor and is held in position by a screw and lockwasher.



Series C F-Frame HMCP Termination Accessories

KEEPER NUT

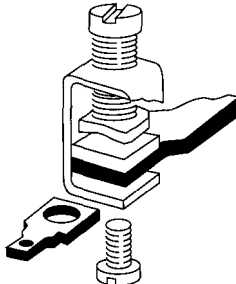


The keeper nut slides onto the line or load conductor of the MCP and acts as a threaded adapter for the conductor to accept a ring terminal or other bolt-on connector. The keeper nut is available with English and metric thread sizes. Screws and washers are supplied by customer. (Field installation only.) Listed per UL File E7819.

Ordering Information

| Thread Type | Thread Size | CATALOG NUMBERS |
|-------------|-------------|--|
| | | Package of 12 (Priced Individually) |
| Imperial | 10-32 | KPR1A |
| Metric | M-5 | KPR1AM |

CONTROL WIRE TERMINAL KIT



For use with steel or stainless steel terminals only.

Ordering Information

Package of 12. Priced individually.

| CATALOG NUMBER |
|----------------|
| FCWTK |

BASE MOUNTING HARDWARE

Hardware for surface mounting of MCP is supplied only on request. Hardware consists of mounting screws and lockwashers. Order hardware for MCP pole configurations as required.

Ordering Information

Base-mounting hardware is supplied at no charge when ordered with an MCP. When ordering separately, refer to price list.

Imperial Thread

| No. of Poles | Description | Type of Mounting | STYLE NUMBERS |
|--------------|--|------------------|---------------|
| 2,3 | .164-32 x 1.5 inch Pan-Head Steel Screws and Lockwashers | Individual | 4218B80G02 |

Metric Thread

| No. of Poles | Description | Type of Mounting | STYLE NUMBERS |
|--------------|--|------------------|---------------|
| 2,3 | M4 - 0.7 x 38 mm Pan-Head Steel Screws and Lockwashers | Individual | 4218B80G12 |

① Not for use with 3T20FB terminal.

Cutler-Hammer

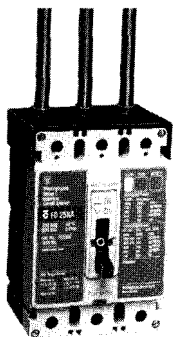
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Series C[®] F-Frame HMCP Termination Accessories

TERMINAL END COVERS



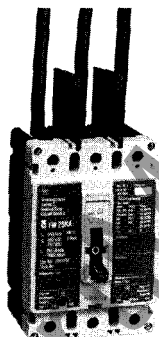
The terminal end covers are designed for use in motor control center applications where, because of confined spaces, line side conductors are normally custom fitted. The molded end covers are made of high dielectric glass-polyester and slide over the line ends of the MCP. Close fitting conductor openings are molded into the end covers. The end cover and MCP case fit together to form terminal compartments that isolate discharged ionizing gases during MCP tripping. Terminal end covers are available with two conductor opening diameters, 0.25 and 0.41 inch, and are listed per UL File E7819. (Field installation only.)

Ordering Information

The terminal end cover is available for 3-pole MCPs only. Two conductor opening sizes are available. Specify quantity (one per MCP) when ordering.

| Conductor Opening Diameter (Inches) | CATALOG NUMBERS |
|-------------------------------------|-----------------|
| 0.25 (6.35 mm) | TEC1 |
| 0.41 (10.41 mm) | TEC2 |

INTERPHASE BARRIERS



The interphase barriers provide additional electrical clearance between MCP poles for special termination applications. The barriers are high dielectric insulating plates that are installed in the molded slots between the terminals. Interphase barriers are listed per UL File E7819. (Field installation only.)

Ordering Information

The interphase barrier is available for extended insulation between MCP poles. Specify quantity when ordering.

| CATALOG NUMBER |
|------------------------------|
| IPB1 (Package of 2 barriers) |

TERMINAL SHIELDS



The terminal shield provides protection against accidental contact with live line terminations. Terminal shields are formed from high dielectric insulating material and fasten over the front terminal access openings. Small holes in the shields provide limited access to the terminals for tightening connectors. Terminal shields are listed per UL File E7819. (Field installation only.)

Ordering Information

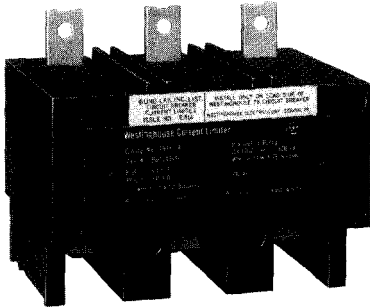
The terminal shield is available for line terminal areas in 2- and 3-pole circuit breakers. Special terminal shields are also available for use when an electrical (solenoid) operator is mounted on the circuit breaker. The standard style number by pole for each terminal shield (shown in table below) is for a package of 10 and is priced per each package. Special terminal shields are packaged individually.

| Number of Poles | STYLE NUMBERS | |
|-----------------|--|------------|
| | Standard (Package of 10) (Priced Individually) | Special |
| 2 or 3 | 625B229G08 | 4210B95G01 |



Series C F-Frame HMCP Termination Accessories

TYPE ELC CURRENT LIMITER ATTACHMENT (SIZE 0-4)



Type ELC Current Limiter Terminal Wire Sizes ①

| Type ELC Current Limiter Max. Amps | Standard Aluminum Terminals | | Nonstandard Terminals (Steel) | |
|------------------------------------|-----------------------------|---------------------------|-------------------------------|---------------------------|
| | Wire Range AWG | Metric (mm ²) | Wire Range AWG | Metric (mm ²) |
| 50 | #14-2 | 2.5-35 | #14-2② | 2.5-35 |
| 100 | #1-4/0 | 50-95 | ..... | ..... |
| 150 | #1-4/0 | 50-95 | ..... | ..... |

The type ELC current limiter attachment for the Series C MCP is designed to provide increased interrupting capacity. The combination may be used for the application up to 200,000A symmetrical at 600 Vac making the MCP suitable for use in network distribution systems or other applications where unusually high fault currents are available. The current limiter connects to the load end of the MCP and is provided with terminals suitable for copper or aluminum conductors. (See table).

Limiters are coordinated with the MCP so that normal fault currents are interrupted automatically by the MCP without any damage to the limiter. Only the rare very high fault is opened by the limiter. Faults that are interrupted by the limiter are interrupted by the limiter also magnetically trip the MCP, opening all three poles, preventing single-phase operation.

Each of the three poles of the type ELC limiter is equipped with an indicator that extends when a fault is interrupted by the limiter.

① Terminal wire connectors are UL listed for standard stranded wire sizes as defined in UL 486A or UL 486B.

② Optional on special order for copper cable only.

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Series C[®] J- and K-Frame HMCP Termination Accessories

LINE AND LOAD TERMINALS (J-FRAME)

Line and load terminals provide wire connecting capabilities for specific ranges of continuous current ranges and wire types. All terminals comply with Underwriters Laboratories Inc. Standard UL486A and UL486B and CSA Standard C22.2 No. 65, or Electrical Bulletin 1165. Unless otherwise specified, J-frame MCP line and load terminals are shipped separately for field installation.

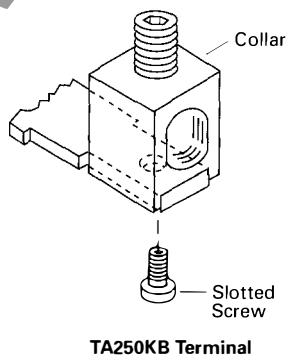
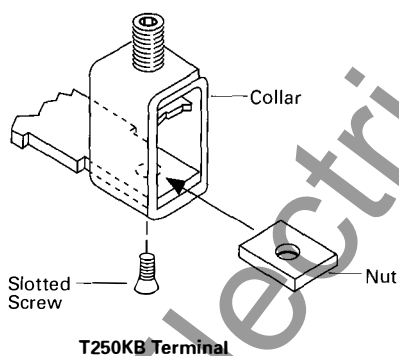
The bottom of the standard TA250KB terminal contains a recess which is positioned over the J-frame MCP terminal conductor.

Ordering Information

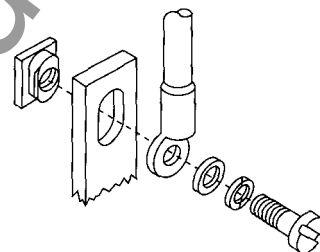
J-frame MCPs use Cu/Al terminals as standard. When optional copper-only terminals are required, order by catalog number. Specify if factory installation is required.

Line and Load Terminal

| Maximum Breaker Amps | Terminal Body Material | Wire Type | AWG Wire Range/No. Conductors | Metric Wire Range mm ² | CATALOG NUMBERS |
|--|------------------------|-----------|-------------------------------|-----------------------------------|-----------------|
| Standard Cu/Al Pressure Terminals | | | | | |
| 250 | Aluminum | Cu/Al | #4-350 MCM | 25-185 | TA250KB |
| Optional Cu Only Pressure Terminals | | | | | |
| 250 | Stainless Steel | Cu | #4-350 MCM | 25-185 | T250KB |



PLUG NUT (J-FRAME)



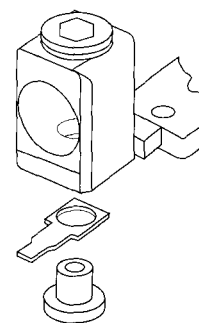
The plug nut is used in applications where screw-connected ring-type terminals are preferred to connect cables to MCP conductors. The plug nut is press-fit into the opening in the MCP terminal conductor. Screws and washers are supplied by customer.

Ordering Information

Plug nuts are available for line/load conductors of J-frame Series C MCPs. Plug nuts are supplied in packages of 6.

| Thread Type | Thread Size | CATALOG NUMBERS Package of 6 |
|-------------|-------------|---------------------------------|
| Imperial | .250-20 | PLN2 |
| Metric | M-6 | PLN2M |

CONTROL WIRE TERMINAL KIT (J-FRAME)



For use with TA250KB terminals only.

Ordering Information

Package of 12. Priced individually.

| CATALOG NUMBER |
|----------------|
| KCWTK |



Series C J- and K-Frame HMCP Termination Accessories

LINE AND LOAD TERMINALS (K-FRAME)

Line and load terminals provide wire connecting capabilities for specific ranges of continuous current ratings and wire types. All terminals comply with Underwriters Laboratories, Inc., Standards UL486A and UL486B and CSA Standard C22.2 No. 65, or Electrical Bulletin 1165. Unless otherwise specified, K-frame MCP line and load terminals are shipped separately for field installation. The terminals cannot be used on LB family MCPs.

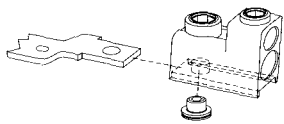
The MCP line/load terminal conductor is positioned in the recess in the bottom wire connecting terminal. The wire connecting terminal is secured with a 1/16 inch hollow terminal mounting screw, which can be checked for the correct torque loading or retightened from the front of the MCP before installation of the conductors. (Applies to all styles.)

Ordering Information

K-frame MCPs use Cu/Al terminals as standard. When optional copper or Cu/Al terminals are required, order by catalog number. Specify if factory installation is required.

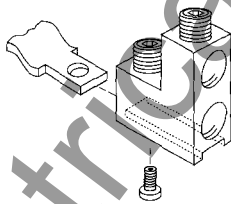
Line and Load Terminals

| Maximum Breaker Amps | Terminal Body Material | Wire Type | AWG Wire Range/No. Conductors | Metric Wire Range mm ² | CATALOG NUMBERS |
|--|----------------------------------|-------------------------|---|-----------------------------------|--|
| Standard Cu/Al Pressure Terminals | | | | | |
| 225 350 400 | Aluminum Aluminum Aluminum | Cu/Al Cu/Al Cu/Al | 3-350/(1) 250-500/(1) 3/0-250/(2) | 35-185 120-240 95-120 | TA300K ^① TA350K ^① 2TA400K - 2-Pole Kit ^② 3TA400K - 3-Pole Kit ^② |
| Optional Copper and Cu/Al Pressure Type Terminals | | | | | |
| 225 350 400 | Copper Copper Copper | Cu Cu Cu | 3-350/(1) 250-500/(1) 3/0-350/(2) | 35-185 120-240 95-120 | T300K [●] T350K ^① 2T400K - 2-Pole Kit ^② 3T400K - 3-Pole Kit ^② 4T400K - 4-Pole Kit ^② |
| 400 | Aluminum | Cu/Al | 2/0-250/(2) or 2/0-500/(1) | 70-120 70-240 70-240 | 2TA401K - 2-Pole Kit ^② 3TA401K - 3-Pole Kit ^② |

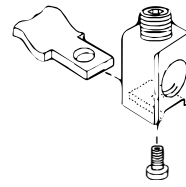


TA 401K

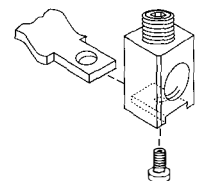
TA401K



TA400K
T400K



TA350K
T350K



TA300K
T300K

- ① Individually packed.
- ② TA400K, T400K and TA401K terminal kits contain one terminal for each pole and one terminal cover.

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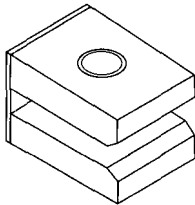
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Series C[®] J- and K-Frame HMCP Termination Accessories

KEEPER NUT (K-FRAME)



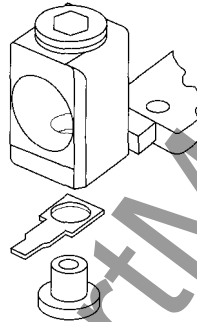
The keeper nut is a two-part copper/steel adapter. The steel portion is threaded and is used to connect bus bar or similar electrical connections requiring a threaded nut application. When used where K-frame MCPs are replacing existing LB family MCPs, two different spacer thicknesses are available. Use the 0.234 inch thick spacers for line end applications, and the 0.421 inch thick spacer for load end applications, for new applications, select the 0.234 inch adapter for both line and load applications. Hardware not included. (Field installation only.)

Ordering Information

Keeper nuts (threaded adapters) are used on K-frame MCP terminal conductors to connect bus bar or similar electrical connections requiring a threaded nut application. Keeper nuts, with either imperial or metric thread sizes, are available in packages of 3.

| Thread Type | Thread Size | Line/Load End | CATALOG NUMBERS Package of 3 |
|-------------|-------------|---------------|---------------------------------|
| Imperial | .375-16 | Line Load | KPR3A KPR3B |
| Metric | M-8 | Line Load | KPR3AM KPR3BM |

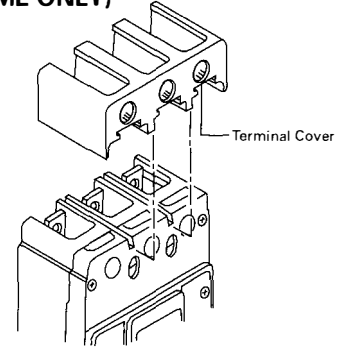
CONTROL WIRE TERMINAL KIT (K-FRAME)



Ordering Information
 Package of 12. Priced individually.

| |
|----------------|
| CATALOG NUMBER |
| KCWTK |

TERMINAL END COVERS (K-FRAME ONLY)



The K-frame one-piece terminal cover provides the required electrical clearance between MCP poles when extended terminals are used. A terminal cover is supplied as standard with T400K, TA400K, and TA401K terminal kits. (Field Installation only.)

Ordering Information

For use with K-frame MCPs when step-type terminals (Catalog Nos. TA400K, T400K, or TA401K) are installed. One TCK3 is included at no charge in Terminal Kits 2TA400K, 3TA400K, 2T400K, 3T400K, 2TA401K, and 3TA401K.

| |
|----------------|
| CATALOG NUMBER |
| TCK3 |



Series C J- and K-Frame HMCP Termination Accessories

BASE MOUNTING HARDWARE

Hardware for surface mounting of MCPs is supplied only on request. Hardware consists of mounting screws and lockwashers. Order hardware with thread type as required.

Ordering Information

Base mounting hardware is supplied at no charge when ordered with MCP. When ordering separately, refer to price list.

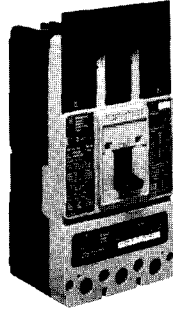
Imperial Thread

| Number of Poles | Description | Type of Mounting | STYLE NUMBERS |
|-----------------|--|------------------|---------------|
| J-Frame | | | |
| 2, 3 | 0.250-20 x 2.75 inch Pan-Head Steel Screws and Lockwashers | Individual | 4218B80G03 |
| K-Frame | | | |
| 2, 3 | 0.250-20 x 1.5 inch Pan-Head Steel Screws and Lockwashers | Individual | 4218B80G04 |

Metric Thread

| Number of Poles | Description | Type of Mounting | STYLE NUMBERS |
|-----------------|---|------------------|---------------|
| J-Frame | | | |
| 2, 3 | M6 - 0.7 x 70mm Pan-Head Steel Screws and Lockwashers | Individual | 4218B80G13 |
| K-Frame | | | |
| 2, 3 | M6 - 0.7 x 38mm Pan-Head Steel Screws and Lockwashers | Individual | 4218B80G14 |

TERMINAL SHIELD



Terminal shields (K-frame shown) provide protection against accidental contact with live terminations. Terminal shields are fabricated from high dielectric insulating material and fasten over the front terminal access openings. Small openings in the shields provide limited access to the terminals for tightening connectors. (Field installation only.)

Order Information

The terminal shield is available for line terminal areas. Terminal shields must be ordered in multiples of 10 (for each style number).

| STYLE NUMBERS | |
|------------------------------------|------------------------------------|
| J-Frame | K-Frame |
| Line 1266C07G01 Load 6641C16G01 | 314C420G06 for either line or load |

INTERPHASE BARRIERS (J- AND K-FRAME)



Interphase barriers (J-frame shown) provide additional electrical clearance between MCP poles for special termination applications. The barriers are high dielectric insulating plates that are installed in the molded slots between the terminals and cannot be used in conjunction with K-frame terminal cover. (Field installation only.)

Ordering Information

The interphase barrier is available for extended insulation between MCP poles. Specify quantity when ordering.

| CATALOG NUMBER |
|----------------|
| IPB3 ①② |

- ① Pkg of 2 Barriers
- ② Not usable with terminal cover - TCK3.

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Series C[®] L-Frame HMCP Termination Accessories

LINE AND LOAD TERMINALS

Line and load terminals provide wire connecting capabilities for specific ranges of continuous current ratings and wire types. All terminals comply with Underwriters Laboratories, Inc. Standards UL486A and UL486B and CSA C22.2 No. 65M. Unless otherwise specified, L-frame MCP line and load terminals are shipped separately for field installation.

The wire connecting terminal is secured with two pan-head, slotted screws and lock washers which can be checked for the correct torque loading or retightened from the front of the MCP before installation of the conductors. (Applies to all styles.) The MCP line/load terminal conductors are

positioned in the conductor holes in the wire connecting terminal and are secured with recessed socket screws which are tightened to the correct torque loading from the front of the MCP.

Ordering Information

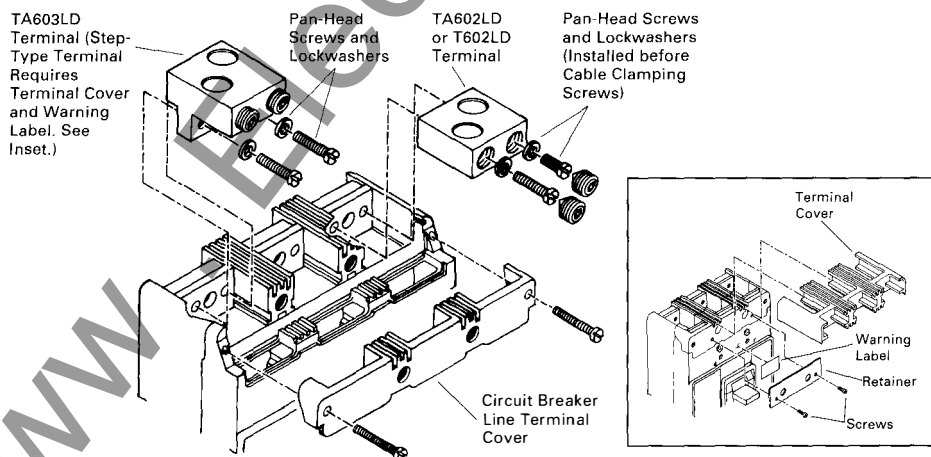
L-frame MCPs have Cu/Al terminals as standard equipment. When optional copper terminals are required, order by catalog number. Specify if factory installation is required.

