**Circuit Breakers**

**Fuse Blocks and Fuse Holders**

**Rotary Disconnect Switches**



For our complete product offering, see Volume 4—Circuit Protection, CA08100005E and Volume 5—Motor Control and Protection, CA08100006E.

1

## Product Overview

### Circuit Breaker Selection Guide

| Description | Series G Molded Case Circuit Breaker | | Universal Molded Case Circuit Breakers | | QUICKLAG® Type QC Miniature Circuit Breakers |
|---|---|---|---|---|---|
| | Page V9-T1-5 | | Page V9-T1-13 | | Page V9-T1-19 |
| **General Applications** | | | | | |
| | Line protection—molded case switch, motor circuit protection (combination tested with Eaton starters and contactors) thermal-magnetic and electronic trip units. | | Line protection—feeder and branch thermal-magnetic trip unit. | | Used to provide branch circuit protection in cable-in/out panel or DIN rail mount applications. |
| **Technical Data** | | | | | |
| Maximum current rating | 2500A | | 600A | | 100A |
| Maximum voltage—AC | 690 Vac | | 480 Vac | | 240 Vac |
| Maximum voltage—DC | 250 Vdc | | 250 Vdc | | 80 Vdc |
| Poles | 1, 2, 3, 4 | | 1, 2, 3 | | QC = 1, 2, 3, 4<br>QCD = 1, 2, 3<br>QCR/QCF = 1, 2, 3 |
| Max. interrupting capacities<br>See individual catalogs for limitations and back-up protection requirements. | Three-pole at 240V<br>E = 200 kA<br>J = 200 kA<br>L = 200 kA | Three-pole at 480V<br>E = 100 kA<br>J = 200 kA<br>L = 200 kA | Three-pole at 240V<br>G = 25 kA (480/277)<br>F = 25 kA<br>J = 35 kA<br>K = 35 kA<br>L = 35 kA | Three-pole at 480V<br>GI = 14 kA (480/277)<br>GD = 22 kA<br>F = 14 kA<br>J = 20 kA<br>K = 20 kA<br>L = 20 kA | 65 kA at 240 Vac<br>5 kA at 80 Vdc |
| **Approvals** | | | | | |
| | UL® 489<br>IEC 60947-2<br>CE | CSA®<br>KEMA-KEUR<br>CCC | UL 489CE<br>IEC 60947-2 | CE<br>CSA | UL 489<br>CSA 22.2 |
| **Environmental Data** | | | | | |
| Humidity | Non-condensing 100% relative humidity | | Non-condensing 100% relative humidity | | — |
| Shock | — | | — | | — |
| Vibration | — | | — | | — |
| Operating temperature | –20° to 70°C (–4° to 158°F) derating applies | | –20° to 70°C (–4° to 158°F) derating applies | | 40°C (104°F) |
| Dielectric strength | Below 250A 6 kV<br>Above 250A 8 kV | | Below 250A 6 kV<br>Above 250A 8 kV | | 1960 Vac (acc. to UL 489) |
| Insulation resistance | 750 Vac | | 750 Vac | | — |
| Endurance/life | 250A: EG, JG = 8,000 operations<br>630A: LG = 6,000 operations | | 250A: Gi = 10,000 operations<br>Fi = 8,000 operations<br>400A: Ji, Ki, Li = 6,000 operations | | >10,000 operations |
| Approximate weight | E Three-pole—2.88 lbs (1.04 kg)<br>J Three-pole—5.06 lbs (2.30 kg)<br>L Three-pole—12.36 lbs (5.61 kg) | | G Three-pole—2.10 lbs (0.95 kg)<br>F Three-pole—4.5 lbs (2.0 kg)<br>J Three-pole—12.50 lbs (5.7 kg)<br>K Three-pole—11.50 lbs (5.2 kg) | | QC Single-pole—0.36 lbs (162.8 g)<br>Two-pole—0.61 lbs (274.9 g)<br>Three-pole—1.14 lbs (518.3 g)<br>QCD Single-pole—0.43 lbs (195.3 g)<br>Two-pole—0.89 lbs (401.9 g)<br>Three-pole—1.34 lbs (605.6 g)<br>QCR Single-pole—0.22 lbs (97.9 g)<br>Two-pole—0.48 lbs (215.8 g)<br>Three-pole—0.70 lbs (315.6 g)<br>QCF Single-pole—0.24 lbs (109.9 g)<br>Two-pole—0.50 lbs (225.2 g)<br>Three-pole—0.74 lbs (335.1 g) |
| Mounting configuration | Backpan, plug-in adapter, DIN rail (E) | | Backpan, DIN rail (G) | | Panel mount, front mount, 35 mm DIN rail mountable |

For our complete product offering, see Volume 4—Circuit Protection, CA08100005E.

## Circuit Breaker Selection Guide, continued

| Description | FAZ-NA UL 489<br>Miniature Circuit Breakers | FAZ UL 1077<br>Miniature Circuit Breakers—<br>Supplementary Protectors |
|---|---|---|
| | **Page V9-T1-25** | **Page V9-T1-28** |
| **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. |
| **Technical Data** | | |
| Maximum current rating | 40A | 63A |
| Maximum voltage—AC | 480/277 Vac (240/415 Vac IEC) | 480/277 Vac |
| Maximum voltage—DC | 48 Vdc | 65 Vac Single-pole<br>130 Vac Two-pole |
| Poles | 1, 2, 3 | 1, 2, 3 |
| Max. interrupting capacities<br>See individual catalogs for limitations and back-up protection requirements. | 10 kA UL/CSA;<br>15 kA IEC/EN 60947-2 | IEC 240/415V 10 kA<br>UL/CSA 120V 10 kA<br>240V 10 kA<br>277V 6 kA<br>480V 6 kA |
| **Approvals** | | |
| | UL 489<br>CE; IEC/EN 60947-2<br>CSA 22.2 | UL 1077<br>CE; IEC/EN 60947-2; IEC/EN 60898<br>CSA 22.2 235 |
| **Environmental Data** | | |
| Humidity | Acc. IEC 60068-2 (25° to 55°C/<br>77° to 131°F, 90–95% RH) | — |
| Shock | Acc. IEC 60068-2-27<br>(40g half sine wave for 10 ms—3 axes)<br>(15g half sine wave for 20 ms—3 axes) | — |
| Vibration | Acc. to IEC 60068-2-6<br>5–100 Hz/1.0 mm/0.7g (3 axes) | — |
| Operating temperature | 30°C (86°F) | — |
| Dielectric strength | 1960 Vac (acc. to UL 489) | — |
| Insulation resistance | 100M ohms at 500 Vdc | — |
| Endurance/life | >20,000 operations | — |
| Approximate weight | Single-pole—0.27 lbs (121.0g)<br>Two-pole—0.53 lbs (242.0g)<br>Three-pole—0.80 lbs (363.0g) | Single-pole—0.26 lbs (120.0g)<br>Two-pole—0.54 lbs (244.9g)<br>Three-pole—0.83 lbs (376.5g) |
| Mounting contribution | 35 mm DIN rail mountable | 35 mm DIN rail mountable |

For our complete product offering, see Volume 4—Circuit Protection, CA08100005E.

## Circuit Breaker Selection Guide, continued

| Description | Series NRX Low Voltage Power Breakers | Magnum Low Voltage Power Breakers |
|---|---|---|
| | **Page V9-T1-33** | **Page V9-T1-36** |
| **General Applications** | | |
| | 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%. | Enables comprehensive solutions to meet and exceed the unique and wide-ranging requirements of today's global power distribution systems. Designed and engineered for ultimate custom configuration and application flexibility in metal enclosed switchgear and power distribution enclosures. |
| **Technical Data** | | |
| Maximum current rating | 630–1600A | 800–6300A |
| Maximum voltage—AC | 220–690 Vac | Up to 690 Vac |
| Maximum voltage—DC | — | — |
| Poles | 3, 4 | 3, 4 |
| Max. interrupting capacities<br>See individual catalogs for limitations and back-up protection requirements. | 65 kAIC at 480 Vac<br>Max. withstand capacities 42 kAIC | 200 kA at 480 Vac<br>Max. withstand capacities<br>100 kAIC<br>CL fuseless 200 kA at 635 Vac with integral limiters |
| **Approvals** | | |
| | UL 1006 Component<br>UL 489 Component<br>IEC 60947-2 | UL 1066<br>IEC 60947-2<br>KEMA |
| **Environmental Data** | | |
| Humidity | — | — |
| Shock | — | — |
| Vibration | — | — |
| Operating temperature | –25° to 70°C | –25° to 70°C |
| Dielectric strength | — | — |
| Insulation resistance | — | — |
| Endurance/life | 10,000 electrical operations<br>20,000 mechanical operations | — |
| Approximate weight | Three-pole breaker + cassette—85 lbs (39 kg)<br>Three-pole breaker—53 lbs (24 kg)<br>Four-pole breaker + cassette—104 lbs (47 kg)<br>Four-pole breaker—67 lbs (30 kg) | — |
| Mounting configuration | Rear-connected, front-connected, surface mounting, mounting bracket, fixed, drawout breaker with cassette | Fixed or drawout with cassette rear-connected, front-connected |

For our complete product offering, see Volume 4—Circuit Protection, CA08100005E.

**Series G Molded Case Circuit Breakers**

## Features

- Field-fit accessories
- Common accessories through 630A
- Space-saving footprint
- High-performance current limiting designs up to 200 kAIC at 480V
- Global ready: UL, CSA, CE, IEC, KEMA-KEUR listings
- Complete breaker includes frame, trip unit, standard terminals and mounting hardware

## Catalog Number Selection

### Series G® Molded Case Circuit Breakers

#### EG Frame

**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 | | | |

| Number of 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** |

| Trip Unit |
|---|
| **FF** = Fixed fixed |
| **AF** = Adjustable thermal fixed magnetic |
| **KS** = Molded case switch |

| Terminations/Hardware | |
|---|---|
| **Terminals** | **Mounting Hardware** |
| **M** = Metric end caps | Metric |
| **E** = Imperial end caps | Imperial |
| **G** = Line/load standard | Metric |
| **B** = Bolt-on | — |

***Notes***

① Available only as 125 and 160A sizes.

② Is not UL rated.

## JG Frame

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 | | | |

| Number of Poles |
|---|
| **2** = Two |
| **3** = Three |
| **4** = Four—Neutral 0% protected |
| **8** = Four—Neutral 0–60% protected |
| **9** = Four—Neutral 100% protected |

| Amperes |
|---|
| **050** |
| **070** |
| **080** |
| **090** |
| **100** |
| **125** |
| **150** |
| **160** |
| **175** |
| **200** |
| **225** |
| **250** |

| Trip Unit |
|---|
| **AA** = Adjustable thermal<br>Adjustable magnetic |
| **FA** = Fixed thermal<br>Adjustable magnetic |
| **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 |

## LG Frame

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 | | | |

| Number of 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 ① |
|---|
| **AA** = Adjustable thermal<br>Adjustable magnetic |
| **FA** = Fixed thermal<br>Adjustable magnetic |
| **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 |

***Note***

① A = Arc reduction, L = Long, S = Short, I = Instantaneous, G = Ground.

## Product Selection

### Series G Molded Case Circuit Breakers

Approximate Dimensions are in Inches

#### EG Frame

| Maximum Continuous Amperes at 40°C ① | Three-Pole 3.00 W x 5.50 H x 2.99 D Fixed Thermal Fixed Magnetic |
|---|---|
| **IC Rating: 25 kAIC at 415 and 480 Vac** | |
| 15 | **EGE3015FFG** |
| 20 | **EGE3020FFG** |
| 25 | **EGE3025FFG** |
| 30 | **EGE3030FFG** |
| 35 | **EGE3035FFG** |
| 40 | **EGE3040FFG** |
| 45 | **EGE3045FFG** |
| 50 | **EGE3050FFG** |
| 60 | **EGE3060FFG** |
| 70 | **EGE3070FFG** |
| 80 | **EGE3080FFG** |
| 90 | **EGE3090FFG** |
| 100 | **EGE3100FFG** |
| 125 | **EGE3125FFG** |

| Maximum Continuous Amperes at 40°C | Three-Pole 3.00 W x 5.50 H x 2.99 D Fixed Thermal Fixed Magnetic |
|---|---|
| **IC Rating: 70 kAIC at 415 Vac, 65 kAIC at 480 Vac** | |
| 15 | **EGH3015FFG** |
| 20 | **EGH3020FFG** |
| 25 | **EGH3025FFG** |
| 30 | **EGH3030FFG** |
| 35 | **EGH3035FFG** |
| 40 | **EGH3040FFG** |
| 45 | **EGH3045FFG** |
| 50 | **EGH3050FFG** |
| 60 | **EGH3060FFG** |
| 70 | **EGH3070FFG** |
| 80 | **EGH3080FFG** |
| 90 | **EGH3090FFG** |
| 100 | **EGH3100FFG** |
| 125 | **EGH3125FFG** |

#### JG Frame

| Maximum Continuous Amperes | Three-Pole 4.13 W x 7.00 H x 3.57 D Magnetic Range | Fixed Thermal Adjustable Magnetic |
|---|---|---|
| **IC Rating: 25 kAIC at 415 and 480 Vac** | | |
| 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** |

| Maximum Continuous Amperes | Three-Pole 4.13 W x 7.00 H x 3.57 D Magnetic Range | Fixed Thermal Adjustable Magnetic |
|---|---|---|
| **IC Rating: 70 kAIC at 415 Vac, 65 kAIC at 480 Vac** | | |
| 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

| Ampere Rating | Three-Pole 5.48 W x 10.13 H x 4.09 D Fixed Thermal Adjustable Magnetic |
|---|---|
| **IC Rating: 35 kAIC at 415 and 480 Vac** | |
| 250 | **LGE3250FAG** |
| 300 | **LGE3300FAG** |
| 350 | **LGE3350FAG** |
| 400 | **LGE3400FAG** |
| 500 | **LGE3500FAG** |
| 600 | **LGE3600FAG** |

| Ampere Rating | Three-Pole 3.00 W x 5.50 H x 2.99 D Fixed Thermal Adjustable Magnetic |
|---|---|
| **IC Rating: 70 kAIC at 415 Vac, 65 kAIC at 480 Vac** | |
| 250 | **LGH3250FAG** |
| 300 | **LGH3300FAG** |
| 350 | **LGH3350FAG** |
| 400 | **LGH3400FAG** |
| 500 | **LGH3500FAG** |
| 600 | **LGH3600FAG** |

***Note***

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

1

**Series G Motor Circuit Protector**

## Features

- Instantaneous only protector
- Designed for use in combination with motor starters
- Adjustable to motor FLA
- UL recognized component, File E7819 motor circuit protectors

## Product Selection

### Series G Motor Circuit Protectors

#### EG Frame—480 Vac, 600Y/347 Vac Maximum

| Continuous Amperes | Cam Setting | Motor Full Load Current Amperes ① | MCP Trip Setting ② | MCP Catalog Number |
|---|---|---|---|---|
| 3 | A | 0.69–0.91 | 9 | **HMCPE003A0C** |
| | B | 1.1–1.3 | 15 | |
| | C | 1.6–1.7 | 21 | |
| | D | 2.0–2.2 | 27 | |
| | E | 2.3–2.5 | 30 | |
| | F | 2.6–2.8 | 33 | |
| 7 | A | 1.5–2.0 | 21 | **HMCPE007C0C** |
| | B | 2.6–3.1 | 35 | |
| | C | 3.7–3.9 | 49 | |
| | D | 4.8–5.2 | 63 | |
| | E | 5.3–5.7 | 70 | |
| | F | 5.8–6.1 | 77 | |
| 15 | A | 3.4–4.5 | 45 | **HMCPE015E0C** |
| | B | 5.7–6.8 | 75 | |
| | C | 8.0–9.1 | 105 | |
| | D | 10.4–11.4 | 135 | |
| | E | 11.5–12.6 | 150 | |
| | F | 12.7–13.0 | 165 | |
| 30 | A | 3.9–9.1 | 90 | **HMCPE030H1C** |
| | B | 11.5–13.7 | 150 | |
| | C | 16.1–18.3 | 210 | |
| | D | 20.7–22.9 | 270 | |
| | E | 23.0–25.2 | 300 | |
| | F | 25.3–26.1 | 330 | |
| 50 | A | 11.5–15.2 | 150 | **HMCPE050K2C** |
| | B | 19.2–22.9 | 250 | |
| | C | 26.9–30.6 | 350 | |
| | D | 34.6–38.3 | 450 | |
| | E | 38.4–42.1 | 500 | |
| | F | 42.2–43.5 | 550 | |
| 70 | A | 16.1–30.6 | 210 | **HMCPE070M2C** |
| | B | 26.9–32.2 | 350 | |
| | C | 37.6–42.9 | 490 | |
| | D | 48.4–53.7 | 630 | |
| | E | 53.8–59.1 | 700 | |
| | F | 59.2–60.9 | 770 | |
| 100 | A | 23.0–30.6 | 300 | **HMCPE100R3C** |
| | B | 38.4–46.0 | 500 | |
| | C | 53.8–61.4 | 700 | |
| | D | 69.2–76.8 | 900 | |
| | E | 76.9–84.5 | 1000 | |
| | F | 84.6–87.0 | 1100 | |
| 100 | A | 38.4–46.0 | 500 | **HMCPE100T3C** |
| | B | 57.6–65.2 | 750 | |
| | C | 76.9–84.5 | 1000 | |
| | D | ③ | 1250 | |
| | E | ③ | 1375 | |
| | F | ③ | 1500 | |

***Notes***

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 $I_n$ 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—600 Vac Maximum, 250 Vdc Maximum

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

## LG Frame—600 Vac Maximum, 250 Vdc Maximum

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

1

**Series G Motor Protector Breakers**

## Features

- Eliminates need for separate overload relay
- Can be used with contactor to eliminate need for overload relay and still create manual motor control
- Meets requirement for motor branch protection, including:
  - Disconnecting means
  - Branch circuit short-circuit protection
  - Overload protection
- UL 489 listed, IEC 60947-02 rated
- Phase unbalance, phase loss protection and high load alarm
- Optional pre-detection trip relay

## Product Selection

### Series G Motor Protector Breakers

For pre-trip alarm option, order Style Number 5721B31G02.

#### JG Frame Motor Protector Circuit Breakers, 250A Maximum Rated Current

| Continuous Amperes | 35 kAIC Catalog Number | 65 kAIC Catalog Number |
|---|---|---|
| 50 | **JGMPS050G** | **JGMPH050G** |
| 100 | **JGMPS100G** | **JGMPH100G** |
| 160 | **JGMPS160G** | **JGMPH160G** |
| 250 | **JGMPS250G** | **JGMPH250G** |

#### LG Frame Motor Protector Circuit Breakers, 630A Maximum Rated Current

| Continuous Amperes | 50 kAIC Catalog Number | 65 kAIC Catalog Number |
|---|---|---|
| 250 | **LGMPS250G** | **LGMPH250G** |
| 400 | **LGMPS400G** | **LGMPH400G** |
| 600 | **LGMPS600G** | **LGMPH600G** |
| 630 ① | **LGMPS630G** | **LGMPH630G** |

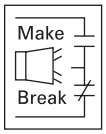
***Note***

① 630A is not a UL listed rating. 600A is the maximum UL or CSA rating for LG breaker.

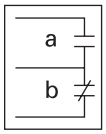
## Accessories

### Field Fit Kit Catalog Numbers

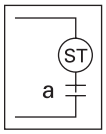
**Alarm Lockout**



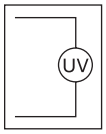

**Auxiliary Switch**




**Shunt Trip**




**Undervoltage Release Mechanism**




| Description | Pole Location | Frame—EG, JG and 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** | | |
| 120 Vac | Left | **SNT120CPK** ④ |
| 240 Vac | Left | **SNT120CPK** ④ |
| 12 Vdc | Left | **SNT012CPK** |
| 24 Vdc | Left | **SNT060CPK** |
| 48 Vdc | Left | **SNT060CPK** |
| 380–600 Vac | Left | **SNT480CPK** ⑤ |
| **Undervoltage Release Mechanism** | | |
| 110–127 Vac | Left | **UVR120APK** |
| 208–240 Vac | Left | **UVR240APK** |
| 24 Vac | Left | **UVR024APK** |
| 24 Vdc | Left | **UVR024DPK** |
| 48–60 Vdc | Left | **UVR048DPK** |
| 12 Vac/Vdc | Left | **UVR012CPK** |
| 48–60 Vac | Left | **UVR048APK** |
| 120 Vdc | Left | **UVR125DPK** |
| 220–250 Vdc | Left | **UVR250DPK** |
| 380–500 Vac | Left | **UVR480APK** |
| 525–600 Vac | Left | **UVR600APK** |

### Multiwire Connectors Ordering Information (Package of 3)

High SCCR ratings are available for Power Distribution blocks with Series G MCCBs. See **Tab 6**.

| Maximum Amperes | 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 Number |
|---|---|---|---|
| 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 Handles**

### Flex Shaft Handle Mechanisms

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

**Universal Direct Handle Mechanism**

### Universal Direct Handle Mechanisms

| Frame | With Interlock Catalog Number | Without Interlock Catalog Number |
|---|---|---|
| **Black Handle Color** | | |
| EG | **EHMCCBI** | **EHMCCB** |
| JG | **JHMCCBI** | **JHMCCB** |
| LG | **LHMCCBI** | **LHMCCB** |
| **Red Handle Color** | | |
| EG | **EHMCCRI** | **EHMCCR** |
| JG | **JHMCCRI** | **JHMCCR** |
| LG | **LHMCCRI** | **LHMCCR** |

***Notes***

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.
④ 110–125 Vdc, 50/60 Hz.
⑤ 380–600 Vdc, 50/60 Hz.

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**Rotary Handle Mechanisms**

## High Performance Rotary Handle Mechanisms (Complete Kit Includes Handle, Shaft and Mechanism)

| Color | Rating Type UL | IP | EG Frame ① Catalog Number | JG Frame Catalog Number | LG Frame Catalog Number |
|---|---|---|---|---|---|
| Black/blue | 1/12/3R | 20/54/55 | **EGHMVD06B** | **JGHMVD06B** | **LGHMVD06B** |
| | | | **EGHMVD12B** | **JGHMVD12B** | **LGHMVD12B** |
| | | | **EGHMVD24B** | **JGHMVD24B** | **LGHMVD24B** |
| Red/yellow | 1/12/3R | 20/54/55 | **EGHMVD06R** | **JGHMVD06R** | **LGHMVD06R** |
| | | | **EGHMVD12R** | **JGHMVD12R** | **LGHMVD12R** |
| | | | **EGHMVD24R** | **JGHMVD24R** | **LGHMVD24R** |
| Black/blue | 4/4X | 66 | **EGHMVD06BX** | **JGHMVD06BX** | **LGHMVD06BX** |
| | | | **EGHMVD12BX** | **JGHMVD12BX** | **LGHMVD12BX** |
| | | | **EGHMVD24BX** | **JGHMVD24BX** | **LGHMVD24BX** |
| Red/yellow | 4/4X | 66 | **EGHMVD06RX** | **JGHMVD06RX** | **LGHMVD06RX** |
| | | | **EGHMVD12RX** | **JGHMVD12RX** | **LGHMVD12RX** |
| | | | **EGHMVD24RX** | **JGHMVD24RX** | **LGHMVD24RX** |

## 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 ②③ | Field | — | **KYKJG** | **KYKLG** |
| Castell key interlock kit ③④ | Field | — | **CTKJG** | **CTKLG** |
| Slide bar interlock ⑤ | Field | **EFSBI** | **FJSBI** | **LGSBI** |
| Walking beam interlock | Three-pole | **EG3WBI** | **JG3WBI** | **LG3WBI** |
| | Four-pole | **EG4WBI** | **JG4WBI** | **LG4WBI** |
| Electrical operator | 120/240 Vac | **MOPEG240C** | **MOPJG240C** | **MOPLG240C** |
| | 125 Vdc | **MOPEG240C** | **MOPJG240C** | **MOPLG240C** |
| Plug-in adapters | Three-pole | **PAD3E** | **PAD3J** | **PAD3L** |
| | Four-pole | **PAD4E** | **PAD4J** | **PAD4L** |
| Rear connecting studs | Field | **EFRCSDL** | **FJRCSDL** | **3P–LRCS3WK** |
| | | **EFRCSDS** | **FJRCSDS** | **4P–LRCS4WK** |
| | | **EFRCSWL** | **FJRCSWL** | — |
| | | **EFRCSWS** | **FJRCSWS** | — |

***Notes***

① Compatible with three-pole and four-pole EG breakers only.
② Provision only.
③ See Volume 4—Circuit Protection, CA08100005E, Tab 2, for bolt projection dimensions.
④ Castell bolt mounting hole must be 10 mm.
⑤ Requires two breakers.

**Universal Molded Case Circuit Breakers**

## Features

- 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
- Includes mounting hardware and terminals

## Catalog Number Selection

### Universal Molded Case Circuit Breakers

#### Universal Molded Case

**Gi 2 070**

| Frame Size |
|---|
| **Gi** = G*i* Frame |
| **Fi** = F*i* Frame |
| **Ji** = J*i* Frame |
| **Ki** = K*i* Frame |
| **Li** = L*i* Frame |

| Number of Poles | | | | |
|---|---|---|---|---|
| G*i* Frame | F*i* Frame | J*i* Frame | K*i* Frame | L*i* Frame |
| **1** = Single-pole<br>**2** = Two-pole<br>**3** = Three-pole | **2** = Two-pole<br>**3** = Three-pole | **3** = Three-pole | **3** = Three-pole | **3** = Three-pole |

| Ampere Rating | | | | |
|---|---|---|---|---|
| G*i* Frame | F*i* Frame | J*i* Frame | K*i* Frame | L*i* Frame |
| **015** = 15 amp<br>**020** = 20 amp<br>**030** = 30 amp<br>**040** = 40 amp<br>**050** = 50 amp<br>**060** = 60 amp<br>**070** = 70 amp<br>**080** = 80 amp<br>**100** = 100 amp<br>**125** = 125 amp | **015** = 15 amp<br>**020** = 20 amp<br>**030** = 30 amp<br>**040** = 40 amp<br>**050** = 50 amp<br>**060** = 60 amp<br>**070** = 70 amp<br>**080** = 80 amp<br>**100** = 100 amp<br>**125** = 125 amp<br>**150** = 150 amp<br>**160** = 160 amp<br>**175** = 175 amp<br>**200** = 200 amp<br>**225** = 225 amp | **250** = 250 amp | **300** = 300 amp<br>**350** = 350 amp<br>**400** = 400 amp | **500** = 500 amp<br>**600** = 600 amp<br>**630** = 630 amp |

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## Product Selection

### Universal Molded Case Circuit Breakers

***Three-Pole***

Approximate Dimensions are in Inches

#### Universal G Frame

| Description | Amperes | Catalog Number ① |
|---|---|---|
| 3 W x 4-7/8 H x 2-13/16 D (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 |

#### Universal F Frame

| Description | Amperes | Catalog Number ① |
|---|---|---|
| 4-1/8 W x 6 H x 3-3/8 D | 15 | **Fi3015L** |
| | 20 | **Fi3020L** |
| | 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 |
|---|---|
| 415 | 18/9K |
| 480 | 20K |

#### Universal J Frame

| Description | Amperes | Catalog Number ① |
|---|---|---|
| 4-1/8 W x 10 H x 4-1/16 D | 225 | **Ji3225L** |
| | 250 | **Ji3250L** |

| Voltage | Interrupting Rating |
|---|---|
| 415 | 25/13K |
| 480 | 20K |

#### Universal K Frame

| Description | Amperes | Catalog Number ① |
|---|---|---|
| 5-1/2 W x 10-1/8 H x 4-1/16 D | 300 | **Ki3300L** |
| | 350 | **Ki3350L** |
| | 400 | **Ki3400L** |

| Voltage | Interrupting Rating |
|---|---|
| 415 | 25/13K |
| 480 | 20K |

#### Universal L Frame

| Description | Amperes | Catalog Number ① |
|---|---|---|
| 8-1/4 W x 10-3/4 H x 4.37 D | 500 | **Li3500** |
| | 600 | **Li3600** |

| Voltage | Interrupting Rating |
|---|---|
| 415 | 25/13K |
| 480 | 20K |

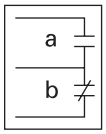
***Note***

① Metric mounting hardware.

## Accessories

### Internal Accessories

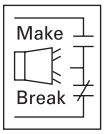
**Auxiliary Switch (Right-Pole Mounted)**




| Configuration | Add This Suffix to Catalog Number |
|---|---|
| 1NO/1NC | **A3** |
| 2NO/2NC | **A6** |

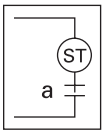
If both an auxiliary switch and bell alarm are required, add B13 to the catalog number (right-pole mounted). Auxiliary switch and bell alarm are 240V rated.

**Bell Alarm (Right-Pole Mounted)**



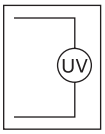

| Configuration | Add This Suffix to Catalog Number |
|---|---|
| 1 make/1 break | **B3** |

**Shunt Trip (Left-Pole Mounted)**




| Voltage Range | Add This Suffix to Catalog Number |
|---|---|
| 24 Vac | **S7** |
| 120 Vac | **S1** |
| 240 Vac | **S2** |
| 12 Vdc | **S3** |
| 24 Vdc | **S4** |
| 12–24 Vac/Vdc | **S02** |
| 48–127 Vac or 48–60 Vdc | **S06** |
| 208–380 Vac or 110–127 Vdc | **S10** |
| 415–600 Vac or 220–250 Vdc | **S14** |
| 380–440 Vac or 220–50 Vdc | **S14** |
| 480–600 Vac | **S18** |
| 24 Vac/Vdc | **S42** |
| 48–60 Vac/Vdc | **S50** |
| 110–240 Vac or 110–125 Vdc | **S10** |

**UVR (Left-Pole Mounted)**




| Voltage Range | Add This Suffix to Catalog Number |
|---|---|
| 24 Vac 50/60 Hz | **T2** |
| 48 Vac 50/60 Hz | **T3** |
| 60 Vac 50/60 Hz | **T4** |
| 120 Vac 50/60 Hz | **T1** |
| 240 Vac 50/60 Hz | **T8** |
| 220 Vac 50 Hz | **T7** |
| 440 Vac 50 Hz | **T11** |
| 480 Vac 60 Hz | **T12** |
| 12 Vac | **U02** |
| 24 Vac | **U06** |
| 48 Vac/Vdc | **U38** |
| 110–127 Vac | **U14** |
| 208–240 Vac | **U18** |
| 380–480 Vac | **U22** |
| 525–600 Vac | **U26** |
| 12 Vdc | **U30** |
| 24 Vdc | **U34** |
| 125 Vdc | **U42** |
| 220–250 Vdc | **U46** |
| 12 Vac | **U06** |
| 24 Vac | **U10** |
| 48–60 Vac | **U14** |
| 110–127 Vac | **U18** |
| 208–240 Vac | **U22** |
| 380–480 Vac | **U26** |
| 12 Vdc | **T02** |
| 24 Vdc | **T06** |
| 48–60 Vdc | **T10** |
| 110–125 Vdc | **T14** |
| 220–250 Vdc | **T18** |

#### Universal G Frame

#### Universal F Frame

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.

#### Universal J Frame

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.

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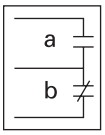
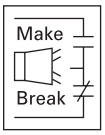
## Internal Accessories, continued

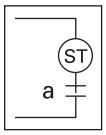
### Auxiliary Switch (Right-Pole Mounted)



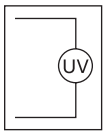

### Bell Alarm (Right-Pole Mounted)




### Shunt Trip (Left-Pole Mounted)




### UVR (Left-Pole Mounted)




| Configuration | Add This Suffix to Catalog Number | Configuration | Add This Suffix to Catalog Number | Voltage Range | Add This Suffix to Catalog Number | Voltage Range | Add This Suffix to Catalog Number |
|---|---|---|---|---|---|---|---|
| **Universal K Frame** | | | | | | | |
| 1NO/1NC | **A06** | 1 make/1 break | **B06** | 12–24 Vac/Vdc | **S42** | 12 Vac | **U06** |
| 2NO/2NC | **A13** | | | 48–60 Vac/Vdc | **S50** | 24 Vac | **U10** |
| If both an auxiliary switch and bell alarm are required, add CO5 to the catalog number (right-pole mounted). Auxiliary switch and bell alarm are 600V rated. | | | | 110–240 Vac or 110–125 Vdc | **S10** | 48–60 Vac | **U14** |
| | | | | | | 110–127 Vac | **U18** |
| | | | | 380–440 Vac or 220–250 Vdc | **S14** | 208–240 Vac | **U22** |
| | | | | | | 380–480 Vac | **U26** |
| | | | | 480–600 Vac | **S18** | 12 Vdc | **T02** |
| | | | | | | 24 Vdc | **T06** |
| | | | | | | 48–60 Vdc | **T10** |
| | | | | | | 110–125 Vdc | **T14** |
| | | | | | | 220–250 Vdc | **T18** |
| **Universal L Frame** | | | | | | | |
| 1NO/1NC | **A06** | 1 make/1 break | **B06** | 12–24 Vac/Vdc | **S02** | 12 Vac | **U06** |
| 2NO/2NC | **A13** | | | 48–60 Vdc | **S06** | 24 Vac | **U10** |
| If both an auxiliary switch and bell alarm are required, add CO5 to the catalog number (right-pole mounted). Auxiliary switch and bell alarm are 600V rated. | | | | 48–60 Vac | **S86** | 48–60 Vac | **U14** |
| | | | | 110–240 Vac | **S10** | 110–127 Vac | **U18** |
| | | | | 110–125 Vdc | **S42** | 208–240 Vac | **U22** |
| | | | | 380–440 Vac or 220–250 Vdc | **S14** | 380–480 Vac | **U26** |
| | | | | | | 12 Vdc | **T02** |
| | | | | 480–600 Vac | **S18** | 24 Vdc | **T06** |
| | | | | | | 48–60 Vdc | **T10** |
| | | | | | | 110–125 Vdc | **T14** |
| | | | | | | 220–250 Vdc | **T18** |

Handle Mechanisms

## Handle Mechanisms

**Type 1/12 Universal Rotary**

**Ordering Information** ①

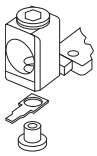
| Shaft Length in Inches (mm) | Handle Color | Complete Catalog Number | Flange Flex Shaft Type 1, 3R, 12 Versions |
|---|---|---|---|
| **Universal G Frame** | | | |
| 6 (152.4) | Black | **GHMVD06B** | 3-ft length; order **F0S03C** |
| 12 (304.8) | Black | **GHMVD12B** | 4-ft length; order **F0S04C** |
| 6 (152.4) | Red | **GHMVD06R** | 5-ft length; order **F0S05C** |
| 12 (304.8) | Red | **GHMVD12R** | 6-ft length; order **F0S06C** |
| **Universal F Frame** | | | |
| 6 (152.4) | Black | **FHMVD06B** | 3-ft length; order **F1S03C** |
| 12 (304.8) | Black | **FHMVD12B** | 4-ft length; order **F1S04C** |
| 6 (152.4) | Red | **FHMVD06R** | 5-ft length; order **F1S05C** |
| 12 (304.8) | Red | **FHMVD12R** | 6-ft length; order **F1S06C** |
| | | | 7-ft length; order **F1S07C** |
| | | | 8-ft length; order **F1S08C** |
| | | | 9-ft length; order **F1S09C** |
| | | | 10-ft length; order **F1S10C** |
| **Universal J Frame** | | | |
| 6 (152.4) | Black | **JHMVD06B** | 3-ft length; order **F2S03C** |
| 12 (304.8) | Black | **JHMVD12B** | 4-ft length; order **F2S04C** |
| 6 (152.4) | Red | **JHMVD06R** | 5-ft length; order **F2S05C** |
| 12 (304.8) | Red | **JHMVD12R** | 6-ft length; order **F2S06C** |
| | | | 7-ft length; order **F2S07C** |
| | | | 8-ft length; order **F2S08C** |
| | | | 9-ft length; order **F2S09C** |
| | | | 10-ft length; order **F2S10C** |
| **Universal K Frame** | | | |
| 6 (152.4) | Black | **KHMVD06B** | 3-ft length; order **F3S03C** |
| 12 (304.8) | Black | **KHMVD12B** | 4-ft length; order **F3S04C** |
| 6 (152.4) | Red | **KHMVD06R** | 5-ft length; order **F3S05C** |
| 12 (304.8) | Red | **KHMVD12R** | 6-ft length; order **F3S06C** |
| | | | 7-ft length; order **F3S07C** |
| | | | 8-ft length; order **F3S08C** |
| | | | 9-ft length; order **F3S09C** |
| | | | 10-ft length; order **F3S10C** |

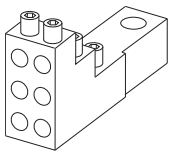
***Note***

① Only available as complete handle mechanism. Parts not sold separately.

## Terminals and Termination Accessory Devices

**Terminal/Termination Devices**





### Universal G Frame

| Terminals (Included with Breaker) | | Optional Multiwire Lugs (Load End Only) | |
|---|---|---|---|
| **15–20 A** | **25–100A** | **Three-Hole Version** | **Six-Hole Version** |
| 14–2 AWG Cu/Al | 10–1/0 AWG Cu/Al | (3) 14–2 AWG<br>Order **3TA100G3K** | (6) 14–6 AWG<br>Order **3TA100G6K** |
| 2.5–4 mm² Cu/Al | 4–50 mm² Cu/Al | | |

### Universal F Frame

| Terminals (Included with Breaker) | | | Optional Multiwire Lugs (Load End Only) | |
|---|---|---|---|---|
| **10–20A** | **25–100A** | **110–225A** | **Three-Hole Version** | **Six-Hole Version** |
| 14–10 AWG Cu/Al | 14–1/0 AWG Cu/Al | 4–4/0 AWG Cu/Al | (3) 14–2 AWG<br>Order **3TA150F3K** | (6) 14–6 AWG<br>Order 3TA150F6K |
| 2.5–4 mm² Cu/Al | 2.5–50 mm² Cu/Al | 25–95 mm² Cu/Al | | |

### Universal J Frame

| Terminals (Included with Breaker) | Optional Multiwire Lugs (Load End Only) | |
|---|---|---|
| **70–250A** | **Three-Hole Version** | **Six-Hole Version** |
| 4–350 kcmil AWG Cu/Al | (3) 14–2 AWG<br>Order **3TA250J3K** | (6) 14–6 AWG<br>Order **3TA250J6K** |
| 25–150 mm² Cu/Al | | |

### Universal K Frame

| Terminals (Included with Breaker) | | Optional Multiwire Lugs (Load End Only) | |
|---|---|---|---|
| **300–350A** | **400A** | **Three-Hole Version** | **Six-Hole Version** |
| 250–500 kcmil AWG Cu/Al | 3/0–200 (2) AWG Cu/Al | (3) 12–2/0 AWG<br>Order **3TA400K3K** | (6) 14–2/0 AWG<br>Order **3TA400K6K** |
| 120–240 mm² Cu/Al | 95–120 mm² Cu/Al | | |

### Universal L Frame

| Terminals (Included with Breaker) | | Optional Multiwire Lugs (Load End Only) | |
|---|---|---|---|
| **500A** | **600A** | **Three-Hole Version** | **Six-Hole Version** |
| (2) 250–300 kcmil Cu/Al | (2) 400–500 kcmil Cu/Al | — | — |
| 120–150 mm² Cu/Al | 185–250 mm² Cu/Al | | |

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

## Features

For Cable-In/Cable-Out Panel Mount Applications

- Single-, two-, three- and four-pole options
- Built and listed to UL 489
- All products UL and CSA listed
- All products 10–100A are HACR rated

## Catalog Number Selection

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

#### Type QC Miniature Circuit Breakers

**QC 3 020 H**

| Ampere Rating | Number of Poles | Ampere Rating | | Construction |
|---|---|---|---|---|
| **QC** = QC breaker | **1** = Single-pole<br>**2** = Two-pole<br>**3** = Three-pole<br>**4** = Four-pole | **010** = 10 amp<br>**015** = 15 amp<br>**020** = 20 amp<br>**025** = 25 amp<br>**030** = 30 amp<br>**035** = 35 amp<br>**040** = 40 amp<br>**045** = 45 amp | **050** = 50 amp<br>**055** = 55 amp<br>**060** = 60 amp<br>**070** = 70 amp<br>**080** = 80 amp<br>**090** = 90 amp<br>**100** = 100 amp | **H** = 240V (two-, three- and four-pole only) |

## Product Selection

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

**Note:** For non-automatic switches, see Volume 4—Circuit Protection, CA08100005E, Tab 1.

| Continuous Ampere Rating at 40°C | Single-Pole, 120/240 Vac Catalog Number | Two-Pole, 120/240 Vac Catalog Number | Three-Pole, 240 Vac Catalog Number |
|---|---|---|---|
| 10 | **QC1010** | **QC2010** | — |
| 15 | **QC1015** ①② | **QC2015** | **QC3015H** |
| 20 | **QC1020** ①② | **QC2020** | **QC3020H** |
| 30 | **QC1030** | **QC2030** | **QC3030H** |
| 40 | **QC1040** | **QC2040** | **QC3040H** |
| 50 | **QC1050** | **QC2050** | **QC3050H** |
| 60 | — | **QC2060** | **QC3060H** |
| 70 | — | **QC2070** | **QC3070H** |
| 100 | **QC1100** | **QC2100** | **QC3100H** |

***Notes***

① Switching duty rated for 120 Vac fluorescent light applications only.
② For special low-magnetic breaker, order QC1015L1 or QC1020L1.

