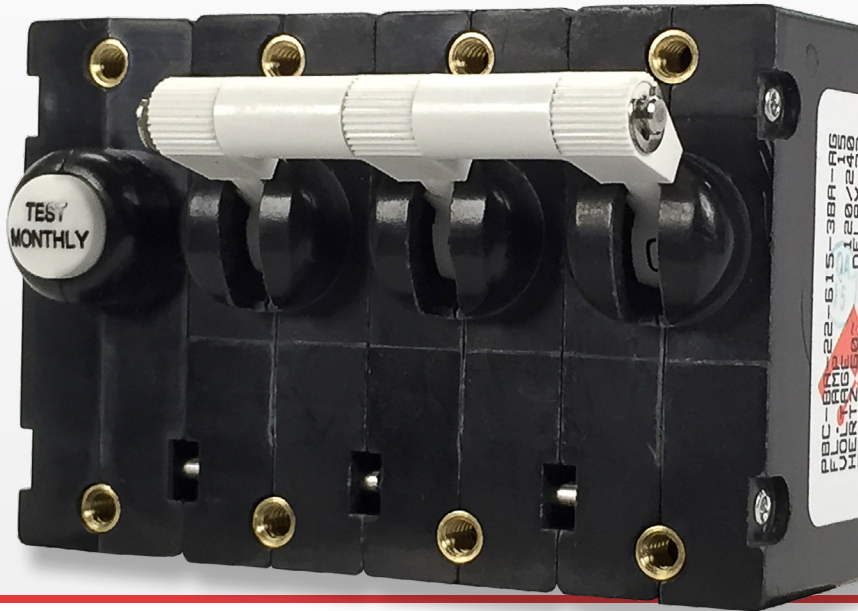


PB-Series

Equipment Leakage Circuit Interrupters

PRODUCT WEBPAGE

request sample, configure part



The PB-Series, AC Residual Current Circuit Breaker with Overcurrent Protection (RCBO), combines the ground fault protection and the familiar overcurrent tripping characteristics of a normal circuit breaker, reliably tripping when sensing low level ground or overcurrent faults. Based on the principles of hydraulic-magnetic design, the breaker also operates reliably when exposed to extreme heat or cold. This breaker series is available in one to three pole configurations and rated from .10-30 amps, 120VAC, 120/240VAC with max IC of 5,000 amps.

1-3 Poles **0.10-30** Amps **120/240** VAC **5,000A Max** Interrupting Capacity

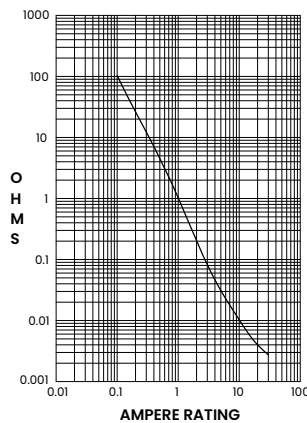
Typical Applications

- Marine
- Generators
- Lighting

Tech Specs

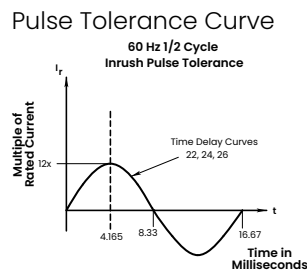
Electrical

| | |
|-----------------------|---|
| Maximum Voltage | 120/240VAC 60 Hz |
| Current Ratings | Standard current coils: 0.100, 0.250, 0.500, 0.750, 1.00, 2.50, 5.00, 7.50, 10.0, 15.0, 20.0, 25.0 & 30.0 amps. Other ratings available, see ordering scheme. |
| Insulation Resistance | Minimum of 100 Megohms at 500 VDC |
| Dielectric Strength | UL, CUL - 1500 V 60 Hz for one minute between all electrically isolated terminals. PB-Series circuit breakers comply with the 8mm spacing and 3750V 60 Hz dielectric requirements from hazardous voltage to operator accessible surfaces and between adjacent poles |
| Impedance | Values from Line to Load Terminal |



Ampere Rating

| CURRENT (AMPS) | TOLERANCE (%) |
|----------------|---------------|
| 0.10 - 5.0 | ± 15 |
| 5.10 - 20.0 | ± 25 |
| 20.10 - 30.0 | ± 35 |



