



Miniature Circuit Breakers, Electronic Protection Modules, and Fuse Holders

Bulletins 188, 1489, 1492, 1694


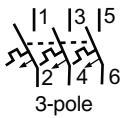


Allen-Bradley

by ROCKWELL AUTOMATION

Selection Guide

3-Pole Circuit Breakers

| Photo/Wiring Diagram | Max. Voltage | | Continuous Current Rating (I_n) | Trip Curve C Inductive | Trip Curve D Highly Inductive |
|---|--------------|---|-------------------------------------|------------------------|-------------------------------|
| | UL/CSA | IEC/EN | | 5...10 x I_n | 10...20 x I_n |
| | | | [A] | Cat. No. | Cat. No. |
|   | 480Y/277V AC | 400V AC | 0.5 | 1489-M3C005 | 1489-M3D005 |
| | | | 1 | 1489-M3C010 | 1489-M3D010 |
| | | | 1.6 | 1489-M3C016 | 1489-M3D016 |
| | | | 2 | 1489-M3C020 | 1489-M3D020 |
| | | | 3 | 1489-M3C030 | 1489-M3D030 |
| | | | 4 | 1489-M3C040 | 1489-M3D040 |
| | | | 5 | 1489-M3C050 | 1489-M3D050 |
| | | | 6 | 1489-M3C060 | 1489-M3D060 |
| | | | 7 | 1489-M3C070 | 1489-M3D070 |
| | | | 8 | 1489-M3C080 | 1489-M3D080 |
| | | | 10 | 1489-M3C100 | 1489-M3D100 |
| | | | 13 | 1489-M3C130 | 1489-M3D130 |
| | | | 15 | 1489-M3C150 | 1489-M3D150 |
| | | | 16 | 1489-M3C160 | 1489-M3D160 |
| | | | 20 | 1489-M3C200 | 1489-M3D200 |
| | | | 25 | 1489-M3C250 | 1489-M3D250 |
| | | | 30 | 1489-M3C300 | 1489-M3D300 |
| | | | 32 | 1489-M3C320 | 1489-M3D320 |
| | 35 | 1489-M3C350 | 1489-M3D350 | | |
| | | C Curve: 480Y/277V AC D Curve: 240V AC | | 40 | 1489-M3C400 |
| | 240V AC | | 50 | 1489-M3C500 | 1489-M3D500 |
| | | | 60 | 1489-M3C600 | 1489-M3D600 |
| | | | 63 | 1489-M3C630 | 1489-M3D630 |

Specifications

| Electrical Ratings | |
|---|---|
| Poles | 1, 2, 3 |
| Tripping characteristics | C, D |
| Rated current (I_n) | 0.5...63 A |
| Rated frequency [f] | 50/60 Hz |
| Rated insulation voltage U_i per IEC/EN 60664-1 | 250V AC (phase to ground) 440V AC (phase to phase) |
| Overtoltage category | III |
| Pollution degree | 3 |

| Data per UL/CSA | | | | | |
|-----------------|----|------------|---------|------------|--------------|
| Rated voltage | AC | 1-pole | C Curve | 0.5...40 A | 277V AC |
| | | | D Curve | 50...63 A | 240V AC |
| | | 2-, 3-pole | C Curve | 0.5...35 A | 277V AC |
| | | | D Curve | 40...63 A | 240V AC |
| | DC | 1-pole | C Curve | 0.5...40 A | 480V/277V AC |
| | | | D Curve | 50...63 A | 240V AC |
| | | 2-pole | C Curve | 0.5...35 A | 480V/277V AC |
| | | | D Curve | 40...63 A | 240V AC |

| | |
|--|---|
| Rated interrupting capacity per UL 489 | 10 kA |
| Reference temperature for tripping characteristics | 40 °C (104 °F) |
| Electrical endurance | 6,000 operations (AC and DC); 1 cycle (1s - ON, 9s - OFF) |