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

## Features

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

- Single-, two- and three-pole options
- Modular construction
- DIN mounted (symmetrical rail 35 in x 7.5 in 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

## Catalog Number Selection

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

**QCD 3 020 H**

| Breaker Type | Number of Poles | Ampere Rating | | Construction |
|---|---|---|---|---|
| **QCD** = QCD breaker | **1** = Single-pole<br>**2** = Two-pole<br>**3** = Three-pole | **010** = 10 amp<br>**015** = 15 amp<br>**020** = 20 amp<br>**025** = 25 amp<br>**030** = 30 amp<br>**035** = 35 amp<br>**040** = 40 amp<br>**045** = 45 amp | **050** = 50 amp<br>**055** = 55 amp<br>**060** = 60 amp<br>**070** = 70 amp<br>**080** = 80 amp<br>**090** = 90 amp<br>**100** = 100 amp | **H** = 240V (two- and three-pole only) |

## Product Selection

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

| Continuous Ampere Rating at 40°C | Single-Pole, 120/240 Vac Catalog Number | Two-Pole, 120/240 Vac Catalog Number | Three-Pole, 240 Vac 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** |

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

## Features

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 in (12.7 mm) wide per pole
- Three-position handle: ON, tripped (center), OFF
- Thermal-magnetic protection
- Single-, two- and three-pole
- 10 kAIC at 120/240 Vac, 10–60A
- 10 kAIC at 240 Vac, 10–30A

## Catalog Number Selection

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

**QCR 1 020 T**

| Breaker Type |
|---|
| **QCR** = QCD Breaker (rear mount) |
| **QCF** = QCF Breaker (front mount) |

| Number of Poles |
|---|
| **1** = Single-pole |
| **2** = Two-pole |
| **3** = Three-pole |

| Ampere Rating | | |
|---|---|---|
| **010** = 10 amp | **030** = 30 amp | **050** = 50 amp |
| **015** = 15 amp | **035** = 35 amp | **055** = 55 amp |
| **020** = 20 amp | **040** = 40 amp | **060** = 60 amp |
| **025** = 25 amp | **045** = 45 amp | |

| Construction/Terminals |
|---|
| **H** = 240V (two- and three-pole only) |
| **T** = Ring or spade terminals (10–30A only) |

## Product Selection

### QUICKLAG Type QCR Breakers 10 kAIC Interrupting Ratings ①②③④

| Continuous Ampere Rating at 40°C | Single-Pole 120/240 Vac Catalog Number | Two-Pole 120/240 Vac Catalog Number | Three-Pole 240 Vac Catalog Number |
|---|---|---|---|
| 10 | **QCR1010** | **QCR2010** | — |
| | **QCR1010T** | **QCR2010T** | — |
| 15 | **QCR1015** ⑤ | **QCR2015** | **QCR3015H** |
| | **QCR1015T** ⑤ | **QCR2015T** | **QCR3015HT** |
| 20 | **QCR1020** ⑤ | **QCR2020** | **QCR3020H** |
| | **QCR1020T** ⑤ | **QCR2020T** | **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** | — |

### QUICKLAG Type QCF Breakers 10 kAIC Interrupting Ratings ①②③

| Continuous Ampere Rating at 40°C | Single-Pole 120/240 Vac Catalog Number | Two-Pole 120/240 Vac Catalog Number | Three-Pole 240 Vac Catalog Number |
|---|---|---|---|
| 10 | **QCF1010** | **QCF2010** | — |
| | **QCF1010T** | **QCF2010T** | — |
| 15 | **QCF1015** ⑤ | **QCF2015** | **QCF3015H** |
| | — | — | **QCF3015HT** |
| 20 | **QCF1020** ⑤ | **QCF2020** | **QCF3020H** |
| | — | — | **QCF3020HT** |
| 25 | **QCF1025** | **QCF2025** | **QCF3025H** |
| | — | — | **QCF3025HT** |
| 30 | **QCF1030** | **QCF2030** | **QCF3030H** |
| | — | — | **QCF3030HT** |
| 40 | **QCF1040** | **QCF2040** | — |
| 50 | **QCF1050** | **QCF2050** | — |
| 60 ⑥ | **QCF1060** | **QCF2060** | — |

***Notes***

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 single-, two- and three-pole.
⑤ All 15 and 20A single-pole breakers are SWD (switching duty) rated for fluorescent lighting applications.
⑥ 60/75°C Cu/Al wire on all ratings except 60A, which requires Cu only conductor.

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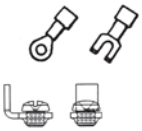
## Accessories

### Type QCR and QCF

| Description | Catalog Number |
|---|---|
| Steel mounting clip mounts QCR breaker if individual mounting is required. Quantity two required for single- and two-pole and four required for three-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**<br>  QUICKLAG Type C Spacer | **QCRSPACER** |
| **QCR and QCF Ring or Spade Lug Terminals**<br>  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"** |

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

## Features

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

## Catalog Number Selection

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

**QCGFEP 1 020**

| Breaker Type |
|---|
| **QCGF** = QC ground fault circuit protector |
| **QCGFEP** = QC ground fault equipment protector |

| Number of Poles |
|---|
| **1** = Single-pole |
| **2** = Two-pole |

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

## Product Selection

### Types QCGF and QCGFEP Thermal-Magnetic Breakers

| Continuous Ampere Rating at 40°C | Single-Pole, 120/240 Vac Catalog Number | Two-Pole, 120/240 Vac 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** |

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## Accessories

### Type QC Miniature Circuit Breakers

**Handle Locks**

| Accessory ① | Description | Catalog Number |
|---|---|---|
| Handle locks: Non-padlockable ② | QUICKLAG type P, B, C—single-pole | **QL1NPL** |
| | QUICKLAG type P, B, C—two-, three-pole | **QL23NPL** |
| Handle locks: Padlockable | QUICKLAG type P, B, C—single-pole | **QL1PL** |
| | QUICKLAG type C—single-, two-, three-pole | **QC123PL** |
| | QUICKLAG type C—single-, two-, three-pole (off only) | **QCD123PLOFF** |

**Handle Tie**

| | | |
|---|---|---|
| Handle tie | QUICKLAG handle tie—single-pole | **QL1HT** |
| | QUICKLAG handle tie—three-pole | **QL3HT** |

**Hardware**

| | | |
|---|---|---|
| Mounting hardware | QUICKLAG type C face mounting clip | **QCFCLIP** |
| | QUICKLAG type C face mounting plate—single-pole | **QC1FP** |
| | QUICKLAG type C face mounting plate —two-pole | **QC2FP** |
| | QUICKLAG type C face mounting plate —three-pole | **QC3FP** |
| | QUICKLAG type C face mounting plate and lock-off (off only)—two-pole ③ | **QC2FPLOFF** |
| | QUICKLAG type C face mounting plate and lock-off (off only)—three-pole | **QC3FPLOFF** |
| | QUICKLAG type C base mounting clamp | **QCBCLIP** |
| | QUICKLAG base mounting plate—six poles total | **QC6BP** |
| | QUICKLAG type C base mounting plate, six-poles total—heavy-duty screw-secured | **QC6BPS** |
| | QUICKLAG type C (QCD) two-way jumper unit with cover | **QCDJ2** |
| | QUICKLAG type C (QCD) four-way jumper unit with cover | **QCDJ4** |
| | QUICKLAG type C (QCD) six-way jumper unit with cover | **QCDJ6** |
| | QUICKLAG type C (QCD) two-way jumper unit, no cover | **QCDJ2T** |
| | QUICKLAG type C (QCD) four-way jumper unit, no cover | **QCDJ4T** |
| | QUICKLAG type C (QCD) six-way jumper unit, no cover | **QCDJ6T** |
| | QUICKLAG type QCD finger protection attachment | **QCDFP** |
| | QUICKLAG type C DIN rail adapter | **QCDINADAPT** |

***Notes***

① See **Page V9-T1-22** for QCR and QCF accessories.
② Can lock in ON or OFF position.
③ Suitable for ground fault breakers.

**FAZ-NA UL 489 Circuit Breakers**

## Features

- UL 489 listed DIN rail mounted miniature circuit breakers up to 40A current rating
- Current limiting design provides fast short-circuit interruption that reduces let-through energy
- Thermal-magnetic overcurrent protection
  - Three levels of short-circuit protection, categorized by B, C and D curves
- Ring-tongue terminals available
- Complete line of accessories

## Catalog Number Selection

### FAZ-NA UL 489 Circuit Breakers

#### FAZ-NA UL 489

**FAZ C 6 / 1 NA SP**

**Breaker Family**
**FAZ** = FAZ UL circuit breaker

**Trip Characteristics** ①
**B** = 3–5X $I_n$
**C** = 5–10X $I_n$
**D** = 10–20X $I_n$

**Ampere Rating** ②

| | |
|---|---|
| **0.5** = 0.5A | **10** = 10A |
| **1** = 1A | **13** = 13A |
| **1.5** = 1.5A | **15** = 15A |
| **2** = 2A | **16** = 16A |
| **3** = 3A | **20** = 20A |
| **4** = 4A | **25** = 25A |
| **5** = 5A | **30** = 30A |
| **6** = 6A | **32** = 32A |
| **7** = 7A | **35** = 32A |
| **8** = 8A | **40** = 40A |

**Number of Poles**
**1** = Single-pole
**2** = Two-pole
**3** = Three-pole

**Terminal**
**NA** = UL 489 branch circuit with screw terminals
**RT** = UL 489 branch circuit with ring tongue terminals
**DC** = UL 489 branch circuit at 125 Vdc per pole

**Single Package**
**SP** = Single package for C and D curve single-pole only
**Blank** = Standard packaging

***Notes***

① $I_n$ = Rated current for instantaneous trip characteristics.
② B curve starts at 1 ampere.

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## Product Selection

### FAZ-NA UL 489 Circuit Breakers—10 kAIC, 14 kAIC B Curve (15–25A)

| Amperes | Single-Pole ① Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| **B Curve (3–5X $I_n$ Current Rating)** | | | |
| 1 | FAZ-B1/1-NA | FAZ-B1/2-NA | FAZ-B1/3-NA |
| 1.5 | FAZ-B1.5/1-NA | FAZ-B1.5/2-NA | FAZ-B1.5/3-NA |
| 2 | FAZ-B2/1-NA | FAZ-B2/2-NA | FAZ-B2/3-NA |
| 3 | FAZ-B3/1-NA | FAZ-B3/2-NA | FAZ-B3/3-NA |
| 4 | FAZ-B4/1-NA | FAZ-B4/2-NA | FAZ-B4/3-NA |
| 5 | FAZ-B5/1-NA | FAZ-B5/2-NA | FAZ-B5/3-NA |
| 6 | FAZ-B6/1-NA | FAZ-B6/2-NA | FAZ-B6/3-NA |
| 7 | FAZ-B7/1-NA | FAZ-B7/2-NA | FAZ-B7/3-NA |
| 8 | FAZ-B8/1-NA | FAZ-B8/2-NA | FAZ-B8/3-NA |
| 10 | FAZ-B10/1-NA | FAZ-B10/2-NA | FAZ-B10/3-NA |
| 13 | FAZ-B13/1-NA | FAZ-B13/2-NA | FAZ-B13/3-NA |
| 15 | FAZ-B15/1-NA | FAZ-B15/2-NA | FAZ-B15/3-NA |
| 16 | FAZ-B16/1-NA | FAZ-B16/2-NA | FAZ-B16/3-NA |
| 20 | FAZ-B20/1-NA | FAZ-B20/2-NA | FAZ-B20/3-NA |
| 25 | FAZ-B25/1-NA | FAZ-B25/2-NA | FAZ-B25/3-NA |
| 30 | FAZ-B30/1-NA | FAZ-B30/2-NA | FAZ-B30/3-NA |
| 32 | FAZ-B32/1-NA | FAZ-B32/2-NA | FAZ-B32/3-NA |
| 35 ② | FAZ-B35/1-NA | FAZ-B35/2-NA | FAZ-B35/3-NA |
| 40 ② | FAZ-B40/1-NA | FAZ-B40/2-NA | FAZ-B40/3-NA |

### FAZ-RT UL 489 Circuit Breakers with Ring-Tongue Terminals—10 kAIC, 14 kAIC B Curve (15–25A)

| Amperes | Single-Pole ① Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| **B Curve with Ring-Tongue Terminals (3–5X $I_n$ Current Rating)** | | | |
| 1 | FAZ-B1/1-RT | FAZ-B1/2-RT | FAZ-B1/3-RT |
| 1.5 | FAZ-B1.5/1-RT | FAZ-B1.5/2-RT | FAZ-B1.5/3-RT |
| 2 | FAZ-B2/1-RT | FAZ-B2/2-RT | FAZ-B2/3-RT |
| 3 | FAZ-B3/1-RT | FAZ-B3/2-RT | FAZ-B3/3-RT |
| 4 | FAZ-B4/1-RT | FAZ-B4/2-RT | FAZ-B4/3-RT |
| 5 | FAZ-B5/1-RT | FAZ-B5/2-RT | FAZ-B5/3-RT |
| 6 | FAZ-B6/1-RT | FAZ-B6/2-RT | FAZ-B6/3-RT |
| 7 | FAZ-B7/1-RT | FAZ-B7/2-RT | FAZ-B7/3-RT |
| 8 | FAZ-B8/1-RT | FAZ-B8/2-RT | FAZ-B8/3-RT |
| 10 | FAZ-B10/1-RT | FAZ-B10/2-RT | FAZ-B10/3-RT |
| 13 | FAZ-B13/1-RT | FAZ-B13/2-RT | FAZ-B13/3-RT |
| 15 | FAZ-B15/1-RT | FAZ-B15/2-RT | FAZ-B15/3-RT |
| 16 | FAZ-B16/1-RT | FAZ-B16/2-RT | FAZ-B16/3-RT |
| 20 | FAZ-B20/1-RT | FAZ-B20/2-RT | FAZ-B20/3-RT |
| 25 | FAZ-B25/1-RT | FAZ-B25/2-RT | FAZ-B25/3-RT |
| 30 | FAZ-B30/1-RT | FAZ-B30/2-RT | FAZ-B30/3-RT |
| 32 | FAZ-B32/1-RT | FAZ-B32/2-RT | FAZ-B32/3-RT |
| 35 ② | FAZ-B35/1-RT | FAZ-B35/2-RT | FAZ-B35/3-RT |
| 40 ② | FAZ-B40/1-RT | FAZ-B40/2-RT | FAZ-B40/3-RT |

### FAZ-NA UL 489 Circuit Breakers—10 kAIC, 14 kAIC C Curve (15–25A)

| Amperes | Single-Pole ③ Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| **C Curve (5–10X $I_n$ Current Rating)** | | | |
| 0.5 | FAZ-C0.5/1-NA-SP | FAZ-C0.5/2-NA | FAZ-C0.5/3-NA |
| 1 | FAZ-C1/1-NA-SP | FAZ-C1/2-NA | FAZ-C1/3-NA |
| 1.5 | FAZ-C1.5/1-NA-SP | FAZ-C1.5/2-NA | FAZ-C1.5/3-NA |
| 2 | FAZ-C2/1-NA-SP | FAZ-C2/2-NA | FAZ-C2/3-NA |
| 3 | FAZ-C3/1-NA-SP | FAZ-C3/2-NA | FAZ-C3/3-NA |
| 4 | FAZ-C4/1-NA-SP | FAZ-C4/2-NA | FAZ-C4/3-NA |
| 5 | FAZ-C5/1-NA-SP | FAZ-C5/2-NA | FAZ-C5/3-NA |
| 6 | FAZ-C6/1-NA-SP | FAZ-C6/2-NA | FAZ-C6/3-NA |
| 7 | FAZ-C7/1-NA-SP | FAZ-C7/2-NA | FAZ-C7/3-NA |
| 8 | FAZ-C8/1-NA-SP | FAZ-C8/2-NA | FAZ-C8/3-NA |
| 10 | FAZ-C10/1-NA-SP | FAZ-C10/2-NA | FAZ-C10/3-NA |
| 13 | FAZ-C13/1-NA-SP | FAZ-C13/2-NA | FAZ-C13/3-NA |
| 15 | FAZ-C15/1-NA-SP | FAZ-C15/2-NA | FAZ-C15/3-NA |
| 16 | FAZ-C16/1-NA-SP | FAZ-C16/2-NA | FAZ-C16/3-NA |
| 20 | FAZ-C20/1-NA-SP | FAZ-C20/2-NA | FAZ-C20/3-NA |
| 25 | FAZ-C25/1-NA-SP | FAZ-C25/2-NA | FAZ-C25/3-NA |
| 30 | FAZ-C30/1-NA-SP | FAZ-C30/2-NA | FAZ-C30/3-NA |
| 32 | FAZ-C32/1-NA-SP | FAZ-C32/2-NA | FAZ-C32/3-NA |
| 35 ② | FAZ-C35/1-NA-SP | FAZ-C35/2-NA | FAZ-C35/3-NA |
| 40 ② | FAZ-C40/1-NA-SP | FAZ-C40/2-NA | FAZ-C40/3-NA |

### FAZ-RT UL 489 Circuit Breakers with Ring-Tongue Terminals—10 kAIC, 14 kAIC C Curve (15–25A)

| Amperes | Single-Pole ③ Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| **C Curve with Ring-Tongue Terminals (5–10X $I_n$ Current Rating)** | | | |
| 0.5 | FAZ-C0.5/1-RT-SP | FAZ-C0.5/2-RT | FAZ-C0.5/3-RT |
| 1 | FAZ-C1/1-RT-SP | FAZ-C1/2-RT | FAZ-C1/3-RT |
| 1.5 | FAZ-C1.5/1-RT-SP | FAZ-C1.5/2-RT | FAZ-C1.5/3-RT |
| 2 | FAZ-C2/1-RT-SP | FAZ-C2/2-RT | FAZ-C2/3-RT |
| 3 | FAZ-C3/1-RT-SP | FAZ-C3/2-RT | FAZ-C3/3-RT |
| 4 | FAZ-C4/1-RT-SP | FAZ-C4/2-RT | FAZ-C4/3-RT |
| 5 | FAZ-C5/1-RT-SP | FAZ-C5/2-RT | FAZ-C5/3-RT |
| 6 | FAZ-C6/1-RT-SP | FAZ-C6/2-RT | FAZ-C6/3-RT |
| 7 | FAZ-C7/1-RT-SP | FAZ-C7/2-RT | FAZ-C7/3-RT |
| 8 | FAZ-C8/1-RT-SP | FAZ-C8/2-RT | FAZ-C8/3-RT |
| 10 | FAZ-C10/1-RT-SP | FAZ-C10/2-RT | FAZ-C10/3-RT |
| 13 | FAZ-C13/1-RT-SP | FAZ-C13/2-RT | FAZ-C13/3-RT |
| 15 | FAZ-C15/1-RT-SP | FAZ-C15/2-RT | FAZ-C15/3-RT |
| 16 | FAZ-C16/1-RT-SP | FAZ-C16/2-RT | FAZ-C16/3-RT |
| 20 | FAZ-C20/1-RT-SP | FAZ-C20/2-RT | FAZ-C20/3-RT |
| 25 | FAZ-C25/1-RT-SP | FAZ-C25/2-RT | FAZ-C25/3-RT |
| 30 | FAZ-C30/1-RT-SP | FAZ-C30/2-RT | FAZ-C30/3-RT |
| 32 | FAZ-C32/1-RT-SP | FAZ-C32/2-RT | FAZ-C32/3-RT |
| 35 ② | FAZ-C35/1-RT-SP | FAZ-C35/2-RT | FAZ-C35/3-RT |
| 40 ② | FAZ-C40/1-RT-SP | FAZ-C40/2-RT | FAZ-C40/3-RT |

***Notes***

① Two-piece order. Quantities of two per box.

② 240 Vac rated only.

③ Option for single packaging on single-pole C and D curves only; add suffix SP when ordering.

## FAZ-NA UL 489 Circuit Breakers—10 kAIC, 14 kAIC D Curve (13–20A)

| Amperes | Single-Pole ① Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| **D Curve (10–20X $I_n$ Current Rating)** | | | |
| 0.5 | FAZ-D0.5/1-NA-SP | FAZ-D0.5/2-NA | FAZ-D0.5/3-NA |
| 1 | FAZ-D1/1-NA-SP | FAZ-D1/2-NA | FAZ-D1/3-NA |
| 1.5 | FAZ-D1.5/1-NA-SP | FAZ-D1.5/2-NA | FAZ-D1.5/3-NA |
| 2 | FAZ-D2/1-NA-SP | FAZ-D2/2-NA | FAZ-D2/3-NA |
| 3 | FAZ-D3/1-NA-SP | FAZ-D3/2-NA | FAZ-D3/3-NA |
| 4 | FAZ-D4/1-NA-SP | FAZ-D4/2-NA | FAZ-D4/3-NA |
| 5 | FAZ-D5/1-NA-SP | FAZ-D5/2-NA | FAZ-D5/3-NA |
| 6 | FAZ-D6/1-NA-SP | FAZ-D6/2-NA | FAZ-D6/3-NA |
| 7 | FAZ-D7/1-NA-SP | FAZ-D7/2-NA | FAZ-D7/3-NA |
| 8 | FAZ-D8/1-NA-SP | FAZ-D8/2-NA | FAZ-D8/3-NA |
| 10 | FAZ-D10/1-NA-SP | FAZ-D10/2-NA | FAZ-D10/3-NA |
| 13 | FAZ-D13/1-NA-SP | FAZ-D13/2-NA | FAZ-D13/3-NA |
| 15 | FAZ-D15/1-NA-SP | FAZ-D15/2-NA | FAZ-D15/3-NA |
| 16 | FAZ-D16/1-NA-SP | FAZ-D16/2-NA | FAZ-D16/3-NA |
| 20 | FAZ-D20/1-NA-SP | FAZ-D20/2-NA | FAZ-D20/3-NA |
| 25 | FAZ-D25/1-NA-SP | FAZ-D25/2-NA | FAZ-D25/3-NA |
| 30 | FAZ-D30/1-NA-SP | FAZ-D30/2-NA | FAZ-D30/3-NA |
| 32 | FAZ-D32/1-NA-SP | FAZ-D32/2-NA | FAZ-D32/3-NA |
| 35 ② | FAZ-D35/1-NA-SP | FAZ-D35/2-NA | FAZ-D35/3-NA |
| 40 ② | FAZ-D40/1-NA-SP | FAZ-D40/2-NA | FAZ-D40/3-NA |

## FAZ-RT UL 489 Circuit Breakers with Ring-Tongue Terminals—10 kAIC, 14 kAIC D Curve (13–20A)

| Amperes | Single-Pole ① Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| **D Curve with Ring-Tongue Terminals (10–20X $I_n$ Current Rating)** | | | |
| 0.5 | FAZ-D0.5/1-RT-SP | FAZ-D0.5/2-RT | FAZ-D0.5/3-RT |
| 1 | FAZ-D1/1-RT-SP | FAZ-D1/2-RT | FAZ-D1/3-RT |
| 1.5 | FAZ-D1.5/1-RT-SP | FAZ-D1.5/2-RT | FAZ-D1.5/3-RT |
| 2 | FAZ-D2/1-RT-SP | FAZ-D2/2-RT | FAZ-D2/3-RT |
| 3 | FAZ-D3/1-RT-SP | FAZ-D3/2-RT | FAZ-D3/3-RT |
| 4 | FAZ-D4/1-RT-SP | FAZ-D4/2-RT | FAZ-D4/3-RT |
| 5 | FAZ-D5/1-RT-SP | FAZ-D5/2-RT | FAZ-D5/3-RT |
| 6 | FAZ-D6/1-RT-SP | FAZ-D6/2-RT | FAZ-D6/3-RT |
| 7 | FAZ-D7/1-RT-SP | FAZ-D7/2-RT | FAZ-D7/3-RT |
| 8 | FAZ-D8/1-RT-SP | FAZ-D8/2-RT | FAZ-D8/3-RT |
| 10 | FAZ-D10/1-RT-SP | FAZ-D10/2-RT | FAZ-D10/3-RT |
| 13 | FAZ-D13/1-RT-SP | FAZ-D13/2-RT | FAZ-D13/3-RT |
| 15 | FAZ-D15/1-RT-SP | FAZ-D15/2-RT | FAZ-D15/3-RT |
| 16 | FAZ-D16/1-RT-SP | FAZ-D16/2-RT | FAZ-D16/3-RT |
| 20 | FAZ-D20/1-RT-SP | FAZ-D20/2-RT | FAZ-D20/3-RT |
| 25 | FAZ-D25/1-RT-SP | FAZ-D25/2-RT | FAZ-D25/3-RT |
| 30 | FAZ-D30/1-RT-SP | FAZ-D30/2-RT | FAZ-D30/3-RT |
| 32 | FAZ-D32/1-RT-SP | FAZ-D32/2-RT | FAZ-D32/3-RT |
| 35 ② | FAZ-D35/1-RT-SP | FAZ-D35/2-RT | FAZ-D35/3-RT |
| 40 ② | FAZ-D40/1-RT-SP | FAZ-C40/2-RT | FAZ-D40/3-RT |

## FAZ-NA-DC UL 489 Circuit Breakers—10 kAIC at 125 Vdc Per Pole

| Amperes | Single-Pole ③ Catalog Number | Two-Pole Catalog Number |
|---|---|---|
| **C Curve (5–10X $I_n$ Current Rating)** | | |
| 2 | FAZ-C2/1-NA-DC-SP | FAZ-C2/2-NA-DC |
| 3 | FAZ-C3/1-NA-DC-SP | FAZ-C3/2-NA-DC |
| 4 | FAZ-C4/1-NA-DC-SP | FAZ-C4/2-NA-DC |
| 5 | FAZ-C5/1-NA-DC-SP | FAZ-C5/2-NA-DC |
| 6 | FAZ-C6/1-NA-DC-SP | FAZ-C6/2-NA-DC |
| 7 | FAZ-C7/1-NA-DC-SP | FAZ-C7/2-NA-DC |
| 8 | FAZ-C8/1-NA-DC-SP | FAZ-C8/2-NA-DC |
| 10 | FAZ-C10/1-NA-DC-SP | FAZ-C10/2-NA-DC |
| 13 | FAZ-C13/1-NA-DC-SP | FAZ-C13/2-NA-DC |
| 15 | FAZ-C15/1-NA-DC-SP | FAZ-C15/2-NA-DC |
| 16 | FAZ-C16/1-NA-DC-SP | FAZ-C16/2-NA-DC |
| 20 | FAZ-C20/1-NA-DC-SP | FAZ-C20/2-NA-DC |
| 25 | FAZ-C25/1-NA-DC-SP | FAZ-C25/2-NA-DC |
| 30 | FAZ-C30/1-NA-DC-SP | FAZ-C30/2-NA-DC |
| 32 | FAZ-C32/1-NA-DC-SP | FAZ-C32/2-NA-DC |
| 35 | FAZ-C35/1-NA-DC-SP | FAZ-C35/2-NA-DC |
| 40 | FAZ-C40/1-NA-DC-SP | FAZ-C40/2-NA-DC |

***Notes***

① Option for single packaging on single-pole C and D curves only; add suffix SP when ordering.
② 240 Vac rated only.
③ Option for single packaging on single-pole C curves only; add suffix SP when ordering.

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**FAZ UL 1077 Circuit Breakers**

## Features

- UL 1077 recognized DIN rail mounted supplemental protectors up to 63A
- Current limiting design provides fast short-circuit interruption that reduces let-through energy
- Thermal-magnetic overcurrent protection
  - Three levels of short-circuit protection, categorized by B, C and D curves
- Ideal replacement for fuses that are applied as supplemental protection
- Complete line of accessories

## Catalog Number Selection

### FAZ UL 1077 Circuit Breakers

**FAZ UL 1077**

**FAZ C 6 / 1 SP**

| Breaker Family |
|---|
| **FAZ** = Supplementary protector |

| Trip Characteristics ① |
|---|
| **B** = 3–5X $I_n$ |
| **C** = 5–10X $I_n$ |
| **D** = 10–20X $I_n$ |
| **K** = 8–12X $I_n$ |
| **S** = 13–17X $I_n$ |
| **Z** = 2–3X $I_n$ |

| Ampere Rating | |
|---|---|
| **0.5** = 0.5A | **13** = 13A |
| **1** = 1A | **15** = 15A |
| **2** = 2A | **16** = 16A |
| **3** = 3A | **20** = 20A |
| **4** = 4A | **25** = 25A |
| **5** = 5A | **30** = 30A |
| **6** = 6A | **32** = 32A |
| **7** = 7A | **40** = 40A |
| **8** = 8A | **50** = 50A |
| **10** = 10A | **63** = 63A |

| Number of Poles | |
|---|---|
| **1** = Single-pole | **4** = Single-pole |
| **2** = Two-pole | **1N** = Single-pole + neutral |
| **3** = Three-pole | **3N** = Three-pole + neutral |

| Single Package |
|---|
| **SP** = Single packaging of single-pole curve B, C and D for select amperes only |
| **Blank** = Standard packaging |

***Note***

① $I_n$ = Rated current for instantaneous trip characteristics.

## Product Selection

### B Curve (3–5X $I_n$ Current Rating)—Designed for Resistive or Slightly Inductive Loads ①

| Amperes | Single-Pole ② Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| 1 | **FAZ-B1/1-SP** | **FAZ-B1/2** | **FAZ-B1/3** |
| 2 | **FAZ-B2/1-SP** | **FAZ-B2/2** | **FAZ-B2/3** |
| 3 | **FAZ-B3/1-SP** | **FAZ-B3/2** | **FAZ-B3/3** |
| 4 | **FAZ-B4/1-SP** | **FAZ-B4/2** | **FAZ-B4/3** |
| 5 | **FAZ-B5/1-SP** | **FAZ-B5/2** | **FAZ-B5/3** |
| 6 | **FAZ-B6/1-SP** | **FAZ-B6/2** | **FAZ-B6/3** |
| 7 | **FAZ-B7/1-SP** | **FAZ-B7/2** | **FAZ-B7/3** |
| 8 | **FAZ-B8/1-SP** | **FAZ-B8/2** | **FAZ-B8/3** |
| 10 | **FAZ-B10/1-SP** | **FAZ-B10/2** | **FAZ-B10/3** |
| 12 | **FAZ-B12/1-SP** | **FAZ-B12/2** | **FAZ-B12/3** |
| 13 | **FAZ-B13/1-SP** | **FAZ-B13/2** | **FAZ-B13/3** |
| 15 | **FAZ-B15/1-SP** | **FAZ-B15/2** | **FAZ-B15/3** |
| 16 | **FAZ-B16/1-SP** | **FAZ-B16/2** | **FAZ-B16/3** |
| 20 | **FAZ-B20/1-SP** | **FAZ-B20/2** | **FAZ-B20/3** |
| 25 | **FAZ-B25/1-SP** | **FAZ-B25/2** | **FAZ-B25/3** |
| 30 | **FAZ-B30/1-SP** | **FAZ-B30/2** | **FAZ-B30/3** |
| 32 | **FAZ-B32/1-SP** | **FAZ-B32/2** | **FAZ-B32/3** |
| 40 | **FAZ-B40/1-SP** | **FAZ-B40/2** | **FAZ-B40/3** |
| 50 | **FAZ-B50/1-SP** | **FAZ-B50/2** | **FAZ-B50/3** |
| 63 | **FAZ-B63/1-SP** | **FAZ-B63/2** | **FAZ-B63/3** |

### B Curve (3–5X $I_n$ Current Rating)—Designed for Resistive or Slightly Inductive Loads, continued ①

| Amperes | Four-Pole | Single-Pole + Neutral | Three-Pole + Neutral |
|---|---|---|---|
| 1 | **FAZ-B1/4** | **FAZ-B1/1N** | **FAZ-B1/3N** |
| 2 | **FAZ-B2/4** | **FAZ-B2/1N** | **FAZ-B2/3N** |
| 3 | **FAZ-B3/4** | **FAZ-B3/1N** | **FAZ-B3/3N** |
| 4 | **FAZ-B4/4** | **FAZ-B4/1N** | **FAZ-B4/3N** |
| 5 | **FAZ-B5/4** | **FAZ-B5/1N** | **FAZ-B5/3N** |
| 6 | **FAZ-B6/4** | **FAZ-B6/1N** | **FAZ-B6/3N** |
| 7 | **FAZ-B7/4** | **FAZ-B7/1N** | **FAZ-B7/3N** |
| 8 | **FAZ-B8/4** | **FAZ-B8/1N** | **FAZ-B8/3N** |
| 10 | **FAZ-B10/4** | **FAZ-B10/1N** | **FAZ-B10/3N** |
| 12 | **FAZ-B12/4** | **FAZ-B12/1N** | **FAZ-B12/3N** |
| 13 | **FAZ-B13/4** | **FAZ-B13/1N** | **FAZ-B13/3N** |
| 15 | **FAZ-B15/4** | **FAZ-B15/1N** | **FAZ-B15/3N** |
| 16 | **FAZ-B16/4** | **FAZ-B16/1N** | **FAZ-B16/3N** |
| 20 | **FAZ-B20/4** | **FAZ-B20/1N** | **FAZ-B20/3N** |
| 25 | **FAZ-B25/4** | **FAZ-B25/1N** | **FAZ-B25/3N** |
| 30 | **FAZ-B30/4** | **FAZ-B30/1N** | **FAZ-B30/3N** |
| 32 | **FAZ-B32/4** | **FAZ-B32/1N** | **FAZ-B32/3N** |
| 40 | **FAZ-B40/4** | **FAZ-B40/1N** | **FAZ-B40/3N** |
| 50 | **FAZ-B50/4** | **FAZ-B50/1N** | **FAZ-B50/3N** |
| 63 | **FAZ-B63/4** | **FAZ-B63/1N** | **FAZ-B63/3N** |

***Notes***

① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

② Option for single packaging on single-pole B, C and D curves only; add suffix SP when ordering.

## C Curve (5–10X $I_n$ Current Rating)—Designed Inductive Loads ①

| Amperes | Single-Pole ② Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| 0.5 | **FAZ-C0.5/1-SP** | **FAZ-C0.5/2** | **FAZ-C0.5/3** |
| 1 | **FAZ-C1/1-SP** | **FAZ-C1/2** | **FAZ-C1/3** |
| 1.6 | **FAZ-C1.6/1-SP** | **FAZ-C1.6/2** | **FAZ-C1.6/3** |
| 2 | **FAZ-C2/1-SP** | **FAZ-C2/2** | **FAZ-C2/3** |
| 3 | **FAZ-C3/1-SP** | **FAZ-C3/2** | **FAZ-C3/3** |
| 4 | **FAZ-C4/1-SP** | **FAZ-C4/2** | **FAZ-C4/3** |
| 5 | **FAZ-C5/1-SP** | **FAZ-C5/2** | **FAZ-C5/3** |
| 6 | **FAZ-C6/1-SP** | **FAZ-C6/2** | **FAZ-C6/3** |
| 7 | **FAZ-C7/1-SP** | **FAZ-C7/2** | **FAZ-C7/3** |
| 8 | **FAZ-C8/1-SP** | **FAZ-C8/2** | **FAZ-C8/3** |
| 10 | **FAZ-C10/1-SP** | **FAZ-C10/2** | **FAZ-C10/3** |
| 13 | **FAZ-C13/1-SP** | **FAZ-C13/2** | **FAZ-C13/3** |
| 15 | **FAZ-C15/1-SP** | **FAZ-C15/2** | **FAZ-C15/3** |
| 16 | **FAZ-C16/1-SP** | **FAZ-C16/2** | **FAZ-C16/3** |
| 20 | **FAZ-C20/1-SP** | **FAZ-C20/2** | **FAZ-C20/3** |
| 25 | **FAZ-C25/1-SP** | **FAZ-C25/2** | **FAZ-C25/3** |
| 30 | **FAZ-C30/1-SP** | **FAZ-C30/2** | **FAZ-C30/3** |
| 32 | **FAZ-C32/1-SP** | **FAZ-C32/2** | **FAZ-C32/3** |
| 40 | **FAZ-C40/1-SP** | **FAZ-C40/2** | **FAZ-C40/3** |
| 50 | **FAZ-C50/1-SP** | **FAZ-C50/2** | **FAZ-C50/3** |
| 63 | **FAZ-C63/1-SP** | **FAZ-C63/2** | **FAZ-C63/3** |

## C Curve (5–10X $I_n$ Current Rating)—Designed Inductive Loads, continued ①

| Amperes | Four-Pole | Single-Pole + Neutral | Three-Pole + Neutral |
|---|---|---|---|
| 0.5 | **FAZ-C0.5/4** | **FAZ-C0.5/1N** | **FAZ-C0.5/3N** |
| 1 | **FAZ-C1/4** | **FAZ-C1/1N** | **FAZ-C1/3N** |
| 1.6 | **FAZ-C1.6/4** | **FAZ-C1.6/1N** | **FAZ-C1.6/3N** |
| 2 | **FAZ-C2/4** | **FAZ-C2/1N** | **FAZ-C2/3N** |
| 3 | **FAZ-C3/4** | **FAZ-C3/1N** | **FAZ-C3/3N** |
| 4 | **FAZ-C4/4** | **FAZ-C4/1N** | **FAZ-C4/3N** |
| 5 | **FAZ-C5/4** | **FAZ-C5/1N** | **FAZ-C5/3N** |
| 6 | **FAZ-C6/4** | **FAZ-C6/1N** | **FAZ-C6/3N** |
| 7 | **FAZ-C7/4** | **FAZ-C7/1N** | **FAZ-C7/3N** |
| 8 | **FAZ-C8/4** | **FAZ-C8/1N** | **FAZ-C8/3N** |
| 10 | **FAZ-C10/4** | **FAZ-C10/1N** | **FAZ-C10/3N** |
| 13 | **FAZ-C13/4** | **FAZ-C13/1N** | **FAZ-C13/3N** |
| 15 | **FAZ-C15/4** | **FAZ-C15/1N** | **FAZ-C15/3N** |
| 16 | **FAZ-C16/4** | **FAZ-C16/1N** | **FAZ-C16/3N** |
| 20 | **FAZ-C20/4** | **FAZ-C20/1N** | **FAZ-C20/3N** |
| 25 | **FAZ-C25/4** | **FAZ-C25/1N** | **FAZ-C25/3N** |
| 30 | **FAZ-C30/4** | **FAZ-C30/1N** | **FAZ-C30/3N** |
| 32 | **FAZ-C32/4** | **FAZ-C32/1N** | **FAZ-C32/3N** |
| 40 | **FAZ-C40/4** | **FAZ-C40/1N** | **FAZ-C40/3N** |
| 50 | **FAZ-C50/4** | **FAZ-C50/1N** | **FAZ-C50/3N** |
| 63 | **FAZ-C63/4** | **FAZ-C63/1N** | **FAZ-C63/3N** |

***Notes***

① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

② Option for single packaging on single-pole B, C and D curves only; add suffix SP when ordering.

## D Curve (10–20X $I_n$ Current Rating)—Designed for Inductive Loads ①

| Amperes | Single-Pole ② Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| 0.5 | **FAZ-D0.5/1-SP** | **FAZ-D0.5/2** | **FAZ-D0.5/3** |
| 1 | **FAZ-D1/1-SP** | **FAZ-D1/2** | **FAZ-D1/3** |
| 2 | **FAZ-D2/1-SP** | **FAZ-D2/2** | **FAZ-D2/3** |
| 3 | **FAZ-D3/1-SP** | **FAZ-D3/2** | **FAZ-D3/3** |
| 4 | **FAZ-D4/1-SP** | **FAZ-D4/2** | **FAZ-D4/3** |
| 5 | **FAZ-D5/1-SP** | **FAZ-D5/2** | **FAZ-D5/3** |
| 6 | **FAZ-D6/1-SP** | **FAZ-D6/2** | **FAZ-D6/3** |
| 7 | **FAZ-D7/1-SP** | **FAZ-D7/2** | **FAZ-D7/3** |
| 8 | **FAZ-D8/1-SP** | **FAZ-D8/2** | **FAZ-D8/3** |
| 10 | **FAZ-D10/1-SP** | **FAZ-D10/2** | **FAZ-D10/3** |
| 13 | **FAZ-D13/1-SP** | **FAZ-D13/2** | **FAZ-D13/3** |
| 15 | **FAZ-D15/1-SP** | **FAZ-D15/2** | **FAZ-D15/3** |
| 16 | **FAZ-D16/1-SP** | **FAZ-D16/2** | **FAZ-D16/3** |
| 20 | **FAZ-D20/1-SP** | **FAZ-D20/2** | **FAZ-D20/3** |
| 25 | **FAZ-D25/1-SP** | **FAZ-D25/2** | **FAZ-D25/3** |
| 30 | **FAZ-D30/1-SP** | **FAZ-D30/2** | **FAZ-D30/3** |
| 32 | **FAZ-D32/1-SP** | **FAZ-D32/2** | **FAZ-D32/3** |
| 40 | **FAZ-D40/1-SP** | **FAZ-D40/2** | **FAZ-D40/3** |
| 50 ③ | **FAZ-D50/1-SP** | **FAZ-D50/2** | **FAZ-D50/3** |
| 63 ③ | **FAZ-D63/1-SP** | **FAZ-D63/2** | **FAZ-D63/3** |

## D Curve (10–20X $I_n$ Current Rating)—Designed for Inductive Loads, continued ①

| Amperes | Four-Pole | Single-Pole + Neutral | Three-Pole + Neutral |
|---|---|---|---|
| 0.5 | **FAZ-D0.5/4** | **FAZ-D0.5/1N** | **FAZ-D0.5/3N** |
| 1 | **FAZ-D1/4** | **FAZ-D1/1N** | **FAZ-D1/3N** |
| 2 | **FAZ-D2/4** | **FAZ-D2/1N** | **FAZ-D2/3N** |
| 3 | **FAZ-D3/4** | **FAZ-D3/1N** | **FAZ-D3/3N** |
| 4 | **FAZ-D4/4** | **FAZ-D4/1N** | **FAZ-D4/3N** |
| 5 | **FAZ-D5/4** | **FAZ-D5/1N** | **FAZ-D5/3N** |
| 6 | **FAZ-D6/4** | **FAZ-D6/1N** | **FAZ-D6/3N** |
| 7 | **FAZ-D7/4** | **FAZ-D7/1N** | **FAZ-D7/3N** |
| 8 | **FAZ-D8/4** | **FAZ-D8/1N** | **FAZ-D8/3N** |
| 10 | **FAZ-D10/4** | **FAZ-D10/1N** | **FAZ-D10/3N** |
| 13 | **FAZ-D13/4** | **FAZ-D13/1N** | **FAZ-D13/3N** |
| 15 | **FAZ-D15/4** | **FAZ-D15/1N** | **FAZ-D15/3N** |
| 16 | **FAZ-D16/4** | **FAZ-D16/1N** | **FAZ-D16/3N** |
| 20 | **FAZ-D20/4** | **FAZ-D20/1N** | **FAZ-D20/3N** |
| 25 | **FAZ-D25/4** | **FAZ-D25/1N** | **FAZ-D25/3N** |
| 30 | **FAZ-D30/4** | **FAZ-D30/1N** | **FAZ-D30/3N** |
| 32 | **FAZ-D32/4** | **FAZ-D32/1N** | **FAZ-D32/3N** |
| 40 | **FAZ-D40/4** | **FAZ-D40/1N** | **FAZ-D40/3N** |
| 50 ③ | **FAZ-D50/4** | **FAZ-D50/1N** | **FAZ-D50/3N** |
| 63 ③ | **FAZ-D63/4** | **FAZ-D63/1N** | **FAZ-D63/3N** |

***Notes***

① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

② Option for single packaging on single-pole B, C and D curves only; add suffix SP when ordering.

③ IEC 60947-2 only.