KEEPER NUT

Not required on L-Frame. Terminal is threaded.

Line and Load Terminal

| Maximum Breaker Amps | Terminal Body Material | Wire Type | AWG Wire Range/No. Conductors | Metric Wire Range mm ² | CATALOG NUMBERS |
|--|------------------------|-----------|-------------------------------|-----------------------------------|--|
| Standard Cu/Al Pressure Terminals | | | | | |
| 400 | Aluminum | Cu/Al | 4/0-600 (1) | 120-300 | 2TA401LDK-2 Pole Kit ^① 3TA401LDK-3 Pole Kit ^① |
| 500 | Aluminum | Cu/Al | 250-350 (2) | 120-150 | TA602LD ^② |
| 600 | Aluminum | Cu/Al | 400-500 (2) | 185-240 | 2TA603LDK-2 Pole Kit [●] 3TA603LDK-3 Pole Kit ^① |
| Optional Copper Pressure Type Terminals | | | | | |
| 600 | Copper | Cu | 250-350 (2) | 120-150 | T602LD ^② |



^① Terminal kits contain one terminal for each pole and one terminal cover.
^② Individually packed.



Series C L-Frame HMCP Termination Accessories

BASE MOUNTING HARDWARE

Hardware for surface mounting of MCPs is supplied only on request. Hardware consists of mounting screws and lockwashers. Order hardware for MCP pole configurations as required.

Ordering Information

Base mounting hardware is supplied at no charge when ordered with an MCP. When ordering separately, refer to price list.

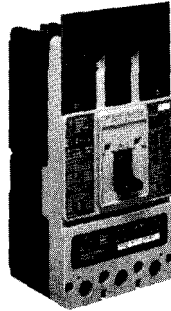
Imperial Thread

| Number of Poles | Description | Type of Mounting | STYLE NUMBER |
|-----------------|---|------------------|--------------|
| 2, 3 | 0.250-20 x 1.5 inch Filister-Head Steel Screws and Lockwashers and Flat Washers | Individual | 21C6782G05 |

Metric Thread

| Number of Poles | Description | Type of Mounting | STYLE NUMBER |
|-----------------|-------------|------------------|--------------|
| 2, 3 | | Individual | 5103A09G01 |

TERMINAL SHIELDS

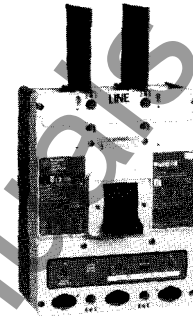


Terminal shields provide protection against accidental contact with live line side terminations. Terminal shields are fabricated from high dielectric insulating material and fasten over the front terminal access openings. Small openings in the shields provide limited access to the terminals for tightening connectors. (Field installation only.)

Ordering Information

| |
|--------------|
| STYLE NUMBER |
| 314C420G01 |

INTERPHASE BARRIERS



The interphase barriers provide additional electrical clearance between MCP poles for special termination applications. The barriers are high dielectric insulating plates that are installed in the molded slots between the terminals. (Field installation only.) Two per package.

Ordering Information

| |
|----------------|
| CATALOG NUMBER |
| IPB4 |

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 Pittsburgh, Pennsylvania, U.S.A. 15220



January 1995
Supersedes Frame Book 29-111,
pages 1-20, dated May 1986, Frame Book
29-111A, pages 1-24, dated May 1987,
and Technical Data 29-120, pages 59-60,
dated March 1993
Mailed to: E, D, C/29-100A, 29-300A

Series C[®] HMCP Accessory Combinations

ALLOWABLE ACCESSORY COMBINATIONS

Different combinations of accessories can be supplied, depending on the types of accessories and the number of poles in the circuit breaker.

| Termination Accessories | Reference | G-Frame | | | Reference | F-Frame | | | Reference | J-Frame | | | Reference | K-Frame | | | Reference | L-Frame | | |
|---------------------------|-----------|---------|------|-----|-----------|---------|------|-----|-----------|---------|------|-----|-----------|---------|------|-----|-----------|---------|------|-----|
| | Page | Lt. | Ctr. | Rt. | Page | Lt. | Ctr. | Rt. | Page | Lt. | Ctr. | Rt. | Page | Lt. | Ctr. | Rt. | Page | Lt. | Ctr. | Rt. |
| Line and Load Terminals | | | | | 7 | ● | | | 11 | ● | | | 12 | ● | | | 15 | ● | | |
| Keeper Nut/Plug Nut | | | | | 8 | ● | | | 11 | ● | | | 13 | ● | | | | | | |
| Control Wire Terminal Kit | | | | | 8 | ● | | | 11 | ● | | | 11 | ● | | | | | | |
| Base Mounting Hardware | 19 | ● | | | 8 | ● | | | 13 | ● | | | 13 | ● | | | 16 | ● | | |
| Terminal Shields | | | | | | ● | | | 13 | ● | | | 13 | ● | | | 16 | ● | | |
| Terminal End Covers | | | | | 9 | ● | | | | | | | 14 | ● | | | | | | |
| Interphase Barriers | | | | | 9 | ● | | | 14 | ● | | | 14 | ● | | | 16 | ● | | |
| ELC Current Limiter | | | | | 9 | ● | | | | | | | | | | | | | | |

Internal Accessories (only 1 internal accessory per pole maximum)

| | | | | | | | | | | | | | | | | | | | | |
|--------------------------------|----|---|--|---|----|---|--|---|----|---|--|---|----|---|--|---|----|---|--|---|
| Alarm Lockout (Make/Break) | 19 | | | ■ | 21 | □ | | □ | 27 | □ | | □ | 33 | □ | | □ | 39 | ■ | | ■ |
| Alarm Lockout (2Make/2Break) | | | | | 21 | □ | | □ | | | | | 33 | □ | | □ | 39 | ■ | | ■ |
| Auxiliary Switch (1A, 1B) | 19 | | | ■ | 22 | ■ | | ■ | 28 | ■ | | ■ | 34 | ■ | | ■ | 40 | ■ | | ■ |
| Auxiliary Switch (2A, 2B) | 19 | | | ■ | 22 | ■ | | ■ | 28 | ■ | | ■ | 34 | ■ | | ■ | 40 | ■ | | ■ |
| Auxiliary Switch/Alarm Lockout | 19 | | | ■ | 22 | □ | | □ | 28 | □ | | □ | 34 | □ | | □ | 40 | ■ | | ■ |
| Shunt Trip-Standard | 19 | ■ | | | 23 | ■ | | ■ | 29 | ■ | | ■ | 35 | ■ | | ■ | 41 | ■ | | |
| Shunt Trip-Low Energy | | | | | 24 | ■ | | ■ | 30 | ■ | | ■ | 36 | ■ | | ■ | 42 | ■ | | |
| Undervoltage Release Mechanism | | | | | 25 | ■ | | ■ | 31 | ■ | | ■ | 37 | ■ | | ■ | 43 | ■ | | |

External Accessories

| | | | | | | | | | | | | | | | | | | | | |
|---|----|---|--|--|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|
| Non-Padlockable Handle Block | 19 | ● | | | 45 | | ■ | | 47 | | ■ | | 49 | | ■ | | 51 | | ■ | |
| Padlockable Handle Block | | | | | | | | | 47 | | ■ | | 49 | | ■ | | | | | |
| Padlockable Handle Lock Hasp | | | | | 45 | □ | | □ | 47 | □ | | □ | 49 | □ | | □ | 51 | □ | | □ |
| Key Interlock Kit | | | | | 45 | □ | | □ | 47 | □ | | □ | 49 | □ | | □ | 51 | □ | | □ |
| Sliding Bar Interlock-Requires 2 Breakers | | | | | 46 | | ● | | 48 | | ● | | 50 | | ● | | 52 | | ● | |
| Electrical (Solenoid) Operator | | | | | 46 | | ● | | 48 | | ● | | 50 | | ● | | 52 | | ● | |
| Handle Mechanism | | | | | 53-56 | | ● | | 53-56 | | ● | | 53-56 | | ● | | 53-56 | | ● | |
| Door Hardware/Accessories | | | | | 55 | | ● | | 55 | | ● | | 55 | | ● | | 55 | | ● | |
| DI-N Rail Adaptor | | ● | | | 19 | | | | | | | | | | | | | | | |

Modifications (Refer to Cutler-Hammer)

| | | | | | | | | | | | | | | | | | | | | |
|---------------------------|--|---|--|--|----|--|---|--|----|--|---|--|----|--|---|--|----|--|---|--|
| Moisture Fungus Treatment | | ● | | | 57 | | ● | | 57 | | ● | | 57 | | ● | | 57 | | ● | |
| Freeze Test | | ● | | | 57 | | ● | | 57 | | ● | | 57 | | ● | | 57 | | ● | |

- Applicable in indicated pole position
- May be mounted on left or right pole - not both
- Accessory available/Modification available



Series C HMCP Accessory Combinations

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Selection Data
29-120H
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Series C® G-Frame GMCP Internal Accessories

MODIFICATIONS FOR GMCP

These modifications must be factory installed^①.

| Type Accessory | Electrical Ratings | | | Contact Arrangement | STYLE NUMBERS |
|--|--------------------|-----------|------|------------------------|------------------|
| | Volts | Frequency | Amps | | |
| Shunt Trip | 120 | 50/60 Hz | 1.1 | | 1373D62G18 |
| Shunt Trip | 240 | 50/60 Hz | 2.1 | | 1373D62G19 |
| Auxiliary Switch | 240 | 50/60 Hz | 6 | 1a/1b | 1288C74G03 |
| Auxiliary Switch | 240 | 50/60 Hz | 6 | 2a/2b | 1288C73G03 |
| Alarm Switch | 240 | 50/60 Hz | 6 | Make/Break | 1288C75G03 |
| Auxiliary Switch Alarm Switch Combination | 240 | 50/60 Hz | 6 | 1a/1b Make/Break | 1288C76G09 |

ACCESSORIES FOR GMCP

External Mounted Accessories

| Description | STYLE NUMBERS | No. Units in Package |
|-------------------------------|---------------|----------------------------|
| Lock Dog (Non-Padlockable) | 1294C01H01 | 1 |
| Mounting Hardware | 624B375G23 | 1 |
| DIN Rail Adaptor ^② | 1225C79G02 | 10 |

^① Only one accessory may be installed in MCP.

^② For use with standard 35mm DIN rail such as, 35 x 7.5 or 15mm per DIN EN50022.



Series C G-Frame GMCP Internal Accessories

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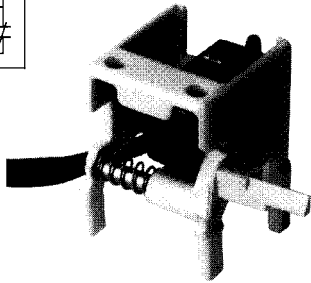
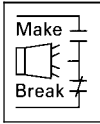




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Series C[®] F-Frame HMCP Internal Accessories

ALARM (SIGNAL)/LOCKOUT SWITCH



The alarm (signal)/lockout switch monitors MCP trip status and provides remote signaling and interlocking capabilities when the MCP trips. The alarm (signal)/lockout switch consists of one or two SPDT (single-pole double-throw) switches housed in a plug-in module. The SPDT switch contacts are identified as make and break contacts. When the MCP trips, the make contact closes and the break contact opens.

Electrical Rating Data ^{① ②}

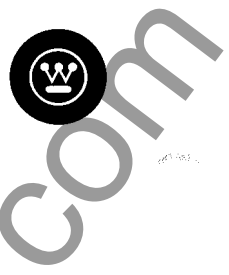
| Maximum Voltage | Frequency | Maximum Current Amps | Dielectric Withstand Voltage |
|-----------------|-----------|----------------------|------------------------------|
| 600 | 50/60 Hz | 6 | 2500 |
| 125 | Dc | 0.5 ^③ | 2200 |
| 250 | Dc | 0.25 ^③ | 2200 |

Ordering Information

Alarm (Signal)/Lockout Switch

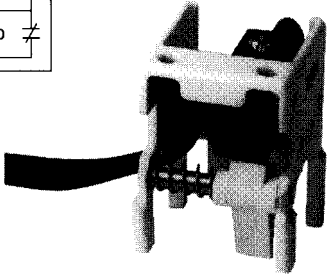
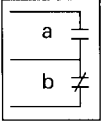
| Number of Contacts (Make and Break) | Mounting Location (Pole) | Factory Mounted | | | | Field Mounted | |
|-------------------------------------|----------------------------|------------------------------|--------------------|--------------------|--------------------|--------------------------------------|----------------------|
| | | Connection Type and Location | | | | Field Installation Kits ^⑤ | |
| | | 18-inch Pigtail Leads | | Terminal Block | | Pigtail Leads | Terminal Block |
| | | Same Side | Rear ^⑥ | Opposite Side | Same Side | | |
| | | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| 1 | Left ^⑦ Right | MA1L1LA MA1L1RA | MA1L1LB MA1L1RB | MA1L1LC MA1L1RC | MA1L1LT MA1L1RT | MA1L1LPK MA1L1RPK | MA1L1LTK MA1L1RTK |
| 2 | Left ^⑦ Right | MA2L1LA MA2L1RA | MA2L1LB MA2L1RB | ..... ..... | MA2L1LT MA2L1RT | MA2L1LPK MA2L1RPK | MA2L1LTK MA2L1RTK |

^① Endurance: 6000 electrical operations plus 4000 mechanical operations.
^② Pigtail wire size: No. 18 AWG (0.82 mm²).
^③ Non-inductive load.
^④ Inductive (L/R = 0.026).
^⑤ Not listed with Underwriters Laboratories, Inc., for field installation.
^⑥ Standard pigtail lead exit location.
^⑦ Standard mounting location.



Series C F-Frame HMCP Internal Accessories

AUXILIARY SWITCH



Electrical Rating Data ① ②

| Maximum Voltage | Frequency | Maximum Current Amps | Dielectric Withstand Voltage |
|-----------------|-----------|----------------------|------------------------------|
| 125 ③ | 50/60 Hz | 1 | 2500 |
| 600 | 50/60 Hz | 6 | 2500 |
| 125 | Dc | 0.5 ④ | 2200 |
| 250 | Dc | 0.25 ④ | 2200 |

Ordering Information

Auxiliary Switch

| Number of Contacts a and b | Mounting Location (Pole) | Factory Mounted | | | | Field Mounted | |
|----------------------------|--------------------------|------------------------------|----------|---------------|----------------|---------------------------|----------------|
| | | Connection Type and Location | | | | Field Installation Kits ⑤ | |
| | | 18-inch Pigtail Leads | | | Terminal Block | Pigtail Leads | Terminal Block |
| | | Same Side | Rear ⑥ | Opposite Side | Same Side | | |
| CATALOG NUMBERS | | | | | | CATALOG NUMBERS | |
| 1 | Left ② ⑥ | A1X1LA | A1X1LB | A1X1LC | A1X1LT | A1X1PK | A1X1LTK |
| | Right | E1X1LA ⑦ | E1X1LB ⑦ | E1X1LC ⑦ | ..... | E1X1PK | ..... |
| 2 | Left ② ⑥ | A1X1RA | A1X1RB | A1X1RC | A1X1RT | A1X1PK | A1X1RTK |
| | Right | E1X1RA ⑦ | E1X1RB ⑦ | E1X1RC ⑦ | ..... | E1X1PK | ..... |
| 1 | Left ② ⑥ | A2X1LA | A2X1LB | ..... | A2X1LT | A2X1LPK | A2X1LTK |
| | Right | E2X1LA ⑦ | E2X1LB ⑦ | ..... | ..... | E2X1LPK | ..... |
| 2 | Left ② ⑥ | A2X1RA | A2X1RB | ..... | A2X1RT | A2X1RPK | A2X1RTK |
| | Right | E2X1RA ⑦ | E2X1RB ⑦ | ..... | ..... | E2X1RPK | ..... |

Auxiliary Switch and Alarm (Signal)/Lockout Switch Combination

| Mounting Location (Pole) | Factory Mounted | | | Field Mounted | | |
|--------------------------|------------------------------|---------|----------------|---------------------------|-----------------|--|
| | Connection Type and Location | | | Field Installation Kits ⑤ | | |
| | 18-inch Pigtail Leads | | Terminal Block | Pigtail Leads | Terminal Block | |
| | Same Side | Rear ⑥ | Same Side | | | |
| CATALOG NUMBERS | | | | | CATALOG NUMBERS | |
| Left | MAAL1LA | MAAL1LB | MAAL1LT | MAAL1LPK | MAAL1LTK | |
| Right | MAAL1RA | MAAL1RB | MAAL1RT | MAAL1RPK | MAAL1RTK | |

- Endurance: 6000 electrical operations plus 4000 mechanical operations.
- ② Pigtail wire size: No. 18 AWG (0.82 mm²).
- ③ For use in electronic circuit of 100 micro-amps and 15 Vdc minimum.
- ④ Non-inductive load.
- ⑤ Not listed with Underwriters Laboratories, Inc., for field installation.
- ⑥ Standard pigtail lead exit location.
- ⑦ 125-volt (Max.), 50/60 Hz switch for use in electronic circuit of 100 micro-amp and 15 Vdc minimum.
- ⑧ Standard mounting location.

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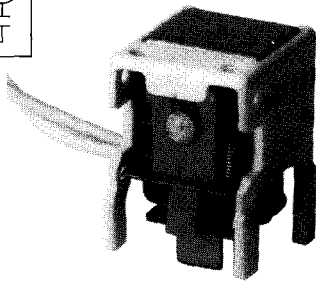
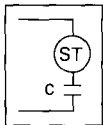




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Series C® F-Frame HMCP Internal Accessories

SHUNT TRIP



The shunt trip provides remote controlled tripping of the MCP. The shunt trip consists of an intermittent rated solenoid with a tripping plunger and a cutoff switch mounted in a plug-in module. The 120 Vac shunt trip is marked, "suitable for use with ground fault protection devices."

Electrical Rating Data●●③

| 50/60 Hz | | | Dc | | |
|----------------|---------------------------|-----|----------------|---------------------------|-----|
| Supply Voltage | Minimum Operating Voltage | VA | Supply Voltage | Minimum Operating Voltage | VA |
| 12 | 6.75 | 75 | 12 | 9 | 400 |
| 24 | | 300 | 24 | | |
| 48 | 36 | 92 | 48 | 36 | 100 |
| 60 | | 140 | 60 | | 160 |
| 110 | | 480 | | | |
| 120 | | 570 | | | |
| 127 | | 640 | | | |
| 208 | 156 | 180 | 110 | 165 | 55 |
| 220 | | 200 | 120 | | 66 |
| 240 | | 240 | 125 | | 71 |
| 380 | | 610 | 127 | | 72 |
| 415 | 300 | 130 | 220 | ... | 110 |
| 440 | | 330 | 250 | ... | 140 |
| 480 | | 380 | ... | ... | ... |
| 525 | | 450 | ... | ... | ... |
| 550 | | 530 | ... | ... | ... |
| 600 | | 590 | ... | ... | ... |
| | | 700 | ... | ... | ... |

Ordering Information

Select shunt trip catalog number for the voltage within the indicated voltage range. Shunt trip coils are designed to be applied at specific Ac or Dc voltages within the voltage range shown. Electrical ratings are also shown on applicable MCP accessory nameplates.