| Data per IEC/EN 60947-2 | | | |
|---|---|------------|-------------|
| Rated operational voltage (U_e) | 1-pole | 230V AC | |
| | 2-, 3-pole | 400V AC | |
| Highest supply or utilization voltage (U_{max}) | AC | 1-pole | 253/440V AC |
| | | 2-, 3-pole | 440V AC |
| | DC (1) | 1-pole | 48V DC |
| | | 2-pole | 96V DC |
| Min. operating voltage | 12V AC, 12V DC | | |
| Rated ultimate short-circuit breaking capacity (I_{cu}) | 15 kA | | |
| Rated service short-circuit breaking capacity (I_{cs}) | ≤ 40 A: 11.25 kA > 40 A: 7.5 kA | | |
| Rated impulse withstand voltage U_{imp} . (1.2/50 μs) | 4 kV (test voltage 6.2 kV at sea level, 5 kV at 2,000 m) | | |
| Dielectric test voltage | 2 kV (50/60Hz, 1 min.) | | |
| Reference temperature for tripping characteristics | 30 °C (86 °F) | | |
| Electrical endurance 1 cycle (2s - ON, 13s - OFF, I_n ≤ 32 A), 1 cycle (2s - ON, 28s - OFF, I_n > 32 A) | I_n < 30 A: 20,000 ops. (AC) I_n ≥ 30 A: 10,000 ops. (AC) 1,000 ops. (DC) | | |

(1) Self-declared IEC DC ratings.

| Mechanical Data | |
|--|------------------------------------|
| Housing | Insulation group II, RAL 7035 |
| Indicator window | red ON/green OFF |
| Protection degree per EN 60529 | IP20, IP40 in enclosure with cover |
| Mechanical endurance | 20,000 operations |
| Shock resistance per IEC/EN 60068-2-27 | 25 g - 2 shocks - 13 ms |

| Mechanical Data | | |
|---|---|---|
| Vibration resistance per IEC/EN 60068-2-6 | 5g - 20 cycles at 5...150...5 Hz with load $0.8 \times I_n$ | |
| Environmental | | |
| Environmental conditions (damp heat) per IEC/EN 60068-2-30 | 28 cycles with 55 °C/90-96% and 25 °C/95-100% | |
| Ambient temperature ⁽¹⁾ | -25...+55 °C (-13...+131 °F) | |
| Storage temperature | -40...+70 °C (-40...+158 °F) | |
| Installation | | |
| Terminal | Dual terminal | |
| Cross-section of wire ⁽²⁾ - solid, stranded (front/back terminal slot) | 35/35 mm ² | |
| | 18...4/18...10 AWG | |
| Cross-section of wire - flexible (front/back terminal slot) | 25/10 mm ² | |
| | 1 wire, 18...4 AWG | |
| Multi-wire rating per UL, CSA | 2-4 wires ⁽³⁾ , 18...10 AWG | |
| | | |
| Cross-section of bus bars (back terminal slot) | 10 mm ² | |
| Tightening torque | IEC | 2.8 N•m |
| | UL/CSA | AWG 18...16: 13.3 lb•in, AWG 14...10: 17.7 lb•in, AWG 8...4: 39.8 lb•in |
| Screwdriver | No. 2 Pozidriv | |
| Mounting | DIN Rail (EN 60715, 35 mm) with fast clip | |
| Mounting position | Any | |
| Supply | Optional | |

| Approximate Dimensions and Weight | |
|-----------------------------------|---|
| Pole dimension (H x D x W) | 111 x 69 x 17.5 mm (4.37 x 2.72 x 0.69") |
| Pole weight | 125 g (4.4 oz.) |

| Combination with Auxiliary Elements | |
|-------------------------------------|-----|
| Auxiliary contact | Yes |
| Signal contact | Yes |
| Shunt trip | Yes |

(1) See [Table 1](#) and [Table 2](#) for ambient temperature derating values.

(2) 35 mm self-declared, not included in IEC/EN approval.

(3) Wires must be of like size and stranding. Up to two wires per terminal slot.

Power Loss Due to Current

| Rated Current [A] | Power Loss Per Pole [W] | Rated Current [A] | Power Loss Per Pole [W] |
|-------------------|-------------------------|-------------------|-------------------------|
| 0.5 | 1.4 | 15 | 2.4 |
| 1 | 1.4 | 16 | 2.5 |
| 1.6 | 1.8 | 20 | 2.5 |
| 2 | 1.8 | 25 | 3.2 |
| 3 | 1.6 | 30 | 3.5 |
| 4 | 1.8 | 32 | 3.7 |
| 5 | 1.9 | 35 | 4.1 |
| 6 | 2.0 | 40 | 4.5 |
| 7 | 1.1 | 50 | 4.5 |
| 8 | 1.5 | 60 | 4.9 |
| 10 | 2.1 | 63 | 5.4 |
| 13 | 2.3 | - | - |