Circuit & Motor Protection

Higher AIC, Less Space

Powering Business Worldwide

- Secure higher AIC with these space-saving solutions for circuit protection
- Interlocking DIN mount fuse blocks provide multiple poles with one part
- Improper fuse rejection feature prevents insertion of lower interruption fuses

Fuse Blocks & Fuse Holders Product Overview

	
Description	**C350**
Page	Page 4
Number of Poles	Up to 3
Mounting	35 mm Flat or 32 mm Asymmetrical DIN-Rail (with optional adapter)
Terminal Ratings	600V, 30A
Housing Construction	Thermoplastic UL 94V0 Flammability Rating
Clip / Terminal Construction	Tin-Plated Copper Alloy
Screw / Pressure Plate Construction	Zinc-Plated Steel
Certifications	UL, CSA
Dielectric Strength	1200V

Circuit & Motor Protection

Fuse Blocks & Fuse Holders

PRODUCT SELECTION

C350 Series Fuse Blocks & Fuse Holders

- Space-saving design
- Rated 600V, 30A
- UL approved for motor loads

Fuse Blocks & Fuse Holders

Wire Termination	No. of Poles	250V 30A Catalog Number	250V 30A Carton Qty.	250V 60A Catalog Number	250V 60A Carton Qty.	600V 30A Catalog Number	600V 30A Carton Qty.	600V 60A Catalog Number	600V 60A Carton Qty.
Class H Fuse Holders									
Single Collar (Box Lug) — Sized to Ampere Rating	1	**W231HA**	10	**W261HA**	10	**W631HA**	10	**W661HA**	1
	2	**W232HA**	5	**W262HA**	5	**W632HA**	5	**W662HA**	1
	3	**W233HA**	5	**W263HA**	5	**W633HA**	1	**W663HA**	2
Class M Fuse Holders									
Combination of Double Quick-Connect, 20A Max., and Binding Head Screw, #10 Max., Cu/Al	1	—	—	—	—	**WM631F**	10	—	—
	2	—	—	—	—	**WM632F**	8	—	—
	3	—	—	—	—	**WM633F**	6	—	—
Combination of Double Quick-Connect, 20A Max., and Pressure Plate Screw, #10 Max., Cu Only	1	—	—	—	—	**WM631G**	10	—	—
	2	—	—	—	—	**WM632G**	8	—	—
	3	—	—	—	—	**WM633G**	6	—	—
Class R Fuse Holders									
Single Collar (Box Lug) — Sized to Ampere Rating	1	**WR231HA**	10	—	—	**WR631HA**	10	—	—
	2	—	—	—	—	**WR632HA**	5	—	—
	3	**WR233HA**	5	**WR263HA**	1	**WR633HA**	5	**WR663HA**	5
Combination of Double Quick-Connect, 20A Max., and Binding Head Screw, #10 Max., Cu/Al	1	—	—	—	—	—	—	—	—
	2	—	—	—	—	**WMR632F**	1	—	—
	3	—	—	—	—	**WMR633F**	6	—	—
Combination of Double Quick-Connect, 20A Max., and Pressure Plate Screw, #10 Max., Cu Only	1	—	—	—	—	**WMR631G**	10	—	—
	3	—	—	—	—	**WMR633G**	6	—	—
Class R Fuse Holder, Type WRR Control Transformer Fuse Block									
Combination of Double Quick-Connect, 20A Max., and Pressure Plate Screw, #14 – #10 Cu Only	3	—	—	—	—	**WRR633G**	6	—	—

For our complete product offering, see the Control Products Catalog **(CA08102001E)**.

Smaller Size, Greater Power

Powering Business Worldwide

- High interruption power breakers for high performance equipment
- Compact and globally certified molded case circuit breakers for main feeds
- Broadest line of industrial miniature circuit breakers for branch applications
- AC/DC hydraulic magnetic circuit breakers for extreme environmental conditions
- Broadest set of SCCR combinations ratings listed under UL 508A

Circuit & Motor Protection

Circuit Breakers

PRODUCT OVERVIEW

Circuit Breakers Product Overview

					
Description	**Universal Molded Case Circuit Breaker**		**Series G Molded Case Circuit Breaker**		**QUICKLAG Type QC Miniature Circuit Breaker**
Page	Page 9		Page 12		Page 18
General Applications	Line protection — feeder and branch thermal-magnetic trip unit.		Line protection — molded case switch, motor circuit protection (combination tested with Eaton starters and contactors) thermal-magnetic and electronic trip units.		Used to provide branch circuit protection in cable-in/out panel or DIN-Rail mount applications.
Maximum Current Rating	400A		630A		100A
Maximum Voltage — ac	480/277V ac		690V ac		240V ac
Maximum Voltage — dc	—		125/250V dc		80V dc
Poles	1, 2, 3		1, 2, 3, 4		QC = 1, 2, 3, 4 QCD = 1, 2, 3 QCR/QCF = 1, 2, 3
Approvals	UL 489 IEC 60947-2 CE CSA		UL 489 IEC 60947-2 CE CSA KEMA-KEUR CCC		UL 489 CSA 22.2
Max. Interrupting Capacities (see individual catalogs for limitations and back-up protection requirements)	@ 240V G = 25 kA (480/277) F = 25 kA J = 25 kA K = 25 kA	@ 480V G = 14 kA (480/277) F = 18 kA J = 20 kA K = 20 kA	@ 240V E = 200 kA J = 200 kA L = 200 kA	@ 480V E = 100 kA J = 200 kA L = 200 kA	65 kA @ 240V ac 5 kA @ 80V dc

Environmental Data

Humidity	—	—	—
Shock	—	—	—
Vibration	—	—	—
Operating Temperature	-20°C to +70°C (-4°F to +158°F)	-20°C to +70°C (-4°F to +158°F)	40°C (104°F)
Dielectric Strength	8 kV	8 kV	1960V ac (acc. to UL 489)
Insulation Resistance	—	—	—
Endurance / Life	250A: 10,000 Operations 400A: 8,000 Operations	250A: 10,000 Operations 630A: 8,000 Operations	>10,000 Operations
Approximate Weight	G 3-Pole – 2.10 lbs (0.95 kg) F 3-Pole – 4.5 lbs (2.0 kg) J 3-Pole – 12.50 lbs (5.7 kg) K 3-Pole – 11.50 lbs (5.2 kg)	E 3-Pole – 2.88 lbs (1.04 kg) J 3-Pole – 5.06 lbs (2.30 kg) L 3-Pole – 12.36 lbs (5.61 kg)	QC 1-Pole – 0.36 lbs (162.8 g) QC 2-Pole – 0.61 lbs (274.9 g) QC 3-Pole – 1.14 lbs (518.3 g) QCD 1-Pole – 0.43 lbs (195.3 g) QCD 2-Pole – 0.89 lbs (401.9 g) QCD 3-Pole – 1.34 lbs (605.6 g) QCR 1-Pole – 0.22 lbs (97.9 g) QCR 2-Pole – 0.48 lbs (215.8 g) QCR 3-Pole – 0.70 lbs (315.6 g) QCF 1-Pole – 0.24 lbs (109.9 g) QCF 2-Pole – 0.50 lbs (225.2 g) QCF 3-Pole – 0.74 lbs (335.1 g)
Mounting Configuration	Backpan, DIN-Rail (G)	Backpan, Plug-In Adapter, 35 mm DIN-Rail (E)	Panel Mount, Front Mount, 35 mm DIN-Rail Mountable
For more detailed information, see Distribution Products Catalog, CA08101001E.	Tab 12	Tab 12	Tab 11

For our complete product offering, see the Distribution Products Catalog (CA08101001E).

Circuit Breakers Product Overview

			
Description	**WMZT DIN-Rail UL 489 Miniature Circuit Breaker**	**WMS Supplementary Protectors**	**SPHM Hydraulic Magnetic Circuit Breaker**
Page	Page 25	Page 26	Page 29
General Applications	Used to provide branch circuit protection in cable-in / out DIN-Rail mount applications.	Used to provide overcurrent protection where branch protection (for example UL 489 MCCB) is already provided or not required. Replacement for fuses used as supplementary protectors.	Replacement for fuses used as supplementary protectors.
Maximum Current Rating	40A	60A	63A
Maximum Voltage — ac	480/27V ac (240/415V ac IEC)	480/277V ac	480V ac
Maximum Voltage — dc	48V dc	65V ac 1-Pole 130V ac 2-Pole	80V dc
Poles	1, 2, 3	1, 2, 3	1, 2, 3, 4
Approvals	UL 489 CE; IEC / EN 60947-2 CSA 22.2	UL 1077 CE; IEC / EN 60947-2; IEC/EN 60898 CSA 22.2 235	UL 1077 CE; EN 60947-2 CSA 22.2
Max. Interrupting Capacities (see individual catalogs for limitations and back-up protection requirements)	10 kA UL / CSA; 15 kA IEC / EN 60947-2	IEC 240/415V 10 kA UL/CSA 120V 10 kA 240V 10 kA 277V 6 kA 480V 6 kA	277V ac – 5000A 480V ac – 3000A 80V dc – 5000A

Environmental Data

Humidity	acc. IEC 60068-2 (25.. 55°C / 77…131°F, 90…95% RH)	—	IEC 68-2-3 and MIL-STD 202 Method 103 Test A
Shock	acc. IEC 60068-2-27 (40 g Half Sine Wave for 10 ms – 3 axes) (15 g Half Sine Wave for 20 ms – 3 axes)	—	IEC 68-2-27 MIL-STD 202, Method 213 Cond 1 (50 G, 6 ms)
Vibration	acc. to IEC 60068-2-6 5…100 Hz / 1.0 mm / 0.7 g (3 axes)	—	IEC 68-2-6 MIL-STD 202, Method 204 (10 to 500 Hz, 10 G Amplitude .06")
Operating Temperature	30°C / 86°F	—	-40ºC to +85ºC (-40ºF to +185ºF)
Dielectric Strength	1960V ac (acc. to UL 489)	—	3750V ac — 50/60 Hz
Insulation Resistance	100 MΩ at 500V dc	—	100 MΩ under 500V dc
Endurance / Life	>20,000 Operations	—	10,000 Switching Operations with 6,000 at Rated Current
Approximate Weight	1-Pole – 0.27 lbs (121.0 g) 2-Pole – 0.53 lbs (242.0 g) 3-Pole – 0.80 lbs (363.0 g)	1-Pole – 0.26 lbs (120.0 g) 2-Pole – 0.54 lbs (244.9 g) 3-Pole – 0.83 lbs (376.5 g)	1-Pole – .32 lbs (145.0 g) 2-Pole – .65 lbs (295.0 g) 3-Pole – .97 lbs (440.0 g) 4-Pole – 1.30 lbs (590.7 g)
Mounting Contribution	35 mm DIN-Rail Mountable	35 mm DIN-Rail Mountable	35 mm DIN-Rail Mountable
For more detailed information, see Distribution Products Catalog, CA08101001E	Tab 11	Tab 11	Tab 11

Circuit & Motor Protection

Circuit Breakers

PRODUCT OVERVIEW

Circuit Breakers Product Overview

				
Description	**J Series Hydraulic Magnetic Circuit Breaker**	**AMR Hydraulic Magnetic Circuit Breaker**	**Series NRX Power Circuit Breaker**	**Magnum Power Circuit Breaker**
Page	Page 30	Page 31	Page 32	Page 35
General Applications	Well suited for use where equipment must be kept as small as possible, like in crowded control panels. For use as a supplemental protector. No change in tripping performance in extreme ambient temperatures from -40°C to 85°C.	Most versatile hydraulic magnetic breaker for use in branch circuit applications or as a supplemental protector. No change in tripping performance in extreme ambient temperatures from -40°C to 85°C.	Solution for where space is at a premium or when equipment dimensions are critical when upgrading or retrofitting current systems. Offering the power and performance of a power breaker in the compact size of a molded case breaker. With its reduced weight and compact dimensions, you can mount two times as many feeder breakers and reduce the overall enclosure density up to 50%.	Designed and engineered for use in low voltage metal enclosed switchgear and power distribution enclosures of nominal voltage up to 600V ac.
Maximum Current Rating	50A	100A 300A (3 paralleled poles to operate as single pole)	630 – 1600A	800 – 6300A
Maximum Voltage — ac	415V ac	480V ac	220 – 690V ac	up to 635V ac
Maximum Voltage — dc	80V dc	125V dc	—	—
Poles	1, 2, 3, 4	1, 2, 3, 4	3, 4	3, 4
Approvals	UL 1077 / UL 489A CE; EN 60947-2 CSA 22.2	UL 1077 / UL 489 / UL 489A CE; EN 60934 CSA 22.2	UL 1006 Component UL 489 Component IEC 60947-2	UL 1066 ANSI 637 NEMA SG3 CSA 22.2
Max. Interrupting Capacities (see individual catalogs for limitations and back-up protection requirements)	277V ac – 5000A 415 V ac – 1500A (3 – 4-Pole) 80V dc – 1000A (UL 1077) 80V dc – 5000A (UL 489A)	UL 1077 – 80V dc – 7500A UL 1077 – 125V dc – 5000A UL 1077 – ac – 5000A UL 489 – 80V dc – 10,000A UL 489 – ac – 10,000A	65 kAIC at 480V ac Maximum Withstand Capacities 42 kAIC	100 kA at 635V ac 200 kA at 508V ac CL Fuseless 200 kA at 600V ac w/ Integral Limiters
Environmental Data				
Humidity	IEC 68-2-3 and MIL-STD 202 Method 103 Test A	IEC 68-2-3 and MIL-STD 202 Method 103 Test A	—	—
Shock	IEC 68-2-27 MIL-STD 202, Method 213 Cond 1 (100 G, 6 ms or 50 G, 11 ms)	IEC 68-2-27 MIL-STD 202, Method 213 Cond 1 (100 G, 6 ms)	—	—
Vibration	IEC 68-2-6 MIL-STD 202, Method 204 (10 to 500 Hz, 10 G Amplitude .06")	IEC 68-2-6 MIL-STD 202, Method 204 (10 to 500 Hz, 10 G Amplitude .06")	—	—
Operating Temperature	-40°C to +85°C	-40°C to +85°C	—	—
Dielectric Strength	3750V ac – 50/60 Hz	3750V ac – 50/60 Hz	—	—
Insulation Resistance	100 MΩ under 500V dc	100 MΩ under 500V dc	—	—
Endurance / Life	10,000 Switching Operations with 6,000 at Rated Current	10,000 Switching Operations with 6,000 at Rated Current	10,000 Electrical Operations 20,000 Mechanical Operations	—
Approximate Weight	1-Pole – .143 lbs (65 g) 2-Pole – .309 lbs (140 g) 3-Pole – .463 lbs (210 g) 4-Pole – .617 lbs (280 g)	1-Pole – .220 lbs (100 g) 2-Pole – .441 lbs (200 g) 3-Pole – .661 lbs (300 g) 4-Pole – .882 lbs (400 g)	3-Pole Breaker + Cassette — 85 lbs (39 kg) 3-Pole Breaker — 53 lbs (24 kg) 4-Pole Breaker + Cassette — 104 lbs (47 kg) 4-Pole Breaker — 67 lbs (30 kg)	—
Mounting Contribution	Panel Mount, Snap-In Mount	Panel Mount, Snap-In Mount	Rear-Connected, Front-Connected, Surface Mounting, Mounting Bracket, Fixed, Drawout Breaker with Cassette	Fixed or Drawout (with cassette)
For more detailed information, see Distribution Products Catalog, CA08101001E.	Tab 11	Tab 11	Tab 13	Tab 13

For our complete product offering, see the Distribution Products Catalog **(CA08101001E)**.

Universal Molded Case Circuit Breakers

- Universal design for both NEMA (UL 489) and IEC (IEC 947-2) standards
- Suitable for 50°C application
- Factory-sealed thermal magnetic trip unit
- Standard interrupting ratings

Universal Molded Case Circuit Breaker — 3-Pole

Product Description	Amperes	Catalog Number ①
Series C G-Frame		
3"W x 4-7/8"H x 2-13/16"D (includes mounting hardware and terminals) (optional DIN-Rail kit available catalog number GDIN, package of ten)	15	**Gi3015**
	20	**Gi3020**
	25	**Gi3025**
	30	**Gi3030**
	35	**Gi3035**
	40	**Gi3040**
	45	**Gi3045**
	50	**Gi3050**
	60	**Gi3060**

Voltage	Interrupting Rating
380 – 415	18/5K
480/277	14K

Product Description	Amperes	Catalog Number ①
Series C F-Frame		
4-1/8"W x 6"H x 3-3/8"D (includes mounting hardware and terminals)	15	**Fi3015L**
	20	**Fi3020L**
	25	**Fi3025L**
	30	**Fi3030L**
	35	**Fi3035L**
	40	**Fi3040L**
	50	**Fi3050L**
	60	**Fi3060L**
	70	**Fi3070L**
	80	**Fi3080L**
	90	**Fi3090L**
	100	**Fi3100L**
	125	**Fi3125L**
	150	**Fi3150L**
	175	**Fi3175L**
	200	**Fi3200L**
	225	**Fi3225L**

Voltage	Interrupting Rating
415V	18/9K
480	14K

① Metric mounting hardware.

Product Description	Amperes	Catalog Number ①
Series C J-Frame		
4-1/8"W x 10"H x 4-1/16"D (includes mounting hardware and terminals)	225	**Ji3225L**
	250	**Ji3250L**

Voltage	Interrupting Rating
415	25/13K
480	20K

Product Description	Amperes	Catalog Number ①
Series C K-Frame		
5-1/2"W x 10-1/8"H x 4-1/16"D (includes mounting hardware and terminals)	300	**Ki3300L**
	350	**Ki3350L**
	400	**Ki3400L**

Voltage	Interrupting Rating
415	25/13K
480	20K

① Metric mounting hardware

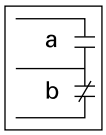
Circuit & Motor Protection

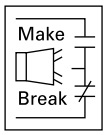
Circuit Breakers

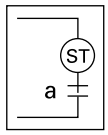
PRODUCT SELECTION

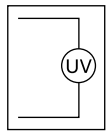
Universal Molded Case Circuit Breakers — Accessories

Internal Accessories









Auxiliary Switch (Right-Pole Mounted)		Bell Alarm (Right-Pole Mounted)		Shunt Trip (Left-Pole Mounted)		UVR (Left-Pole Mounted)	
Configuration	**Add This Suffix to Catalog No.**	**Configuration**	**Add This Suffix to Catalog No.**	**Voltage Range**	**Add This Suffix to Catalog No.**	**Voltage Range**	**Add This Suffix to Catalog No.**
Series C G-Frame							
1NO / 1NC 2NO / 2NC	**A3** **A6**	1 Make / 1 Break	**B3**	24V ac 120V ac 240V ac 12V dc 24V dc 120V ac (GMCP) 240V ac (GMCP)	**S7** **S1** **S2** **S3** **S4** **S5** **S6**	24V ac 50/60 Hz 48V ac 50/60 Hz 60V ac 50/60 Hz 120V ac 50/60 Hz 240V ac 50/60 Hz 220V ac 50 Hz 440V ac 50 Hz 480V ac 60 Hz	**T2** **T3** **T4** **T1** **T8** **T7** **T11** **T12**
If both an auxiliary switch and bell alarm are required, add B13 to the catalog number (right-pole mounted). Auxiliary switch and bell alarm are 240V rated.						(Not available for GMCP)	
Series C F-Frame							
1NO / 1NC 2NO / 2NC	**A06** **A13**	1 Make / 1 Break	**B06**	12 – 24V ac/dc 48 – 127V ac or 48 – 60V dc 208 – 380V ac 110 – 127V dc 415 – 600V ac or 220 – 250V dc	**S02** **S06** **S10** **S14**	12V ac 24V ac 48V ac/dc 110 – 127V ac 208 – 240V ac 380 – 480V ac 525 – 600V ac 12V dc 24V dc 125V dc 220 – 250V dc	**U02** **U06** **U38** **U14** **U18** **U22** **U26** **U30** **U34** **U42** **U46**
If both an auxiliary switch and bell alarm are required, add C05 to the catalog number (right-pole mounted). Auxiliary switch and bell alarm are 600V rated.							
Series C J-Frame							
1NO / 1NC 2 NO / 2NC	**A06** **A13**	1 Make / 1 Break	**B06**	12 – 24V ac/dc 48 – 60V ac/dc 110 – 240V ac or 110 – 125V dc 380 – 440V ac/or 220 – 250V dc 480 – 600V ac	**S42** **S50** **S10** **S14** **S18**	12V ac 24V ac 48 – 60V ac 110 – 127V ac 208 – 240V ac 380 – 480V ac 12V dc 24V dc 48 – 60V dc 110 – 125V dc 220 – 250V dc	**U06** **U10** **U14** **U18** **U22** **U26** **T02** **T06** **T10** **T14** **T18**
If both an auxiliary switch and bell alarm are required, add C05 to the catalog number (right-pole mounted). Auxiliary switch and bell alarm are 600V rated.							
Series C K-Frame							
1NO / 1NC 2NO / 2NC	**A06** **A13**	1 Make / 1 Break	**B06**	12 – 24V ac/dc 48 – 60V ac/dc 110 – 240V ac or 110 – 125V dc 380 – 440V ac/or 220 – 250V dc 480 – 600V ac	**S42** **S50** **S10** **S14** **S18**	12V ac 24V ac 48 – 60V ac 110 – 127V ac 208 – 240V ac 380 – 480V ac 12V dc 24V dc 48 – 60V dc 110 – 125V dc 220 – 250V dc	**U06** **U10** **U14** **U18** **U22** **U26** **T02** **T06** **T10** **T14** **T18**
If both an auxiliary switch and bell alarm are required, add C05 to the catalog number (right-pole mounted). Auxiliary switch and bell alarm are 600V rated.							

For our complete product offering, see the Distribution Products Catalog (CA08101001E).

Universal Molded Case Circuit Breakers — Accessories

Handle Mechanisms

Variable Depth / Thru Door UL Recognized and IEC Versions

Flange Flex Shaft ①

Series C G-Frame

Variable Depth / Thru Door UL Recognized and IEC Versions	Flange Flex Shaft ①
Type 1 Version: Order **HRGCV11L** **Type 3R, 4, 12 Version:** Order **HRGCV14L** **For GMCP Use:** **Type 1 Version:** Order **HRGMV11L** **Type 3R, 4, 12 Version:** Order **HRGMV14L** (for 8-inch to 18-inch deep enclosure)	**Type 1, 3R, 12 Versions:** 3-Foot length; Order **F0S03C** 4-Foot length; Order **F0S04C** 5-Foot length; Order **F0S05C** 6-Foot length; Order **F0S06C**

Series C F-Frame

Type 1, 3R, 12 Versions: For 6-inch and 10-inch deep enclosures, order **HM1R06**. For 10-inch and 12-inch deep enclosures, order **HM1R12**. For 16-inch and 18-inch deep enclosures, order **HM1R16**. (add X to end for 4X version) (add W to beginning for IEC label on handle)	**Type 1, 3R, 12 Versions:** 3-Foot length; Order **F1S03C** 4-Foot length; Order **F1S04C** 5-Foot length; Order **F1S05C** 6-Foot length; Order **F1S06C** 7-Foot length; Order **F1S07C** 8-Foot length; Order **F1S08C** 9-Foot length; Order **F1S09C** 10-Foot length; Order **F1S10C**

Series C J-Frame

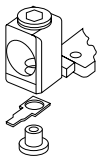
Type 1, 3R, 12 Versions: For 6-inch and 10-inch deep enclosures, order **HM2R06**. For 12-inch and 16-inch deep enclosures, order **HM2R12**. For 18-inch and 20-inch deep enclosures, order **HM2R16**. (add **X** to end for 4X version) (add **W** to beginning for IEC label on handle)	**Type 1, 3R, 12 Versions:** 3-Foot length; Order **F2S03C** 4-Foot length; Order **F2S04C** 5-Foot length; Order **F2S05C** 6-Foot length; Order **F2S06C** 7-Foot length; Order **F2S07C** 8-Foot length; Order **F2S08C** 9-Foot length; Order **F2S09C** 10-Foot length; Order **F2S10C**

Series C K-Frame

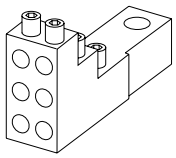
Type 1, 3R, 12 Versions: For 6-inch and 10-inch deep enclosures, order **HM3R06**. For 12-inch and 16-inch deep enclosures, order **HM3R12**. For 18-inch and 20-inch deep enclosures, order **HM3R16**. (add **X** to end for 4X version) (add **W** to beginning for IEC label on handle)	**Type 1, 3R, 12 Versions:** 3-Foot length; Order **F3S03C** 4-Foot length; Order **F3S04C** 5-Foot length; Order **F3S05C** 6-Foot length; Order **F3S06C** 7-Foot length; Order **F3S07C** 8-Foot length; Order **F3S08C** 9-Foot length; Order **F3S09C** 10-Foot length; Order **F3S10C**

① Type 4/4X handle mechanisms are available. Add Suffix X to complete catalog number. Add Suffix I to complete catalog number for IEC handle. Original narrow handle design (No C Suffix) is available.