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## Accessories

### FAZ-NA UL 489 Breakers

| Description | Catalog Number |
|---|---|
| Two-pole contact or auxiliary contact/trip indicating contact | **Z-NHK** ① |
| Auxiliary contact | **Z-IHK-NA** |
| Shunt trip 110–415 Vac | **FAZ-XAA-NA110-415VAC** |
| Shunt trip 12–110 Vac | **FAZ-XAA-NA12-110VAC** |
| Padlock hasp | **IS/SPE-1TE** |
| Busbar—single-pole, 6 terminals ②③④⑤ | **Z-SV/UL-16/1P-1TE/6** |
| Busbar—single-pole, 12 terminals ②③④⑤ | **Z-SV/UL-16/1P-1TE/12** |
| Busbar—single-pole, 18 terminals ②③④⑤ | **Z-SV/UL-16/1P-1TE/18** |
| Busbar—two-pole, 6 terminals ②③④⑤ | **Z-SV/UL-16/2P-2TE/6** |
| Busbar—two-pole, 12 terminals ②③④⑤ | **Z-SV/UL-16/2P-2TE/12** |
| Busbar—two-pole, 18 terminals ②③④⑤ | **Z-SV/UL-16/2P-2TE/18** |
| Busbar—three-pole, 6 terminals ②③④⑤ | **Z-SV/UL-16/3P-3TE/6** |
| Busbar—three-pole, 12 terminals ②③④⑤ | **Z-SV/UL-16/3P-3TE/12** |
| Busbar—three-pole, 18 terminals ②③④⑤ | **Z-SV/UL-16/3P-3TE/18** |
| Three-pole busbar shroud | **ZV-BS-UL** |
| Extension terminal—35 $mm^2$ (2–14 AWG) | **Z-EK/35/UL** |
| Bus connector—conductors up to 50 $mm^2$ (~1/0 AWG) | **Z-EB/50/UL** |

### FAZ UL 1077 Auxiliary Contacts

| Description | Rated Operational Voltage | Catalog Number |
|---|---|---|
| **Standard Auxiliary Contacts** | | |
| 1NO/1NC<br>Installs on left side of FAZ or shunt trip<br>Max. one per FAZ (1077) device<br>Switches when FAZ is tripped electrically or manually | 230 Vac | **FAZ-XHIN11** |
| 1 changeover contact<br>Installs on left side of FAZ or shunt trip<br>Max. one per FAZ (1077) device<br>Switches when FAZ is tripped electrically or manually | 230 Vac | **FAZ-XHINW1** |
| **Auxiliary/Trip Indicating Contact** | | |
| Small selector screw changes mode<br>Two Form C (changeover) contacts<br>Installs on left side of FAZ or shunt trip<br>Auxiliary contacts switch when FAZ is tripped electrically or manually<br>Trip indicating contact switches only when FAZ is tripped electrically | 230 Vac | **FAZ-XAM002** |
| **Undervoltage Trip** | | |
| Prevents FAZ from operating unless voltage is present<br>Installs on left side of FAZ<br>Includes test button | 115 Vac | **FAZ-XUA(115VAC)** |
| | 230 Vac | **FAZ-XUA(230VAC)** |
| | 400 Vac | **FAZ-XUA(400VAC)** |
| **Shunt Trip** | | |
| Allows remote trip of FAZ<br>Installs on left side of FAZ | 12–110 Vac<br>12–60 Vdc | **FAZ-XAA-C-12-110VAC** |
| | 110–415 Vac<br>110–230 Vdc | **FAZ-XAA-C-110-415VAC** |

### FAZ UL 1077 Busbar System

| Rated Operational Current | Number of Poles per Device | Number of Terminals | Catalog Number ⑤ |
|---|---|---|---|
| **Without Auxiliary Contacts** | | | |
| 80A | 1 | 57 | **BB-UL-18/1P-1M/57** |
| | 2 | 56 | **BB-UL-18/2P-2M/56** |
| | 3 | 57 | **BB-UL-18/3P-3M/57** |
| 100A | 1 | 57 | **BB-UL-25/1P-1M/57** |
| | 2 | 56 | **BB-UL-25/2P-2M/56** |
| | 3 | 57 | **BB-UL-25/3P-3M/57** |
| **Auxiliary/Trip Indicating Contacts** | | | |
| 80A | 1 | 37 | **BB-UL-18/1P-1,5M/37** |
| | 2 | 46 | **BB-UL-18/2P+AS-2,5M/46** |
| | 3 | 48 | **BB-UL-18/3P+AS-3,5M/48** |
| 100A | 1 | 37 | **BB-UL-25/1P-1,5M/37** |
| | 2 | 46 | **BB-UL-25/2P+AS-2,5M/46** |
| | 3 | 48 | **BB-UL-25/3P+AS-3,5M/48** |

### Pin Type Incoming Supply Terminals

| Description | Catalog Number |
|---|---|
| Accommodates conductors from 6–35 $mm^2$/#10–2 AWG<br>4–5.5 Nm/35–50 lb-in / Two- and three-pole | **BB-UL-TEP/35** |

### Pin Type Incoming Supply Terminals—Single-Phase Only

| Description | Catalog Number |
|---|---|
| Accommodates conductors from 6–35 $mm^2$/#10–2 AWG<br>4–5.5 Nm/35–50 lb-in | **BB-UL-TEPA/35** |

### Protective Accessories

| Description | Catalog Number |
|---|---|
| For covering unused terminals | **BB-IP/5** |
| Prevents reactivation of the device during maintenance<br>Holds one padlock | **IS/SPE-1TE** |

### Bus Incoming Supply Terminals

| Description | Catalog Number |
|---|---|
| 50 $mm^2$<br>#14–1 AWG<br>75 Deg wire<br>115 A/Y, 480V UL<br>160 A/Y 690V IEC | **BB-UL-TE/50** |

### Busbar End Cap

| Description | Poles | Catalog Number |
|---|---|---|
| Install after cutting busbar<br>Protects end of busbar | 2 and 3 | **BB-UL-EC/3** |
| | 1 | **BB-UL-EC/1** |

***Notes***

① Voltage of FAZ-NA circuit breaker is limited to 300V with this auxiliary contact installed.
② Do not cut commoning link.
③ A maximum of three commoning links may be used in conjunction. Each breaker connected to the commoning link must have the same number of poles for proper use.
④ Not for use with ring-tongue circuit breakers.
⑤ Bus may be center fed for high current capacity.

Series NRX Low Voltage Power Breakers

## Features

- Rogowski coil does not saturate like iron core sensors, and one sensor accommodates 200–1600A 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 Breakers**

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## Catalog Number Selection

### Series NRX Power Breakers (Exclusionary Rules Apply)

N S S6 08 3 W 52 8 A B A N 4 X N D X

**Breaker Frame Size**
**N** = Type NF, 630–1600A, (70 mm pole spacing)

**Standard, Mechanism, Device**
**S** = UL 1066, stored energy, power breaker
**X** = UL 489, stored energy, insulated case breaker
**E** = IEC 60947-2, stored energy, air breaker

**Fault Current Rating**
**S4** = 42 kA at 480 Vac UL or 415 Vac IEC
**S5** = 50 kA at 480 Vac UL or 415 Vac IEC
**S6** = 65 kA at 480 Vac UL or 415 Vac IEC

**Frame Rating (Amperes)**

| | |
|---|---|
| **07** = 630 (IEC only) | **12** = 1200 (UL only) |
| **08** = 800 | **13** = 1250 (IEC only) |
| **10** = 1000 (IEC only) | **16** = 1600 (On NF: IEC only) |

**Poles, Phasing**
**3** = Three-pole, ABC
**4** = Four-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
**T** = Fixed mount front connect, surface mount, cable connect, with secondary terminal row
**F** = Fixed mount front connect, mounting bracket, bus connect, with secondary terminal row
**S** = Fixed mount front connect, surface mount, bus connect, with secondary terminal row

**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, 24 Vdc
**M3** = 520M LSI, with ZSI, 24 Vdc
**MA** = 520M LSIA, no ZSI, 24 Vdc
**MB** = 520M LSIA, with ZSI, 24 Vdc
**MG** = 520M LSIG, no ZSI, 24 Vdc
**MH** = 520M LSIG, with ZSI, 24 Vdc
**R2** = 520M LSI, no ZSI, 24 Vdc, with Arcflash Reduction Maintenance System™
**R3** = 520M LSI, with ZSI, 24 Vdc, with Arcflash Reduction Maintenance System
**RA** = 520M LSIA, no ZSI, 24 Vdc, with Arcflash Reduction Maintenance System
**RB** = 520M LSIA, with ZSI, 24 Vdc, with Arcflash Reduction Maintenance System
**RG** = 520M LSIG, no ZSI, 24 Vdc, with Arcflash Reduction Maintenance System
**RH** = 520M LSIG, with ZSI, 24 Vdc, with Arcflash Reduction Maintenance System
**SW** = Non-auto switch

**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** = No shunt trip
**A** = 110–127 Vac/Vdc
**R** = 208–240 Vac/Vdc
**L** = 24 Vdc
**H** = 48 Vdc

**Motor Operator** ①
**M** = Manually operated
**B** = 110–125 Vac
**W** = 110–125 Vdc
**T** = 208–250 Vac
**P** = 220–250 Vdc
**L** = 24 Vdc
**H** = 48 Vdc

**Spring Release, Latch Check Switch** ①
**N** = No spring release, no LCS
**A** = 110–127 Vac/Vdc, no LCS
**R** = 208–240 Vac/Vdc, no LCS

**UVR, Second Shunt Trip** ①
**N** = None
**A** = 110–125 Vac/Vdc UVR
**R** = 220–250 Vac/Vdc UVR
**1** = 110–127 Vac/Vdc second shunt trip
**2** = 208–240 Vac/Vdc second shunt trip

**Auxiliary, Switches, Label Language** ①
**E** = No auxiliary switches, no label (parent)
**2** = 2 Form C, English
**4** = 4 Form C, English

**Trip Indicator and 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
**M** = Interlock trip indicator provided, no OTS, secondary terminal blocks per breaker options
**Y** = Trip indicator provided, 2 Form C OTS, secondary terminal blocks per breaker options
**1** = No indicator, no OTS, full complement secondary terminal blocks
**2** = Trip indicator, no OTS, full complement secondary terminal blocks
**3** = Trip indicator provided, 2 Form C OTS, full complement secondary terminal blocks
**4** = Interlock trip indicator provided, no OTS, full complement secondary terminal blocks
**5** = Interlock trip indicator provided, 2 Form C, full complement secondary terminal blocks

**Padlock Provisions, Key Lock Provisions, Operations Counter** ①
**N** = No PB covers, none, no counter

**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, no shutters, no terminals, with door frame kit
**K** = Fixed breaker, no adapters, rear connector, with door frame kit, with mounting feet, with door frame kit
**A** = Terminal adapters for rear connect, short vertical/horizontal, with door frame kit
**E** = Terminal adapters for rear connect, long vertical/horizontal, with door frame kit
**F** = Terminal adapters for rear connect, with mounting feet, short vertical/horizontal, with door frame kit
**H** = Terminal adapters for rear connect, with mounting feet, long vertical/horizontal, with door frame kit
**1** = Drawout breaker in cassette, no shutters, short vertical/horizontal, with door frame kit
**2** = Drawout breaker in cassette, no shutters, long vertical/horizontal, with door frame kit
**4** = Drawout breaker in cassette, with shutters, short vertical/horizontal, with door frame kit
**5** = Drawout breaker in cassette, with shutters, long vertical/horizontal, with door frame kit
**9** = Drawout breaker in cassette, with shutters, no terminals, with door frame kit

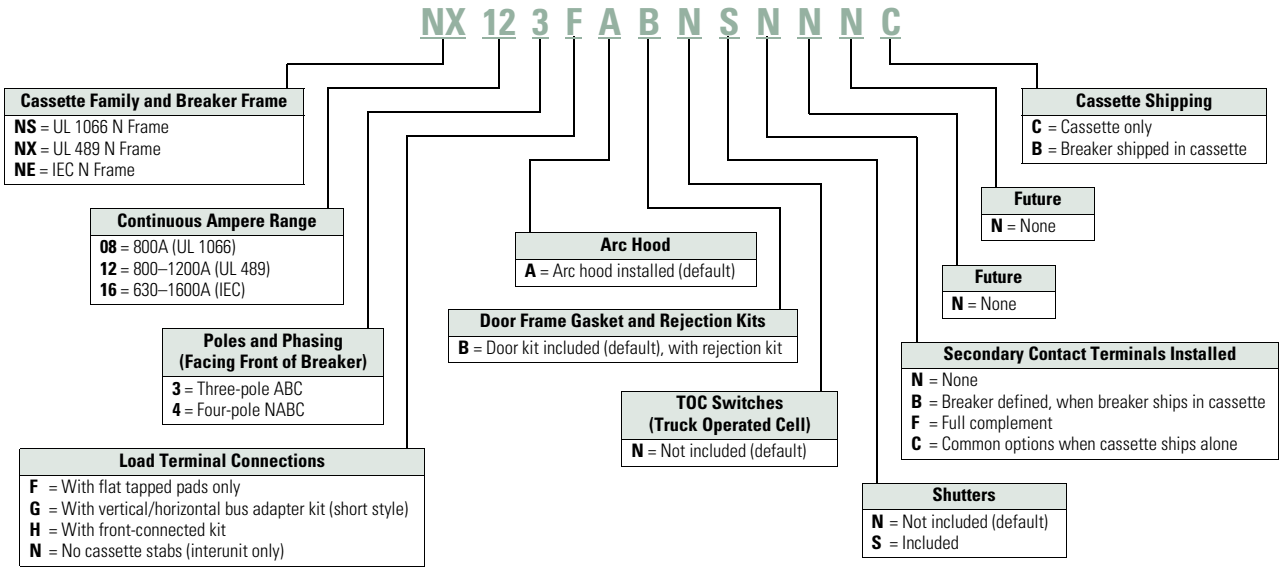
**Future Use**
**X** = All product

***Note***

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

## Catalog Number Selection

### Series NRX Cassettes




## Product Selection

### Series NRX Low Voltage Power Breakers

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

***Notes***

① See **Page V9-T1-34** for cassette selection for drawout breakers.

② See selection above for accessories in positions 12–20.

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**Magnum Low Voltage Power Breakers**

## Features

- 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 three 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 Low Voltage Power Breakers

## Catalog Number Selection

### Magnum ANSI/UL Low Voltage Power Breakers

**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
**D** = Double (MDDX only)

**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** = Three-pole
**4** = Four-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) | **H** = MA800 |
| **D** = MA250 | **K** = MB1200 |
| **E** = MA300 | **L** = MB1600 |
| **F** = MA400 | **M** = MB2000 |
| **G** = MA600 | **N** = MD2500 |
| | **P** = MD3000 |

**Sensor and Rating Plug Rating**

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

**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 (24/48 Vdc)
**MU** = 520M LSI (120 Vac)
**MV** = 520M LSI (240 Vac)
**MQ** = 520M LSI (125 Vac)
**MG** = 520M LSIG
**MH** = 520M LSIG (24/48 Vdc)
**MM** = 520M LSIG (120 Vac)
**MN** = 520 LSIG (240 Vac)
**MX** = 520M LSIG (125 Vac)
**ME** = 520M LSIA (24/48 Vdc)
**MC** = 520 LSIA (120 Vac)
**MF** = 520M LSIA (240 Vac)
**MZ** = 520M LSIA (125 Vac)
**CT** = 520MC LSI (24/48 Vdc)
**CU** = 520MC LSI (120 Vac)
**CV** = 520MC LSI (240 Vac)
**CQ** = 520MC LSI (125 Vac)
**CH** = 520MC LSIG (24/48 Vdc)
**CM** = 520MC LSIG (120 Vac)
**CN** = 520MC LSIG (240 Vac)
**CX** = 520MC LSIG (125 Vac)
**CE** = 520MC LSIA (24/48 Vdc)
**CC** = 520MC LSIA (120 Vac)
**CF** = 520MC LSIA (240 Vac)
**CY** = 520MC LSIA (125 Vac)
**1A** = 1150 LSI (24/48 Vdc)
**1C** = 1150 LSI (120 Vac)
**1E** = 1150 LSI (240 Vac)
**1Q** = 1150 LSI (125 Vac)
**1F** = 1150 LSIG (24/48 Vdc)
**1G** = 1150 LSIG (120 Vac)
**1H** = 1150 LSIG (240 Vac)
**1X** = 1150 LSIG (125 Vac)
**1J** = 1150 LSIA (24/48 Vdc)
**1K** = 1150 LSIA (120 Vac)
**1M** = 1150 LSIA (240 Vac)
**1Y** = 1150 LSIA (125 Vac)

**Shunt Trip (ST)**
**N** = None
**A** = 110–127 Vac/Vdc
**R** = 208–240 Vac/Vdc
**C** = 24 Vdc
**H** = 48 Vdc

**Motor Operator**
**M** = Manual operated
**N** = 110–125 Vac
**W** = 110–125 Vdc
**T** = 220–250 Vdc
**P** = 220–240 Vac
**L** = 24 Vdc
**K** = 48 Vdc

**Spring Release Device (SRD)**
**N** = None
**A** = 110–127 Vac/Vdc
**R** = 208–240 Vac/Vdc
**C** = 24 Vdc
**H** = 48 Vdc

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

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

**Bell Alarms 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 |

**Frame Use**
**X** = All breakers

**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 (unwired)
**P** = Drawout breaker in cassette (prewired)
**S** = Drawout breaker in cassette (shutters)
**W** = Drawout breaker in cassette (prewired and shutters)
Double frame drawout breakers ship without cassette drawout. ACBs ship in narrow and universal cassettes only.

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

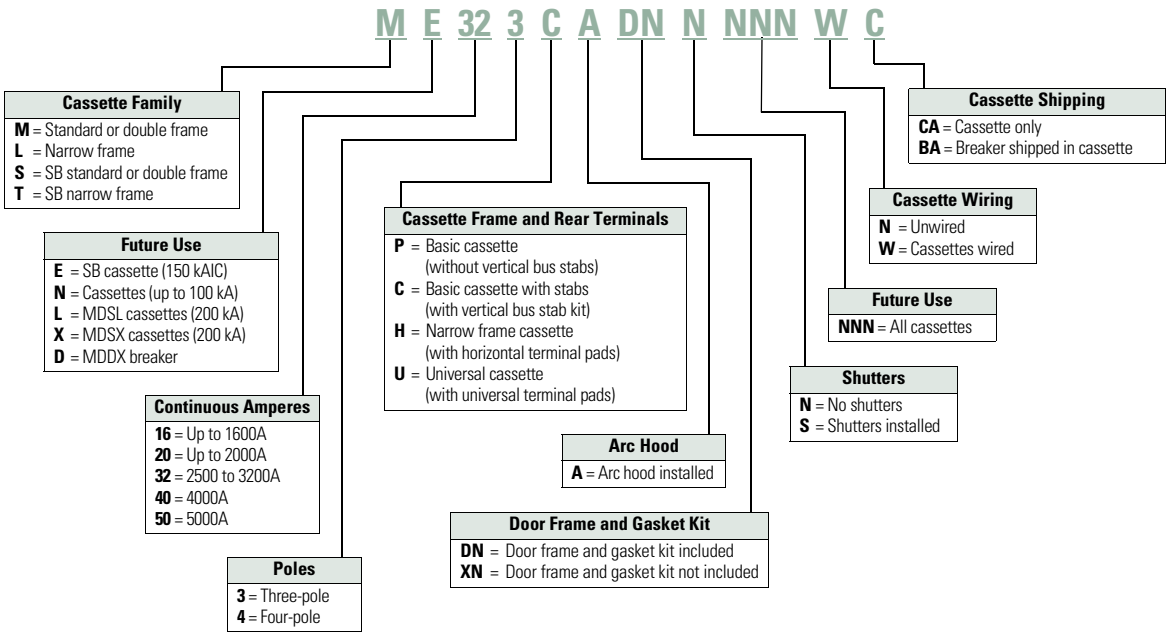
| | Latch Check Switch | 1150 Voltage Connection |
|---|---|---|
| **N** = | None | Upper terminals |
| **M** = | None | Lower terminals |
| **L** = | LCS wired to SRD | Upper terminals |
| **Y** = | LCS wired to SRD | Lower terminals |
| **C** = | LCS wired external | Upper terminals |
| **D** = | LCS wired external | Lower terminals |

**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 |

**Padlock Provisions for Blocking Close and/or Open ACB Manual Pushbuttons**
**N** = None
**M** = Metal (block close and open)
**P** = Plastic (block close and open)
**C** = Metal (block close only)
**H** = Plastic (block close only)
**S** = Metal swbd lock-off (block close, depress open)

## Magnum ANSI/UL Low Voltage Air Circuit Breaker Cassettes



## Magnum IEC Low Voltage Air Circuit Breakers

**MW I 4 08 3 H E A – 02 22 A M A A 2 E M K L A X**

**Breaker Frame**
- **I** = Standard or double
- **N** = Narrow
- **K** = Special 1100 Vac ACB

**Interrupting $I_{CU}$**
- **4** = 40 kA
- **5** = 50 kA
- **6** = 65 kA
- **8** = 85 kA
- **C** = 100 kA
- **2** = 25 kA (1100 Vac MWK)

**Continuous Amperes and Phasing (Facing Front of Breaker)**
- **08** = 800 ABC
- **10** = 1000 ABC
- **12** = 1250 ABC
- **16** = 1600 ABC
- **20** = 2000 ABC
- **25** = 2500 ABC
- **32** = 3200 ABC
- **4N** = 4000 AABBCC
- **5N** = 5000 AABBCC
- **6N** = 6300 AABBCC
- **40** = 4000 ABCABC
- **50** = 5000 ABCABC
- **60** = 6300 ABCABC

**Poles and Neutral (Facing Front of Breaker)**
- **3** = Three
- **4** = Four (neutral left)
- **R** = Four (reserved for neutral right)

**Mounting Configuration and Load Terminals**
- **H** = Fixed horizontal
- **V** = Fixed vertical
- **L** = Drawout horizontal

**Nameplate Language**
- **E** = English
- **A** = Spanish

**Sensor and Rating Plug Rating**

| | |
|---|---|
| **NN** = None | **13** = 1250 |
| **02** = 200 | **16** = 1600 |
| **05** = 250 | **20** = 2000 |
| **03** = 300 | **25** = 2500 |
| **04** = 400 | **30** = 3000 |
| **06** = 600 | **32** = 3200 |
| **07** = 630 | **40** = 4000 |
| **08** = 800 | **50** = 5000 |
| **10** = 1000 | **63** = 6300 |
| **12** = 1200 | |

**Trip Unit Protection, (and External Control Voltage When Required)**
- **NN** = Non-automatic (no trip unit)
- **22** = 220 LI
- **52** = 520 LSI
- **5W** = 520i LSIG
- **M2** = 520M LSI
- **MT** = 520M LSI (24–48 Vdc)
- **MU** = 520M LSI (120 Vac)
- **MV** = 520M LSI (240 Vac)
- **MW** = 520Mi LSIG
- **MJ** = 520Mi LSIG (24–48 Vdc)
- **MK** = 520Mi LSIG (120 Vac)
- **ML** = 520Mi LSIG (240 Vac)
- **ME** = 520M LSIA (24–48 Vdc)
- **MC** = 520M LSIA (120 Vac)
- **MF** = 520M LSIA (240 Vac)
- **CT** = 520MC LSI
- **CU** = 520MC LSI
- **CV** = 520MC LSI
- **CE** = 520MC LSIA
- **CC** = 520MC LSIA
- **CF** = 520MC LSIA
- **CJ** = 520MCi LSIG
- **CK** = 520MCi LSIG
- **CL** = 520MCi LSIG
- **1W** = 1150i LSI (24–48 Vdc)
- **1N** = 1150i LSI (120 Vac)
- **1P** = 1150i LSI (240 Vac)
- **1R** = 1150i LSIG/A (24–48 Vdc)
- **1S** = 1150i LSIG/A (120 Vac)
- **1T** = 1150i LSIG/A (240 Vac)

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

**Undervoltage Release (UVR) or 2nd Shunt Trip Attachment (STA)**
- **N** = None
- **A** = 110–127 Vac
- **R** = 208–240 Vac
- **C** = 24 Vdc
- **H** = 48 Vdc
- **E** = 110–125 Vdc
- **F** = 220–250 Vdc
- **G** = 32 Vdc
- **X** = 380–415 Vac
- **J** = 480 Vac
- **K** = 600 Vac
- **1** = 2nd STA (110–127 Vac/Vdc)
- **2** = 2nd STA (208–250 Vac/Vdc)
- **3** = 2nd STA (24 Vdc)
- **4** = 2nd STA (48 Vdc)

**Spring Release Device (SRD)**
- **N** = None
- **A** = 110–127 Vac/Vdc
- **R** = 208–240 Vac/Vdc
- **C** = 24 Vdc
- **H** = 48 Vdc

**Motor Operator**
- **M** = Manual operated
- **N** = 110–125 Vac
- **W** = 110–125 Vdc
- **T** = 220–250 Vdc
- **P** = 220–250 Vac
- **L** = 24 Vdc
- **K** = 48 Vdc

**Shunt Trip Attachment (STA)**
- **N** = None
- **A** = 110–127 Vac
- **R** = 208–240 Vac
- **C** = 24 Vdc
- **H** = 48 Vdc

**Latch Checking Switch/Trip Unit Metering Voltage Connection for Digitrip 1150 Trip Unit**

| | Latch Check Switch | 1150 Voltage Connection |
|---|---|---|
| **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 |

**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 |
| **T** = | Counter | Kirk lock |
| **L** = | Counter | Castell lock |
| **H** = | Counter | Ronis lock |

**Padlock Provisions for Blocking Close and/or Open ACB Manual Pushbuttons**
- **N** = None
- **M** = Metal (block close and open)
- **P** = Plastic (block close and open)
- **C** = Metal (block close only)
- **H** = Plastic (block close only)

**Bell Alarms 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 OT | With indicator |

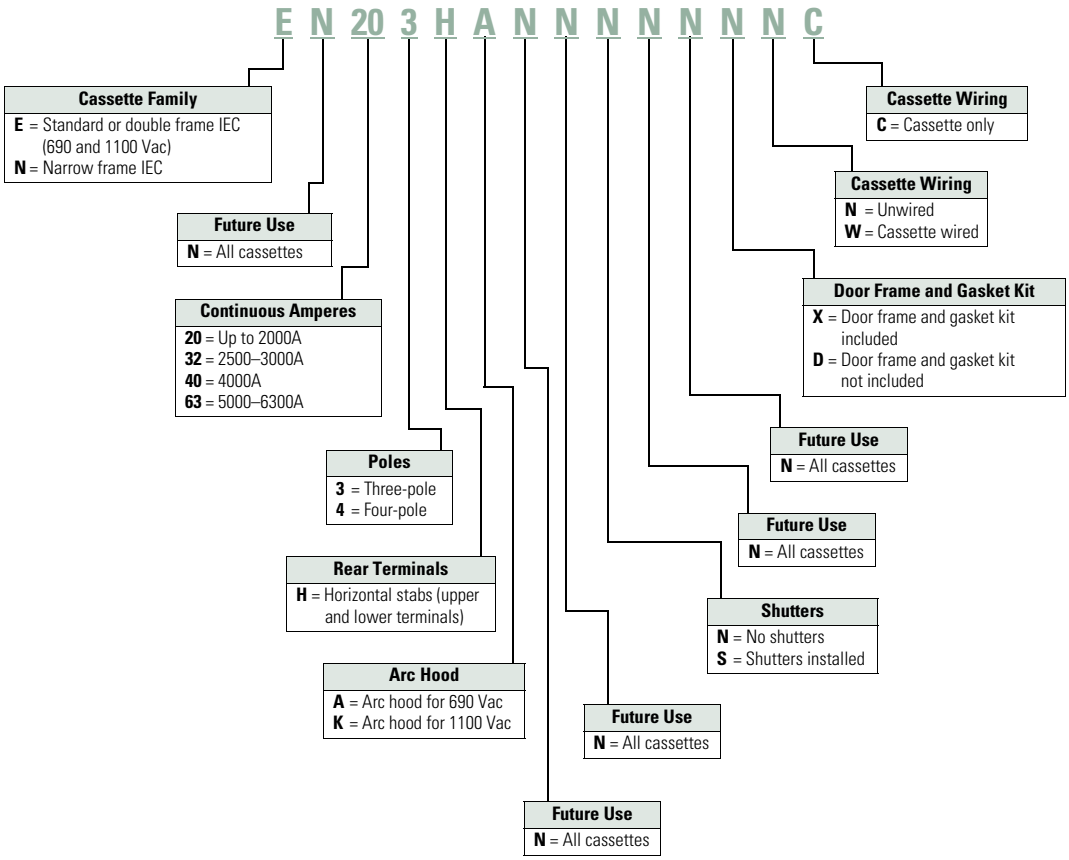
**ACB Shipping Instructions**
- **A** = Fixed ACB with door kit
- **F** = Fixed ACB without door kit
- **A** = D/O ACB only without door kit
- **C** = D/O ACB in cassette (unwired)
- **P** = D/O ACB in cassette (prewired)
- **S** = D/O ACB in cassette (shutters)
- **W** = D/O ACB in cassette (prewired and shutters)

Double frame D/O ACBs ship without cassette

**Future Use**
- **X** = All ACBs

1

## Magnum IEC Low Voltage Air Circuit Breaker Cassettes



## Product Selection

### Magnum DS Switchgear Class UL 1066 Low Voltage Power Circuit Breakers

| Frame Type | RMS Symmetrical Current Ratings kA 50/60 Hz ① Interrupting at 254 Vac | Interrupting at 508 Vac | Interrupting at 635 Vac | Short Time Current Rating | Frame Amperes | Breaker Type ② |
|---|---|---|---|---|---|---|
| Narrow | 42 | 42 | 42 | 42 | 800 | **MDN-408** |
| | 50 | 50 | 50 | 50 | | **MDN-508** |
| | 65 | 65 | 65 | 65 | | **MDN-608** |
| | 100 | 100 | 65 | 20 | | **MDN-C08** |
| Standard | 42 | 42 | 42 | 42 | 800 | **MDS-408** |
| | 65 | 65 | 65 | 65 | | **MDS-608** |
| | 85 | 85 | 85 | 85 | | **MDS-808** |
| | 100 | 100 | 100 | 85 | | **MDS-C08** |
| | 200 | 200 | 200 | — | | **MDS-L08** ③ |
| | 200 | 200 | ④ | 30 | | **MDS-X08** ⑤⑥ |
| Narrow | 42 | 42 | 42 | 42 | 1600 | **MDN-416** |
| | 50 | 50 | 50 | 50 | | **MDN-516** |
| | 65 | 65 | 65 | 65 | | **MDN-616** |
| | 100 | 100 | 65 | 30 | | **MDN-C16** |
| Standard | 65 | 65 | 65 | 65 | 1600 | **MDS-616** |
| | 85 | 85 | 85 | 85 | | **MDS-816** |
| | 100 | 100 | 100 | 85 | | **MDS-C16** |
| | 200 | 200 | 200 | — | | **MDS-L16** ③ |
| | 200 | 200 | ④ | 30 | | **MDS-X16** ⑤ |
| Narrow | 65 | 65 | 65 | 65 | 2000 | **MDN-620** |
| | 100 | 100 | 65 | 35 | | **MDN-C20** |
| Standard | 65 | 65 | 65 | 65 | 2000 | **MDS-620** |
| | 85 | 85 | 85 | 85 | | **MDS-820** |
| | 100 | 100 | 100 | 85 | | **MDS-C20** |
| | 200 | 200 | 200 | — | | **MDS-L20** ③ |
| | 200 | 200 | ④ | 30 | | **MDS-X20** ⑤ |
| | 65 | 65 | 65 | 65 | 3200 | **MDS-632** |
| | 85 | 85 | 85 | 85 | | **MDS-832** |
| | 100 | 100 | 100 | 85 | | **MDS-C32** |
| Double | 200 | 200 | ④ | 50 | 3200 | **MDS-X32** ⑤ |
| Double (N) | 85 | 85 | ④ | 85 | 4000 | **MDN-840** |
| | 100 | 100 | ④ | 100 | | **MDN-C40** |
| Double | 85 | 85 | 85 | 85 | 4000 | **MDS-840** |
| | 100 | 100 | 100 | 100 | | **MDS-C40** |
| | 200 | 200 | ④ | 50 | | **MDS-X40** ⑤ |
| | 200 | 200 | ④ | 100 | 4000 | **MDD-X40** |
| | 85 | 85 | 85 | 85 | 5000 | **MDS-850** |
| | 100 | 100 | 100 | 100 | | **MDS-C50** |
| | 200 | 200 | ④ | 50 | | **MDS-X50** ⑤⑦ |
| | 200 | 200 | ④ | 100 | | **MDD-X50** |
| | 100 | 100 | 100 | 100 | 6000 | **MDS-C60** ⑦ |
| | 200 | 200 | ④ | 100 | | **MDD-X60** |

***Notes***

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 V9-T1-40** for selection of trip unit and accessories. See **Page V9-T1-40** for cassette selection for drawout breakers.

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 600 Vac.

④ Product to be tested. Contact Eaton for product rating.

⑤ Magnum MDSX current limiting power circuit breaker with fast opening contacts.

⑥ Contact Eaton for availability.

⑦ 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 Interrupting at 254 Vac | Interrupting at 508 Vac | Interrupting at 635 Vac | Short Time Current Rating | Frame Amperes | Breaker Type ② |
|---|---|---|---|---|---|---|
| Narrow | 50 | 50 | 35 | 20 | 800 | **SBN-508** |
| | 65 | 65 | 42 | 20 | | **SBN-608** |
| | 100 | 100 | 65 | 20 | | **SBN-C08** |
| Standard | 65 | 65 | 65 | 20 | 800 | **SBS-608** |
| | 100 | 100 | 85 | 20 | | **SBS-C08** |
| | 200 | 150 | ② | 30 | | **SBS-E08** ③ |
| Narrow | 50 | 50 | 35 | 25 | 1200 | **SBN-512** |
| | 65 | 65 | 42 | 25 | | **SBN-612** |
| | 100 | 100 | 65 | 25 | | **SBN-C12** |
| Standard | 65 | 65 | 65 | 25 | 1200 | **SBS-612** |
| | 100 | 100 | 85 | 25 | | **SBS-C12** |
| | 200 | 150 | ② | 30 | | **SBS-E12** ③ |
| Narrow | 50 | 50 | 35 | 30 | 1600 | **SBN-516** |
| | 65 | 65 | 42 | 30 | | **SBN-616** |
| | 100 | 100 | 65 | 30 | | **SBN-C16** |
| Standard | 65 | 65 | 65 | 30 | 1600 | **SBS-616** |
| | 100 | 100 | 85 | 30 | | **SBS-C16** |
| | 200 | 150 | ② | 30 | | **SBS-E16** ③ |
| Narrow | 65 | 65 | 65 | 35 | 2000 | **SBN-620** |
| | 100 | 100 | 65 | 35 | | **SBN-C20** |
| Standard | 65 | 65 | 65 | 35 | 2000 | **SBS-620** |
| | 100 | 100 | 85 | 35 | | **SBS-C20** |
| | 200 | 150 | ② | 30 | | **SBS-E20** ③ |
| | 65 | 65 | 65 | 45 | 2500 | **SBS-625** |
| | 100 | 100 | 85 | 45 | | **SBS-C25** |
| Double | 200 | 150 | ② | 50 | | **SBS-E25** ③ |
| Standard | 65 | 65 | 65 | 50 | 3000 | **SBS-630** |
| | 100 | 100 | 85 | 50 | | **SBS-C30** |
| Double | 200 | 150 | ② | 50 | | **SBS-E30** ③ |
| Double (N) | 85 | 85 | ③ | 85 | 4000 | **SBN-840** |
| | 100 | 100 | ③ | 100 | | **SBN-C40** |
| Double | 85 | 85 | 85 | 85 | | **SBS-840** |
| | 100 | 100 | 100 | 100 | | **SBS-C40** |
| | 200 | 150 | ② | 50 | | **SBS-E40** ③ |
| | 85 | 85 | 85 | 85 | 5000 | **SBS-850** |
| | 100 | 100 | 100 | 100 | | **SBS-C50** |
| | 200 | 150 | ② | 50 | | **SBS-E50** ③④ |
| | 100 | 100 | 100 | 100 | 6000 | **SBS-C60** ④ |

***Notes***

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.

## Magnum IEC 60947-2 Rated Low Voltage Air Circuit Breakers

| Frame Amperes | Breaker Type | Frame Type | rms Symmetrical Current Ratings kA ① Interrupting at 240 Vac $I_{CU} = I_{CS}$ | Interrupting at 440 Vac $I_{CU} = I_{CS}$ | Interrupting at 690 Vac $I_{CU} = I_{CS}$ | Withstand Rating $I_{CW}$ 1-Sec/3-Sec | Fixed Internal Inst. Trip | Available Current Sensor and Rating Plugs for Digitrip RMS Trip Unit (Establishes Breaker $I_n$ Rating) |
|---|---|---|---|---|---|---|---|---|
| 800 | MWN-408 | Narrow | 40 | 40 | 40 | 40/— | — | 200, 250, 300, 400, 630, 800 |
| | MWN-508 | Narrow | 50 | 50 | 50 | 50/— | — | |
| | MWN-608 | Narrow | 65 | 65 | 65 | 65/40 | — | |
| | MWI-608 | Standard | 65 | 65 | 65 | 65/— | — | |
| | MWI-808 | Standard | 85 | 85 | 85 | 85/65 | — | |
| | MWI-C08 | Standard | 100 | 100 | 85 | 85/65 | 85 | |
| 1000 | MWN-410 | Narrow | 40 | 40 | 40 | 40/— | — | 200, 250, 300, 400, 630, 800, 1000 |
| | MWN-510 | Narrow | 50 | 50 | 50 | 50/— | — | |
| | MWN-610 | Narrow | 65 | 65 | 65 | 65/40 | — | |
| | MWI-610 | Standard | 65 | 65 | 65 | 65/— | — | |
| | MWI-810 | Standard | 85 | 85 | 85 | 85/65 | — | |
| | MWI-C10 | Standard | 100 | 100 | 85 | 85/65 | 85 | |
| 1250 | MWN-412 | Narrow | 40 | 40 | 40 | 40/— | — | 200, 250, 300, 400, 630, 800, 1000, 1250 |
| | MWN-512 | Narrow | 50 | 50 | 50 | 50/— | — | |
| | MWN-612 | Narrow | 65 | 65 | 65 | 65/40 | — | |
| | MWI-612 | Standard | 65 | 65 | 65 | 65/— | — | |
| | MWI-812 | Standard | 85 | 85 | 85 | 85/65 | — | |
| | MWI-C12 | Standard | 100 | 100 | 85 | 85/65 | 85 | |
| 1600 | MWN-516 | Narrow | 50 | 50 | 50 | 50/— | — | 200, 250, 300, 400, 630, 800, 1000, 1250, 1600 |
| | MWN-616 | Narrow | 65 | 65 | 65 | 65/40 | — | |
| | MWI-616 | Standard | 65 | 65 | 65 | 65/— | — | |
| | MWI-816 | Standard | 85 | 85 | 85 | 85/65 | — | |
| | MWI-C16 | Standard | 100 | 100 | 85 | 85/65 | 85 | |
| 2000 | MWN-520 | Narrow | 50 | 50 | 50 | 50/30 | — | 200, 250, 300, 400, 630, 800, 1000, 1250, 1600, 2000 |
| | MWN-620 | Narrow | 65 | 65 | 65 | 65/40 | — | |
| | MWI-620 | Standard | 65 | 65 | 65 | 65/50 | — | |
| | MWI-820 | Standard | 85 | 85 | 85 | 85/65 | — | |
| | MWI-C20 | Standard | 100 | 100 | 85 | 85/65 | 85 | |
| 2500 | MWI-625 | Standard | 65 | 65 | 65 | 65/— | — | 200, 250, 300, 400, 630, 800, 1000, 1250, 1600, 2000, 2500 |
| | MWI-825 | Standard | 85 | 85 | 85 | 85/65 | — | |
| | MWI-C25 | Standard | 100 | 100 | 85 | 85/65 | 85 | |
| 3200 | MWI-632 | Standard | 65 | 65 | 65 | 65/50 | — | 200, 250, 300, 400, 630, 800, 1000, 1250, 1600, 2000, 2500, 3200 |
| | MWI-832 | Standard | 85 | 85 | 85 | 85/65 | — | |
| | MWI-C32 | Standard | 100 | 100 | 85 | 85/65 | 85 | |
| 4000 | MWI-64N | Double | 65 | 65 | 65 | 65/— | — | 2000, 2500, 3200, 4000 |
| | MWI-84N | Double | 85 | 85 | 85 | 85/— | — | |
| | MWI-C4N | Double | 100 | 100 | 100 | 100/— | — | |
| 5000 | MWI-85N | Double | 85 | 85 | 85 | 85/— | — | 2500, 3200, 4000, 5000 |
| | MWI-C5N | Double | 100 | 100 | 100 | 100/— | — | |
| 6300 | MWI-86N | Double | 85 | 85 | 85 | 85/— | — | 3200, 4000, 5000, 6300 |
| | MWI-C6N | Double | 100 | 100 | 100 | 100/— | — | |

***Note***

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 breaker $I_{cw}$ rating.

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## Product Overview

### Fuse Blocks and Fuse Holders

| Description | C350 Series |
|---|---|
| | Page V9-T1-45 |
| **Technical Data** | |
| 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 94VO flammability rating |
| Clip/terminal construction | Tin-plated copper alloy |
| Screw/pressure plate construction | Zinc-plated steel |
| Dielectric strength | 1200V |
| **Approvals** | |
| | UL, CSA |

For our complete product offering, see Volume 4—Circuit Protection, CA08100005E.