Shunt Trip

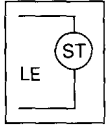
| Voltage Rating (Ac Freq = 50/60 Hz) | Factory Mounted | | | | Field Mounted | |
|--|------------------------------|----------|---------------|----------------|---------------------------|----------------|
| | Connection Type and Location | | | | Field Installation Kits ④ | |
| | 18-inch Pigtail Leads ⑤ | | | Terminal Block | Pigtail Leads | Terminal Block |
| | Same Side | Rear ⑥ | Opposite Side | Same Side | | |
| CATALOG NUMBERS | | | | | CATALOG NUMBERS | |
| Left-Pole Mounting Ac/Dc Ratings⑦ | | | | | | |
| 12-24 Vac or Vdc | SNT1LA03 | SNT1LB03 | SNT1LC03 | SNT1LT03 | SNT1LP03K | SNT1LT03K |
| 48-127 Vac or 48-60 Vdc ⑥ | SNT1LA08 | SNT1LB08 | SNT1LC08 | SNT1LT08 | SNT1LP08K | SNT1LT08K |
| 208-380 Vac or 110-127 Vdc | SNT1LA12 | SNT1LB12 | SNT1LC12 | SNT1LT12 | SNT1LP12K | SNT1LT12K |
| 415-600 Vac or 220-250 Vdc | SNT1LA18 | SNT1LB18 | SNT1LC18 | SNT1LT18 | SNT1LP18K | SNT1LT18K |
| Right-Pole Mounting Ac/Dc Ratings | | | | | | |
| 9-24 Vac or Vdc | SNT1RA03 | SNT1RB03 | SNT1RC03 | SNT1RT03 | SNT1RP03K | SNT1RT03K |
| 48-127 Vac or 48-60 Vdc ⑥ | SNT1RA08 | SNT1RB08 | SNT1RC08 | SNT1RT08 | SNT1RP08K | SNT1RT08K |
| 208-380 Vac or 110-127 Vdc | SNT1RA12 | SNT1RB12 | SNT1RC12 | SNT1RT12 | SNT1RP12K | SNT1RT12K |
| 415-600 Vac or 220-250 Vdc | SNT1RA18 | SNT1RB18 | SNT1RC18 | SNT1RT18 | SNT1RP18K | SNT1RT18K |

- ① Average unlatching time: 6 milliseconds.
- ② Average MCP contact total opening time: 18 milliseconds.
- ③ Endurance: 6000 electrical operations plus 4000 mechanical operations.
- ④ Not listed with Underwriters Laboratories, Inc., for field installation.
- ⑤ Pigtail wire size: No. 18 AWG (0.82 mm²).
- ⑥ Standard pigtail lead exit location.
- ⑦ Standard mounting location.
- 120 Vac marked suitable for ground fault protection devices.



Series C F-Frame HMCP Internal Accessories

LOW ENERGY SHUNT TRIP



A low energy shunt trip (LEST) device, rated 24 Vdc, is available for special applications. The LEST is designed to trip the MCP when a 100 microfarad capacitor is discharged through the LEST. A cut-off switch must be included in the external circuit.

Ordering Information

Select shunt trip catalog number for the voltage within the indicated voltage range. Shunt trip coils are designed to be applied at specific Ac or Dc voltages within the voltage range shown. Electrical ratings are also shown on applicable MCP accessory nameplates.

Low Energy Shunt Trip ①

| Mounting Positions | Factory Mounted | | | | Field Mounted | |
|--------------------|------------------------------|---------|---------------|-----------------|---------------------------|----------------|
| | Connection Type and Location | | | | Field Installation Kits ② | |
| | 18-inch Pigtail Leads ③ | | | Terminal Block | Pigtail Leads | Terminal Block |
| | Same Side | Rear ④ | Opposite Side | Same Side | | |
| CATALOG NUMBERS | | | | CATALOG NUMBERS | | |
| Left Pole | MLST1LA | MLST1LB | MLST1LC | MLST1LT | MLST1LPK | MLST1LTK |
| Right Pole | MLST1RA | MLST1RB | MLST1RC | MLST1RT | MLST1RPK | MLST1RTK |

① Cutoff provisions required in control circuit.

② Not listed with Underwriters Laboratories, Inc., for field installation.

③ Pigtail wire size: No. 18 AWG (0.82 mm²).

④ Standard pigtail lead exit location.

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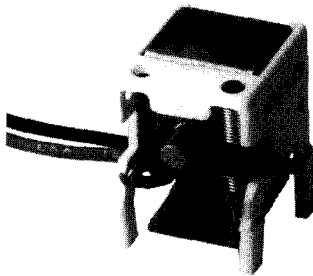
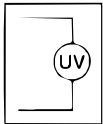




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UNDervOLTAGE RELEASE MECHANISM



The undervoltage release mechanism monitors a voltage (typically a line voltage) and trips the MCP when the voltage falls to between 70 and 35 percent of the solenoid coil rating.

The undervoltage release mechanism consists of a continuous rated solenoid with a plunger and tripping lever mounted in a plug-in module. The tab on the tripping lever resets the undervoltage release mechanism when normal voltage has been restored and the MCP handle is moved to the reset (or OFF) position. With less than pickup voltage applied to the undervoltage release mechanism, the MCP contacts will not touch when a closing operation is attempted.

NOTE: Undervoltage release mechanism accessories are not designed for, and should not be used as, circuit interlocks.

Electrical Rating Data ^①

| 50/60 Hz | | | | | Dc | | | | |
|----------------|-----------------|-------|----------------|------------|----------------|-----------------|------|----------------|-----|
| Supply Voltage | Dropout Voltage | | Pickup Voltage | VA | Supply Voltage | Dropout Voltage | | Pickup Voltage | VA |
| | Min. | Max. | Max. | | | Min. | Max. | Max. | |
| 12 | 4.2 | 6.3 | 7.6 | 1.3 2.5 | 12 | 4.2 | 8.4 | 10.2 | 2.8 |
| 24 | 8.4 | 16.8 | 20.4 | 1.4 | 24 | 8.4 | 16.8 | 20.4 | 1.6 |
| 48 | 21 | 33.6 | 40.8 | 1.2 | 48 | 21 | 33.6 | 40.8 | 1.3 |
| 60 | | | | 1.9 | 60 | | | | 2.0 |
| 110 | 44.5 | 77 | 93.5 | 1.3 | 110 | 44.5 | 77 | 93.5 | 1.5 |
| 120 | | | | 1.5 | 120 | | | | 1.7 |
| 127 | | | | 1.7 | 125 | | | | 1.9 |
| 208 | 84 | 145.6 | 176.8 | 2.2 | 220 | 87.5 | 154 | 187 | 2.6 |
| 220 | | | | 2.4 | 250 | | | | 3.4 |
| 240 | | | | 2.9 | ... | ... | ... | ... | ... |
| 380 | 168 | 266 | 323 | 2.9 | ... | ... | ... | ... | ... |
| 415 | | | | 3.5 | ... | ... | ... | ... | ... |
| 440 | | | | 3.9 | ... | ... | ... | ... | ... |
| 480 | | | | 4.6 | ... | ... | ... | ... | ... |
| 525 | 210 | 367 | 446 | 4.3 | ... | ... | ... | ... | ... |
| 550 | | | | 4.8 | ... | ... | ... | ... | ... |
| 600 | | | | 5.8 | ... | ... | ... | ... | ... |

^① Endurance: 6000 electrical operations plus 4000 mechanical operations.



Series C F-Frame HMCP Internal Accessories

Ordering Information

Select handle reset undervoltage release mechanism catalog number for the voltage within the indicated voltage range. Undervoltage release mechanism coils are designed to be applied at specific Ac or Dc voltages within the voltage range shown. Electrical ratings are shown on applicable MCP accessory nameplates.

Undervoltage Release Mechanism

| Voltage Rating (Ac Freq = 50/60 Hz) | Factory Mounted | | | | | Field Mounted | |
|---|------------------------------|-----------|---------------|----------------|-----------------|---------------------------|----------------|
| | Connection Type and Location | | | | | Field Installation Kits ① | |
| | 18-inch Pigtail Leads | | | Terminal Block | | Pigtail Leads | Terminal Block |
| | Same Side | Rear ② | Opposite Side | Same Side | | | |
| CATALOG NUMBERS | | | | | CATALOG NUMBERS | | |
| Left-Pole Mounting Ac Ratings ③ | | | | | | | |
| 12 Vac | MUVH1LA02 | MUVH1LB02 | MUVH1LC02 | MUVH1LT02 | MUVH1LP02K | MUVH1LT02K | |
| 24 Vac | MUVH1LA03 | MUVH1LB03 | MUVH1LC03 | MUVH1LT03 | MUVH1LP03K | MUVH1LT03K | |
| 48-60 Vac | MUVH1LA05 | MUVH1LB05 | MUVH1LC05 | MUVH1LT05 | MUVH1LP05K | MUVH1LT05K | |
| 110-127 Vac | MUVH1LA08 | MUVH1LB08 | MUVH1LC08 | MUVH1LT08 | MUVH1LP08K | MUVH1LT08K | |
| 208-240 Vac | MUVH1LA11 | MUVH1LB11 | MUVH1LC11 | MUVH1LT11 | MUVH1LP11K | MUVH1LT11K | |
| 380-480 Vac | MUVH1LA15 | MUVH1LB15 | MUVH1LC15 | MUVH1LT15 | MUVH1LP15K | MUVH1LT15K | |
| 525-600 Vac | MUVH1LA18 | MUVH1LB18 | MUVH1LC18 | MUVH1LT18 | MUVH1LP18K | MUVH1LT18K | |
| Right-Pole Mounting Ac Ratings | | | | | | | |
| 12 Vac | MUVH1RA02 | MUVH1RB02 | MUVH1RC02 | MUVH1RT02 | MUVH1RP02K | MUVH1RT02K | |
| 24 Vac | MUVH1RA03 | MUVH1RB03 | MUVH1RC03 | MUVH1RT03 | MUVH1RP03K | MUVH1RT03K | |
| 48-60 Vac | MUVH1RA05 | MUVH1RB05 | MUVH1RC05 | MUVH1RT05 | MUVH1RP05K | MUVH1RT05K | |
| 110-127 Vac | MUVH1RA08 | MUVH1RB08 | MUVH1RC08 | MUVH1RT08 | MUVH1RP08K | MUVH1RT08K | |
| 208-240 Vac | MUVH1RA11 | MUVH1RB11 | MUVH1RC11 | MUVH1RT11 | MUVH1RP11K | MUVH1RT11K | |
| 380-480 Vac | MUVH1RA15 | MUVH1RB15 | MUVH1RC15 | MUVH1RT15 | MUVH1RP15K | MUVH1RT15K | |
| 525-600 Vac | MUVH1RA18 | MUVH1RB18 | MUVH1RC18 | MUVH1RT18 | MUVH1RP18K | MUVH1RT18K | |
| Left-Pole Mounting Dc Ratings ③ | | | | | | | |
| 12 Vdc | MUVH1LA20 | MUVH1LB20 | MUVH1LC20 | MUVH1LT20 | MUVH1LP20K | MUVH1LT20K | |
| 24 Vdc | MUVH1LA21 | MUVH1LB21 | MUVH1LC21 | MUVH1LT21 | MUVH1LP21K | MUVH1LT21K | |
| 48-60 Vdc | MUVH1LA23 | MUVH1LB23 | MUVH1LC23 | MUVH1LT23 | MUVH1LP23K | MUVH1LT23K | |
| 110-127 Vdc | MUVH1LA26 | MUVH1LB26 | MUVH1LC26 | MUVH1LT26 | MUVH1LP26K | MUVH1LT26K | |
| 220-250 Vdc | MUVH1LA28 | MUVH1LB28 | MUVH1LC28 | MUVH1LT28 | MUVH1LP28K | MUVH1LT28K | |
| Right-Pole Mounting Dc Ratings | | | | | | | |
| 12 Vdc | MUVH1RA20 | MUVH1RB20 | MUVH1RC20 | MUVH1RT20 | MUVH1RP20K | MUVH1RT20K | |
| 24 Vdc | MUVH1RA21 | MUVH1RB21 | MUVH1RC21 | MUVH1RT21 | MUVH1RP21K | MUVH1RT21K | |
| 48-60 Vdc | MUVH1RA23 | MUVH1RB23 | MUVH1RC23 | MUVH1RT23 | MUVH1RP23K | MUVH1RT23K | |
| 110-127 Vdc | MUVH1RA26 | MUVH1RB26 | MUVH1RC26 | MUVH1RT26 | MUVH1RP26K | MUVH1RT26K | |
| 220-250 Vdc | MUVH1RA28 | MUVH1RB28 | MUVH1RC28 | MUVH1RT28 | MUVH1RP28K | MUVH1RT28K | |

① Not listed with Underwriters Laboratories, Inc., for field installation.
 ② Standard pigtail lead exit location.
 ③ Standard mounting location.

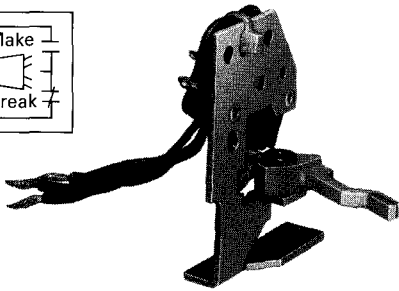
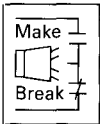
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 29-111A, pages 1-24, dated May 1987,
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 dated March 1993
 Mailed to: E, D, C/29-100A, 29-300A

Series C[®] J-Frame HMCP Internal Accessories

ALARM (SIGNAL)/LOCKOUT SWITCH



The alarm (signal)/lockout switch monitors MCP trip status and provides remote signaling and interlocking capabilities when the MCP trips. The alarm (signal)/lockout switch consists of one SPDT (single-pole double-throw) switch assembled to a plug-in module mounted in retaining slots in the top of the trip unit. The SPDT switch contacts are identified as make and break contacts. When the MCP trips, the make contact closes and the break contact opens.

Electrical Rating Data^{①②}

| Maximum Voltage | Frequency | Maximum Current Amps | Dielectric Withstand Voltage |
|-----------------|-----------|----------------------|------------------------------|
| 600 | 50/60 Hz | 6 | 2500 |
| 125 | Dc | 0.5 ^③ | |
| 250 | Dc | 0.25 ^③ | |

Ordering Information

Alarm (Signal)/Lockout Switch

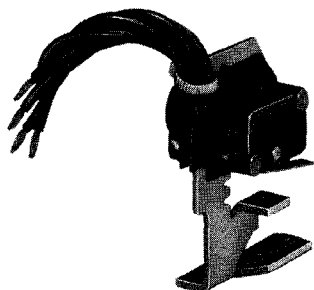
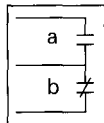
| Number of Sets of Contacts (1M and 1B) | Mounting Location (Pole) | Factory Mounted | | | | Field Mounted | |
|--|----------------------------|------------------------------|-------------------|------------------|------------------|--------------------------------------|--------------------|
| | | Connection Type and Location | | | | Field Installation Kits ^④ | |
| | | 18-inch Pigtail Leads | | Terminal Block | | Pigtail Leads | Terminal Block |
| | | Same Side | Rear ^⑤ | Opposite Side | Same Side | | |
| | | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| 1 | Left Right ^⑤ | A1L2LA A1L2RA | A1L2LB A1L2RB | A1L2LC A1L2RC | A1L2LT A1L2RT | A1L2LPK A1L2RPK | A1L2LTK A1L2RTK |

^① Endurance — 6000 electrical operations plus 2000 mechanical operations.
^② Pigtail wire size — No. 18 AWG (0.82 mm²).
^③ Non-inductive load.
^④ Listed with Underwriters Laboratories, Inc. for field installation on interchangeable trip unit MCPs under E64983.
^⑤ Standard mounting location — leads exit rear of MCP.



Series C J-Frame HMCP Internal Accessories

AUXILIARY SWITCH



Electrical Rating Data^{①②}

| Maximum Voltage | Frequency | Maximum Current Amps | Dielectric Withstand Voltage |
|-----------------|-----------|----------------------|------------------------------|
| 600 | 50/60 Hz | 6 | 2500 |
| 125 | dc | 0.5 ^③ | |
| 250 | dc | 0.25 ^③ | |

Ordering Information

Auxiliary Switch

| Number of Sets of Contacts (1a and 1b) | Mounting Location (Pole) | Factory Mounted | | | | Field Mounted | |
|--|----------------------------|------------------------------|-------------------|----------------|-----------|--------------------------------------|----------------|
| | | Connection Type and Location | | | | Field Installation Kits ^④ | |
| | | 18-inch Pigtail Leads | | Terminal Block | | Pigtail Leads | Terminal Block |
| | | Same Side | Rear ^⑤ | Opposite Side | Same Side | | |
| | | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| 1 | Left Right ^⑤ | A1X2LA | A1X2LB | A1X2LC | A1X2LT | A1X2PK | A1X2LTK |
| | | A1X2RA | A1X2RB | A1X2RC | A1X2RT | A1X2PK | A1X2RTK |
| 2 | Left Right ^⑤ | A2X2LA | A2X2LB | ..... | A2X2LT | A2X2PK | A2X2LTK |
| | | A2X2RA | A2X2RB | ..... | A2X2RT | A2X2PK | A2X2RTK |

The auxiliary switch provides MCP contact status information by monitoring the position of the molded crossbar containing the moving contact arms. The auxiliary switch is used for remote signaling and interlocking purposes, and consists of one or two SPDT switches assembled to a plug-in module mounted in retaining slots in the top of the trip unit. Each SPDT switch has one "a" and one "b" contact. When the MCP contacts are open, the "a" contact is open and the "b" contact is closed.

Auxiliary Switch-Alarm (Signal)/Lockout (ASL) Switch Combination

Each catalog number listed in the following table includes one auxiliary switch and one alarm switch. In an auxiliary switch ASL switch combination, the auxiliary switch is always mounted on the side of the plug-in module next to the center pole of the MCP.

| Number of Sets of Contacts (1a and 1b and 1M and 1B) | Mounting Location (Pole) | Factory Mounted | | | | Field Mounted | |
|--|----------------------------|------------------------------|-------------------|----------------|-----------|--------------------------------------|----------------|
| | | Connection Type and Location | | | | Field Installation Kits ^④ | |
| | | 18-inch Pigtail Leads | | Terminal Block | | Pigtail Leads | Terminal Block |
| | | Same Side | Rear ^⑤ | Opposite Side | Same Side | | |
| | | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| 1 | Left Right ^⑤ | AAL2LA | AAL2LB | ..... | AAL2LT | AAL2LPK | AAL2LTK |
| | | AAL2RA | AAL2RB | ..... | AAL2RT | AAL2RPK | AAL2RTK |

- ① Endurance — 6000 electrical operations plus 2000 mechanical operations.
- ② Pigtail wire size — No. 18 AWG (0.82 mm²).
- ③ Non-inductive load.
- ④ Listed with Underwriters Laboratories, Inc. for field installation or interchangeable trip unit MCPs under E64983.
- ⑤ Standard mounting location — leads exit rear of MCP.

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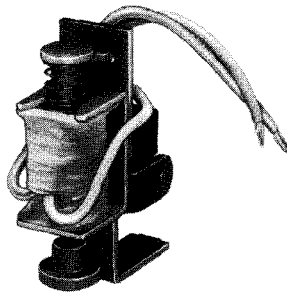
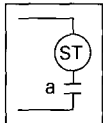




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Series C[®] J-Frame HMCP Internal Accessories

SHUNT TRIP



The shunt trip provides remote controlled tripping of the MCP. The shunt trip consists of an intermittent rated solenoid with a tripping plunger and a cutoff switch assembled to a plug-in module. When required for ground fault protection applications, certain ac rated shunt trips, as noted in the Electrical Rating Table, are suitable for operation at 55 percent of rated voltage.