Terminals and Termination Accessory Devices



Terminals (Included with Breaker)



Multiwire

Series C G-Frame

Terminals (Included with Breaker)	Multiwire
15 – 20 Ampere 14-2 AWG Cu/Al 2.5-4 mm² Cu/Al **25 – 100 Ampere** 10-1/0 AWG Cu/Al 4-50 mm² Cu/Al (GMCP uses copper only terminals)	**3-Hole Version:** (3) 14-2 AWG Order **3TA100G3K** **6-Hole Version:** (6) 14-6 AWG Order **3TA100G6K**

Series C F-Frame

10 – 20 Ampere 14-10 AWG Cu/Al 2.5-4 mm² Cu/Al **25 – 100 Ampere** 14-1/0 AWG Cu/Al 2.5-50 mm² Cu/Al **110 – 225 Ampere** 4-4/0 AWG Cu/Al 25-95 mm² Cu/Al (HMCP uses copper only terminals)	**3-Hole Version:** (3) 14-2 AWG Order **3TA150F3K** **6-Hole Version:** (6) 14-6 AWG Order **3TA150F6K**

Series C J-Frame

70 – 250 Ampere 4-350 MCM AWG Cu/Al 25-150 mm² Cu/Al (HMCP uses copper only terminals)	**3-Hole Version:** (3) 14-2 AWG Order **3TA250J3K** **6-Hole Version:** (6) 14-6 AWG Order **3TA250J6K**

Series C K-Frame

300 – 350 Ampere 250-500 MCM AWG Cu/Al 120-240 mm² Cu/Al **400 Ampere** 3/0-200 (2) AWG Cu/Al 95-120 mm² Cu/Al (HMCP uses copper only terminals)	**3-Hole Version:** (3) 12-2/0 AWG Order **3TA400K3K** **6-Hole Version:** (6) 14-2/0 AWG Order **3TA400K6K**

Circuit & Motor Protection

Circuit Breakers

CATALOG SELECTION

Series G® Molded Case Circuit Breakers — EG-Frame — Catalog Numbering System

E G H 3 015 FF G

Frame

E

Standard / Application

G = IEC / CE / UL / CSA

Performance

	600Y/347	480	415	240
B	—	18	18	25
E	18	25	25	35
S	22	35	40	85
H	25	65	70	100
C	35	100	100	200
K	Molded Case Switch ①			

Poles

1 = One
2 = Two
3 = Three
4 = Four — Neutral 0% Protected
7 = Four — Neutral 100% Protected

Amperes

016 ②
015
020
025
030
032 ②
035
040
045
050
060
063 ②
070
080
090
100
110
125

Terminations/Hardware

Terminals	Mounting Hardware
M = Metric End Caps	Metric
E = Imperial End Caps	Imperial
G = Line / Load Standard	Metric
B = Bolt-On	—

Poles

1 = One
2 = Two
3 = Three
4 = Four — Neutral 0% Protected
7 = Four — Neutral 100% Protected

① Available only in 125 and 160A sizes.

② Is not UL rated.

Series G Molded Case Circuit Breakers — JG-Frame — Catalog Numbering System

J G S 3 250 FA G C

Frame

J

Standard / Application

G = IEC / CE / UL / CSA

Performance

	600	480	415	240
E	18	25	25	65
S	18	35	40	85
H	25	65	70	100
C	35	100	100	200
U	50	150	150	200
X	50	200	200	200
K	Molded Case Switch			

Poles

2 = Two
3 = Three
4 = Four — Neutral 0% Protected
8 = Four — Neutral 0 – 60% Protected
9 = Four — Neutral 0 – 100% Protected

Amperes

050
070
080
090
100
125
150
160
175
200
225
250

Trip Unit

AA = Adj. Adj.
FA = Fixed Adj.
KS = Molded Case Switch
33 = 310+ Electronic LS
32 = 310+ Electronic LSI
35 = 310+ Electronic LSG
36 = 310+ Electronic LSIG
NN = Frame Only (No Trip)

Terminations/Hardware

Terminals	Mounting Hardware
M = Metric End Caps	Metric
E = Imperial End Caps	Imperial
G = Line / Load Standard	Metric

Rating

Blank	= 80% Rated
C	= 100% Rated

For our complete product offering, see the Distribution Products Catalog (CA08101001E).

Series G Molded Case Circuit Breakers — LG-Frame — Catalog Numbering System

L G S 3 600 FA G C

Frame

L

Standard/Application

G = IEC / CE / UL / CSA

Performance

	600	480	415	240
E	18	35	35	65
S	25	50	50	85
H	35	65	70	100
C	50	100	100	200
U	65	150	150	200
X	65	200	200	200
K	Molded Case Switch			

Poles

3 = Three
4 = Four — Neutral 0% Protected
6 = Four — Neutral 60% Protected
7 = Four — Neutral 100% Protected
8 = Four — Neutral 0 – 60% Protected
9 = Four — Neutral 0 – 100% Protected

Amperes

250
300
350
400
500
600
630

Trip Unit

AA = Adj. Adj.
FA = Fixed Adj.
KS = Molded Case Switch
33 = 310+ Electronic LS
32 = 310+ Electronic LSI
35 = 310+ Electronic LSG
36 = 310+ Electronic LSIG
38 = 310+ Electronic ALSI
39 = 310+ Electronic ALSIG
NN = Frame Only (No Trip)

Terminations/Hardware

Terminals	Mounting Hardware
M = Metric End Caps	Metric
E = Imperial End Caps	Imperial
G = Line/Load Standard	Metric
W = Without Terminals	—

Rating

Blank = 80% Rated
C = 100% Rated

Circuit & Motor Protection

Circuit Breakers

PRODUCT SELECTION

Series G Molded Case Circuit Breakers

- Field-fit accessories
- Common accessories through 630A
- Space-saving footprint
- High-performance rating up to 200 kAIC at 480V
- Global ready: UL, CSA, CE, IEC, KEMA-KEUR listings

EG-Frame

Max. Cont. Amps at 40°C ①	3-Pole Fixed Thermal Fixed Magnetic
IC Rating: 25 kAIC at 415 and 480V ac	
15	**EGE3015FFG**
16	**EGE3016FFG**
20	**EGE3020FFG**
25	**EGE3025FFG**
30	**EGE3030FFG**
32	**EGE3032FFG**
35	**EGE3035FFG**
40	**EGE3040FFG**
45	**EGE3045FFG**
50	**EGE3050FFG**
60	**EGE3060FFG**
63	**EGE3063FFG**
70	**EGE3070FFG**
80	**EGE3080FFG**
90	**EGE3090FFG**
100	**EGE3100FFG**
125	**EGE3125FFG**
IC Rating: 70 kAIC at 415V ac, 65 kAIC at 480V ac	
15	**EGH3015FFG**
16	**EGH3016FFG**
20	**EGH3020FFG**
25	**EGH3025FFG**
30	**EGH3030FFG**
32	**EGH3032FFG**
35	**EGH3035FFG**
40	**EGH3040FFG**
45	**EGH3045FFG**
50	**EGH3050FFG**
60	**EGH3060FFG**
63	**EGH3063FFG**
70	**EGH3070FFG**
80	**EGH3080FFG**
90	**EGH3090FFG**
100	**EGH3100FFG**
125	**EGH3125FFG**

① 16, 32, 63A are not UL listed ratings.

Note: Complete breaker includes frame, trip unit, standard terminals and mounting hardware.

JG-Frame

Maximum Continuous Amperes	Magnetic Range	3-Pole Fixed Thermal Adjustable Magnetic
IC Rating: 25 kAIC at 415 and 480V ac		
70	350 – 700	**JGE3070FAG**
90	450 – 900	**JGE3090FAG**
100	500 – 1000	**JGE3100FAG**
125	625 – 1250	**JGE3125FAG**
150	750 – 1550	**JGE3150FAG**
175	875 – 1750	**JGE3175FAG**
200	1000 – 2000	**JGE3200FAG**
225	1125 – 2250	**JGE3225FAG**
250	1250 – 2500	**JGE3250FAG**
IC Rating: 70 kAIC at 415V ac, 65 kAIC at 480V ac		
70	350 – 700	**JGH3070FAG**
90	450 – 900	**JGH3090FAG**
100	500 – 1000	**JGH3100FAG**
125	625 – 1250	**JGH3125FAG**
150	750 – 1550	**JGH3150FAG**
175	875 – 1750	**JGH3175FAG**
200	1000 – 2000	**JGH3200FAG**
225	1125 – 2250	**JGH3225FAG**
250	1250 – 2500	**JGH3250FAG**

LG Frame ①

Ampere Rating	3-Pole ② Fixed Thermal Adj. Magnetic
IC Rating: 35 kAIC at 415 and 480V ac	
250	**LGE3250FAG**
300	**LGE3300FAG**
350	**LGE3350FAG**
400	**LGE3400FAG**
500	**LGE3500FAG**
600	**LGE3600FAG**
IC Rating: 70 kAIC at 415V ac, 65 kAIC at 480V ac	
250	**LGH3250FAG**
300	**LGH3300FAG**
350	**LGH3350FAG**
400	**LGH3400FAG**
500	**LGH3500FAG**
600	**LGH3600FAG**

① Replace suffix "G" with "W" for no line or load terminals.

② For 2-pole applications, use two outer poles.

For our complete product offering, see the Distribution Products Catalog (CA08101001E).

Series G Molded Case Circuit Breakers

EG-Frame — 480V ac, 600Y / 347V ac Maximum

Continuous Amperes	Cam Setting	Motor Full Load Current Amperes ①	MCP Trip Setting ②	MCP Catalog Number
3	A B C D E F	.69 – .91 1.1 – 1.3 1.6 – 1.7 2.0 – 2.2 2.3 – 2.5 2.6 – 2.8	9 15 21 27 30 33	**HMCPE003A0C**
7	A B C D E F	1.5 – 2.0 2.6 – 3.1 3.7 – 3.9 4.8 – 5.2 5.3 – 5.7 5.8 – 6.1	21 35 49 63 70 77	**HMCPE007C0C**
15	A B C D E F	3.4 – 4.5 5.7 – 6.8 8.0 – 9.1 10.4 – 11.4 11.5 – 12.6 12.7 – 13.0	45 75 105 135 150 165	**HMCPE015E0C**
30	A B C D E F	3.9 – 9.1 11.5 – 13.7 16.1 – 18.3 20.7 – 22.9 23.0 – 25.2 25.3 – 26.1	90 150 210 270 300 330	**HMCPE030H1C**
50	A B C D E F	11.5 – 15.2 19.2 – 22.9 26.9 – 30.6 34.6 – 38.3 38.4 – 42.1 42.2 – 43.5	150 250 350 450 500 550	**HMCPE050K2C**
70	A B C D E F	16.1 – 30.6 26.9 – 32.2 37.6 – 42.9 48.4 – 53.7 53.8 – 59.1 59.2 – 60.9	210 350 490 630 700 770	**HMCPE070M2C**
100	A B C D E F	23.0 – 30.6 38.4 – 46.0 53.8 – 61.4 69.2 – 76.8 76.9 – 84.5 84.6 – 87.0	300 500 700 900 1000 1100	**HMCPE100R3C**
100	A B C D E F	38.4 – 46.0 57.6 – 65.2 76.9 – 84.5 ③ ③ ③	500 750 1000 1250 1375 1500	**HMCPE100T3C**

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 10 x In are for special applications. Where the ampere rating of the disconnecting means cannot be less than 115% of the motor full load ampere rating.

JG-Frame — 600V ac Maximum, 250V dc Maximum

Continuous Amperes	MCP Trip Range Amperes	MCP Catalog Number
250	500 – 1000 625 – 1250 750 – 1500	**HMCPJ250D5L** **HMCPJ250F5L** **HMCPJ250G5L**
	875 – 1750 1000 – 2000 1125 – 2250 1250 – 2500	**HMCPJ250J5L** **HMCPJ250K5L** **HMCPJ250L5L** **HMCPJ250W5L**

LG-Frame — 600V ac Maximum, 250V dc Maximum ①

Continuous Amperes	MCP Trip Range Amperes	MCP Catalog Number
600	1250 – 2500 1500 – 3000 1750 – 3500	**HMCPL600L6G** **HMCPL600N6G** **HMCPL600R6G**
	2000 – 4000 2250 – 4500 2500 – 5000 3000 – 6000	**HMCPL600X6G** **HMCPL600Y6G** **HMCPL600P6G** **HMCPL600M6G**

① Equipped with an electromechanical trip device.

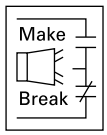
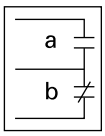
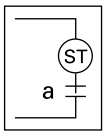
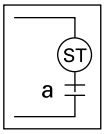
Circuit & Motor Protection

Circuit Breakers

PRODUCT SELECTION

Series G Molded Case Circuit Breakers — Accessories

Field Fit Kit Catalog Numbers

Description		Pole Location	Frame — EG, JG & LG
Alarm Lockout 	Make / Break	Right	**ALM1M1BEPK** ①
	2 Make / 2 Break	Right	**ALM2M2BEPK** ②
Auxiliary Switch 	1A, 1B	Right	**AUX1A1BPK**
	2A, 2B	Right	**AUX2A2BPK**
Auxiliary Switch / Alarm Lockout		Right	**AUXALRMEPK** ③
Shunt Trip — Standard 	120V ac	Left	**SNT120CPK** ④
	240V ac	Left	**SNT120CPK** ④
	12V dc	Left	**SNT012CPK**
	24V dc	Left	**SNT060CPK**
	48V dc	Left	**SNT060CPK**
	380 – 600V ac	Left	**SNT480CPK** ⑤
Undervoltage Release Mechanism 	110 – 127V ac	Left	**UVR120APK**
	208 – 240V ac	Left	**UVR240APK**
	24V dc, ac	Left	**UVR024CPK**
	48 – 60V dc	Left	**UVR048DPK**
	12V dc, ac	Left	**UVR012CPK**
	48 – 60V ac	Left	**UVR048APK**
	120V dc	Left	**UVR125DPK**
	220 – 250V dc	Left	**UVR250DPK**
	380 – 500V ac	Left	**UVR480APK**
	525 – 600V ac	Left	**UVR600APK**

① Part number for JG and LG is ALM1M1BJPK.

② Part number for JG and LG is ALM2M2BJPK.

③ Part number for JG and LG is AUXALRMJPK.

④ 110 – 125V dc, 50/60 Hz.

⑤ 380 – 600V dc, 50/60 Hz.

Multiwire Connectors Ordering Information (Package of 3)

Max. Amps	Wires per Terminal	Wire Size Range AWG Cu	Frame	Kit Catalog Number
125	3	14 – 2	EG	**3TA125E3K**
125	6	14 – 6	EG	**3TA125E6K**
250	3	14 – 2	JG	**3TA250FJ3**
250	6	14 – 6	JG	**3TA250FJ6**

Terminal Shields

Location	Number of Poles	Frame	IP30 Protection Catalog Numbers
Line	3	EG	**EFTS3K**
Line	4	EG	**EFTS4K**
Line or Load	2, 3	JG	**FJTS3K**
Line or Load	4	JG	**FJTS4K**

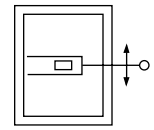
Interphase Barriers

Package of 2 Number of Poles	Frame	Catalog Number
3 or 4	EG	**EIPBK**
3	JG	**FJIPBK**
4	JG	**FJIPBK4**
3 or 4	LG	**IPB3**

Flex Shaft Handle Mechanisms

	Breaker Frame	Flexible Shaft Length in Feet (m) 4 (1.2) Catalog Number	7 (2.1) Catalog Number
	EG JG LG	**EHMFS04** **JHMFS04** **LHMFS04**	**EHMFS07** **JHMFS07** **LHMFS07**

Universal Rotary Handle Mechanism

	Shaft Length in Inches (mm)	Handle Color	NEMA Rating	Complete Catalog Number
	**EG-Frame**			
	12.00 (304.8)	Black	1, 12	**EHMVD12B**
	12.00 (304.8)	Black	4, 4X, 3R	**EHMVD12BX**
	**JG-Frame**			
	12.00 (304.8)	Black	1, 12	**FJHMVD12B**
	12.00 (304.8)	Black	4, 4X, 3R	**FJHMVD12BX**
	LG-Frame			
	12.00 (304.8)	Black	1, 12	**KLHMVD12B**
	12.00 (304.8)	Black	4, 4X, 3R	**KLHMVD12BX**

For our complete product offering, see the Distribution Products Catalog (CA08101001E).

Series G Molded Case Circuit Breakers — Accessories

External Accessories

Description	Fit Type	Frame		
		EG	JG	LG
Non-Padlockable Handle Block	Field	**EFHB**	—	—
Padlockable Handle Block	Field	**EFPHB**	—	—
Padlockable Handle Block Off-Only	Field	**EFPHBOFF**	**FJPHBOFF**	**LBHPOFF**
Padlockable Handle Lock Hasp	Field	**EFPHL**	**FJPHL**	**LPHL**
Padlockable Handle Lock Hasp Off-Only	Field	**EFPHLOFF**	**FJPHLOFF**	**LPHLOFF**
Kirk Key Interlock Kit ①②	Field	—	**KYKJG**	**KYKLG**
Castell Key Interlock Kit ②③	Field	—	**CTKJG**	**CTKLG**
Slide Bar Interlock ④	Field	**EFSBI**	**FJSBI**	**LGSBI**
Walking Beam Interlock	3-Pole	**EG3WBI**	**JG3WBI**	**LG3WBI**
	4-Pole	**EG4WBI**	**JG4WBI**	**LG4WBI**
Electrical Operator	120/240V ac	**MOPEG240C**	**MOPJG240C**	**MOPLG240C**
	125V dc	**MOPEG240C**	**MOPJG240C**	**MOPLG240C**
Plug-In Adapters	3-Pole	**PAD3E**	**PAD3J**	**PAD3L**
	4-Pole	**PAD4E**	**PAD4J**	**PAD4L**
Rear Connecting Studs	Field	**EFRCSDL**	**FJRCSDL**	**3P–LRCS3WK**
		EFRCSDS	**FJRCSDS**	**4P–LRCS4WK**
		EFRCSWL	**FJRCSWL**	—
		EFRCSWS	**FJRCSWS**	—

① Provision only.

② See Tab 12 of the Distribution Products Catalog, CA08101001E, for bolt projection dimensions.

③ Castell bolt mounting hole must be 10 mm.

④ Requires two breakers.

Circuit & Motor Protection

Circuit Breakers

CATALOG SELECTION / PRODUCT SELECTION

Type QC Miniature Circuit Breakers — Cable-In / Cable-Out Type QC — Catalog Numbering System

QC 3 020 H

Breaker Type	Number of Poles	Ampere Rating		Construction
QC = QC Breaker	**1** = 1-Pole **2** = 2-Pole **3** = 3-Pole **4** = 4-Pole	**010** = 10 Amps **015** = 15 Amps **020** = 20 Amps **025** = 25 Amps **030** = 30 Amps **035** = 35 Amps **040** = 40 Amps **045** = 45 Amps	**050** = 50 Amps **055** = 55 Amps **060** = 60 Amps **070** = 70 Amps **080** = 80 Amps **090** = 90 Amps **100** = 100 Amps	**H** = 240V (2, 3 & 4-Pole ONLY)

Type QC Miniature Circuit Breakers — Cable-In / Cable-Out Type QC

For Cable-In / Cable-Out Panel Mount Applications

- 1 – 4-pole options
- Built and listed to UL 489
- All products UL and CSA listed
- All products 10 – 100A are HACR rated

QUICKLAG Type QC 10,000 Ampere I.C. Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	1-Pole 120/240V ac Catalog Number	2-Pole 120/240V ac Catalog Number	3-Pole 240V ac Catalog Number
10	**QC1010**	**QC2010**	—
15	**QC1015** ① ②	**QC2015**	**QC3015H**
20	**QC1020** ① ②	**QC2020**	**QC3020H**
30	**QC1030**	**QC2030**	**QC3030H**
40	**QC1040**	**QC2040**	**QC3040H**
50	**QC1050**	**QC2050**	**QC3050H**
60	—	**QC2060**	**QC3060H**
70	—	**QC2070**	**QC3070H**
100	**QC1100**	**QC2100**	**QC3100H**

① Switching duty rated for 120V ac fluorescent light applications only.

② For special low-magnetic breaker, order QC1015L1 or QC1020L1.

Note: For non-automatic switches, see Distribution Products Catalog, CA08101001E, Tab 11.

For our complete product offering, see the Distribution Products Catalog **(CA08101001E)**.

Type QC Miniature Circuit Breakers — Cable-In / Cable-Out Type QCD — Catalog Numbering System

QCD 3 020 H

Breaker Type	Number of Poles	Ampere Rating		Construction
QCD = QCD Breaker	**1** = 1-Pole **2** = 2-Pole **3** = 3-Pole	**010** = 10 Amps **015** = 15 Amps **020** = 20 Amps **025** = 25 Amps **030** = 30 Amps **035** = 35 Amps **040** = 40 Amps **045** = 45 Amps	**050** = 50 Amps **055** = 55 Amps **060** = 60 Amps **070** = 70 Amps **080** = 80 Amps **090** = 90 Amps **100** = 100 Amps	**H** = 240V (2 & 3-Pole ONLY)

Type QC Miniature Circuit Breakers — Cable-In / Cable-Out Type QCD

For Cable-In / Cable-Out DIN-Rail Mount HVAC Applications

- 1 – 3-pole options
- Modular construction
- DIN mounted (symmetrical rail 35 x 7.5 DIN / EN 50 022)
- Flexible power feed connection: wire size, position
- Same breaker size for entire rating range
- Field-mountable accessories: finger-shroud proof, quick connect terminals, jumper units

QUICKLAG Type QCD 10,000 Ampere I .C. Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	1-Pole 120/240V ac Catalog Number	2-Pole 120/240V ac Catalog Number	3-Pole 240V ac Catalog Number
10	**QCD1010**	**QCD2010**	—
15	**QCD1015**	**QCD2015**	**QCD3015H**
20	**QCD1020**	**QCD2020**	**QCD3020H**
30	**QCD1030**	**QCD2030**	**QCD3030H**
40	**QCD1040**	**QCD2040**	**QCD3040H**
50	**QCD1050**	**QCD2050**	**QCD3050H**
60	**QCD1060**	**QCD2060**	**QCD3060H**
70	—	**QCD2070**	**QCD3070H**
100	—	**QCD2100**	**QCD3100H**

Circuit & Motor Protection

Circuit Breakers

CATALOG SELECTION / PRODUCT SELECTION

Type QC Miniature Circuit Breakers — Cable-In / Cable-Out 1/2-Inch Wide Types QCR, QCF — Catalog Numbering System

QCR 1 020 T

Breaker Type	Number of Poles	Ampere Rating		Construction/Terminals
QCR = QCR Breaker (Rear Mount) **QCF** = QCF Breaker (Front Mount)	**1** = 1-Pole **2** = 2-Pole **3** = 3-Pole	**010** = 10 Amps **015** = 15 Amps **020** = 20 Amps **025** = 25 Amps **030** = 30 Amps **035** = 35 Amps	**040** = 40 Amps **045** = 45 Amps **050** = 50 Amps **055** = 55 Amps **060** = 60 Amps	**H** = 240V (2 & 3-Pole ONLY) **T** = Ring or Spade Terminals (10 – 30A only)

Type QC Miniature Circuit Breakers — Cable-In / Cable-Out 1/2-Inch Wide Types QCR, QCF

When Space is at a Premium

- QCR: For DIN-Rail mount cable-in / cable-out applications
- QCF: For front-mount through-the-door cable-in / cable-out applications
- 1/2-inch (12.7 mm) wide per pole
- Three-position handle: ON, Tripped (center), OFF
- Thermal-magnetic protection
- 1, 2 and 3-pole
- 10 kAIC at 120/240V ac, 10 – 60A
- 10 kAIC at 240V ac, 10 – 30A

QUICKLAG Type QCR Breaker 10 kAIC Interrupting Ratings ①②③④

Continuous Ampere Rating at 40°C	1-Pole	2-Pole	3-Pole
	120/240V ac	120/240V ac	240V ac
	Catalog Number	Catalog Number	Catalog Number
10	**QCR1010** **QCR1010T**	**QCR2010** **QCR2010T**	— —
15	**QCR1015** ⑤ **QCR1015T** ⑤	**QCR2015** **QCR2015T**	**QCR3015H** **QCR3015HT**
20	**QCR1020** ⑤ **QCR1020T** ⑤	**QCR2020** **QCR2020T**	**QCR3020H** **QCR3020HT**
25	**QCR1025** —	**QCR2025** —	**QCR3025H** **QCR3025HT**
30	**QCR1030** —	**QCR2030** —	**QCR3030H** **QCR3030HT**
35	**QCR1035**	**QCR2035**	—
40	**QCR1040**	**QCR2040**	—
45	**QCR1045**	**QCR2045**	—
50	**QCR1050**	**QCR2050**	—
55	**QCR1055**	—	—
60 ⑥	**QCR1060**	**QCR2060**	—

① Standard breaker terminals are box type lugs.

② Breakers with "T" catalog number suffix are suitable for line and load side ring terminal connection (#10 – 32 plus/minus terminal screw provided).