**C350 Series Fuse Blocks and Fuse Holders**

## Features

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

## Product Selection

### C350 Series

#### Fuse Blocks and Fuse Holders

| Wire Termination | Number of Poles | 250V 30A Catalog Number | Carton Qty. | 60A Catalog Number | Carton Qty. | 600V 30A Catalog Number | Carton Qty. | 60A Catalog Number | 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 | — | — |

1

# Open Rotary Disconnects

## Product Overview

### Rotary Disconnect Switch Selection Guide

| Description |  R5 Series Non-Fusible 16–80A |  R9 Series Non-Fusible 30–100A Compact |  R9 Series Non-Fusible 100–1200A |
|---|---|---|---|
| | Page V9-T1-48 | Page V9-T1-50 | Page V9-T1-52 |
| **Product Description** | | | |
| | R5 Series (UL 508 listed) products are manually operated modular switches. Load break switching and isolation provide safety solutions for any low voltage circuit, particularly for machine and control circuits. The R5 Series products are manual motor controllers suitable as motor disconnect. | The R9 Series (UL 98 listed) non-fusible 30–100A compact range ensures making or breaking on load and safety isolation for low voltage electrical circuits, particularly for machine control circuits up to 600V. | The R9 Series (UL 98 listed) non-fusible 100–1200A are manually operated multipole load-break switches. Quick-make, quick-break design provides safety isolation for any low voltage circuit. |
| **Approvals** | | | |
| | UL 508 listed, Guide NLRV, File E165150<br>CSA C22.2 No.14, File 217736<br>IEC 60947-3, EN 60947-3<br>CCC | UL 98, File E222859<br>CSA 22.2 No. 4, File 217736<br>IEC 60947-3<br>EN 60947-3 | UL 98, File E222859<br>CSA 22.2 No. 4, File 217736<br>IEC 60947-3<br>EN 60947-3 |

| Description |  R9 Series Fusible 30–800A |  R9 Series DC Rated Disconnects |  Manual Transfer Switches |
|---|---|---|---|
| | Page V9-T1-54 | Page V9-T1-59 | Page V9-T1-60 |
| **Product Description** | | | |
| | R9 Series (UL 98 listed) Fusible 30–800A manual operated multi-pole fusible disconnect switches use double break contacts per pole that ensure complete isolation of the fuse when the switch is in the OFF position.<br>When installed with fuses, they provide protection for low voltage electrical installations against short circuit and overload. | UL listed disconnect switches 600 Vdc for photovoltaic applications 100 to 400A<br>R9 Series (UL 98 listed) DC rated disconnects are manually operated multi-pole load break switches. They provide safety isolation for any low voltage circuit in a photovoltaic application. | R9 Series (UL 98 listed) non-fusible disconnects are heavy-duty manual transfer switches, they transfer load manually between two low voltage circuits and provide safety disconnection.<br>These switches are extremely durable and are tested and approved for use in the most demanding applications as resistive load or total system applications. |
| **Approvals** | | | |
| | UL 98, File E222859 for 30 to 800A ratings<br>UL 489, File E305341 for H Frame switches<br>CSA 22.2 No. 4, File 217736<br>CSA 22.2 No. 5, File 217736, H Frame only<br>IEC 60947-1, EN 60947-1<br>IEC 60947-3, EN 60947-3<br>CE mark<br>NFPA® 79 | UL 98, cULus®, File E222859<br>CSA 22.2 No. 4, File 217736 ①<br>IEC 60947-3<br>EN 60947-3<br>IEC 60-364-7-712 (Rules for the installations and sites special—photovoltaic applications) | UL 98, cULus, File E222859<br>UL 1008 (2011)<br>CSA 22.2 No. 4, File 217736<br>IEC 60947-3<br>EN 60947-3 |

***Note***

① Q4 2010

## Catalog Number Selection

### Disconnects

R5 A 3 016 U __

**UL Listing**
**R5** = UL 508
**R9** = UL 98
**R4** = UL 489

**Frame Designation**
**A** = UL 508 (16–40A)
**B** = UL 508 (60–80A)
**C** = UL 98 Non-fusible (30–100A modular)
**V** = UL 98 Non-fusible (60–100A visible blade)
**D** = UL 98 Non-fusible (100–200A)
**E** = UL 98 Non-fusible (400A)
**F** = UL 98 Non-fusible (600A)
**G** = UL 98 Non-fusible (800–1200A)
**H** = UL 489 Fusible (30A compact)
**I** = UL 98 Fusible (30A)
**J** = UL 98 Fusible (30–60A)
**K** = UL 98 Fusible (60–100A)
**L** = UL 98 Fusible (200A)
**M** = UL 98 Fusible (400A)
**N** = UL 98 Fusible (600–800A)

**Phase**
**2** = Two-pole
**3** = Three-pole
**4** = Four-pole

**Ampere Rating**
**016** = 16A
**025** = 25A
**030** = 30A
**040** = 40A
**060** = 60A
**080** = 80A
**100** = 100A
**200** = 200A
**400** = 400A
**600** = 600A
**800** = 800A
**1000** = 1000A
**1200** = 1200A

**Protection**
**U** = Non-fusible
**F** = Fusible

**Fuse Type Accepted**
**CC** = Class CC
**J** = Class J
**L** = Class L
**Blank** = Non-fusible device

### External Handles

SH B 00 4X F __

**Handle Type**
**SH** = Selector handle
**PH** = Pistol handle

**Color**
**B** = Black/blue
**R** = Red/yellow

**Size (Smallest to Largest)**
**00** = Size 00
**0** = Size 0
**1** = Size 1
**2** = Size 2
**3** = Size 3
**4** = Size 4

**NEMA Type Rating**
**12** = Type 1, 3R, 12
**4X** = Type 4, 4X

**Operation**
**F** = Front
**S** = Right side
**Blank** = Front or right side

**Additional Features** ①
**T** = Test position function
**Blank** = No test function

### Shafts

SF 150 SH 5X5 __

**Product Type**
**SF** = Shaft

**Length**
**55** = 55 mm
**90** = 90 mm
**150** = 150 mm
**200** = 200 mm
**320** = 320 mm
**400** = 400 mm
**500** = 500 mm

**Applicable Handle Type**
**SH** = Selector handle
**PH** = Pistol handle

**Shaft Cross Section**
**5x5** = 5 mm x 5 mm
**6x6** = 6 mm x 6 mm
**10x10** = 10 mm x 10 mm
**12x12** = 12 mm x 12 mm
**15x12** = 15 mm x 12 mm

**Additional Features** ②

***Notes***

① **HV** at the end of some catalog numbers indicates use with H and V switches only. Not all handles are designed to go with all disconnects. Consult specific section of the catalog for available options.

② **H** at the end of some catalog numbers indicates use with H Frame switches only. Not all shafts are designed to go with all disconnects. Consult specific section of the catalog for available options.

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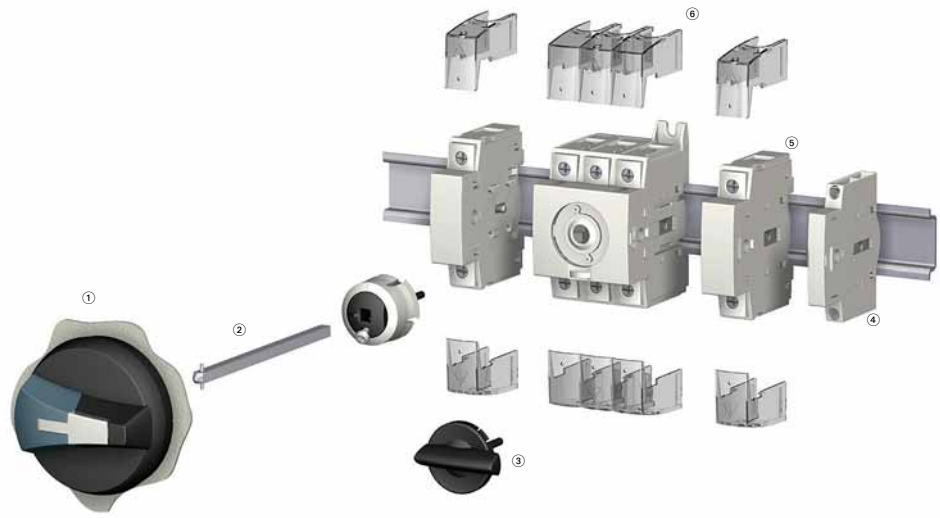
**R5 Series Non-Fusible 16–80A**

## Features

- Up to 65 kAIC short-circuit rating
- Direct or external operation
- Compact footprint
- DIN rail or base mount
- Wide range of accessories
- Modular design
- Padlockable design (direct, toggle and external handles)

### R5 Series Non-Fusible 16–80A




***Product Identification***

① External front handle
② Shaft extension for external handle
③ Direct handle
④ Auxiliary contacts
⑤ Switched fourth-pole module
⑥ Terminal shroud

**Note:** For further details, please see the installation instructions supplied with each device.

## Product Selection

**Direct Operation**

Switch body + Direct handle

**External Operation**

Switch body + Shaft + External handle

### R5 Series

| Ampere Rating | Three-Pole Toggle Switch Only ① | Three-Pole Rotary Switch Only | Direct Handle | Front and Right External Handle SH00 (Choose One) | Front and Right External Handle SH0 (Choose One) | Three-Position Front External Handle SH00 (Black) ② | Shaft for SH0 and SH00—5 x 5 mm—In (mm) |
|---|---|---|---|---|---|---|---|
| 16 | — | **R5A3016U** | **DHR5** | SH00<br>Black<br>3R, 12<br>**SHB00N12** | SH0<br>Black<br>3R, 12<br>**SHB0N12** | SH00<br>4, 4X<br>I–0–II<br>Open transition<br>**SHB00MTSOT** | 2.20 (55.5)<br>**SF55SH5X5** |
| 25 | — | **R5A3025U** | | | | | 3.50 (90.0)<br>**SF90SH5X5** |
| 30 | **T5A3030U** | **R5A3030U** | | SH00<br>Red<br>3R, 12<br>**SHR00N12** | SH0<br>Red<br>3R, 12<br>**SHR0N12** | SH00<br>4, 4X<br>I–I+II–II<br>Closed transition<br>**SHB00MTSCT** | 5.90 (150.0)<br>**SF150SH5X5** |
| 40 | **T5A3040U** | **R5A3040U** | | | | | 7.90 (200.0)<br>**SF200SH5X5** |
| 60 | **T5B3060U** | **R5B3060U** | | SH00<br>Black<br>4, 4X<br>**SHB00N4X** | SH0<br>Black<br>4, 4X<br>**SHB0N4X** | | 12.60 (320.0)<br>**SF320SH5X5** |
| 80 | **T5B3080U** | **R5B3080U** | | SH00<br>Red<br>4, 4X<br>**SHR00N4X** | SH0<br>Red<br>4, 4X<br>**SHR0N4X** | | |

## Accessories

| Ampere Rating | Switched Fourth-Pole Module | Unswitched Neutral Module | Auxiliary Contacts (Choose One) | Terminal Shrouds | Conversion Kit (Choose One) ② | Door Mounting Kit ③ |
|---|---|---|---|---|---|---|
| 16 | **S4PR516** | **UNMR5A** | 1NO + 1NC<br>**AC1NON** | 1P<br>**TS1R5A** | 6/8 pole<br>**CKR568** | **DMK** |
| 25 | **S4PR525** | | | 3P<br>**TS3R5A** | Changeover switch<br>Open transition<br>I–0–II<br>**MTSCKR5OT** | |
| 30 | **S4PR530** | | | | | |
| 40 | **S4PR540** | | 2NO<br>**AC2N** | 1P<br>**TS1R5B** | | |
| 60 | **S4PR560** ② | **UNMR5B** | | 3P<br>**TS3R5B** | Changeover switch<br>Closed transition<br>I–I+II–II<br>**MTSCKR5CT** | |
| 80 | **S4PR580** ② | | | | | |

***Notes***

① Toggle version includes direct handle.
② Available Q2 2011.
③ Includes shaft and accessory cap.

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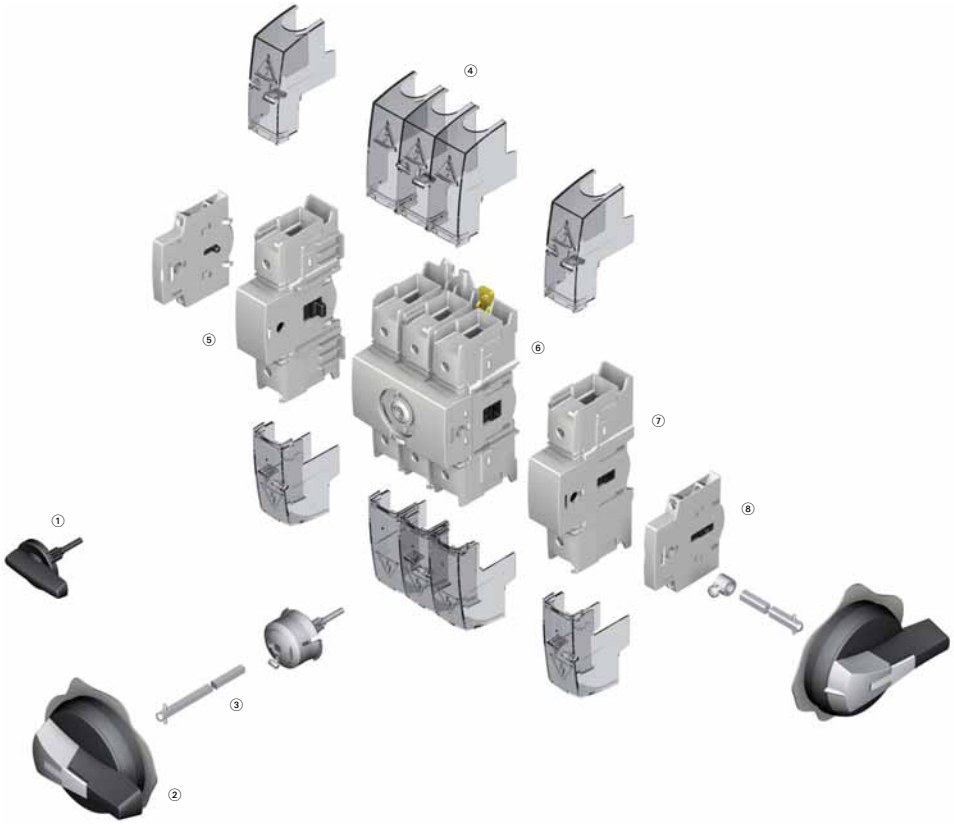
**Non-Fusible 30–100A Compact**

## Features

- Rating three-pole from 30A to 100A
- Direct or external operation handle (padlockable in ON position)
- Double breaking per phase
- Small footprint

### R9 Series Non-Fusible 30–100A Compact




***Product Identification***

① Direct handle
② Door interlocked external handle
③ Shaft extension
④ Terminal shrouds
⑤ Unswitched neutral pole
⑥ Switch body
⑦ Switched fourth-pole module
⑧ Modular type auxiliary contacts

**Note:** For further details, please see the installation instructions supplied with each device.

## Product Selection

**Direct Operation**

Switch body + Direct handle

**External Operation**

Switch body + Shaft + External handle

### R9 Series 30–100A

| Ampere Rating (Frame) | Number of Poles | Switch Body Only | Direct Handle | Front and Right External Handle SH00 (Choose One) | Front and Right External Handle SH0 (Choose One) | Shaft for SH0 and SH00 Handles—In (mm) (Choose One) | Switched Fourth-Pole Module | Unswitched Neutral Module | Auxiliary Contacts (Choose One) | Terminal Shrouds (Choose One) |
|---|---|---|---|---|---|---|---|---|---|---|
| 30 (C Frame) | 3 | **R9C3030U** | **DHR9** | SH00 Black 3R, 12 **SHB00N12** | SH0 Black 3R, 12 **SHB0N12** | 2.20 (55.5) **SF55SH5X5** | **S4PR930** | Neutral **UNMR9C** | 1NO + 1NC **AC1NONC** | 1P **TS1R9** |
| 60 (C Frame) | 3 | **R9C3060U** | | | | 3.50 (90.0) **SF90SH5X5** | **S4PR960** | | 2NO **AC2N** | 3P **TS3R9CV** |
| 100 (C Frame) | 3 | **R9C3100U** | | SH00 Red 3R, 12 **SHR00N12** | SH0 Red 3R, 12 **SHR0N12** | 5.91 (150.0) **SF150SH5X5** | **S4PR9100** | | | |
| | | | | SH00 Black 4, 4X **SHB00N4X** | SH0 Black 4, 4X **SHB0N4X** | 7.87 (200.0) **SF200SH5X5** | | | | |
| | | | | SH00 Red 4 4X **SHR00N4X** | SH0 Red 4 4X **SHR0N4X** | 12.60 (320.0) **SF320SH5X5** | | | | |

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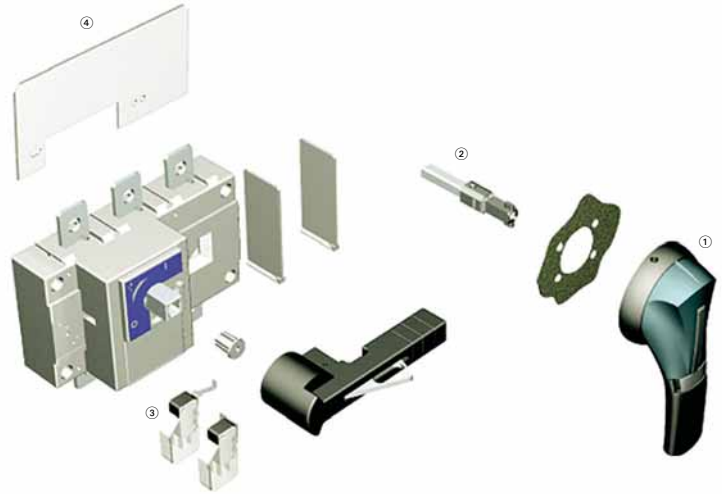
**Non-Fusible 100–1200A**

## Features

- High thermal and dynamic withstand ratings
- Arduous categories of applications
- High electrical and mechanical endurances

### R9 Series Non-Fusible 100–1200A



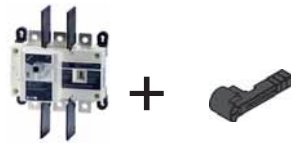

***Product Identification***

① External front handle
② Shaft extensions for external handle
③ Configurable U-type ACs, for pre-break and signalling or TEST
④ Terminal Screens

**Note:** For further details, please see the installation instructions supplied with each device.

## Product Selection

**Direct Operation**




**External Operation**


### R9 Series Non-Fusible 100–1200A




| Ampere Rating (Frame) | Number of Poles | Switch Body Only | Direct Handle | Door Interlocked External Pistol Handle (Choose One) | Shaft Extensions for External Handle—In (mm) (Choose One) | Auxiliary Contacts | Terminal Screens (Choose One) | Terminal Lugs ③ |
|---|---|---|---|---|---|---|---|---|
| 100 (D Frame) | 3 | **R9D3100U** | **DHR9DE** | Size 2, Black 1, 3R, 12 Defeatable **PHB2N12F** | 7.90 (200.0) **SF200PH10X10** | 1NO + 1NC **AC1N0NCDE** **AC1N0NCDELL** | 3-pole, Line side only **TS3R9DT** | **LK3R9DL** |
| | 4 | **R9D4100U** | | | | | | **LK4R9DL** |
| 200 (D Frame) | 3 | **R9D3200U** | | Size 2, Red 1, 3R, 12 Defeatable **PHR2N12F** | 12.60 (320.0) **SF320PH10X10** | 2NO + 2NC **AC2N0NCDE** **AC2N0NCDELL** | 3-pole, Load side only **TS3R9DB** | **LK3R9DL** |
| | 4 | **R9D4200U** | | | | | | **LK4R9DL** |
| 400 (E Frame) | 3 | **R9E3400U** | | Size 2, Black 4, 4X Defeatable **PHB2N4XF** | 15.70 (400.0) **SF400PH10X10** | | 4-pole, Line or load side **TS4R9DTB** | **LK3R9EM** |
| | 4 | **R9E4400U** | | | 19.70 (500.0) **SF500PH10X10** | | 3-pole, Line side only **TS3R9ET** | **LK4R9EM** |
| | | | | Size 2, Red 4, 4X Defeatable **PHR2N4XF** | | | 3-pole, Load side only **TS3R9EB** | |
| | | | | | | | 4-pole, Line or load side **TS4R9ETB** | |
| 600 (F Frame) | 3 | **R9F3600U** | **DHR9FG** | Size 3, Black 4, 4X Defeatable **PHB3N4XF** | 7.90 (200.0) **SF200PH15X12** | 1NO AC U Type **AC1N0R9** ② | **TS3R9F** ① | **LK3R9FN** |
| | 4 | **R9F4600U** | | | | | **TS4R9F** ① | **LK4R9FN** |
| 800 (G Frame) | 3 | **R9G3800U** | | Size 3, Red 4, 4X Defeatable **PHR3N4XF** | 12.60 (320.0) **SF320PH15X12** | 1NC AC U Type **AC1NCR9** ② | **TS3R9G** ① | **LK6R9G** **LK8R9G** |
| | 4 | **R9G4800U** | | | | | **TS4R9G** ① | |
| 1000 (G Frame) | 3 | **R9G31000U** | | Size 4, Black 4, 4X Defeatable **PHB4N4XF** | 1.70 (400.0) **SF400PH15X12** | | | |
| | 4 | **R9G41000U** | | | | | | |
| 1200 (G Frame) | 3 | **R9G31200U** | | Size 4, Red 4, 4X Defeatable **PHR4N4XF** | 19.7 (500.0) **SF500PH15X12** | | | |
| | 4 | **R9G41200U** | | | | | | |

***Notes***

① Top (line side) supplied as standard.
② Auxiliary contact requires holder (catalog number ACHFG) when used on F and G Frame switches (non-fusible 600–1200A).
③ Each catalog number is for line or load side. For both line and load, please order two sets.

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**Fusible 30–800A**

## Features

- Load break functionality
- Double break contacts
- Up to 200 kA short-circuit rating with Class CC, J or L fuses
- Compact footprints
- Defeatable pistol handles automatically re-latch when the panel door is closed
- Front or right side operation
- NFPA 79 compliant kits
- Two-, three- and four-pole devices

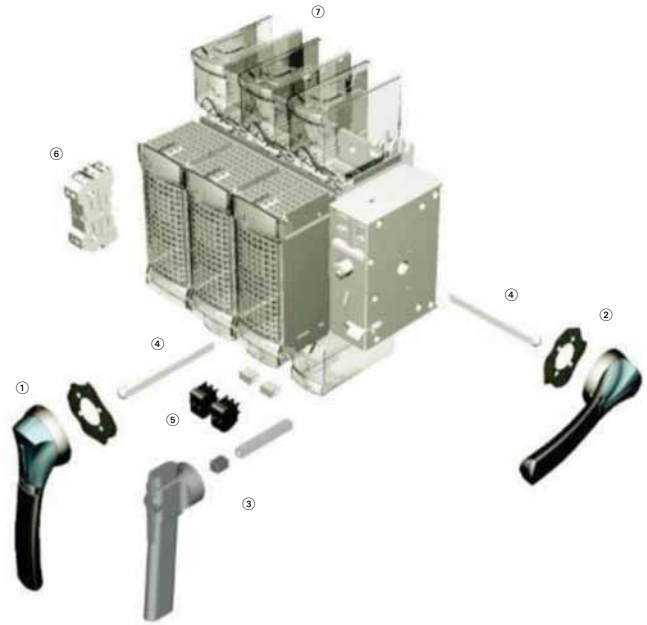
## R9 Series Fusible 30–800A

### R9 Fusible 30A/CC and 30A/J (H Frame)—Direct and External Operation


***Product Identification***

① External front handles
② Direct handle
③ Shaft extensions for external handles
④ Configurable U Type ACs, for pre-break and signaling or TEST

### R9 Fusible 30A/J–800A/L (I–N Frames)—Direct and External Operation

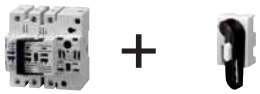



***Product Identification***

① External front handles
② External right side handle (not applicable for N Frame 600/800A)
③ Direct handle
④ Shaft extensions for external handles
⑤ Configurable U Type ACs, for pre-break and signaling or TEST
⑥ Side auxiliary contacts
⑦ Terminal shrouds

## Product Selection

**Direct Operation**



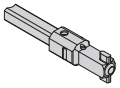
Switch body + Direct handle

**External Operation**

Switch body + Shaft + External handle

### Front and Right Side Operation



| Ampere Rating (Frame) (Fuse Class) | Number of Poles | Switch Body Only | Direct Handle | External Selector Handle (Choose One) | Shaft Extension for Selector Handle Only (Choose One) | External Front Pistol Handle | External Right Side Pistol Handle |
|---|---|---|---|---|---|---|---|
| 30 Compact (H Frame) (CC) | 3 | **R4H3030FCC** | **DHR9HC** | Black 1,3R,12 **SHB0N12HV** | 7.90 (200.0) **SF200SH5X5H** | Black 1,3R,12 **PHB1N12F** | — |
| 30 (H Frame) (CC) | 3 + switched neutral | **R4H3030FCCSN** | | Red 1,3R,12 **SHR0N12HV** | 12.60 320.0) **SF320SH5X5H** | Red 1,3R,12 **PHR1N12F** | |
| 30 Compact (H Frame) (J) | 3 | **R4H3030FJ** | **DHR9HJ** | Black 4,4X **SHB0N4XHV** | 15.70 (400.0) **SF400SH5X5H** | Black 4,4X **PHB1N4XF** | |
| 30 (H Frame) (J) | 3 + switched neutral | **R4H3030FJSN** | | Red 4,4X **SHR0N4XHV** | | Red 4,4X **PHR1N4XF** | |
| 30 (I Frame) (CC) | 3 | **R9I3030FCC** | **DHR9J2M** | — | — | | |
| | 4 | **R9I4030FCC** | | | | | |
| 30 (J Frame) (J) | 2 | **R9J2030FJ** | | | | Black 4,4X (w/ TEST Position) **PHB1N4XFT** | Black 4, 4X **PHB1N4XS** |
| | 3 | **R9J3030FJ** | | | | | |
| | 4 | **R9J4030FJ** | | | | | |
| 60 ① (J Frame) (J) | 2 | **R9J2060FJ** | | | | Red 4,4X (w/ TEST Position) **PHR1N4XFT** | Red 4, 4X **PHR1N4XS** |
| | 3 | **R9J3060FJ** | | | | | |
| | 4 | **R9J4060FJ** | | | | | |

***Note***

① 100 kA short-circuit rating.

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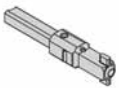
## Front and Right Side Operation, continued

| Ampere Rating (Frame) (Fuse Class) | Number of Poles | Switch Body Only | Shaft Extensions for Pistol Handle Only In (mm) (Choose One) | NFPA 79 Kit | Auxiliary Contacts (Choose One) | S Type Auxiliary Contacts (Choose One) | Terminal Shrouds |
|---|---|---|---|---|---|---|---|
| 30<br>Compact<br>(H Frame) (CC) | 3 | **R4H3030FCC** | 7.90 (200.0)<br>**SF200PH5X5** | **NFPA79H** | 1 AC<br>NO<br>**AC1NOR9** | — | Integral to switch |
| 30<br>(H Frame) (CC) | 3 + switched neutral | **R4H3030FCCSN** | 12.60 (320.0)<br>**SF320PH5X5** | | 1 AC<br>NC<br>**AC1NCR** | | |
| 30<br>Compact<br>(H Frame) (J) | 3 | **R4H3030FJ** | 15.70 (400.0)<br>**SF400PH5X5** | | | | |
| 30<br>(H Frame) (J) | 3 + switched neutral | **R4H3030FJSN** | | | | | |
| 30<br>(I Frame) (CC) | 3 | **R9I3030FCC** | 7.90 (200.0)<br>**SF200PH10X10** | **NFPA79JKL** | | 1 AC<br>NO + NC<br>**AC1NO1NCJ2N** | |
| | 4 | **R9I4030FCC** | | | | | |
| 30<br>(J Frame) (J) | 2 | **R9J2030FJ** | 12.60 (320.0)<br>**SF320PH10X10** | | | 2 AC<br>NO + NC<br>**AC2NO2NCJ2N** | |
| | 3 | **R9J3030FJ** | | | | | |
| | 4 | **R9J4030FJ** | 15.70 (400.0)<br>**SF400PH10X10** | | | 1 AC<br>NO + NC<br>w/ TEST<br>**AC1NO1NCJ2NT** | |
| 60 ① (J Frame) (J) | 2 | **R9J2060FJ** | | | | | |
| | 3 | **R9J3060FJ** | 19.70 (500.0)<br>**SF500PH10X10** | | | | |
| | 4 | **R9J4060FJ** | | | | 2 AC<br>NO + NC<br>w/ TEST<br>**AC2NO2NCJ2NT** | |

***Note***

① 100 kA short-circuit rating.

## Front and Right Side Operation, continued



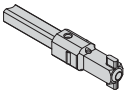

| Ampere Rating (Frame) (Fuse Class) | Number of Poles | Switch Body Only | Direct Handle (Black) | External Front Pistol Handle (Choose One) | External Right Side Pistol Handle (Choose One) |
|---|---|---|---|---|---|
| 60 ① (K Frame) (J) | 2 | **R9K2060FJ** | **DHR9J2M** | Black 1,3R,12 **PHB2N12F** | Black 4, 4X **PHB2N4XS** |
| | 3 | **R9K3060FJ** | | | |
| | 4 | **R9K4060FJ** | | Red 1,3R,12 **PHR2N12F** | Red 4, 4X **PHR2N4XS** |
| 100 (K Frame) (J) | 2 | **R9K2100FJ** | | | |
| | 3 | **R9K3100FJ** | | | |
| | 4 | **R9K4100FJ** | | Black 4,4X **PHB2N4XF** | |
| 200 (L Frame) (J) | 2 | **R9L2200FJ** | | | |
| | 3 | **R9L3200FJ** | | | |
| | 4 | **R9L4200FJ** | | Red 4,4X **PHR2N4XF** | — |
| 400 (M Frame) (J) | 3 | **R9M3400FJ** | | | |
| | 4 | **R9M4400FJ** | | Black 4,4X (w/ TEST Position) **PHB2N4XFT** | |
| | | | | Red 4,4X (w/ TEST Position) **PHR2N4XFT** | |
| 600 (N Frame) (J) | 2 | **R9N2600FJ** | **DHR9N** | Black 4, 4X **PHB3N4XF** | |
| | 3 | **R9N3600FJ** | | | |
| | 4 | **R9N4600FJ** | | Red 4,4X **PHR3N4XF** | |
| 800 (N Frame) (L) | 2 | **R9N2800FL** | | | |
| | 3 | **R9N3800FL** | | | |
| | 4 | **R9N4800FL** | | | |

***Note***

① 200 kA short-circuit rating.

1

## Front and Right Side Operation, continued


| Ampere Rating (Frame) (Fuse Class) | Number of Poles | Switch Body Only | Shaft Extensions for External Handle In (mm) (Choose One) | NFPA 79 Kit | Auxiliary Contacts (Choose One) | Auxiliary Contacts (Choose One) | Terminal Shrouds |
|---|---|---|---|---|---|---|---|
| 60 ① (K Frame) (J) | 2 | **R9K2060FJ** | 7.90 (200.0) Pistol **SF200PH10X10** | **NFPA79JKL** | 1 AC NO **AC1NOR9** | 1 AC NO + NC **AC1NO1NCJ2N** | Integral to switch |
| | 3 | **R9K3060FJ** | | | | | |
| | 4 | **R9K4060FJ** | | | | | |
| 100 (K Frame) (J) | 2 | **R9K2100FJ** | 12.60 (320.0) Pistol **SF320PH10X10** | | 1 AC NC **AC1NCR9** | 2 AC NO + NC **AC2NO2NCJ2N** | |
| | 3 | **R9K3100FJ** | | | | | |
| | 4 | **R9K4100FJ** | | | | | |
| 200 (L Frame) (J) | 2 | **R9L2200FJ** | 15.70 (400.0) Pistol **SF400PH10X10** | | | 1 AC NO + NC w/ TEST **AC1NO1NCJ2NT** | **TSR9L2** |
| | 3 | **R9L3200FJ** | | | | | **TSR9L3** |
| | 4 | **R9L4200FJ** | 19.70 (500.0) Pistol **SF500PH10X10** | | | | **TSR9L4** |
| 400 (M Frame) (J) | 3 | **R9M3400FJ** | | | | 2 AC NO + NC w/ TEST **AC2NO2NCJ2NT** | **TSR9M3** |
| | 4 | **R9M4400FJ** | | | | | **TSR9M4** |
| 600 (N Frame) (J) | 2 | **R9N2600FJ** | 7.90 (200.0) Pistol **SF200PH12X12** | **NFPA79N** | | 1 AC NO + NC **AC1NO1NCJ2N** | **TSR9N2** |
| | 3 | **R9N3600FJ** | | | | | **TSR9N3** |
| | 4 | **R9N4600FJ** | | | | | **TSR9N4** |
| 800 (N Frame) (L) | 2 | **R9N2800FL** | 12.60 (320.0) Pistol **SF320PH12X12** | | | 2 AC NO + NC **AC2NO2NCJ2N** | **TSR9N2** |
| | 3 | **R9N3800FL** | | | | | **TSR9N3** |
| | 4 | **R9N4800FL** | 15.70 (400.0) Pistol **SF400PH12X12** | | | | **TSR9N4** |
| | | | 19.70 (500.0) Pistol **SF500PH12X12** | | | | |

***Note***

① 200 kA short-circuit rating.

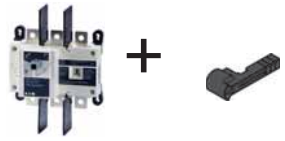
**DC Rated Disconnects**

## Features

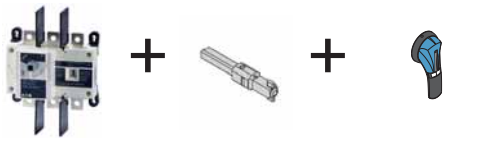
- Switching technology
- Up to 600 Vdc according to UL 98/CSA
- Up to 1000 Vdc according to IEC 947-3

### R9 Series DC Rated Disconnects

## Product Selection

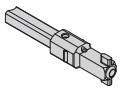


Switch body + Direct handle



Switch body + Shaft + External handle

### Front Operation—Three- and Four-Pole



| Ampere Rating | Number of Poles | Switch Body | Direct Handle | External Handle (Choose One) | Shaft for External Handle In (mm) (Choose One) | Auxiliary Contacts (Choose One) | Terminals Shroud | Terminal Lugs | Jumpers for Connecting Poles in Series |
|---|---|---|---|---|---|---|---|---|---|
| 100 | 3 | **R9D3100UDC** | **DHR9DE** | S2 Type<br>Black<br>1, 3R, 12 ①<br>**PHB2N12F** | 7.90 (200.0)<br>**SF200PH10X10** | C Type<br>1st Contact<br>NO+NC<br>**AC1NONCDE** | 3P ②<br>**TS3R9DT** | 3P ④<br>**LK3R9DL** | 2 pieces<br>**DCJUMPD2** |
| | 4 | **R9D4100UDC** | | | | | | | |
| | | | | | 12.60 (320.0)<br>**SF320PH10X10** | | 3P ③<br>**TS3R9DB** | 4P ④<br>**LK4R9DL** | 3 pieces<br>**DCJUMPD3** |
| 200 | 3 | **R9D3200UDC** | | Red/Yellow<br>1, 3R, 12 ①<br>**PHR2N12F** | 15.7 0 (400.0)<br>**SF400PH10X10** | C Type<br>2nd Contact<br>NO+NC<br>**AC2NONCDE** | 4P ④<br>**TS4R9DTB** | | |
| | 4 | **R9D4200UDC** | | Black<br>4, 4X ①<br>**PHB2N4XF** | | | | | |
| 400 | 3 | **R9E3400UDC** | | Red/Yellow<br>4, 4X ①<br>**PHR2N4XF** | | | 3P ②<br>**TS3R9ET** | 3P ④<br>**LK3R9EM** | 2 pieces<br>**DCJUMPE2** |
| | 4 | **R9E4400UDC** | | | | | 3P ③<br>**TS3R9EB** | 4P ④<br>**LK4R9EM** | 3 pieces<br>**DCJUMPE3** |
| | | | | | | | 4P ④<br>**TS4R9ETB** | | |

***Notes***

① Defeatable handle.
② Top (line side).
③ Bottom (load side).
④ Top or bottom (line or load side).

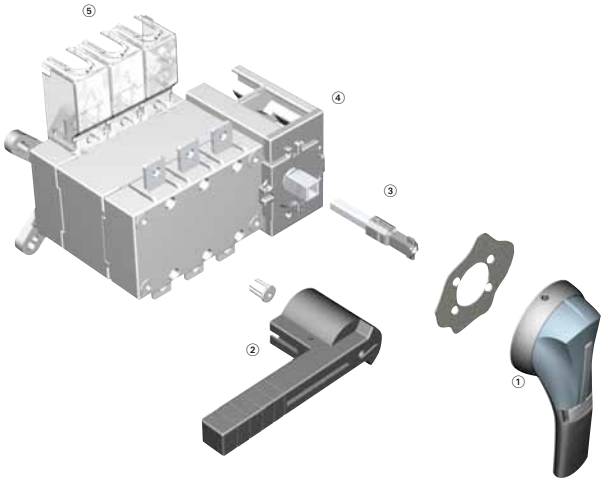
1

**Manual Transfer Switches**

## Features

- Three load break positions (I, 0, II)
- On load switching
- Direct or external handle
- 480 Vac total system
- 600 Vac resistive load

## Manual Transfer Switches




***Product Identification***

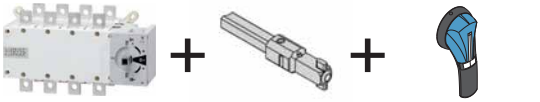
① External front handle
② Direct handle
③ Shaft extension for external handle
④ Pre-break ACs (standard on 600–1200A)
⑤ Terminal Screen

## Product Selection

**Direct Operation**

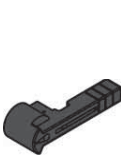
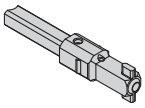
Switch body + Direct handle

**External Operation**



Switch body + Shaft + External handle

### Manual Transfer Switches—UL 98 Standard ①


| Ampere Rating | Number of Poles | Switch Body Only ① | Direct Handle (Black) | External Three-Position Handle (Choose One) | Shaft Extensions for External Handle In (mm) (Choose One) | Bridging Bars | Auxiliary Contacts | Terminal Screens ② |
|---|---|---|---|---|---|---|---|---|
| 100 | 3 | **RMTS3100U** | **DHMTSSL** | Size 2, Black<br>I–0–II<br>Type 4/4X<br>**PHB2N4X3P** | 7.90 (200.6)<br>**SF200PH10X10** | 3P<br>**BB3P200** | NO/NC<br>**AC1NONCMTS400** | 3P<br>**TS3MTS200TB** |
| | 4 | **RMTS4100U** | | | | | | |
| 200 | 3 | **RMTS3200U** | | | 12.60 (320.0)<br>**SF320PH10X10** | 4P<br>**BB4P200** | Low level<br>**AC1NONCMTS400LL** ③ | 4P<br>**TS4MTS200TB** |
| | 4 | **RMTS4200U** | | Size 2, Red<br>I–0–II<br>Type 4/4X<br>**PHR2N4X3P** | 15.70 (398.8)<br>**SF400PH10X10** | | | |
| 400 | 3 | **RMTS3400U** | | Size 3, Black<br>I–0–II<br>Type 4/4X<br>**PHB3N4X3P** | 7.90 (200.6)<br>**SF200PH15X12** | 3P<br>**BB3P400** | | 3P<br>**TS3MTS400TB** |
| | 4 | **RMTS4400U** | | | 12.60 (320.0)<br>**SF320PH15X12** | 4P<br>**BB4P400** | | 4P<br>**TS4MTS400TB** |
| | | | | Size 3, Red<br>I–0–II<br>Type 4/4X<br>**PHR3N4X3P** | 15.70 (398.8)<br>**SF400PH15X12** | | | |
| 600 | 3 | **RMTS3600U** | **DHMTSDL** | Size 4, Black<br>I–0–II<br>Type 4/4X<br>**PHB4N4X3P** | | 3P<br>**BB3P600** | NO/NC contact standard | 3P<br>**TS3MTS600** |
| | 4 | **RMTS4600U** | | | | 4P<br>**BB4P600** | | 4P<br>**TS4MTS600** |
| 800 | 3 | **RMTS3800U** | **DHMTSDLM** | Size 4, Red<br>I–0–II<br>Type 4/4X<br>**PHR4N4X3P** | | 3P<br>**BB3P1200** | | 3P<br>**TS3MTS1200** |
| | 4 | **RMTS4800U** | | | | | | |
| 1200 | 3 | **RMTS31200U** | | | | 4P<br>**BB4P1200** | | 4P<br>**TS4MTS1200** |
| | 4 | **RMTS41200U** | | | | | | |

***Notes***

① All ratings, 100–1200A, are UL 98 listed. Switches are to be UL 1008 listed in 2011.
② Line or load (top or bottom); for both line and load, order two kits.
③ Low level auxiliary contact—gold plated for minimal resistance—for PLC applications.

1

**Enclosed Rotary Disconnects**

## Enclosed Rotary Disconnects

Provide users with the ability to lock directly wired motor loads in the OFF position to comply with OSHA lockout/tagout regulations. Also for machine applications that require compact, economical disconnect switches.

Enclosed rotary disconnect switches allow safe control and safe disconnect of any motor application.

Open rotary disconnects can be found on **Pages V9-T1-46** to **V9-T1-61** and full information in Volume 5, Motor Control and Protection, CA08100006E, Tab 8.

## Features

- Padlockable in the OFF position (up to three padlocks) to meet OSHA lockout requirements
- Available in 16–80A ratings
- 600 Vac, three- and four-pole non-fusible device
- Rated for making and breaking loads
- Accepts auxiliary contacts; capability to signal PLC controllers
- Ground lug connection provided
- Possibility of adding one power pole and one auxiliary contact
- NEMA Type 1, 3R, 12, 4, 4X
- 65kAIC rating when applied downstream from appropriate fusing

## Product Selection

### Enclosed Rotary Non-Fusible

| Ampere Rating | Maximum Horsepower Ratings Three-Phase AC 208V | 240V | 480V | 600V | NEMA 1 ① Enclosure Indoor Catalog Number | NEMA 12 ①② Enclosure Dust-Tight/ Rainproof Catalog Number | NEMA 4X ① Enclosure Corrosion-Resistant, Stainless Steel Catalog Number | NEMA 4X ① Enclosure Corrosion-Resistant, Non-Metallic Catalog Number | NEMA 4X Enclosure Polycarbonate-Non-Metallic Catalog Number |
|---|---|---|---|---|---|---|---|---|---|
| **Three-Pole, 600 Vac** | | | | | | | | | |
| 16 | 3 | 5 | 10 | 10 | **ER53016UG** | **ER53016UD** | **ER53016UW** | **ER53016UX** | — |
| 25 | 7-1/2 | 7-1/2 | 15 | 20 | **ER53025UG** | **ER53025UD** | **ER53025UW** | **ER53025UX** | — |
| 30 | 7-1/2 | 7-1/2 | 15 | 20 | **ER53030UG** | **ER53030UD** | **ER53030UW** | **ER53030UX** | **ER53030UPYR** ③④ |
| 40 | 7-1/2 | 7-1/2 | 20 | 25 | **ER53040UG** | **ER53040UD** | **ER53040UW** | **ER53040UX** | — |
| 60 | 15 | 15 | 30 | 30 | **ER53060UG** | **ER53060UD** | **ER53060UW** | **ER53060UX** | **ER53060UPYR** ③④ |
| 80 | 15 | 20 | 40 | 40 | **ER53080UG** | **ER53080UD** | **ER53080UW** | **ER53080UX** | — |
| **Four-Pole, 600 Vac** | | | | | | | | | |
| 16 | 3 | 5 | 10 | 10 | **ER54016UG** | **ER54016UD** | **ER54016UW** | **ER54016UX** | — |
| 25 | 7-1/2 | 7-1/2 | 15 | 20 | **ER54025UG** | **ER54025UD** | **ER54025UW** | **ER54025UX** | — |
| 30 | 7-1/2 | 7-1/2 | 20 | 25 | **ER54030UG** | **ER54030UD** | **ER54030UW** | **ER54030UX** | — |
| 40 | 7-1/2 | 7-1/2 | 20 | 25 | **ER54040UG** | **ER54040UD** | **ER54040UW** | **ER54040UX** | — |

### Accessories for Enclosed Rotary Disconnects ⑤⑥

| Disconnect Ampere Rating | Switched Fourth Pole | Unswitched Neutral Pole | Auxiliary Contacts (Choose One) | Terminal Shrouds |
|---|---|---|---|---|
| 16 | **S4PR516** | **UNMR5A** | 1NO + 1NC **AC1NONC** | Single-pole **TS1R5A** |
| 25 | **S4PR525** | | | |
| 30 | **S4PR530** | | 2NC **AC2NC** | Three-pole **TS3R5A** |
| 40 | **S4PR540** | | | |
| 60 | **S4PR560** ⑦ | **UNMR5B** ⑦ | | Single-pole **TS1R5B** |
| 80 | **S4PR580** ⑦ | | | |
| | | | | Three-pole **TS3R5B** |

***Notes***

① For CSA listed switches, add prefix letter "C" to the front of the catalog number.
② NEMA Type 12 enclosures (16–80A) can be field modified to meet NEMA Type 3R rainproof requirements when a factory-provided drain hole is opened.
③ YR suffix indicates **Y**ellow cover with **R**ed handle. For **G**ray cover with **B**lack handle, replace "YR" with "GB." For **G**ray cover with **R**ed handle, replace "YR" with "GR."
④ cULus only.
⑤ Ordered and shipped as separate components—not integral to enclosed device.
⑥ Enclosed disconnects can accept one power pole, neutral or up to two auxiliary contacts (one mounted on either side of switch).
⑦ Available 2011.