Electrical Rating Data^{①②③}

| 50-60 Hz | | | Dc | | |
|------------------|---------------------------|------|----------------|---------------------------|------|
| Supply Voltage | Minimum Operating Voltage | VA | Supply Voltage | Minimum Operating Voltage | VA |
| 12 | 8.4 | 31 | 12 | 8.4 | 50 |
| 24 | | 173 | 24 | | 247 |
| 48 | 33.6 | 686 | 48 | 33.6 | 1094 |
| 60 | | 1014 | 60 | | 1698 |
| 110 ^④ | 60.5 | 66 | 110 | 77 | 112 |
| 120 ^④ | | 84 | 120 | | 138 |
| 127 ^④ | | 102 | 125 | | 150 |
| 208 ^④ | | 354 | ... | .. | .... |
| 220 ^④ | | 396 | ... | .. | .... |
| 240 [●] | | 432 | ... | .. | .... |
| 380 | 276 | 95 | 220 | 154 | 40 |
| 400 | | 108 | 250 | .. | 58 |
| 415 | | 120 | ... | .. | .... |
| 440 | | 136 | ... | .. | .... |
| 480 | 336 | 34 | ... | .. | .... |
| 525 | | 42 | ... | .. | .... |
| 550 | | 50 | ... | .. | .... |
| 600 | | 60 | ... | .. | .... |

Ordering Information

Select shunt trip catalog number for the voltage within the indicated voltage range. Shunt trip coils are designed to be applied at specific ac or dc voltages within the voltage range shown. Electrical ratings are also shown on applicable MCP accessory nameplates.

Shunt Trip

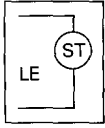
| Voltage Rating (ac Freq = 50/60 Hz) | Factory Mounted | | | | Field Mounted | |
|---|------------------------------|-------------------|---------------|----------------|--------------------------------------|----------------|
| | Connection Type and Location | | | | Field Installation Kits ^⑤ | |
| | 18-inch Pigtail Leads | | | Terminal Block | Pigtail Leads | Terminal Block |
| | Same Side | Rear ^⑥ | Opposite Side | Same Side | | |
| | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| Left-Pole Mounting Ac/Dc Ratings^⑥ | | | | | | |
| 12-24 Vac or Vdc | SNT2LA04 | SNT2LB04 | SNT2LC04 | SNT2T04 | SNT2P04K | SNT2T04K |
| 48-60 Vac or Vdc | SNT2LA06 | SNT2LB06 | SNT2LC06 | SNT2T06 | SNT2P06K | SNT2T06K |
| 110-240 Vac or 110-125 Vdc ^⑦ | SNT2LA11 | SNT2LB11 | SNT2LC11 | SNT2T11 | SNT2P11K | SNT2T11K |
| 380-440 Vac or 220-250 Vdc | SNT2LA14 | SNT2LB14 | SNT2LC14 | SNT2T14 | SNT2P14K | SNT2T14K |
| 480-600 Vac | SNT2LA18 | SNT2LB18 | SNT2LC18 | SNT2T18 | SNT2P18K | SNT2T18K |
| Right-Pole Mounting Ac/Dc Ratings | | | | | | |
| 12-24 Vac or Vdc | SNT2RA04 | SNT2RB04 | SNT2RC04 | SNT2T04 | SNT2P04K | SNT2T04K |
| 48-60 Vac or Vdc | SNT2RA06 | SNT2RB06 | SNT2RC06 | SNT2T06 | SNT2P06K | SNT2T06K |
| 110-240 Vac or 110-125 Vdc ^⑦ | SNT2RA11 | SNT2RB11 | SNT2RC11 | SNT2T11 | SNT2P11K | SNT2T11K |
| 380-440 Vac or 220-250 Vdc | SNT2RA14 | SNT2RB14 | SNT2RC14 | SNT2T14 | SNT2P14K | SNT2T14K |
| 480-600 Vac | SNT2RA18 | SNT2RB18 | SNT2RC18 | SNT2T18 | SNT2P18K | SNT2T18K |

① Approximate unlatching time — 6 milliseconds.
② Approximate total MCP contact opening time — 18 milliseconds.
③ Endurance — 6000 electrical operations plus 2000 mechanical operations.
④ Supply voltages suitable for use with Class 1 GFP devices. Marking label included with accessory kits.
⑤ Listed with Underwriters Laboratories, Inc. for field installation under E64983.
⑥ Standard mounting location — leads exit rear of MCP.
⑦ Suitable for use with Class 1 ground fault sensing element.



Series C J-Frame HMCP Internal Accessories

LOW ENERGY SHUNT TRIP



Low energy shunt trip devices are designed to operate from low energy output signals from dedicated current sensors typically applied in ground fault protection schemes. However, with a proper control voltage source, they may be applied in place of conventional trip devices for special applications. Flux paths surrounding permanent magnets used in the shunt trip assembly hold a charged spring poised in readiness to operate the MCP trip mechanism. When a 100 microfarad capacitor charged to 28 Vdc is discharged through the shunt trip coil, the resultant flux opposes the permanent magnet flux field, which releases the stored energy in the spring to trip the MCP. As the MCP resets, the shunt trip reset arm is actuated by the MCP handle, resetting the shunt trip. The plug-in module is mounted in retaining slots in the top of the trip unit. Coil is intermittent-rated only. Cutoff provisions required in control circuit.

Ordering Information

Select shunt trip catalog number for the voltage within the indicated voltage range. Shunt trip coils are designed to be applied at specific ac or dc voltages within the voltage range shown. Electrical ratings are also shown on applicable MCP accessory nameplates.

Low Energy Shunt Trip^①

| Mounting Positions | Factory Mounted | | | | Field Mounted | |
|------------------------|------------------------------|-------------------|---------------|-----------|----------------|--------------------------------------|
| | Connection Type and Location | | | | | |
| | 18-inch Pigtail Leads | | | | Terminal Block | Field Installation Kits ^② |
| | Same Side | Rear ^③ | Opposite Side | Same Side | Pigtail Leads | Terminal Block |
| CATALOG NUMBERS | | | | | | |
| Left Pole ^③ | LST2LA | LST2LB | LST2LC | LST2LT | LST2LPK | LST2LTK |
| Right Pole | LST2RA | LST2RB | LST2RC | LST2RT | LST2RPK | LST2RTK |

- ① Cutoff provisions required in control circuit.
- ② Listed with Underwriters Laboratories, Inc. for field installation under E64983.
- ③ Standard mounting location - leads exit rear of MCP.

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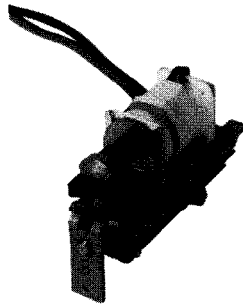
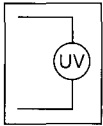




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Series C[®] J-Frame HMCP Internal Accessories

UNDervOLTAGE RELEASE MECHANISM



The undervoltage release mechanism monitors a voltage (typically a line voltage) and trips the MCP when the voltage falls to between 70 and 35 percent of the solenoid coil rating.

The undervoltage release mechanism consists of a continuous rated solenoid with a plunger and tripping lever assembled to a plug-in module. The tab on the tripping lever resets the undervoltage release mechanism when normal voltage has been restored and the MCP handle is moved to the reset (OFF) position. With no voltage applied to the undervoltage release mechanism, the MCP contacts will not touch when a closing operation is attempted.

NOTE: Undervoltage release mechanism accessories are not designed for, and should not be used as, circuit interlocks.

Ordering Information

Select handle reset undervoltage release mechanism catalog number for the voltage within the indicated voltage range. Undervoltage release mechanism coils are designed to be applied at specific ac or dc voltages within the voltage range shown. Performance data is shown on applicable MCP accessory nameplates.

① Endurance: 6000 electrical operations plus 2000 mechanical operations.

② For electrical rating data for manual, automatic and electrical reset undervoltage release mechanisms, refer to Cutler-Hammer.

③ Listed with Underwriters Laboratories, Inc. for field installation under E64983.

④ Standard mounting location – leads exit rear of MCP.

Electrical Rating Data ①②

| 50/60 Hz | | | | Dc | | | | | |
|----------------|-----------------|-------|----------------|-----|----------------|-----------------|------|----------------|-----|
| Supply Voltage | Dropout Voltage | | Pickup Voltage | VA | Supply Voltage | Dropout Voltage | | Pickup Voltage | VA |
| | Min. | Max. | Max. | | | Min. | Max. |  |  | Max. |
| 12 | 4.2 | 8.4 | 10.2 | 1.9 | 12 | 4.2 | 8.4 | 10.2 | 1.6 |
| 24 | 8.4 | 16.8 | 20.4 | 3.9 | 24 | 8.4 | 16.8 | 20.4 | 3.1 |
| 48 | 21 | 33.6 | 40.8 | 2.5 | 48 | 21 | 33.6 | 40.8 | 2.0 |
| 60 | | | | 3.8 | 60 | | | | 3.1 |
| 110 | 44.5 | 77 | 93.5 | 1.8 | 110 | | | | 1.6 |
| 120 | | | | 2.1 | 120 | 44.5 | 77 | 93.5 | 1.9 |
| 127 | | | | 2.4 | 125 | | | | 2.2 |
| 208 | 85 | 145.6 | 176.8 | 2.7 | 220 | 87.5 | 154 | 187 | 3.1 |
| 220 | | | | 3.1 | 250 | | | | 4.0 |
| 240 | | | | 3.8 | ... | ... | ... | ... | ... |
| 380 | 168 | 266 | 323 | 3.4 | ... | ... | ... | ... | ... |
| 415 | | | | 4.0 | ... | ... | ... | ... | ... |
| 440 | | | | 4.6 | ... | ... | ... | ... | ... |
| 480 | | | | 5.4 | ... | ... | ... | ... | ... |

Undervoltage Release Mechanism

| Voltage Rating (ac Freq = 50/60 Hz) | Factory Mounted | | | | Field Mounted | |
|---|------------------------------|-------------------|---------------|----------------|--------------------------------------|----------------|
| | Connection Type and Location | | | | Field Installation Kits ^③ | |
| | 18-inch Pigtail Leads | | | Terminal Block | Pigtail Leads | Terminal Block |
| | Same Side | Rear ^③ | Opposite Side | Same Side | | |
| | CATALOG NUMBERS | | | | CATALOG NUMBERS | |

Left Pole Mounting AC Ratings ④

| | | | | | | |
|-------------|----------|----------|----------|----------|-----------|-----------|
| 12 Vac | UVH2LA02 | UVH2LB02 | UVH2LC02 | UVH2LT02 | UVH2LP02K | UVH2LT02K |
| 24 Vac | UVH2LA03 | UVH2LB03 | UVH2LC03 | UVH2LT03 | UVH2LP03K | UVH2LT03K |
| 48-60 Vac | UVH2LA05 | UVH2LB05 | UVH2LC05 | UVH2LT05 | UVH2LP05K | UVH2LT05K |
| 110-127 Vac | UVH2LA08 | UVH2LB08 | UVH2LC08 | UVH2LT08 | UVH2LP08K | UVH2LT08K |
| 208-240 Vac | UVH2LA11 | UVH2LB11 | UVH2LC11 | UVH2LT11 | UVH2LP11K | UVH2LT11K |
| 380-480 Vac | UVH2LA15 | UVH2LB15 | UVH2LC15 | UVH2LT15 | UVH2LP15K | UVH2LT15K |

Right Pole Mounting AC Ratings

| | | | | | | |
|-------------|----------|----------|----------|----------|-----------|-----------|
| 12 Vac | UVH2RA02 | UVH2RB02 | UVH2RC02 | UVH2RT02 | UVH2RP02K | UVH2RT02K |
| 24 Vac | UVH2RA03 | UVH2RB03 | UVH2RC03 | UVH2RT03 | UVH2RP03K | UVH2RT03K |
| 48-60 Vac | UVH2RA05 | UVH2RB05 | UVH2RC05 | UVH2RT05 | UVH2RP05K | UVH2RT05K |
| 110-127 Vac | UVH2RA08 | UVH2RB08 | UVH2RC08 | UVH2RT08 | UVH2RP08K | UVH2RT08K |
| 208-240 Vac | UVH2RA11 | UVH2RB11 | UVH2RC11 | UVH2RT11 | UVH2RP11K | UVH2RT11K |
| 380-480 Vac | UVH2RA15 | UVH2RB15 | UVH2RC15 | UVH2RT15 | UVH2RP15K | UVH2RT15K |

Left Pole Mounting DC Ratings ④

| | | | | | | |
|-------------|----------|----------|----------|----------|-----------|-----------|
| 12 Vdc | UVH2LA20 | UVH2LB20 | UVH2LC20 | UVH2LT20 | UVH2LP20K | UVH2LT20K |
| 24 Vdc | UVH2LA21 | UVH2LB21 | UVH2LC21 | UVH2LT21 | UVH2LP21K | UVH2LT21K |
| 48-60 Vdc | UVH2LA23 | UVH2LB23 | UVH2LC23 | UVH2LT23 | UVH2LP23K | UVH2LT23K |
| 110-125 Vdc | UVH2LA26 | UVH2LB26 | UVH2LC26 | UVH2LT26 | UVH2LP26K | UVH2LT26K |
| 220-250 Vdc | UVH2LA28 | UVH2LB28 | UVH2LC28 | UVH2LT28 | UVH2LP28K | UVH2LT28K |

Right Pole Mounting DC Ratings

| | | | | | | |
|-------------|----------|----------|----------|----------|-----------|-----------|
| 12 Vdc | UVH2RA20 | UVH2RB20 | UVH2RC20 | UVH2RT20 | UVH2RP20K | UVH2RT20K |
| 24 Vdc | UVH2RA21 | UVH2RB21 | UVH2RC21 | UVH2RT21 | UVH2RP21K | UVH2RT21K |
| 48-60 Vdc | UVH2RA23 | UVH2RB23 | UVH2RC23 | UVH2RT23 | UVH2RP23K | UVH2RT23K |
| 110-125 Vdc | UVH2RA26 | UVH2RB26 | UVH2RC26 | UVH2RT26 | UVH2RP26K | UVH2RT26K |
| 220-250 Vdc | UVH2RA28 | UVH2RB28 | UVH2RC28 | UVH2RT28 | UVH2RP28K | UVH2RT28K |



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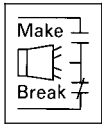
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Series C[®] K-Frame HMCP Internal Accessories

ALARM (SIGNAL)/LOCKOUT SWITCH



The alarm (signal)/lockout switch monitors MCP trip status and provides remote signaling and interlocking capabilities when the MCP trips. The alarm (signal)/lockout switch consists of one or two SPDT (single pole double throw) switches assembled to a plug-in module mounted in retaining slots in the top of the trip unit. The SPDT switch contacts are identified as make and break contacts. When the MCP trips, the make contact closes and the break contact opens.

Electrical Rating Data^{①②}

| Maximum Voltage | Frequency | Maximum Current Amps | Dielectric Withstand Voltage |
|-----------------|-----------|----------------------|------------------------------|
| 600 | 50/60 Hz | 6 | 2500 |
| 125 | Dc | 0.5 ^③ | |
| 250 | Dc | 0.25 ^③ | |

Ordering Information

Alarm (Signal)/Lockout Switch

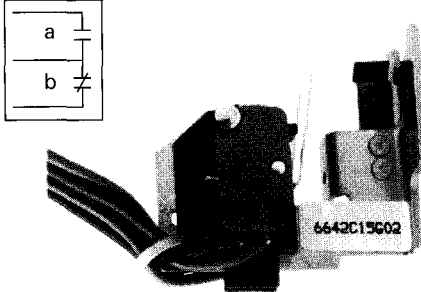
| Number of Sets of Contacts (1M and 1B) | Mounting Location (Pole) | Factory Mounted | | | | Field Mounted | |
|--|----------------------------|------------------------------|-------------------|------------------|------------------|--------------------------------------|--------------------|
| | | Connection Type and Location | | | | Field Installation Kits ^④ | |
| | | 18-inch Pigtail Leads | | Terminal Block | | Pigtail Leads | Terminal Block |
| | | Same Side | Rear ^⑤ | Opposite Side | Same Side | | |
| | | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| 1 | Left Right ^⑤ | A1L3LA A1L3RA | A1L3LB A1L3RB | A1L3LC A1L3RC | A1L3LT A1L3RT | A1L3LPK A1L3RPK | A1L3LTK A1L3RTK |
| 2 | Left Right ^⑤ | A2L3LA A2L3RA | A2L3LB A2L3RB | ..... ..... | A2L3LT A2L3RT | A2L3LPK A2L3RPK | A2L3LTK A2L3RTK |

● Endurance — 5,000 electrical operations plus 1,000 mechanical operations.
 ② Pigtail wire size — No. 18 AWG (0.82 mm²).
 ③ Non-inductive load.
 ④ Listed with Underwriters Laboratories, Inc., for field installation under E64983.
 ⑤ Standard mounting location — leads exit rear of MCP.



Series C K-Frame HMCP Internal Accessories

AUXILIARY SWITCH



The auxiliary switch provides MCP contact status information by monitoring the position of the molded crossbar containing the moving contact arms. The auxiliary switch is used for remote signaling and interlocking purposes, and consists of one or two SPDT switches assembled to a plug-in module mounted in retaining slots in the top of the trip unit. Each SPDT switch has one "a" and one "b" contact. When the MCP contacts are open, the "a" contact is open and the "b" contact is closed.

Electrical Rating Data^{①②}

| Maximum Voltage | Frequency | Maximum Current Amps | Dielectric Withstand Voltage |
|-----------------|-----------|----------------------|------------------------------|
| 600 | 50/60 Hz | 6 | 2500 |
| 125 | Dc | 0.5● | |
| 250 | Dc | 0.25 ^③ | |

Ordering Information

Auxiliary Switch

| Number of Sets of Contacts (1A and 1B) | Mounting Location (Pole) | Factory Mounted | | | | Field Mounted | |
|--|----------------------------|------------------------------|-------------------|------------------|------------------|--------------------------------------|--------------------|
| | | Connection Type and Location | | | | Field Installation Kits ^④ | |
| | | 18-inch Pigtail Leads | | Terminal Block | | Pigtail Leads | Terminal Block |
| | | Same Side | Rear ^⑤ | Opposite Side | Same Side | | |
| | | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| 1 | Left Right ^⑤ | A1X3LA A1X3RA | A1X3LB A1X3RB | A1X3LC A1X3RC | A1X3LT A1X3RT | A1X3PK A1X3PK | A1X3LTK A1X3RTK |
| 2 | Left Right ^⑤ | A2X3LA A2X3RA | A2X3LB A2X3RB | ..... ..... | A2X3LT A2X3RT | A2X3PK A2X3PK | A2X3LTK A2X3RTK |
| 3 | Left Right | A3X3LA A3X3RA | A3X3LB A3X3RB | ..... ..... | A3X3LT A3X3RT | A3X3LPK A3X3RPK | A3X3LTK A3X3RTK |

Auxiliary Switch-Alarm (Signal)/Lockout (ASL) Switch Combination

Each catalog number listed in the following table includes one auxiliary switch and one alarm switch. In an auxiliary switch ASL switch combination, the auxiliary switch is always mounted on the side of the plug-in module next to the center pole of the MCP.

| Number of Sets of Contacts (1a and 1b and 1M and 1B) | Mounting Location (Pole) | Factory Mounted | | | | Field Mounted | |
|--|----------------------------|------------------------------|-------------------|----------------|------------------|--------------------------------------|--------------------|
| | | Connection Type and Location | | | | Field Installation Kits ^④ | |
| | | 18-inch Pigtail Leads | | Terminal Block | | Pigtail Leads | Terminal Block |
| | | Same Side | Rear ^⑤ | Opposite Side | Same Side | | |
| | | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| 1 | Left Right ^⑤ | AAL3LA AAL3RA | AAL3LB AAL3RB | ..... ..... | AAL3LT AAL3RT | AAL3LPK AAL3RPK | AAL3LTK AAL3RTK |

- ① Endurance — 5,000 electrical operations plus 1,000 mechanical operations.
- ② Pigtail wire size — No. 18 AWG (0.82 mm²).
- Non-inductive load.
- ④ Listed with Underwriters Laboratories, Inc., for field installation under E64983.
- ⑤ Standard mounting location — leads exit rear of MCP.