Leakage To Ground

| | |
|-------------------------|--|
| Standard Must Trip | 120/240VAC 60 Hz |
| Leakage Current Ratings | 30 milliamps |
| Trip Time | Minimum of 100 Megohms at 500 VDC. |
| Test Button | 300 ms Max. @ 100%, 40ms Max. @ 500% of must trip leakage current. |
| Impedance | On unit face along side of actuator. |

Tables

Table A: UL Listed configurations and performance capabilities as Circuit Breakers.

| Electrical Ratings | | | | | |
|----------------------------|------------|-----------|-------|-----------------------|------------------------------|
| Circuit Configuration | Voltage | | | Current Rating (Amps) | Interrupting Capacity (Amps) |
| | Max Rating | Frequency | Phase | | |
| Series | 120 | 60 | 1 | .10 - 30 | 5000 |
| Series Ignition Protection | | | | | 3000 |

Mechanical

| | |
|-----------------|---|
| Endurance | 6,000 ON-OFF operations @ 6 per minute; 4,000 mechanical with rated Current & Voltage. |
| Trip Free | All PB-Series Circuit Breakers will trip on overload or ground fault, even when Handle is forcibly held in the ON position. |
| Trip Indication | The operating Handle moves positively to the OFF position when an overload or ground fault causes the breaker to trip. |

Physical

| | |
|--------------------------|--|
| Number of Poles | 1 - 3 poles, where the third pole is neutral |
| Internal Circuit Config. | Series Trip |
| Weight | Approximately 65 grams/pole. (2.32 ounces/pole.) |
| Standard Colors | Housing- Black; Actuator - See Ordering Scheme. |

Environmental

Designed and tested in accordance with requirements of specification MIL-PRF- 55629 and MIL-STD-202 as follows:

| | |
|-----------------------|---|
| Shock | Withstands 100 Gs, 6ms, sawtooth while carrying rated current per Method 213, Test Condition "I". Ultra-short curves tested @ 90% of rated current. |
| Vibration | Withstands 0.060" excursion from 10-55 Hz, and 10 Gs 55-500 Hz, at rated current per Method 204C, Test Condition A. Instantaneous and ultrashort curves tested at 90% of rated current. |
| Moisture Resistance | Method 106D, i.e., ten 24-hour cycles @ + 25°C to +65°C, 80-98% RH. |
| Salt Spray | Method 101, Condition A (90-95% RH @ 5% NaCl Solution, 96 hrs). |
| Thermal Shock | Method 107D, Condition A (Five cycles @ -55°C to +25°C to +85°C to +25°C). |
| Operating Temperature | -35° C to +65° C |
| Corrosion | Tested FMG Test. 3 weeks @ 30°C 75% RH, 100ppb H2S, 20ppb Cl2, 200ppb NO2 |

Agency Approvals

| | |
|---------|---|
| UL 1053 | Ground Fault Sensing and Relaying Equipment |
| UL 1500 | Ignition Protection |

Ordering Scheme

Sample Part Number **PB B - B A - 24-620 - 2 B A - E G**

Selection 1 2 3 4 5 6 7 8 9 10 11

1. SERIES

PB

2. SYSTEM VOLTAGE / POLES

- A 120 VAC single phase, one pole
- B 120/240 VAC single phase, two pole
- C 120/240 VAC single phase with switched neutral, three pole
- D 120 VAC two pole with switched neutral

3. POLES

B Series Trip (Current)

4. CIRCUIT

- | | |
|-------------------------------------|-----------------------------------|
| Handle | Single Color Curved Rocker |
| A one per pole | J Vertical legend |
| B one per multipole unit | K Horizontal legend |
| Two Color Curved Visi-Rocker | Two Color Flat Visi-Rocker |
| C Indicate ON, vertical legend | 1 Indicate OFF, vertical legend |
| D Indicate ON, horizontal legend | 2 Indicate OFF, horizontal legend |
| F Indicate OFF, vertical legend | Single Color Flat Rocker |
| G Indicate OFF, horizontal legend | 3 Vertical legend |
| | 4 Horizontal legend |

| ROCKER STYLE DESCRIPTIONS | | | | | |
|---------------------------|---------------|-------------------|-------------------|-------------------|-------------------|
| | INDICATE "ON" | INDICATE "OFF" | SINGLE COLOR | INDICATE "OFF" | SINGLE COLOR |
| VERTICAL | CODE "C" | CODE "F", "N" | CODE "J", "R" | CODE "1", "5" | CODE "3", "7" |
| | CODE "D" | CODE "G", "O" | CODE "K", "U" | CODE "2", "6" | CODE "4", "8" |