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

**Circuit Breakers**

**Fuse Blocks and Fuse Holders**

**Rotary Disconnect Switches**



For our complete product offering, see Volume 4—Circuit Protection, CA08100005E and Volume 5—Motor Control and Protection, CA08100006E.

1

## Product Overview

### Circuit Breaker Selection Guide

| Description | Series G Molded Case Circuit Breaker | | Universal Molded Case Circuit Breakers | | QUICKLAG® Type QC Miniature Circuit Breakers |
|---|---|---|---|---|---|
| | Page V9-T1-5 | | Page V9-T1-13 | | Page V9-T1-19 |
| **General Applications** | | | | | |
| | Line protection—molded case switch, motor circuit protection (combination tested with Eaton starters and contactors) thermal-magnetic and electronic trip units. | | Line protection—feeder and branch thermal-magnetic trip unit. | | Used to provide branch circuit protection in cable-in/out panel or DIN rail mount applications. |
| **Technical Data** | | | | | |
| Maximum current rating | 2500A | | 600A | | 100A |
| Maximum voltage—AC | 690 Vac | | 480 Vac | | 240 Vac |
| Maximum voltage—DC | 250 Vdc | | 250 Vdc | | 80 Vdc |
| Poles | 1, 2, 3, 4 | | 1, 2, 3 | | QC = 1, 2, 3, 4<br>QCD = 1, 2, 3<br>QCR/QCF = 1, 2, 3 |
| Max. interrupting capacities<br>See individual catalogs for limitations and back-up protection requirements. | Three-pole at 240V<br>E = 200 kA<br>J = 200 kA<br>L = 200 kA | Three-pole at 480V<br>E = 100 kA<br>J = 200 kA<br>L = 200 kA | Three-pole at 240V<br>G = 25 kA (480/277)<br>F = 25 kA<br>J = 35 kA<br>K = 35 kA<br>L = 35 kA | Three-pole at 480V<br>GI = 14 kA (480/277)<br>GD = 22 kA<br>F = 14 kA<br>J = 20 kA<br>K = 20 kA<br>L = 20 kA | 65 kA at 240 Vac<br>5 kA at 80 Vdc |
| **Approvals** | | | | | |
| | UL® 489<br>IEC 60947-2<br>CE | CSA®<br>KEMA-KEUR<br>CCC | UL 489CE<br>IEC 60947-2 | CE<br>CSA | UL 489<br>CSA 22.2 |
| **Environmental Data** | | | | | |
| Humidity | Non-condensing 100% relative humidity | | Non-condensing 100% relative humidity | | — |
| Shock | — | | — | | — |
| Vibration | — | | — | | — |
| Operating temperature | –20° to 70°C (–4° to 158°F) derating applies | | –20° to 70°C (–4° to 158°F) derating applies | | 40°C (104°F) |
| Dielectric strength | Below 250A 6 kV<br>Above 250A 8 kV | | Below 250A 6 kV<br>Above 250A 8 kV | | 1960 Vac (acc. to UL 489) |
| Insulation resistance | 750 Vac | | 750 Vac | | — |
| Endurance/life | 250A: EG, JG = 8,000 operations<br>630A: LG = 6,000 operations | | 250A: Gi = 10,000 operations<br>Fi = 8,000 operations<br>400A: Ji, Ki, Li = 6,000 operations | | >10,000 operations |
| Approximate weight | E Three-pole—2.88 lbs (1.04 kg)<br>J Three-pole—5.06 lbs (2.30 kg)<br>L Three-pole—12.36 lbs (5.61 kg) | | G Three-pole—2.10 lbs (0.95 kg)<br>F Three-pole—4.5 lbs (2.0 kg)<br>J Three-pole—12.50 lbs (5.7 kg)<br>K Three-pole—11.50 lbs (5.2 kg) | | QC Single-pole—0.36 lbs (162.8 g)<br>Two-pole—0.61 lbs (274.9 g)<br>Three-pole—1.14 lbs (518.3 g)<br>QCD Single-pole—0.43 lbs (195.3 g)<br>Two-pole—0.89 lbs (401.9 g)<br>Three-pole—1.34 lbs (605.6 g)<br>QCR Single-pole—0.22 lbs (97.9 g)<br>Two-pole—0.48 lbs (215.8 g)<br>Three-pole—0.70 lbs (315.6 g)<br>QCF Single-pole—0.24 lbs (109.9 g)<br>Two-pole—0.50 lbs (225.2 g)<br>Three-pole—0.74 lbs (335.1 g) |
| Mounting configuration | Backpan, plug-in adapter, DIN rail (E) | | Backpan, DIN rail (G) | | Panel mount, front mount, 35 mm DIN rail mountable |

For our complete product offering, see Volume 4—Circuit Protection, CA08100005E.

## Circuit Breaker Selection Guide, continued

| Description | FAZ-NA UL 489<br>Miniature Circuit Breakers | FAZ UL 1077<br>Miniature Circuit Breakers—<br>Supplementary Protectors |
|---|---|---|
| | **Page V9-T1-25** | **Page V9-T1-28** |
| **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. |
| **Technical Data** | | |
| Maximum current rating | 40A | 63A |
| Maximum voltage—AC | 480/277 Vac (240/415 Vac IEC) | 480/277 Vac |
| Maximum voltage—DC | 48 Vdc | 65 Vac Single-pole<br>130 Vac Two-pole |
| Poles | 1, 2, 3 | 1, 2, 3 |
| Max. interrupting capacities<br>See individual catalogs for limitations and back-up protection requirements. | 10 kA UL/CSA;<br>15 kA IEC/EN 60947-2 | IEC 240/415V 10 kA<br>UL/CSA 120V 10 kA<br>240V 10 kA<br>277V 6 kA<br>480V 6 kA |
| **Approvals** | | |
| | UL 489<br>CE; IEC/EN 60947-2<br>CSA 22.2 | UL 1077<br>CE; IEC/EN 60947-2; IEC/EN 60898<br>CSA 22.2 235 |
| **Environmental Data** | | |
| Humidity | Acc. IEC 60068-2 (25° to 55°C/<br>77° to 131°F, 90–95% RH) | — |
| Shock | Acc. IEC 60068-2-27<br>(40g half sine wave for 10 ms—3 axes)<br>(15g half sine wave for 20 ms—3 axes) | — |
| Vibration | Acc. to IEC 60068-2-6<br>5–100 Hz/1.0 mm/0.7g (3 axes) | — |
| Operating temperature | 30°C (86°F) | — |
| Dielectric strength | 1960 Vac (acc. to UL 489) | — |
| Insulation resistance | 100M ohms at 500 Vdc | — |
| Endurance/life | >20,000 operations | — |
| Approximate weight | Single-pole—0.27 lbs (121.0g)<br>Two-pole—0.53 lbs (242.0g)<br>Three-pole—0.80 lbs (363.0g) | Single-pole—0.26 lbs (120.0g)<br>Two-pole—0.54 lbs (244.9g)<br>Three-pole—0.83 lbs (376.5g) |
| Mounting contribution | 35 mm DIN rail mountable | 35 mm DIN rail mountable |

For our complete product offering, see Volume 4—Circuit Protection, CA08100005E.

## Circuit Breaker Selection Guide, continued

| Description | Series NRX Low Voltage Power Breakers | Magnum Low Voltage Power Breakers |
|---|---|---|
| | **Page V9-T1-33** | **Page V9-T1-36** |
| **General Applications** | | |
| | 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%. | Enables comprehensive solutions to meet and exceed the unique and wide-ranging requirements of today's global power distribution systems. Designed and engineered for ultimate custom configuration and application flexibility in metal enclosed switchgear and power distribution enclosures. |
| **Technical Data** | | |
| Maximum current rating | 630–1600A | 800–6300A |
| Maximum voltage—AC | 220–690 Vac | Up to 690 Vac |
| Maximum voltage—DC | — | — |
| Poles | 3, 4 | 3, 4 |
| Max. interrupting capacities<br>See individual catalogs for limitations and back-up protection requirements. | 65 kAIC at 480 Vac<br>Max. withstand capacities 42 kAIC | 200 kA at 480 Vac<br>Max. withstand capacities<br>100 kAIC<br>CL fuseless 200 kA at 635 Vac with integral limiters |
| **Approvals** | | |
| | UL 1006 Component<br>UL 489 Component<br>IEC 60947-2 | UL 1066<br>IEC 60947-2<br>KEMA |
| **Environmental Data** | | |
| Humidity | — | — |
| Shock | — | — |
| Vibration | — | — |
| Operating temperature | –25° to 70°C | –25° to 70°C |
| Dielectric strength | — | — |
| Insulation resistance | — | — |
| Endurance/life | 10,000 electrical operations<br>20,000 mechanical operations | — |
| Approximate weight | Three-pole breaker + cassette—85 lbs (39 kg)<br>Three-pole breaker—53 lbs (24 kg)<br>Four-pole breaker + cassette—104 lbs (47 kg)<br>Four-pole breaker—67 lbs (30 kg) | — |
| Mounting configuration | Rear-connected, front-connected, surface mounting, mounting bracket, fixed, drawout breaker with cassette | Fixed or drawout with cassette rear-connected, front-connected |

For our complete product offering, see Volume 4—Circuit Protection, CA08100005E.

**Series G Molded Case Circuit Breakers**

## Features

- Field-fit accessories
- Common accessories through 630A
- Space-saving footprint
- High-performance current limiting designs up to 200 kAIC at 480V
- Global ready: UL, CSA, CE, IEC, KEMA-KEUR listings
- Complete breaker includes frame, trip unit, standard terminals and mounting hardware

## Catalog Number Selection

### Series G® Molded Case Circuit Breakers

#### EG Frame

**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 | | | |

| Number of 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** |

| Trip Unit |
|---|
| **FF** = Fixed fixed |
| **AF** = Adjustable thermal fixed magnetic |
| **KS** = Molded case switch |

| Terminations/Hardware | |
|---|---|
| **Terminals** | **Mounting Hardware** |
| **M** = Metric end caps | Metric |
| **E** = Imperial end caps | Imperial |
| **G** = Line/load standard | Metric |
| **B** = Bolt-on | — |

***Notes***

① Available only as 125 and 160A sizes.

② Is not UL rated.

## JG Frame

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 | | | |

| Number of Poles |
|---|
| **2** = Two |
| **3** = Three |
| **4** = Four—Neutral 0% protected |
| **8** = Four—Neutral 0–60% protected |
| **9** = Four—Neutral 100% protected |

| Amperes |
|---|
| **050** |
| **070** |
| **080** |
| **090** |
| **100** |
| **125** |
| **150** |
| **160** |
| **175** |
| **200** |
| **225** |
| **250** |

| Trip Unit |
|---|
| **AA** = Adjustable thermal<br>Adjustable magnetic |
| **FA** = Fixed thermal<br>Adjustable magnetic |
| **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 |

## LG Frame

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 | | | |

| Number of 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 ① |
|---|
| **AA** = Adjustable thermal<br>Adjustable magnetic |
| **FA** = Fixed thermal<br>Adjustable magnetic |
| **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 |

***Note***

① A = Arc reduction, L = Long, S = Short, I = Instantaneous, G = Ground.

## Product Selection

### Series G Molded Case Circuit Breakers

Approximate Dimensions are in Inches

#### EG Frame

| Maximum Continuous Amperes at 40°C ① | Three-Pole 3.00 W x 5.50 H x 2.99 D Fixed Thermal Fixed Magnetic |
|---|---|
| **IC Rating: 25 kAIC at 415 and 480 Vac** | |
| 15 | **EGE3015FFG** |
| 20 | **EGE3020FFG** |
| 25 | **EGE3025FFG** |
| 30 | **EGE3030FFG** |
| 35 | **EGE3035FFG** |
| 40 | **EGE3040FFG** |
| 45 | **EGE3045FFG** |
| 50 | **EGE3050FFG** |
| 60 | **EGE3060FFG** |
| 70 | **EGE3070FFG** |
| 80 | **EGE3080FFG** |
| 90 | **EGE3090FFG** |
| 100 | **EGE3100FFG** |
| 125 | **EGE3125FFG** |

| Maximum Continuous Amperes at 40°C | Three-Pole 3.00 W x 5.50 H x 2.99 D Fixed Thermal Fixed Magnetic |
|---|---|
| **IC Rating: 70 kAIC at 415 Vac, 65 kAIC at 480 Vac** | |
| 15 | **EGH3015FFG** |
| 20 | **EGH3020FFG** |
| 25 | **EGH3025FFG** |
| 30 | **EGH3030FFG** |
| 35 | **EGH3035FFG** |
| 40 | **EGH3040FFG** |
| 45 | **EGH3045FFG** |
| 50 | **EGH3050FFG** |
| 60 | **EGH3060FFG** |
| 70 | **EGH3070FFG** |
| 80 | **EGH3080FFG** |
| 90 | **EGH3090FFG** |
| 100 | **EGH3100FFG** |
| 125 | **EGH3125FFG** |

#### JG Frame

| Maximum Continuous Amperes | Three-Pole 4.13 W x 7.00 H x 3.57 D Magnetic Range | Fixed Thermal Adjustable Magnetic |
|---|---|---|
| **IC Rating: 25 kAIC at 415 and 480 Vac** | | |
| 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** |

| Maximum Continuous Amperes | Three-Pole 4.13 W x 7.00 H x 3.57 D Magnetic Range | Fixed Thermal Adjustable Magnetic |
|---|---|---|
| **IC Rating: 70 kAIC at 415 Vac, 65 kAIC at 480 Vac** | | |
| 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

| Ampere Rating | Three-Pole 5.48 W x 10.13 H x 4.09 D Fixed Thermal Adjustable Magnetic |
|---|---|
| **IC Rating: 35 kAIC at 415 and 480 Vac** | |
| 250 | **LGE3250FAG** |
| 300 | **LGE3300FAG** |
| 350 | **LGE3350FAG** |
| 400 | **LGE3400FAG** |
| 500 | **LGE3500FAG** |
| 600 | **LGE3600FAG** |

| Ampere Rating | Three-Pole 3.00 W x 5.50 H x 2.99 D Fixed Thermal Adjustable Magnetic |
|---|---|
| **IC Rating: 70 kAIC at 415 Vac, 65 kAIC at 480 Vac** | |
| 250 | **LGH3250FAG** |
| 300 | **LGH3300FAG** |
| 350 | **LGH3350FAG** |
| 400 | **LGH3400FAG** |
| 500 | **LGH3500FAG** |
| 600 | **LGH3600FAG** |

***Note***

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

1

**Series G Motor Circuit Protector**

## Features

- Instantaneous only protector
- Designed for use in combination with motor starters
- Adjustable to motor FLA
- UL recognized component, File E7819 motor circuit protectors

## Product Selection

### Series G Motor Circuit Protectors

#### EG Frame—480 Vac, 600Y/347 Vac Maximum

| Continuous Amperes | Cam Setting | Motor Full Load Current Amperes ① | MCP Trip Setting ② | MCP Catalog Number |
|---|---|---|---|---|
| 3 | A | 0.69–0.91 | 9 | **HMCPE003A0C** |
| | B | 1.1–1.3 | 15 | |
| | C | 1.6–1.7 | 21 | |
| | D | 2.0–2.2 | 27 | |
| | E | 2.3–2.5 | 30 | |
| | F | 2.6–2.8 | 33 | |
| 7 | A | 1.5–2.0 | 21 | **HMCPE007C0C** |
| | B | 2.6–3.1 | 35 | |
| | C | 3.7–3.9 | 49 | |
| | D | 4.8–5.2 | 63 | |
| | E | 5.3–5.7 | 70 | |
| | F | 5.8–6.1 | 77 | |
| 15 | A | 3.4–4.5 | 45 | **HMCPE015E0C** |
| | B | 5.7–6.8 | 75 | |
| | C | 8.0–9.1 | 105 | |
| | D | 10.4–11.4 | 135 | |
| | E | 11.5–12.6 | 150 | |
| | F | 12.7–13.0 | 165 | |
| 30 | A | 3.9–9.1 | 90 | **HMCPE030H1C** |
| | B | 11.5–13.7 | 150 | |
| | C | 16.1–18.3 | 210 | |
| | D | 20.7–22.9 | 270 | |
| | E | 23.0–25.2 | 300 | |
| | F | 25.3–26.1 | 330 | |
| 50 | A | 11.5–15.2 | 150 | **HMCPE050K2C** |
| | B | 19.2–22.9 | 250 | |
| | C | 26.9–30.6 | 350 | |
| | D | 34.6–38.3 | 450 | |
| | E | 38.4–42.1 | 500 | |
| | F | 42.2–43.5 | 550 | |
| 70 | A | 16.1–30.6 | 210 | **HMCPE070M2C** |
| | B | 26.9–32.2 | 350 | |
| | C | 37.6–42.9 | 490 | |
| | D | 48.4–53.7 | 630 | |
| | E | 53.8–59.1 | 700 | |
| | F | 59.2–60.9 | 770 | |
| 100 | A | 23.0–30.6 | 300 | **HMCPE100R3C** |
| | B | 38.4–46.0 | 500 | |
| | C | 53.8–61.4 | 700 | |
| | D | 69.2–76.8 | 900 | |
| | E | 76.9–84.5 | 1000 | |
| | F | 84.6–87.0 | 1100 | |
| 100 | A | 38.4–46.0 | 500 | **HMCPE100T3C** |
| | B | 57.6–65.2 | 750 | |
| | C | 76.9–84.5 | 1000 | |
| | D | ③ | 1250 | |
| | E | ③ | 1375 | |
| | F | ③ | 1500 | |

***Notes***

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 $I_n$ 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—600 Vac Maximum, 250 Vdc Maximum

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

## LG Frame—600 Vac Maximum, 250 Vdc Maximum

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

1

**Series G Motor Protector Breakers**

## Features

- Eliminates need for separate overload relay
- Can be used with contactor to eliminate need for overload relay and still create manual motor control
- Meets requirement for motor branch protection, including:
  - Disconnecting means
  - Branch circuit short-circuit protection
  - Overload protection
- UL 489 listed, IEC 60947-02 rated
- Phase unbalance, phase loss protection and high load alarm
- Optional pre-detection trip relay

## Product Selection

### Series G Motor Protector Breakers

For pre-trip alarm option, order Style Number 5721B31G02.

#### JG Frame Motor Protector Circuit Breakers, 250A Maximum Rated Current

| Continuous Amperes | 35 kAIC Catalog Number | 65 kAIC Catalog Number |
|---|---|---|
| 50 | **JGMPS050G** | **JGMPH050G** |
| 100 | **JGMPS100G** | **JGMPH100G** |
| 160 | **JGMPS160G** | **JGMPH160G** |
| 250 | **JGMPS250G** | **JGMPH250G** |

#### LG Frame Motor Protector Circuit Breakers, 630A Maximum Rated Current

| Continuous Amperes | 50 kAIC Catalog Number | 65 kAIC Catalog Number |
|---|---|---|
| 250 | **LGMPS250G** | **LGMPH250G** |
| 400 | **LGMPS400G** | **LGMPH400G** |
| 600 | **LGMPS600G** | **LGMPH600G** |
| 630 ① | **LGMPS630G** | **LGMPH630G** |

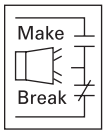
***Note***

① 630A is not a UL listed rating. 600A is the maximum UL or CSA rating for LG breaker.

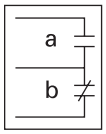
## Accessories

### Field Fit Kit Catalog Numbers

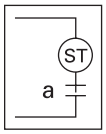
**Alarm Lockout**



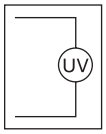

**Auxiliary Switch**




**Shunt Trip**




**Undervoltage Release Mechanism**




| Description | Pole Location | Frame—EG, JG and 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** | | |
| 120 Vac | Left | **SNT120CPK** ④ |
| 240 Vac | Left | **SNT120CPK** ④ |
| 12 Vdc | Left | **SNT012CPK** |
| 24 Vdc | Left | **SNT060CPK** |
| 48 Vdc | Left | **SNT060CPK** |
| 380–600 Vac | Left | **SNT480CPK** ⑤ |
| **Undervoltage Release Mechanism** | | |
| 110–127 Vac | Left | **UVR120APK** |
| 208–240 Vac | Left | **UVR240APK** |
| 24 Vac | Left | **UVR024APK** |
| 24 Vdc | Left | **UVR024DPK** |
| 48–60 Vdc | Left | **UVR048DPK** |
| 12 Vac/Vdc | Left | **UVR012CPK** |
| 48–60 Vac | Left | **UVR048APK** |
| 120 Vdc | Left | **UVR125DPK** |
| 220–250 Vdc | Left | **UVR250DPK** |
| 380–500 Vac | Left | **UVR480APK** |
| 525–600 Vac | Left | **UVR600APK** |

### Multiwire Connectors Ordering Information (Package of 3)

High SCCR ratings are available for Power Distribution blocks with Series G MCCBs. See **Tab 6**.

| Maximum Amperes | 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 Number |
|---|---|---|---|
| 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 Handles**

### Flex Shaft Handle Mechanisms

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

**Universal Direct Handle Mechanism**

### Universal Direct Handle Mechanisms

| Frame | With Interlock Catalog Number | Without Interlock Catalog Number |
|---|---|---|
| **Black Handle Color** | | |
| EG | **EHMCCBI** | **EHMCCB** |
| JG | **JHMCCBI** | **JHMCCB** |
| LG | **LHMCCBI** | **LHMCCB** |
| **Red Handle Color** | | |
| EG | **EHMCCRI** | **EHMCCR** |
| JG | **JHMCCRI** | **JHMCCR** |
| LG | **LHMCCRI** | **LHMCCR** |

***Notes***

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.
④ 110–125 Vdc, 50/60 Hz.
⑤ 380–600 Vdc, 50/60 Hz.

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**Rotary Handle Mechanisms**

## High Performance Rotary Handle Mechanisms (Complete Kit Includes Handle, Shaft and Mechanism)

| Color | Rating Type UL | IP | EG Frame ① Catalog Number | JG Frame Catalog Number | LG Frame Catalog Number |
|---|---|---|---|---|---|
| Black/blue | 1/12/3R | 20/54/55 | **EGHMVD06B** | **JGHMVD06B** | **LGHMVD06B** |
| | | | **EGHMVD12B** | **JGHMVD12B** | **LGHMVD12B** |
| | | | **EGHMVD24B** | **JGHMVD24B** | **LGHMVD24B** |
| Red/yellow | 1/12/3R | 20/54/55 | **EGHMVD06R** | **JGHMVD06R** | **LGHMVD06R** |
| | | | **EGHMVD12R** | **JGHMVD12R** | **LGHMVD12R** |
| | | | **EGHMVD24R** | **JGHMVD24R** | **LGHMVD24R** |
| Black/blue | 4/4X | 66 | **EGHMVD06BX** | **JGHMVD06BX** | **LGHMVD06BX** |
| | | | **EGHMVD12BX** | **JGHMVD12BX** | **LGHMVD12BX** |
| | | | **EGHMVD24BX** | **JGHMVD24BX** | **LGHMVD24BX** |
| Red/yellow | 4/4X | 66 | **EGHMVD06RX** | **JGHMVD06RX** | **LGHMVD06RX** |
| | | | **EGHMVD12RX** | **JGHMVD12RX** | **LGHMVD12RX** |
| | | | **EGHMVD24RX** | **JGHMVD24RX** | **LGHMVD24RX** |

## 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 ②③ | Field | — | **KYKJG** | **KYKLG** |
| Castell key interlock kit ③④ | Field | — | **CTKJG** | **CTKLG** |
| Slide bar interlock ⑤ | Field | **EFSBI** | **FJSBI** | **LGSBI** |
| Walking beam interlock | Three-pole | **EG3WBI** | **JG3WBI** | **LG3WBI** |
| | Four-pole | **EG4WBI** | **JG4WBI** | **LG4WBI** |
| Electrical operator | 120/240 Vac | **MOPEG240C** | **MOPJG240C** | **MOPLG240C** |
| | 125 Vdc | **MOPEG240C** | **MOPJG240C** | **MOPLG240C** |
| Plug-in adapters | Three-pole | **PAD3E** | **PAD3J** | **PAD3L** |
| | Four-pole | **PAD4E** | **PAD4J** | **PAD4L** |
| Rear connecting studs | Field | **EFRCSDL** | **FJRCSDL** | **3P–LRCS3WK** |
| | | **EFRCSDS** | **FJRCSDS** | **4P–LRCS4WK** |
| | | **EFRCSWL** | **FJRCSWL** | — |
| | | **EFRCSWS** | **FJRCSWS** | — |

***Notes***

① Compatible with three-pole and four-pole EG breakers only.
② Provision only.
③ See Volume 4—Circuit Protection, CA08100005E, Tab 2, for bolt projection dimensions.
④ Castell bolt mounting hole must be 10 mm.
⑤ Requires two breakers.

**Universal Molded Case Circuit Breakers**

## Features

- 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
- Includes mounting hardware and terminals

## Catalog Number Selection

### Universal Molded Case Circuit Breakers

#### Universal Molded Case

**Gi 2 070**

| Frame Size |
|---|
| **Gi** = G*i* Frame |
| **Fi** = F*i* Frame |
| **Ji** = J*i* Frame |
| **Ki** = K*i* Frame |
| **Li** = L*i* Frame |

| Number of Poles | | | | |
|---|---|---|---|---|
| G*i* Frame | F*i* Frame | J*i* Frame | K*i* Frame | L*i* Frame |
| **1** = Single-pole<br>**2** = Two-pole<br>**3** = Three-pole | **2** = Two-pole<br>**3** = Three-pole | **3** = Three-pole | **3** = Three-pole | **3** = Three-pole |

| Ampere Rating | | | | |
|---|---|---|---|---|
| G*i* Frame | F*i* Frame | J*i* Frame | K*i* Frame | L*i* Frame |
| **015** = 15 amp<br>**020** = 20 amp<br>**030** = 30 amp<br>**040** = 40 amp<br>**050** = 50 amp<br>**060** = 60 amp<br>**070** = 70 amp<br>**080** = 80 amp<br>**100** = 100 amp<br>**125** = 125 amp | **015** = 15 amp<br>**020** = 20 amp<br>**030** = 30 amp<br>**040** = 40 amp<br>**050** = 50 amp<br>**060** = 60 amp<br>**070** = 70 amp<br>**080** = 80 amp<br>**100** = 100 amp<br>**125** = 125 amp<br>**150** = 150 amp<br>**160** = 160 amp<br>**175** = 175 amp<br>**200** = 200 amp<br>**225** = 225 amp | **250** = 250 amp | **300** = 300 amp<br>**350** = 350 amp<br>**400** = 400 amp | **500** = 500 amp<br>**600** = 600 amp<br>**630** = 630 amp |

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## Product Selection

### Universal Molded Case Circuit Breakers

***Three-Pole***

Approximate Dimensions are in Inches

#### Universal G Frame

| Description | Amperes | Catalog Number ① |
|---|---|---|
| 3 W x 4-7/8 H x 2-13/16 D (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 |

#### Universal F Frame

| Description | Amperes | Catalog Number ① |
|---|---|---|
| 4-1/8 W x 6 H x 3-3/8 D | 15 | **Fi3015L** |
| | 20 | **Fi3020L** |
| | 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 |
|---|---|
| 415 | 18/9K |
| 480 | 20K |

#### Universal J Frame

| Description | Amperes | Catalog Number ① |
|---|---|---|
| 4-1/8 W x 10 H x 4-1/16 D | 225 | **Ji3225L** |
| | 250 | **Ji3250L** |

| Voltage | Interrupting Rating |
|---|---|
| 415 | 25/13K |
| 480 | 20K |

#### Universal K Frame

| Description | Amperes | Catalog Number ① |
|---|---|---|
| 5-1/2 W x 10-1/8 H x 4-1/16 D | 300 | **Ki3300L** |
| | 350 | **Ki3350L** |
| | 400 | **Ki3400L** |

| Voltage | Interrupting Rating |
|---|---|
| 415 | 25/13K |
| 480 | 20K |

#### Universal L Frame

| Description | Amperes | Catalog Number ① |
|---|---|---|
| 8-1/4 W x 10-3/4 H x 4.37 D | 500 | **Li3500** |
| | 600 | **Li3600** |

| Voltage | Interrupting Rating |
|---|---|
| 415 | 25/13K |
| 480 | 20K |

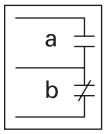
***Note***

① Metric mounting hardware.

## Accessories

### Internal Accessories

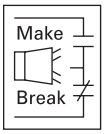
**Auxiliary Switch (Right-Pole Mounted)**




| Configuration | Add This Suffix to Catalog Number |
|---|---|
| 1NO/1NC | **A3** |
| 2NO/2NC | **A6** |

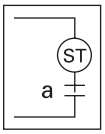
If both an auxiliary switch and bell alarm are required, add B13 to the catalog number (right-pole mounted). Auxiliary switch and bell alarm are 240V rated.

**Bell Alarm (Right-Pole Mounted)**



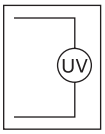

| Configuration | Add This Suffix to Catalog Number |
|---|---|
| 1 make/1 break | **B3** |

**Shunt Trip (Left-Pole Mounted)**




| Voltage Range | Add This Suffix to Catalog Number |
|---|---|
| 24 Vac | **S7** |
| 120 Vac | **S1** |
| 240 Vac | **S2** |
| 12 Vdc | **S3** |
| 24 Vdc | **S4** |
| 12–24 Vac/Vdc | **S02** |
| 48–127 Vac or 48–60 Vdc | **S06** |
| 208–380 Vac or 110–127 Vdc | **S10** |
| 415–600 Vac or 220–250 Vdc | **S14** |
| 380–440 Vac or 220–50 Vdc | **S14** |
| 480–600 Vac | **S18** |
| 24 Vac/Vdc | **S42** |
| 48–60 Vac/Vdc | **S50** |
| 110–240 Vac or 110–125 Vdc | **S10** |

**UVR (Left-Pole Mounted)**




| Voltage Range | Add This Suffix to Catalog Number |
|---|---|
| 24 Vac 50/60 Hz | **T2** |
| 48 Vac 50/60 Hz | **T3** |
| 60 Vac 50/60 Hz | **T4** |
| 120 Vac 50/60 Hz | **T1** |
| 240 Vac 50/60 Hz | **T8** |
| 220 Vac 50 Hz | **T7** |
| 440 Vac 50 Hz | **T11** |
| 480 Vac 60 Hz | **T12** |
| 12 Vac | **U02** |
| 24 Vac | **U06** |
| 48 Vac/Vdc | **U38** |
| 110–127 Vac | **U14** |
| 208–240 Vac | **U18** |
| 380–480 Vac | **U22** |
| 525–600 Vac | **U26** |
| 12 Vdc | **U30** |
| 24 Vdc | **U34** |
| 125 Vdc | **U42** |
| 220–250 Vdc | **U46** |
| 12 Vac | **U06** |
| 24 Vac | **U10** |
| 48–60 Vac | **U14** |
| 110–127 Vac | **U18** |
| 208–240 Vac | **U22** |
| 380–480 Vac | **U26** |
| 12 Vdc | **T02** |
| 24 Vdc | **T06** |
| 48–60 Vdc | **T10** |
| 110–125 Vdc | **T14** |
| 220–250 Vdc | **T18** |

#### Universal G Frame

#### Universal F Frame

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.

#### Universal J Frame

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.

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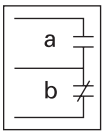
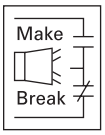
## Internal Accessories, continued

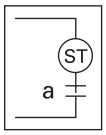
### Auxiliary Switch (Right-Pole Mounted)



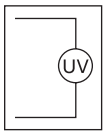

### Bell Alarm (Right-Pole Mounted)




### Shunt Trip (Left-Pole Mounted)




### UVR (Left-Pole Mounted)




| Configuration | Add This Suffix to Catalog Number | Configuration | Add This Suffix to Catalog Number | Voltage Range | Add This Suffix to Catalog Number | Voltage Range | Add This Suffix to Catalog Number |
|---|---|---|---|---|---|---|---|
| **Universal K Frame** | | | | | | | |
| 1NO/1NC | **A06** | 1 make/1 break | **B06** | 12–24 Vac/Vdc | **S42** | 12 Vac | **U06** |
| 2NO/2NC | **A13** | | | 48–60 Vac/Vdc | **S50** | 24 Vac | **U10** |
| If both an auxiliary switch and bell alarm are required, add CO5 to the catalog number (right-pole mounted). Auxiliary switch and bell alarm are 600V rated. | | | | 110–240 Vac or 110–125 Vdc | **S10** | 48–60 Vac | **U14** |
| | | | | | | 110–127 Vac | **U18** |
| | | | | 380–440 Vac or 220–250 Vdc | **S14** | 208–240 Vac | **U22** |
| | | | | | | 380–480 Vac | **U26** |
| | | | | 480–600 Vac | **S18** | 12 Vdc | **T02** |
| | | | | | | 24 Vdc | **T06** |
| | | | | | | 48–60 Vdc | **T10** |
| | | | | | | 110–125 Vdc | **T14** |
| | | | | | | 220–250 Vdc | **T18** |
| **Universal L Frame** | | | | | | | |
| 1NO/1NC | **A06** | 1 make/1 break | **B06** | 12–24 Vac/Vdc | **S02** | 12 Vac | **U06** |
| 2NO/2NC | **A13** | | | 48–60 Vdc | **S06** | 24 Vac | **U10** |
| If both an auxiliary switch and bell alarm are required, add CO5 to the catalog number (right-pole mounted). Auxiliary switch and bell alarm are 600V rated. | | | | 48–60 Vac | **S86** | 48–60 Vac | **U14** |
| | | | | 110–240 Vac | **S10** | 110–127 Vac | **U18** |
| | | | | 110–125 Vdc | **S42** | 208–240 Vac | **U22** |
| | | | | 380–440 Vac or 220–250 Vdc | **S14** | 380–480 Vac | **U26** |
| | | | | | | 12 Vdc | **T02** |
| | | | | 480–600 Vac | **S18** | 24 Vdc | **T06** |
| | | | | | | 48–60 Vdc | **T10** |
| | | | | | | 110–125 Vdc | **T14** |
| | | | | | | 220–250 Vdc | **T18** |

Handle Mechanisms

## Handle Mechanisms

**Type 1/12 Universal Rotary**

**Ordering Information** ①

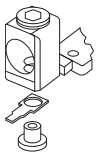
| Shaft Length in Inches (mm) | Handle Color | Complete Catalog Number | Flange Flex Shaft Type 1, 3R, 12 Versions |
|---|---|---|---|
| **Universal G Frame** | | | |
| 6 (152.4) | Black | **GHMVD06B** | 3-ft length; order **F0S03C** |
| 12 (304.8) | Black | **GHMVD12B** | 4-ft length; order **F0S04C** |
| 6 (152.4) | Red | **GHMVD06R** | 5-ft length; order **F0S05C** |
| 12 (304.8) | Red | **GHMVD12R** | 6-ft length; order **F0S06C** |
| **Universal F Frame** | | | |
| 6 (152.4) | Black | **FHMVD06B** | 3-ft length; order **F1S03C** |
| 12 (304.8) | Black | **FHMVD12B** | 4-ft length; order **F1S04C** |
| 6 (152.4) | Red | **FHMVD06R** | 5-ft length; order **F1S05C** |
| 12 (304.8) | Red | **FHMVD12R** | 6-ft length; order **F1S06C** |
| | | | 7-ft length; order **F1S07C** |
| | | | 8-ft length; order **F1S08C** |
| | | | 9-ft length; order **F1S09C** |
| | | | 10-ft length; order **F1S10C** |
| **Universal J Frame** | | | |
| 6 (152.4) | Black | **JHMVD06B** | 3-ft length; order **F2S03C** |
| 12 (304.8) | Black | **JHMVD12B** | 4-ft length; order **F2S04C** |
| 6 (152.4) | Red | **JHMVD06R** | 5-ft length; order **F2S05C** |
| 12 (304.8) | Red | **JHMVD12R** | 6-ft length; order **F2S06C** |
| | | | 7-ft length; order **F2S07C** |
| | | | 8-ft length; order **F2S08C** |
| | | | 9-ft length; order **F2S09C** |
| | | | 10-ft length; order **F2S10C** |
| **Universal K Frame** | | | |
| 6 (152.4) | Black | **KHMVD06B** | 3-ft length; order **F3S03C** |
| 12 (304.8) | Black | **KHMVD12B** | 4-ft length; order **F3S04C** |
| 6 (152.4) | Red | **KHMVD06R** | 5-ft length; order **F3S05C** |
| 12 (304.8) | Red | **KHMVD12R** | 6-ft length; order **F3S06C** |
| | | | 7-ft length; order **F3S07C** |
| | | | 8-ft length; order **F3S08C** |
| | | | 9-ft length; order **F3S09C** |
| | | | 10-ft length; order **F3S10C** |

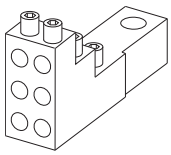
***Note***

① Only available as complete handle mechanism. Parts not sold separately.

## Terminals and Termination Accessory Devices

**Terminal/Termination Devices**





### Universal G Frame

| Terminals (Included with Breaker) | | Optional Multiwire Lugs (Load End Only) | |
|---|---|---|---|
| **15–20 A** | **25–100A** | **Three-Hole Version** | **Six-Hole Version** |
| 14–2 AWG Cu/Al | 10–1/0 AWG Cu/Al | (3) 14–2 AWG<br>Order **3TA100G3K** | (6) 14–6 AWG<br>Order **3TA100G6K** |
| 2.5–4 mm² Cu/Al | 4–50 mm² Cu/Al | | |

### Universal F Frame

| Terminals (Included with Breaker) | | | Optional Multiwire Lugs (Load End Only) | |
|---|---|---|---|---|
| **10–20A** | **25–100A** | **110–225A** | **Three-Hole Version** | **Six-Hole Version** |
| 14–10 AWG Cu/Al | 14–1/0 AWG Cu/Al | 4–4/0 AWG Cu/Al | (3) 14–2 AWG<br>Order **3TA150F3K** | (6) 14–6 AWG<br>Order 3TA150F6K |
| 2.5–4 mm² Cu/Al | 2.5–50 mm² Cu/Al | 25–95 mm² Cu/Al | | |

### Universal J Frame

| Terminals (Included with Breaker) | Optional Multiwire Lugs (Load End Only) | |
|---|---|---|
| **70–250A** | **Three-Hole Version** | **Six-Hole Version** |
| 4–350 kcmil AWG Cu/Al | (3) 14–2 AWG<br>Order **3TA250J3K** | (6) 14–6 AWG<br>Order **3TA250J6K** |
| 25–150 mm² Cu/Al | | |

### Universal K Frame

| Terminals (Included with Breaker) | | Optional Multiwire Lugs (Load End Only) | |
|---|---|---|---|
| **300–350A** | **400A** | **Three-Hole Version** | **Six-Hole Version** |
| 250–500 kcmil AWG Cu/Al | 3/0–200 (2) AWG Cu/Al | (3) 12–2/0 AWG<br>Order **3TA400K3K** | (6) 14–2/0 AWG<br>Order **3TA400K6K** |
| 120–240 mm² Cu/Al | 95–120 mm² Cu/Al | | |

### Universal L Frame

| Terminals (Included with Breaker) | | Optional Multiwire Lugs (Load End Only) | |
|---|---|---|---|
| **500A** | **600A** | **Three-Hole Version** | **Six-Hole Version** |
| (2) 250–300 kcmil Cu/Al | (2) 400–500 kcmil Cu/Al | — | — |
| 120–150 mm² Cu/Al | 185–250 mm² Cu/Al | | |

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

## Features

For Cable-In/Cable-Out Panel Mount Applications

- Single-, two-, three- and four-pole options
- Built and listed to UL 489
- All products UL and CSA listed
- All products 10–100A are HACR rated

## Catalog Number Selection

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

#### Type QC Miniature Circuit Breakers

**QC 3 020 H**

| Ampere Rating | Number of Poles | Ampere Rating | | Construction |
|---|---|---|---|---|
| **QC** = QC breaker | **1** = Single-pole<br>**2** = Two-pole<br>**3** = Three-pole<br>**4** = Four-pole | **010** = 10 amp<br>**015** = 15 amp<br>**020** = 20 amp<br>**025** = 25 amp<br>**030** = 30 amp<br>**035** = 35 amp<br>**040** = 40 amp<br>**045** = 45 amp | **050** = 50 amp<br>**055** = 55 amp<br>**060** = 60 amp<br>**070** = 70 amp<br>**080** = 80 amp<br>**090** = 90 amp<br>**100** = 100 amp | **H** = 240V (two-, three- and four-pole only) |

## Product Selection

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

**Note:** For non-automatic switches, see Volume 4—Circuit Protection, CA08100005E, Tab 1.

| Continuous Ampere Rating at 40°C | Single-Pole, 120/240 Vac Catalog Number | Two-Pole, 120/240 Vac Catalog Number | Three-Pole, 240 Vac Catalog Number |
|---|---|---|---|
| 10 | **QC1010** | **QC2010** | — |
| 15 | **QC1015** ①② | **QC2015** | **QC3015H** |
| 20 | **QC1020** ①② | **QC2020** | **QC3020H** |
| 30 | **QC1030** | **QC2030** | **QC3030H** |
| 40 | **QC1040** | **QC2040** | **QC3040H** |
| 50 | **QC1050** | **QC2050** | **QC3050H** |
| 60 | — | **QC2060** | **QC3060H** |
| 70 | — | **QC2070** | **QC3070H** |
| 100 | **QC1100** | **QC2100** | **QC3100H** |

***Notes***

① Switching duty rated for 120 Vac fluorescent light applications only.
② For special low-magnetic breaker, order QC1015L1 or QC1020L1.