③ Breakers with "P" catalog number suffix are suitable for terminating two 10 AWG Quick-Connect Type Terminals per phase on breaker load side.

④ Breakers with shunt trip (extra pole required on breaker right-hand side) are available on 1, 2 and 3-pole.

⑤ All 15 and 20 ampere single-pole breakers are SWD (switching duty) rated for fluorescent lighting applications.

⑥ 60/75°C Cu/Al wire on all ratings except 60 amperes, which requires Cu only conductor.

For our complete product offering, see the Distribution Products Catalog **(CA08101001E)**.

Type QC Miniature Circuit Breakers — Cable-In / Cable-Out 1/2-Inch Wide, Types QCR, QCF

QUICKLAG Type QCF Breaker 10 kAIC Interrupting Ratings ①②③

Continuous Ampere Rating at 40°C	1-Pole	2-Pole	3-Pole
	120/240V ac	120/240V ac	240V ac
	Catalog Number	Catalog Number	Catalog Number
10	**QCF1010** **QCF1010T**	**QCF2010** **QCF2010T**	— —
15	**QCF1015** ④ —	**QCF2015** —	**QCF3015H** **QCF3015HT**
20	**QCF1020** ④ —	**QCF2020** —	**QCF3020H** **QCF3020HT**
25	**QCF1025** —	**QCF2025** —	**QCF3025H** **QCF3025HT**
30	**QCF1030** —	**QCF2030** —	**QCF3030H** **QCF3030HT**
40	**QCF1040**	**QCF2040**	—
50	**QCF1050**	**QCF2050**	—
60 ⑤	**QCF1060**	**QCF2060**	—

① Standard breaker terminals are box type lugs.

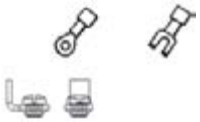
② Breakers with "T" catalog number suffix are suitable for line and load side ring terminal connection (#10 – 32 plus/minus terminal screw provided).

③ Breakers with shunt trip attachment (extra pole required on breaker right-hand side) are available.

④ All 15 and 20 ampere single-pole breakers are SWD (switching duty) rated for fluorescent lighting applications.

⑤ 60/75°C Cu/Al wire on all ratings except 60 amperes, which requires Cu only conductor.

Accessories

	Description	Catalog Number
	Steel mounting clip mounts QCR breaker if individual mounting is required. Quantity two required for 1- and 2-pole and four required for 3-pole breakers.	**QCRMTGFT**
	Removable padlock device for single-pole QCR or QCF breaker.	**QCRFPL1P**
	Removable padlock device for multi-pole QCR or QCF breaker.	**QCRFPLMP**
	Padlock bracket assembly for QCR or QCF single- or multi-pole breakers (OFF only).	**QCRFLOFF**
	Padlock bracket for QCR, lock-off only.	**QCRPLOFF**
	QUICKLAG Type C Spacer	**QCRSPACER**
	QCR and QCF Ring or Spade Lug Terminals (10 – 30A ratings only) Factory installed line and load side terminals each equipped with a #10-32 screw suitable for terminating one 10 AWG wire with insulated ring or spade type terminal as shown.	Suffix "T"

Circuit & Motor Protection

Circuit Breakers

CATALOG SELECTION / PRODUCT SELECTION

Type QC Miniature Circuit Breakers — Cable-In / Cable-Out Ground Fault and Equipment Protector Types QCGF, QCGFEP — Catalog Numbering System

QCGFEP 1 020

Breaker Type	
QCGF	= QC Ground Fault Circuit Protector
QCGFEP	= QC Ground Fault Equipment Protector

Number of Poles
1 = 1-Pole
2 = 2-Pole

Ampere Rating	
015 = 15 Amps	**030** = 30 Amps
020 = 20 Amps	**040** = 40 Amps
025 = 25 Amps	**050** = 50 Amps

Type QC Miniature Circuit Breakers — Cable-In / Cable-Out 1/2-Inch Wide Types QCGF, QCGFEP

For Cable-In / Cable-Out Panel-Mount Applications

- QUICKLAG ground fault circuit breakers, Class A GFCI:
  - Built and tested to UL 943
  - 5 mA trip sensitivity
- QUICKLAG ground fault equipment protectors:
  - Built and tested to UL 1053
  - 30 mA trip sensitivity
- All products UL and CSA listed

Types QCGF and QCGFEP Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	1-Pole 120/240V ac Catalog Number	2-Pole 120/240V ac Catalog Number
Ground Fault Circuit Breakers — 5 mA Sensitivity QUICKLAG Type: QCGF 10,000 Ampere I.C.		
15	**QCGF1015**	**QCGF2015**
20	**QCGF1020**	**QCGF2020**
30	**QCGF1030**	**QCGF2030**
40	**QCGF1040**	**QCGF2040**
50	—	**QCGF2050**
Ground Fault Equipment Protectors — 30 mA Sensitivity QUICKLAG Type: QCGFEP 10,000 Ampere I.C.		
15	**QCGFEP1015**	**QCGFEP2015**
20	**QCGFEP1020**	**QCGFEP2020**
30	**QCGFEP1030**	**QCGFEP2030**
40	**QCGFEP1040**	**QCGFEP2040**
50	—	**QCGFEP2050**

For our complete product offering, see the Distribution Products Catalog **(CA08101001E)**.

Type QC Miniature Circuit Breakers

Accessories

	Accessory ①	Description	Catalog Number
 QL1NPL QL23NPL	Handle Locks: Non-Padlockable ②	QUICKLAG Type P, B, C — 1-Pole QUICKLAG Type P, B, C — 2, 3-Pole	**QL1NPL** **QL23NPL**
 QL1PL QC123PL	Handle Locks: Padlockable	QUICKLAG Type P, B, C — 1-Pole QUICKLAG Type C —1, 2, 3-Pole QUICKLAG Type C — 1, 2, 3-Pole (off only)	**QL1PL** **QC123PL** **QCD123PLOFF**
 QL1HT	Handle Tie	QUICKLAG Handle Tie — 1-Pole QUICKLAG Handle Tie — 3-Pole	**QL1HT** **QL3HT**
 QCFCLIP  QC1FP  QC2FP  QC3FP  QCBCLIP	Mounting Hardware	QUICKLAG Type C Face Mounting Clip QUICKLAG Type C Face Mounting Plate — 1-Pole QUICKLAG Type C Face Mounting Plate — 2-Pole QUICKLAG Type C Face Mounting Plate — 3-Pole QUICKLAG Type C Face Mounting Plate and Lock-off (off only) — 2-Pole ③ QUICKLAG Type C Face Mounting Plate and Lock-off (off only) — 3-Pole QUICKLAG Type C Base Mounting Clamp	**QCFCLIP** **QC1FP** **QC2FP** **QC3FP** **QC2FPLOFF** **QC3FPLOFF** **QCBCLIP**

① See Page 21 for QCR and QCF accessories.

② Can lock in ON or OFF position.

③ Suitable for ground fault breakers.

Circuit & Motor Protection

Circuit Breakers

PRODUCT SELECTION

Type QC Miniature Circuit Breakers

Accessories (Continued)

	Accessory ①	Description	Catalog Number
 QC6BP	Mounting Hardware	QUICKLAG Base Mounting Plate — 6 Poles Total	**QC6BP**
		QUICKLAG Type C Base Mounting Plate — 6 Poles Total — Heavy-Duty Screw-Secured	**QC6BPS**
		QUICKLAG Type C (QCD) 2-Way Jumper Unit with Cover	**QCDJ2**
		QUICKLAG Type C (QCD) 4-Way Jumper Unit with Cover	**QCDJ4**
		QUICKLAG Type C (QCD) 6-Way Jumper Unit with Cover	**QCDJ6**
		QUICKLAG Type C (QCD) 2-Way Jumper Unit, no Cover	**QCDJ2T**
		QUICKLAG Type C (QCD) 4-Way Jumper Unit, no Cover	**QCDJ4T**
		QUICKLAG Type C (QCD) 6-Way Jumper Unit, no Cover	**QCDJ6T**
 QCDJ4		QUICKLAG Type QCD Finger Protection Attachment	**QCDFP**
		QUICKLAG Type C DIN-Rail Adapter	**QCDINADAPT**
 QCDINADAPT			
 QCDFP			

① See Page 21 for QCR and QCF accessories.

WMZT UL 489 Miniature Circuit Breakers — Catalog Numbering System

WMZT 1 C 16 T

Breaker Type	Number of Poles	Protective Curve	Ampere Rating	Terminals
WMZT = WMZT UL 489 Circuit Breaker	**1** = 1-Pole **2** = 2-Pole **3** = 3-Pole	**C** = C Curve (5-10X In) **D** = D Curve (10-20X In)	**X0** = .5 Amps **01** = 1 Amps **X1** = 1.5 Amps **02** = 2 Amps **03** = 3 Amps **04** = 4 Amps **05** = 5 Amps **06** = 6 Amps **07** = 7 Amps **08** = 8 Amps **10** = 10 Amps **13** = 13 Amps **15** = 15 Amps **16** = 16 Amps **20** = 20 Amps **25** = 25 Amps **30** = 30 Amps **32** = 32 Amps **40** = 40 Amps	**T** = Ring Terminals

WMZT UL 489 Miniature Circuit Breakers

- UL 489 listed DIN-Rail mounted miniature circuit breakers up to 40 ampere current rating
- Current limiting design provides fast short circuit interruption that reduces let-through energy
- Thermal-magnetic overcurrent protection available with C and D curve level of protection
  - C Curve — 5 to 10X In — for medium inrush startup currents
  - D Curve — 10 to 20X In — provides a magnetic range to allow for high inrush levels
- Ring-tongue terminals available
- Complete line of accessories

WMZT UL 489 Circuit Breakers

Ampere Rating	C Curve (5 – 10X In Current Rating)			D Curve (10 – 20X In Current Rating)		
	1-Pole ①	2-Pole ①	3-Pole ①	1-Pole ①	2-Pole ①	3-Pole ①
	Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number
0.5	WMZT1CX0	WMZT2CX0	WMZT3CX0	WMZT1DX0	WMZT2DX0	WMZT3DX0
1	WMZT1C01	WMZT2C01	WMZT3C01	WMZT1D01	WMZT2D01	WMZT3D01
1.5	WMZT1CX1	WMZT2CX1	WMZT3CX1	WMZT1DX1	WMZT2DX1	WMZT3DX1
2	WMZT1C02	WMZT2C02	WMZT3C02	WMZT1D02	WMZT2D02	WMZT3D02
3	WMZT1C03	WMZT2C03	WMZT3C03	WMZT1D03	WMZT2D03	WMZT3D03
4	WMZT1C04	WMZT2C00	WMZT3C04	WMZT1D04	WMZT2D04	WMZT3D04
5	WMZT1C05	WMZT2C05	WMZT3C05	WMZT1D05	WMZT2D05	WMZT3D05
6	WMZT1C06	WMZT2C06	WMZT3C06	WMZT1D06	WMZT2D06	WMZT3D06
7	WMZT1C07	WMZT2C07	WMZT3C07	WMZT1D07	WMZT2D07	WMZT3D07
8	WMZT1C08	WMZT2C08	WMZT3C08	WMZT1D08	WMZT2D08	WMZT3D08
10	WMZT1C10	WMZT2C10	WMZT3C10	WMZT1D10	WMZT2D10	WMZT3D10
13	WMZT1C13	WMZT2C13	WMZT3C13	WMZT1D13	WMZT2D13	WMZT3D13
15	WMZT1C15	WMZT2C15	WMZT3C15	WMZT1D15	WMZT2D15	WMZT3D15
16	WMZT1C16	WMZT2C16	WMZT3C16	WMZT1D16	WMZT2D16	WMZT3D16
20	WMZT1C20	WMZT2C20	WMZT3C20	WMZT1D20	WMZT2D20	WMZT3D20
25	WMZT1C25	WMZT2C25	WMZT3C25	WMZT1D25	WMZT2D25	WMZT3D25
30	WMZT1C30	WMZT2C30	WMZT3C30	WMZT1D30	WMZT2D30	WMZT3D30
32	WMZT1C32	WMZT2C32	WMZT3C32	WMZT1D32	WMZT2D32	WMZT3D32
40	WMZT1C40	WMZT2C40	WMZT3C40	WMZT1D40	WMZT2D40	WMZT3D40

① For ring-tongue terminals, ADD Suffix "T" to above catalog number.

Circuit & Motor Protection

Circuit Breakers

CATALOG SELECTION / PRODUCT SELECTION

WMS UL 1077 Miniature Circuit Breakers — Supplementary Protectors — Catalog Numbering System

WMS 1 C 20

Breaker Type	Number of Poles	Ampere Rating				Protective Curve
WMS = WMS Supplementary Protector	**1** = 1-Pole **2** = 2-Pole **3** = 3-Pole	**00** = .5 Amps **01** = 1 Amps **02** = 2 Amps **03** = 3 Amps **04** = 4 Amps	**05** = 5 Amps **06** = 6 Amps **07** = 7 Amps **08** = 8 Amps **10** = 10 Amps	**13** = 13 Amps **15** = 15 Amps **16** = 16 Amps **20** = 20 Amps **25** = 25 Amps	**30** = 30 Amps **32** = 32 Amps **40** = 40 Amps **50** = 50 Amps **60** = 60 Amps	**B** = B Curve (3-5X In) **C** = C Curve (5-10X In) **D** = D Curve (10-20X In)

WMS UL 1077 Miniature Circuit Breakers — Supplementary Protectors

- UL 1077 recognized DIN-Rail mounted supplemental protectors up to 60A
- Current limiting design provides fast short circuit interruption that reduces let-through energy
- Thermal-magnetic overcurrent protection available with B, C and D curve levels of protection
  - B Curve — 3 to 5X In — for maximum protection of control circuit wiring from low-level short circuit faults
  - C Curve — 5 to 10X In — for medium inrush startup currents
  - D Curve — 10 to 20X In — provides a magnetic range to allow for high inrush levels
- Ideal replacement for fuses that are applied as supplemental protection
- Complete line of accessories

WMS UL 1077 Supplementary Protectors

	B Curve (3 – 5X In Current Rating)			C Curve (5 – 10X In Current Rating)			D Curve (10 – 20X In Current Rating)		
	1-Pole	2-Pole	3-Pole	1-Pole	2-Pole	3-Pole	1-Pole	2-Pole	3-Pole
Ampere Rating	Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number
0.5	—	—	—	WMS1C00	WMS2C00	WMS3C00	WMS1D00	WMS2D00	WMS3D00
1	—	—	—	WMS1C01	WMS2C01	WMS3C01	WMS1D01	WMS2D01	WMS3D01
2	—	—	—	WMS1C02	WMS2C02	WMS3C02	WMS1D02	WMS2D02	WMS3D02
3	—	—	—	WMS1C03	WMS2C03	WMS3C03	WMS1D03	WMS2D03	WMS3D03
4	—	—	—	WMS1C04	WMS2C04	WMS3C04	WMS1D04	WMS2D04	WMS3D04
5	—	—	—	WMS1C05	WMS2C05	WMS3C05	WMS1D05	WMS2D05	WMS3D05
6	WMS1B06	WMS2B06	WMS3B06	WMS1C06	WMS2C06	WMS3C06	WMS1D06	WMS2D06	WMS3D06
7	WMS1B07	WMS2B07	WMS3B07	WMS1C07	WMS2C07	WMS3C07	WMS1D07	WMS2D07	WMS3D07
8	WMS1B08	WMS2B08	WMS3B08	WMS1C08	WMS2C08	WMS3C08	WMS1D08	WMS2D08	WMS3D08
10	WMS1B10	WMS2B10	WMS3B10	WMS1C10	WMS2C10	WMS3C10	WMS1D10	WMS2D10	WMS3D10
13	WMS1B13	WMS2B13	WMS3B13	WMS1C13	WMS2C13	WMS3C13	WMS1D13	WMS2D13	WMS3D13
15	WMS1B15	WMS2B15	WMS3B15	WMS1C15	WMS2C15	WMS3C15	WMS1D15	WMS2D15	WMS3D15
16	WMS1B16	WMS2B16	WMS3B16	WMS1C16	WMS2C16	WMS3C16	WMS1D16	WMS2D16	WMS3D16
20	WMS1B20	WMS2B20	WMS3B20	WMS1C20	WMS2C20	WMS3C20	WMS1D20	WMS2D20	WMS3D20
25	WMS1B25	WMS2B25	WMS3B25	WMS1C25	WMS2C25	WMS3C25	WMS1D25	WMS2D25	WMS3D25
30	WMS1B30	WMS2B30	WMS3B30	WMS1C30	WMS2C30	WMS3C30	WMS1D30	WMS2D30	WMS3D30
32	WMS1B32	WMS2B32	WMS3B32	WMS1C32	WMS2C32	WMS3C32	WMS1D32	WMS2D32	WMS3D32
40	WMS1B40	WMS2B40	WMS3B40	WMS1C40	WMS2C40	WMS3C40	WMS1D40	WMS2D40	WMS3D40
50	WMS1B50	WMS2B50	WMS3B50	WMS1C50	WMS2C50	WMS3C50	—	—	—
60	WMS1B60	WMS2B60	WMS3B60	WMS1C60	WMS2C60	WMS3C60	—	—	—

For our complete product offering, see the Distribution Products Catalog (CA08101001E).

Miniature Circuit Breakers — Accessories

WMZT UL 489 Breakers

Accessory / Description	Catalog Number
2-Pole Contact or Auxiliary Contact/Trip Indicating Contact	**WMZTAUXTRIP**
Auxiliary Contact	**WMZTAUX**
Shunt Trip 110 – 415V ac Shunt Trip 12 – 110V ac	**WMZTST415** **WMZTST110**
Padlock Hasp	**WMZPLK**
Bus Bar — 1-Pole 6 Terminals Bus Bar — 1-Pole 12 Terminals Bus Bar — 1-Pole 18 Terminals Bus Bar — 2-Pole 6 Terminals Bus Bar — 2-Pole 12 Terminals Bus Bar — 2-Pole 18 Terminals Bus Bar — 3-Pole 6 Terminals Bus Bar — 3-Pole 12 Terminals Bus Bar — 3-Pole 18 Terminals	**WMZT1P6T** **WMZT1P12T** **WMZT1P18T** **WMZT2P6T** **WMZT2P12T** **WMZT2P18T** **WMZT3P6T** **WMZT3P12T** **WMZT3P18T**
3-Pole Bus Bar Shroud	**WMZT3PSHROUD**
Extension Terminal — 35 mm (2 – 14 AWG)	**WMZT35EXT**
Bus Connector — Conductors up to 50 mm² (~1/0 AWG)	**WMZTBCON**

WMS UL 1077 Supplementary Protectors

Accessory / Description	Module Width	Catalog Number
Auxiliary Switch		
Number of Contacts: 1A/1B	1/2	**WAX1A1B**
Alarm Switch		
Number of Contacts: 1A/1B	1/2	**WAL1A1B**
Shunt Trip		
Voltage: 110/220V ac 240/415V ac 12/48V dc	1 1 1	**WST220A** **WST415A** **WST48D**
Undervoltage Release		
Voltage: 240V ac 48V dc 24V dc	1 1 1	**WUVR240A** **WUVR48D** **WUVR24D**
ID Labels		
Identification Labels	—	**WIDL**
Padlock Accessories		
Padlocking Attachment Padlock Key	—	**WPLK** **WPKEY**
Lockoff		
Lockoff for 1 – 4-Pole Supplementary Protector	—	**WAMPLK**

Bus Bar Combs

Phases	Configuration	Length	Actual Length (mm)	Number of Devices	Bus Bar Catalog Number ①	End Cap Catalog Number
Fork Connection						
1-Phase	Device Device Device + Aux Device + Aux	Short Long Short Long	210 100 315 1000	12 Unit 57 Unit 12 Unit 37 Unit	**WBC1F12** **WBC1F57** **WBC1F12A** **WBC1F37A**	Not Required Not Required Not Required Not Required
2-Phase	Device Device Device + Aux Device + Aux	Short Long Short Long	210 100 255 1000	6 Unit 28 Unit 6 Unit 22 Unit	**WBC2F6** **WBC2F28** **WBC2F6A** **WBC2F22A**	**WBCCAP10UL** **WBCCAP10UL** **WBCCAP10UL** **WBCCAP10UL**
3-Phase	Device Device Device + Aux Device + Aux	Short Long Short Long	210 106 235 1000	4 Unit 19 Unit 4 Unit 16 Unit	**WBC3F4** **WBC3F19** **WBC3F4A** **WBC3F16A**	**WBCCAP10UL** **WBCCAP10UL** **WBCCAP10UL** **WBCCAP10UL**
Pin Connection						
1-Phase	Device Device Device + Aux Device + Aux	Short Long Short Long	210 100 315 1000	12 Unit 57 Unit 12 Unit 37 Unit	**WBC1P12** **WBC1P57** **WBC1P12A** **WBC1P37A**	Not Required Not Required Not Required Not Required
2-Phase	Device Device Device + Aux Device + Aux	Short Long Short Long	210 100 210 1000	6 Unit 28 Unit 6 Unit 22 Unit	**WBC2P6** **WBC2P28** **WBC2P6A** **WBC2P22A**	**WBCCAP10CE** **WBCCAP10CE** **WBCCAP10CE** **WBCCAP10CE**
3-Phase	Device Device Device + Aux Device + Aux	Short Long Short Long	210 106 235 1000	4 Unit 19 Unit 4 Unit 16 Unit	**WBC3P4** **WBC3P19** **WBC3P4A** **WBC3P16A**	**WBCCAP10CE** **WBCCAP10CE** **WBCCAP10CE** **WBCCAP10CE**

① Each 2- and 3-phase bus bar comb is supplied complete with two end caps; additional end caps are available as an accessory.

Circuit & Motor Protection

Circuit Breakers

PRODUCT SELECTION

Miniature Circuit Breakers — Accessories

Bus Bar

Description	Pack Quantity	Catalog Number
End Caps ①		
For Use with 2- and 3-Phase Fork Bus Bars	10	**WBCCAP10UL**
For Use with 2- and 3-Phase Pin Bus Bars	10	**WBCCAP10CE**
Power Feed Lugs		
Connection of Oversized Wires to Feed Bus Bar (50 mm^2 / 10-1 AWG)	4	**WBCPPL**
Direct Connection to Feed Fork Bus Bar (35 mm^2)	4	**WBCFPL**
Bus Bar Tooth Cap		
Shroud Unused Bus Bar Connection	10	**WBCTCAP10**

① Each 2- and 3-phase bus bar comb is supplied complete with two end caps.

For our complete product offering, see the Distribution Products Catalog (**CA08101001E**).

SPHM Series Hydraulic Magnetic Circuit Breakers — Catalog Numbering System

SPHM 3 H M 0030 ___

Type
Supplementary **P**rotector **H**ydraulic **M**agnetic

Poles	
Code	**Poles**
1	1-Pole
2	2-Pole
3	3-Pole
4	4-Pole

Inrush	
Code	**Delay**
H	8X
R	18X
Y ①	25X
S	Switch

Current Rating			
Code	**Current ② (Amperes)**	**Code**	**Current ② (Amperes)**
00R1	0.10	**0100**	10
0R25	0.25	**0015**	15
0R50	0.50	**0020**	20
0R75	0.75	**0025**	25
0001	1	**0030**	30
02R5	2.5	**0035**	35
0005	5	**0040**	40
07RS	7.5	**0050**	50

Time Delay ④		
Code	**Delay**	**Curve**
M	Medium	2
S	Short	3
L	Long	10
M	Medium	20
S	Short	30
L	Long	251
M	Medium	252
S	Short	253
W	Switch	—

Auxiliary Switch	
Code ③	**Current**
A	Normally Open
B	Normally Closed
Blank	No Auxiliary Switch

① Maximum of 40 amperes available at 25X inrush.

② UL recognized to 250V ac, 5 kA above 30 amperes.

③ One A or B contact maximum per pole. Contacts will be arranged left to right (e.g., BAB suffix on 3-pole breaker).

④ Specific data on trip curves can be found at www.eaton.com/heinemann.