5. FREQUENCY & DELAY

- 21 50 / 60Hz Ultra Short
- 22 50 / 60Hz Short
- 24 50 / 60Hz Medium
- 26 50 / 60Hz Long

6. CURRENT RATING (AMPERES)

| CODE | AMPERES | CODE | AMPERES | CODE | AMPERES | CODE | AMPERES |
|------|---------|------|---------|------|---------|------|---------|
| 210 | 0.10 | 285 | 0.85 | 450 | 5.00 | 712 | 12.50 |
| 215 | 0.15 | 290 | 0.90 | 455 | 5.50 | 613 | 13.00 |
| 220 | 0.20 | 295 | 0.95 | 460 | 6.00 | 614 | 14.00 |
| 225 | 0.25 | 410 | 1.00 | 465 | 6.50 | 615 | 15.00 |
| 230 | 0.30 | 512 | 1.25 | 470 | 7.00 | 616 | 16.00 |
| 235 | 0.35 | 415 | 1.50 | 475 | 7.50 | 617 | 17.00 |
| 240 | 0.40 | 517 | 1.75 | 480 | 8.00 | 618 | 18.00 |
| 245 | 0.45 | 420 | 2.00 | 485 | 8.50 | 620 | 20.00 |
| 250 | 0.50 | 522 | 2.25 | 490 | 9.00 | 622 | 22.00 |
| 255 | 0.55 | 425 | 2.50 | 495 | 9.50 | 624 | 24.00 |
| 260 | 0.60 | 527 | 2.75 | 610 | 10.00 | 625 | 25.00 |
| 265 | 0.65 | 430 | 3.00 | 710 | 10.50 | 630 | 30.00 |
| 270 | 0.70 | 435 | 3.50 | 611 | 11.00 | | |
| 275 | 0.75 | 440 | 4.00 | 711 | 11.50 | | |
| 280 | 0.80 | 445 | 4.50 | 612 | 12.00 | | |

7. TERMINAL 2

- 1³ Push-On 0.250 Tab (Q.C.)
- 2 Screw 8-32 w/upturned lugs
- 3 Screw 8-32 (Bus Type)
- 4 Screw 10-32 w/upturned lugs
- 5 Screw 10-32 (Bus Type)
- B Screw M5 w/upturned lugs
- C Screw M4 w/upturned lugs
- E Screw M4 (Bus Type)
- H Screw M5 (Bus Type)

8. ACTUATOR COLOR & LEGEND

| Handle Color | I-O | ON-OFF | Dual | Single | Visi-Rocker |
|--------------|-----|--------|------|--------|-------------|
| White | A | B | 1 | Black | White |
| Black | C | D | 2 | White | N/A |
| Red | F | G | 3 | White | Red |
| Green | H | J | 4 | White | Green |
| Blue | K | L | 5 | White | Blue |
| Yellow | M | N | 6 | Black | Yellow |
| Gray | P | Q | 7 | Black | Gray |
| Orange | R | S | 8 | Black | Orange |

9. MOUNTING / BARRIERS

| | MOUNTING STYLE | BARRIERS |
|---|---|----------|
| A | Threaded Insert, 2 per pole | |
| B | 6-32 X 0.195 inches | yes |
| | M3 x 5mm | yes |
| C | Rockerguard Bezel, 2 per pole | |
| D | 6-32 x 0.195" | yes |
| | M3 x 5 mm | yes |
| | Standard Bezel with Recessed Off-Side Flat Rocker | |
| E | Threaded Insert, 2 per pole | |
| | 6-32 x 0.195" | yes |
| F | M3 x 5 mm | yes |

10. LEAKAGE CURRENT TRIP LEVEL - MAX. TRIP CURRENT

E 30 MA (ELCI) ¹

11. AGENCY APPROVAL

- A without Approvals
- G 30 mA: UL 1053 Recognized Component, CSA Recognized Component with UL Listed Circuit Breakers
- I 30 mA: UL 1053 Recognized Component, CSA Recognized Component with UL 1077 Supplementary Protectors with UL 1500 Ignition Protection

Notes:

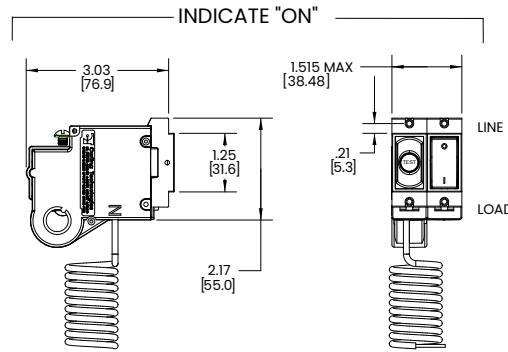
- 1 Actuator Code:
 - A: Handle tie pin spacer(s) and retainers provided unassembled with multi-pole units.
 - B: Handle location as viewed from front of breaker:
 - 2 pole - left pole 3 pole - center pole
- 2 Screw Terminals are recommended on ratings greater than 20 amps.

[Configure Complete Part Number >](#)

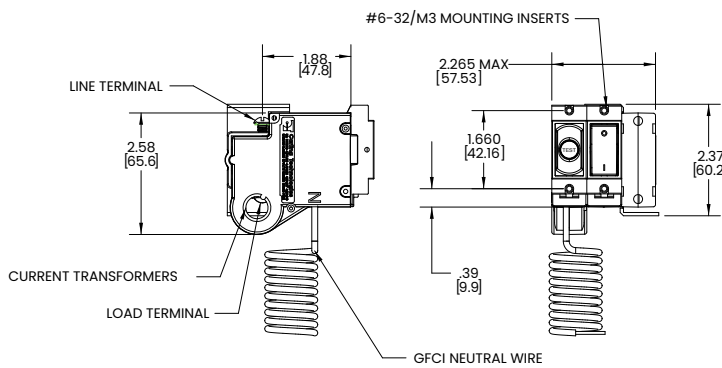
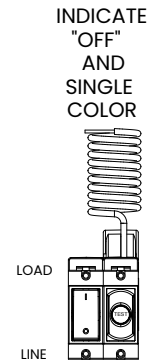
[Browse Standard Parts >](#)

Dimensional Specs

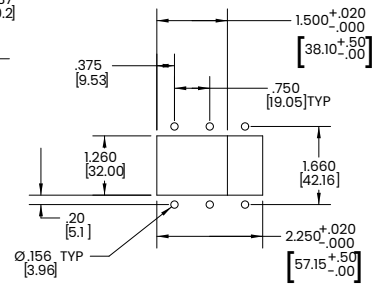
inches [millimeters]