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

## Features

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

- Single-, two- and three-pole options
- Modular construction
- DIN mounted (symmetrical rail 35 in x 7.5 in 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

## Catalog Number Selection

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

**QCD 3 020 H**

| Breaker Type | Number of Poles | Ampere Rating | | Construction |
|---|---|---|---|---|
| **QCD** = QCD breaker | **1** = Single-pole<br>**2** = Two-pole<br>**3** = Three-pole | **010** = 10 amp<br>**015** = 15 amp<br>**020** = 20 amp<br>**025** = 25 amp<br>**030** = 30 amp<br>**035** = 35 amp<br>**040** = 40 amp<br>**045** = 45 amp | **050** = 50 amp<br>**055** = 55 amp<br>**060** = 60 amp<br>**070** = 70 amp<br>**080** = 80 amp<br>**090** = 90 amp<br>**100** = 100 amp | **H** = 240V (two- and three-pole only) |

## Product Selection

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

| Continuous Ampere Rating at 40°C | Single-Pole, 120/240 Vac Catalog Number | Two-Pole, 120/240 Vac Catalog Number | Three-Pole, 240 Vac 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** |

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

## Features

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 in (12.7 mm) wide per pole
- Three-position handle: ON, tripped (center), OFF
- Thermal-magnetic protection
- Single-, two- and three-pole
- 10 kAIC at 120/240 Vac, 10–60A
- 10 kAIC at 240 Vac, 10–30A

## Catalog Number Selection

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

**QCR 1 020 T**

| Breaker Type |
|---|
| **QCR** = QCD Breaker (rear mount) |
| **QCF** = QCF Breaker (front mount) |

| Number of Poles |
|---|
| **1** = Single-pole |
| **2** = Two-pole |
| **3** = Three-pole |

| Ampere Rating | | |
|---|---|---|
| **010** = 10 amp | **030** = 30 amp | **050** = 50 amp |
| **015** = 15 amp | **035** = 35 amp | **055** = 55 amp |
| **020** = 20 amp | **040** = 40 amp | **060** = 60 amp |
| **025** = 25 amp | **045** = 45 amp | |

| Construction/Terminals |
|---|
| **H** = 240V (two- and three-pole only) |
| **T** = Ring or spade terminals (10–30A only) |

## Product Selection

### QUICKLAG Type QCR Breakers 10 kAIC Interrupting Ratings ①②③④

| Continuous Ampere Rating at 40°C | Single-Pole 120/240 Vac Catalog Number | Two-Pole 120/240 Vac Catalog Number | Three-Pole 240 Vac Catalog Number |
|---|---|---|---|
| 10 | **QCR1010** | **QCR2010** | — |
| | **QCR1010T** | **QCR2010T** | — |
| 15 | **QCR1015** ⑤ | **QCR2015** | **QCR3015H** |
| | **QCR1015T** ⑤ | **QCR2015T** | **QCR3015HT** |
| 20 | **QCR1020** ⑤ | **QCR2020** | **QCR3020H** |
| | **QCR1020T** ⑤ | **QCR2020T** | **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** | — |

### QUICKLAG Type QCF Breakers 10 kAIC Interrupting Ratings ①②③

| Continuous Ampere Rating at 40°C | Single-Pole 120/240 Vac Catalog Number | Two-Pole 120/240 Vac Catalog Number | Three-Pole 240 Vac Catalog Number |
|---|---|---|---|
| 10 | **QCF1010** | **QCF2010** | — |
| | **QCF1010T** | **QCF2010T** | — |
| 15 | **QCF1015** ⑤ | **QCF2015** | **QCF3015H** |
| | — | — | **QCF3015HT** |
| 20 | **QCF1020** ⑤ | **QCF2020** | **QCF3020H** |
| | — | — | **QCF3020HT** |
| 25 | **QCF1025** | **QCF2025** | **QCF3025H** |
| | — | — | **QCF3025HT** |
| 30 | **QCF1030** | **QCF2030** | **QCF3030H** |
| | — | — | **QCF3030HT** |
| 40 | **QCF1040** | **QCF2040** | — |
| 50 | **QCF1050** | **QCF2050** | — |
| 60 ⑥ | **QCF1060** | **QCF2060** | — |

***Notes***

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 single-, two- and three-pole.
⑤ All 15 and 20A single-pole breakers are SWD (switching duty) rated for fluorescent lighting applications.
⑥ 60/75°C Cu/Al wire on all ratings except 60A, which requires Cu only conductor.

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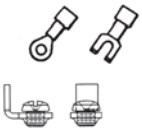
## Accessories

### Type QCR and QCF

| Description | Catalog Number |
|---|---|
| Steel mounting clip mounts QCR breaker if individual mounting is required. Quantity two required for single- and two-pole and four required for three-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**<br>  QUICKLAG Type C Spacer | **QCRSPACER** |
| **QCR and QCF Ring or Spade Lug Terminals**<br>  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"** |

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

## Features

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

## Catalog Number Selection

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

**QCGFEP 1 020**

| Breaker Type |
|---|
| **QCGF** = QC ground fault circuit protector |
| **QCGFEP** = QC ground fault equipment protector |

| Number of Poles |
|---|
| **1** = Single-pole |
| **2** = Two-pole |

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

## Product Selection

### Types QCGF and QCGFEP Thermal-Magnetic Breakers

| Continuous Ampere Rating at 40°C | Single-Pole, 120/240 Vac Catalog Number | Two-Pole, 120/240 Vac 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** |

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## Accessories

### Type QC Miniature Circuit Breakers

**Handle Locks**

| Accessory ① | Description | Catalog Number |
|---|---|---|
| Handle locks: Non-padlockable ② | QUICKLAG type P, B, C—single-pole | **QL1NPL** |
| | QUICKLAG type P, B, C—two-, three-pole | **QL23NPL** |
| Handle locks: Padlockable | QUICKLAG type P, B, C—single-pole | **QL1PL** |
| | QUICKLAG type C—single-, two-, three-pole | **QC123PL** |
| | QUICKLAG type C—single-, two-, three-pole (off only) | **QCD123PLOFF** |

**Handle Tie**

| | | |
|---|---|---|
| Handle tie | QUICKLAG handle tie—single-pole | **QL1HT** |
| | QUICKLAG handle tie—three-pole | **QL3HT** |

**Hardware**

| | | |
|---|---|---|
| Mounting hardware | QUICKLAG type C face mounting clip | **QCFCLIP** |
| | QUICKLAG type C face mounting plate—single-pole | **QC1FP** |
| | QUICKLAG type C face mounting plate —two-pole | **QC2FP** |
| | QUICKLAG type C face mounting plate —three-pole | **QC3FP** |
| | QUICKLAG type C face mounting plate and lock-off (off only)—two-pole ③ | **QC2FPLOFF** |
| | QUICKLAG type C face mounting plate and lock-off (off only)—three-pole | **QC3FPLOFF** |
| | QUICKLAG type C base mounting clamp | **QCBCLIP** |
| | QUICKLAG base mounting plate—six poles total | **QC6BP** |
| | QUICKLAG type C base mounting plate, six-poles total—heavy-duty screw-secured | **QC6BPS** |
| | QUICKLAG type C (QCD) two-way jumper unit with cover | **QCDJ2** |
| | QUICKLAG type C (QCD) four-way jumper unit with cover | **QCDJ4** |
| | QUICKLAG type C (QCD) six-way jumper unit with cover | **QCDJ6** |
| | QUICKLAG type C (QCD) two-way jumper unit, no cover | **QCDJ2T** |
| | QUICKLAG type C (QCD) four-way jumper unit, no cover | **QCDJ4T** |
| | QUICKLAG type C (QCD) six-way jumper unit, no cover | **QCDJ6T** |
| | QUICKLAG type QCD finger protection attachment | **QCDFP** |
| | QUICKLAG type C DIN rail adapter | **QCDINADAPT** |

***Notes***

① See **Page V9-T1-22** for QCR and QCF accessories.
② Can lock in ON or OFF position.
③ Suitable for ground fault breakers.

**FAZ-NA UL 489 Circuit Breakers**

## Features

- UL 489 listed DIN rail mounted miniature circuit breakers up to 40A current rating
- Current limiting design provides fast short-circuit interruption that reduces let-through energy
- Thermal-magnetic overcurrent protection
  - Three levels of short-circuit protection, categorized by B, C and D curves
- Ring-tongue terminals available
- Complete line of accessories

## Catalog Number Selection

### FAZ-NA UL 489 Circuit Breakers

#### FAZ-NA UL 489

**FAZ C 6 / 1 NA SP**

**Breaker Family**
**FAZ** = FAZ UL circuit breaker

**Trip Characteristics** ①
**B** = 3–5X $I_n$
**C** = 5–10X $I_n$
**D** = 10–20X $I_n$

**Ampere Rating** ②

| | |
|---|---|
| **0.5** = 0.5A | **10** = 10A |
| **1** = 1A | **13** = 13A |
| **1.5** = 1.5A | **15** = 15A |
| **2** = 2A | **16** = 16A |
| **3** = 3A | **20** = 20A |
| **4** = 4A | **25** = 25A |
| **5** = 5A | **30** = 30A |
| **6** = 6A | **32** = 32A |
| **7** = 7A | **35** = 32A |
| **8** = 8A | **40** = 40A |

**Number of Poles**
**1** = Single-pole
**2** = Two-pole
**3** = Three-pole

**Terminal**
**NA** = UL 489 branch circuit with screw terminals
**RT** = UL 489 branch circuit with ring tongue terminals
**DC** = UL 489 branch circuit at 125 Vdc per pole

**Single Package**
**SP** = Single package for C and D curve single-pole only
**Blank** = Standard packaging

***Notes***

① $I_n$ = Rated current for instantaneous trip characteristics.
② B curve starts at 1 ampere.

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## Product Selection

### FAZ-NA UL 489 Circuit Breakers—10 kAIC, 14 kAIC B Curve (15–25A)

| Amperes | Single-Pole ① Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| **B Curve (3–5X $I_n$ Current Rating)** | | | |
| 1 | FAZ-B1/1-NA | FAZ-B1/2-NA | FAZ-B1/3-NA |
| 1.5 | FAZ-B1.5/1-NA | FAZ-B1.5/2-NA | FAZ-B1.5/3-NA |
| 2 | FAZ-B2/1-NA | FAZ-B2/2-NA | FAZ-B2/3-NA |
| 3 | FAZ-B3/1-NA | FAZ-B3/2-NA | FAZ-B3/3-NA |
| 4 | FAZ-B4/1-NA | FAZ-B4/2-NA | FAZ-B4/3-NA |
| 5 | FAZ-B5/1-NA | FAZ-B5/2-NA | FAZ-B5/3-NA |
| 6 | FAZ-B6/1-NA | FAZ-B6/2-NA | FAZ-B6/3-NA |
| 7 | FAZ-B7/1-NA | FAZ-B7/2-NA | FAZ-B7/3-NA |
| 8 | FAZ-B8/1-NA | FAZ-B8/2-NA | FAZ-B8/3-NA |
| 10 | FAZ-B10/1-NA | FAZ-B10/2-NA | FAZ-B10/3-NA |
| 13 | FAZ-B13/1-NA | FAZ-B13/2-NA | FAZ-B13/3-NA |
| 15 | FAZ-B15/1-NA | FAZ-B15/2-NA | FAZ-B15/3-NA |
| 16 | FAZ-B16/1-NA | FAZ-B16/2-NA | FAZ-B16/3-NA |
| 20 | FAZ-B20/1-NA | FAZ-B20/2-NA | FAZ-B20/3-NA |
| 25 | FAZ-B25/1-NA | FAZ-B25/2-NA | FAZ-B25/3-NA |
| 30 | FAZ-B30/1-NA | FAZ-B30/2-NA | FAZ-B30/3-NA |
| 32 | FAZ-B32/1-NA | FAZ-B32/2-NA | FAZ-B32/3-NA |
| 35 ② | FAZ-B35/1-NA | FAZ-B35/2-NA | FAZ-B35/3-NA |
| 40 ② | FAZ-B40/1-NA | FAZ-B40/2-NA | FAZ-B40/3-NA |

### FAZ-RT UL 489 Circuit Breakers with Ring-Tongue Terminals—10 kAIC, 14 kAIC B Curve (15–25A)

| Amperes | Single-Pole ① Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| **B Curve with Ring-Tongue Terminals (3–5X $I_n$ Current Rating)** | | | |
| 1 | FAZ-B1/1-RT | FAZ-B1/2-RT | FAZ-B1/3-RT |
| 1.5 | FAZ-B1.5/1-RT | FAZ-B1.5/2-RT | FAZ-B1.5/3-RT |
| 2 | FAZ-B2/1-RT | FAZ-B2/2-RT | FAZ-B2/3-RT |
| 3 | FAZ-B3/1-RT | FAZ-B3/2-RT | FAZ-B3/3-RT |
| 4 | FAZ-B4/1-RT | FAZ-B4/2-RT | FAZ-B4/3-RT |
| 5 | FAZ-B5/1-RT | FAZ-B5/2-RT | FAZ-B5/3-RT |
| 6 | FAZ-B6/1-RT | FAZ-B6/2-RT | FAZ-B6/3-RT |
| 7 | FAZ-B7/1-RT | FAZ-B7/2-RT | FAZ-B7/3-RT |
| 8 | FAZ-B8/1-RT | FAZ-B8/2-RT | FAZ-B8/3-RT |
| 10 | FAZ-B10/1-RT | FAZ-B10/2-RT | FAZ-B10/3-RT |
| 13 | FAZ-B13/1-RT | FAZ-B13/2-RT | FAZ-B13/3-RT |
| 15 | FAZ-B15/1-RT | FAZ-B15/2-RT | FAZ-B15/3-RT |
| 16 | FAZ-B16/1-RT | FAZ-B16/2-RT | FAZ-B16/3-RT |
| 20 | FAZ-B20/1-RT | FAZ-B20/2-RT | FAZ-B20/3-RT |
| 25 | FAZ-B25/1-RT | FAZ-B25/2-RT | FAZ-B25/3-RT |
| 30 | FAZ-B30/1-RT | FAZ-B30/2-RT | FAZ-B30/3-RT |
| 32 | FAZ-B32/1-RT | FAZ-B32/2-RT | FAZ-B32/3-RT |
| 35 ② | FAZ-B35/1-RT | FAZ-B35/2-RT | FAZ-B35/3-RT |
| 40 ② | FAZ-B40/1-RT | FAZ-B40/2-RT | FAZ-B40/3-RT |

### FAZ-NA UL 489 Circuit Breakers—10 kAIC, 14 kAIC C Curve (15–25A)

| Amperes | Single-Pole ③ Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| **C Curve (5–10X $I_n$ Current Rating)** | | | |
| 0.5 | FAZ-C0.5/1-NA-SP | FAZ-C0.5/2-NA | FAZ-C0.5/3-NA |
| 1 | FAZ-C1/1-NA-SP | FAZ-C1/2-NA | FAZ-C1/3-NA |
| 1.5 | FAZ-C1.5/1-NA-SP | FAZ-C1.5/2-NA | FAZ-C1.5/3-NA |
| 2 | FAZ-C2/1-NA-SP | FAZ-C2/2-NA | FAZ-C2/3-NA |
| 3 | FAZ-C3/1-NA-SP | FAZ-C3/2-NA | FAZ-C3/3-NA |
| 4 | FAZ-C4/1-NA-SP | FAZ-C4/2-NA | FAZ-C4/3-NA |
| 5 | FAZ-C5/1-NA-SP | FAZ-C5/2-NA | FAZ-C5/3-NA |
| 6 | FAZ-C6/1-NA-SP | FAZ-C6/2-NA | FAZ-C6/3-NA |
| 7 | FAZ-C7/1-NA-SP | FAZ-C7/2-NA | FAZ-C7/3-NA |
| 8 | FAZ-C8/1-NA-SP | FAZ-C8/2-NA | FAZ-C8/3-NA |
| 10 | FAZ-C10/1-NA-SP | FAZ-C10/2-NA | FAZ-C10/3-NA |
| 13 | FAZ-C13/1-NA-SP | FAZ-C13/2-NA | FAZ-C13/3-NA |
| 15 | FAZ-C15/1-NA-SP | FAZ-C15/2-NA | FAZ-C15/3-NA |
| 16 | FAZ-C16/1-NA-SP | FAZ-C16/2-NA | FAZ-C16/3-NA |
| 20 | FAZ-C20/1-NA-SP | FAZ-C20/2-NA | FAZ-C20/3-NA |
| 25 | FAZ-C25/1-NA-SP | FAZ-C25/2-NA | FAZ-C25/3-NA |
| 30 | FAZ-C30/1-NA-SP | FAZ-C30/2-NA | FAZ-C30/3-NA |
| 32 | FAZ-C32/1-NA-SP | FAZ-C32/2-NA | FAZ-C32/3-NA |
| 35 ② | FAZ-C35/1-NA-SP | FAZ-C35/2-NA | FAZ-C35/3-NA |
| 40 ② | FAZ-C40/1-NA-SP | FAZ-C40/2-NA | FAZ-C40/3-NA |

### FAZ-RT UL 489 Circuit Breakers with Ring-Tongue Terminals—10 kAIC, 14 kAIC C Curve (15–25A)

| Amperes | Single-Pole ③ Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| **C Curve with Ring-Tongue Terminals (5–10X $I_n$ Current Rating)** | | | |
| 0.5 | FAZ-C0.5/1-RT-SP | FAZ-C0.5/2-RT | FAZ-C0.5/3-RT |
| 1 | FAZ-C1/1-RT-SP | FAZ-C1/2-RT | FAZ-C1/3-RT |
| 1.5 | FAZ-C1.5/1-RT-SP | FAZ-C1.5/2-RT | FAZ-C1.5/3-RT |
| 2 | FAZ-C2/1-RT-SP | FAZ-C2/2-RT | FAZ-C2/3-RT |
| 3 | FAZ-C3/1-RT-SP | FAZ-C3/2-RT | FAZ-C3/3-RT |
| 4 | FAZ-C4/1-RT-SP | FAZ-C4/2-RT | FAZ-C4/3-RT |
| 5 | FAZ-C5/1-RT-SP | FAZ-C5/2-RT | FAZ-C5/3-RT |
| 6 | FAZ-C6/1-RT-SP | FAZ-C6/2-RT | FAZ-C6/3-RT |
| 7 | FAZ-C7/1-RT-SP | FAZ-C7/2-RT | FAZ-C7/3-RT |
| 8 | FAZ-C8/1-RT-SP | FAZ-C8/2-RT | FAZ-C8/3-RT |
| 10 | FAZ-C10/1-RT-SP | FAZ-C10/2-RT | FAZ-C10/3-RT |
| 13 | FAZ-C13/1-RT-SP | FAZ-C13/2-RT | FAZ-C13/3-RT |
| 15 | FAZ-C15/1-RT-SP | FAZ-C15/2-RT | FAZ-C15/3-RT |
| 16 | FAZ-C16/1-RT-SP | FAZ-C16/2-RT | FAZ-C16/3-RT |
| 20 | FAZ-C20/1-RT-SP | FAZ-C20/2-RT | FAZ-C20/3-RT |
| 25 | FAZ-C25/1-RT-SP | FAZ-C25/2-RT | FAZ-C25/3-RT |
| 30 | FAZ-C30/1-RT-SP | FAZ-C30/2-RT | FAZ-C30/3-RT |
| 32 | FAZ-C32/1-RT-SP | FAZ-C32/2-RT | FAZ-C32/3-RT |
| 35 ② | FAZ-C35/1-RT-SP | FAZ-C35/2-RT | FAZ-C35/3-RT |
| 40 ② | FAZ-C40/1-RT-SP | FAZ-C40/2-RT | FAZ-C40/3-RT |

***Notes***

① Two-piece order. Quantities of two per box.

② 240 Vac rated only.

③ Option for single packaging on single-pole C and D curves only; add suffix SP when ordering.

## FAZ-NA UL 489 Circuit Breakers—10 kAIC, 14 kAIC D Curve (13–20A)

| Amperes | Single-Pole ① Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| **D Curve (10–20X $I_n$ Current Rating)** | | | |
| 0.5 | FAZ-D0.5/1-NA-SP | FAZ-D0.5/2-NA | FAZ-D0.5/3-NA |
| 1 | FAZ-D1/1-NA-SP | FAZ-D1/2-NA | FAZ-D1/3-NA |
| 1.5 | FAZ-D1.5/1-NA-SP | FAZ-D1.5/2-NA | FAZ-D1.5/3-NA |
| 2 | FAZ-D2/1-NA-SP | FAZ-D2/2-NA | FAZ-D2/3-NA |
| 3 | FAZ-D3/1-NA-SP | FAZ-D3/2-NA | FAZ-D3/3-NA |
| 4 | FAZ-D4/1-NA-SP | FAZ-D4/2-NA | FAZ-D4/3-NA |
| 5 | FAZ-D5/1-NA-SP | FAZ-D5/2-NA | FAZ-D5/3-NA |
| 6 | FAZ-D6/1-NA-SP | FAZ-D6/2-NA | FAZ-D6/3-NA |
| 7 | FAZ-D7/1-NA-SP | FAZ-D7/2-NA | FAZ-D7/3-NA |
| 8 | FAZ-D8/1-NA-SP | FAZ-D8/2-NA | FAZ-D8/3-NA |
| 10 | FAZ-D10/1-NA-SP | FAZ-D10/2-NA | FAZ-D10/3-NA |
| 13 | FAZ-D13/1-NA-SP | FAZ-D13/2-NA | FAZ-D13/3-NA |
| 15 | FAZ-D15/1-NA-SP | FAZ-D15/2-NA | FAZ-D15/3-NA |
| 16 | FAZ-D16/1-NA-SP | FAZ-D16/2-NA | FAZ-D16/3-NA |
| 20 | FAZ-D20/1-NA-SP | FAZ-D20/2-NA | FAZ-D20/3-NA |
| 25 | FAZ-D25/1-NA-SP | FAZ-D25/2-NA | FAZ-D25/3-NA |
| 30 | FAZ-D30/1-NA-SP | FAZ-D30/2-NA | FAZ-D30/3-NA |
| 32 | FAZ-D32/1-NA-SP | FAZ-D32/2-NA | FAZ-D32/3-NA |
| 35 ② | FAZ-D35/1-NA-SP | FAZ-D35/2-NA | FAZ-D35/3-NA |
| 40 ② | FAZ-D40/1-NA-SP | FAZ-D40/2-NA | FAZ-D40/3-NA |

## FAZ-RT UL 489 Circuit Breakers with Ring-Tongue Terminals—10 kAIC, 14 kAIC D Curve (13–20A)

| Amperes | Single-Pole ① Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| **D Curve with Ring-Tongue Terminals (10–20X $I_n$ Current Rating)** | | | |
| 0.5 | FAZ-D0.5/1-RT-SP | FAZ-D0.5/2-RT | FAZ-D0.5/3-RT |
| 1 | FAZ-D1/1-RT-SP | FAZ-D1/2-RT | FAZ-D1/3-RT |
| 1.5 | FAZ-D1.5/1-RT-SP | FAZ-D1.5/2-RT | FAZ-D1.5/3-RT |
| 2 | FAZ-D2/1-RT-SP | FAZ-D2/2-RT | FAZ-D2/3-RT |
| 3 | FAZ-D3/1-RT-SP | FAZ-D3/2-RT | FAZ-D3/3-RT |
| 4 | FAZ-D4/1-RT-SP | FAZ-D4/2-RT | FAZ-D4/3-RT |
| 5 | FAZ-D5/1-RT-SP | FAZ-D5/2-RT | FAZ-D5/3-RT |
| 6 | FAZ-D6/1-RT-SP | FAZ-D6/2-RT | FAZ-D6/3-RT |
| 7 | FAZ-D7/1-RT-SP | FAZ-D7/2-RT | FAZ-D7/3-RT |
| 8 | FAZ-D8/1-RT-SP | FAZ-D8/2-RT | FAZ-D8/3-RT |
| 10 | FAZ-D10/1-RT-SP | FAZ-D10/2-RT | FAZ-D10/3-RT |
| 13 | FAZ-D13/1-RT-SP | FAZ-D13/2-RT | FAZ-D13/3-RT |
| 15 | FAZ-D15/1-RT-SP | FAZ-D15/2-RT | FAZ-D15/3-RT |
| 16 | FAZ-D16/1-RT-SP | FAZ-D16/2-RT | FAZ-D16/3-RT |
| 20 | FAZ-D20/1-RT-SP | FAZ-D20/2-RT | FAZ-D20/3-RT |
| 25 | FAZ-D25/1-RT-SP | FAZ-D25/2-RT | FAZ-D25/3-RT |
| 30 | FAZ-D30/1-RT-SP | FAZ-D30/2-RT | FAZ-D30/3-RT |
| 32 | FAZ-D32/1-RT-SP | FAZ-D32/2-RT | FAZ-D32/3-RT |
| 35 ② | FAZ-D35/1-RT-SP | FAZ-D35/2-RT | FAZ-D35/3-RT |
| 40 ② | FAZ-D40/1-RT-SP | FAZ-C40/2-RT | FAZ-D40/3-RT |

## FAZ-NA-DC UL 489 Circuit Breakers—10 kAIC at 125 Vdc Per Pole

| Amperes | Single-Pole ③ Catalog Number | Two-Pole Catalog Number |
|---|---|---|
| **C Curve (5–10X $I_n$ Current Rating)** | | |
| 2 | FAZ-C2/1-NA-DC-SP | FAZ-C2/2-NA-DC |
| 3 | FAZ-C3/1-NA-DC-SP | FAZ-C3/2-NA-DC |
| 4 | FAZ-C4/1-NA-DC-SP | FAZ-C4/2-NA-DC |
| 5 | FAZ-C5/1-NA-DC-SP | FAZ-C5/2-NA-DC |
| 6 | FAZ-C6/1-NA-DC-SP | FAZ-C6/2-NA-DC |
| 7 | FAZ-C7/1-NA-DC-SP | FAZ-C7/2-NA-DC |
| 8 | FAZ-C8/1-NA-DC-SP | FAZ-C8/2-NA-DC |
| 10 | FAZ-C10/1-NA-DC-SP | FAZ-C10/2-NA-DC |
| 13 | FAZ-C13/1-NA-DC-SP | FAZ-C13/2-NA-DC |
| 15 | FAZ-C15/1-NA-DC-SP | FAZ-C15/2-NA-DC |
| 16 | FAZ-C16/1-NA-DC-SP | FAZ-C16/2-NA-DC |
| 20 | FAZ-C20/1-NA-DC-SP | FAZ-C20/2-NA-DC |
| 25 | FAZ-C25/1-NA-DC-SP | FAZ-C25/2-NA-DC |
| 30 | FAZ-C30/1-NA-DC-SP | FAZ-C30/2-NA-DC |
| 32 | FAZ-C32/1-NA-DC-SP | FAZ-C32/2-NA-DC |
| 35 | FAZ-C35/1-NA-DC-SP | FAZ-C35/2-NA-DC |
| 40 | FAZ-C40/1-NA-DC-SP | FAZ-C40/2-NA-DC |

***Notes***

① Option for single packaging on single-pole C and D curves only; add suffix SP when ordering.
② 240 Vac rated only.
③ Option for single packaging on single-pole C curves only; add suffix SP when ordering.

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**FAZ UL 1077 Circuit Breakers**

## Features

- UL 1077 recognized DIN rail mounted supplemental protectors up to 63A
- Current limiting design provides fast short-circuit interruption that reduces let-through energy
- Thermal-magnetic overcurrent protection
  - Three levels of short-circuit protection, categorized by B, C and D curves
- Ideal replacement for fuses that are applied as supplemental protection
- Complete line of accessories

## Catalog Number Selection

### FAZ UL 1077 Circuit Breakers

**FAZ UL 1077**

**FAZ C 6 / 1 SP**

| Breaker Family |
|---|
| **FAZ** = Supplementary protector |

| Trip Characteristics ① |
|---|
| **B** = 3–5X $I_n$ |
| **C** = 5–10X $I_n$ |
| **D** = 10–20X $I_n$ |
| **K** = 8–12X $I_n$ |
| **S** = 13–17X $I_n$ |
| **Z** = 2–3X $I_n$ |

| Ampere Rating | |
|---|---|
| **0.5** = 0.5A | **13** = 13A |
| **1** = 1A | **15** = 15A |
| **2** = 2A | **16** = 16A |
| **3** = 3A | **20** = 20A |
| **4** = 4A | **25** = 25A |
| **5** = 5A | **30** = 30A |
| **6** = 6A | **32** = 32A |
| **7** = 7A | **40** = 40A |
| **8** = 8A | **50** = 50A |
| **10** = 10A | **63** = 63A |

| Number of Poles | |
|---|---|
| **1** = Single-pole | **4** = Single-pole |
| **2** = Two-pole | **1N** = Single-pole + neutral |
| **3** = Three-pole | **3N** = Three-pole + neutral |

| Single Package |
|---|
| **SP** = Single packaging of single-pole curve B, C and D for select amperes only |
| **Blank** = Standard packaging |

***Note***

① $I_n$ = Rated current for instantaneous trip characteristics.

## Product Selection

### B Curve (3–5X $I_n$ Current Rating)—Designed for Resistive or Slightly Inductive Loads ①

| Amperes | Single-Pole ② Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| 1 | **FAZ-B1/1-SP** | **FAZ-B1/2** | **FAZ-B1/3** |
| 2 | **FAZ-B2/1-SP** | **FAZ-B2/2** | **FAZ-B2/3** |
| 3 | **FAZ-B3/1-SP** | **FAZ-B3/2** | **FAZ-B3/3** |
| 4 | **FAZ-B4/1-SP** | **FAZ-B4/2** | **FAZ-B4/3** |
| 5 | **FAZ-B5/1-SP** | **FAZ-B5/2** | **FAZ-B5/3** |
| 6 | **FAZ-B6/1-SP** | **FAZ-B6/2** | **FAZ-B6/3** |
| 7 | **FAZ-B7/1-SP** | **FAZ-B7/2** | **FAZ-B7/3** |
| 8 | **FAZ-B8/1-SP** | **FAZ-B8/2** | **FAZ-B8/3** |
| 10 | **FAZ-B10/1-SP** | **FAZ-B10/2** | **FAZ-B10/3** |
| 12 | **FAZ-B12/1-SP** | **FAZ-B12/2** | **FAZ-B12/3** |
| 13 | **FAZ-B13/1-SP** | **FAZ-B13/2** | **FAZ-B13/3** |
| 15 | **FAZ-B15/1-SP** | **FAZ-B15/2** | **FAZ-B15/3** |
| 16 | **FAZ-B16/1-SP** | **FAZ-B16/2** | **FAZ-B16/3** |
| 20 | **FAZ-B20/1-SP** | **FAZ-B20/2** | **FAZ-B20/3** |
| 25 | **FAZ-B25/1-SP** | **FAZ-B25/2** | **FAZ-B25/3** |
| 30 | **FAZ-B30/1-SP** | **FAZ-B30/2** | **FAZ-B30/3** |
| 32 | **FAZ-B32/1-SP** | **FAZ-B32/2** | **FAZ-B32/3** |
| 40 | **FAZ-B40/1-SP** | **FAZ-B40/2** | **FAZ-B40/3** |
| 50 | **FAZ-B50/1-SP** | **FAZ-B50/2** | **FAZ-B50/3** |
| 63 | **FAZ-B63/1-SP** | **FAZ-B63/2** | **FAZ-B63/3** |

### B Curve (3–5X $I_n$ Current Rating)—Designed for Resistive or Slightly Inductive Loads, continued ①

| Amperes | Four-Pole | Single-Pole + Neutral | Three-Pole + Neutral |
|---|---|---|---|
| 1 | **FAZ-B1/4** | **FAZ-B1/1N** | **FAZ-B1/3N** |
| 2 | **FAZ-B2/4** | **FAZ-B2/1N** | **FAZ-B2/3N** |
| 3 | **FAZ-B3/4** | **FAZ-B3/1N** | **FAZ-B3/3N** |
| 4 | **FAZ-B4/4** | **FAZ-B4/1N** | **FAZ-B4/3N** |
| 5 | **FAZ-B5/4** | **FAZ-B5/1N** | **FAZ-B5/3N** |
| 6 | **FAZ-B6/4** | **FAZ-B6/1N** | **FAZ-B6/3N** |
| 7 | **FAZ-B7/4** | **FAZ-B7/1N** | **FAZ-B7/3N** |
| 8 | **FAZ-B8/4** | **FAZ-B8/1N** | **FAZ-B8/3N** |
| 10 | **FAZ-B10/4** | **FAZ-B10/1N** | **FAZ-B10/3N** |
| 12 | **FAZ-B12/4** | **FAZ-B12/1N** | **FAZ-B12/3N** |
| 13 | **FAZ-B13/4** | **FAZ-B13/1N** | **FAZ-B13/3N** |
| 15 | **FAZ-B15/4** | **FAZ-B15/1N** | **FAZ-B15/3N** |
| 16 | **FAZ-B16/4** | **FAZ-B16/1N** | **FAZ-B16/3N** |
| 20 | **FAZ-B20/4** | **FAZ-B20/1N** | **FAZ-B20/3N** |
| 25 | **FAZ-B25/4** | **FAZ-B25/1N** | **FAZ-B25/3N** |
| 30 | **FAZ-B30/4** | **FAZ-B30/1N** | **FAZ-B30/3N** |
| 32 | **FAZ-B32/4** | **FAZ-B32/1N** | **FAZ-B32/3N** |
| 40 | **FAZ-B40/4** | **FAZ-B40/1N** | **FAZ-B40/3N** |
| 50 | **FAZ-B50/4** | **FAZ-B50/1N** | **FAZ-B50/3N** |
| 63 | **FAZ-B63/4** | **FAZ-B63/1N** | **FAZ-B63/3N** |

***Notes***

① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

② Option for single packaging on single-pole B, C and D curves only; add suffix SP when ordering.

## C Curve (5–10X $I_n$ Current Rating)—Designed Inductive Loads ①

| Amperes | Single-Pole ② Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| 0.5 | **FAZ-C0.5/1-SP** | **FAZ-C0.5/2** | **FAZ-C0.5/3** |
| 1 | **FAZ-C1/1-SP** | **FAZ-C1/2** | **FAZ-C1/3** |
| 1.6 | **FAZ-C1.6/1-SP** | **FAZ-C1.6/2** | **FAZ-C1.6/3** |
| 2 | **FAZ-C2/1-SP** | **FAZ-C2/2** | **FAZ-C2/3** |
| 3 | **FAZ-C3/1-SP** | **FAZ-C3/2** | **FAZ-C3/3** |
| 4 | **FAZ-C4/1-SP** | **FAZ-C4/2** | **FAZ-C4/3** |
| 5 | **FAZ-C5/1-SP** | **FAZ-C5/2** | **FAZ-C5/3** |
| 6 | **FAZ-C6/1-SP** | **FAZ-C6/2** | **FAZ-C6/3** |
| 7 | **FAZ-C7/1-SP** | **FAZ-C7/2** | **FAZ-C7/3** |
| 8 | **FAZ-C8/1-SP** | **FAZ-C8/2** | **FAZ-C8/3** |
| 10 | **FAZ-C10/1-SP** | **FAZ-C10/2** | **FAZ-C10/3** |
| 13 | **FAZ-C13/1-SP** | **FAZ-C13/2** | **FAZ-C13/3** |
| 15 | **FAZ-C15/1-SP** | **FAZ-C15/2** | **FAZ-C15/3** |
| 16 | **FAZ-C16/1-SP** | **FAZ-C16/2** | **FAZ-C16/3** |
| 20 | **FAZ-C20/1-SP** | **FAZ-C20/2** | **FAZ-C20/3** |
| 25 | **FAZ-C25/1-SP** | **FAZ-C25/2** | **FAZ-C25/3** |
| 30 | **FAZ-C30/1-SP** | **FAZ-C30/2** | **FAZ-C30/3** |
| 32 | **FAZ-C32/1-SP** | **FAZ-C32/2** | **FAZ-C32/3** |
| 40 | **FAZ-C40/1-SP** | **FAZ-C40/2** | **FAZ-C40/3** |
| 50 | **FAZ-C50/1-SP** | **FAZ-C50/2** | **FAZ-C50/3** |
| 63 | **FAZ-C63/1-SP** | **FAZ-C63/2** | **FAZ-C63/3** |

## C Curve (5–10X $I_n$ Current Rating)—Designed Inductive Loads, continued ①

| Amperes | Four-Pole | Single-Pole + Neutral | Three-Pole + Neutral |
|---|---|---|---|
| 0.5 | **FAZ-C0.5/4** | **FAZ-C0.5/1N** | **FAZ-C0.5/3N** |
| 1 | **FAZ-C1/4** | **FAZ-C1/1N** | **FAZ-C1/3N** |
| 1.6 | **FAZ-C1.6/4** | **FAZ-C1.6/1N** | **FAZ-C1.6/3N** |
| 2 | **FAZ-C2/4** | **FAZ-C2/1N** | **FAZ-C2/3N** |
| 3 | **FAZ-C3/4** | **FAZ-C3/1N** | **FAZ-C3/3N** |
| 4 | **FAZ-C4/4** | **FAZ-C4/1N** | **FAZ-C4/3N** |
| 5 | **FAZ-C5/4** | **FAZ-C5/1N** | **FAZ-C5/3N** |
| 6 | **FAZ-C6/4** | **FAZ-C6/1N** | **FAZ-C6/3N** |
| 7 | **FAZ-C7/4** | **FAZ-C7/1N** | **FAZ-C7/3N** |
| 8 | **FAZ-C8/4** | **FAZ-C8/1N** | **FAZ-C8/3N** |
| 10 | **FAZ-C10/4** | **FAZ-C10/1N** | **FAZ-C10/3N** |
| 13 | **FAZ-C13/4** | **FAZ-C13/1N** | **FAZ-C13/3N** |
| 15 | **FAZ-C15/4** | **FAZ-C15/1N** | **FAZ-C15/3N** |
| 16 | **FAZ-C16/4** | **FAZ-C16/1N** | **FAZ-C16/3N** |
| 20 | **FAZ-C20/4** | **FAZ-C20/1N** | **FAZ-C20/3N** |
| 25 | **FAZ-C25/4** | **FAZ-C25/1N** | **FAZ-C25/3N** |
| 30 | **FAZ-C30/4** | **FAZ-C30/1N** | **FAZ-C30/3N** |
| 32 | **FAZ-C32/4** | **FAZ-C32/1N** | **FAZ-C32/3N** |
| 40 | **FAZ-C40/4** | **FAZ-C40/1N** | **FAZ-C40/3N** |
| 50 | **FAZ-C50/4** | **FAZ-C50/1N** | **FAZ-C50/3N** |
| 63 | **FAZ-C63/4** | **FAZ-C63/1N** | **FAZ-C63/3N** |

***Notes***

① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

② Option for single packaging on single-pole B, C and D curves only; add suffix SP when ordering.

## D Curve (10–20X $I_n$ Current Rating)—Designed for Inductive Loads ①

| Amperes | Single-Pole ② Catalog Number | Two-Pole Catalog Number | Three-Pole Catalog Number |
|---|---|---|---|
| 0.5 | **FAZ-D0.5/1-SP** | **FAZ-D0.5/2** | **FAZ-D0.5/3** |
| 1 | **FAZ-D1/1-SP** | **FAZ-D1/2** | **FAZ-D1/3** |
| 2 | **FAZ-D2/1-SP** | **FAZ-D2/2** | **FAZ-D2/3** |
| 3 | **FAZ-D3/1-SP** | **FAZ-D3/2** | **FAZ-D3/3** |
| 4 | **FAZ-D4/1-SP** | **FAZ-D4/2** | **FAZ-D4/3** |
| 5 | **FAZ-D5/1-SP** | **FAZ-D5/2** | **FAZ-D5/3** |
| 6 | **FAZ-D6/1-SP** | **FAZ-D6/2** | **FAZ-D6/3** |
| 7 | **FAZ-D7/1-SP** | **FAZ-D7/2** | **FAZ-D7/3** |
| 8 | **FAZ-D8/1-SP** | **FAZ-D8/2** | **FAZ-D8/3** |
| 10 | **FAZ-D10/1-SP** | **FAZ-D10/2** | **FAZ-D10/3** |
| 13 | **FAZ-D13/1-SP** | **FAZ-D13/2** | **FAZ-D13/3** |
| 15 | **FAZ-D15/1-SP** | **FAZ-D15/2** | **FAZ-D15/3** |
| 16 | **FAZ-D16/1-SP** | **FAZ-D16/2** | **FAZ-D16/3** |
| 20 | **FAZ-D20/1-SP** | **FAZ-D20/2** | **FAZ-D20/3** |
| 25 | **FAZ-D25/1-SP** | **FAZ-D25/2** | **FAZ-D25/3** |
| 30 | **FAZ-D30/1-SP** | **FAZ-D30/2** | **FAZ-D30/3** |
| 32 | **FAZ-D32/1-SP** | **FAZ-D32/2** | **FAZ-D32/3** |
| 40 | **FAZ-D40/1-SP** | **FAZ-D40/2** | **FAZ-D40/3** |
| 50 ③ | **FAZ-D50/1-SP** | **FAZ-D50/2** | **FAZ-D50/3** |
| 63 ③ | **FAZ-D63/1-SP** | **FAZ-D63/2** | **FAZ-D63/3** |

## D Curve (10–20X $I_n$ Current Rating)—Designed for Inductive Loads, continued ①

| Amperes | Four-Pole | Single-Pole + Neutral | Three-Pole + Neutral |
|---|---|---|---|
| 0.5 | **FAZ-D0.5/4** | **FAZ-D0.5/1N** | **FAZ-D0.5/3N** |
| 1 | **FAZ-D1/4** | **FAZ-D1/1N** | **FAZ-D1/3N** |
| 2 | **FAZ-D2/4** | **FAZ-D2/1N** | **FAZ-D2/3N** |
| 3 | **FAZ-D3/4** | **FAZ-D3/1N** | **FAZ-D3/3N** |
| 4 | **FAZ-D4/4** | **FAZ-D4/1N** | **FAZ-D4/3N** |
| 5 | **FAZ-D5/4** | **FAZ-D5/1N** | **FAZ-D5/3N** |
| 6 | **FAZ-D6/4** | **FAZ-D6/1N** | **FAZ-D6/3N** |
| 7 | **FAZ-D7/4** | **FAZ-D7/1N** | **FAZ-D7/3N** |
| 8 | **FAZ-D8/4** | **FAZ-D8/1N** | **FAZ-D8/3N** |
| 10 | **FAZ-D10/4** | **FAZ-D10/1N** | **FAZ-D10/3N** |
| 13 | **FAZ-D13/4** | **FAZ-D13/1N** | **FAZ-D13/3N** |
| 15 | **FAZ-D15/4** | **FAZ-D15/1N** | **FAZ-D15/3N** |
| 16 | **FAZ-D16/4** | **FAZ-D16/1N** | **FAZ-D16/3N** |
| 20 | **FAZ-D20/4** | **FAZ-D20/1N** | **FAZ-D20/3N** |
| 25 | **FAZ-D25/4** | **FAZ-D25/1N** | **FAZ-D25/3N** |
| 30 | **FAZ-D30/4** | **FAZ-D30/1N** | **FAZ-D30/3N** |
| 32 | **FAZ-D32/4** | **FAZ-D32/1N** | **FAZ-D32/3N** |
| 40 | **FAZ-D40/4** | **FAZ-D40/1N** | **FAZ-D40/3N** |
| 50 ③ | **FAZ-D50/4** | **FAZ-D50/1N** | **FAZ-D50/3N** |
| 63 ③ | **FAZ-D63/4** | **FAZ-D63/1N** | **FAZ-D63/3N** |

***Notes***

① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

② Option for single packaging on single-pole B, C and D curves only; add suffix SP when ordering.

③ IEC 60947-2 only.