SPHM Series Hydraulic Magnetic Circuit Breakers

- DIN-Rail mountable
- Optional integral auxiliary switch
- Bus bar for common feed and isolated connectors available
- Precision custom calibration
- Requires no derating (100% rated)
- Ambient compensating (-40°C to +85°C)
- Immediate reset after fault
- Provides equipment and wire protection

SPHM Standard

Poles	Current (Amperes)	Curve	Catalog Number
1	1	2	**SPHM1RM0001**
1	2.5	2	**SPHM1RM02R5**
1	5	2	**SPHM1RM0005**
1	7.5	2	**SPHM1RM07R5**
1	10	2	**SPHM1RM0010**
1	15	2	**SPHM1RM0015**
1	20	2	**SPHM1RM0020**
1	25	2	**SPHM1RM0025**
1	30	2	**SPHM1RM0030**
1	35	2	**SPHM1RM0035**
1	40	2	**SPHM1RM0040**
1	50	2	**SPHM1RM0050**
2	1	2	**SPHM2RM0001**
2	2.5	2	**SPHM2RM02R5**
2	5	2	**SPHM2RM0005**
2	7.5	2	**SPHM2RM07R5**
2	10	2	**SPHM2RM0010**
2	15	2	**SPHM2RM0015**

Poles	Current (Amperes)	Curve	Catalog Number
2	20	2	**SPHM2RM0020**
2	25	2	**SPHM2RM0025**
2	30	2	**SPHM2RM0030**
2	35	2	**SPHM2RM0035**
2	40	2	**SPHM2RM0040**
2	50	2	**SPHM2RM0050**
3	1	2	**SPHM3RM0001**
3	2.5	2	**SPHM3RM02R5**
3	5	2	**SPHM3RM0005**
3	7.5	2	**SPHM3RM07R5**
3	10	2	**SPHM3RM0010**
3	15	2	**SPHM3RM0015**
3	20	2	**SPHM3RM0020**
3	25	2	**SPHM3RM0025**
3	30	2	**SPHM3RM0030**
3	35	2	**SPHM3RM0035**
3	40	2	**SPHM3RM0040**
3	50	2	**SPHM3RM0050**

Circuit & Motor Protection

Circuit Breakers

CATALOG SELECTION / PRODUCT SELECTION

J Series Hydraulic Magnetic Circuit Breakers — Catalog Numbering System

JA1S A 3 A 0015 01 E

Style ①	Number of Poles	Description	Handle Color	Mounting
JA_S	1 to 4	Toggle Handle	White ON /OFF	6-32
JB_S	1 to 4	Snap-In Mount	White ON / OFF	N/A
JC_S	1 to 4	Rocker Handle	White ON / OFF	6-32
JE_S	1 to 3	Sealed Toggle	N/A	3/8-32

Voltage, Terminal and Frequency Code			
Code	Frequency	Terminal Location	Maximum Voltage
A	50/60 Hz	Push-On	277 ac
T	50/60 Hz	8-32 Screw	277 ac
K	50/60 Hz	10-32 Screw	277 ac
B	dc	Push-On	65 dc
V	dc	8-32 Screw	65 dc
L	dc	10-32 Screw	65 dc
D	60 Hz/dc	Push-On	250 ac/65 dc
E	60 Hz/dc	8-32 Screw	250 ac/65 dc
R	60 Hz/dc	10-32 Screw	250 ac/65 dc
C	400 Hz	Push-On	250 ac
W	400 Hz	8-32 Screw	250 ac
N	400 Hz	10-32 Screw	250 ac

Approval Code
A = Up to 250V ac UL 1077 Up to 65V dc UL 1077
L = 277V ac UL 1077

Internal Circuit Type and Inrush Catalog Code				
N/A	STD	18X	25X	Internal Circuit
0	—	—	—	Switch Only
—	**3**	**89**	**38**	Series Trip
—	**2**	—	**39**	Series Trip w/Aux.
—	**5**	—	—	Shunt/Tap
—	**6**	—	—	Relay Trip

Current Rating ②	
Code	Current (Amperes)
0R02	0.02
0R10	0.10
0R25	0.25
0R50	0.50
0R75	0.75
0001	1
02R5	2.5
0005	5
07R5	7.5
0010	10
0015	15
0020	20
0025	25
0030	30
0040	40
0050	50

Voltage Rating
E = 0 – 250V ac
F = 251 – 277V ac
G = 415V ac ③
N = 0 – 65V dc

Time Delay Curve ④
0P = Instant
01 = Long Delay Std. Inrush
02 = Medium
03 = Short
10 = Long Delay 18X Inrush
20 = Medium Delay 18X Inrush
30 = Short Delay 18X Inrush
251 = Long Delay 25X Inrush
252 = Medium Delay 25X Inrush
253 = Short Delay 25X Inrush

① Choose style and select from 1 to 4 poles, and enter the number in position 3 of the catalog number. For example, a JA1S would identify a 1-pole JA Series breaker.

② Enter the four digit current rating. For example, use code "0015" for a 15 ampere current rating. For fractional amperages, use an "R" to designate the decimal point. For 0.10 ampere, enter the code "0R10."

③ Non-standard.

④ Specific data on trip curves can be found at www.eaton.com/heinemann.

J Series Hydraulic Magnetic Circuit Breakers

- Small, lightweight UL 1077 circuit breaker
- Precision custom calibration
- Requires no derating (100% rated)
- Ambient compensating (-40°C to +85°C)
- Immediate reset after fault
- Broad range of integral internal accessories
- Provides equipment and wire protection

J Series Standard — 250V ac / 65V dc Push-On Terminals

Poles	Current (Amperes)	Curve	Catalog Number
1	1	2	**JA1SD3A000102E**
1	2.5	2	**JA1SD3A02R502E**
1	5	2	**JA1SD3A000502E**
1	7.5	2	**JA1SD3A07R502E**
1	10	2	**JA1SD3A001002E**
1	15	2	**JA1SD3A001502E**
1	20	2	**JA1SD3A002002E**
1	25	2	**JA1SD3A002502E**
1	30	2	**JA1SD3A003002E**
2	1	2	**JA2SD3A000102E**
2	2.5	2	**JA2SD3A02R502E**
2	5	2	**JA2SD3A000502E**
2	7.5	2	**JA2SD3A07R502E**
2	10	2	**JA2SD3A001002E**
2	15	2	**JA2SD3A001502E**

Poles	Current (Amperes)	Curve	Catalog Number
2	20	2	**JA2SD3A002002E**
2	25	2	**JA2SD3A002502E**
2	30	2	**JA2SD3A003002E**
3	1	2	**JA3SD3A000102E**
3	2.5	2	**JA3SD3A02R502E**
3	5	2	**JA3SD3A000502E**
3	7.5	2	**JA3SD3A07R502E**
3	10	2	**JA3SD3A001002E**
3	15	2	**JA3SD3A001502E**
3	20	2	**JA3SD3A002002E**
3	25	2	**JA3SD3A002502E**
3	30	2	**JA3SD3A003002E**

For our complete product offering, see the Distribution Products Catalog (CA08101001E).

AMR Series Hydraulic Magnetic Circuit Breakers — Catalog Numbering System

AM2R A 9 LC 15 DDU 52 15 1

Number of Poles ①

1 = 1-Pole	**3** = 3-Pole
2 = 2-Pole	**4** = 4-Pole

Frequency ②

A = 50/60 Hz
B = dc
C = 400 Hz
D = 50/60 Hz/dc

Auxiliary Switch Options

07 = NO-NC .187" quick connect
52 = NO-NC .110" quick connect

Curve ④

P = Instant
1 = Long Delay 8X Inrush
2 = Medium Delay 8X Inrush
3 = Short Delay 8X Inrush
10 = Long Delay 18X Inrush
20 = Medium Delay 18X Inrush
30 = Short Delay 18X Inrush
251 = Long Delay 25X Inrush
252 = Medium Delay 25X Inrush
253 = Short Delay 25X Inrush
S = Switch Only

Approval Code

DA = UL 1077 (Up to 250V ac/80V dc)
DL = UL 1077 (Up to 277V ac; 50A Max.)
DAD = UL 1077 (Up to 415V ac; 50A Max.)
DAB = UL 1077 (Up to 480V ac; 30A Max.)
DDU = UL 489 (Up to 250V ac/80V dc)

Internal Circuit Type and Inrush Catalog Code ②

N/A	STD	18X	25X	Internal Circuit
0	—	—	—	Switch Only
—	**2**	**9**	**39**	Series Trip w/ Auxiliary
—	**3**	**8**	**38**	Series Trip
—	**5**	**22**	**32**	Shunt / Tap
—	**6**	**23**	**33**	Relay Trip
—	**7**	**27**	**37**	Dual Rating
—	**15**	**25**	—	DuCon
—	**16**	**26**	—	DuCon Series+Relay
—	**98**	—	—	Mid-Trip
—	**99**	—	—	Mid-Trip w/Alarm Switch

Terminal/Mounting Catalog Code

Imperial 6 – 32	Metric M3 – 0.5	Terminals
07	**13**	10-32 Threads (70A)
97	**14**	1/4-20 Threads (100A)
08	**15**	M5 Threads (70A)
98	**16**	M6 Threads (70A)
21	**20**	Plug-In 7.77 x 16.6
23	**22**	Plug-In 6.25 x 21.6
25	**24**	Plug-In 6.25 x 15.4
31	**30**	Fuse Clip

Current Rating ⑤

Code	Current (Amperes)	Code	Current (Amperes)
R02	0.02	**15**	15
R25	0.25	**20**	20
R50	0.50	**25**	25
1	1	**30**	30
2R5	2.5	**50**	50
5	5	**60**	60
7R5	7.5	**80**	80
10	10	**100**	100

Handle Location ③

AC = Single-Pole Breakers
LC = Multi-Pole Breakers

① Select from 1 to 4 poles, and enter the number in position 3 of the catalog number. For example, an AM3RL would identify a 3-pole AMRL breaker.

② On multi-pole breakers, Steps 2 and 3 can be repeated if subsequent poles are different than the first. Identification starts from left-hand side when viewing the front of the breaker.

③ These will provide a handle on each pole.

④ Specific data on trip curves can be found at www.eaton.com/heinemann.

⑤ Enter the whole number current rating. For example, use code "15" for a 15 A current rating. For fractional amperages, use an "R" to designate the decimal point. For 0.10 A, enter the code "R10." Current range up to 100 amperes 50/60 Hz, 60 amperes 400 Hz, 100A dc.

AMR Series Hydraulic Magnetic Circuit Breakers

- Precision custom calibration
- Requires no derating (100% rated)
- Ambient compensating (-40°C to +85°C)
- Immediate reset after fault
- Broad range of integral internal accessories
- Provides equipment and wire protection

AMR Standard Black Toggle

Current (Amperes)	Curve	1-Pole Catalog Number	2-Pole Catalog Number	3-Pole Catalog Number
1	2	**AM1RA3AC07DA12**	**AM2RA3AC07DA12**	**AM3RA3AC07DA12**
2.5	2	**AM1RA3AC07DA2R52**	**AM2RA3AC07DA2R52**	**AM3RA3AC07DA2R52**
5	2	**AM1RA3AC07DA52**	**AM2RA3AC07DA52**	**AM3RA3AC07DA52**
7.5	2	**AM1RA3AC07DA7R52**	**AM2RA3AC07DA7R52**	**AM3RA3AC07DA7R52**
10	2	**AM1RA3AC07DA102**	**AM2RA3AC07DA102**	**AM3RA3AC07DA102**
15	2	**AM1RA3AC07DA152**	**AM2RA3AC07DA152**	**AM3RA3AC07DA152**
20	2	**AM1RA3AC07DA202**	**AM2RA3AC07DA202**	**AM3RA3AC07DA202**
30	2	**AM1RA3AC07DA302**	**AM2RA3AC07DA302**	**AM3RA3AC07DA302**
50	2	**AM1RA3AC07DA502**	**AM2RA3AC07DA502**	**AM3RA3AC07DA502**
80	2	**AM1RA3AC97DA802**	**AM2RA3AC97DA802**	**AM3RA3AC97DA802**

Circuit & Motor Protection

Circuit Breakers

CATALOG SELECTION

Series NRX Low Voltage Power Breaker — Positions 1 – 8 — Catalog Numbering System

N S S6 08 3 W

Breaker Frame Size
N = Type NF, 630 – 1600 Amperes

Industry Standard, Mechanism Type & Device Description
S = UL 1066, Stored Energy, Power Circuit Breaker
X = UL 489, Stored Energy, Insulated Case Circuit Breaker
E = IEC 60947-2, Stored Energy, Air Circuit Breaker

Fault Current Rating
S4 = Selective, 42 kA @ 480V ac UL or 415 V IEC
S5 = Selective, 50 kA @ 480V ac UL or 415 V IEC
S6 = Selective, 65 kA @ 480V ac UL or 415 V IEC

Frame Rating in Amperes
07 = 630 Amperes, IEC Only
08 = 800 Amperes
10 = 1000 Amperes, IEC Only
12 = 1200 Amperes, UL Only
13 = 1250 Amperes, IEC Only
16 = 1600 Amperes, IEC Only

Poles & Phasing
3 = 3-Pole ABC
4 = 4-Pole NABC

Mounting Configuration
W = Drawout
B = Fixed-Mount Rear-Connect, Mounting Bracket With Secondary Terminal Row
R = Fixed-Mount Rear-Connect, Surface Mount With Secondary Terminal Row
C = Fixed-Mount Front Connect, Mounting Bracket, Cable-Ct. With Secondary Terminal Row
T = Fixed-Mount Front Connect, Surface Mount, Cable-Ct. With Secondary Terminal Row
F = Fixed-Mount Front Connect, Mounting Bracket, Bus-Ct. With Secondary Terminal Row
S = Fixed-Mount Front Connect, Surface Mount, Bus-Ct. With Secondary Terminal Row

Series NRX Low Voltage Cassette — Catalog Numbering System

NX 12 3 F A D N S N N N C

Cassette Family & Breaker Frame
NS = UL 1066 N-Frame
NX = UL 489 N-Frame
NE = IEC N-Frame

Continuous Ampere Range
08 = 800 Amperes (UL 1066)
12 = 800 – 1200 Amperes (UL 489)
16 = 630 – 1600 Amperes (IEC)

Poles & Phasing (Facing Front of Breaker)
3 = 3-Pole ABC
4 = 4-Pole NABC

Load Terminal Connections
F = With Flat Tapped Pads Only
G = With Vertical/Horizontal Bus Adapter Kit (Short Style)
H = With Front Connected Kit
N = No Cassette Stabs (Interunit Only)

Arc Hood
A = Arc Hood Installed (Default)

Door Frame Gasket Kit & Rejection Kit
D = Door Kit Included (Default), No Rejection Kit
N = Not Included, No Rejection Kit
B = Door Kit Included (Default), With Rejection Kit
R = Not Included, With Rejection Kit

Accessory Switches — TOC (Truck Operated Cell), Other
N = Not Included (Default)

Shutters
N = Not Included (Default)
S = Included

Secondary Contact Terminals Installed
N = None
F = Full Complement
B = Defined by Breaker

Future
N = None

Future
N = None

Cassette Shipping
C = Cassette Only
B = Breaker Shipped in Cassette

For our complete product offering, see the Distribution Products Catalog (CA08101001E).

Series NRX Low Voltage Power Breaker — Positions 9 – 20 — Catalog Numbering System

52 8 A B A N 4 X N D X

Trip Unit

52 = 520 LSI (No ZSI)
53 = 520 LSI (With ZSI)
5G = 520 LSIG (No ZSI)
5H = 520 LSIG (With ZSI)
M2 = 520M LSI (No ZSI, 24V dc)
M3 = 520M LSI (With ZSI, 24V dc)
MA = 520M LSIA (No ZSI, 24V dc)
MB = 520M LSIA (With ZSI, 24V dc)
MG = 520M LSIG (No ZSI, 24V dc)
MH = 520M LSIG (With ZSI, 24V dc)
R2 = 520M LSI (No ZSI, 24V dc, with ARMS)
R3 = 520M LSI (With ZSI, 24V dc, with ARMS)
RA = 520M LSIA (No ZSI, 24V dc, with ARMS)
RB = 520M LSIA (With ZSI, 24V dc, with ARMS)
RG = 520M LSIG (No ZSI, 24V dc, with ARMS)
RH = 520M LSIG (With ZSI, 24V dc, with ARMS)

Rating Plug (Amperes)

1 = 200	**7** = 630
2 = 250	**8** = 800
3 = 300	**A** = 1000
4 = 400	**B** = 1200
5 = 500	**C** = 1250
6 = 600	**D** = 1600

Shunt Trip ①

N = None
A = 110 – 127V ac / V dc
R = 208 – 250V ac / V dc

Motor Operator ①

M = Manually Operated
B = 110 – 125V ac
W = 110 – 125V dc
T = 208 – 240V ac
P = 220 – 250V dc

Spring Release, Latch Check Switch ①

N = None (No LCS)
A = 110 – 125V ac / V dc (No LCS)
R = 208 – 250V ac / V dc (No LCS)

Undervoltage Release (UVR), Second Shunt Trip ①

N = None
A = 110 – 125V ac / V dc UVR
R = 220 – 250V ac / V dc UVR
1 = 110 – 125V ac / V dc Second Shunt Trip
2 = 208 – 250V ac / V dc Second Shunt Trip

Auxiliary Switches, Breaker Label Language ①

E = No Auxiliary Switch, English
2 = 2 Form-C, English
4 = 4 Form-C, English

Trip Indicator & Bell Alarm / OTS, Secondary Terminal Blocks ①

N = No Indicator, No OTS, Secondary Terminal Blocks per Breaker Options
X = Trip Indicator Provided, No OTS, Secondary Terminal Blocks per Breaker Options
Z = Trip Indicator Provided, 2 Form-C OTS, Secondary Terminal Blocks per Breaker Options

Operations Counter, Padlocking or Key Lock Provisions ①

N = None
A = Counter, no padlock, no key lock

Drawout Breaker Shipping / Fixed Breaker Terminals & Door Frame Kit

D = Drawout (or Parent) Breaker Shipping Alone, without Door Frame Kit
C = Drawout Breaker in Cassette, with Door Frame Kit
N = Fixed Breaker, No Adapters (Rear-Connect) or Cable Lugs (Front Cable Connect), without Door Frame Kit
K = Fixed Breaker, No Adapters (Rear-Connect) or Cable Lugs (Front Cable Connect), with Door Frame Kit
A = Terminal Adapters for Rear-Connect, Short Vertical, with Door Frame Kit
B = Terminal Adapters for Rear-Connect, Short Horizontal, with Door Frame Kit
V = Terminal Adapters for Rear-Connect, Short Vertical, without Door Frame Kit
W = Terminal Adapters for Rear-Connect, Short Horizontal, without Door Frame Kit

Reserved for Future Use

X = All Products

① Contact Eaton for available voltages. Not all voltages are currently available.

Circuit & Motor Protection

Circuit Breakers

PRODUCT SELECTION

Series NRX™ Low Voltage Power Breaker

- Rogowski coil does not saturate like iron core sensors, and one sensor accommodates 200 – 1600 amp range. Never change a sensor, and NO CTs are required.
- Tension clamp secondary terminals — 10A continuous rating at 600V meets UL / CSA / RoHS and UL-94 V0. Mounted directly to fixed breaker or drawout cassette they reduce wiring and provide clean, organized wiring schemes.
- Breaker mounted communication modules for INCOM, Modbus and PROFIBUS mount directly to the cassette, reducing the space and room required for communication capability.
- With the patent pending simple design of the fold-up cassette, all items in a cassette are replaceable without removing the cassette from the cell.
- Plug-and-play accessories — No special tools needed. Accessories come with plug and wires ready to install.

Series NRX Low Voltage Power Breaker

Breaker Frame	Industry Standard	Fault Current Rating (kAIC)	Frame Rating in Amperes	Poles	Mounting	Trip Unit	Rating Plug	Part Number
N	UL 1066	42	800	3	Drawout ②	520 LSI (No ZSI)	800	**NSS4083W528** ①
N	UL 1066	42	800	4	Fixed	520 LSI (No ZSI)	800	**NSS4084B528** ①
N	UL 1066	50	800	3	Drawout ②	520 LSI (No ZSI)	800	**NSS5083W528** ①
N	UL 1066	50	800	4	Fixed	520 LSI (No ZSI)	800	**NSS5084B528** ①
N	UL 1066	65	800	3	Drawout ②	520 LSI (No ZSI)	800	**NSS6083W528** ①
N	UL 1066	65	800	3	Fixed	520 LSI (No ZSI)	800	**NSS6083B528** ①
N	UL 1066	65	800	4	Drawout ②	520 LSI (No ZSI)	800	**NSS6084W528** ①
N	UL 1066	65	800	4	Fixed	520 LSI (No ZSI)	800	**NSS6084B528** ①
N	UL 489	42	800	3	Drawout ②	520 LSI (No ZSI)	800	**NXS4083W528** ①
N	UL 489	42	1200	4	Drawout ②	520 LSI (No ZSI)	1200	**NXS4124W52B** ①
N	UL 489	50	800	3	Fixed	520 LSI (No ZSI)	800	**NXS5083B528** ①
N	UL 489	50	1200	4	Fixed	520 LSI (No ZSI)	1200	**NXS5124B528** ①
N	UL 489	65	800	3	Drawout ②	520 LSI (No ZSI)	800	**NXS6083W528** ①
N	UL 489	65	800	4	Fixed	520 LSI (No ZSI)	800	**NSS6084B528** ①
N	UL 489	65	1200	3	Drawout ②	520 LSI (No ZSI)	1200	**NXS6123W52B** ①
N	UL 489	65	1200	4	Fixed	520 LSI (No ZSI)	1200	**NXS6124B52B** ①
N	IEC	42	630	3	Drawout ②	520 LSI (No ZSI)	630	**NES4073W527** ①
N	IEC	42	1600	4	Drawout ②	520 LSI (No ZSI)	1600	**NES4164W52D** ①
N	IEC	50	630	3	Fixed	520 LSI (No ZSI)	630	**NES5073B527** ①
N	IEC	50	1600	4	Fixed	520 LSI (No ZSI)	1600	**NES5164B52D** ①
N	IEC	65	630	3	Drawout ②	520 LSI (No ZSI)	630	**NES6073W527** ①
N	IEC	65	800	4	Fixed	520 LSI (No ZSI)	800	**NES6084B528** ①
N	IEC	65	1250	3	Fixed	520 LSI (No ZSI)	1250	**NES6133B52C** ①
N	IEC	65	1600	4	Drawout ②	520 LSI (No ZSI)	1600	**NES6164W52D** ①

① See Page 33 for selection of accessories in positions 12 – 20.

② See Page 32 for cassette selection for drawout breakers.

For our complete product offering, see the Distribution Products Catalog (CA08101001E).

Magnum Low Voltage Power Breaker — Catalog Numbering System

MD S 4 12 3 V E A 06 MU A W C H N E H K L A X

Breaker Type
MD = Magnum DS
SB = Magnum Switchboard

Frame Type
S = Standard or Double
N = Narrow

Interrupting / Withstand Rating
4 = 42
5 = 50
6 = 65
8 = 85
C = 100
E = 150 (DSE)
X = 200 (DSX)
L = 200 (DSL)

Continuous Amperes and Phasing (Facing Front of Breaker)
08 = 800 ABC
12 = 1200 ABC
16 = 1600 ABC
20 = 2000 ABC
25 = 2500 ABC
30 = 3000 ABC
32 = 3200 ABC or ABCABC
3N = 3200 AABBCC
4N = 4000 AABBCC
5N = 5000 AABBCC
6N = 6000 AABBCC
40 = 4000 ABCABC
50 = 5000 ABCABC
60 = 6000 ABCABC

Poles and Neutral (Facing Front of Breaker)
3 = 3-Pole
4 = 4-Pole, Neutral Left

Mounting Configuration and Load Terminals
H = Fixed Horizontal
V = Fixed Vertical
L = Drawout (MDN)
W = Drawout (MDS)

Nameplate Language
E = English
A = Spanish

Current Limiter Selection
A = Non-DSL (No Limiter)
D = MA250
E = MA300
F = MA400
G = MA600
H = MA800
K = MB1200
L = MB1600
M = MB2000
N = MD2500
P = MD3000

Sensor and Rating Plug Rating
NN = None
01 = 100
02 = 200
05 = 250
03 = 300
04 = 400
06 = 600
08 = 800
10 = 1000
12 = 1200
13 = 1250
16 = 1600
20 = 2000
25 = 2500
30 = 3000
32 = 3200
40 = 4000
50 = 5000
60 = 6000

Trip Unit and Protection, (and External Control Voltage When Required)
NN = Non-Automatic (No Trip Unit)
22 = 220+ LI
52 = 520 LSI
5G = 520 LSIG
M2 = 520M LSI
MT = 520M LSI (24/48V dc)
MU = 520M LSI (120V ac)
MV = 520M LSI (240V ac)
MQ = 520M LSI (125V ac)
MG = 520M LSIG
MH = 520M LSIG (24/48V dc)
MM = 520M LSIG (120V ac)
MN = 520M LSIG (240V ac)
MX = 520M LSIG (125V ac)
ME = 520M LSIA (24/48V dc)
MC = 520M LSIA (120V ac)
MF = 520M LSIA (240V ac)
MZ = 520M LSIA (125V ac)
CT = 520MC LSI (24/48V dc)
CU = 520MC LSI (120V ac)
CV = 520MC LSI (240V ac)
CQ = 520MC LSI (125V ac)
CH = 520MC LSIG (24/48V dc)
CM = 520MC LSIG (120V ac)
CN = 520MC LSIG (240V ac)
CX = 520MC LSIG (125V ac)
CE = 520MC LSIA (24/48V dc)
CC = 520MC LSIA (120V ac)
CF = 520MC LSIA (240V ac)
CY = 520MC LSIA (125V ac)
1A = 1150 LSI (24/48V dc)
1C = 1150 LSI (120V ac)
1E = 1150 LSI (240V ac)
1Q = 1150 LSI (125V ac)
1F = 1150 LSIG (24/48V dc)
1G = 1150 LSIG (120V ac)
1H = 1150 LSIG (240V ac)
1X = 1150 LSIG (125V ac)
1J = 1150 LSIA (24/48V dc)
1K = 1150 LSIA (120V ac)
1M = 1150 LSIA (240V ac)
1Y = 1150 LSIA (125V ac)

Motor Operator
M = Manual Operated
N = 110 – 125V ac
W = 110 – 125V dc
T = 220 – 250V dc
P = 220 – 240V ac
L = 24V dc
K = 48V dc

Spring Release Device (SRD)
N = None
A = 110 – 127V ac/dc
R = 208 – 240V ac/dc
C = 24V dc
H = 48V dc

Undervoltage Release (UVR) or 2nd Shunt Trip (ST)
N = None
A = UVR (110 – 127V ac)
R = UVR (208 – 240V ac)
C = UVR (24V dc)
H = UVR (48V dc)
E = UVR (110 – 125V dc)
F = UVR (220 – 250V dc)
J = UVR (480V ac)
K = UVR (600V ac)
1 = 2nd ST (110 – 127V ac/dc)
2 = 2nd ST (208 – 240V ac/dc)
3 = 2nd ST (24V dc)
4 = 2nd ST (48V dc)

Auxiliary Switch
N = None
2 = 2A / 2B
4 = 4A / 4B
6 = 6A / 6B

Bell Alarm Switch (OTS) with 2a/2b Contacts and/or Mechanical Trip Indicator

	OTS 2a/2b	Trip Indicator
E =	No OTS	No Indicator
N =	No OTS	With Indicator
Y =	With OTS	With Indicator

Shunt Trip (ST)
N = None
A = 110 – 127V ac/dc
R = 208 – 240V ac/dc
C = 24V dc
H = 48V dc

Padlock Provisions for Blocking Close and/or Open ACB Manual Pushbuttons
N = None
M = Metal (Block Close & Open)
P = Plastic (Block Close & Open)
C = Metal (Block Close Only)
H = Plastic (Block Close Only)
S = Metal Swbd Lock-Off (Block Close, Depress Open)

Operations Counter and/or Keylock Provisions

	Counter	Keylock Provisions
N =	No Counter	No Lock
K =	No Counter	Kirk Lock
C =	No Counter	Castell Lock
R =	No Counter	Ronis Lock
A =	Counter	No Lock
Y =	Counter	Kirk Lock
L =	Counter	Castell Lock
H =	Counter	Ronis Lock

Latch Check Switch / Trip Unit Metering Voltage Connection for Digitrip 1150 Trip Unit

	Latch Check Switch	1150 Voltage Connections
N =	None	Upper Terminals
M =	None	Lower Terminals
L =	LCS Wired to SRD	Upper Terminals
Y =	LCS Wired to SRD	Lower Terminals
C =	LCS Wired External	Upper Terminals
D =	LCS Wired External	Lower Terminals

Breaker Shipping Options and Instructions
A = Fixed Breaker Alone With Door Kit
F = Fixed Breaker Alone Without Door Kit
A = Drawout Breaker Alone Without Door Frame Kit
C = Drawout Breaker in Cassette (Un-Wired)
P = Drawout Breaker in Cassette (Pre-wired)
S = Drawout Breaker in Cassette (Shutters)
W = Drawout Breaker in Cassette (Pre-wired and Shutters)
Double frame drawout breakers ship without cassette drawout. ACBs ship in narrow and universal cassettes only.