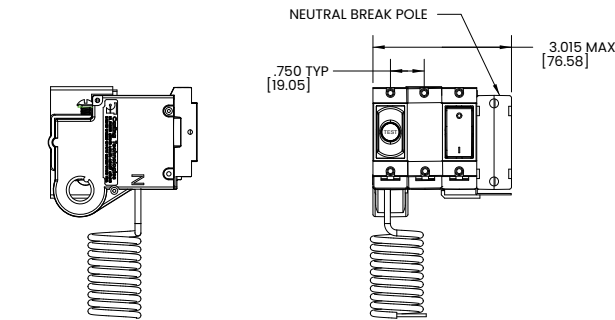
1-POLE 120 VAC VERSION



2-POLE 120/240 VAC VERSION



PANEL CUTOUT



2-POLE 120/240 VAC WITH NEUTRAL BREAK

TERMINAL DIMENSIONAL DETAIL & RATING

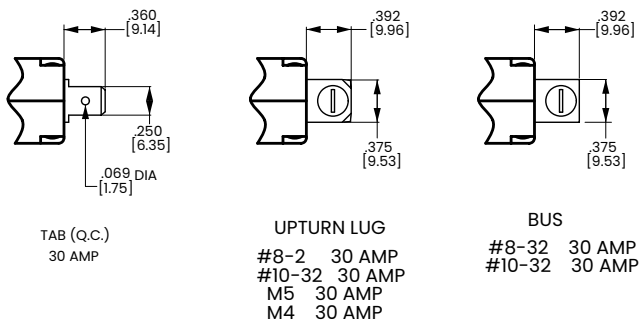


TABLE A TIGHTENING TORQUE SPECIFICATIONS

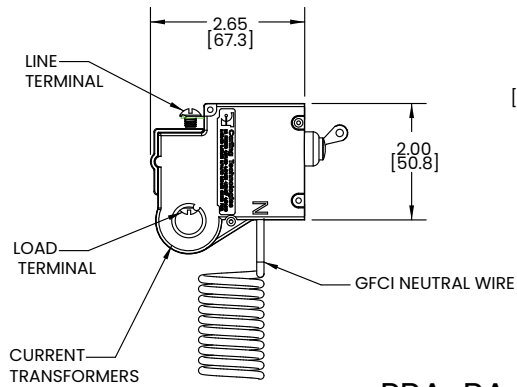
| THREAD SIZE | TORQUE |
|-----------------------------------|------------------------------|
| #6-32 & M3 MOUNTING HARDWARE | 7-9 IN-LBS [0.8-1.0 NM] |
| #8-32 & M4 THREAD TERMINAL SCREW | 12-15 IN-LBS [1.4-1.7 NM] |
| #10-32 & M5 THREAD TERMINAL SCREW | 15-20 IN-LBS [1.7-2.3 NM] |

Notes:
1 Tolerance ± 0.020 [.51] unless otherwise specified.

Dimensional Specs

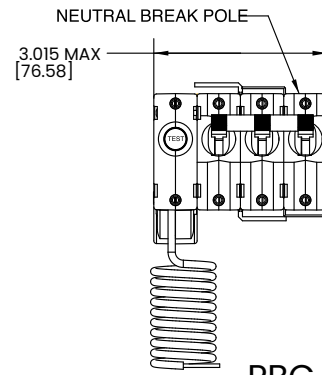
inches [millimeters]

TYPICAL 2-POLE 120 VAC VERSION



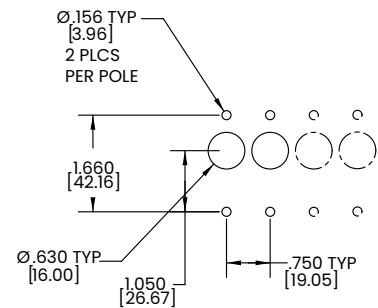
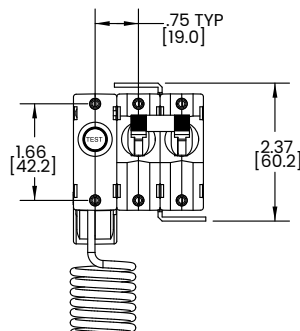
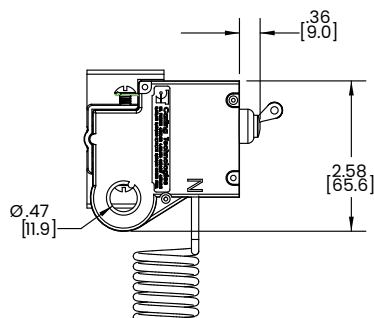
PBA-BA

TYPICAL 2-POLE 120/240 VAC WITH NEUTRAL BREAK VERSION



PBC-BA

TYPICAL 2-POLE 120/240 VAC VERSION

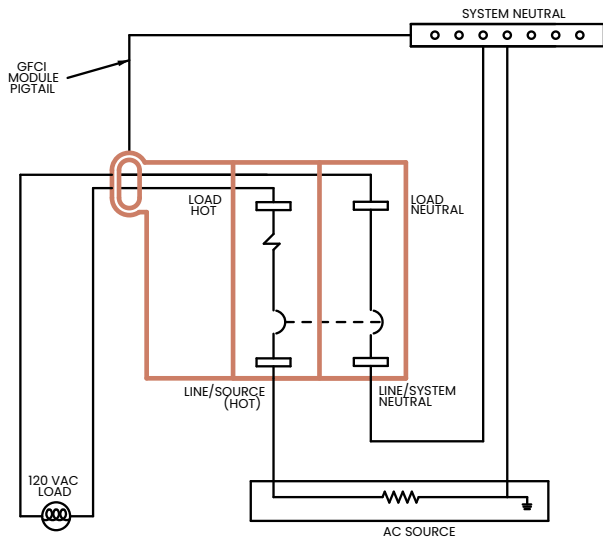


Notes:

1 Tolerance ± 0.020 [.51] unless otherwise specified.

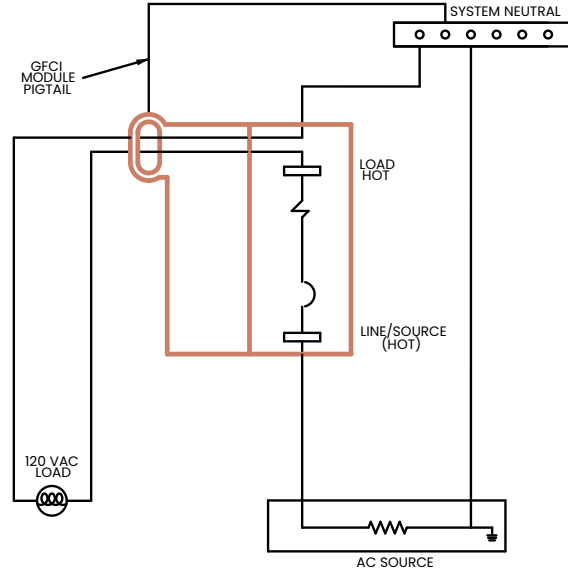
Wiring Diagrams

120 VAC with Switched Neutral



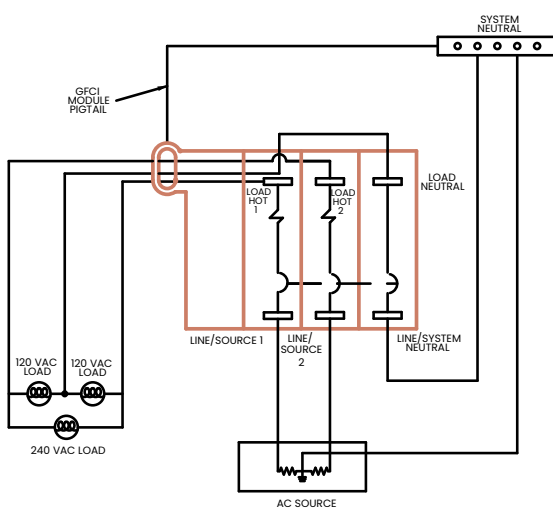
120 VAC WITH SWITCHED NEUTRAL

120 VAC without Switched Neutral



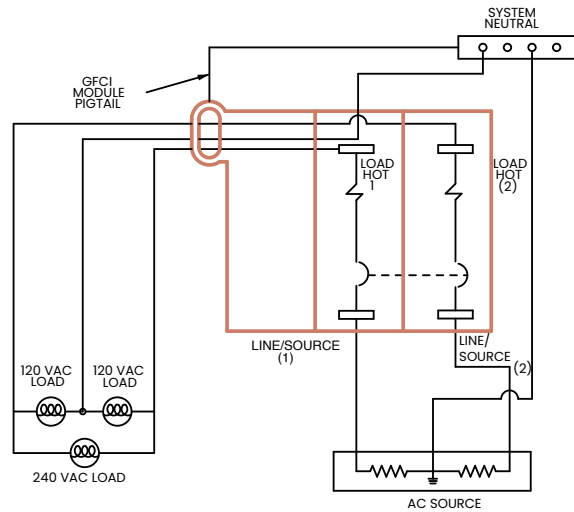
120 VAC WITHOUT SWITCHED NEUTRAL

120/240 VAC with Switched Neutral



120 VAC WITH SWITCHED NEUTRAL

120/240 VAC without Switched Neutral



120 VAC WITHOUT SWITCHED NEUTRAL

Ordering Scheme

Sample Part Number 8 PB - 1 4 1

Selection 1 2 3 4 5

1. TYPE NUMBER

8

2. SERIES

PB

3. ACTUATOR TYPE

- 1 Handle, one per pole
- 2 Handle, one per multipole unit
- A Rocker ²

4. POLES PER UNIT - INCLUDING ELECTRONIC MODULE