Cutler-Hammer

Westinghouse &
Cutler-Hammer Products
Five Parkway Center
Pittsburgh, Pennsylvania, U.S.A. 15220

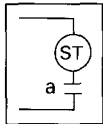




January 1995
Supersedes Frame Book 29-111,
pages 1-20, dated May 1986, Frame Book
29-111A, pages 1-24, dated May 1987,
and Technical Data 29-120, pages 59-60,
dated March 1993
Mailed to: E, D, C/29-100A, 29-300A

Series C[®] K-Frame HMCP Internal Accessories

SHUNT TRIP



The shunt trip provides remote controlled tripping of the MCP. The shunt trip consists of an intermittent rated solenoid with a tripping plunger and a cutoff switch assembled to a plug-in module. When required for ground fault protection applications, certain Ac rated shunt trips, as noted, are suitable for operation at 55 percent of rated voltage.

Electrical Rating Data^①●^③

| 50-60 Hz | | | Dc | | |
|------------------|---------------------------|------|----------------|---------------------------|------|
| Supply Voltage | Minimum Operating Voltage | VA | Supply Voltage | Minimum Operating Voltage | VA |
| 12 | 8.4 | 45 | 12 | 8.4 | 35 |
| 24 | | 200 | 24 | | 170 |
| 48 | | 830 | 48 | | 710 |
| 60 | | 1280 | 60 | | 1105 |
| 110 ^④ | 60 | 100 | 110 | 77 | 110 |
| 120 ^④ | | 120 | 120 | | 130 |
| 127 ^④ | | 140 | 125 | | 140 |
| 208 ^④ | | 420 | ... | .. | .... |
| 220 ^④ | | 470 | ... | .. | .... |
| 240 ^④ | | 550 | ... | .. | .... |
| 380 | 266 | 95 | 220 | 154 | 41 |
| 400 | | 108 | 250 | .. | 54 |
| 415 | | 120 | ... | .. | .... |
| 440 | | 136 | ... | .. | .... |
| 480 | 336 | 40 | ... | .. | .... |
| 525 | | 50 | ... | .. | .... |
| 550 | | 50 | ... | .. | .... |
| 600 | | 70 | ... | .. | .... |
| 9 | 6.3 | 80 | ... | .. | .... |

Ordering Information

Select shunt trip catalog number for the voltage within the indicated voltage range. Shunt trip coils are designed to be applied at specific Ac or Dc voltages within the voltage range shown. Electrical ratings are also shown on applicable MCP accessory nameplates.

Shunt Trip

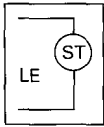
| Voltage Rating (Ac Freq = 50/60 Hz) | Factory Mounted | | | | Field Mounted | |
|---|------------------------------|-------------------|----------------|-----------|--------------------------------------|----------------|
| | Connection Type and Location | | | | Field Installation Kits ^⑤ | |
| | 18-inch Pigtail Leads | | Terminal Block | | Pigtail Leads | Terminal Block |
| | Same Side | Rear ^⑥ | Opposite Side | Same Side | | |
| | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| Left-Pole Mounting Ac/Dc Ratings^⑥ | | | | | | |
| 12-60 Vac or Vdc | SNT3LA05 | SNT3LB05 | SNT3LC05 | SNT3T05 | SNT3P05K | SNT3T05K |
| 110-240 Vac or 110-125 Vdc ^⑦ | SNT3LA11 | SNT3LB11 | SNT3LC11 | SNT3T11 | SNT3P11K | SNT3T11K |
| 380-440 Vac or 220-250 Vdc | SNT3LA14 | SNT3LB14 | SNT3LC14 | SNT3T14 | SNT3P14K | SNT3T14K |
| 480-600 Vac | SNT3LA18 | SNT3LB18 | SNT3LC18 | SNT3T18 | SNT3P18K | SNT3T18K |
| Right-Pole Mounting Ac/Dc Ratings | | | | | | |
| 12-60 Vac or Vdc | SNT3RA05 | SNT3RB05 | SNT3RC05 | SNT3T05 | SNT3P05K | SNT3T05K |
| 110-240 Vac or 110-125 Vdc ^⑦ | SNT3RA11 | SNT3RB11 | SNT3RC11 | SNT3T11 | SNT3P11K | SNT3T11K |
| 380-440 Vac or 220-250 Vdc | SNT3RA14 | SNT3RB14 | SNT3RC14 | SNT3T14 | SNT3P14K | SNT3T14K |
| 480-600 Vac | SNT3RA18 | SNT3RB18 | SNT3RC18 | SNT3T18 | SNT3P18K | SNT3T18K |

- Approximate unlatching time — 6 milliseconds.
- ② Approximate total MCP contact opening time — 18 milliseconds.
- ③ Endurance — 5,000 electrical operations plus 1,000 mechanical operations.
- ④ Supply voltages suitable for use with Class 1 GFP devices. Marking label included with accessory kits.
- ⑤ Listed with Underwriters Laboratories, Inc., for field installation under E64983.
- ⑥ Standard mounting location — leads exit rear of MCP.
- ⑦ Suitable for use with Class 1 ground fault sensing element.



Series C K-Frame HMCP Internal Accessories

LOW-ENERGY SHUNT TRIP



Low-energy shunt trip devices are designed to operate from low-energy output signals from dedicated current sensors typically applied in ground fault protection schemes. However, with a proper control voltage source, they may be applied in place of conventional trip devices for special applications. Flux paths surrounding permanent magnets used in the shunt trip assembly hold a charged spring poised in readiness to operate the MCP trip mechanism. When a 100 microfarad capacitor charged to 28 Vdc is discharged through the shunt trip coil, the resultant flux opposes the permanent magnet flux field, which releases the stored energy in the spring to trip the MCP. As the MCP resets open, the reset arm is actuated by the MCP handle, resetting the shunt trip. The plug-in module is mounted in retaining slots in the top of the trip unit. Coil is intermittent-rated only. Cutoff provisions required in control circuit.

Ordering Information

Select shunt trip catalog number for the voltage within the indicated voltage range. Shunt trip coils are designed to be applied at specific ac or dc voltages within the voltage range shown. Electrical ratings are also shown on applicable MCP accessory nameplates.

Low-Energy Shunt Trip^①

| Mounting Positions | Factory Mounted | | | | Field Mounted | |
|------------------------|------------------------------|-------------------|---------------|----------------|--------------------------------------|----------------|
| | Connection Type and Location | | | | Field Installation Kits ^② | |
| | 18-inch Pigtail Leads | | | Terminal Block | Pigtail Leads | Terminal Block |
| | Same Side | Rear ^③ | Opposite Side | Same Side | | |
| | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| Left Pole ^③ | LST3LA | LST3LB | LST3LC | LST3LT | LST3LPK | LST3LTK |
| Right Pole | LST3RA | LST3RB | LST3RC | LST3RT | LST3RPK | LST3RTK |

① Cutoff provisions required in control circuit.
 ② Listed with Underwriters Laboratories, Inc., for field installation under E64983.
 ③ Standard mounting location - leads exit rear of MCP.

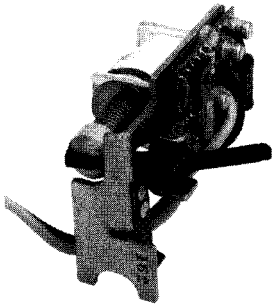
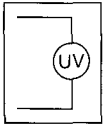
Cutler-Hammer
 Westinghouse &
 Cutler-Hammer Products
 Five Parkway Center
 Pittsburgh, Pennsylvania, U.S.A. 15220



January 1995
Supersedes Frame Book 29-111,
pages 1-20, dated May 1986, Frame Book
29-111A, pages 1-24, dated May 1987,
and Technical Data 29-120, pages 59-60,
dated March 1993
Mailed to: E, D, C/29-100A, 29-300A

Series C® K-Frame HMCP Internal Accessories

UNDervOLTAGE RELEASE MECHANISM



The undervoltage release mechanism monitors a voltage (typically a line voltage) and trips the MCP when the voltage falls to between 70 and 35 percent of the solenoid coil rating.

The undervoltage release mechanism consists of a continuous rated solenoid with a plunger and tripping lever assembled to a plug-in module. The tab on the tripping lever resets the undervoltage release mechanism when normal voltage has been restored and the MCP handle is moved to the reset (OFF) position. With no voltage applied to the undervoltage release mechanism, the MCP contacts will not touch when a closing operation is attempted.

NOTE: Undervoltage release mechanism accessories are not designed for, and should not be used as, circuit interlocks.

Ordering Information

Select handle reset undervoltage release mechanism catalog number for the voltage within the indicated voltage range. Undervoltage release mechanism coils are designed to be applied at specific Ac or Dc voltages within the voltage range shown. Performance data is shown on applicable MCP accessory nameplates.

Electrical Rating Data ①

| 50/60 Hz | | | | Dc | | | | | |
|----------------|-----------------|-------|----------------|-----|----------------|-----------------|------|----------------|-----|
| Supply Voltage | Dropout Voltage | | Pickup Voltage | VA | Supply Voltage | Dropout Voltage | | Pickup Voltage | VA |
| | Min. | Max. | Max. | | | Min. | Max. | Max. | |
| 12 | 4.2 | 8.4 | 10.2 | 1.9 | 12 | 4.2 | 8.4 | 10.2 | 1.6 |
| 24 | 8.4 | 16.8 | 20.4 | 3.9 | 24 | 8.4 | 16.8 | 20.4 | 3.1 |
| 48 | 21 | 33.6 | 40.8 | 2.5 | 48 | 21 | 33.6 | 40.8 | 2.0 |
| 60 | | | | 3.8 | 60 | | | | 3.1 |
| 110 | 44.5 | 77 | 93.5 | 1.8 | 110 | 44.5 | 77 | 93.5 | 1.6 |
| 120 | 85 | 145.6 | 176.8 | 2.1 | 120 | | | | 1.9 |
| 127 | | | | 2.4 | 125 | | | | 2.2 |
| 208 | 168 | 266 | 323 | 2.7 | 220 | 87.5 | 154 | 187 | 3.1 |
| 220 | | | | 3.1 | 250 | 4.0 | | | |
| 240 | | | | 3.8 | ... | ... | ... | ... | |
| 380 | | | | 3.4 | ... | ... | ... | ... | |
| 415 | 4.0 | ... | ... | ... | ... | ... | ... | ... | |
| 440 | 4.6 | ... | ... | ... | ... | ... | ... | ... | |
| 480 | 5.4 | ... | ... | ... | ... | ... | ... | ... | |

Undervoltage Release Mechanism

| Voltage Rating (Ac Freq = 50/60 Hz) | Factory Mounted | | | | Field Mounted | |
|-------------------------------------|------------------------------|-------|---------------|----------------|--------------------------|----------------|
| | Connection Type and Location | | | | Field Installation Kits② | |
| | 18-inch Pigtail Leads | | | Terminal Block | Pigtail Leads | Terminal Block |
| | Same Side | Rear③ | Opposite Side | Same Side | | |
| | CATALOG NUMBERS | | | | CATALOG NUMBERS | |

Left-Pole Mounting Ac Ratings●

| | | | | | | |
|-------------|----------|----------|----------|----------|-----------|-----------|
| 12 Vac | UVH3LA02 | UVH3LB02 | UVH3LC02 | UVH3LT02 | UVH3LP02K | UVH3LT02K |
| 24 Vac | UVH3LA03 | UVH3LB03 | UVH3LC03 | UVH3LT03 | UVH3LP03K | UVH3LT03K |
| 48-60 Vac | UVH3LA05 | UVH3LB05 | UVH3LC05 | UVH3LT05 | UVH3LP05K | UVH3LT05K |
| 110-127 Vac | UVH3LA08 | UVH3LB08 | UVH3LC08 | UVH3LT08 | UVH3LP08K | UVH3LT08K |
| 208-240 Vac | UVH3LA11 | UVH3LB11 | UVH3LC11 | UVH3LT11 | UVH3LP11K | UVH3LT11K |
| 380-480 Vac | UVH3LA15 | UVH3LB15 | UVH3LC15 | UVH3LT15 | UVH3LP15K | UVH3LT15K |

Right-Pole Mounting Ac Ratings

| | | | | | | |
|-------------|----------|----------|----------|----------|-----------|-----------|
| 12 Vac | UVH3RA02 | UVH3RB02 | UVH3RC02 | UVH3RT02 | UVH3RP02K | UVH3RT02K |
| 24 Vac | UVH3RA03 | UVH3RB03 | UVH3RC03 | UVH3RT03 | UVH3RP03K | UVH3RT03K |
| 48-60 Vac | UVH3RA05 | UVH3RB05 | UVH3RC05 | UVH3RT05 | UVH3RP05K | UVH3RT05K |
| 110-127 Vac | UVH3RA08 | UVH3RB08 | UVH3RC08 | UVH3RT08 | UVH3RP08K | UVH3RT08K |
| 208-240 Vac | UVH3RA11 | UVH3RB11 | UVH3RC11 | UVH3RT11 | UVH3RP11K | UVH3RT11K |
| 380-480 Vac | UVH3RA15 | UVH3RB15 | UVH3RC15 | UVH3RT15 | UVH3RP15K | UVH3RT15K |

Left-Pole Mounting Dc Ratings③

| | | | | | | |
|-------------|----------|----------|----------|----------|-----------|-----------|
| 12 Vdc | UVH3LA20 | UVH3LB20 | UVH3LC20 | UVH3LT20 | UVH3LP20K | UVH3LT20K |
| 24 Vdc | UVH3LA21 | UVH3LB21 | UVH3LC21 | UVH3LT21 | UVH3LP21K | UVH3LT21K |
| 48-60 Vdc | UVH3LA23 | UVH3LB23 | UVH3LC23 | UVH3LT23 | UVH3LP23K | UVH3LT23K |
| 110-125 Vdc | UVH3LA26 | UVH3LB26 | UVH3LC26 | UVH3LT26 | UVH3LP26K | UVH3LT26K |
| 220-250 Vdc | UVH3LA28 | UVH3LB28 | UVH3LC28 | UVH3LT28 | UVH3LP28K | UVH3LT28K |

Right-Pole Mounting Dc Ratings

| | | | | | | |
|-------------|----------|----------|----------|----------|-----------|-----------|
| 12 Vdc | UVH3RA20 | UVH3RB20 | UVH3RC20 | UVH3RT20 | UVH3RP20K | UVH3RT20K |
| 24 Vdc | UVH3RA21 | UVH3RB21 | UVH3RC21 | UVH3RT21 | UVH3RP21K | UVH3RT21K |
| 48-60 Vdc | UVH3RA23 | UVH3RB23 | UVH3RC23 | UVH3RT23 | UVH3RP23K | UVH3RT23K |
| 110-125 Vdc | UVH3RA26 | UVH3RB26 | UVH3RC26 | UVH3RT26 | UVH3RP26K | UVH3RT26K |
| 220-250 Vdc | UVH3RA28 | UVH3RB28 | UVH3RC28 | UVH3RT28 | UVH3RP28K | UVH3RT28K |

① Endurance: 5,000 electrical operations plus 1,000 mechanical operations

② Listed with Underwriters Laboratories, Inc., for field installation under E64983.

③ Standard mounting location — leads exit rear of MCP.



Series C K-Frame HMCP Internal Accessories

ElectricalPartManuals.com

Cutler-Hammer
Westinghouse &
Cutler-Hammer Products
Five Parkway Center
Pittsburgh, Pennsylvania, U.S.A. 15220

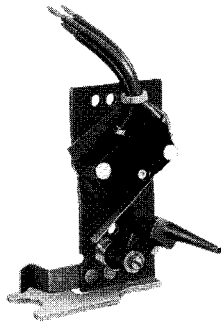
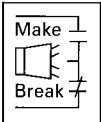




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 Supersedes Frame Book 29-111,
 pages 1-20, dated May 1986, Frame Book
 29-111A, pages 1-24, dated May 1987,
 and Technical Data 29-120, pages 59-60,
 dated March 1993
 Mailed to: E, D, C/29-100A, 29-300A

Series C[®] L-Frame HMCP Internal Accessories

ALARM (SIGNAL)/LOCKOUT SWITCH



The alarm (signal)/lockout switch monitors MCP trip status and provides remote signaling and interlocking capabilities when the MCP trips. The alarm (signal)/lockout switch consists of one or two SPDT (single-pole double-throw) switches assembled to a plug-in module mounted in retaining slots in the top of the trip unit. The SPDT switch contacts are identified as make and break contacts. When the MCP trips, the make contact closes and the break contact opens.

Electrical Rating Data^{①●}

| Maximum Voltage | Frequency | Maximum Current Amps | Dielectric Withstand Voltage |
|-----------------|-----------|----------------------|------------------------------|
| 600 | 50/60 Hz | 6 | 2500 |
| 125 | Dc | 0.5 ^③ | |
| 250 | Dc | 0.25 ^③ | |

Ordering Information

Alarm (Signal)/Lockout Switch

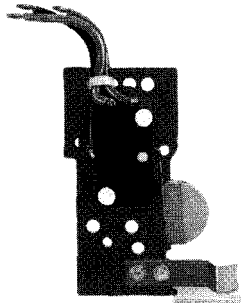
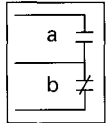
| Number of Sets of Contacts (1M and 1B) | Mounting Location (Pole) | Factory Mounted | | | | Field Mounted | |
|--|----------------------------|------------------------------|-------------------|------------------|------------------|--------------------------------------|--------------------|
| | | Connection Type and Location | | | | Field Installation Kits ^④ | |
| | | 18-inch Pigtail Leads | | Terminal Block | | Pigtail Leads | Terminal Block |
| | | Same Side | Rear ^⑤ | Opposite Side | Same Side | | |
| | | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| 1 | Left Right ^⑤ | A1L4LA A1L4RA | A1L4LB A1L4RB | A1L4LC A1L4RC | A1L4LT A1L4RT | A1L4LPK A1L4RPK | A1L4LTK A1L4RTK |
| 2 | Left Right ^⑤ | A2L4LA A2L4RA | A2L4LB A2L4RB | ..... ..... | A2L4LT A2L4RT | A2L4LPK A2L4RPK | A2L4LTK A2L4RTK |

^① Endurance — 5000 electrical operations plus 1000 mechanical operations.
^② Pigtail wire size — No. 18 AWG (0.82 mm²).
^③ Non-inductive load.
^④ Listed with Underwriters Laboratories, Inc. for field installation under E64983.
^⑤ Standard mounting location — leads exit rear of MCP.



Series C L-Frame HMCP Internal Accessories

AUXILIARY SWITCH



Electrical Rating Data^{①②}

| Maximum Voltage | Frequency | Maximum Current Amps | Dielectric Withstand Voltage |
|-----------------|-----------|----------------------|------------------------------|
| 600 | 50/60 Hz | 6 | 2500 |
| 125 | Dc | 0.5 ^③ | |
| 250 | Dc | 0.25 ^③ | |

Ordering Information

Auxiliary Switch

| Number of Contacts (A and B) | Mounting Location (Pole) | Factory Mounted | | | | Field Mounted | | |
|------------------------------|--------------------------|------------------------------|-------------------|---------------|-----------|--------------------------------------|---------------|----------------|
| | | Connection Type and Location | | | | Field Installation Kits ^④ | | |
| | | 18-inch Pigtail Leads | | | | Terminal Block | Pigtail Leads | Terminal Block |
| | | Same Side | Rear ^⑤ | Opposite Side | Same Side | | | |
| CATALOG NUMBERS | | | | | | CATALOG NUMBERS | | |
| 1 | Left | A1X4LA | A1X4LB | A1X4LC | A1X4LT | A1X4PK | A1X4LTK | |
| | Right ^⑤ | A1X4RA | A1X4RB | A1X4RC | A1X4RT | A1X4PK | A1X4RTK | |
| 2 | Left | A2X4LA | A2X4LB | A2X4LC | A2X4LT | A2X4PK | A2X4LTK | |
| | Right ^⑤ | A2X4RA | A2X4RB | A2X4RC | A2X4RT | A2X4PK | A2X4RTK | |
| 3 | Left | A3X4LA | A3X4LB | A3X4LC | A3X4LT | A3X4PK | A3X4LTK | |
| | Right ^⑤ | A3X4RA | A3X4RB | A3X4RC | A3X4RT | A3X4PK | A3X4RTK | |

The auxiliary switch provides MCP contact status information by monitoring the position of the molded crossbar containing the moving contact arms. The auxiliary switch is used for remote signaling and interlocking purposes, and consists of one or two SPDT switches assembled to a plug-in module mounted in retaining slots in the top of the trip unit. Each SPDT switch has one "a" and one "b" contact. When the MCP contacts are open, the "a" contact is open and the "b" contact is closed.