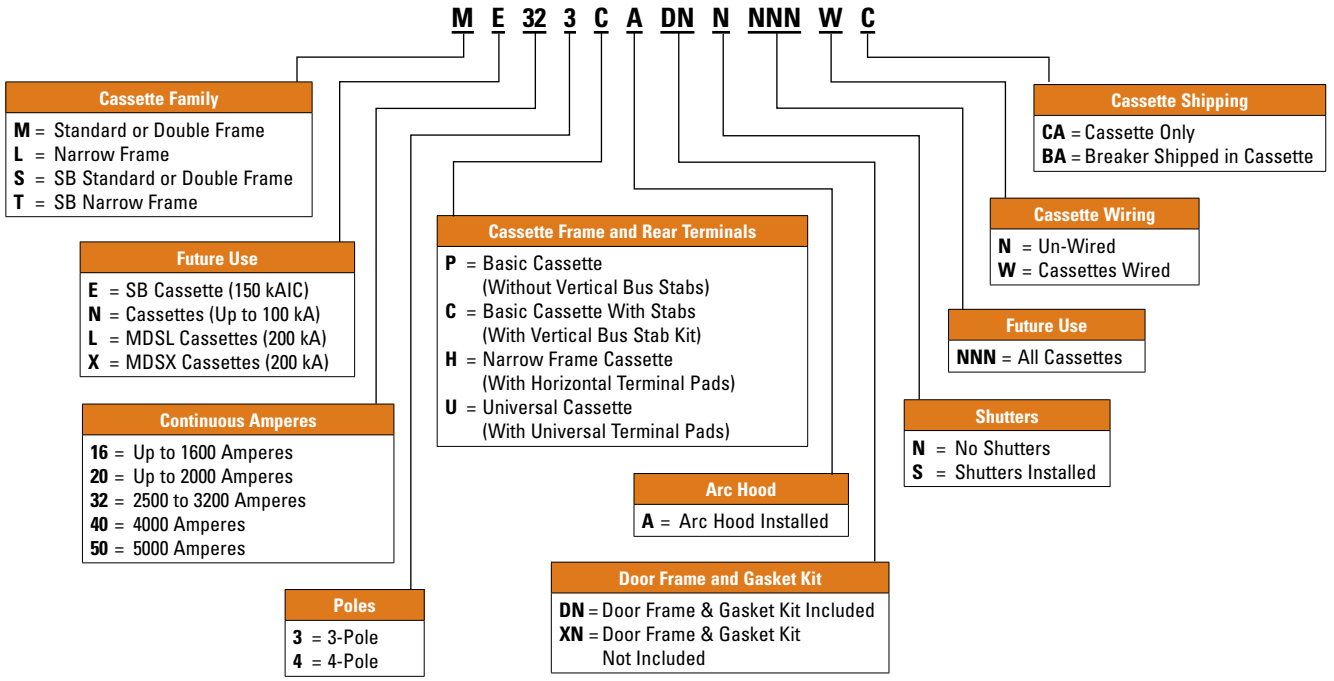
Future Use
X = All Breakers

Circuit & Motor Protection

Circuit Breakers

CATALOG SELECTION

Magnum Low Voltage Power Breaker Cassette — Catalog Numbering System



For our complete product offering, see the Distribution Products Catalog (CA08101001E).

Magnum® Low Voltage Power Breaker

- Rated up to 6300A with interrupting ratings up to 200 kAIC and withstand ratings up to 100 kAIC
- Magnum DS is UL 1066 listed for one-half second short-time withstand rating, and rated for 30 cycles. It is a switchgear class product to meet UL 1558 switchgear standards
- Magnum SB is a UL 1066 listed product with one-half second short-time withstand rating at 3 cycles to meet switchboard class product specifications, such as UL 891
- Magnum DS MDDX is the highest interrupting performance in a non-current limiting breaker construction rated up to 200 kAIC with 100 kAIC short-time withstand
- The Magnum DS, Magnum SB and Magnum IEC lines all offer the smallest double narrow 4000A frame available

Magnum DS Switchgear Class UL 1066 Low Voltage Power Circuit Breakers

Frame Type	RMS Symmetrical Current Ratings kA 50/60 Hz ①			Short Time Current Rating	Frame Amperes	Breaker Type ②
	Interrupting at 254V ac	Interrupting at 508V ac	Interrupting at 635V ac			
Narrow	42	42	42	42	800	MDN-408
Narrow	50	50	50	50		MDN-508
Narrow	65	65	65	65		MDN-608
Narrow	100	100	65	20		MDN-C08
Standard	42	42	42	42	800	MDS-408
Standard	65	65	65	65		MDS-608
Standard	85	85	85	85		MDS-808
Standard	100	100	100	85		MDS-C08
Standard	200	200	200	—		MDS-L08 ④
Standard	200	200	③	30		MDS-X08 ⑤⑥
Narrow	42	42	42	42	1600	MDN-416
Narrow	50	50	50	50		MDN-516
Narrow	65	65	65	65		MDN-616
Narrow	100	100	65	30		MDN-C16
Standard	65	65	65	65	1600	MDS-616
Standard	85	85	85	85		MDS-816
Standard	100	100	100	85		MDS-C16
Standard	200	200	200	—		MDS-L16 ④
Standard	200	200	③	30		MDS-X16 ⑤
Narrow	65	65	65	65	2000	MDN-620
Narrow	100	100	65	35		MDN-C20
Standard	65	65	65	65	2000	MDS-620
Standard	85	85	85	85		MDS-820
Standard	100	100	100	85		MDS-C20
Standard	200	200	200	—		MDS-L20 ④
Standard	200	200	③	30		MDS-X20 ⑤
Standard	65	65	65	65	3200	MDS-632
Standard	85	85	85	85		MDS-832
Standard	100	100	100	85		MDS-C32
Double	200	200	③	50	3200	MDS-X32 ⑤

① Interrupting ratings shown based on breaker equipped with integral Digitrip RMS Trip Unit. Interruption ratings for non-automatic breakers are equal to the published Short Time Current Rating. These interruption ratings are based on the standard duty cycle consisting of an open operation, a 15-second interval and a close-open operation, in succession, with delayed tripping in case of short-delay devices. The standard duty cycle for short time ratings consists of maintaining the rated current for two periods of 1/2 seconds each, with a 15-second interval of zero current between the two periods.

① See Page 35 for selection of trip unit and accessories. See Page 36 for cassette selection for drawout breakers.

② Product to be tested. Contact Eaton for product rating.

③ Magnum MDSL current limiting power circuit breaker with integral current limiters. Current limiter selected determines short time and maximum instantaneous trip rating. Maximum voltage rating is 600V ac.

④ Magnum MDSX current limiting power circuit breaker with fast opening contacts.

⑤ Check with Eaton for availability.

Circuit & Motor Protection

Circuit Breakers

PRODUCT SELECTION

Magnum Low Voltage Power Breaker

Magnum DS Switchgear Class UL 1066 Low Voltage Power Circuit Breakers (Continued)

Frame Type	RMS Symmetrical Current Ratings kA 50/60 Hz ①			Short Time Current Rating	Frame Amperes	Breaker Type ②
	Interrupting at 254V ac	Interrupting at 508V ac	Interrupting at 635V ac			
Double (N) Double (N)	85 100	85 100	③	85 100	4000	MDN-840 MDN-C40
Double Double Double	85 100 200	85 100 200	85 100 ③	85 100 50	4000	MDS-840 MDS-C40 MDS-X40 ④
Double	200	200	③	100	4000	MDD-X40
Double Double Double	85 100 200	85 100 200	85 100 ③	85 100 50	5000	MDS-850 MDS-C50 MDS-X50 ④⑤
Double	200	200	③	100	5000	MDD-X50
Double	100	100	100	100	6000	MDS-C60 ⑤
Double	200	200	③	100	6000	MDD-X60

① Interrupting ratings shown based on breaker equipped with integral Digitrip RMS Trip Unit. Interruption ratings for non-automatic breakers are equal to the published Short Time Current Rating. These interruption ratings are based on the standard duty cycle consisting of an open operation, a 15-second interval and a close-open operation, in succession, with delayed tripping in case of short-delay devices. The standard duty cycle for short time ratings consists of maintaining the rated current for two periods of 1/2 seconds each, with a 15-second interval of zero current between the two periods.

② See Page 35 for selection of trip unit and accessories. See Page 36 for cassette selection for drawout breakers.

③ Product to be tested. Contact Eaton for product rating.

④ Magnum MDSX current limiting power circuit breaker with fast opening contacts.

⑤ Breaker applied in a tested fan-cooled enclosure.

Magnum SB Switchboard Class UL 1066 Insulated Case Low Voltage Power Circuit Breakers

Frame Type	RMS Symmetrical Current Ratings kA 50/60 Hz ①			Short Time Current Rating	Frame Amperes	Breaker Type
	Interrupting at 254V ac	Interrupting at 508V ac	Interrupting at 635V ac			
Narrow Narrow Narrow	50 65 100	50 65 100	35 42 65	20 20 20	800	SBN-508 SBN-608 SBN-C08
Standard Standard Standard	65 100 200	65 100 150	65 85 ②	20 20 30	800	SBS-608 SBS-C08 SBS-E08 ③
Narrow Narrow Narrow	50 65 100	50 65 100	35 42 65	25 25 25	1200	SBN-512 SBN-612 SBN-C12
Standard Standard Standard	65 100 200	65 100 150	65 85 ②	25 25 30	1200	SBS-612 SBS-C12 SBS-E12 ③
Narrow Narrow Narrow	50 65 100	50 65 100	35 42 65	30 30 30	1600	SBN-516 SBN-616 SBN-C16
Standard Standard Standard	65 100 200	65 100 150	65 85 ②	30 30 30	1600	SBS-616 SBS-C16 SBS-E16 ③
Narrow Narrow	65 100	65 100	65 65	35 35	2000	SBN-620 SBN-C20
Standard Standard Standard	65 100 200	65 100 150	65 85 ②	35 35 30	2000	SBS-620 SBS-C20 SBS-E20 ③

① Interrupting ratings shown based on breaker equipped with integral Digitrip RMS Trip Unit. Interruption ratings for non-automatic breakers are equal to the published Short Time Current Rating. These interruption ratings are based on the standard duty cycle consisting of an open operation, a 15-second interval and a close-open operation, in succession, with delayed tripping in case of short-delay devices. The standard duty cycle for short time ratings consists of maintaining the rated current for two periods of 1/2 seconds each, with a 15-second interval of zero current between the two periods.

② Product to be tested. Contact Eaton for product rating.

③ Magnum SBSE current limiting power circuit breaker with fast opening contacts.

Magnum Low Voltage Power Breaker

Magnum SB Switchboard Class UL 1066 Insulated Case Low Voltage Power Circuit Breakers (Continued)

Frame Type	RMS Symmetrical Current Ratings kA 50/60 Hz ①				Frame Amperes	Breaker Type
	Interrupting at 254V ac	Interrupting at 508V ac	Interrupting at 635V ac	Short Time Current Rating		
Standard Standard	65 100	65 100	65 85	45 45	2500	SBS-625 SBS-C25
Double	200	150	②	50		SBS-E25 ③
Standard Standard	65 100	65 100	65 85	50 50	3000	SBS-630 SBS-C30
Double	200	150	②	50		SBS-E30 ③
Double (N) Double (N)	85 100	85 100	③ ③	85 100	4000	SBN-840 SBN-C40
Double Double Double	85 100 200	85 100 150	85 100 ②	85 100 50		SBS-840 SBS-C40 SBS-E40 ③
Double Double Double	85 100 200	85 100 150	85 100 ②	85 100 50	5000	SBS-850 SBS-C50 SBS-E50 ③④
Double	100	100	100	100	6000	SBS-C60 ④

① Interrupting ratings shown based on breaker equipped with integral Digitrip RMS Trip Unit. Interruption ratings for non-automatic breakers are equal to the published Short Time Current Rating. These interruption ratings are based on the standard duty cycle consisting of an open operation, a 15-second interval and a close-open operation, in succession, with delayed tripping in case of short-delay devices. The standard duty cycle for short time ratings consists of maintaining the rated current for two periods of 1/2 seconds each, with a 15-second interval of zero current between the two periods.

② Product to be tested. Contact Eaton for product rating.

③ Magnum SBSE current limiting power circuit breaker with fast opening contacts.

④ Breaker applied in a tested fan-cooled enclosure

Compact All-in-One Solutions

Powering Business Worldwide

- Eliminate the overload relay with a manual motor protector or combination motor controller
- Get a disconnect, starter, and overload and motor protection in one compact device
- A complete motor protector and remote control solution easily assembled
- UL 508F ratings means no need for protection upstream when using a combination motor controller

Manual Motor Protectors & Controllers Product Overview

				
Description	**XTPB Pushbutton Manual Motor Protector**	**XTPR Rotary Manual Motor Protector**	**XTSC Manual Motor Controller**	**XTFC Combination Motor Controller**
Page	Page 42	Page 42	Page 49	Page 49
Operator Style	Pushbutton	Rotary	Rotary	Rotary
Components	Manual Motor Protector	Manual Motor Protector	Manual Motor Protector Contactor Connector Kit	Manual Motor Protector Contactor Connector Kit Line Side Adapter
UL 508 Type E	—	Yes, Line Side Adapter	—	—
UL 508 Type F	—	—	—	Yes, Line Side Adapter
Branch Motor Circuit Functions	Disconnect Controller (manual) Short Circuit Protection Motor Overload Protection	Disconnect Controller (manual) Short Circuit Protection Motor Overload Protection	Disconnect Controller (manual & remote) Short Circuit Protection Motor Overload Protection	Disconnect Controller (manual & remote) Short Circuit Protection Motor Overload Protection
FLA Range	0.1 – 25A	0.1 – 65A	0.1 – 65A	0.1 – 65A

Circuit & Motor Protection

Manual Motor Protectors & Controllers

CATALOG SELECTION

XT IEC Manual Motor Protectors — Catalog Numbering System

XT PR 012 B C1

Designation

XT = ***XT*** IEC Power Control

Type

PB = Manual Motor Protector — Pushbutton
PR = Manual Motor Protector — Rotary

Current Ratings

B Frame

P16 = 0.16A	**6P3** = 6.3A
P25 = 0.25A	**010** = 10A
P40 = 0.40A	**012** = 12A
P63 = 0.63A	**016** = 16A
001 = 1A	**020** = 20A
1P6 = 1.6A	**025** = 25A
2P5 = 2.5A	**032** = 32A
004 = 4A	

D Frame

016 = 16A	**050** = 50A
025 = 25A	**058** = 58A
032 = 32A	**063** = 63A
040 = 40A	

Frame Size

B = 45 mm
D = 55 mm

Trip Class

C1 = Class 10
Blank = Magnetic Only (No Thermal Trip)

For our complete product offering, see the Control Products Catalog (**CA08102001E**).

XT IEC Manual Motor Protectors

- ON / OFF rotary handle with lockout provision
- Class 10 overload protection
- Motor applications from 0.1A to 63A
- Built-in heater and magnetic trip elements to protect the motor
- Adjustment dial for setting motor FLA
- XTPR Rotary MMP with a lineside adapter is rated for UL 508 Type E

XTPB Pushbutton Manual Motor Protectors — Global and North American Ratings

Motor Protective Device with Thermal and Magnetic Trip

Rated Uninterrupted Current — $I_u = I_e$ (Amps)	FLA Adjustment Range / Overload Release — I_r (Amps)	Short Circuit Release — I_{rm} (Amps)	Maximum Motor Ratings ①									Catalog Number — Screw Terminals
			Maximum kW Rating AC-3 — P (kW)					Maximum hp Rating — P (hp) UL 508 / CSA C 22.2 No. 14				
			3-Phase					3-Phase				
			220 – 240V	380 – 415V	440V	500V	660 – 690V	200V	240V	480V	600V	
Frame B												
0.16	0.1 – 0.16	2.2	—	—	—	—	0.06	②	②	②	②	**XTPBP16BC1**
0.25	0.16 – 0.25	3.5	—	0.06	0.06	0.06	0.12	②	②	②	②	**XTPBP25BC1**
0.4	0.25 – 0.4	5.6	0.06	0.09	0.12	0.12	0.18	②	②	②	②	**XTPBP40BC1**
0.63	0.4 – 0.63	8.8	0.09	0.12	0.18	0.25	0.25	②	②	②	②	**XTPBP63BC1**
1	0.63 – 1	14	0.12	0.25	0.25	0.37	0.55	②	②	1/2	1/2	**XTPB001BC1**
1.6	1 – 1.6	22	0.25	0.55	0.55	0.75	1.1	②	②	3/4	1	**XTPB1P6BC1**
2.5	1.6 – 2.5	35	0.37	0.75	1.1	1.1	1.5	1/2	1/2	1	1-1/2	**XTPB2P5BC1**
4	2.5 – 4	56	0.75	1.5	1.5	2.2	3	1	1	2	3	**XTPB004BC1**
6.3	4 – 6.3	88	1.1	2.2	3	3	4	1-1/2	1-1/2	3	5	**XTPB6P3BC1**
10	6.3 – 10	140	2.2	4	4	4	7.5	3	3	7-1/2	10	**XTPB010BC1**
12	8 – 12	168	3	5.5	5.5	5.5	11	3	3	7-1/2	10	**XTPB012BC1**
16	10 – 16	224	4	7.5	9	9	12.5	3	5	10	10	**XTPB016BC1**
20	16 – 20	280	5.5	9	11	12.5	15	5	5	10	15	**XTPB020BC1**
25	20 – 25	350	5.5	12.5	12.5	15	22	5	7-1/2	15	20	**XTPB025BC1**

① Select manual motor protectors by full load amperes. Maximum motor ratings (kW, hp) are for reference only.

② In this range, calculate motor rating according to rated current. Specified values to NEC 430.6(A)(1).

Note: Service Factor (SF) — Setting I_r of current scale in dependence of load factor:
SF = 1.15 -> $I_r = 1 \times I_n$ mot
SF = 1 -> $I_r = 0.9 \times I_n$ mot

Circuit & Motor Protection

Manual Motor Protectors & Controllers

PRODUCT SELECTION

XT IEC Manual Motor Protectors

XTPR Rotary Manual Motor Protectors with Screw Terminals — Global Ratings and North American Ratings

Motor Protective Device with Thermal and Magnetic Trip

Rated Uninterrupted Current — $I_u = I_e$ (Amps)	FLA Adjustment Range / Overload Release — I_r (Amps)	Short Circuit Release — I_{rm} (Amps)	Maximum Motor Ratings ①									Catalog Number — Screw Terminals ③
			Maximum kW Rating AC-3 — P (kW)					Maximum hp Rating — P (hp) UL 508 / CSA C 22.2 No. 14				
			3-Phase					3-Phase				
			220 – 240V	380 – 415V	440V	500V	660 – 690V	200V	240V	480V	600V	
Frame B												
0.16	0.1 – 0.16	2.2	—	—	—	—	0.06	②	②	②	②	**XTPRP16BC1**
0.25	0.16 – 0.25	3.5	—	0.06	0.06	0.06	0.12	②	②	②	②	**XTPRP25BC1**
0.4	0.25 – 0.4	5.6	0.06	0.09	0.12	0.12	0.18	②	②	②	②	**XTPRP40BC1**
0.63	0.4 – 0.63	8.8	0.09	0.12	0.18	0.25	0.25	②	②	②	②	**XTPRP63BC1**
1	0.63 – 1	14	0.12	0.25	0.25	0.37	0.55	②	②	1/2	1/2	**XTPR001BC1**
1.6	1 – 1.6	22	0.25	0.55	0.55	0.75	1.1	②	②	3/4	1	**XTPR1P6BC1**
2.5	1.6 – 2.5	35	0.37	0.75	1.1	1.1	1.5	1/2	1/2	1	1-1/2	**XTPR2P5BC1**
4	2.5 – 4	56	0.75	1.5	1.5	2.2	3	1	1	2	3	**XTPR004BC1**
6.3	4 – 6.3	88	1.1	2.2	3	3	4	1-1/2	1-1/2	3	5	**XTPR6P3BC1**
10	6.3 – 10	140	2.2	4	4	4	7.5	3	3	7-1/2	10	**XTPR010BC1**
12	8 – 12	168	3	5.5	5.5	5.5	11	3	3	7-1/2	10	**XTPR012BC1**
16	10 – 16	224	4	7.5	9	9	12.5	3	5	10	10	**XTPR016BC1**
20	16 – 20	280	5.5	9	11	12.5	15	5	5	10	15	**XTPR020BC1**
25	20 – 25	350	5.5	12.5	12.5	15	22	5	7-1/2	15	20	**XTPR025BC1**
32	25 – 32	448	7.5	15	15	22	30	7-1/2	10	25	30	**XTPR032BC1**
Frame D												
16	10 – 16	224	4	7.5	9	9	12.5	3	5	10	15	**XTPR016DC1**
25	16 – 25	350	5.5	12.5	12.5	15	22	7-1/2	7-1/2	20	25	**XTPR025DC1**
32	25 – 32	448	7.5	15	17.5	22	22	10	10	25	30	**XTPR032DC1**
40	32 – 40	560	11	20	22	24	30	10	15	30	40	**XTPR040DC1**
50	40 – 50	700	14	25	30	30	45	10	15	30	40	**XTPR050DC1**
58	50 – 58	812	17	30	37	37	55	—	—	40	—	**XTPR058DC1**
65	55 – 65	882	18.5	34	37	45	55	—	—	—	—	**XTPR063DC1**

① Select manual motor protectors by full load amperes. Maximum motor ratings (kW, hp) are for reference only.

② In this range, calculate motor rating according to rated current. Specified values to NEC 430.6(A)(1).

③ Catalog number shown comes with screw terminals. For Frame B devices up to 16A, spring cage terminals are available.
For spring cage terminals on line and load sides, insert a "C" into the catalog number in the 5th position — Example: XTPR**C** _BC1.
For spring cage terminals on the load side only, insert an "SC" into the catalog number in the 5th and 6th positions — Example: XTPR**SC** _BC1.