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## Accessories

### FAZ-NA UL 489 Breakers

| Description | Catalog Number |
|---|---|
| Two-pole contact or auxiliary contact/trip indicating contact | **Z-NHK** ① |
| Auxiliary contact | **Z-IHK-NA** |
| Shunt trip 110–415 Vac | **FAZ-XAA-NA110-415VAC** |
| Shunt trip 12–110 Vac | **FAZ-XAA-NA12-110VAC** |
| Padlock hasp | **IS/SPE-1TE** |
| Busbar—single-pole, 6 terminals ②③④⑤ | **Z-SV/UL-16/1P-1TE/6** |
| Busbar—single-pole, 12 terminals ②③④⑤ | **Z-SV/UL-16/1P-1TE/12** |
| Busbar—single-pole, 18 terminals ②③④⑤ | **Z-SV/UL-16/1P-1TE/18** |
| Busbar—two-pole, 6 terminals ②③④⑤ | **Z-SV/UL-16/2P-2TE/6** |
| Busbar—two-pole, 12 terminals ②③④⑤ | **Z-SV/UL-16/2P-2TE/12** |
| Busbar—two-pole, 18 terminals ②③④⑤ | **Z-SV/UL-16/2P-2TE/18** |
| Busbar—three-pole, 6 terminals ②③④⑤ | **Z-SV/UL-16/3P-3TE/6** |
| Busbar—three-pole, 12 terminals ②③④⑤ | **Z-SV/UL-16/3P-3TE/12** |
| Busbar—three-pole, 18 terminals ②③④⑤ | **Z-SV/UL-16/3P-3TE/18** |
| Three-pole busbar shroud | **ZV-BS-UL** |
| Extension terminal—35 $mm^2$ (2–14 AWG) | **Z-EK/35/UL** |
| Bus connector—conductors up to 50 $mm^2$ (~1/0 AWG) | **Z-EB/50/UL** |

### FAZ UL 1077 Auxiliary Contacts

| Description | Rated Operational Voltage | Catalog Number |
|---|---|---|
| **Standard Auxiliary Contacts** | | |
| 1NO/1NC<br>Installs on left side of FAZ or shunt trip<br>Max. one per FAZ (1077) device<br>Switches when FAZ is tripped electrically or manually | 230 Vac | **FAZ-XHIN11** |
| 1 changeover contact<br>Installs on left side of FAZ or shunt trip<br>Max. one per FAZ (1077) device<br>Switches when FAZ is tripped electrically or manually | 230 Vac | **FAZ-XHINW1** |
| **Auxiliary/Trip Indicating Contact** | | |
| Small selector screw changes mode<br>Two Form C (changeover) contacts<br>Installs on left side of FAZ or shunt trip<br>Auxiliary contacts switch when FAZ is tripped electrically or manually<br>Trip indicating contact switches only when FAZ is tripped electrically | 230 Vac | **FAZ-XAM002** |
| **Undervoltage Trip** | | |
| Prevents FAZ from operating unless voltage is present<br>Installs on left side of FAZ<br>Includes test button | 115 Vac | **FAZ-XUA(115VAC)** |
| | 230 Vac | **FAZ-XUA(230VAC)** |
| | 400 Vac | **FAZ-XUA(400VAC)** |
| **Shunt Trip** | | |
| Allows remote trip of FAZ<br>Installs on left side of FAZ | 12–110 Vac<br>12–60 Vdc | **FAZ-XAA-C-12-110VAC** |
| | 110–415 Vac<br>110–230 Vdc | **FAZ-XAA-C-110-415VAC** |

### FAZ UL 1077 Busbar System

| Rated Operational Current | Number of Poles per Device | Number of Terminals | Catalog Number ⑤ |
|---|---|---|---|
| **Without Auxiliary Contacts** | | | |
| 80A | 1 | 57 | **BB-UL-18/1P-1M/57** |
| | 2 | 56 | **BB-UL-18/2P-2M/56** |
| | 3 | 57 | **BB-UL-18/3P-3M/57** |
| 100A | 1 | 57 | **BB-UL-25/1P-1M/57** |
| | 2 | 56 | **BB-UL-25/2P-2M/56** |
| | 3 | 57 | **BB-UL-25/3P-3M/57** |
| **Auxiliary/Trip Indicating Contacts** | | | |
| 80A | 1 | 37 | **BB-UL-18/1P-1,5M/37** |
| | 2 | 46 | **BB-UL-18/2P+AS-2,5M/46** |
| | 3 | 48 | **BB-UL-18/3P+AS-3,5M/48** |
| 100A | 1 | 37 | **BB-UL-25/1P-1,5M/37** |
| | 2 | 46 | **BB-UL-25/2P+AS-2,5M/46** |
| | 3 | 48 | **BB-UL-25/3P+AS-3,5M/48** |

### Pin Type Incoming Supply Terminals

| Description | Catalog Number |
|---|---|
| Accommodates conductors from 6–35 $mm^2$/#10–2 AWG<br>4–5.5 Nm/35–50 lb-in / Two- and three-pole | **BB-UL-TEP/35** |

### Pin Type Incoming Supply Terminals—Single-Phase Only

| Description | Catalog Number |
|---|---|
| Accommodates conductors from 6–35 $mm^2$/#10–2 AWG<br>4–5.5 Nm/35–50 lb-in | **BB-UL-TEPA/35** |

### Protective Accessories

| Description | Catalog Number |
|---|---|
| For covering unused terminals | **BB-IP/5** |
| Prevents reactivation of the device during maintenance<br>Holds one padlock | **IS/SPE-1TE** |

### Bus Incoming Supply Terminals

| Description | Catalog Number |
|---|---|
| 50 $mm^2$<br>#14–1 AWG<br>75 Deg wire<br>115 A/Y, 480V UL<br>160 A/Y 690V IEC | **BB-UL-TE/50** |

### Busbar End Cap

| Description | Poles | Catalog Number |
|---|---|---|
| Install after cutting busbar<br>Protects end of busbar | 2 and 3 | **BB-UL-EC/3** |
| | 1 | **BB-UL-EC/1** |

***Notes***

① Voltage of FAZ-NA circuit breaker is limited to 300V with this auxiliary contact installed.
② Do not cut commoning link.
③ A maximum of three commoning links may be used in conjunction. Each breaker connected to the commoning link must have the same number of poles for proper use.
④ Not for use with ring-tongue circuit breakers.
⑤ Bus may be center fed for high current capacity.

Series NRX Low Voltage Power Breakers

## Features

- Rogowski coil does not saturate like iron core sensors, and one sensor accommodates 200–1600A 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 Breakers**

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## Catalog Number Selection

### Series NRX Power Breakers (Exclusionary Rules Apply)

N S S6 08 3 W 52 8 A B A N 4 X N D X

**Breaker Frame Size**
**N** = Type NF, 630–1600A, (70 mm pole spacing)

**Standard, Mechanism, Device**
**S** = UL 1066, stored energy, power breaker
**X** = UL 489, stored energy, insulated case breaker
**E** = IEC 60947-2, stored energy, air breaker

**Fault Current Rating**
**S4** = 42 kA at 480 Vac UL or 415 Vac IEC
**S5** = 50 kA at 480 Vac UL or 415 Vac IEC
**S6** = 65 kA at 480 Vac UL or 415 Vac IEC

**Frame Rating (Amperes)**

| | |
|---|---|
| **07** = 630 (IEC only) | **12** = 1200 (UL only) |
| **08** = 800 | **13** = 1250 (IEC only) |
| **10** = 1000 (IEC only) | **16** = 1600 (On NF: IEC only) |

**Poles, Phasing**
**3** = Three-pole, ABC
**4** = Four-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
**T** = Fixed mount front connect, surface mount, cable connect, with secondary terminal row
**F** = Fixed mount front connect, mounting bracket, bus connect, with secondary terminal row
**S** = Fixed mount front connect, surface mount, bus connect, with secondary terminal row

**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, 24 Vdc
**M3** = 520M LSI, with ZSI, 24 Vdc
**MA** = 520M LSIA, no ZSI, 24 Vdc
**MB** = 520M LSIA, with ZSI, 24 Vdc
**MG** = 520M LSIG, no ZSI, 24 Vdc
**MH** = 520M LSIG, with ZSI, 24 Vdc
**R2** = 520M LSI, no ZSI, 24 Vdc, with Arcflash Reduction Maintenance System™
**R3** = 520M LSI, with ZSI, 24 Vdc, with Arcflash Reduction Maintenance System
**RA** = 520M LSIA, no ZSI, 24 Vdc, with Arcflash Reduction Maintenance System
**RB** = 520M LSIA, with ZSI, 24 Vdc, with Arcflash Reduction Maintenance System
**RG** = 520M LSIG, no ZSI, 24 Vdc, with Arcflash Reduction Maintenance System
**RH** = 520M LSIG, with ZSI, 24 Vdc, with Arcflash Reduction Maintenance System
**SW** = Non-auto switch

**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** = No shunt trip
**A** = 110–127 Vac/Vdc
**R** = 208–240 Vac/Vdc
**L** = 24 Vdc
**H** = 48 Vdc

**Motor Operator** ①
**M** = Manually operated
**B** = 110–125 Vac
**W** = 110–125 Vdc
**T** = 208–250 Vac
**P** = 220–250 Vdc
**L** = 24 Vdc
**H** = 48 Vdc

**Spring Release, Latch Check Switch** ①
**N** = No spring release, no LCS
**A** = 110–127 Vac/Vdc, no LCS
**R** = 208–240 Vac/Vdc, no LCS

**UVR, Second Shunt Trip** ①
**N** = None
**A** = 110–125 Vac/Vdc UVR
**R** = 220–250 Vac/Vdc UVR
**1** = 110–127 Vac/Vdc second shunt trip
**2** = 208–240 Vac/Vdc second shunt trip

**Auxiliary, Switches, Label Language** ①
**E** = No auxiliary switches, no label (parent)
**2** = 2 Form C, English
**4** = 4 Form C, English

**Trip Indicator and 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
**M** = Interlock trip indicator provided, no OTS, secondary terminal blocks per breaker options
**Y** = Trip indicator provided, 2 Form C OTS, secondary terminal blocks per breaker options
**1** = No indicator, no OTS, full complement secondary terminal blocks
**2** = Trip indicator, no OTS, full complement secondary terminal blocks
**3** = Trip indicator provided, 2 Form C OTS, full complement secondary terminal blocks
**4** = Interlock trip indicator provided, no OTS, full complement secondary terminal blocks
**5** = Interlock trip indicator provided, 2 Form C, full complement secondary terminal blocks

**Padlock Provisions, Key Lock Provisions, Operations Counter** ①
**N** = No PB covers, none, no counter

**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, no shutters, no terminals, with door frame kit
**K** = Fixed breaker, no adapters, rear connector, with door frame kit, with mounting feet, with door frame kit
**A** = Terminal adapters for rear connect, short vertical/horizontal, with door frame kit
**E** = Terminal adapters for rear connect, long vertical/horizontal, with door frame kit
**F** = Terminal adapters for rear connect, with mounting feet, short vertical/horizontal, with door frame kit
**H** = Terminal adapters for rear connect, with mounting feet, long vertical/horizontal, with door frame kit
**1** = Drawout breaker in cassette, no shutters, short vertical/horizontal, with door frame kit
**2** = Drawout breaker in cassette, no shutters, long vertical/horizontal, with door frame kit
**4** = Drawout breaker in cassette, with shutters, short vertical/horizontal, with door frame kit
**5** = Drawout breaker in cassette, with shutters, long vertical/horizontal, with door frame kit
**9** = Drawout breaker in cassette, with shutters, no terminals, with door frame kit

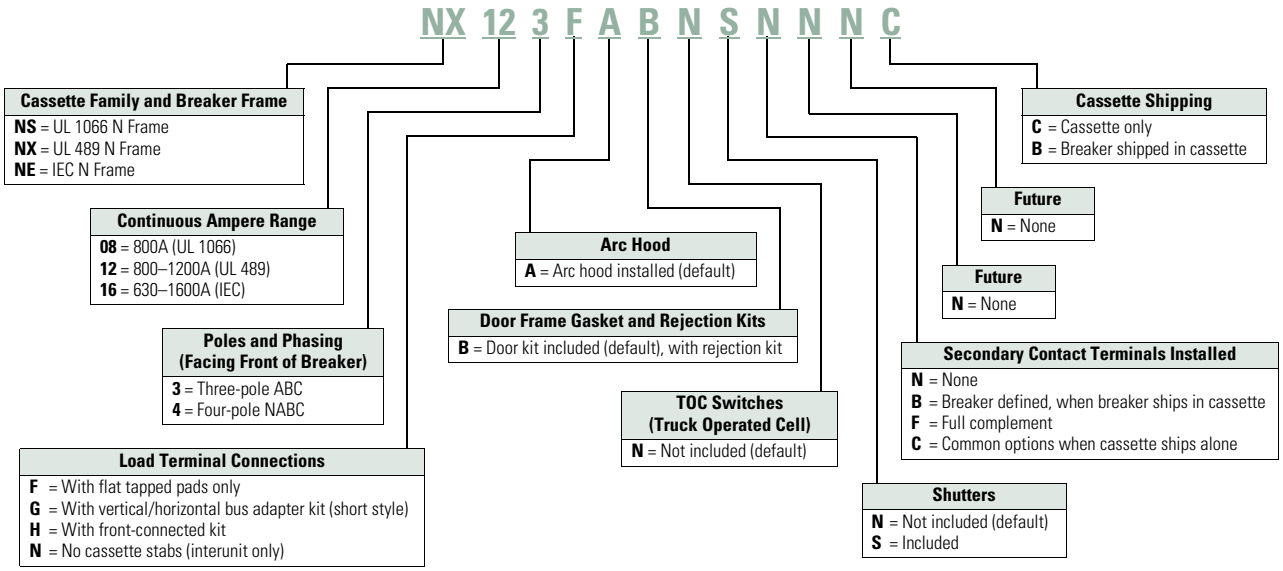
**Future Use**
**X** = All product

***Note***

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

## Catalog Number Selection

### Series NRX Cassettes




## Product Selection

### Series NRX Low Voltage Power Breakers

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

***Notes***

① See **Page V9-T1-34** for cassette selection for drawout breakers.

② See selection above for accessories in positions 12–20.

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**Magnum Low Voltage Power Breakers**

## Features

- 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 three 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 Low Voltage Power Breakers

## Catalog Number Selection

### Magnum ANSI/UL Low Voltage Power Breakers

**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
**D** = Double (MDDX only)

**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** = Three-pole
**4** = Four-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) | **H** = MA800 |
| **D** = MA250 | **K** = MB1200 |
| **E** = MA300 | **L** = MB1600 |
| **F** = MA400 | **M** = MB2000 |
| **G** = MA600 | **N** = MD2500 |
| | **P** = MD3000 |

**Sensor and Rating Plug Rating**

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

**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 (24/48 Vdc)
**MU** = 520M LSI (120 Vac)
**MV** = 520M LSI (240 Vac)
**MQ** = 520M LSI (125 Vac)
**MG** = 520M LSIG
**MH** = 520M LSIG (24/48 Vdc)
**MM** = 520M LSIG (120 Vac)
**MN** = 520 LSIG (240 Vac)
**MX** = 520M LSIG (125 Vac)
**ME** = 520M LSIA (24/48 Vdc)
**MC** = 520 LSIA (120 Vac)
**MF** = 520M LSIA (240 Vac)
**MZ** = 520M LSIA (125 Vac)
**CT** = 520MC LSI (24/48 Vdc)
**CU** = 520MC LSI (120 Vac)
**CV** = 520MC LSI (240 Vac)
**CQ** = 520MC LSI (125 Vac)
**CH** = 520MC LSIG (24/48 Vdc)
**CM** = 520MC LSIG (120 Vac)
**CN** = 520MC LSIG (240 Vac)
**CX** = 520MC LSIG (125 Vac)
**CE** = 520MC LSIA (24/48 Vdc)
**CC** = 520MC LSIA (120 Vac)
**CF** = 520MC LSIA (240 Vac)
**CY** = 520MC LSIA (125 Vac)
**1A** = 1150 LSI (24/48 Vdc)
**1C** = 1150 LSI (120 Vac)
**1E** = 1150 LSI (240 Vac)
**1Q** = 1150 LSI (125 Vac)
**1F** = 1150 LSIG (24/48 Vdc)
**1G** = 1150 LSIG (120 Vac)
**1H** = 1150 LSIG (240 Vac)
**1X** = 1150 LSIG (125 Vac)
**1J** = 1150 LSIA (24/48 Vdc)
**1K** = 1150 LSIA (120 Vac)
**1M** = 1150 LSIA (240 Vac)
**1Y** = 1150 LSIA (125 Vac)

**Shunt Trip (ST)**
**N** = None
**A** = 110–127 Vac/Vdc
**R** = 208–240 Vac/Vdc
**C** = 24 Vdc
**H** = 48 Vdc

**Motor Operator**
**M** = Manual operated
**N** = 110–125 Vac
**W** = 110–125 Vdc
**T** = 220–250 Vdc
**P** = 220–240 Vac
**L** = 24 Vdc
**K** = 48 Vdc

**Spring Release Device (SRD)**
**N** = None
**A** = 110–127 Vac/Vdc
**R** = 208–240 Vac/Vdc
**C** = 24 Vdc
**H** = 48 Vdc

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

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

**Bell Alarms 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 |

**Frame Use**
**X** = All breakers

**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 (unwired)
**P** = Drawout breaker in cassette (prewired)
**S** = Drawout breaker in cassette (shutters)
**W** = Drawout breaker in cassette (prewired and shutters)
Double frame drawout breakers ship without cassette drawout. ACBs ship in narrow and universal cassettes only.

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

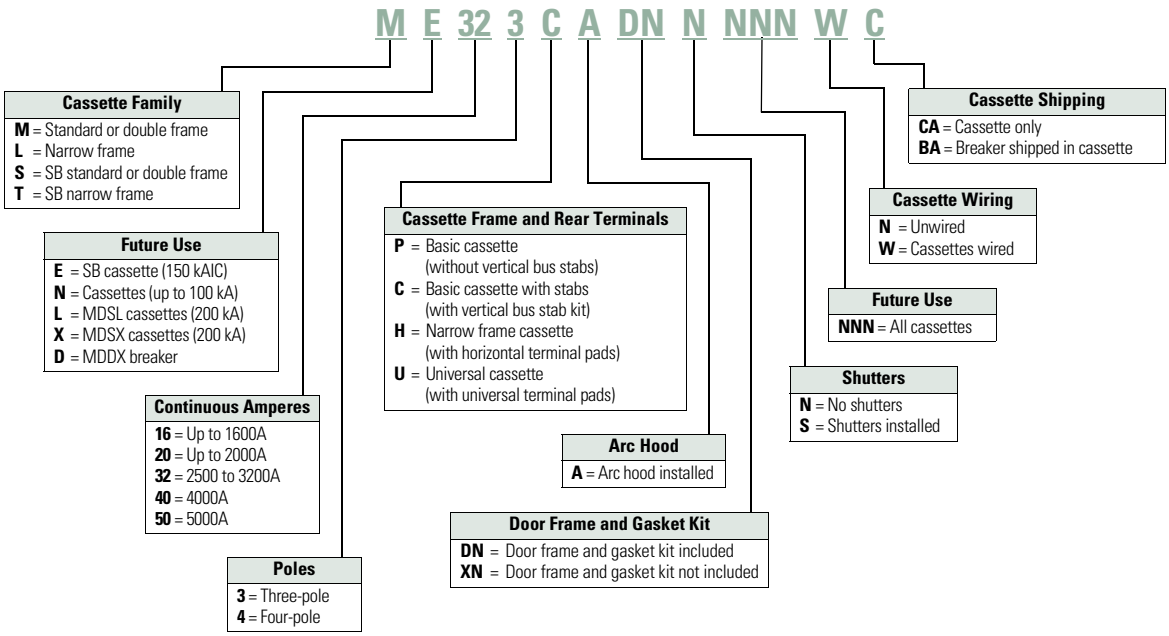
| | Latch Check Switch | 1150 Voltage Connection |
|---|---|---|
| **N** = | None | Upper terminals |
| **M** = | None | Lower terminals |
| **L** = | LCS wired to SRD | Upper terminals |
| **Y** = | LCS wired to SRD | Lower terminals |
| **C** = | LCS wired external | Upper terminals |
| **D** = | LCS wired external | Lower terminals |

**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 |

**Padlock Provisions for Blocking Close and/or Open ACB Manual Pushbuttons**
**N** = None
**M** = Metal (block close and open)
**P** = Plastic (block close and open)
**C** = Metal (block close only)
**H** = Plastic (block close only)
**S** = Metal swbd lock-off (block close, depress open)

## Magnum ANSI/UL Low Voltage Air Circuit Breaker Cassettes



## Magnum IEC Low Voltage Air Circuit Breakers

**MW I 4 08 3 H E A – 02 22 A M A A 2 E M K L A X**

**Breaker Frame**
- **I** = Standard or double
- **N** = Narrow
- **K** = Special 1100 Vac ACB

**Interrupting $I_{CU}$**
- **4** = 40 kA
- **5** = 50 kA
- **6** = 65 kA
- **8** = 85 kA
- **C** = 100 kA
- **2** = 25 kA (1100 Vac MWK)

**Continuous Amperes and Phasing (Facing Front of Breaker)**
- **08** = 800 ABC
- **10** = 1000 ABC
- **12** = 1250 ABC
- **16** = 1600 ABC
- **20** = 2000 ABC
- **25** = 2500 ABC
- **32** = 3200 ABC
- **4N** = 4000 AABBCC
- **5N** = 5000 AABBCC
- **6N** = 6300 AABBCC
- **40** = 4000 ABCABC
- **50** = 5000 ABCABC
- **60** = 6300 ABCABC

**Poles and Neutral (Facing Front of Breaker)**
- **3** = Three
- **4** = Four (neutral left)
- **R** = Four (reserved for neutral right)

**Mounting Configuration and Load Terminals**
- **H** = Fixed horizontal
- **V** = Fixed vertical
- **L** = Drawout horizontal

**Nameplate Language**
- **E** = English
- **A** = Spanish

**Sensor and Rating Plug Rating**

| | |
|---|---|
| **NN** = None | **13** = 1250 |
| **02** = 200 | **16** = 1600 |
| **05** = 250 | **20** = 2000 |
| **03** = 300 | **25** = 2500 |
| **04** = 400 | **30** = 3000 |
| **06** = 600 | **32** = 3200 |
| **07** = 630 | **40** = 4000 |
| **08** = 800 | **50** = 5000 |
| **10** = 1000 | **63** = 6300 |
| **12** = 1200 | |

**Trip Unit Protection, (and External Control Voltage When Required)**
- **NN** = Non-automatic (no trip unit)
- **22** = 220 LI
- **52** = 520 LSI
- **5W** = 520i LSIG
- **M2** = 520M LSI
- **MT** = 520M LSI (24–48 Vdc)
- **MU** = 520M LSI (120 Vac)
- **MV** = 520M LSI (240 Vac)
- **MW** = 520Mi LSIG
- **MJ** = 520Mi LSIG (24–48 Vdc)
- **MK** = 520Mi LSIG (120 Vac)
- **ML** = 520Mi LSIG (240 Vac)
- **ME** = 520M LSIA (24–48 Vdc)
- **MC** = 520M LSIA (120 Vac)
- **MF** = 520M LSIA (240 Vac)
- **CT** = 520MC LSI
- **CU** = 520MC LSI
- **CV** = 520MC LSI
- **CE** = 520MC LSIA
- **CC** = 520MC LSIA
- **CF** = 520MC LSIA
- **CJ** = 520MCi LSIG
- **CK** = 520MCi LSIG
- **CL** = 520MCi LSIG
- **1W** = 1150i LSI (24–48 Vdc)
- **1N** = 1150i LSI (120 Vac)
- **1P** = 1150i LSI (240 Vac)
- **1R** = 1150i LSIG/A (24–48 Vdc)
- **1S** = 1150i LSIG/A (120 Vac)
- **1T** = 1150i LSIG/A (240 Vac)

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

**Undervoltage Release (UVR) or 2nd Shunt Trip Attachment (STA)**
- **N** = None
- **A** = 110–127 Vac
- **R** = 208–240 Vac
- **C** = 24 Vdc
- **H** = 48 Vdc
- **E** = 110–125 Vdc
- **F** = 220–250 Vdc
- **G** = 32 Vdc
- **X** = 380–415 Vac
- **J** = 480 Vac
- **K** = 600 Vac
- **1** = 2nd STA (110–127 Vac/Vdc)
- **2** = 2nd STA (208–250 Vac/Vdc)
- **3** = 2nd STA (24 Vdc)
- **4** = 2nd STA (48 Vdc)

**Spring Release Device (SRD)**
- **N** = None
- **A** = 110–127 Vac/Vdc
- **R** = 208–240 Vac/Vdc
- **C** = 24 Vdc
- **H** = 48 Vdc

**Motor Operator**
- **M** = Manual operated
- **N** = 110–125 Vac
- **W** = 110–125 Vdc
- **T** = 220–250 Vdc
- **P** = 220–250 Vac
- **L** = 24 Vdc
- **K** = 48 Vdc

**Shunt Trip Attachment (STA)**
- **N** = None
- **A** = 110–127 Vac
- **R** = 208–240 Vac
- **C** = 24 Vdc
- **H** = 48 Vdc

**Latch Checking Switch/Trip Unit Metering Voltage Connection for Digitrip 1150 Trip Unit**

| | Latch Check Switch | 1150 Voltage Connection |
|---|---|---|
| **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 |

**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 |
| **T** = | Counter | Kirk lock |
| **L** = | Counter | Castell lock |
| **H** = | Counter | Ronis lock |

**Padlock Provisions for Blocking Close and/or Open ACB Manual Pushbuttons**
- **N** = None
- **M** = Metal (block close and open)
- **P** = Plastic (block close and open)
- **C** = Metal (block close only)
- **H** = Plastic (block close only)

**Bell Alarms 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 OT | With indicator |

**ACB Shipping Instructions**
- **A** = Fixed ACB with door kit
- **F** = Fixed ACB without door kit
- **A** = D/O ACB only without door kit
- **C** = D/O ACB in cassette (unwired)
- **P** = D/O ACB in cassette (prewired)
- **S** = D/O ACB in cassette (shutters)
- **W** = D/O ACB in cassette (prewired and shutters)

Double frame D/O ACBs ship without cassette

**Future Use**
- **X** = All ACBs

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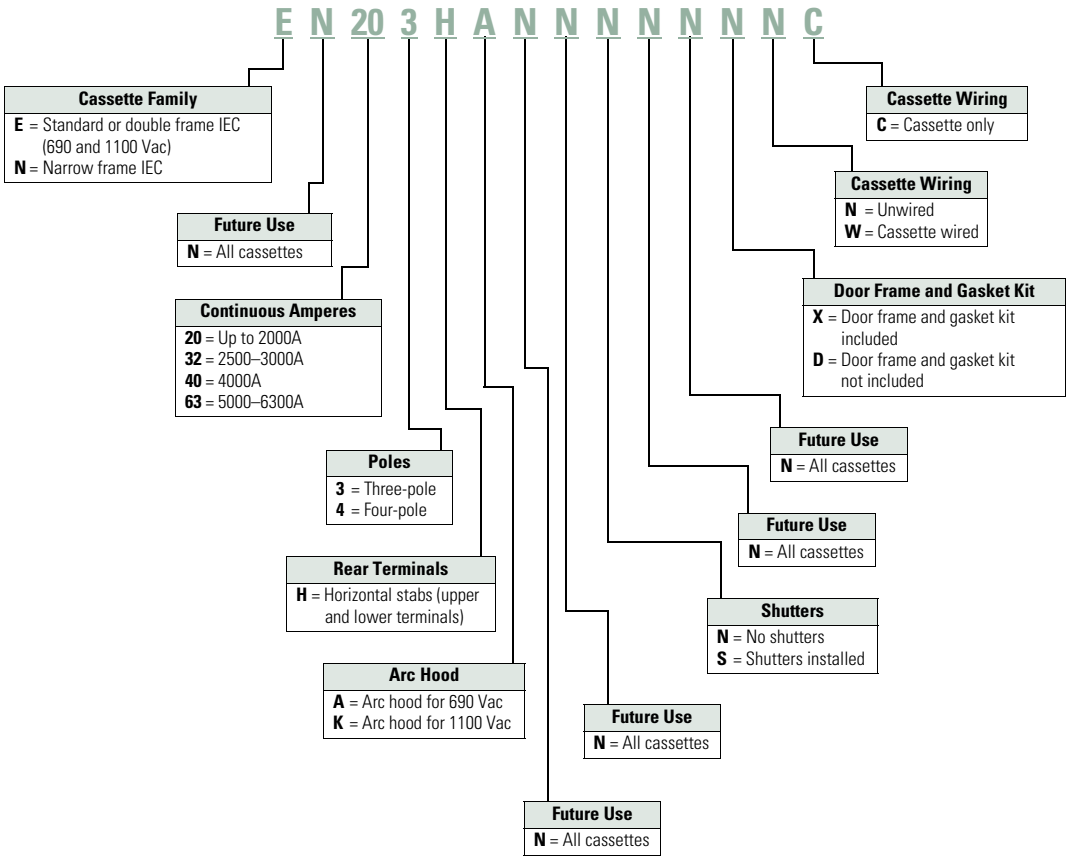
## Magnum IEC Low Voltage Air Circuit Breaker Cassettes



## Product Selection

### Magnum DS Switchgear Class UL 1066 Low Voltage Power Circuit Breakers

| Frame Type | RMS Symmetrical Current Ratings kA 50/60 Hz ① Interrupting at 254 Vac | Interrupting at 508 Vac | Interrupting at 635 Vac | Short Time Current Rating | Frame Amperes | Breaker Type ② |
|---|---|---|---|---|---|---|
| Narrow | 42 | 42 | 42 | 42 | 800 | **MDN-408** |
| | 50 | 50 | 50 | 50 | | **MDN-508** |
| | 65 | 65 | 65 | 65 | | **MDN-608** |
| | 100 | 100 | 65 | 20 | | **MDN-C08** |
| Standard | 42 | 42 | 42 | 42 | 800 | **MDS-408** |
| | 65 | 65 | 65 | 65 | | **MDS-608** |
| | 85 | 85 | 85 | 85 | | **MDS-808** |
| | 100 | 100 | 100 | 85 | | **MDS-C08** |
| | 200 | 200 | 200 | — | | **MDS-L08** ③ |
| | 200 | 200 | ④ | 30 | | **MDS-X08** ⑤⑥ |
| Narrow | 42 | 42 | 42 | 42 | 1600 | **MDN-416** |
| | 50 | 50 | 50 | 50 | | **MDN-516** |
| | 65 | 65 | 65 | 65 | | **MDN-616** |
| | 100 | 100 | 65 | 30 | | **MDN-C16** |
| Standard | 65 | 65 | 65 | 65 | 1600 | **MDS-616** |
| | 85 | 85 | 85 | 85 | | **MDS-816** |
| | 100 | 100 | 100 | 85 | | **MDS-C16** |
| | 200 | 200 | 200 | — | | **MDS-L16** ③ |
| | 200 | 200 | ④ | 30 | | **MDS-X16** ⑤ |
| Narrow | 65 | 65 | 65 | 65 | 2000 | **MDN-620** |
| | 100 | 100 | 65 | 35 | | **MDN-C20** |
| Standard | 65 | 65 | 65 | 65 | 2000 | **MDS-620** |
| | 85 | 85 | 85 | 85 | | **MDS-820** |
| | 100 | 100 | 100 | 85 | | **MDS-C20** |
| | 200 | 200 | 200 | — | | **MDS-L20** ③ |
| | 200 | 200 | ④ | 30 | | **MDS-X20** ⑤ |
| | 65 | 65 | 65 | 65 | 3200 | **MDS-632** |
| | 85 | 85 | 85 | 85 | | **MDS-832** |
| | 100 | 100 | 100 | 85 | | **MDS-C32** |
| Double | 200 | 200 | ④ | 50 | 3200 | **MDS-X32** ⑤ |
| Double (N) | 85 | 85 | ④ | 85 | 4000 | **MDN-840** |
| | 100 | 100 | ④ | 100 | | **MDN-C40** |
| Double | 85 | 85 | 85 | 85 | 4000 | **MDS-840** |
| | 100 | 100 | 100 | 100 | | **MDS-C40** |
| | 200 | 200 | ④ | 50 | | **MDS-X40** ⑤ |
| | 200 | 200 | ④ | 100 | 4000 | **MDD-X40** |
| | 85 | 85 | 85 | 85 | 5000 | **MDS-850** |
| | 100 | 100 | 100 | 100 | | **MDS-C50** |
| | 200 | 200 | ④ | 50 | | **MDS-X50** ⑤⑦ |
| | 200 | 200 | ④ | 100 | | **MDD-X50** |
| | 100 | 100 | 100 | 100 | 6000 | **MDS-C60** ⑦ |
| | 200 | 200 | ④ | 100 | | **MDD-X60** |

***Notes***

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 V9-T1-40** for selection of trip unit and accessories. See **Page V9-T1-40** for cassette selection for drawout breakers.

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 600 Vac.

④ Product to be tested. Contact Eaton for product rating.

⑤ Magnum MDSX current limiting power circuit breaker with fast opening contacts.

⑥ Contact Eaton for availability.

⑦ 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 Interrupting at 254 Vac | Interrupting at 508 Vac | Interrupting at 635 Vac | Short Time Current Rating | Frame Amperes | Breaker Type ② |
|---|---|---|---|---|---|---|
| Narrow | 50 | 50 | 35 | 20 | 800 | **SBN-508** |
| | 65 | 65 | 42 | 20 | | **SBN-608** |
| | 100 | 100 | 65 | 20 | | **SBN-C08** |
| Standard | 65 | 65 | 65 | 20 | 800 | **SBS-608** |
| | 100 | 100 | 85 | 20 | | **SBS-C08** |
| | 200 | 150 | ② | 30 | | **SBS-E08** ③ |
| Narrow | 50 | 50 | 35 | 25 | 1200 | **SBN-512** |
| | 65 | 65 | 42 | 25 | | **SBN-612** |
| | 100 | 100 | 65 | 25 | | **SBN-C12** |
| Standard | 65 | 65 | 65 | 25 | 1200 | **SBS-612** |
| | 100 | 100 | 85 | 25 | | **SBS-C12** |
| | 200 | 150 | ② | 30 | | **SBS-E12** ③ |
| Narrow | 50 | 50 | 35 | 30 | 1600 | **SBN-516** |
| | 65 | 65 | 42 | 30 | | **SBN-616** |
| | 100 | 100 | 65 | 30 | | **SBN-C16** |
| Standard | 65 | 65 | 65 | 30 | 1600 | **SBS-616** |
| | 100 | 100 | 85 | 30 | | **SBS-C16** |
| | 200 | 150 | ② | 30 | | **SBS-E16** ③ |
| Narrow | 65 | 65 | 65 | 35 | 2000 | **SBN-620** |
| | 100 | 100 | 65 | 35 | | **SBN-C20** |
| Standard | 65 | 65 | 65 | 35 | 2000 | **SBS-620** |
| | 100 | 100 | 85 | 35 | | **SBS-C20** |
| | 200 | 150 | ② | 30 | | **SBS-E20** ③ |
| | 65 | 65 | 65 | 45 | 2500 | **SBS-625** |
| | 100 | 100 | 85 | 45 | | **SBS-C25** |
| Double | 200 | 150 | ② | 50 | | **SBS-E25** ③ |
| Standard | 65 | 65 | 65 | 50 | 3000 | **SBS-630** |
| | 100 | 100 | 85 | 50 | | **SBS-C30** |
| Double | 200 | 150 | ② | 50 | | **SBS-E30** ③ |
| Double (N) | 85 | 85 | ③ | 85 | 4000 | **SBN-840** |
| | 100 | 100 | ③ | 100 | | **SBN-C40** |
| Double | 85 | 85 | 85 | 85 | | **SBS-840** |
| | 100 | 100 | 100 | 100 | | **SBS-C40** |
| | 200 | 150 | ② | 50 | | **SBS-E40** ③ |
| | 85 | 85 | 85 | 85 | 5000 | **SBS-850** |
| | 100 | 100 | 100 | 100 | | **SBS-C50** |
| | 200 | 150 | ② | 50 | | **SBS-E50** ③④ |
| | 100 | 100 | 100 | 100 | 6000 | **SBS-C60** ④ |

***Notes***

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.

## Magnum IEC 60947-2 Rated Low Voltage Air Circuit Breakers

| Frame Amperes | Breaker Type | Frame Type | rms Symmetrical Current Ratings kA ① Interrupting at 240 Vac $I_{CU} = I_{CS}$ | Interrupting at 440 Vac $I_{CU} = I_{CS}$ | Interrupting at 690 Vac $I_{CU} = I_{CS}$ | Withstand Rating $I_{CW}$ 1-Sec/3-Sec | Fixed Internal Inst. Trip | Available Current Sensor and Rating Plugs for Digitrip RMS Trip Unit (Establishes Breaker $I_n$ Rating) |
|---|---|---|---|---|---|---|---|---|
| 800 | MWN-408 | Narrow | 40 | 40 | 40 | 40/— | — | 200, 250, 300, 400, 630, 800 |
| | MWN-508 | Narrow | 50 | 50 | 50 | 50/— | — | |
| | MWN-608 | Narrow | 65 | 65 | 65 | 65/40 | — | |
| | MWI-608 | Standard | 65 | 65 | 65 | 65/— | — | |
| | MWI-808 | Standard | 85 | 85 | 85 | 85/65 | — | |
| | MWI-C08 | Standard | 100 | 100 | 85 | 85/65 | 85 | |
| 1000 | MWN-410 | Narrow | 40 | 40 | 40 | 40/— | — | 200, 250, 300, 400, 630, 800, 1000 |
| | MWN-510 | Narrow | 50 | 50 | 50 | 50/— | — | |
| | MWN-610 | Narrow | 65 | 65 | 65 | 65/40 | — | |
| | MWI-610 | Standard | 65 | 65 | 65 | 65/— | — | |
| | MWI-810 | Standard | 85 | 85 | 85 | 85/65 | — | |
| | MWI-C10 | Standard | 100 | 100 | 85 | 85/65 | 85 | |
| 1250 | MWN-412 | Narrow | 40 | 40 | 40 | 40/— | — | 200, 250, 300, 400, 630, 800, 1000, 1250 |
| | MWN-512 | Narrow | 50 | 50 | 50 | 50/— | — | |
| | MWN-612 | Narrow | 65 | 65 | 65 | 65/40 | — | |
| | MWI-612 | Standard | 65 | 65 | 65 | 65/— | — | |
| | MWI-812 | Standard | 85 | 85 | 85 | 85/65 | — | |
| | MWI-C12 | Standard | 100 | 100 | 85 | 85/65 | 85 | |
| 1600 | MWN-516 | Narrow | 50 | 50 | 50 | 50/— | — | 200, 250, 300, 400, 630, 800, 1000, 1250, 1600 |
| | MWN-616 | Narrow | 65 | 65 | 65 | 65/40 | — | |
| | MWI-616 | Standard | 65 | 65 | 65 | 65/— | — | |
| | MWI-816 | Standard | 85 | 85 | 85 | 85/65 | — | |
| | MWI-C16 | Standard | 100 | 100 | 85 | 85/65 | 85 | |
| 2000 | MWN-520 | Narrow | 50 | 50 | 50 | 50/30 | — | 200, 250, 300, 400, 630, 800, 1000, 1250, 1600, 2000 |
| | MWN-620 | Narrow | 65 | 65 | 65 | 65/40 | — | |
| | MWI-620 | Standard | 65 | 65 | 65 | 65/50 | — | |
| | MWI-820 | Standard | 85 | 85 | 85 | 85/65 | — | |
| | MWI-C20 | Standard | 100 | 100 | 85 | 85/65 | 85 | |
| 2500 | MWI-625 | Standard | 65 | 65 | 65 | 65/— | — | 200, 250, 300, 400, 630, 800, 1000, 1250, 1600, 2000, 2500 |
| | MWI-825 | Standard | 85 | 85 | 85 | 85/65 | — | |
| | MWI-C25 | Standard | 100 | 100 | 85 | 85/65 | 85 | |
| 3200 | MWI-632 | Standard | 65 | 65 | 65 | 65/50 | — | 200, 250, 300, 400, 630, 800, 1000, 1250, 1600, 2000, 2500, 3200 |
| | MWI-832 | Standard | 85 | 85 | 85 | 85/65 | — | |
| | MWI-C32 | Standard | 100 | 100 | 85 | 85/65 | 85 | |
| 4000 | MWI-64N | Double | 65 | 65 | 65 | 65/— | — | 2000, 2500, 3200, 4000 |
| | MWI-84N | Double | 85 | 85 | 85 | 85/— | — | |
| | MWI-C4N | Double | 100 | 100 | 100 | 100/— | — | |
| 5000 | MWI-85N | Double | 85 | 85 | 85 | 85/— | — | 2500, 3200, 4000, 5000 |
| | MWI-C5N | Double | 100 | 100 | 100 | 100/— | — | |
| 6300 | MWI-86N | Double | 85 | 85 | 85 | 85/— | — | 3200, 4000, 5000, 6300 |
| | MWI-C6N | Double | 100 | 100 | 100 | 100/— | — | |

***Note***

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 breaker $I_{cw}$ rating.

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## Product Overview

### Fuse Blocks and Fuse Holders

| Description | C350 Series |
|---|---|
| | Page V9-T1-45 |
| **Technical Data** | |
| 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 94VO flammability rating |
| Clip/terminal construction | Tin-plated copper alloy |
| Screw/pressure plate construction | Zinc-plated steel |
| Dielectric strength | 1200V |
| **Approvals** | |
| | UL, CSA |

For our complete product offering, see Volume 4—Circuit Protection, CA08100005E.