Auxiliary Switch-Alarm (Signal)/Lockout (ASL) Switch Combination

Each catalog number listed in the following table includes one or two auxiliary switches and one alarm switch. In an auxiliary switch ASL switch combination, the alarm switch is always mounted on the side of the plug-in module next to the center pole of the MCP.

| Number of Sets of Contacts | Mounting Location (Pole) | Factory Mounted | | | | Field Mounted | | |
|----------------------------|--------------------------|------------------------------|-------------------|---------------|-----------|--------------------------------------|---------------|----------------|
| | | Connection Type and Location | | | | Field Installation Kits ^④ | | |
| | | 18-inch Pigtail Leads | | | | Terminal Block | Pigtail Leads | Terminal Block |
| | | Same Side | Rear ^⑤ | Opposite Side | Same Side | | | |
| CATALOG NUMBERS | | | | | | CATALOG NUMBERS | | |
| 1A, 1B and 1 Make/1 Break | Left | AA114LA | AA114LB | ..... | AA114LT | AA114LPK | AA114LTK | |
| | Right ^⑤ | AA114RA | AA114RB | ..... | AA114RT | AA114RPK | AA114RTK | |
| 2A, 2B and 1 Make/1 Break | Left | AA214LA | AA214LB | ..... | AA214LT | AA214LPK | AA214LTK | |
| | Right ^⑤ | AA214RA | AA214RB | ..... | AA214RT | AA214RPK | AA214RTK | |
| 3A, 3B and 1 Make/1 Break | Left | AA314LA | AA314LB | ..... | ..... | AA314LPK | ..... |  |
| | Right ^⑤ | AA314RA | AA314RB | ..... | ..... | AA314RPK | ..... |  |

- ① Endurance — 5000 electrical operations plus 1000 mechanical operations.
- ② Pigtail wire size — No. 18 AWG (0.82 mm²).
- ③ Non-inductive load.
- ④ Listed with Underwriters Laboratories, Inc. for field installation under E64983.
- ⑤ Standard mounting location — leads exit rear of MCP.

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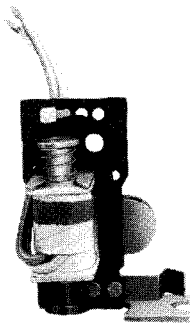
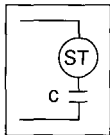




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pages 1-20, dated May 1986, Frame Book
29-111A, pages 1-24, dated May 1987,
and Technical Data 29-120, pages 59-60,
dated March 1993
Mailed to: E, D, C/29-100A, 29-300A

Series C[®] L-Frame HMCP Internal Accessories

SHUNT TRIP



The shunt trip provides remote controlled tripping of the MCP. The shunt trip consists of an intermittent rated solenoid with a tripping plunger and a cutoff switch assembled to a plug-in module. When required for ground fault protection applications, certain ac rated shunt trips, as noted in table at right, are suitable for operation at 55 percent of rated voltage.

Electrical Rating Data^{①②●}

| 50-60 Hz | | | Dc | | |
|------------------|---------------------------|------|----------------|---------------------------|------|
| Supply Voltage | Minimum Operating Voltage | VA | Supply Voltage | Minimum Operating Voltage | VA |
| 12 | 8.4 | 45 | 12 | 8.4 | 35 |
| 24 | | 200 | 24 | | 170 |
| 48 | 33.6 | 830 | 48 | 33.6 | 710 |
| 60 | | 1280 | 60 | | 1105 |
| 110 ^④ | 60 | 100 | 110 | 77 | 110 |
| 120 ^④ | | 120 | 120 | | 130 |
| 127 ^④ | | 140 | 125 | | 140 |
| 208 ^④ | | 420 | ... | .. | .... |
| 220 ^④ | | 470 | ... | .. | .... |
| 240 ^④ | | 550 | ... | .. | .... |
| 380 | 266 | 95 | 220 | 154 | 41 |
| 400 | | 108 | 250 | .. | 54 |
| 415 | | 120 | ... | .. | .... |
| 440 | | 136 | ... | .. | .... |
| 480 | 336 | 40 | ... | .. | .... |
| 525 | | 50 | ... | .. | .... |
| 550 | | 50 | ... | .. | .... |
| 600 | | 70 | ... | .. | .... |

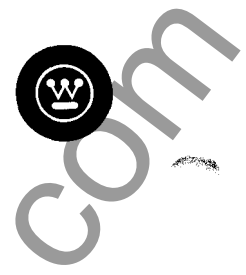
Ordering Information

Select shunt trip catalog number for the voltage within the indicated voltage range. Shunt trip coils are designed to be applied at specific ac or dc voltages within the voltage range shown. Electrical ratings are also shown on applicable MCP accessory nameplates.

Shunt Trip

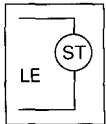
| Voltage Rating (Ac Freq = 50/60 Hz) | Factory Mounted | | | | Field Mounted | |
|---|------------------------------|-------------------|----------------|-----------|--------------------------------------|----------------|
| | Connection Type and Location | | | | Field Installation Kits ^⑤ | |
| | 18-inch Pigtail Leads | | Terminal Block | | Pigtail Leads | Terminal Block |
| | Same Side | Rear ^⑥ | Opposite Side | Same Side | | |
| | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| Left Pole Mounting Ac/Dc Ratings^⑥ | | | | | | |
| 12-24 Vac | SNT4LA03 | SNT4LB03 | SNT4LC03 | SNT4LT03 | SNT4LP03K | SNT4LT03K |
| 12-24 Vdc | | | | | | |
| 48-60 Vac | SNT4LA05 | SNT4LB05 | SNT4LC05 | SNT4LT05 | SNT4LP05K | SNT4LT05K |
| 48-60 Vdc | SNT4LA23 | SNT4LB23 | SNT4LC23 | SNT4LT23 | SNT4LP23K | SNT4LT23K |
| 110-240 Vac | SNT4LA11 | SNT4LB11 | SNT4LC11 | SNT4LT11 | SNT4LP11K | SNT4LT11K |
| 110-125 Vdc | SNT4LA26 | SNT4LB26 | SNT4LC26 | SNT4LT26 | SNT4LP26K | SNT4LT26K |
| 380-440 Vac | SNT4LA14 | SNT4LB14 | SNT4LC14 | SNT4LT14 | SNT4LP14K | SNT4LT14K |
| 220-250 Vdc | | | | | | |
| 480-600 Vac | SNT4LA18 | SNT4LB18 | SNT4LC18 | SNT4LT18 | SNT4LP18K | SNT4LT18K |

- ① Approximate unlatching time — 6 milliseconds.
- Approximate total MCP contact opening time — 18 milliseconds.
- ③ Endurance — 5000 electrical operations plus 1000 mechanical operations.
- ④ Supply voltages suitable for use with Class 1 GFP devices. Marking label included with accessory kits.
- ⑤ Listed with Underwriters Laboratories, Inc. for field installation under E64983.
- ⑥ Standard mounting location — leads exit rear of MCP.



Series C L-Frame HMCP Internal Accessories

LOW ENERGY SHUNT TRIP



Low energy shunt trip devices are designed to operate from low energy output signals from dedicated current sensors typically applied in ground fault protection schemes. However, with a proper control voltage source, they may be applied in place of conventional trip devices for special applications. Flux paths surrounding permanent magnets used in the shunt trip assembly hold a charged spring poised in readiness to operate the MCP trip mechanism. When a 100 microfarad capacitor charged to 28 Vdc is discharged through the shunt trip coil, the resultant flux opposes the permanent magnet flux field, which releases the stored energy in the spring to trip the MCP. As the MCP resets, the reset arm is actuated by the MCP handle, resetting the shunt trip. The plug-in module is mounted in retaining slots in the top of the trip unit. Coil is intermittent-rated only. Cutoff provisions required in control circuit.

Ordering Information

Select shunt trip catalog number for the preferred mounting position. Shunt trip coils are designed to be applied at 28 dc. Electrical ratings are also shown on applicable MCP accessory nameplates.

Low Energy Shunt Trip^①

| Mounting Positions | Factory Mounted | | | | Field Mounted | |
|------------------------|------------------------------|-------------------|---------------|----------------|--------------------------------------|----------------|
| | Connection Type and Location | | | | Field Installation Kits ^② | |
| | 18-inch Pigtail Leads | | | Terminal Block | Pigtail Leads | Terminal Block |
| | Same Side | Rear ^③ | Opposite Side | Same Side | | |
| | CATALOG NUMBERS | | | | CATALOG NUMBERS | |
| Left Pole ^③ | LST4LA | LST4LB | LST4LC | LST4LT | LST4LPK | LST4LTK |

^① Cutoff provisions required in control circuit.

● Listed with Underwriters Laboratories, Inc. for field installation under E64983.

^③ Standard mounting location – leads exit rear of MCP.

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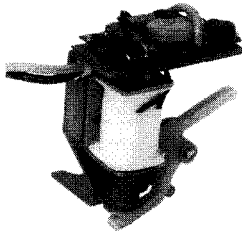
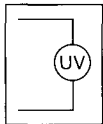




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Series C[®] L-Frame HMCP Internal Accessories

UNDervOLTAGE RELEASE MECHANISM



The undervoltage release mechanism monitors a voltage (typically a line voltage) and trips the MCP when the voltage falls to between 70 and 35 percent of the solenoid coil rating.

The undervoltage release mechanism consists of a continuous rated solenoid with a plunger and tripping lever assembled to a plug-in module. The tab on the tripping lever resets the undervoltage release mechanism when normal voltage has been restored and the MCP handle is moved to the reset (OFF) position. With no voltage applied to the undervoltage release mechanism, the MCP contacts will not touch when a closing operation is attempted.

NOTE: Undervoltage release mechanism accessories are not designed for, and should not be used as, circuit interlocks.

Ordering Information

Select handle reset undervoltage release mechanism catalog number for the voltage within the indicated voltage range. Undervoltage release mechanism coils are designed to be applied at specific ac or dc voltages within the voltage range shown. Performance data is shown on applicable MCP accessory nameplates.

Electrical Rating Data ^①

| 50/60 Hz | | | | | Dc | | | | |
|----------------|-----------------|-------|----------------|-----|----------------|-----------------|------|----------------|-----|
| Supply Voltage | Dropout Voltage | | Pickup Voltage | VA | Supply Voltage | Dropout Voltage | | Pickup Voltage | VA |
| | Min. | Max. | Max. | | | Min. | Max. | Max. | |
| 12 | 4.2 | 8.4 | 10.2 | 1.9 | 12 | 4.2 | 8.4 | 10.2 | 1.6 |
| 24 | 8.4 | 16.8 | 20.4 | 3.9 | 24 | 8.4 | 16.8 | 20.4 | 3.1 |
| 48 | 21 | 33.6 | 40.8 | 2.5 | 48 | 21 | 33.6 | 40.8 | 2.0 |
| 60 | | | | 3.8 | 60 | | | | 3.1 |
| 110 | 44.5 | 77 | 93.5 | 1.8 | 110 | | | | 1.6 |
| 120 | | | | 2.1 | 120 | 44.5 | 77 | 93.5 | 1.9 |
| 127 | | | | 2.4 | 125 | | | | 2.2 |
| 208 | 85 | 145.6 | 176.8 | 2.7 | 220 | 87.5 | 154 | 187 | 3.1 |
| 220 | | | | 3.1 | 250 | | | | 4.0 |
| 240 | | | | 3.8 | ... | ... | ... | ... | ... |
| 380 | 168 | 266 | 323 | 3.4 | ... | ... | ... | ... | ... |
| 415 | | | | 4.0 | ... | ... | ... | ... | ... |
| 440 | | | | 4.6 | ... | ... | ... | ... | ... |
| 480 | | | | 5.4 | ... | ... | ... | ... | ... |

Undervoltage Release Mechanism

| Voltage Rating (Ac Freq = 50/60 Hz) | Factory Mounted | | | | Field Mounted | |
|--|------------------------------|-------------------|----------------|-----------|--------------------------------------|----------------|
| | Connection Type and Location | | | | Field Installation Kits ^② | |
| | 18-inch Pigtail Leads | | Terminal Block | | Pigtail Leads | Terminal Block |
| | Same Side | Rear ^③ | Opposite Side | Same Side | | |
| | CATALOG NUMBERS | | | | CATALOG NUMBERS | |

Left-Pole Mounting Ac Ratings[●]

| | | | | | | |
|-------------|----------|----------|----------|----------|-----------|-----------|
| 12 Vac | UVH4LA02 | UVH4LB02 | UVH4LC02 | UVH4LT02 | UVH4LP02K | UVH4LT02K |
| 24 Vac | UVH4LA03 | UVH4LB03 | UVH4LC03 | UVH4LT03 | UVH4LP03K | UVH4LT03K |
| 48-60 Vac | UVH4LA05 | UVH4LB05 | UVH4LC05 | UVH4LT05 | UVH4LP05K | UVH4LT05K |
| 110-127 Vac | UVH4LA08 | UVH4LB08 | UVH4LC08 | UVH4LT08 | UVH4LP08K | UVH4LT08K |
| 208-240 Vac | UVH4LA11 | UVH4LB11 | UVH4LC11 | UVH4LT11 | UVH4LP11K | UVH4LT11K |
| 380-480 Vac | UVH4LA15 | UVH4LB15 | UVH4LC15 | UVH4LT15 | UVH4LP15K | UVH4LT15K |

Left-Pole Mounting Dc Ratings[●]

| | | | | | | |
|-------------|----------|----------|----------|----------|-----------|-----------|
| 12 Vdc | UVH4LA20 | UVH4LB20 | UVH4LC20 | UVH4LT20 | UVH4LP20K | UVH4LT20K |
| 24 Vdc | UVH4LA21 | UVH4LB21 | UVH4LC21 | UVH4LT21 | UVH4LP21K | UVH4LT21K |
| 48-60 Vdc | UVH4LA23 | UVH4LB23 | UVH4LC23 | UVH4LT23 | UVH4LP23K | UVH4LT23K |
| 110-125 Vdc | UVH4LA26 | UVH4LB26 | UVH4LC26 | UVH4LT26 | UVH4LP26K | UVH4LT26K |
| 220-250 Vdc | UVH4LA28 | UVH4LB28 | UVH4LC28 | UVH4LT28 | UVH4LP28K | UVH4LT28K |

^① Endurance: 5000 electrical operations plus 1000 mechanical operations.

^② Listed with Underwriters Laboratories, Inc. for field installation under E64983.

[●] Standard mounting location — leads exit rear of MCP.



Series C L-Frame HMCP Internal Accessories

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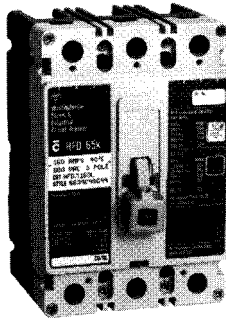
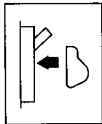


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Series C® F-Frame HMCP External Accessories

NON-PADLOCKABLE HANDLE BLOCK

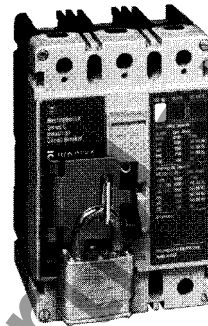
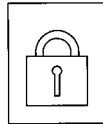


The nonlockable handle block secures the MCP handle in either the ON or OFF position. (Trip-free operation allows the MCP to trip when the handle block holds the MCP handle in the ON position.) The device is positioned over the MCP handle and secured by a setscrew to deter accidental operation of the MCP handle. Listed per UL File E7819. (Field installation only.)

Ordering Information

| |
|----------------|
| CATALOG NUMBER |
| LKD1 |

PADLOCKABLE HANDLE LOCK HASP



The padlockable handle lock hasp allows the handle to be locked in the ON or OFF position. (Trip-free operation allows the MCP to trip when the handle lock holds the MCP handle in the ON position.) The hasp mounts on the MCP cover within the trimline. The cover is predrilled on both sides of the operating handle so that the hasp can be mounted on either side of the handle. The hasp will accommodate up to three padlocks with 1/4 inch (6 mm) shackles. Listed per UL File E7819. (Field installation only.)

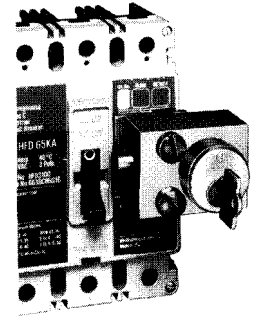
Ordering Information

The padlockable handle lock can be mounted on either side of the operating handle. One per MCP. (Field installation only.)

CATALOG NUMBER

PLK1

KEY INTERLOCK KIT (Lock Not Included)



The key interlock is used to externally lock the MCP handle in the OFF position. When the key interlock is locked, an extended deadbolt blocks movement of the MCP handle. Uniquely coded keys are removable only with the deadbolt extended. Each coded key controls a group of MCPs for a given specific customer installation.

The key interlock assembly is Underwriters Laboratories, Inc., listed for field installation under UL file E7819 and consists of a mounting kit and a purchaser supplied deadbolt lock. The mounting kit comprises a mounting plate, which is secured to the MCP cover in either the left- or right-pole position, key interlock mounting screws, and a wire seal. Specific mounting kits are required for individual key interlock types.

Ordering Information

Key interlock mounting kits are for field installation only. Select mounting kit catalog numbers to match type of lock used. Key interlocks are supplied by customer.

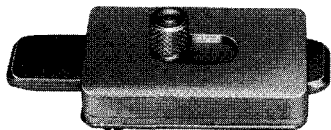
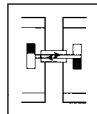
| Lock Manufacturer | Lock Type | Bolt Projection in Withdrawn Position | KIT CAT. NO. |
|-------------------|-----------|---------------------------------------|--------------|
| Superior | B-4003-1 | 3/8 inch | KYK1 |
| Kirk | F | 3/8 inch | |
| Square D | SF | None | |
| Federal Pioneer | VF | 3/8 inch | CTK1 |
| Castell | K or QK | 3/8 inch | |

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Series C F-Frame HMCP External Accessories

SLIDING BAR INTERLOCK



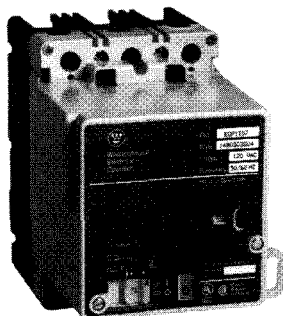
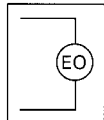
The sliding bar interlock provides mechanical interlocking between two adjacent MCPs. It is installed on the enclosure cover between the MCPs. When the sliding bar interlock handle is moved from one side to the other, a bar extends to alternately block movement of the MCP handles and prevents both MCPs from being switched to ON at the same time. Sliding bar interlocks are not UL listed. (Field installation only.)

Ordering Information

The sliding bar interlock is available for mounting between two adjacent MCPs with MCP centerline spacing at 4 $\frac{3}{8}$ inches and enclosure front panel thickness of $\frac{1}{8}$ or $\frac{3}{16}$ inch. (For field installation only.)

| |
|----------------|
| CATALOG NUMBER |
| SBK1 |

ELECTRICAL (SOLENOID) OPERATOR



The electrical (solenoid) operator ① is a single solenoid mechanism that enables local and remote MCP ON, OFF, and reset switching. The electrical operator is mounted on the MCP cover within the trimline of the MCP. The electrical operator uses a unique bistable latch that allows the device to operate using one solenoid. The accessory provides high-speed switching with a maximum operating time of 5 cycles (80 ms) making it suitable for generator synchronizing applications.