Note: Service Factor (SF) — Setting I_r of current scale in dependence of load factor:
SF = 1.15 -> I_r = 1 x I_n mot
SF = 1 -> I_r = 0.9 x I_n mot

For our complete product offering, see the Control Products Catalog (CA08102001E).

XT IEC Manual Motor Protectors

XTPR Manual Self-Protected Motor Starters — North American Ratings, UL 508 Type E ①

Motor Protective Device with Thermal and Magnetic Trip

Rated Uninterrupted Current — I_u (Amps)	FLA Adjustment Range / Overload Release — I_r (Amps)	Short Circuit Release — I_{rm} (Amps)	Maximum Motor Ratings ②				Rated Short-Circuit Breaking Capacity (kA)			Line Side Adapter ①	Manual Motor Protector — Screw Terminals
			Maximum hp Rating — P (hp)								
			3-Phase								
			200V	240V	480V/ 277V	600V/ 247V	240V	480/ 277V	600/ 347V	Catalog Number	Catalog Number
Frame B											
0.16	0.1 – 0.16	2.2	③	③	1/2	1/2	50	50	50	**XTPAXLSA**	**XTPRP16BC1**
0.25	0.16 – 0.25	3.4	③	③	1/2	1/2	50	50	50	**XTPAXLSA**	**XTPRP25BC1**
0.4	0.25 – 0.4	5.6	③	③	1/2	1/2	50	50	50	**XTPAXLSA**	**XTPRP40BC1**
0.63	0.4 – 0.63	8.8	③	③	1/2	1/2	50	50	50	**XTPAXLSA**	**XTPRP63BC1**
1	0.63 – 1	14	③	③	1/2	1/2	50	50	50	**XTPAXLSA**	**XTPR001BC1**
1.6	1 – 1.6	22	③	③	3/4	3/4	50	50	50	**XTPAXLSA**	**XTPR1P6BC1**
2.5	1.6 – 2.5	35	1/2	1/2	1	1-1/2	50	50	50	**XTPAXLSA**	**XTPR2P5BC1**
4	2.5 – 4	56	3/4	1	2	3	50	50	50	**XTPAXLSA**	**XTPR004BC1**
6.3	4 – 6.3	88	1	1-1/2	3	5	50	50	50	**XTPAXLSA**	**XTPR6P3BC1**
10	6.3 – 11	140	3	3	7-1/2	10	50	50	50	**XTPAXLSA**	**XTPR010BC1**
12	8 – 12	168	3	3	7-1/2	—	42	42	—	**XTPAXLSA**	**XTPR012BC1**
16	10 – 16	224	3	5	10	—	42	42	—	**XTPAXLSA**	**XTPR016BC1**
20	16 – 20	280	5	5	—	—	42	42	—	**XTPAXLSA**	**XTPR020BC1**
25	20 – 25	350	5	7-1/2	15	—	18	18	—	**XTPAXLSA**	**XTPR025BC1**
32	25 – 32	448	7-1/2	10	25	—	18	18	—	**XTPAXLSA**	**XTPR032BC1**
Frame D											
16	10 – 16	224	3	5	10	10	50	50	50	**XTPAXLSAD**	**XTPR016DC1**
25	16 – 25	350	7-1/2	7-1/2	20	25	50	50	50	**XTPAXLSAD**	**XTPR025DC1**
32	25 – 32	448	10	10	25	30	50	50	50	**XTPAXLSAD**	**XTPR032DC1**
40	32 – 40	560	10	10	30	40	50	50	50	**XTPAXLSAD**	**XTPR040DC1**
50	40 – 50	700	10	15	30	—	65	65	—	**XTPAXLSAD**	**XTPR050DC1**
58	50 – 58	812	15	15	40	—	65	65	—	**XTPAXLSAD**	**XTPR058DC1**
65	55 – 65	882	15	15	40	—	65	65	—	**XTPAXLSAD**	**XTPR063DC1**

① UL 508 Type E starters are assembled from a standard XTPR and a special incoming terminal line side adapter (XTPAXLSA or XTPAXLSAD).

② Select manual motor protectors by full load amperes. Maximum motor ratings (kW, hp) are for reference only.

③ In this range, calculate motor rating according to rated current. Specified values to NEC 430.6(A)(1).

Note: A UL 508 Type E self-protected manual combination starter (XTPR) consists of a manual motor protector (XTPR) and a UL listed line side adapter (e.g., XTPAXLSA). The Type E self-protected manual combination starter alone is a legitimate short-circuit protective device and disconnect means for the downstream motor, while the contactor has been added to provide remote operation of the motor circuit.

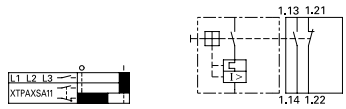
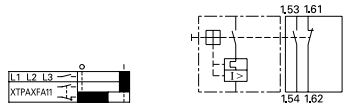
Circuit & Motor Protection

Manual Motor Protectors & Controllers

PRODUCT SELECTION

XT IEC Manual Motor Protectors — Accessories

Auxiliary Contacts

Contact Configuration	Contact Sequence	Screw Terminals	
		Pkg. Qty.	Catalog Number
Side-Mount			
1NO-1NC		5	**XTPAXSA11**
Front-Mount			
1NO-1NC		5	**XTPAXFA11**

IP65 Rotary Handle Mechanism ①②③

	Description	Pkg. Qty.	Catalog Number
Complete Kits — Includes Handle, Shaft and Required Hardware			
	Rotary Handle Mechanism IP65 Black — For use on main switches to IEC / EN 60204.	1	**XTPAXRHMB**
	Rotary Handle Mechanism IP65 Red / Yellow — For use on main switch with Emergency-Stop function to IEC / EN 60204.	1	**XTPAXRHMRY**
	Rotary Handle Mechanism IP65 Black — For use on main switches to IEC / EN 60204 where XTPR is mounted 90° from vertical.	1	**XTPAXRHM90B**
	Rotary Handle Mechanism IP65 Red / Yellow — For use on main switch with Emergency-Stop function to IEC / EN 60204 where XTPR is mounted 90° from vertical.	1	**XTPAXRHM90RY**

① With ON/OFF switch position and "+" (tripped), lockable with 3 padlocks, 4 – 8 mm hasp. Can be locked in the OFF position, if required.

② Rotary handle mechanisms ship with door interlock disabled. See instruction publication with product for how to enable door interlock.

③ Not for use with XTPAXFAEM20 early-make front-mount auxiliary contact.

Shunt Release

	Catalog Number — Screw Terminals	Pkg. Qty.
	**XTPAXSR120V60H**	2
	XTPAXSR240V60H	2
	XTPAXSR480V60H	2
	XTPAXSR24VDC	2

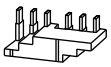
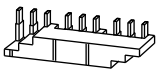
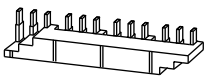
Undervoltage Release

	Catalog Number — Screw Terminals	Pkg. Qty.
	**XTPAXUVR120V60H**	2
	XTPAXUVR240V60H	2
	XTPAXUVR480V60H	2

For our complete product offering, see the Control Products Catalog (CA08102001E).

XT IEC Manual Motor Protectors — Accessories

Three-Phase Commoning Links ①

	For Use with...	Qty MMP	Length of Link (mm)	Unit Width (mm)	Pkg Qty.	Catalog Number
Frame B						
	MMP With No Side-Mounted Auxiliaries or Voltage Releases	2	90	45	10	**XTPAXCLKA2**
		3	135	45	10	**XTPAXCLKA3**
		4	180	45	10	**XTPAXCLKA4**
		5	225	45	10	**XTPAXCLKA5**
Frame D						
	MMP With No Side-Mounted Auxiliaries or Voltage Releases	2	110	55	1	**XTPAXCLKA2D**
		3	165	55	1	**XTPAXCLKA3D**
		4	220	55	1	**XTPAXCLKA4D**

① Protected against accidental contact. B-Frame short circuit proof Ue = 690V, Iu = 63A; D-Frame short circuit proof Ue = 690V, Iu = 128A. Frame B links can be combined by rotating mounting. Frame D links cannot be combined.

Incoming Terminal for Three-Phase Commoning Link ①

	For Use with...	Pkg Qty.	Catalog Number
	B-Frame XTPR, XTPB	5	**XTPAXIT**

① For three-phase commoning link, protected against accidental contact, Ue = 690V, Iu = 63A; for conductor cross-sections: 2.5 – 25 mm² stranded; 2.5 – 16 mm² flexible with ferrules, AWG 14-6.

Line-Side Adapter ①

	For Use with...	Pkg Qty.	Catalog Number
	B-Frame XTPR to Create a UL 508 Type E/F Manual Combination Starter	5	**XTPAXLSA**
	D-Frame XTPR to Create a UL 508 Type E/F Manual Combination Starter	1	**XTPAXLSAD** ②

① XTPAXLSA is for three-phase commoning link, finger- and back-of-hand proof, Ue = 690V, Iu = 60A; for conductor cross sections: 2.5 – 25 mm² stranded, 2.5 – 16 mm² flexible with ferrule, AWG 14-6.

② XTPAXLSAD cannot be combined with three-phase commoning links.

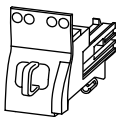
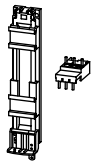
Circuit & Motor Protection

Manual Motor Protectors & Controllers

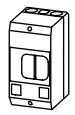
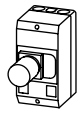
PRODUCT SELECTION

XT IEC Manual Motor Protectors — Accessories

Combination Connection Kits for Connection of XTPR MMP with XTCE Contactor

	For Use with...	Description	Std. Pack	Catalog Number
Non-Reversing Starters				
	XTPR...B + XTCE...B	Comprised of: • Mechanical connection element for XTPR...B and contactor • Main current wiring between XTPR...B and contactor in tool-less plug connection • Cable guidance Use contactor auxiliary switch XTCEXFAT_. Control cable guidance: max. 6 cables up to 2.5 mm² external diameter or 4 cables up to 3.5 mm² external diameter.	1	**XTPAXTPCB**
	XTPR...B + XTCE...C	Comprised of: • DIN-Rail adapter plate • Main current wiring between XTPR and contactor	1	**XTPAXTPCC**
	XTPR...D + XTCE...D		1	**XTPAXTPCD**

Insulated Enclosures for Surface Mounting

	Degree of Protection	For Use with...	Description	Catalog Number
XTPB Pushbutton Manual Motor Protectors — North American Usage ①②				
	IP65 NEMA 3R, 4X, 12, 13	XTPB MMP Only or with: XTPAXFA..., XTPBXFAEM20, XTPAXSA..., XTPAXUVR..., XTPAXSR..., XTPAXCL	With actuating diaphragm	**XTPBXENAS65**
	IP65 NEMA 3R, 4X, 12, 13	XTPB MMP Only or with: XTPAXFA..., XTPBXFAEM20, XTPAXUVR..., XTPAXSR..., XTPAXCL	With Emergency-Stop (E-Stop) pushbutton actuator, Red-Yellow	**XTPBXENASES65**
B-Frame (0.1 – 32A) XTPR Rotary Manual Motor Protectors — North American Usage ③				
	IP55 NEMA 1, 12, 3R	B-Frame XTPR Only or with: XTPAXSA... and XTPAXFA..., XTPAXUVR...and XTPAXFA..., XTPAXSR...and XTPAXFA..., XTPAXCL	With red/yellow rotary handle for use as Emergency-Stop switch to VDE 0113	**XTPAXENAS55RY**
D-Frame (10 – 65A) XTPR Rotary Manual Motor Protectors ④⑤				
	IP65 NEMA 1, 12, 3R, 4X	D-Frame XTPR Only or with: XTPAXFA..., XTPAXFAEM20, XTPAXSA..., XTPAXSATR..., XTPAXUVR..., XTPAXSR..., XTPAXCL	With red/yellow rotary handle for use as Emergency-Stop switches to IEC / EN 60204	**XTPAXENCSD65RY**

① Built-in terminal for PE(N).

② North American enclosures come with conduit adapters for use with 1/2" NPT.

③ Built-in N and PE terminal, lower part without knockouts.

④ Integrated terminal for PE(N) connection.

⑤ % Metric knockouts:
Top ÷ bottom: M25/M32
In backplate: M25/M32
Control cable entry: M20

For our complete product offering, see the Control Products Catalog **(CA08102001E)**.

XT IEC Combination Motor Controllers — Catalog Numbering System

XT SC 012 B B A

Design
XT = XT IEC Power Control

Type
SC = Manual Motor Controller — FVNR
FC = Combination Motor Controller, UL 508 Type F — FVNR

Rated Current of MMP

B-Frame	D-Frame
P16 = 0.16A	**016** = 16A
P25 = 0.25A	**025** = 25A
P40 = 0.40A	**032** = 32A
P63 = 0.63A	**040** = 40A
001 = 1A	**050** = 50A
1P6 = 1.6A	**058** = 58A
2P5 = 2.5A	**063** = 65A
004 = 4A	
6P3 = 6.3A	
010 = 10A	
012 = 12A	
016 = 16A	
020 = 20A	
025 = 25A	
032 = 32A	

Frame Size — MMP
B = 45 mm, 0.1 to 32A
D = 55 mm, 16 to 63A

Frame Size — Contactor
B = 45 mm, 7 to 15A
C = 45 mm, 18 to 32A
D = 55 mm, 40 to 65A

Coil Voltage
A = 110V 50 Hz, 120V 60 Hz
B = 220V 50 Hz, 240V 60 Hz
C = 415V 50 Hz, 480V 60 Hz
D = 550V 50 Hz, 600V 60 Hz
E = 208V 50 Hz
T = 24V 50/60 Hz
TD = 24V dc

Circuit & Motor Protection

Manual Motor Protectors & Controllers

PRODUCT SELECTION

XT IEC Manual and Combination Motor Controllers

- ON/OFF rotary handle with lockout provision
- Class 10 overload protection
- Adjustment dial for setting motor FLA
- Built-in surge suppression on dc coils as standard
- Assembled manual motor controllers consist of manual motor protector, contactor, connector kit and 1NO-1NC auxiliary contact for MMP
- Assembled combination motor controllers consist of manual motor protector, contactor, connector kit, 1NO-1NC auxiliary contact for MMP and line side adapter
- Combination motor controllers are UL 508 Type F rated, and provide the following functions in a single device
  - Disconnect
  - Short circuit protection
  - Motor overload protection
  - Motor controller

XTSC Manual Motor Controllers (MMC) / Starter Combinations

Factory Assembled Motor Protective Device with Thermal and Magnetic Trip + Contactor										
FLA Adjustment Range (Amps) ①	Short-Circuit Release — I_{rm} (Amps)	Maximum Motor Ratings — P ②								Assembled Manual Motor Controller ③
		Maximum Motor kW Rating AC-3 — P (kW)				Maximum hp Rating — P (hp)				
		Three-Phase				Three-Phase				Non-Reversing
		220 – 240V	380 – 415V	500V	660 – 690V	200V	240V	480V	600V	Catalog Number
Frame B MMP + Frame B Contactor										
0.1 – 0.16	3.2	—	—	—	0.06	④	④	1/2	1/2	**XTSCP16BB_**
0.16 – 0.25	3.5	—	0.06	0.06	0.12	④	④	1/2	1/2	**XTSCP25BB_**
0.25 – 0.4	5.6	0.06	0.09	0.12	0.18	④	④	1/2	1/2	**XTSCP40BB_**
0.4 – 0.63	8.82	0.09	0.18	0.25	0.25	④	④	1/2	1/2	**XTSCP63BB_**
0.63 – 1	14	0.12	0.25	0.37	0.55	④	④	1/2	1/2	**XTSC001BB_**
1 – 1.6	22.4	0.25	0.55	0.75	1.1	④	④	3/4	1	**XTSC1P6BB_**
1.6 – 2.5	35	0.37	0.75	1.1	1.5	1/2	1/2	1	1-1/2	**XTSC2P5BB_**
2.5 – 4	56	0.75	1.5	2.2	3	1	1	2	3	**XTSC004BB_**
4 – 6.3	88.2	1.1	2.2	3	4	1-1/2	1-1/2	3	5	**XTSC6P3BB_**
6.3 – 10	140	2.2	4	4	7.5	3	3	7-1/2	10	**XTSC010BB_**
8 – 12	168	3	5.5	5.5	11	3	3	7-1/2	10	**XTSC012BB_**
10 – 16	224	4	7.5	9	12.5	3	3	10	10	**XTSC016BB_**
Frame B MMP + Frame C Contactor										
10 – 16	224	4	7.5	9	12.5	3	3	10	10	**XTSC016BC_**
16 – 20	280	5.5	9	12.5	15	5	5	10	15	**XTSC020BC_**
20 – 25	350	5.5	11	15	22	5	7-1/2	15	20	**XTSC025BC_**
25 – 32	448	7.5	15	22	30	7-1/2	10	20	25	**XTSC032BC_**
Frame D MMP + Frame C Contactor										
10 – 16	224	4	7.5	9	12.5	3	5	10	15	**XTSC016DC_**
16 – 25	350	5.5	12.5	12.5	22	7-1/2	7-1/2	20	25	**XTSC025DC_**
25 – 32	448	7.5	15	17.5	22	10	10	25	30	**XTSC032DC_**
Frame D MMP + Frame D Contactor										
32 – 40	560	11	20	22	30	10	—	30	30	**XTSC040DD_**
40 – 50	700	14	25	30	45	15	15	30	40	**XTSC050DD_**
50 – 58	812	17	30	37	55	—	—	40	—	**XTSC058DD_**
55 – 65	882	18.5	34	37	55	—	—	40	—	**XTSC063DD_**

① Overload release — I_r

② Select manual motor protectors by full load amperes. Maximum motor ratings (kW, hp) are for reference only.

③ Underscore (_) indicates magnet coil suffix required. See Page 51.

④ In this range, calculate motor rating according to rated current. Specified values to NEC 430.6(A)(1).

Note: The assembled Manual Motor Controller (MMC) consists of an XTPR Manual Motor Protector (MMP) and an XTCE contactor. For Frame B MMP + Frame B Contactor assemblies, the XTSC can be mounted directly on DIN-Rail without an adapter. The contactors are supported mechanically with a mechanical connection element (included in XTPAXTPCB). For 16A and above, the assembly is mounted via a DIN-Rail Adapter Plate (XTPAXTPCPC, XTPAXTPCPD) and the electrical connection is made with electrical contact modules (XTPAXECMC, XTPAXECMD), both included in XTPAXTPCC and XTPAXTPCD.
Service Factor Settings: Setting I_r of current scale in dependence of load factor:
SF = 1.15 — I_r = 1 x I_n mot
SF = 1 — Ir = 0.9 x I_n mot

For our complete product offering, see the Control Products Catalog **(CA08102001E)**.

XT IEC Manual and Combination Motor Controllers

XTFC Combination Motor Controllers (CMC), UL508 Type F

Factory Assembled Motor Protective Device with Thermal and Magnetic Trip + Contactor + Required Line Side Adapter										
FLA Adjustment Range (Amps) ①	Short-Circuit Release — I_{rm} (Amps)	Maximum Motor Ratings ②								Assembled Combination Motor Controller ③
		Maximum Motor kW Rating AC-3 — P (kW)				Maximum hp Rating — P (hp)				
		Three-Phase				Three-Phase				Non-reversing
		220 – 240V	380 – 415V	500V	660 – 690V	200V	240V	480V	600V	Catalog Number
Frame B MMP + Frame B Contactor										
0.1 – 0.16	2.2	—	—	—	0.06	④	④	1/2	1/2	**XTFCP16BB_**
0.16 – 0.25	3.5	—	0.06	0.06	0.12	④	④	1/2	1/2	**XTFCP25BB_**
0.25 – 0.4	5.6	0.06	0.09	0.12	0.18	④	④	1/2	1/2	**XTFCP40BB_**
0.4 – 0.63	8.82	0.09	0.18	0.25	0.25	④	④	1/2	1/2	**XTFCP63BB_**
0.63 – 1	14	0.12	0.25	0.37	0.55	④	④	1/2	1/2	**XTFC001BB_**
1 – 1.6	22.4	0.25	0.55	0.75	1.1	④	④	3/4	1	**XTFC1P6BB_**
1.6 – 2.5	35	0.37	0.75	1.1	1.5	1/2	1/2	1	1-1/2	**XTFC2P5BB_**
2.5 – 4	56	0.75	1.5	2.2	3	1	1	2	3	**XTFC004BB_**
4 – 6.3	88.2	1.1	2.2	3	4	1-1/2	1-1/2	3	5	**XTFC6P3BB_**
6.3 – 10	140	2.2	4	4	7.5	3	3	7-1/2	10	**XTFC010BB_**
8 – 12	168	3	5.5	5.5	11	3	3	7-1/2	—	**XTFC012BB_**
10 – 16	224	4	7.5	9	12.5	3	5	10	—	**XTFC016BB_**
Frame B MMP + Frame C Contactor										
10 – 16	224	4	7.5	9	12.5	3	5	10	—	**XTFC016BC_**
16 – 20	280	5.5	9	12.5	15	5	5	—	—	**XTFC020BC_**
20 – 25	350	5.5	11	15	22	5	7-1/2	15	—	**XTFC025BC_**
25 – 32	448	7.5	15	22	30	7-1/2	10	20	—	**XTFC032BC_**
Frame D MMP + Frame C Contactor										
10 – 16	224	4	7.5	9	12.5	3	5	10	10	**XTFC016DC_**
16 – 25	350	5.5	12.5	12.5	22	7-1/2	7-1/2	20	25	**XTFC025DC_**
25 – 32	448	7.5	15	17.5	22	10	10	25	30	**XTFC032DC_**
Frame D MMP + Frame D Contactor										
32 – 40	560	11	20	22	30	10	10	30	40	**XTFC040DD_**
40 – 50	700	14	25	30	45	10	15	30	—	**XTFC050DD_**
50 – 58	812	17	30	37	55	15	15	40	—	**XTFC058DD_**
55 – 65	882	18.5	34	37	55	15	15	40	—	**XTFC063DD_**

① Overload relese — I_r

② Select combination motor controllers by full load amperes. Maximum motor ratings (kW, hp) are for reference only.

③ Underscore (_) indicates magnet coil suffix required. See table to the right.

④ In this range, calculate motor rating according to rated current. Specified values to NEC 430.6(A)(1).

Note: The assembled Combination Motor Controller (CMC) consists of an XTPR Manual Motor Protector (MMP) and an XTCE contactor and a required Line Side Adapter. For Frame B MMP + Frame B Contactor assemblies, the XTFC and XTFR can be mounted directly on DIN-Rail without an adapter. The contactors are supported mechanically with a mechanical connection element (included in XTPAXTPCB, XTPAXRPCRB). For 16A and above, the assembly is mounted via a DIN-Rail Adapter Plate (XTPAXTPCPC, XTPAXTPCPD) and the electrical connection is made with electrical contact modules (XTPAXECMC, XTPAXECMD), both included in XTPAXTPCC and XTPAXTPCD.
Service Factor Settings: Setting I_r of current scale in dependence of load factor:
SF = 1.15 — I_r = 1 x I_n mot
SF = 1 — I_r = 0.9 x I_n mot

Magnet Coil Suffixes

Coil Voltage	Suffix Code
110V 50 Hz, 120V 60 Hz	**A**
220V 50 Hz, 240V 60 Hz	**B**
24V 50/60 Hz	**T**
24V dc	**TD** ①
415V 50 Hz, 480V 60 Hz	**C**
550V 50 Hz, 600V 60 Hz	**D**
208V 60 Hz	**E**

① With dc Operation: Integrated diode-resistor combination, coil rating 2.6W.

Providing Essential Isolation

Powering Business Worldwide

- Arc quenching quick-make quick-break disconnects for galvanic isolation
- Fusible and non-fusible disconnects with rotary and pistol handle options
- Complete switch door mount options for UL 98 and UL 508 offerings

Rotary Disconnect Switches Product Overview

					
Description	**C362 (M Frame)**	**C362 (R Frame)**	**C362 (W Frame)**	**C362 (C Frame)**	**C362 (V & S Frame)**
Page	Page 55	Page 55	Page 55	Page 56	Page 56
Current Rating	16A – 30A	30A – 60A	60A – 125A	30A	60A – 1200A
Non-Fusible	X	X	X	X	X
Fusible	—	—	—	—	—
Open Device	X	X	X	X	X
Enclosed Device	—	—	—	—	—
Customized Enclosed Product Available ①	X	X	X	X	X
Standards					
UL 508	X	X ②	X ②	—	—
UL 98	—	—	—	—	X
UL 489	—	—	—	X	—
Clear On / Off Indication	X	X	X	X	X
Padlockable in the Off Position	X	X	X	X	X
Visible Blade Indication	—	—	—	X	X
Toggle Operation Available	—	30A & 40A	60A – 125A	—	—
Electrical Endurance (operation cycles)	6,000	6,000	6,000	6,000	③
Mechanical Endurance (operation cycles)	6,000	6,000	6,000	10,000	④
Fuse Type (if applicable)	RK5	RK5	RK5	CC/J	J (thru 600A); L (800A+)
Short Circuit Rating	5 kA	10 kA	10 kA	50 kA	200 kA (J); 100 kA (L)
Terminal Lugs (wire size / wire type)	#16 – #10/Cu	#14 – #8/Cu	#14 – #3/Cu	#14 – #10/Cu #14 – #10/Cu	⑤
Direct Handle Operation	X	X	X	—	—
Through-the-Door Operation	X	X	X	X	X
Full Range of Handles & Shafts	Pages 59 – 60	Pages 59 – 60	Pages 59 – 60	Page 60	Page 60
Accessories Available	Page 58	Page 58	Page 58	Page 59	Page 59

① Contact the Flex Center (1-888-329-9272).