- 2 Two
- 3 Three
- 4 Four

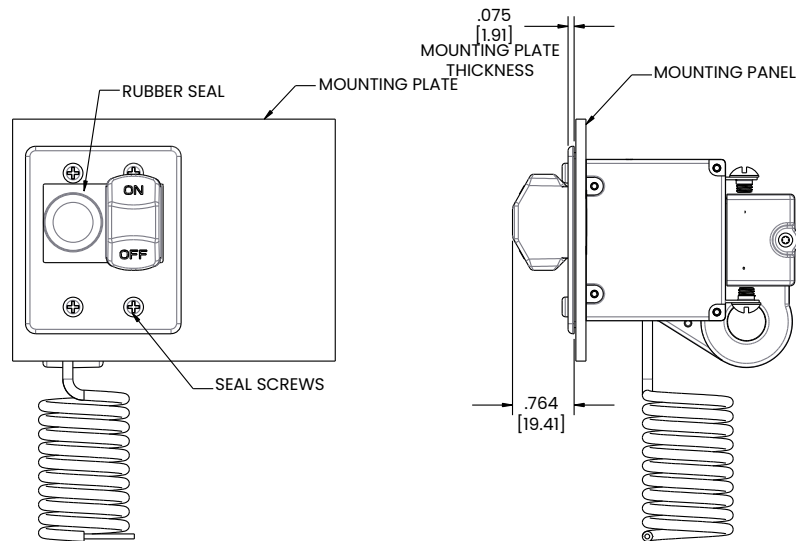
5. MOUNTING SCREWS / PLATE MATERIAL 1

- 1 6-32 Thread Phillips Head
- 2 M-3 Thread Phillips Head
- 3 6-32 Thread Slotted Head
- 4 M-3 Thread Slotted Head
- 5 6-32 Thread Phillips Head with Stainless Steel Plate
- 6 M-3 Thread Phillips Head with Stainless Steel Plate
- 7 6-32 Thread Slotted Head with Stainless Steel Plate
- 8 M-3 Thread Slotted Head with Stainless Steel Plate

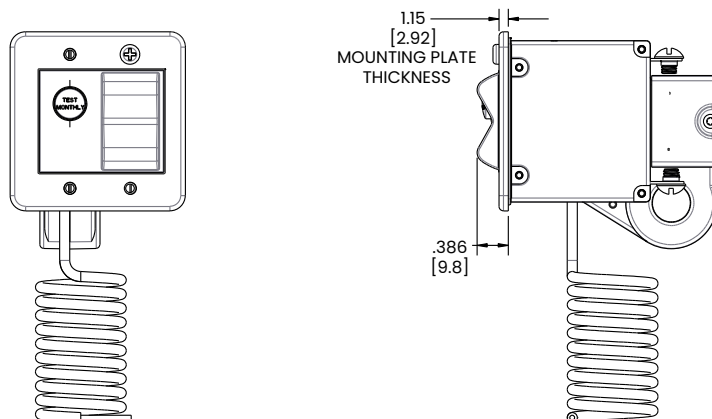
Notes:

- 1 Screws supplied to accommodate mounting panel thickness of $1/8" \pm 1/32"$. Consult Factory for additional options
- 2 Available for Flat and Curved Rocker options - No Rockerguard Bracket