Means are provided for remote electrical operation and for local manual operation. A special slide includes provisions for padlocking the MCP handle in the OFF position. The slide will accept three padlock shackles with a maximum diameter of $\frac{1}{4}$ inch (6 mm) each. An interlock electrically disconnects the solenoid when the electrical operator cover is removed. The above table provides electrical rating data for the electrical (solenoid) operator.

The electrical (solenoid) operator is Underwriters Laboratories, Inc., listed as a MCP accessory under UL File E64983.

Electrical Rating Data ②

| Voltage | Freq. | Inrush Current Amps | Maximum Operating Time | Fuse ③ Amps |
|---------|-------------|---------------------|------------------------|-------------|
| 120 ④ | 50/60 Hz Ac | 10 | 5 cycles (80 ms) | 3 |
| 240 ④ | | 5 | | 2 |
| 120 ⑤ | Dc | 14 | 5 cycles (80 ms) | 3-5 |
| 240 ⑤ | | 8 | | 2-3 |

Ordering Information

| Voltage | Freq. | Terminal Block | 18-Inch Pigtail Lead |
|-----------------|-------|----------------|----------------------|
| CATALOG NUMBERS | | | |
| 120 | Ac | EOP1T07 | EOP1P07 |
| 240 | | EOP1T11 | EOP1P11 |
| 120 | Dc | EOP1T07DC | EOP1P07DC |
| 240 | | EOP1T11DC | EOP1P11DC |

- ① Electrical operator is also suitable for use with F-frame circuit breakers.
- ② The electrical operator design is endurance tested for 10,000 electrical operations.
- ③ Use current-limiting type fuse where required.
- ④ Tolerance: +10%, -15% of nominal voltage.
- ⑤ Tolerance: ±10% of nominal voltage.

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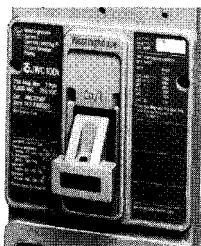
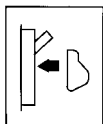




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Series C[®] J-Frame HMCP External Accessories

NON-PADLOCKABLE HANDLE BLOCK



The nonlockable handle block secures the MCP handle in either the ON or OFF position. (Trip-free operation allows the MCP to trip when the handle block holds the MCP handle in the ON position.) The device is positioned over the circuit breaker handle and secured by a setscrew to deter accidental operation of the MCP handle. (Field installation only.)

Ordering Information
One per MCP.

| |
|----------------|
| CATALOG NUMBER |
| LKD3 |

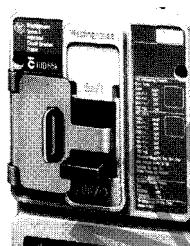
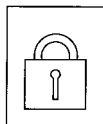
PADLOCKABLE HANDLE BLOCK



The device is positioned in the cover opening to prevent handle movement. Will accommodate one 5/16 padlock.

| |
|----------------|
| CATALOG NUMBER |
| PHB3 |

PADLOCKABLE HANDLE LOCK HASP^①



The padlockable handle lock hasp allows the handle to be locked in the ON or OFF position. (Trip-free operation allows the MCP to trip when the handle lock holds the MCP handle in the ON position.) The hasp mounts on the MCP cover within the trimline. The cover is predrilled on both sides of the operating handle so that the hasp can be mounted on either side of the handle. The hasp will accommodate up to three padlocks with 1/4 inch (6mm) shackles. One per MCP. (Field installation only.)

Ordering Information

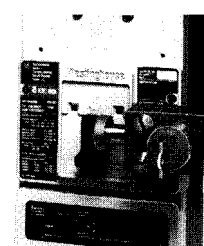
| |
|----------------|
| CATALOG NUMBER |
| PLK3 |

For padlockable handle lock hasp to padlock handle in OFF position only order either catalog number listed below.

| |
|------------------------|
| For Left Side Mounting |
| PLK3LOFF |

| |
|-------------------------|
| For Right Side Mounting |
| PLK3ROFF |

KEY INTERLOCK KIT (Lock Not Included)



The key interlock is used to externally lock the MCP handle in the OFF position. When the key interlock is locked, an extended deadbolt blocks movement of the MCP handle. Uniquely coded keys are removable only with the deadbolt extended. Each coded key controls a group of MCPs for a given specific customer installation.

The key interlock assembly consists of a mounting kit and a purchaser supplied deadbolt lock. The mounting kit comprises a mounting plate, which is secured to the MCP cover in either the left- or right-pole position; key interlock mounting hardware; and a wire seal. Specific mounting kits are required for individual key interlock types. (Field installation only.)

Ordering Information

Key interlock mounting kits are for field installation only. Select mounting kit catalog numbers to match type of lock used. Key interlocks are supplied by customer.

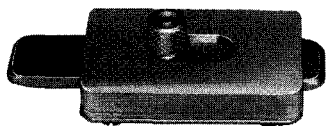
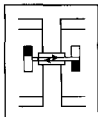
| Lock Manufacturer | Lock Type | Bolt Projection in Withdrawn Position | KIT CAT. NO. |
|-------------------|-----------|---------------------------------------|--------------|
| Superior | B4003-1 | 3/8 inch | KYK3 |
| Kirk | F | 3/8 inch | |
| Square D | SF | None | |
| Federal Pioneer | VF | 3/8 inch | |
| Castell | K or QK | 3/8 inch | |

^① Underwriters Laboratories, Inc. listing pending under UL File E7819.



Series C J-Frame HMCP External Accessories

SLIDING BAR INTERLOCK



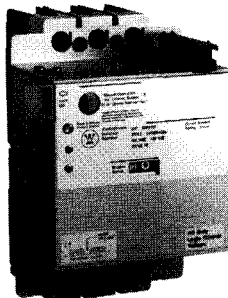
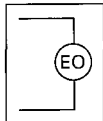
The sliding bar interlock provides mechanical interlocking between two adjacent 3-pole MCPs. It is installed on the enclosure cover between the MCPs. When the sliding bar interlock handle is moved from one side to the other, a bar extends to alternately block movement of the MCP handles and prevents both MCPs from being switched to ON at the same time. Sliding bar interlocks are not UL listed. (Field installation only.)

Ordering Information

The sliding bar interlock is available for mounting between two adjacent 3-pole MCPs with MCP center line spacing at $4 \frac{3}{8}$ inches, and enclosure front panel thickness of $\frac{1}{8}$ or $\frac{3}{16}$ inches. (For field installation only.)

| |
|----------------|
| CATALOG NUMBER |
| SBK2 |

ELECTRICAL (SOLENOID) OPERATOR



The electrical (solenoid) operator is a double solenoid mechanism that enables local and remote MCP ON, OFF, and reset switching. The electrical operator is mounted on the MCP cover. The electrical operator uses a unique bi-stable latch that allows the device to operate using two solenoids. The accessory provides high speed switching with a maximum operating time of 5 cycles (80ms), making it suitable for generator synchronizing applications.

Means are provided for remote electrical operation and for local manual operation. A special slide-bar locking mechanism provides means for padlocking the operator in the OFF position. (Padlocking does not affect the trip-free operation of the MCP.) The slide-bar will accept three padlock shackles with a maximum diameter of $\frac{1}{4}$ inch (6mm). The table above provides electrical rating data for the electrical (solenoid) operator.

Electrical Rating Data ①②③④

| Voltage ^① (V) | Inrush Current (A) | Fuse (A) |
|-----------------------------|-----------------------|-------------|
| 120 | 24 | 6 |
| 240 | 12 | 4 |

Ordering Information

| Operating Voltage | Frequency | Terminal Block |
|-------------------|-------------|-----------------|
| | | CATALOG NUMBERS |
| 120 | 50/60 Hz Ac | EOP2T07 |
| 240 | | EOP2T11 |
| 120 | Dc | EOP2T07DC |
| 240 | | EOP2T11DC |

- ① Underwriters Laboratories listed under UL File E64983.
- ② The electrical operator design has been endurance tested for 6,000 electrical operations.
- Frequency: 50/60 Hz.
- ④ Maximum operating time: 5 cycles (80 ms).

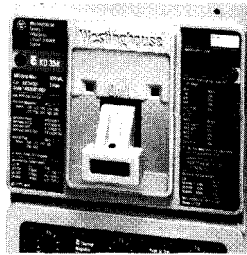
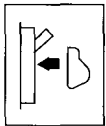
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29-111A, pages 1-24, dated May 1987,
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dated March 1993
Mailed to: E, D, C/29-100A, 29-300A

Series C® K-Frame HMCP External Accessories

NON-PADLOCKABLE HANDLE BLOCK



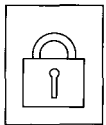
The nonlockable handle block secures the MCP handle in either the ON or OFF position. (Trip-free operation allows the MCP to trip when the handle block holds the MCP handle in the ON position.) The device is positioned over the MCP handle and secured by a setscrew to deter accidental operation of the MCP handle. (Field installation only.)

Ordering Information

One per MCP.

| |
|----------------|
| CATALOG NUMBER |
| LKD3 |

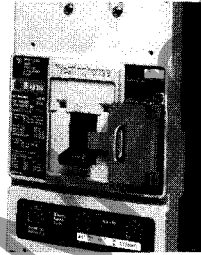
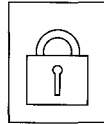
PADLOCKABLE HANDLE BLOCK



The device is positioned in the cover opening to prevent handle movement. Will accommodate one 5/8 padlock.

| |
|----------------|
| CATALOG NUMBER |
| PHB3 |

PADLOCKABLE HANDLE LOCK HASP①



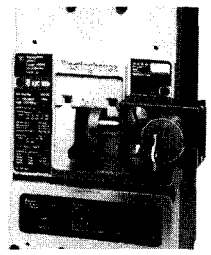
The padlockable handle lock hasp allows the handle to be locked in the ON or OFF position. (Trip-free operation allows the MCP to trip when the handle lock holds the MCP handle in the ON position.) The hasp mounts on the MCP cover within the trimline. The cover is predrilled on both sides of the operating handle so that the hasp can be mounted on either side of the handle. The hasp will accommodate up to three padlocks with 1/4 inch (6mm) shackles. (Field installation only.)

Ordering Information

The padlockable handle lock hasp can be mounted on either side of the operating handle. One per MCP. (Field installation only.)

| |
|----------------|
| CATALOG NUMBER |
| PLK3 |

KEY INTERLOCK KIT (Lock Not Included)



The key interlock is used to externally lock the MCP handle in the OFF position. When the key interlock is locked, an extended deadbolt blocks movement of the MCP handle. Uniquely coded keys are removable only with the deadbolt extended. Each coded key controls a group of MCPs for a given specific customer installation.

The key interlock assembly consists of a mounting kit and a purchaser supplied deadbolt lock. The mounting kit comprises a mounting plate, which is secured to the MCP cover in either the left- or right-pole position; key interlock mounting hardware; and a wire seal. Specific mounting kits are required for individual key interlock types. (Field installation only.)

Ordering Information

Key interlock mounting kits are for field installation only. Select mounting kit catalog numbers to match type of lock used. Key interlocks are supplied by customer.

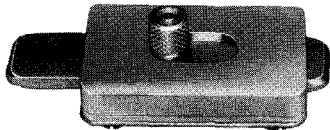
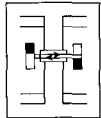
| Lock Manufacturer | Lock Type | Bolt Projection in Withdrawn Position | KIT CAT. NO. |
|-------------------|-----------|---------------------------------------|--------------|
| Superior | B4003-1 | 3/8 inch | KYK3 |
| Kirk | F | 3/8 inch | |
| Square D | SF | None | |
| Federal Pioneer | VF | 3/8 inch | |
| Castell | K or QK | 3/8 inch | |

① Underwriters Laboratories, Inc., listing pending under UL File E7819.



Series C K-Frame HMCP External Accessories

SLIDING BAR INTERLOCK



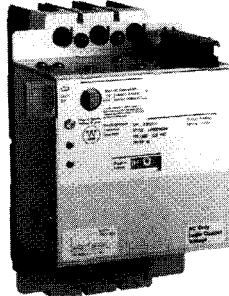
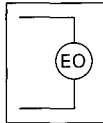
The sliding bar interlock provides mechanical interlocking between two adjacent 3-pole MCPs. It is installed on the enclosure cover between the MCPs. When the sliding bar interlock handle is moved from one side to the other, a bar extends to alternately block movement of the MCP handles and prevents both MCPs from being switched to ON at the same time. Sliding bar interlocks are not UL-listed. (Field installation only.)

Ordering Information

The sliding bar interlock is available for mounting between two adjacent 3-pole MCPs with MCP center line spacing at 5 3/4 inches, and enclosure front panel thickness of 1/8 or 3/16 inches. (For field installation only.)

| |
|----------------|
| CATALOG NUMBER |
| SBK3 |

ELECTRICAL (SOLENOID) OPERATOR



The electrical (solenoid) operator is a double solenoid mechanism that enables local and remote MCP ON, OFF, and reset switching. The electrical operator is mounted on the MCP cover. The electrical operator uses a unique bi-stable latch that allows the device to operate using two solenoids. The accessory provides high speed switching with a maximum operating time of 5 cycles (80ms), making it suitable for generator synchronizing applications.

Means are provided for remote electrical operation and for local manual operation. A special slide-bar locking mechanism provides means for padlocking the operator in the OFF position. (Padlocking does not affect the trip-free operation of the MCP.) The slide-bar will accept three padlock shackles with a maximum diameter of 1/4 inch (6mm). The table above provides electrical rating data for the electrical (solenoid) operator.

Electrical Rating Data ①②③④

| Voltage ^⑤ (V) | Inrush Current (A) | Fuse (A) |
|--------------------------|--------------------|----------|
| 120 | 24 | 6 |
| 240 | 12 | 4 |

Ordering Information

| Operating Voltage | Frequency | Terminal Block |
|-------------------|-----------|-----------------|
| | | CATALOG NUMBERS |
| 120 | 50/60 Hz | EOP3T07 |
| 240 | | EOP3T11 |
| 120 | Dc | EOP3T07DC |
| 240 | | EOP3T11DC |

- ① Underwriters Laboratories, Inc., listed under UL File E64983.
- ② The electrical operator design has been endurance tested for 6,000 electrical operations.
- ③ Frequency: 50/60 Hz.
- ④ Maximum operating time: 5 cycles (80 ms).
- ⑤ Tolerance: +10%, -15% of nominal voltage.

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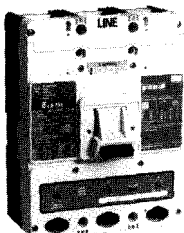
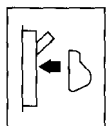


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Series C[®] L-Frame HMCP External Accessories

NON-PADLOCKABLE HANDLE BLOCK



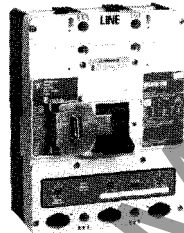
The nonlockable handle block secures the MCP handle in either the ON or OFF position. (Trip-free operation allows the MCP to trip when the handle block holds the MCP handle in the ON position.) The device is positioned over the MCP handle and secured by a setscrew to deter accidental operation of the MCP handle. (Field installation only.)

Ordering Information

One per MCP.

| |
|----------------|
| CATALOG NUMBER |
| LDK4 |

PADLOCKABLE HANDLE LOCK HASP^①



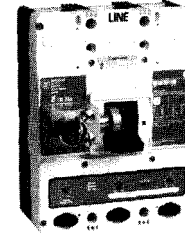
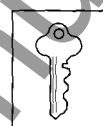
The standard padlockable handle lock hasp allows the handle to be locked in the ON or OFF position. (Trip-free operation allows the MCP to trip when the handle lock holds the MCP handle in the ON position.) The hasp mounts on the MCP cover within the trimline. The cover is predrilled on both sides of the operating handle so that the hasp can be mounted on either side of the handle. The hasp will accommodate up to three padlocks with 1/4 inch (6 mm) shackles. (Field installation only.)

Ordering Information

The padlockable handle lock hasp can be mounted on either side of the operating handle. One per MCP. (Field installation only.)

| Description | CATALOG NUMBERS |
|----------------------------------|-----------------|
| Lock On/Off | HLK4 |
| Lock Off Only (Left-Hand Mount) | HLK4LOFF |
| Lock Off Only (Right-Hand Mount) | HLK4ROFF |

KEY INTERLOCK KIT (Lock Not Included)



The key interlock is used to externally lock the MCP handle in the OFF position. When the key interlock is locked, an extended deadbolt blocks movement of the MCP handle. Uniquely coded keys are removable only with the deadbolt extended. Each coded key controls a group of MCPs for a given specific customer installation.

The key interlock assembly consists of a mounting kit and a purchaser supplied deadbolt lock. The mounting kit comprises a mounting plate, which is secured to the MCP cover in either the left- or right-pole position; key interlock mounting hardware; and a wire seal. Specific mounting kits are required for individual key interlock types. (Field installation only.)

Ordering Information

Key interlock mounting kits are for field installation only. Select mounting kit catalog numbers to match type of lock used. Key interlocks are supplied by customer.

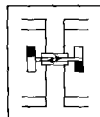
| Lock Manufacturer | Lock Type | Bolt Projection in Withdrawn Position | KIT CAT. NO. |
|-------------------|-----------|---------------------------------------|--------------|
| Superior | B4003-1 | 3/8 inch | KYK4 |
| Kirk | F | 3/8 inch | |
| Square D | SF | None | |
| Federal Pioneer | VF | 3/8 inch | CTK4 |
| Castell | K or QK | 3/8 inch | |

^① Underwriters Laboratories, Inc. listing pending under UL File E7819.



Series C L-Frame HMCP External Accessories

SLIDING BAR INTERLOCK



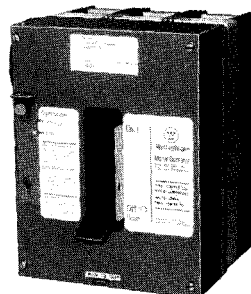
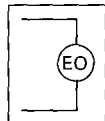
The sliding bar interlock provides mechanical interlocking between two adjacent 3-pole MCPs. It is installed on the enclosure cover between the MCPs. When the sliding bar interlock handle is moved from one side to the other, a bar extends to alternately block movement of the MCP handles and prevents both MCPs from being switched to ON at the same time. Sliding bar interlocks are not UL-listed. (Field installation only.)

Ordering Information

The sliding bar interlock is available for mounting between two adjacent 3-pole MCPs with MCP center line spacing at 8½ inches, and enclosure front panel thickness of ⅝ or ¾ inches. (For field installation only.)

| CATALOG NUMBER |
|----------------|
| SBK4 |

ELECTRICAL (MOTOR) OPERATOR



The motor operator allows the MCP to be opened, closed, or reset remotely. It also has a lock-off capability and provisions for manual operation.

The motor operator contains a reversible motor connected to a ball screw. The ball screw drives the MCP handle. Limit switches and relays are used to control the motor.

Since the motor operator is equipped with control relays, only a momentary control signal is required to close or open the MCP. Once an operation is initiated, the control relays seal in and the motor operator completes its operation. The relays carry the motor current. The control momentary switches only provide the signal.

The motor operator is UL listed as a recognized component suitable for field installation on all type L-frame MCPs under UL File E64124.

From the point of energization of the closing mechanism at 85% voltage, the closing time is 30 cycles ± 10%.

Electrical Rating Data ●●③④

| Voltage (V) | | Inrush Current (A) |
|-------------|----|--------------------|
| 120 | Ac | 8 |
| 208 | | 5 |
| 240 | | 4 |
| 24 | Dc | 27 |
| 125 | | 9 |

Ordering Information

| Operating Voltage | Frequency | Terminal Block |
|-------------------|-----------|-----------------|
| | | CATALOG NUMBERS |
| 120 | 50/60 Hz | EOP4T07 |
| 208 | | EOP4T11 |
| 240 | | EOP4T11A |
| 480 | | EOP4T15 |
| 24 | Dc | EOP4T21 |
| 125 | | EOP4T26 |

- ① Underwriters Laboratories Inc. listed under UL File E64983.
- ② The electrical operator design has been endurance tested for 6,000 electrical operations.
- ③ Frequency: 50/60 Hz.
- ④ Maximum operating time: 5 cycles (80 ms).
- ⑤ Tolerance: +10%, -15% of nominal voltage.