**C350 Series Fuse Blocks and Fuse Holders**

## Features

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

## Product Selection

### C350 Series

#### Fuse Blocks and Fuse Holders

| Wire Termination | Number of Poles | 250V 30A Catalog Number | Carton Qty. | 60A Catalog Number | Carton Qty. | 600V 30A Catalog Number | Carton Qty. | 60A Catalog Number | 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 | — | — |

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# Open Rotary Disconnects

## Product Overview

### Rotary Disconnect Switch Selection Guide

| Description |  R5 Series Non-Fusible 16–80A |  R9 Series Non-Fusible 30–100A Compact |  R9 Series Non-Fusible 100–1200A |
|---|---|---|---|
| | Page V9-T1-48 | Page V9-T1-50 | Page V9-T1-52 |
| **Product Description** | | | |
| | R5 Series (UL 508 listed) products are manually operated modular switches. Load break switching and isolation provide safety solutions for any low voltage circuit, particularly for machine and control circuits. The R5 Series products are manual motor controllers suitable as motor disconnect. | The R9 Series (UL 98 listed) non-fusible 30–100A compact range ensures making or breaking on load and safety isolation for low voltage electrical circuits, particularly for machine control circuits up to 600V. | The R9 Series (UL 98 listed) non-fusible 100–1200A are manually operated multipole load-break switches. Quick-make, quick-break design provides safety isolation for any low voltage circuit. |
| **Approvals** | | | |
| | UL 508 listed, Guide NLRV, File E165150<br>CSA C22.2 No.14, File 217736<br>IEC 60947-3, EN 60947-3<br>CCC | UL 98, File E222859<br>CSA 22.2 No. 4, File 217736<br>IEC 60947-3<br>EN 60947-3 | UL 98, File E222859<br>CSA 22.2 No. 4, File 217736<br>IEC 60947-3<br>EN 60947-3 |

| Description |  R9 Series Fusible 30–800A |  R9 Series DC Rated Disconnects |  Manual Transfer Switches |
|---|---|---|---|
| | Page V9-T1-54 | Page V9-T1-59 | Page V9-T1-60 |
| **Product Description** | | | |
| | R9 Series (UL 98 listed) Fusible 30–800A manual operated multi-pole fusible disconnect switches use double break contacts per pole that ensure complete isolation of the fuse when the switch is in the OFF position.<br>When installed with fuses, they provide protection for low voltage electrical installations against short circuit and overload. | UL listed disconnect switches 600 Vdc for photovoltaic applications 100 to 400A<br>R9 Series (UL 98 listed) DC rated disconnects are manually operated multi-pole load break switches. They provide safety isolation for any low voltage circuit in a photovoltaic application. | R9 Series (UL 98 listed) non-fusible disconnects are heavy-duty manual transfer switches, they transfer load manually between two low voltage circuits and provide safety disconnection.<br>These switches are extremely durable and are tested and approved for use in the most demanding applications as resistive load or total system applications. |
| **Approvals** | | | |
| | UL 98, File E222859 for 30 to 800A ratings<br>UL 489, File E305341 for H Frame switches<br>CSA 22.2 No. 4, File 217736<br>CSA 22.2 No. 5, File 217736, H Frame only<br>IEC 60947-1, EN 60947-1<br>IEC 60947-3, EN 60947-3<br>CE mark<br>NFPA® 79 | UL 98, cULus®, File E222859<br>CSA 22.2 No. 4, File 217736 ①<br>IEC 60947-3<br>EN 60947-3<br>IEC 60-364-7-712 (Rules for the installations and sites special—photovoltaic applications) | UL 98, cULus, File E222859<br>UL 1008 (2011)<br>CSA 22.2 No. 4, File 217736<br>IEC 60947-3<br>EN 60947-3 |

***Note***

① Q4 2010

## Catalog Number Selection

### Disconnects

R5 A 3 016 U __

**UL Listing**
**R5** = UL 508
**R9** = UL 98
**R4** = UL 489

**Frame Designation**
**A** = UL 508 (16–40A)
**B** = UL 508 (60–80A)
**C** = UL 98 Non-fusible (30–100A modular)
**V** = UL 98 Non-fusible (60–100A visible blade)
**D** = UL 98 Non-fusible (100–200A)
**E** = UL 98 Non-fusible (400A)
**F** = UL 98 Non-fusible (600A)
**G** = UL 98 Non-fusible (800–1200A)
**H** = UL 489 Fusible (30A compact)
**I** = UL 98 Fusible (30A)
**J** = UL 98 Fusible (30–60A)
**K** = UL 98 Fusible (60–100A)
**L** = UL 98 Fusible (200A)
**M** = UL 98 Fusible (400A)
**N** = UL 98 Fusible (600–800A)

**Phase**
**2** = Two-pole
**3** = Three-pole
**4** = Four-pole

**Ampere Rating**
**016** = 16A
**025** = 25A
**030** = 30A
**040** = 40A
**060** = 60A
**080** = 80A
**100** = 100A
**200** = 200A
**400** = 400A
**600** = 600A
**800** = 800A
**1000** = 1000A
**1200** = 1200A

**Protection**
**U** = Non-fusible
**F** = Fusible

**Fuse Type Accepted**
**CC** = Class CC
**J** = Class J
**L** = Class L
**Blank** = Non-fusible device

### External Handles

SH B 00 4X F __

**Handle Type**
**SH** = Selector handle
**PH** = Pistol handle

**Color**
**B** = Black/blue
**R** = Red/yellow

**Size (Smallest to Largest)**
**00** = Size 00
**0** = Size 0
**1** = Size 1
**2** = Size 2
**3** = Size 3
**4** = Size 4

**NEMA Type Rating**
**12** = Type 1, 3R, 12
**4X** = Type 4, 4X

**Operation**
**F** = Front
**S** = Right side
**Blank** = Front or right side

**Additional Features** ①
**T** = Test position function
**Blank** = No test function

### Shafts

SF 150 SH 5X5 __

**Product Type**
**SF** = Shaft

**Length**
**55** = 55 mm
**90** = 90 mm
**150** = 150 mm
**200** = 200 mm
**320** = 320 mm
**400** = 400 mm
**500** = 500 mm

**Applicable Handle Type**
**SH** = Selector handle
**PH** = Pistol handle

**Shaft Cross Section**
**5x5** = 5 mm x 5 mm
**6x6** = 6 mm x 6 mm
**10x10** = 10 mm x 10 mm
**12x12** = 12 mm x 12 mm
**15x12** = 15 mm x 12 mm

**Additional Features** ②

***Notes***

① **HV** at the end of some catalog numbers indicates use with H and V switches only. Not all handles are designed to go with all disconnects. Consult specific section of the catalog for available options.

② **H** at the end of some catalog numbers indicates use with H Frame switches only. Not all shafts are designed to go with all disconnects. Consult specific section of the catalog for available options.

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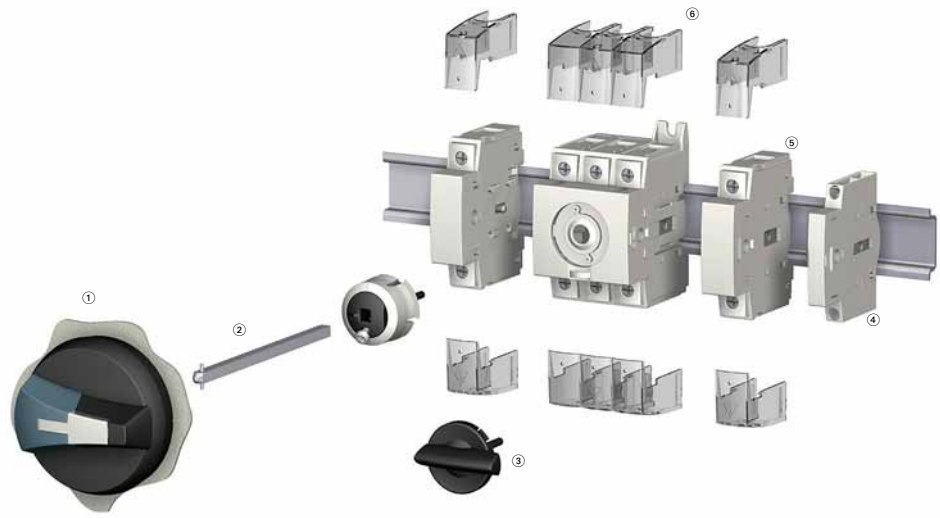
**R5 Series Non-Fusible 16–80A**

## Features

- Up to 65 kAIC short-circuit rating
- Direct or external operation
- Compact footprint
- DIN rail or base mount
- Wide range of accessories
- Modular design
- Padlockable design (direct, toggle and external handles)

### R5 Series Non-Fusible 16–80A




***Product Identification***

① External front handle
② Shaft extension for external handle
③ Direct handle
④ Auxiliary contacts
⑤ Switched fourth-pole module
⑥ Terminal shroud

**Note:** For further details, please see the installation instructions supplied with each device.

## Product Selection

**Direct Operation**

Switch body + Direct handle

**External Operation**

Switch body + Shaft + External handle

### R5 Series

| Ampere Rating | Three-Pole Toggle Switch Only ① | Three-Pole Rotary Switch Only | Direct Handle | Front and Right External Handle SH00 (Choose One) | Front and Right External Handle SH0 (Choose One) | Three-Position Front External Handle SH00 (Black) ② | Shaft for SH0 and SH00—5 x 5 mm—In (mm) |
|---|---|---|---|---|---|---|---|
| 16 | — | **R5A3016U** | **DHR5** | SH00<br>Black<br>3R, 12<br>**SHB00N12** | SH0<br>Black<br>3R, 12<br>**SHB0N12** | SH00<br>4, 4X<br>I–0–II<br>Open transition<br>**SHB00MTSOT** | 2.20 (55.5)<br>**SF55SH5X5** |
| 25 | — | **R5A3025U** | | | | | 3.50 (90.0)<br>**SF90SH5X5** |
| 30 | **T5A3030U** | **R5A3030U** | | SH00<br>Red<br>3R, 12<br>**SHR00N12** | SH0<br>Red<br>3R, 12<br>**SHR0N12** | SH00<br>4, 4X<br>I–I+II–II<br>Closed transition<br>**SHB00MTSCT** | 5.90 (150.0)<br>**SF150SH5X5** |
| 40 | **T5A3040U** | **R5A3040U** | | | | | 7.90 (200.0)<br>**SF200SH5X5** |
| 60 | **T5B3060U** | **R5B3060U** | | SH00<br>Black<br>4, 4X<br>**SHB00N4X** | SH0<br>Black<br>4, 4X<br>**SHB0N4X** | | 12.60 (320.0)<br>**SF320SH5X5** |
| 80 | **T5B3080U** | **R5B3080U** | | SH00<br>Red<br>4, 4X<br>**SHR00N4X** | SH0<br>Red<br>4, 4X<br>**SHR0N4X** | | |

## Accessories

| Ampere Rating | Switched Fourth-Pole Module | Unswitched Neutral Module | Auxiliary Contacts (Choose One) | Terminal Shrouds | Conversion Kit (Choose One) ② | Door Mounting Kit ③ |
|---|---|---|---|---|---|---|
| 16 | **S4PR516** | **UNMR5A** | 1NO + 1NC<br>**AC1NON** | 1P<br>**TS1R5A** | 6/8 pole<br>**CKR568** | **DMK** |
| 25 | **S4PR525** | | | 3P<br>**TS3R5A** | Changeover switch<br>Open transition<br>I–0–II<br>**MTSCKR5OT** | |
| 30 | **S4PR530** | | | | | |
| 40 | **S4PR540** | | 2NO<br>**AC2N** | 1P<br>**TS1R5B** | | |
| 60 | **S4PR560** ② | **UNMR5B** | | 3P<br>**TS3R5B** | Changeover switch<br>Closed transition<br>I–I+II–II<br>**MTSCKR5CT** | |
| 80 | **S4PR580** ② | | | | | |

***Notes***

① Toggle version includes direct handle.
② Available Q2 2011.
③ Includes shaft and accessory cap.

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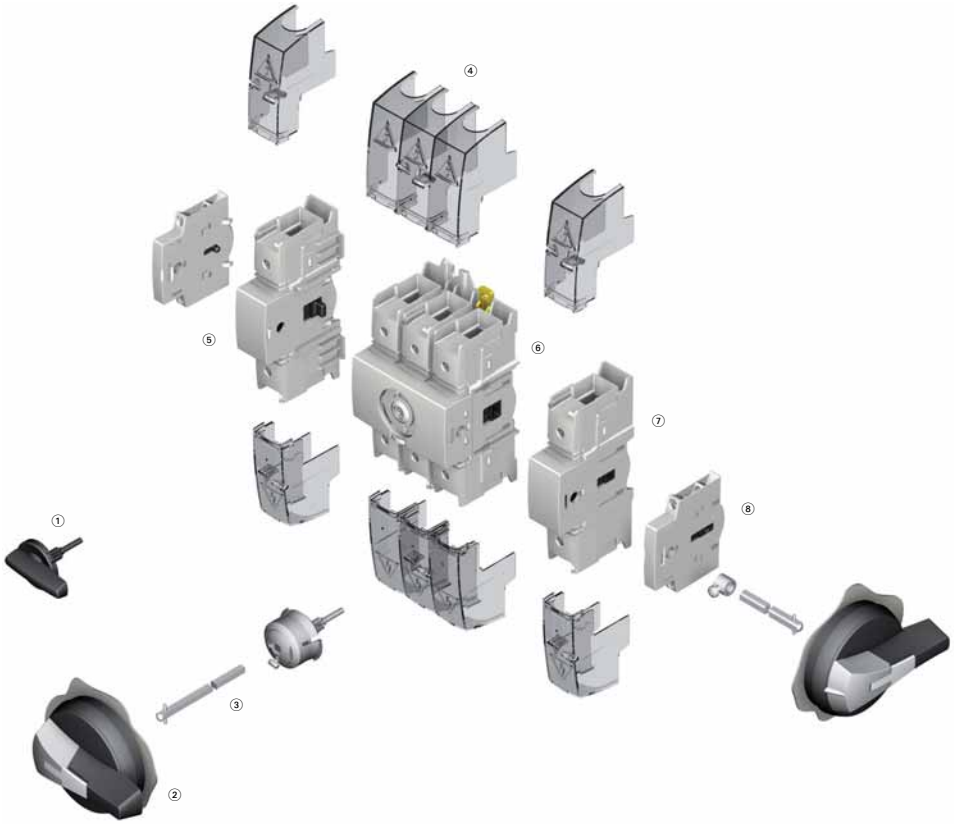
**Non-Fusible 30–100A Compact**

## Features

- Rating three-pole from 30A to 100A
- Direct or external operation handle (padlockable in ON position)
- Double breaking per phase
- Small footprint

### R9 Series Non-Fusible 30–100A Compact




***Product Identification***

① Direct handle
② Door interlocked external handle
③ Shaft extension
④ Terminal shrouds
⑤ Unswitched neutral pole
⑥ Switch body
⑦ Switched fourth-pole module
⑧ Modular type auxiliary contacts

**Note:** For further details, please see the installation instructions supplied with each device.

## Product Selection

**Direct Operation**

Switch body + Direct handle

**External Operation**

Switch body + Shaft + External handle

### R9 Series 30–100A

| Ampere Rating (Frame) | Number of Poles | Switch Body Only | Direct Handle | Front and Right External Handle SH00 (Choose One) | Front and Right External Handle SH0 (Choose One) | Shaft for SH0 and SH00 Handles—In (mm) (Choose One) | Switched Fourth-Pole Module | Unswitched Neutral Module | Auxiliary Contacts (Choose One) | Terminal Shrouds (Choose One) |
|---|---|---|---|---|---|---|---|---|---|---|
| 30 (C Frame) | 3 | **R9C3030U** | **DHR9** | SH00 Black 3R, 12 **SHB00N12** | SH0 Black 3R, 12 **SHB0N12** | 2.20 (55.5) **SF55SH5X5** | **S4PR930** | Neutral **UNMR9C** | 1NO + 1NC **AC1NONC** | 1P **TS1R9** |
| 60 (C Frame) | 3 | **R9C3060U** | | | | 3.50 (90.0) **SF90SH5X5** | **S4PR960** | | 2NO **AC2N** | 3P **TS3R9CV** |
| 100 (C Frame) | 3 | **R9C3100U** | | SH00 Red 3R, 12 **SHR00N12** | SH0 Red 3R, 12 **SHR0N12** | 5.91 (150.0) **SF150SH5X5** | **S4PR9100** | | | |
| | | | | SH00 Black 4, 4X **SHB00N4X** | SH0 Black 4, 4X **SHB0N4X** | 7.87 (200.0) **SF200SH5X5** | | | | |
| | | | | SH00 Red 4 4X **SHR00N4X** | SH0 Red 4 4X **SHR0N4X** | 12.60 (320.0) **SF320SH5X5** | | | | |

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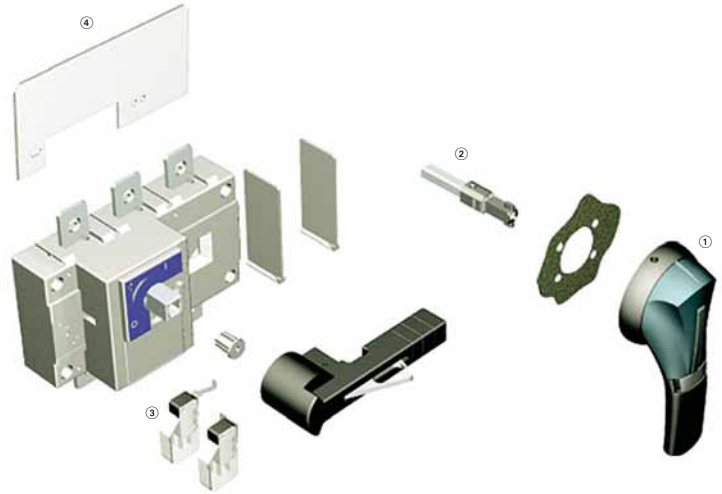
**Non-Fusible 100–1200A**

## Features

- High thermal and dynamic withstand ratings
- Arduous categories of applications
- High electrical and mechanical endurances

### R9 Series Non-Fusible 100–1200A



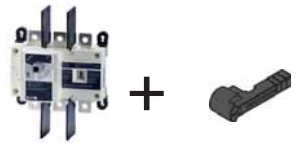

***Product Identification***

① External front handle
② Shaft extensions for external handle
③ Configurable U-type ACs, for pre-break and signalling or TEST
④ Terminal Screens

**Note:** For further details, please see the installation instructions supplied with each device.

## Product Selection

**Direct Operation**




**External Operation**


### R9 Series Non-Fusible 100–1200A




| Ampere Rating (Frame) | Number of Poles | Switch Body Only | Direct Handle | Door Interlocked External Pistol Handle (Choose One) | Shaft Extensions for External Handle—In (mm) (Choose One) | Auxiliary Contacts | Terminal Screens (Choose One) | Terminal Lugs ③ |
|---|---|---|---|---|---|---|---|---|
| 100 (D Frame) | 3 | **R9D3100U** | **DHR9DE** | Size 2, Black 1, 3R, 12 Defeatable **PHB2N12F** | 7.90 (200.0) **SF200PH10X10** | 1NO + 1NC **AC1N0NCDE** **AC1N0NCDELL** | 3-pole, Line side only **TS3R9DT** | **LK3R9DL** |
| | 4 | **R9D4100U** | | | | | | **LK4R9DL** |
| 200 (D Frame) | 3 | **R9D3200U** | | Size 2, Red 1, 3R, 12 Defeatable **PHR2N12F** | 12.60 (320.0) **SF320PH10X10** | 2NO + 2NC **AC2N0NCDE** **AC2N0NCDELL** | 3-pole, Load side only **TS3R9DB** | **LK3R9DL** |
| | 4 | **R9D4200U** | | | | | | **LK4R9DL** |
| 400 (E Frame) | 3 | **R9E3400U** | | Size 2, Black 4, 4X Defeatable **PHB2N4XF** | 15.70 (400.0) **SF400PH10X10** | | 4-pole, Line or load side **TS4R9DTB** | **LK3R9EM** |
| | 4 | **R9E4400U** | | | 19.70 (500.0) **SF500PH10X10** | | 3-pole, Line side only **TS3R9ET** | **LK4R9EM** |
| | | | | Size 2, Red 4, 4X Defeatable **PHR2N4XF** | | | 3-pole, Load side only **TS3R9EB** | |
| | | | | | | | 4-pole, Line or load side **TS4R9ETB** | |
| 600 (F Frame) | 3 | **R9F3600U** | **DHR9FG** | Size 3, Black 4, 4X Defeatable **PHB3N4XF** | 7.90 (200.0) **SF200PH15X12** | 1NO AC U Type **AC1N0R9** ② | **TS3R9F** ① | **LK3R9FN** |
| | 4 | **R9F4600U** | | | | | **TS4R9F** ① | **LK4R9FN** |
| 800 (G Frame) | 3 | **R9G3800U** | | Size 3, Red 4, 4X Defeatable **PHR3N4XF** | 12.60 (320.0) **SF320PH15X12** | 1NC AC U Type **AC1NCR9** ② | **TS3R9G** ① | **LK6R9G** **LK8R9G** |
| | 4 | **R9G4800U** | | | | | **TS4R9G** ① | |
| 1000 (G Frame) | 3 | **R9G31000U** | | Size 4, Black 4, 4X Defeatable **PHB4N4XF** | 1.70 (400.0) **SF400PH15X12** | | | |
| | 4 | **R9G41000U** | | | | | | |
| 1200 (G Frame) | 3 | **R9G31200U** | | Size 4, Red 4, 4X Defeatable **PHR4N4XF** | 19.7 (500.0) **SF500PH15X12** | | | |
| | 4 | **R9G41200U** | | | | | | |

***Notes***

① Top (line side) supplied as standard.
② Auxiliary contact requires holder (catalog number ACHFG) when used on F and G Frame switches (non-fusible 600–1200A).
③ Each catalog number is for line or load side. For both line and load, please order two sets.

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**Fusible 30–800A**

## Features

- Load break functionality
- Double break contacts
- Up to 200 kA short-circuit rating with Class CC, J or L fuses
- Compact footprints
- Defeatable pistol handles automatically re-latch when the panel door is closed
- Front or right side operation
- NFPA 79 compliant kits
- Two-, three- and four-pole devices

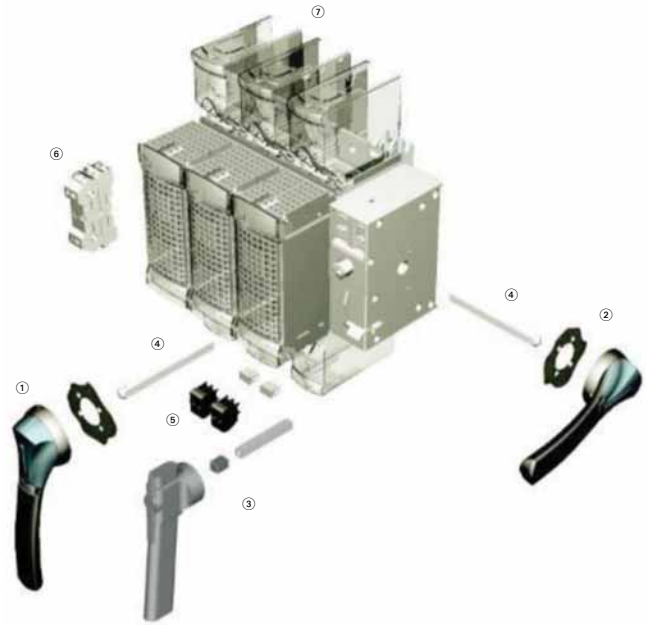
## R9 Series Fusible 30–800A

### R9 Fusible 30A/CC and 30A/J (H Frame)—Direct and External Operation


***Product Identification***

① External front handles
② Direct handle
③ Shaft extensions for external handles
④ Configurable U Type ACs, for pre-break and signaling or TEST

### R9 Fusible 30A/J–800A/L (I–N Frames)—Direct and External Operation

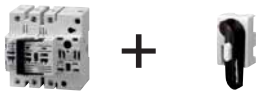



***Product Identification***

① External front handles
② External right side handle (not applicable for N Frame 600/800A)
③ Direct handle
④ Shaft extensions for external handles
⑤ Configurable U Type ACs, for pre-break and signaling or TEST
⑥ Side auxiliary contacts
⑦ Terminal shrouds

## Product Selection

**Direct Operation**



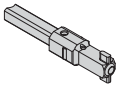
Switch body + Direct handle

**External Operation**

Switch body + Shaft + External handle

### Front and Right Side Operation



| Ampere Rating (Frame) (Fuse Class) | Number of Poles | Switch Body Only | Direct Handle | External Selector Handle (Choose One) | Shaft Extension for Selector Handle Only (Choose One) | External Front Pistol Handle | External Right Side Pistol Handle |
|---|---|---|---|---|---|---|---|
| 30 Compact (H Frame) (CC) | 3 | **R4H3030FCC** | **DHR9HC** | Black 1,3R,12 **SHB0N12HV** | 7.90 (200.0) **SF200SH5X5H** | Black 1,3R,12 **PHB1N12F** | — |
| 30 (H Frame) (CC) | 3 + switched neutral | **R4H3030FCCSN** | | Red 1,3R,12 **SHR0N12HV** | 12.60 320.0) **SF320SH5X5H** | Red 1,3R,12 **PHR1N12F** | |
| 30 Compact (H Frame) (J) | 3 | **R4H3030FJ** | **DHR9HJ** | Black 4,4X **SHB0N4XHV** | 15.70 (400.0) **SF400SH5X5H** | Black 4,4X **PHB1N4XF** | |
| 30 (H Frame) (J) | 3 + switched neutral | **R4H3030FJSN** | | Red 4,4X **SHR0N4XHV** | | Red 4,4X **PHR1N4XF** | |
| 30 (I Frame) (CC) | 3 | **R9I3030FCC** | **DHR9J2M** | — | — | | |
| | 4 | **R9I4030FCC** | | | | | |
| 30 (J Frame) (J) | 2 | **R9J2030FJ** | | | | Black 4,4X (w/ TEST Position) **PHB1N4XFT** | Black 4, 4X **PHB1N4XS** |
| | 3 | **R9J3030FJ** | | | | | |
| | 4 | **R9J4030FJ** | | | | | |
| 60 ① (J Frame) (J) | 2 | **R9J2060FJ** | | | | Red 4,4X (w/ TEST Position) **PHR1N4XFT** | Red 4, 4X **PHR1N4XS** |
| | 3 | **R9J3060FJ** | | | | | |
| | 4 | **R9J4060FJ** | | | | | |

***Note***

① 100 kA short-circuit rating.

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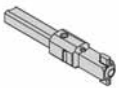
## Front and Right Side Operation, continued

| Ampere Rating (Frame) (Fuse Class) | Number of Poles | Switch Body Only | Shaft Extensions for Pistol Handle Only In (mm) (Choose One) | NFPA 79 Kit | Auxiliary Contacts (Choose One) | S Type Auxiliary Contacts (Choose One) | Terminal Shrouds |
|---|---|---|---|---|---|---|---|
| 30<br>Compact<br>(H Frame) (CC) | 3 | **R4H3030FCC** | 7.90 (200.0)<br>**SF200PH5X5** | **NFPA79H** | 1 AC<br>NO<br>**AC1NOR9** | — | Integral to switch |
| 30<br>(H Frame) (CC) | 3 + switched neutral | **R4H3030FCCSN** | 12.60 (320.0)<br>**SF320PH5X5** | | 1 AC<br>NC<br>**AC1NCR** | | |
| 30<br>Compact<br>(H Frame) (J) | 3 | **R4H3030FJ** | 15.70 (400.0)<br>**SF400PH5X5** | | | | |
| 30<br>(H Frame) (J) | 3 + switched neutral | **R4H3030FJSN** | | | | | |
| 30<br>(I Frame) (CC) | 3 | **R9I3030FCC** | 7.90 (200.0)<br>**SF200PH10X10** | **NFPA79JKL** | | 1 AC<br>NO + NC<br>**AC1NO1NCJ2N** | |
| | 4 | **R9I4030FCC** | | | | | |
| 30<br>(J Frame) (J) | 2 | **R9J2030FJ** | 12.60 (320.0)<br>**SF320PH10X10** | | | 2 AC<br>NO + NC<br>**AC2NO2NCJ2N** | |
| | 3 | **R9J3030FJ** | | | | | |
| | 4 | **R9J4030FJ** | 15.70 (400.0)<br>**SF400PH10X10** | | | 1 AC<br>NO + NC<br>w/ TEST<br>**AC1NO1NCJ2NT** | |
| 60 ① (J Frame) (J) | 2 | **R9J2060FJ** | | | | | |
| | 3 | **R9J3060FJ** | 19.70 (500.0)<br>**SF500PH10X10** | | | | |
| | 4 | **R9J4060FJ** | | | | 2 AC<br>NO + NC<br>w/ TEST<br>**AC2NO2NCJ2NT** | |

***Note***

① 100 kA short-circuit rating.

## Front and Right Side Operation, continued




| Ampere Rating (Frame) (Fuse Class) | Number of Poles | Switch Body Only | Direct Handle (Black) | External Front Pistol Handle (Choose One) | External Right Side Pistol Handle (Choose One) |
|---|---|---|---|---|---|
| 60 ① (K Frame) (J) | 2 | **R9K2060FJ** | **DHR9J2M** | Black 1,3R,12 **PHB2N12F** | Black 4, 4X **PHB2N4XS** |
| | 3 | **R9K3060FJ** | | | |
| | 4 | **R9K4060FJ** | | Red 1,3R,12 **PHR2N12F** | Red 4, 4X **PHR2N4XS** |
| 100 (K Frame) (J) | 2 | **R9K2100FJ** | | | |
| | 3 | **R9K3100FJ** | | | |
| | 4 | **R9K4100FJ** | | Black 4,4X **PHB2N4XF** | |
| 200 (L Frame) (J) | 2 | **R9L2200FJ** | | | |
| | 3 | **R9L3200FJ** | | | |
| | 4 | **R9L4200FJ** | | Red 4,4X **PHR2N4XF** | — |
| 400 (M Frame) (J) | 3 | **R9M3400FJ** | | | |
| | 4 | **R9M4400FJ** | | Black 4,4X (w/ TEST Position) **PHB2N4XFT** | |
| | | | | Red 4,4X (w/ TEST Position) **PHR2N4XFT** | |
| 600 (N Frame) (J) | 2 | **R9N2600FJ** | **DHR9N** | Black 4, 4X **PHB3N4XF** | |
| | 3 | **R9N3600FJ** | | | |
| | 4 | **R9N4600FJ** | | Red 4,4X **PHR3N4XF** | |
| 800 (N Frame) (L) | 2 | **R9N2800FL** | | | |
| | 3 | **R9N3800FL** | | | |
| | 4 | **R9N4800FL** | | | |

***Note***

① 200 kA short-circuit rating.

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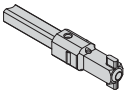
## Front and Right Side Operation, continued


| Ampere Rating (Frame) (Fuse Class) | Number of Poles | Switch Body Only | Shaft Extensions for External Handle In (mm) (Choose One) | NFPA 79 Kit | Auxiliary Contacts (Choose One) | Auxiliary Contacts (Choose One) | Terminal Shrouds |
|---|---|---|---|---|---|---|---|
| 60 ① (K Frame) (J) | 2 | **R9K2060FJ** | 7.90 (200.0) Pistol **SF200PH10X10** | **NFPA79JKL** | 1 AC NO **AC1NOR9** | 1 AC NO + NC **AC1NO1NCJ2N** | Integral to switch |
| | 3 | **R9K3060FJ** | | | | | |
| | 4 | **R9K4060FJ** | | | | | |
| 100 (K Frame) (J) | 2 | **R9K2100FJ** | 12.60 (320.0) Pistol **SF320PH10X10** | | 1 AC NC **AC1NCR9** | 2 AC NO + NC **AC2NO2NCJ2N** | |
| | 3 | **R9K3100FJ** | | | | | |
| | 4 | **R9K4100FJ** | | | | | |
| 200 (L Frame) (J) | 2 | **R9L2200FJ** | 15.70 (400.0) Pistol **SF400PH10X10** | | | 1 AC NO + NC w/ TEST **AC1NO1NCJ2NT** | **TSR9L2** |
| | 3 | **R9L3200FJ** | | | | | **TSR9L3** |
| | 4 | **R9L4200FJ** | 19.70 (500.0) Pistol **SF500PH10X10** | | | | **TSR9L4** |
| 400 (M Frame) (J) | 3 | **R9M3400FJ** | | | | 2 AC NO + NC w/ TEST **AC2NO2NCJ2NT** | **TSR9M3** |
| | 4 | **R9M4400FJ** | | | | | **TSR9M4** |
| 600 (N Frame) (J) | 2 | **R9N2600FJ** | 7.90 (200.0) Pistol **SF200PH12X12** | **NFPA79N** | | 1 AC NO + NC **AC1NO1NCJ2N** | **TSR9N2** |
| | 3 | **R9N3600FJ** | | | | | **TSR9N3** |
| | 4 | **R9N4600FJ** | | | | | **TSR9N4** |
| 800 (N Frame) (L) | 2 | **R9N2800FL** | 12.60 (320.0) Pistol **SF320PH12X12** | | | 2 AC NO + NC **AC2NO2NCJ2N** | **TSR9N2** |
| | 3 | **R9N3800FL** | | | | | **TSR9N3** |
| | 4 | **R9N4800FL** | 15.70 (400.0) Pistol **SF400PH12X12** | | | | **TSR9N4** |
| | | | 19.70 (500.0) Pistol **SF500PH12X12** | | | | |

***Note***

① 200 kA short-circuit rating.

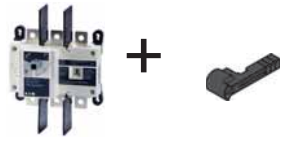
**DC Rated Disconnects**

## Features

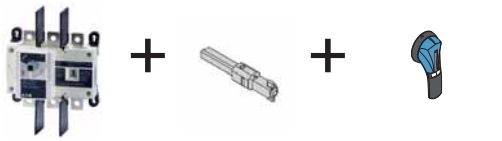
- Switching technology
- Up to 600 Vdc according to UL 98/CSA
- Up to 1000 Vdc according to IEC 947-3

### R9 Series DC Rated Disconnects

## Product Selection

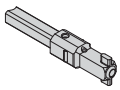


Switch body + Direct handle



Switch body + Shaft + External handle

### Front Operation—Three- and Four-Pole



| Ampere Rating | Number of Poles | Switch Body | Direct Handle | External Handle (Choose One) | Shaft for External Handle In (mm) (Choose One) | Auxiliary Contacts (Choose One) | Terminals Shroud | Terminal Lugs | Jumpers for Connecting Poles in Series |
|---|---|---|---|---|---|---|---|---|---|
| 100 | 3 | **R9D3100UDC** | **DHR9DE** | S2 Type<br>Black<br>1, 3R, 12 ①<br>**PHB2N12F** | 7.90 (200.0)<br>**SF200PH10X10** | C Type<br>1st Contact<br>NO+NC<br>**AC1NONCDE** | 3P ②<br>**TS3R9DT** | 3P ④<br>**LK3R9DL** | 2 pieces<br>**DCJUMPD2** |
| | 4 | **R9D4100UDC** | | | | | | | |
| | | | | | 12.60 (320.0)<br>**SF320PH10X10** | | 3P ③<br>**TS3R9DB** | 4P ④<br>**LK4R9DL** | 3 pieces<br>**DCJUMPD3** |
| 200 | 3 | **R9D3200UDC** | | Red/Yellow<br>1, 3R, 12 ①<br>**PHR2N12F** | 15.7 0 (400.0)<br>**SF400PH10X10** | C Type<br>2nd Contact<br>NO+NC<br>**AC2NONCDE** | 4P ④<br>**TS4R9DTB** | | |
| | 4 | **R9D4200UDC** | | Black<br>4, 4X ①<br>**PHB2N4XF** | | | | | |
| 400 | 3 | **R9E3400UDC** | | Red/Yellow<br>4, 4X ①<br>**PHR2N4XF** | | | 3P ②<br>**TS3R9ET** | 3P ④<br>**LK3R9EM** | 2 pieces<br>**DCJUMPE2** |
| | 4 | **R9E4400UDC** | | | | | 3P ③<br>**TS3R9EB** | 4P ④<br>**LK4R9EM** | 3 pieces<br>**DCJUMPE3** |
| | | | | | | | 4P ④<br>**TS4R9ETB** | | |

***Notes***

① Defeatable handle.
② Top (line side).
③ Bottom (load side).
④ Top or bottom (line or load side).

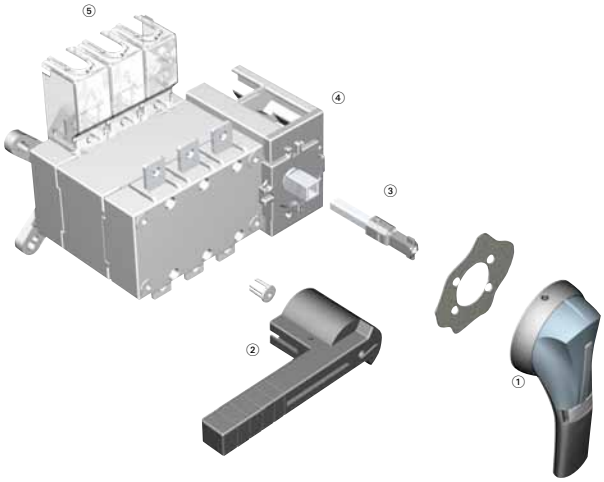
1

**Manual Transfer Switches**

## Features

- Three load break positions (I, 0, II)
- On load switching
- Direct or external handle
- 480 Vac total system
- 600 Vac resistive load

## Manual Transfer Switches




***Product Identification***

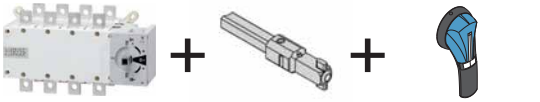
① External front handle
② Direct handle
③ Shaft extension for external handle
④ Pre-break ACs (standard on 600–1200A)
⑤ Terminal Screen

## Product Selection

**Direct Operation**

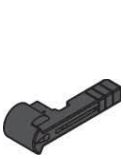
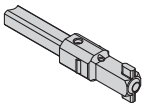
Switch body + Direct handle

**External Operation**



Switch body + Shaft + External handle

### Manual Transfer Switches—UL 98 Standard ①


| Ampere Rating | Number of Poles | Switch Body Only ① | Direct Handle (Black) | External Three-Position Handle (Choose One) | Shaft Extensions for External Handle In (mm) (Choose One) | Bridging Bars | Auxiliary Contacts | Terminal Screens ② |
|---|---|---|---|---|---|---|---|---|
| 100 | 3 | **RMTS3100U** | **DHMTSSL** | Size 2, Black<br>I–0–II<br>Type 4/4X<br>**PHB2N4X3P** | 7.90 (200.6)<br>**SF200PH10X10** | 3P<br>**BB3P200** | NO/NC<br>**AC1NONCMTS400** | 3P<br>**TS3MTS200TB** |
| | 4 | **RMTS4100U** | | | | | | |
| 200 | 3 | **RMTS3200U** | | | 12.60 (320.0)<br>**SF320PH10X10** | 4P<br>**BB4P200** | Low level<br>**AC1NONCMTS400LL** ③ | 4P<br>**TS4MTS200TB** |
| | 4 | **RMTS4200U** | | Size 2, Red<br>I–0–II<br>Type 4/4X<br>**PHR2N4X3P** | 15.70 (398.8)<br>**SF400PH10X10** | | | |
| 400 | 3 | **RMTS3400U** | | Size 3, Black<br>I–0–II<br>Type 4/4X<br>**PHB3N4X3P** | 7.90 (200.6)<br>**SF200PH15X12** | 3P<br>**BB3P400** | | 3P<br>**TS3MTS400TB** |
| | 4 | **RMTS4400U** | | | 12.60 (320.0)<br>**SF320PH15X12** | 4P<br>**BB4P400** | | 4P<br>**TS4MTS400TB** |
| | | | | Size 3, Red<br>I–0–II<br>Type 4/4X<br>**PHR3N4X3P** | 15.70 (398.8)<br>**SF400PH15X12** | | | |
| 600 | 3 | **RMTS3600U** | **DHMTSDL** | Size 4, Black<br>I–0–II<br>Type 4/4X<br>**PHB4N4X3P** | | 3P<br>**BB3P600** | NO/NC contact standard | 3P<br>**TS3MTS600** |
| | 4 | **RMTS4600U** | | | | 4P<br>**BB4P600** | | 4P<br>**TS4MTS600** |
| 800 | 3 | **RMTS3800U** | **DHMTSDLM** | Size 4, Red<br>I–0–II<br>Type 4/4X<br>**PHR4N4X3P** | | 3P<br>**BB3P1200** | | 3P<br>**TS3MTS1200** |
| | 4 | **RMTS4800U** | | | | | | |
| 1200 | 3 | **RMTS31200U** | | | | 4P<br>**BB4P1200** | | 4P<br>**TS4MTS1200** |
| | 4 | **RMTS41200U** | | | | | | |

***Notes***

① All ratings, 100–1200A, are UL 98 listed. Switches are to be UL 1008 listed in 2011.
② Line or load (top or bottom); for both line and load, order two kits.
③ Low level auxiliary contact—gold plated for minimal resistance—for PLC applications.

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**Enclosed Rotary Disconnects**

## Enclosed Rotary Disconnects

Provide users with the ability to lock directly wired motor loads in the OFF position to comply with OSHA lockout/tagout regulations. Also for machine applications that require compact, economical disconnect switches.

Enclosed rotary disconnect switches allow safe control and safe disconnect of any motor application.

Open rotary disconnects can be found on **Pages V9-T1-46** to **V9-T1-61** and full information in Volume 5, Motor Control and Protection, CA08100006E, Tab 8.

## Features

- Padlockable in the OFF position (up to three padlocks) to meet OSHA lockout requirements
- Available in 16–80A ratings
- 600 Vac, three- and four-pole non-fusible device
- Rated for making and breaking loads
- Accepts auxiliary contacts; capability to signal PLC controllers
- Ground lug connection provided
- Possibility of adding one power pole and one auxiliary contact
- NEMA Type 1, 3R, 12, 4, 4X
- 65kAIC rating when applied downstream from appropriate fusing

## Product Selection

### Enclosed Rotary Non-Fusible

| Ampere Rating | Maximum Horsepower Ratings Three-Phase AC 208V | 240V | 480V | 600V | NEMA 1 ① Enclosure Indoor Catalog Number | NEMA 12 ①② Enclosure Dust-Tight/ Rainproof Catalog Number | NEMA 4X ① Enclosure Corrosion-Resistant, Stainless Steel Catalog Number | NEMA 4X ① Enclosure Corrosion-Resistant, Non-Metallic Catalog Number | NEMA 4X Enclosure Polycarbonate-Non-Metallic Catalog Number |
|---|---|---|---|---|---|---|---|---|---|
| **Three-Pole, 600 Vac** | | | | | | | | | |
| 16 | 3 | 5 | 10 | 10 | **ER53016UG** | **ER53016UD** | **ER53016UW** | **ER53016UX** | — |
| 25 | 7-1/2 | 7-1/2 | 15 | 20 | **ER53025UG** | **ER53025UD** | **ER53025UW** | **ER53025UX** | — |
| 30 | 7-1/2 | 7-1/2 | 15 | 20 | **ER53030UG** | **ER53030UD** | **ER53030UW** | **ER53030UX** | **ER53030UPYR** ③④ |
| 40 | 7-1/2 | 7-1/2 | 20 | 25 | **ER53040UG** | **ER53040UD** | **ER53040UW** | **ER53040UX** | — |
| 60 | 15 | 15 | 30 | 30 | **ER53060UG** | **ER53060UD** | **ER53060UW** | **ER53060UX** | **ER53060UPYR** ③④ |
| 80 | 15 | 20 | 40 | 40 | **ER53080UG** | **ER53080UD** | **ER53080UW** | **ER53080UX** | — |
| **Four-Pole, 600 Vac** | | | | | | | | | |
| 16 | 3 | 5 | 10 | 10 | **ER54016UG** | **ER54016UD** | **ER54016UW** | **ER54016UX** | — |
| 25 | 7-1/2 | 7-1/2 | 15 | 20 | **ER54025UG** | **ER54025UD** | **ER54025UW** | **ER54025UX** | — |
| 30 | 7-1/2 | 7-1/2 | 20 | 25 | **ER54030UG** | **ER54030UD** | **ER54030UW** | **ER54030UX** | — |
| 40 | 7-1/2 | 7-1/2 | 20 | 25 | **ER54040UG** | **ER54040UD** | **ER54040UW** | **ER54040UX** | — |

### Accessories for Enclosed Rotary Disconnects ⑤⑥

| Disconnect Ampere Rating | Switched Fourth Pole | Unswitched Neutral Pole | Auxiliary Contacts (Choose One) | Terminal Shrouds |
|---|---|---|---|---|
| 16 | **S4PR516** | **UNMR5A** | 1NO + 1NC **AC1NONC** | Single-pole **TS1R5A** |
| 25 | **S4PR525** | | | |
| 30 | **S4PR530** | | 2NC **AC2NC** | Three-pole **TS3R5A** |
| 40 | **S4PR540** | | | |
| 60 | **S4PR560** ⑦ | **UNMR5B** ⑦ | | Single-pole **TS1R5B** |
| 80 | **S4PR580** ⑦ | | | |
| | | | | Three-pole **TS3R5B** |

***Notes***

① For CSA listed switches, add prefix letter "C" to the front of the catalog number.
② NEMA Type 12 enclosures (16–80A) can be field modified to meet NEMA Type 3R rainproof requirements when a factory-provided drain hole is opened.
③ YR suffix indicates **Y**ellow cover with **R**ed handle. For **G**ray cover with **B**lack handle, replace "YR" with "GB." For **G**ray cover with **R**ed handle, replace "YR" with "GR."
④ cULus only.
⑤ Ordered and shipped as separate components—not integral to enclosed device.
⑥ Enclosed disconnects can accept one power pole, neutral or up to two auxiliary contacts (one mounted on either side of switch).
⑦ Available 2011.

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