② Suitable for use as a motor disconnect (30A – 100A only).

③ 6,000 (60A – 200A); 1,000 (400A – 600A); 500 (800A – 1200A).

④ 10,000 (60A – 100A); 8,000 (200A); 6,000 (400A – 600A); 3,500 (800A – 1200A).

⑤ #10 – #3/Cu (60A); #10 – 2/0/Cu (100A); #6 – 3/0/Cu (200A); #2 – 600MCM (400A – 1200A).

Circuit & Motor Protection

Rotary Disconnect Switches

PRODUCT OVERVIEW

Rotary Disconnect Switches Product Overview

				
Description	**C363 (C Frame)**	**C363 (V & F Frame)**	**DR**	**SDR**
Page	Page 56	Page 56	Page 57	Page 57
Current Rating	30A	30A – 800A	16A – 125A	30A & 60A
Non-Fusible	—	—	X	X
Fusible	X	X	—	—
Open Device	X	X	—	—
Enclosed Device	—	—	X	X
Customized Enclosed Product Available ①	X	X	X	—
Standards				
UL 508	—	—	X	X
UL 98	—	X	—	—
UL 489	X	—	—	—
Clear On / Off Indication	X	X	X	X
Padlockable in the Off Position	X	X	X	X
Visible Blade Indication	—	—	—	—
Toggle Operation Available	—	—	—	—
Electrical Endurance (operation cycles)	6,000	②	6,000	6,000
Mechanical Endurance (operation cycles)	10,000	③	6,000	6,000
Fuse Type (if applicable)	CC/J	CC (30A); J (30 – 600A); L (800A)	RK5	RK5
Short Circuit Rating	50 kA	65 kA (CC); 200 kA (J); 100 kA (L)	⑤	⑥
Terminal Lugs (wire size / wire type)	#10 – #14/Cu	④	⑦	⑧
Direct Handle Operation	—	—	—	X
Through-the-Door Operation	X	X	X	—
Full Range of Handles & Shafts	Pages 59 – 60	Page 60	—	—
Accessories Available	Page 58	Page 58	Page 58	Page 58 ⑨

① Contact the Flex Center (1-888-329-9272).

② 6,000 (60A – 200A); 1,000 (400A – 600A); 500 (800A – 1200A).

③ 10,000 (60A – 100A); 8,000 (200A); 6,000 (400A – 600A); 3,500 (800A – 1200A).

④ #10 – #3/Cu (60A); #10 – 2/0/Cu (100A); #6 – 3/0/Cu (200A); #2 – 600MCM (400A – 1200A).

⑤ 5kA (16 – 25A); 10kA (30A – 125A).

⑥ 5kA (30A); 10kA (60A).

⑦ #16 – #10/Cu (16A – 25A); #14 – #8/Cu (30A – 40A); #14 – #3/Cu (60A – 125A).

⑧ #16 – #10/Cu (30A); #14 – #8/Cu (60A).

⑨ 60A products do not accept auxiliary contacts due to enclosure size.

For our complete product offering, see the Distribution Products Catalog **(CA08101001E)**.

Open Rotary Disconnect Switches

- Compact design to minimize panel space requirements
- Suitable for equipment or machinery as motor disconnects or industrial control panel disconnects
- Seven frame sizes to cover 16 – 1200A, 600V applications
- Direct handle or front through-the-door operation
- Base mounting or DIN-Rail mounting
- Visible blade indication (non-fusible C- and V-Frames)

When ordering, specify:

- Catalog Number of switch (see Pages 55 – 56)
- Catalog Number of operating handle (see Pages 59 – 60)
- Catalog Number of required shaft (see Pages 59 – 60)
- Catalog Number of (optional) accessories (see Page 58)

Non-Fusible Switches — UL 508, UL 98 and UL 489 ①②③

Ampere Rating	Maximum 3-Phase Horsepower Rating		Catalog Number	Frame	UL Standard	Operation (Rotary / Toggle)	No. of Poles	Switch Mounting
	240V	480V						
16	2	7-1/2	**C362NM16**	M	UL 508	Rotary	3	Base (low end)
20	3	7-1/2	**C362NM20**	M	UL 508	Rotary	3	Base (low end)
25	5	10	**C362NM25**	M	UL 508	Rotary	3	Base (low end)
30	7-1/2	15	**C362NM30**	M	UL 508	Rotary	3	Base (low end)
30	7-1/2	15	**C362NR30**	R	UL 508	Rotary	3	Base / DIN-Rail (high end) ④
40	10	20	**C362NR40**	R	UL 508	Rotary	3	Base / DIN-Rail (high end) ④
60	15	30	**C362NR60**	R	UL 508	Rotary	3	Base / DIN-Rail (high end) ④
60	15	30	**C362NW60**	W	UL 508	Rotary	3	Base / DIN-Rail (high end) ④
80	20	40	**C362NW80**	W	UL 508	Rotary	3	Base / DIN-Rail (high end) ④
100	25	50	**C362NW100**	W	UL 508	Rotary	3	Base / DIN-Rail (high end) ④
125	25	50	**C362NW125**	W	UL 508	Rotary	3	Base / DIN-Rail (high end) ④
30	7-1/2	15	**C362TR30**	R	UL 508	Toggle	3	Base / DIN-Rail
40	10	20	**C362TR40**	R	UL 508	Toggle	3	Base / DIN-Rail
60	15	30	**C362TW60**	W	UL 508	Toggle	3	Base / DIN-Rail
80	20	40	**C362TW80**	W	UL 508	Toggle	3	Base / DIN-Rail
100	25	50	**C362TW100**	W	UL 508	Toggle	3	Base / DIN-Rail
125	25	50	**C362TW125**	W	UL 508	Toggle	3	Base / DIN-Rail
16	2	7-1/2	**C362NM16D**	M	UL 508	Rotary	3	Back or Door Mounted w/o Handle ⑤
20	3	7-1/2	**C362NM20D**	M	UL 508	Rotary	3	Back or Door Mounted w/o Handle ⑤
25	5	10	**C362NM25D**	M	UL 508	Rotary	3	Back or Door Mounted w/o Handle ⑤
30	7-1/2	15	**C362NM30D**	M	UL 508	Rotary	3	Back or Door Mounted w/o Handle ⑤
30	7-1/2	15	**C462NR30**	R	UL 508	Rotary & Toggle	4	Base / DIN-Rail
40	10	20	**C462NR40**	R	UL 508	Rotary & Toggle	4	Base / DIN-Rail
30	7-1/2	15	**C462TR30**	R	UL 508	Rotary & Toggle	4	Base / DIN-Rail
40	10	20	**C462TR40**	R	UL 508	Rotary & Toggle	4	Base / DIN-Rail

① Back / door mounting M Frame: Will need to order selector handle separately (see Accessories UL 508 Accessories — M-, R-, W-Frames); see Page 58.

① Back / door mounting R & W Frame: Will need to order door mounting kit and selector handle separately (see Accessories UL 508 Accessories — M-, R-, W-Frames); see Pages 58 – 60.

② Back / door mounting UL 98 switches cannot be back-of-door mounted.

① Can be door mounted using catalog number **CTRFC** (Page 58).

② Includes door mounting kit and 55 mm selector shaft.

Circuit & Motor Protection

Rotary Disconnect Switches

PRODUCT SELECTION

Open Rotary Disconnect Switches

Non-Fusible and Fusible Switches — UL 98 and UL 489

Ampere Rating	Maximum 3-Phase Horsepower Rating		Catalog Number	Frame	UL Standard	Operation (Rotary / Toggle)	No. of Poles	Switch Mounting
	240 V	480 V						
Non-Fusible Switches — UL 98 and UL 489 ①								
30	7-1/2	15	**C362UC30**	C	UL 98 and UL 489	Rotary	3	Base / DIN-Rail
400	125	250	**C362US400**	S	UL 98 and UL 489	Rotary	3	Base Mounted
600	250	500	**C362US600**	S	UL 98 and UL 489	Rotary	3	Base Mounted
800	250	500	**C362US800**	S	UL 98 and UL 489	Rotary	3	Base Mounted
1000	250	500	**C362US1000**	S	UL 98 and UL 489	Rotary	3	Base Mounted
1200	250	500	**C362US1200**	S	UL 98 and UL 489	Rotary	3	Base Mounted
60	15	30	**C362UV60**	V	UL 98 and UL 489	Rotary	3	Base Mounted
100	30	60	**C362UV100**	V	UL 98 and UL 489	Rotary	3	Base Mounted
200	60	125	**C362UV200**	V	UL 98 and UL 489	Rotary	3	Base Mounted
Fusible Switches — UL 98 and UL 489 ②								
30	7-1/2	15	**C363UC30CT**	C	UL 98 and UL 489	Rotary	3	Base / DIN-Rail
30	7-1/2	15	**C363UC30JT**	C	UL 98 and UL 489	Rotary	3	Base Mounted
30	7-1/2	15	**C363UV30CT**	V	UL 98 and UL 489	Rotary	3	Base Mounted
30	7-1/2	15	**C363UV30JT**	V	UL 98 and UL 489	Rotary	3	Base Mounted
60	15	30	**C363UV60JT**	V	UL 98 and UL 489	Rotary	3	Base Mounted
100	30	60	**C363UV100JT**	V	UL 98 and UL 489	Rotary	3	Base Mounted
200	60	125	**C363UV200JT**	V	UL 98 and UL 489	Rotary	3	Base Mounted
400	125	250	**C363UV400JT**	V	UL 98 and UL 489	Rotary	3	Base Mounted
30	7-1/2	15	**C363UV30C**	V	UL 98	Rotary	3	Base Mounted
30	7-1/2	15	**C363UV30J**	V	UL 98	Rotary	3	Base Mounted
60	15	30	**C363UV60J**	V	UL 98	Rotary	3	Base Mounted
100	30	60	**C363UV100J**	V	UL 98	Rotary	3	Base Mounted
200	60	125	**C363UV200J**	V	UL 98	Rotary	3	Base Mounted
400	125	250	**C363UV400J**	V	UL 98	Rotary	3	Base Mounted
600	250	500	**C363UF600J**	F	UL 98	Rotary	3	Base Mounted
800	250	500	**C363UF800L**	F	UL 98	Rotary	3	Base Mounted

① Back / door mounting UL 98 switches cannot be back-of-door mounted.

② "T" suffix denotes test position is provided. Test handle is required only if test function is required.

For our complete product offering, see the Distribution Products Catalog **(CA08101001E)**.

Enclosed Rotary Disconnect Switches

- 16 – 125 amperes
- 600V, 3 – 4-pole, non-fusible devices
- Accepts auxiliary contacts
- Ground lug connection provided

UL 508 Type Rated Enclosed Non-Fusible Rotary Disconnects ①

Ampere Rating	Maximum 3-Phase Horsepower Rating			Switch Frame Size	UL Standard	Number of Poles	Type 1 Enclosure Indoor	Type 12 ② Enclosure Dust-Tight / Rainproof	Type 4X Enclosure Corrosion-Resistant Stainless Steel	Type 4X Enclosure Corrosion-Resistant Non-Metallic
	240	480	600				Catalog Number	Catalog Number	Catalog Number	Catalog Number
16	2	7.5	7.5	M	UL 508	3	**DR3016UG**	**DR3016UD**	**DR3016UW**	**DR3016UX**
25	5	10	15	M	UL 508	3	**DR3025UG**	**DR3025UD**	**DR3025UW**	**DR3025UX**
30	7.5	15	25	R	UL 508	3	**DR3030UG**	**DR3030UD**	**DR3030UW**	**DR3030UX**
40	10	20	30	R	UL 508	3	**DR3040UG**	**DR3040UD**	**DR3040UW**	**DR3040UX**
60	15	30	40	W	UL 508	3	**DR3060UG**	**DR3060UD**	**DR3060UW**	**DR3060UX**
80	20	40	50	W	UL 508	3	**DR3080UG**	**DR3080UD**	**DR3080UW**	**DR3080UX**
100	25	50	60	W	UL 508	3	**DR3100UG**	**DR3100UD**	**DR3100UW**	**DR3100UX**
125	25	50	60	W	UL 508	3	**DR3125UG**	**DR3125UD**	**DR3125UW**	**DR3125UX**
16	2	7.5	7.5	M	UL 508	4	**DR4016UG**	**DR4016UD**	**DR4016UW**	**DR4016UX**
25	5	10	15	M	UL 508	4	**DR4025UG**	**DR4025UD**	**DR4025UW**	**DR4025UX**
30	7.5	15	25	R	UL 508	4	**DR4030UG**	**DR4030UD**	**DR4030UW**	**DR4030UX**
40	10	20	30	R	UL 508	4	**DR4040UG**	**DR4040UD**	**DR4040UW**	**DR4040UX**

① Auxiliary contacts can be found on Page 58.

② NEMA Type 12 enclosures (16 – 125 amperes) can be field modified to meet NEMA Type 3R rainproof requirements when a factory-provided drain hole is opened.

IP65 Rated Enclosed Non-Fusible Rotary Disconnects ①

Ampere Rating	Maximum 3-Phase Horsepower Rating			Switch Frame Size	UL Standard	Number of Poles	Color	IP65 Rated Enclosure Corrosion-Resistant Non-Metallic
	240	480	600					Catalog Number
30	7.5	15	25	M	UL 508	3	White w/ Black Selector Handle	**SDR3030UIP65BW**
30	7.5	15	25	M	UL 508	3	Yellow w/ Red Selector Handle	**SDR3030UIP65RY**
60	15	30	40	R	UL 508	3	White w/ Black Selector Handle	**SDR3060UIP65BW**
60	15	30	40	R	UL 508	3	Yellow w/ Red Selector Handle	**SDR3060UIP65RY**

① Auxiliary contacts can be found on Page 58.

Note: Contact the Flex Center (1-888-329-9272) for factory-installed accessories or other special modifications.

Circuit & Motor Protection

Rotary Disconnect Switches

PRODUCT SELECTION

Rotary Disconnect Switches — Accessories

UL 508, M-, R-, W-Frames

Description		Catalog Number
Base Mounted 4th Pole Module for M-Frame		**CM16BP** **CM20BP** **CM25BP**
Toggle Cover Plates	For use with C362TR30 & TR40 For use with C362TW60 — TW125 For use with C462TR30 & TR40	**CRP3** **CWP3** **CRP4**
Auxiliary Contacts Kit (holder and contact)	1NO/1NC 3-Pole M-Frame (base mounted) 1NO/1NC 3-Pole M-Frame (door mounted) 1NO 3-Pole R-Frame 1NO 3-Pole W-Frame 1NO 4-Pole R-Frame	**CMAC** **CMACD** **CRAC3** ① **CWAC3** ① **CRAC4** ①
Auxiliary Contacts (additional contacts)	1NO 3-, 4-Pole R-, W-Frame 1NC 3-, 4-Pole R-, W-Frame	**CRAB** ① **CRAA** ①
Protective Earth Module M-Frame Back / Door Mounted Extension Support		**CNMFP** **C362SS1**
Door Mounting Kit R- and W-Frame Rotary Switches Includes Selector Shaft and Hardware / Adapter to Mount to Door		**CTRFC**

① The mechanism is reversed on these contacts.

UL 98, C-, S-, V-, F-Frames

Description		Catalog Number
Auxiliary Contact Holders	V-Frame (for 1-8) C-Frame (for 5-8) ① S-Frame (for 1-4)	**CUVU** **CUCU** **CUSU**
Auxiliary Contacts	1NO, Type U 1NC, Type U, C-,V-, S- & F-Frames	**CUSAA** **CUSAB**
	1NO/NC, Type S-, V-Frames 2NO/NC, Type S-, V-Frames	**CUVAC** **CUVAD**
	1NO/NC, Type ST for Fusible, V-Frame w/ Test 2NO/NC, Type ST for Fusible, V-Frame w/ Test 1NO/NC, Type MS, F-Frame 2NO/NC, Type MS, F-Frame	**CUVXC** **CUVXD** **CUFAC** **CUVAD**
Line-Side Terminal Shrouds for Non-Fusible V- and S-Frames ②	3-Pole, V-Frame (200A)	**CUV200T**
	3-Pole, for Non-Fusible S-Frame (400 – 600A)	**CUS600T**
	3-Pole, for Non-Fusible S-Frame (800 – 1200A)	**CUS1200T**
Terminal Shrouds for Fusible V- and F-Frames ③	3-Pole, for Fusible V-Frame (100A) 3-Pole, V-Frame (200A) 3-Pole, for Fusible V-Frame (400A) 3-Pole, for Fusible F-Frame (600 & 800A)	**CUV100T** **CUV200T** **CUV400T** **CUF800T**
Terminal Lugs for Non-Fusible and Fusible V-, S- and F-Frames, for Line or Load Side ④	1 Wire / Lug, Wire Size 12-2/0, for Fusible V-Frame (100A) ⑤ 1 Wire / Lug, Wire Size #6-3/0, V-Frame (200A) ⑤ 2 Wires / Lug, Wire Size 2-600, V-, S- & F-Frames (400 & 600A) ⑤	**CUV100LN** **CUV200LN** **CUS600LN**
	2 Wires / Lug, Wire Size 2-600, S- & F-Frames (800 – 1200A) ⑤	**CUS1200LN**
NFPA 79 Kit	Suitable for Use with V&S Switches	**C362VSNFPA**

① C-Frames hold 1 – 4 auxiliary contacts without holder.

② Load-side terminal shrouds provided as standard on all ratings. Line-side terminal shrouds standard on C- and V-Frames up through 100A.

③ Load-side terminal shrouds provided as standard on all ratings. Line-side terminal shrouds standard on fusible switches up through 60A.

④ Standard on fusible up through 60A and non-fusible up through 100A.

⑤ Kit of 6.

For our complete product offering, see the Distribution Products Catalog (CA08101001E).

Rotary Disconnect Switches — Accessories

Handles and Shafts


Black Selector Handle


Red/Yellow Selector Handle


Selector Shafts

NEMA Rating	Defeatable	Padlockable	Color	Operation	IEC Type	Dimensions Inches	Dimensions mm	Catalog Number
Selector Handle for Type CSSA__ Shaft and M-, R- and W-Frames or CSCSA__ Shaft and C-Frames								
1	No	No	Black	ON / OFF	IP54	①	—	**CSBR5**
1, 3R, 12	No	Yes	Red / Yellow	ON / OFF, I/O	IP65	—	—	**CSYR6**
1, 3R, 12	No	Yes	Black	ON / OFF, I/O	IP65	—	—	**CSBR6**
Rotary Switch Selector Shaft 5 x 5 mm (for selector handle and M-, R- and W-Frames)								
						2.2	55	**CSSA055**
						4.3	110	**CSSA110**
						5.9	150	**CSSA150**
						7.1	180	**CSSA180**
						7.9	200	**CSSA200**
						11.8	305	**CSSA300**
Rotary Switch Selector Shaft 5 x 5 mm (for selector handle and C-Frames)								
						4.7	120	**CSCSA120**
						7.9	200	**CSCSA200**
						11.8	300	**CSCSA320**
						15.7	400	**CSCSA400**


Black Pistol Handle (Type D)


Red/Yellow Pistol Handle (Type D)


Type D Pistol Shafts

NEMA Rating	Defeatable	Padlockable	Color	Operation	IEC Type	Dimensions Inches	Dimensions mm	Catalog Number
Pistol Handle Type D (for use with CPDSA__ shafts and M-, R- and W-Frames)								
1, 3R, 12	No	Yes	Black	ON / OFF, I/O	IP54	①	—	**CPBR5N**
1, 3R, 12	No	Yes	Red / Yellow	ON / OFF, I/O	IP54	—	—	**CPYR5N**
1, 3R, 12	Yes	Yes	Black	ON / OFF, I/O	IP54	—	—	**CPBR5D**
1, 3R, 12	Yes	Yes	Red / Yellow	ON / OFF, I/O	IP54	—	—	**CPYR5D**
Type D Shafts 5 x 5 mm (for use with Type D pistol handles and M-, R- and W-Frames)								
						4.7	120	**CPDSA120**
						7.9	200	**CPDSA200**
						12.6	320	**CPDSA320**
						15.7	400	**CPDSA400**
Direct Handle M-Frame (for direct mounting — no separate shaft required)								
1, 3R, 12	No	Yes	Black	ON / OFF	IP54	①	—	**CNMBH**
Direct Handle R-, W-Frames (for direct mounting — no separate shaft required)								
1, 3R, 12	No	Yes	Black	ON / OFF	IP54	a	—	**CDRR3**
1, 3R, 12	No	Yes	Black	ON / OFF	IP54	—	—	**CDRW3**
1, 3R, 12	No	Yes	Black	ON / OFF	IP54	—	—	**CDRR4**

① Please refer to the Distribution Products Catalog (CA08101001E).

Circuit & Motor Protection

Rotary Disconnect Switches

PRODUCT SELECTION

Rotary Disconnect Switches — Accessories

Handles and Shafts (Continued)


Black Pistol Handle (Type G)


Red/Yellow Pistol Handle (Type G)


Type G Pistol Shafts

NEMA Rating	Defeatable	Padlockable	Color	Operation	IEC Type	Dimensions Inches	Dimensions mm	Catalog Number
Pistol Handle Type G (for use with M-, R-, W- and C-Frames with 5 x 5 shaft and V-Frame below 100A with 10 x 10 shaft)								
1, 3R, 12	Yes	Yes	Black	ON / OFF, I/O	IP54	①	—	**CPBR5**
1, 3R, 12	Yes	Yes	Red / Yellow	ON / OFF, I/O	IP54	—	—	**CPYR5**
1, 3R, 12, 4, 4X	Yes	Yes	Black	ON / OFF, I/O	IP65	—	—	**CPBW6**
1, 3R, 12, 4, 4X	Yes	Yes	Red / Yellow	ON / OFF, I/O	IP65	—	—	**CPYW6**
1, 3R, 12, 4, 4X	Yes	Yes	Black	TEST / ON / OFF	IP65	①	—	**CPBW6T**
1, 3R, 12, 4, 4X	Yes	Yes	Red / Yellow	TEST / ON / OFF	IP65	—	—	**CPYW6T**
Long Pistol Handle Type GL (for use with V-Frame 100A and above with 10 x 10 shaft)								
1, 3R, 12	Yes	Yes	Black	ON / OFF, I/O	IP54	①	—	**CPBVR5**
1, 3R, 12	Yes	Yes	Red / Yellow	ON / OFF, I/O	IP54	—	—	**CPYVR5**
1, 3R, 12, 4, 4X	Yes	Yes	Black	ON / OFF, I/O	IP65	—	—	**CPBVW6**
1, 3R, 12, 4, 4X	Yes	Yes	Red / Yellow	ON / OFF, I/O	IP65	—	—	**CPYVW6**
1, 3R, 12	Yes	Yes	Black	TEST / ON / OFF	IP65	—	—	**CPBVW6T**
1, 3R, 12	Yes	Yes	Red / Yellow	TEST / ON / OFF	IP65	—	—	**CPYVW6T**
Type G Shafts 5 x 5 mm (for use with Type G pistol handle and M-, R- and W-Frames)								
						4.7	120	**CPGSA120**
						7.9	200	**CPGSA200**
						12.6	320	**CPGSA320**
						15.7	400	**CPGSA400**
Type G Shafts 5 x 5 mm (for use with Type G pistol handle and C-Frames)								
						4.7	120	**CPGCSA120**
						7.9	200	**CPGCSA200**
						12.6	320	**CPGCSA320**
						15.7	400	**CPGCSA400**
Type G Shafts 10 x 10 mm (for use with Type G and GL pistol handles and V-Frames)								
						7.9	200	**CPGSB200**
						12.6	320	**CPGSB320**
						15.7	400	**CPGSB400**


Pistol Handle (Type H)

NEMA Rating	Defeatable	Padlockable	Color	Operation	IEC Type	Dimensions Inches	Dimensions mm	Catalog Number
Pistol Handle Type H (for use with S-Frames with 15 x 15 shaft)								
1, 3R, 4, 4X, 12	Yes	Yes	Black	ON / OFF, I/O	IP65	①	—	**CPBSW6D**
1, 3R, 4, 4X, 12	Yes	Yes	Red / Yellow	ON / OFF, I/O	IP65	—	—	**CPYSW6D**
1, 3R, 4, 4X, 12	No	Yes	Black	ON / OFF, I/O	IP65	—	—	**CPBSW6N**
1, 3R, 4, 4X, 12	No	Yes	Red / Yellow	ON / OFF, I/O	IP65	—		**CPYSW6N**
Pistol Handle Type H (for use with F-Frames with 15 x 15 shaft)								
1, 3R, 4, 4X, 12	Yes	Yes	Black	ON / OFF, I/O	IP65	①	—	**CPBFW6D**
1, 3R, 4, 4X, 12	Yes	Yes	Red / Yellow	ON / OFF, I/O	IP65	—	—	**CPYFW6D**
1, 3R, 4, 4X, 12	No	Yes	Black	ON / OFF, I/O	IP65	—	—	**CPBFW6N**
1, 3R, 4, 4X, 12	No	Yes	Red / Yellow	ON / OFF, I/O	IP65	—	—	**CPYFW6N**
Type H Shafts 15 x 15 mm (for use with Type H pistol handles and S- and F-Frames)								
						7.9	200	**CPHSC200**
						15.7	400	**CPHSC400**

① Please refer to the Distribution Products Catalog (CA08101001E).