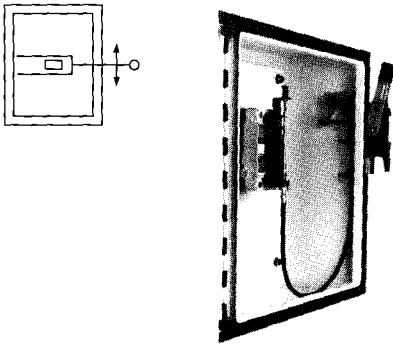
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dated March 1993
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Series C[®] F-, J-, K-, and L-Frame HMCP External Accessories

FLEX SHAFT™ HANDLE MECHANISM



The Flex Shaft type handle mechanism is an extra heavy-duty handle mechanism designed for mounting in flange-type enclosures. An operating handle, flexible shaft, and mechanism are required for standard application.

The handle can be locked in the RESET position with up to three padlocks. The handle is suitable for NEMA 1, 3R, 4, 4X, and 12 fabricated enclosures. It is supplied for mounting in right hand flange enclosures. The handle fits the industry standard cutout.

Eight lengths of shafts are available for use with the wide range of depths of various enclosures (3 feet through 10 feet). These choices enable this mechanism to be mounted in various depth, width, and height enclosures.

Note: When selecting the length of shaft, ensure minimum bending radius of 4 inches is maintained to operate properly.

The standard method of shipment includes the mechanism preset at the factory; however, minor field adjustments may be required.

Ordering Information

Catalog Number includes complete assembly consisting of handle, flexible shaft, operating mechanism, and door interlock hardware to fit industry standard flange cutout.

| Length of Flex Shaft (in feet) | CATALOG NUMBERS | | | |
|--------------------------------|-----------------|---------|---------|---------|
| | F-Frame | J-Frame | K-Frame | L-Frame |
| 3 | F1S03 | F2S03 | F3S03 | ..... |
| 4 | F1S04 | F2S04 | F3S04 | F4S04 |
| 5 | F1S05 | F2S05 | F3S05 | F4S05 |
| 6 | F1S06 | F2S06 | F3S06 | F4S06 |
| 7 | F1S07 | F2S07 | F3S07 | ..... |
| 8 | F1S08 | F2S08 | F3S08 | ..... |
| 9 | F1S09 | F2S09 | F3S09 | ..... |
| 10 | F1S10 | F2S10 | F3S10 | ..... |

Note: NEMA 4/4X handle mechanisms are available. Add suffix X to complete catalog number.

Accessories

Standard Door Hardware (Required Adapter Kit Below)

| CATALOG NUMBERS | Latch | Panel Height |
|-----------------|---------|--------------|
| DH1R | 2 point | Up to 30 in. |
| DH2R | 2 point | Up to 40 in. |
| DH3R | 3 point | Over 40 in. |

Refer to page 55 for more information.

Door Hardware Adapter Kit (Required on Standard Door Hardware)

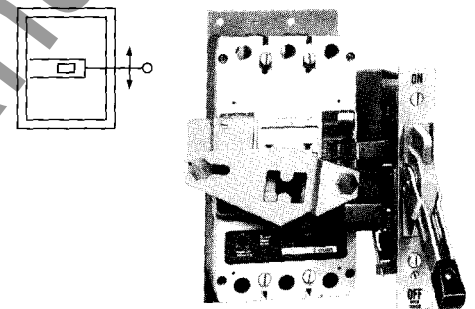
| CATALOG NUMBER |
|----------------|
| AMTDHA |

Refer to page 55 for more information.

Door Hardware for Hoffman A – 25 Enclosure
Kit consists of special door hardware and door interlock pin. Available for right-hand flange mounting only.

| CATALOG NUMBERS | Latch | Panel Height |
|-----------------|---------|--------------|
| HDH-2R | 2 point | Up to 40 in. |
| HDH-3R | 3 point | Over 40 in. |

TYPE SM SAFETY HANDLE MECHANISM



The SM safety handle mechanism provides a means of externally operating a MCP mounted in an enclosure and is designed to reduce the possibility of MCP tampering. The handle mechanism is especially suited for use in automotive and machine tool industries through its conformance to NEMA 12 and J. I. C. requirements. A specially modified handle mechanism for NEMA 4 enclosure application is also available. The handle mechanism will accept up to three padlock shackles, each with a maximum diameter of 3/8 inch (9.52mm).

Ordering information Right-Hand Mounting Enclosure Cover

| CATALOG NUMBERS – Hinged on Left | | | |
|----------------------------------|---------|---------|---------|
| F-Frame | J-Frame | K-Frame | L-Frame |
| SM150R | SM250JR | SM400KR | SM600R |

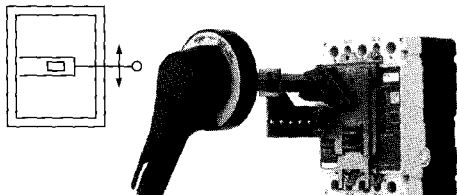
Left-Hand Mounting Enclosure Cover

| CATALOG NUMBERS – Hinged on Right | | | |
|-----------------------------------|---------|---------|---------|
| F-Frame | J-Frame | K-Frame | L-Frame |
| SM150L | SM250JL | SM400KL | SM600L |



Series C F-, J-, K-, and L-Frame HMCP External Accessories

SERIES C ROTARY HANDLE MECHANISM



The Westinghouse general purpose Rotary handle mechanisms are suitable for use with NEMA 1, 3R, 4, and 12 fabricated enclosures. They are designed for use with Series C F-, J-, K-, and L-Frame Motor Circuit Protectors (HMCP).

Required for a standard application are the operating handle, shaft, and mechanism.

The operating handle has been designed to meet NFPA 79 requirements. It may be mounted in either the horizontal or the vertical direction. The handle was ergonomically designed with extra clearance for a "gloved hand" to operate. It may be padlocked in the OFF position utilizing 3 padlocks.

The standard label on the operating handle indicates ON/Tripped/OFF/Reset.

Note: NEMA 4 handle mechanisms are available. Add suffix X to complete catalog number.

Ordering Information

| Shaft Length (inches) | COMPLETE CATALOG NUMBER ^① | SEPARATE STYLE NUMBERS | | |
|-----------------------|--------------------------------------|-------------------------------|--------------------------------|--------------------|
| | | Standard Handle ^{②③} | Breaker ^④ Mechanism | Shaft ^⑤ |
| F-Frame | | | | |
| 6 | HM1R06 | 6648C22G01 | 6648C23G01 | 4217B37G04 |
| 12 | HM1R12 | 6648C22G01 | 6648C23G01 | 4217B37G01 |
| 16 | HM1R16 | 6648C22G01 | 6648C23G01 | 4217B37G02 |
| 24 | HM1R24 | 6648C22G01 | 6648C23G01 | 4217B37G03 |
| J-Frame | | | | |
| 6 | HM2R06 | 6648C22G01 | 6648C23G02 | 4217B37G04 |
| 12 | HM2R12 | 6648C22G01 | 6648C23G02 | 4217B37G01 |
| 16 | HM2R16 | 6648C22G01 | 6648C23G02 | 4217B37G02 |
| 24 | HM2R24 | 6648C22G01 | 6648C23G02 | 4217B37G03 |
| K-Frame | | | | |
| 6 | HM3R06 | 6648C22G01 | 6648C23G03 | 4217B37G04 |
| 12 | HM3R12 | 6648C22G01 | 6648C23G03 | 4217B37G01 |
| 16 | HM3R16 | 6648C22G01 | 6648C23G03 | 4217B37G02 |
| 24 | HM3R24 | 6648C22G01 | 6648C23G03 | 4217B37G03 |
| L-Frame | | | | |
| 6 | HM4R06 | 6648C22G01 | 6608C02G01 | 4217B37G04 |
| 12 | HM4R12 | 6648C22G01 | 6608C02G01 | 4217B37G01 |
| 16 | HM4R16 | 6648C22G01 | 6608C02G01 | 4217B37G02 |
| 24 | HM4R24 | 6648C22G01 | 6608C02G01 | 4217B37G03 |

To meet the various enclosure depths, four variable depth shafts are offered (6 inch, 12 inch, 16 inch, and 24 inch). Each shaft includes a support brace to ensure proper alignment. In addition, the 16 inch and 24 inch extra long shafts include an adjustable support bracket.

The standard mechanism located on the breaker does include means for internally locking the breaker in the "OFF" position with up to 3 padlocks each with a maximum diameter of .312 inch.

NEMA 4/4X handles are similar to standard handles except they include an internal neoprene gasket. Due to gasketing effect between the handle and the housing, the handle may not indicate a tripped position.

Accessories

As an option, an auxiliary switch is offered so that the control panel builder may electrically indicate the status of the MCP. This accessory would be mounted on the mechanism and comes with 24-inch pigtail leads.

Microswitch

(Includes 24-inch Pigtail leads)

| STYLE NUMBER |
|--------------|
| 5108A61G01 |

- ① Complete catalog number includes the standard handle, mechanism, shaft, and support brace/bracket.
- ② Handle is designed suitable for NEMA 1, 3R, and 12 enclosures.
- ③ The standard handle label indicates ON/Tripped/OFF/Reset.
- ④ Breaker mechanism includes a shaft support bracket and its parts.
- ⑤ Longer shafts (16 in. and 24 in.) include an adjustable support extension.

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Series C® F-, J-, K-, and L-Frame HMCP External Accessories

DOOR HARDWARE

Door hardware listed in this section may be used with Types SM and AMT handle mechanisms.

Three choices of door hardware and an auxiliary handle are offered to provide the best latching scheme for individual needs. The door hardware is designed with a provision for padlocking, and a coin-proof slot that requires the use of a tool to open the door.

Select desired hardware below. Additional latches can be ordered from accessories section if desired.

| Hardware Item | Description and Catalog Numbers |
|---|---|
|  | With sliding latches for smaller panels up to approx. 30" high. CATALOG NUMBERS Right Hand: DH1R Left Hand: DH1L |
|  | With 2-roller latches for intermediate panels up to approx. 40" high. CATALOG NUMBERS Right Hand: DH2R Left Hand: DH2L |
|  | With 3-roller latches for larger panels, approx. 40" and higher. CATALOG NUMBERS Right Hand: DH3R Left Hand: DH3L |
|  | Auxiliary handle for larger panels. CATALOG NUMBERS Right Hand: DH4R Left Hand: DH4L |

Note:
Right-hand enclosure cover hinged on left,
Left-hand enclosure cover hinge on right.

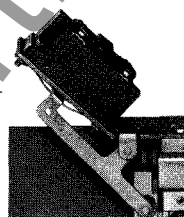
Accessories

Dress Nameplates: Required to meet automotive specifications. Mounts from inside enclosure and covers operating mechanism mounting bolts; makes mechanism non-removable when enclosure door is closed.



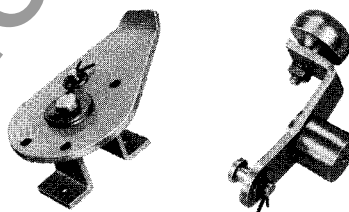
STYLE NUMBER
373D260G05

Electrical Interlock Kit: Provides 1 N.C. and 1 N.O. contacts (SPDT switch) for use with auxiliary circuits. Mounts to end of mechanism housing as shown.



STYLE NUMBER
622B747G01

Auxiliary Latch Kits: Provide an additional latch for use with applications where two point latching may not be adequate.



Sliding Latch Rolling Latch

For Door Hardware Using Sliding Latches
STYLE NUMBER
Right- or Left-Hand Mounting 656D669G01

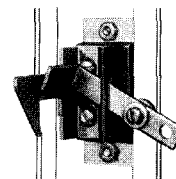
For Door Hardware Using Roller Latches
STYLE NUMBERS
Right-Hand Mounting 370D801G04
Left-Hand Mounting 370D802G04

Door Operated Interlock Defeater Kit for Type SM Mechanisms

Required when door hardware is not used, operates as door closes. Additional method of securing door such as screw latch, also required (supplied by box manufacturer).

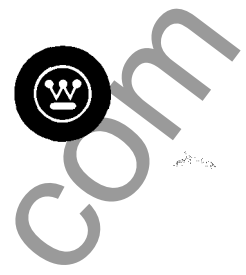
STYLE NUMBER
623B214G02

Door Hardware Kit



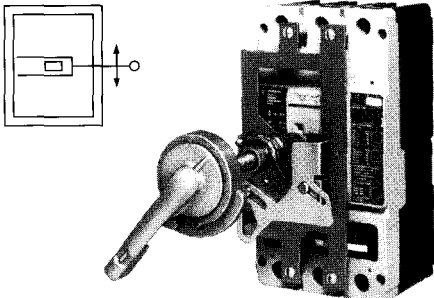
This adapter kit is for use with door hardware kits DH1R, DH2R, or DH3R for type SM handle mechanisms to permit the use and interlocking of right-hand installation of the type AMT handle mechanism (Below-the-Handle or Above-the-Handle type).

CATALOG NUMBER
AMTDHA



Series C F-, J-, K-, and L-Frame HMCP External Accessories

VARI-DEPTH HANDLE MECHANISM^①



Accessories for Vari-Depth Handle Mechanisms

Special Handles: Meet NEMA 4 requirements. These handles are similar to standard handles, except they include an internal neoprene gasket. Due to gasketing effect between handle and housing, handle will not indicate a tripped position when used with circuit breakers.

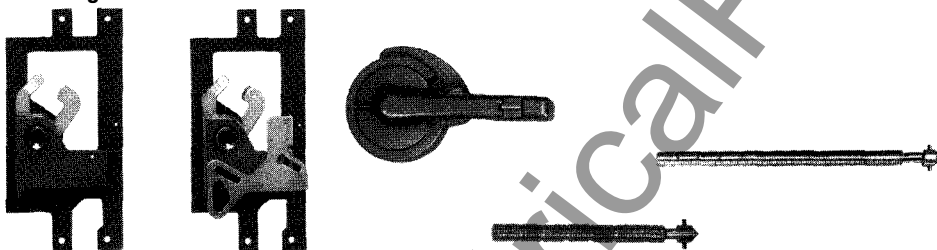
| STYLE NUMBERS – Standard Finish | |
|---------------------------------|------------|
| F-, J-Frames | 504C323G04 |
| K-, L-Frames | 504C323G01 |

The vari-depth handle mechanism provides a means of externally operating a circuit breaker housed in an enclosure and can be applied to enclosures of varying depths. The handle mechanism can be used in NEMA 1, 3R, 4, 7, 9, and 12 enclosure applications, depending on the accessory components selected. The handle mechanism will accept up to three padlock shackles, each with a maximum diameter of 5/16 inch (7.94mm).

Handle Kits: These kits are for use with NEMA 4, 7, and 9 cast enclosures. The kits include a special operating handle, mounting bolts, and an adapter bushing. (The bushing may be purchased separately.) Kits may be used with standard mechanisms and shafts as required.

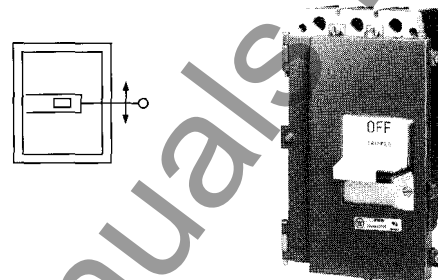
| STYLE NUMBERS | |
|----------------------|------------|
| NEMA 4 and 9 Kit | 314C794G10 |
| NEMA 7 Kit | 314C794G09 |
| Adapter Bushing Only | 314C794G04 |

Ordering Information^②



| Mechanisms ^{③④} | | Handle | Shaft | | | |
|----------------------------------|-----------------------------------|--------------------------------|--------------|---|--------------|--|
| Standard – (No Internal Lockoff) | Special – (With Internal Lockoff) | NEMA 1, 3R, 12 (With Hardware) | Standard | | Long | |
| STYLE NUMBERS | | | STYLE NUMBER | Panel Depth | STYLE NUMBER | Panel Depth |
| F-Frame | | | | | | |
| 373D958G22 | 373D958G23 | 504C323G03 | 47A4446G36 | 5-10 ¹ / ₂ | 47A4446G37 | 10 ¹ / ₂ -14 |
| J-Frame | | | | | | |
| 5092A62G03 | 5092A62G04 | 504C323G03 | 47A4446G36 | 5 ⁷ / ₈ -11 ¹ / ₈ | 47A4446G37 | 11 ¹ / ₈ -14 ⁷ / ₈ |
| K-Frame | | | | | | |
| 5092A62G01 | 5092A62G02 | 504C323G03 | 47A4446G36 | 5 ⁷ / ₈ -11 ¹ / ₈ | 47A4446G37 | 11 ¹ / ₈ -14 ⁷ / ₈ |
| L-Frame | | | | | | |
| 5092A62G01 | 5092A62G02 | 504C323G03 | 47A4446G36 | 5 ⁷ / ₈ -11 ¹ / ₈ | 47A4446G37 | 11 ¹ / ₈ -14 ⁷ / ₈ |

TYPE MC MOTOR CONTROL HANDLE MECHANISM



The MC motor control handle mechanism is a linear-operating, fixed-depth mechanism designed for through-door mounting in standardized and shallow depth enclosures. The handle mechanism provides positive operation and direct disconnect status indication. It is interlocked with the enclosure door so that the door can be opened only when the handle is set to OFF. (A defaeter, supplied with the handle mechanism, can be used to bypass the interlock for maintenance and inspection.) The handle mechanism will accept up to three padlock shackles, each with a maximum diameter of 3/8 inch (7.92mm). UL File E56845.

Ordering Information

For use with NEMA 1 Enclosure Catalog.

| CATALOG NUMBERS | |
|-----------------|-----------|
| F-Frame | SMCU150FD |
| J-Frame | SMCU250JD |
| K-Frame | SMCU400KD |
| L-Frame | SMCU400KD |

For use with NEMA 12 Enclosure Catalog.

| CATALOG NUMBERS | |
|-----------------|-----------|
| F-Frame | CMCU150FD |
| J-Frame | CMCU250JD |
| K-Frame | CMCU400KD |
| L-Frame | CMCU400KD |

Note: Extra long shaft available. Includes support bracket for Series C F-Frame with no internal lockoff. Order 373D958G24, which includes the mech, shaft, and bracket. Order handle separately. Panel depth 16³/₈-24¹/₄.

- ① UL-listed for field installation under E64983.
- ② When circuit breaker is used with plug-in adapter kit, order mounting hardware Style No. 673B125G14. If rear connect studs are used, refer to Cutler-Hammer.
- ③ Includes hardware.
- ④ Outline and drilling plan reference: Drawing 653D270.

Cutler-Hammer

Westinghouse &
Cutler-Hammer Products
Five Parkway Center
Pittsburgh, Pennsylvania, U.S.A. 15220





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Selection Data
29-120H
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January 1995
Supersedes Frame Book 29-111,
pages 1-20, dated May 1986, Frame Book
29-111A, pages 1-24, dated May 1987,
and Technical Data 29-120, pages 59-60,
dated March 1993
Mailed to: E, D, C/29-100A, 29-300A

Series C[®] F-Frame HMCP Modifications

MOISTURE-FUNGUS TREATMENT

All Series C MCP cases are molded from glass-polyester which does not support the growth of fungus. Any parts which are susceptible to the growth of fungus will require special treatment.

Order by description.
Refer to price list.

FREEZE-TESTED CIRCUIT BREAKERS

The MCPs may be ordered with freeze testing. This option uses special lubrication and mechanical operation is verified at -40°C.

Order by description.
Refer to price list.

www.ElectricalPartManuals.com



Series C HMCP Modifications

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