For our complete product offering, see the Distribution Products Catalog (CA08101001E).

Fewer Frames with Wider Ranges

Powering Business Worldwide

- Direct connect cost-effective thermal overload relays to protect your motors
- More accurate electronic overload relays react to phase loss fast
- Fewer frames covering a wider range of classes and protection with fewer parts
- Protect it right — fight premature motor failure with Motor Insight™

Circuit & Motor Protection

Overload Relays

PRODUCT OVERVIEW

Overload Relays Product Overview

				
Description	***XT* IEC Mini Overload Relays**	**XTOB, XTOT Thermal Overload Relays**	**C396 Electronic Overload Relays**	**Motor Insight Overload and Monitoring Relays**
Page	Page 63	Page 64	Page 67	Page 69
Relay Type	Thermal Bi-Metallic	Thermal Bi-Metallic	Electronic	Electronic
Direct Connect to XT Contactor	Yes, XTMC	Yes, XTCE	Yes, XTCE	—
Separate Mount	—	Yes, Adapter	Yes	Yes
FLA Range	0.1 – 12A	0.1 – 630A	0.1 – 1500A	1 – 540A (with CTs)
FLA Max.:Min. Ratio	Approx. 1.5:1	Approx. 1.5:1	5:1	—
Motor Overload Protection	Yes	Yes	Yes	Yes
Underload Protection	—	—	—	Yes
Supply Protection	—	—	—	Yes
Enhanced Phase Loss Protection	—	—	Yes	Yes
Enhanced Phase Imbalance Protection	—	—	Yes	Yes
Trip Class	10A	10A	Selectable 5 / 10 / 20 / 30	5 – 30
Reset Type	Selectable Manual / Automatic	Selectable Manual / Automatic	Selectable Manual / Automatic	Selectable Manual / Automatic / Programmable / Remote
Communications with I/O	—	—	—	Yes (Modbus, DeviceNet, PROFIBUS)
Remote Display	—	—	—	Yes (NEMA 3R available)
Ground Fault	—	—	—	Yes
Alarm No Trip	—	—	—	Yes (voltage and ground faults)
Jam	—	—	Yes	Yes
Programmable Reset Timers	—	—	—	Yes
Progammable Reset Attempts	—	—	—	Yes
Current Monitoring	—	—	—	Yes
Voltage Monitoring	—	—	—	Yes
Power Monitoring	—	—	—	Yes
Thermal Capacity Monitoring	—	—	—	Yes
Motor Run Hours Monitoring	—	—	—	Yes

For our complete product offering, see the Control Products Catalog **(CA08102001E)**.

XT IEC Miniature Overload Relays — Catalog Numbering System

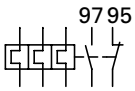
XT OM P16 A C1

Designation	Type	Overload Release		Frame Size	Trip Class
XT = ***XT*** IEC Power Control	**OM** = Mini Overload Relay	**P16** = 0.1 – 0.16A **P24** = 0.16 – 0.24A **P40** = 0.24 – 0.4A **P60** = 0.4 – 0.6A **001** = 0.6 – 1A **1P6** = 1 – 1.6A	**2P4** = 1.6 – 2.4A **004** = 2.4 – 4A **006** = 4 – 6A **009** = 6 – 9A **012** = 9 – 12A	**A** = 45 mm Mini	**C1** = Class 10A

XT IEC Miniature Overload Relays

- Trip Class 10A
- Ambient temperature compensated -5° to 50°C (23° to 122°F)
- Selectable manual / automatic reset
- 1NO-1NC auxiliary contact as standard
- Direct mount with XTMC contactors

Mini Overload Relays ①②

Overload Release It	Trip Class	Contact Sequence	Contact Configuration	Short Circuit Protection (A)				Catalog Number
				Type 1 Coordination, gG / gL	Type 2 Coordination, gG / gL	Circuit Breaker	CEC/ NEC Fuse	
0.1 – 0.16A	10A		1NO-1NC	20	0.5	15	—	**XTOMP16AC1**
0.16 – 0.24A				20	1	15	—	**XTOMP24AC1**
0.24 – 0.4A				20	2	15	—	**XTOMP40AC1**
0.4 – 0.6A				20	2	15	—	**XTOMP60AC1**
0.6 – 1A	10A		1NO-1NC	20	4	15	3	**XTOM001AC1**
1 – 1.6A				20	6	15	6	**XTOM1P6AC1**
1.6 – 2.4A				20	6	15	6	**XTOM2P4AC1**
2.4 – 4A	10A		1NO-1NC	20	10	15	15	**XTOM004AC1**
4 – 6A				20	10	15	20	**XTOM006AC1**
6 – 9A				20	10	15	35	**XTOM009AC1**
9 – 12A				—	—	—	45	**XTOM012AC1**

① Short-circuit protection: Observe the maximum permissible fuse of the contactor with direct device mounting. See MN03402002E for more information.

② When fitted directly to the contactor, a clearance of at least 5 mm is required between the overload relays.

Circuit & Motor Protection

Overload Relays

CATALOG SELECTION

XTOB, XTOT Thermal Overload Relays — Catalog Numbering System

XT OB P16 B C1 S

Designation

XT = *XT* Line of IEC Control

Type

OB = Bimetallic Overload Relay
OT = Current Transformer Overload Relay

Overload Release

Frame B

P16 = 0.1 – 0.16A	**001** = 0.6 – 1A	**006** = 4 – 6A
P24 = 0.16 – 0.24A	**1P6** = 1.0 – 1.6A	**010** = 6 – 10A
P40 = 0.24 – 0.4A	**2P4** = 1.6 – 2.4A	**012** = 9 – 12A
P60 = 0.4 – 0.6A	**004** = 2.4 – 4A	**016** = 12 – 16A

Frame C

P16 = 0.1 – 0.16A	**1P6** = 1.0 – 1.6A	**010** = 6 – 10A
P24 = 0.16 – 0.24A	**2P4** = 1.6 – 2.4A	**016** = 10 – 16A
P40 = 0.24 – 0.4A	**004** = 2.4 – 4A	**024** = 16 – 24A
P60 = 0.4 – 0.6A	**006** = 4 – 6A	**032** = 24 – 32A
001 = 0.6 – 1A		

Frame D

010 = 6 – 10A	**040** = 24 – 40A	**065** = 50 – 65A
016 = 10 – 16A	**057** = 40 – 57A	**075** = 65 – 75A
024 = 16 – 24A		

Frame F

035 = 25 – 35A	**070** = 50 – 70A	**100** = 70 – 100A
050 = 35 – 50A		

Frame G

035 = 25 – 35A	**100** = 70 – 100A	**150** = 120 – 150A
050 = 35 – 50A	**125** = 95 – 125A	**175** = 145 – 175A
070 = 50 – 70A		

Frame L

070 = 50 – 70A	**125** = 95 – 125A	**220** = 160 – 220A
100 = 70 – 100A	**160** = 120 – 160A	**250** = 200 – 250A

CT Type

063 = 42 – 63A	**160** = 110 – 160A	**400** = 270 – 400A
090 = 60 – 90A	**240** = 160 – 240A	**540** = 360 – 540A
125 = 85 – 125A	**290** = 190 – 290A	

Trip Class

C1 = Class 10A
C3 = Class 30

Frame Size Designation

B	= 45 mm
C	= 45 mm
D	= 55 mm
G	= 90 mm
L	= 140 mm
Blank	= XTOT Only

Mounting

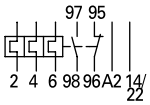
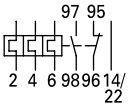
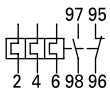
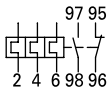
Blank = Direct to Contactor
S = Separate Mount

For our complete product offering, see the Control Products Catalog (CA08102001E).

XTOB, XTOT Thermal Overload Relays

- Direct mount to *XT* contactors or separate mount
- Class 10A
- Up to 630A

Overload Relay

Overload Releases, I_r	Contact Sequence	Contact Configuration	For Use with Contactor Ampere Range	Short-Circuit Protection (A)		Catalog Number
				Maximum Circuit Breaker	CEC / NEC Fuse	
Frame B — Direct Mount to XTCE...B Contactor						
0.1 – 0.16		1NO-1NC	7 – 15A	25	3	**XTOBP16BC1**
0.16 – 0.24		1NO-1NC	7 – 15A	25	3	**XTOBP24BC1**
0.24 – 0.4		1NO-1NC	7 – 15A	25	3	**XTOBP40BC1**
0.4 – 0.6		1NO-1NC	7 – 15A	25	3	**XTOBP60BC1**
0.6 – 1		1NO-1NC	7 – 15A	25	3	**XTOB001BC1**
1 – 1.6		1NO-1NC	7 – 15A	25	6	**XTOB1P6BC1**
1.6 – 2.4		1NO-1NC	7 – 15A	25	6	**XTOB2P4BC1**
2.4 – 4		1NO-1NC	7 – 15A	25	15	**XTOB004BC1**
4 – 6		1NO-1NC	7 – 15A	25	20	**XTOB006BC1**
6 – 10		1NO-1NC	7 – 15A	25	35	**XTOB010BC1**
9 – 12		1NO-1NC	9 – 15A	25	45	**XTOB012BC1**
12 – 16		1NO-1NC	12 – 15A	30	45	**XTOB016BC1**
Frame C — Direct Mount to XTCE...C Contactor						
0.6 – 1		1NO-1NC	18 – 32A	25	3	**XTOB001CC1**
1 – 1.6		1NO-1NC	18 – 32A	25	6	**XTOB1P6CC1**
1.6 – 2.4		1NO-1NC	18 – 32A	25	6	**XTOB2P4CC1**
2.4 – 4		1NO-1NC	18 – 32A	25	15	**XTOB004CC1**
4 – 6		1NO-1NC	18 – 32A	25	20	**XTOB006CC1**
6 – 10		1NO-1NC	18 – 32A	25	25	**XTOB010CC1**
10 – 16		1NO-1NC	18 – 32A	30	25	**XTOB016CC1**
16 – 24		1NO-1NC	18 – 32A	30	25	**XTOB024CC1**
24 – 32		1NO-1NC	25 – 32A	30	25	**XTOB032CC1**
Frame D — Direct Mount to XTCE...D Contactor						
6 – 10		1NO-1NC	40 – 72A	25	25	**XTOB010DC1**
10 – 16		1NO-1NC	40 – 72A	25	25	**XTOB016DC1**
16 – 24		1NO-1NC	40 – 72A	30	25	**XTOB024DC1**
24 – 40		1NO-1NC	40 – 72A	125	125	**XTOB040DC1**
40 – 57		1NO-1NC	50 – 72A	150	150	**XTOB057DC1**
50 – 65		1NO-1NC	65 – 72A	150	200	**XTOB065DC1**
65 – 75		1NO-1NC	72A	150	200	**XTOB075DC1**
Frame F – G — Direct Mount to XTCE...F or XTCE...G Contactor						
35 – 50		1NO-1NC	80 – 170A	150	200	**XTOB050GC1**
50 – 70		1NO-1NC	80 – 170A	150	200	**XTOB070GC1**
70 – 100		1NO-1NC	80 – 170A	400	400	**XTOB100GC1**
95 – 125		1NO-1NC	80 – 170A	500	400	**XTOB125GC1**
120 – 150		1NO-1NC	80 – 170A	600	600	**XTOB150GC1**
145 – 175		1NO-1NC	150 – 170A	600	600	**XTOB175GC1**

Note: Short circuit protection: Observe the maximum permissible fuse of the contactor with direct device mounting. See MN03402001E for more information on overload relays for Frame B – G.
Trip Class: 10A
Suitable for protection of EEx e-motors. EC prototype test certificate available upon request.
Observe manuals MN03402001E and MN03407001E, See Documentation — Manuals for Overload Monitoring of EEx e-motors.

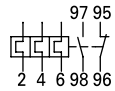
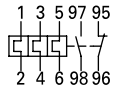
Circuit & Motor Protection

Overload Relays

PRODUCT SELECTION

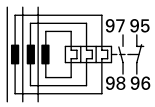
XTOB, XTOT Thermal Overload Relays

Overload Relay (Continued)

Overload Releases, Ir	Contact Sequence	Contact Configuration	For Use with Contactor Ampere Range	Short-Circuit Protection (A)		Catalog Number
				Maximum Circuit Breaker	CEC / NEC Fuse	
Frame F – G — Separate Mount						
35 – 50		1NO-1NC	80 – 170A	150	200	**XTOB050GC1S**
50 – 70		1NO-1NC	80 – 170A	150	200	**XTOB070GC1S**
70 – 100		1NO-1NC	80 – 170A	400	400	**XTOB100GC1S**
95 – 125		1NO-1NC	80 – 170A	500	400	**XTOB125GC1S**
120 – 150		1NO-1NC	80 – 170A	600	600	**XTOB150GC1S**
145 – 175		1NO-1NC	150 – 170A	600	600	**XTOB175GC1S**
Frame L — Direct Mount to XTC(EORS)...L or Separate Mount						
50 – 70		1NO-1NC	185 - 250A	150	200	**XTOB070LC1**
70 – 100		1NO-1NC	185 - 250A	400	400	**XTOB100LC1**
95 – 125		1NO-1NC	185 - 250A	500	400	**XTOB125LC1**
120 – 160		1NO-1NC	185 - 250A	600	600	**XTOB160LC1**
160 – 220		1NO-1NC	185 - 250A	800	800	**XTOB220LC1**
200 – 250		1NO-1NC	225 - 250A	600	700	**XTOB250LC1**

Note: Short circuit protection: Observe the maximum permissible fuse of the contactor with direct device mounting. See MN03402001E for more information on overload relays for Frame B – G.
Trip Class: 10A
Suitable for protection of EEx e-motors. EC prototype test certificate available upon request.
Observe manuals MN03402001E and MN03407001E, See Documentation — Manuals for Overload Monitoring of EEx e-motors.

Current Transformer Operated Overload Relay

Overload Releases, I_r	Contact Sequence	Contact Configuration	For Use with Contactor Ampere Range	Short-Circuit Protection (A)		Catalog Number
				Circuit Breaker	CEC / NEC Fuse	
Frame M – N — Separate Mount						
160 – 240		1NO-1NC	300 – 500A	600	700	**XTOT240C3S**
190 – 290		1NO-1NC	300 – 500A	600	700	**XTOT290C3S**
270 – 400		1NO-1NC	300 – 500A	1000	1000	**XTOT400C3S**
360 – 540		1NO-1NC	500A	600	1000	**XTOT540C3S**
420 – 630		1NO-1NC	630A	600	1000	**XTOT630C3S**

DIN-Rail or Panel-Mount Adapter, Frame C – D — Accessories ①

	For Use with...	Pkg. Qty.	Catalog Number
	XTOB...CC1	5	**XTOBXDINC**
	XTOB...DC1	2	**XTOBXDIND**

① Can be snap fitted on a top hat rail (DIN-Rail) or can be screw fitted.

Terminal Lug Kit – Set of (3) Lugs — Accessories

Description	For Use with...	Pkg. Qty.	Catalog Number
Set of 3 Lugs #6 AWG-350MCM	XTOB...LC1	1	**XTOBXTLL**

C396 Electronic Overload Relays — Catalog Numbering System

C396 A 2 A P05 SEL AX

Device Type
C396 = C396 Electronic Overload Relay

Frame Size
A = 45 mm
B = 65 mm
C = 110 mm

Feature Set
2 = Standard

Reset Type
A = Auto

Max. Amperes Current Rating

Frame A (45 mm)
P05 = 0.1 – 0.5
002 = 0.4 – 2.0
005 = 1 – 5
008 = 1.6 – 8
032 = 6.4 – 32
045 = 9 – 45

Frame B (65 mm)
075 = 15 – 75
110 = 22 – 110

Frame C (110 mm)
150 = 30 – 150

Class
SEL = Selectable

Stand-Alone Overload Relay Suffix
AX = All Frame Sizes

***XT* IEC Adapter Suffix**

Frame B
XB = 0.1 – 0.5A
0.4 – 2.0A
1 – 5A
1.6 – 8A
6.4 – 32A

Frame C
XC = 0.1 – 0.5A
0.4 – 2.0A
1 – 5A
1.6 – 8A
6.4 – 32A

Frame D
XD = 6.4 – 32A
9 – 45A
15 – 75A

Frame F – G
XF = 22 – 110A

C396 Electronic Overload Relays

- Direct mount to *XT* contactors or separate mount
- Standard version: selectable trip class (5, 10, 20, 30) with selectable manual or auto reset
- Broad 5:1 FLA range
- Self-powered design, will accept ac voltages from 12 – 690V 50/60 Hz
- Electrically isolated 1NO-1NC contacts (Push-to-Test)
- FLA range of 0.1 – 1500 amps

C396 Overload for Integrated Use with *XT* IEC Contactors

FLA Range (Amps)	*XT* IEC Contactor Frame Size / Width	Catalog Number
Direct Mount to XTCE...B Contactor		
0.4 – 2.0	B / 45 mm	**C396A2A002SELXB**
1 – 5	B / 45 mm	**C396A2A005SELXB**
1.6 – 8	B / 45 mm	**C396A2A008SELXB**
6.4 – 32	B / 45 mm	**C396A2A032SELXB**
Direct Mount to XTCE...C Contactor		
1.6 – 8	C / 45 mm	**C396A2A008SELXC**
6.4 – 32	C / 45 mm	**C396A2A032SELXC**
Direct Mount to XTCE...D Contactor		
6.4 – 32	D / 55 mm	**C396A2A032SELXD**
9 – 45	D / 55 mm	**C396A2A045SELXD**
15 – 75	D / 55 mm	**C396B2A075SELXD**
Direct Mount to XTCE...F or XTCE...G Contactor		
22 – 110	F – G / 90 mm	**C396B2A110SELXF**

C396 Stand-Alone Overload Relay

FLA Range (Amps)	Description	Catalog Number
0.4 – 2.0 1 – 5 1.6 – 8 6.4 – 32 9 – 45	45 mm Frame Overload Relay ①	**C396A2A002SELAX** **C396A2A005SELAX** **C396A2A008SELAX** **C396A2A032SELAX** **C396A2A045SELAX**
15 – 75 22 – 110	65 mm Frame Overload Relay ①	**C396B2A075SELAX** **C396B2A110SELAX**
30 – 150	110 mm Frame Overload Relay ②	**C396C2A150SELAX**

① Overload comes with a panel / DIN-Rail mounting adapter assembled. No separate mounting adapter accessory offered.

② Panel-mount only! Overload comes with integrated pass-through holes for power wires. Bus Bar Kit (C396CBAR or C396CBARXT, see Page 68) and Lug Kit (C396CLUG) must be purchased separately if customer refers not to use pass-through capability.

Circuit & Motor Protection

Overload Relays

PRODUCT SELECTION

C396 Overload Relays

Current Transformer Kits for Use with Stand-Alone Overload Relay C396A2A005SELAX ①

FLA Range (Amps)	Description	Catalog Number
60 – 300	300: 5 Panel-mount CT kit with integrated, pass-through holes. Kit includes CT, bus bars, lugs and hardware to mount C396A2A005SELAX(not included).	**C396CTK300**
120 – 600	600: 5 Panel-mount CT kit with integrated, pass-through holes. Kit includes CT, bus bars, lugs and hardware to mount C396A2A005SELAX (not included).	**C396CTK600**
200 – 1000	1000: 5 Panel-mount CT kit with integrated, pass-through holes. Kit includes CT, bus bars, lugs and hardware to mount C396A2A005SELAX (not included).	**C396CTK1000**
300 – 1500	1500: 5 Panel-mount CT kit with integrated, pass-through holes. Kit includes CT, bus bars, lugs and hardware to mount C396A2A005SELAX (not included).	**C396CTK1500**

① C396A2A005SELAX is not included in the current transformer kits. This item must be ordered separately.

Accessories

	Description	Catalog Number
	Reset Bar Kit assembles to the top of the overload to increase reset area	**C396ARST**
	110 mm XT Bus Bar Kit ①	**C396CBARXT**
 C396ARST + C396RR_ _ _ _ _ Assembled to a C396 Overload Relay	Remote Reset 24V dc ②	**C396RR024DC**
	Remote Reset 24V ac ②	**C396RR024AC**
	Remote Reset 120V ac ②	**C396RR120AC**
	Remote Reset 240V ac ②	**C396RR240AC**
	Mechanical Reset with E22 Flush Pushbutton and Mechanical Push Rod ③ Plastic Black Bezel Chrome Bezel	 **E22PB6N29L** **E22P6N29L**

① Bus bar kits do not include lugs. Order C396CLUG if lugs are needed (3 lugs per kit).

② Reset Bar Kit (C396ARST) required to use the Remote Reset modules.

③ The operator button is blue with the letters "RESET" printed in white. The push rod is 4.72" long and can be cut to the desired length. This kit can be used alone or in conjunction with the C396 Reset Bar Kit, C396ARST, to increase the size of the reset area on the overload.

For our complete product offering, see the Control Products Catalog (CA08102001E).

Motor Insight Overload and Monitoring Relays — Catalog Numbering System

C441 B A

Device Type
C441 = Motor Insight Overload Relay

Overload Relay Voltage
B = 240V
C = 480V
D = 600V

Communications Module
K = DeviceNet Module 4IN/2OUT 120V ac
L = DeviceNet Module 4IN/2OUT 24V dc
M = Modbus Module
N = Modbus Module 4IN/2OUT 120V ac
P = Modbus Module 4IN/2OUT 24V dc
Q = PROFIBUS Module 4IN/2OUT 24V dc ①

Accessory Type
1 = Type 1 and 12 Remote-Mounted Display
3 = Type 3R Kit for Remote Display
CMP1 = Mounting Plate

Overload Relay Current Rating
A = 2 – 9A
B = 20 – 90A

① PROFIBUS module with I/O will be available in 2nd Quarter 2009.

Circuit & Motor Protection

Overload Relays

PRODUCT SELECTION

Motor Insight™ Overload and Monitoring Relays

- Power, voltage and current monitoring, ground fault, flexible communications, motor, load and line protection in a single package
- Enhanced surge / sag withstand capacity ensures reliable operation
- Finger proof IP20 rated terminals provide extra safety by reducing shock hazard
- Adjustments to overload settings can be made without disconnecting power
- User Interface
  - Bright LED display
  - Intuitive and highly customizable parameter configuration
- Remote display allows for configuration without opening the panel, providing additional operator safety

Motor Insight

Voltage	Current Range	Catalog Number
240V ac (170 – 264)	2 – 9 Amps	**C441BA**
240V ac (170 – 264)	20 – 90 Amps	**C441BB**
480V ac (323 – 528)	2 – 9 Amps	**C441CA**
480V ac (323 – 528)	20 – 90 Amps	**C441CB**
600V ac (489 – 660)	2 – 9 Amps	**C441DA**
600V ac (489 – 660)	20 – 90 Amps	**C441DB**

Motor Insight CT Multiplier and Wire Wrap Schedule

Motor FLA	Number of Loops	Number of Conductors Through CT Primary	CT Multiplier Setting	Catalog Number ①
Current Range: 20 – 90A				
5 – 22.5	3	4	4	**C441_B**
6.67 – 30	2	3	3	
10 – 45	1	2	2	
20 – 90	0	1	1	
Current Range: 2 – 9A				
1 – 5	1	2	2	**C441_A**
2 – 9	0	1	1	
60 – 135	0	1	150 – (150:5)	
120 – 270	0	1	300 – (300:5)	
240 – 540	0	1	600 – (600:5)	

① Underscore indicates operating voltage code required.
Operating Voltage Codes:

Code	Voltage
B	240V ac
C	480V ac
D	600V ac

Modbus Communication Module

Description	I/O	Catalog Number
Modbus Communication Module	None	**C441M**
Modbus Communication Module 4IN / 2OUT	120V ac	**C441N**
Modbus Communication Module 4IN / 2OUT	240V dc	**C441P**

DeviceNet Modules

Description	I/O	Catalog Number
DeviceNet Communication Module	120V ac	**C441K**
DeviceNet Communication Module	24V dc	**C441L**

Motor Insight — Accessories

	Description	Catalog Number
	Remote Display Type 1	**C4411**
	Type 3R Kit for Remote Display (remote display not included)	**C4413**
	Adaptive Mounting Plate	**C441CMP1**

For our complete product offering, see the Control Products Catalog (CA08102001E).