Handle Style Panel Seal



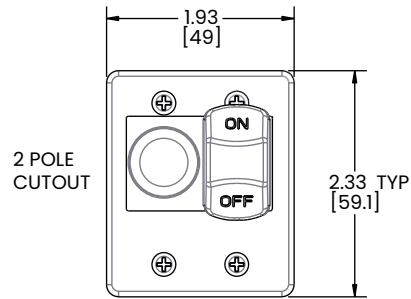
Rocker Style Panel Seal



Dimensional Specs

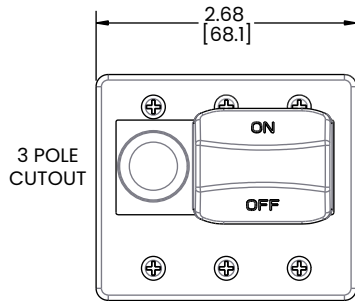
Handle Actuator

HANDLE, 1 PER POLE

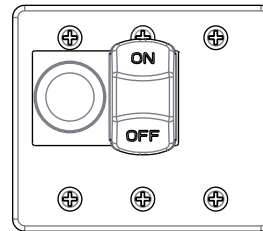


8PB-12

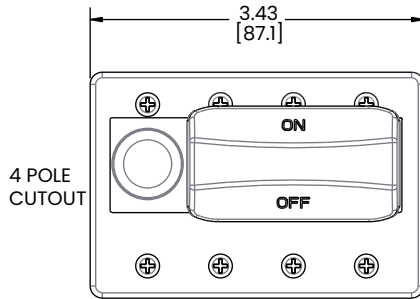
HANDLE, 1 PER MULTIPOLE UNIT



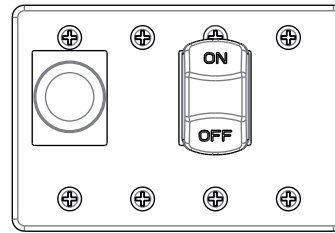
8PB-13



8PB-23

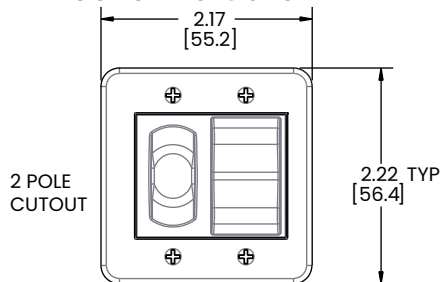


8PB-14

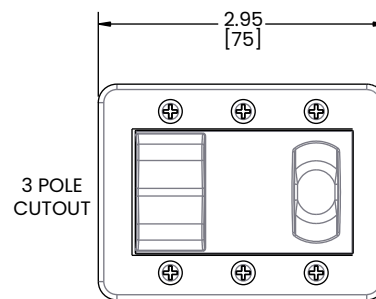


8PB-24

Rocker Actuator



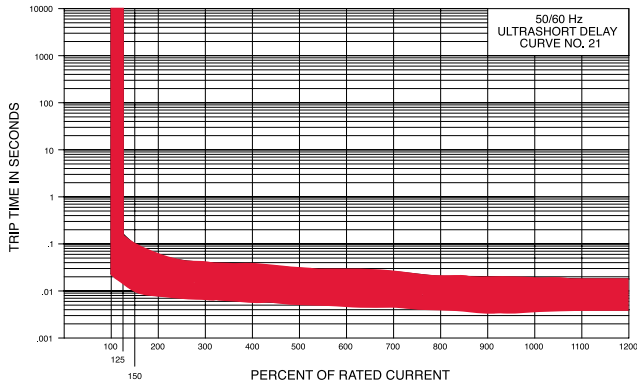
8PB-A2



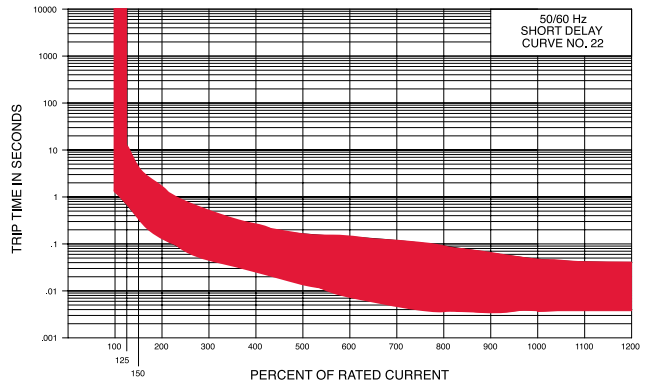
8PB-A3

Time Delay

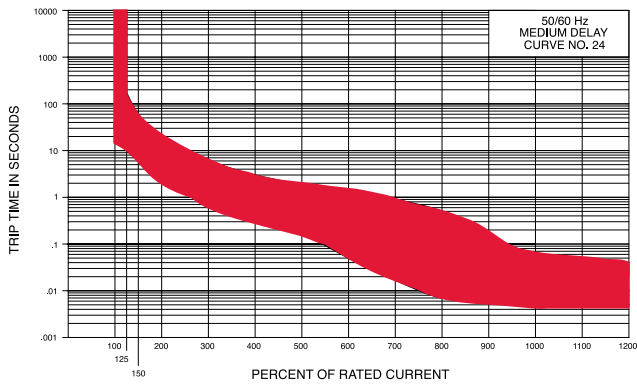
Ultra Short



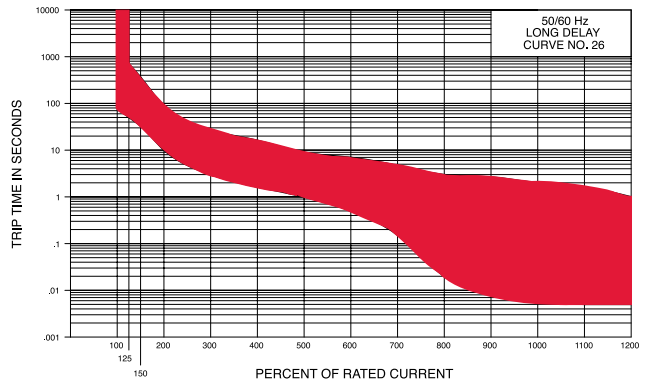
Medium



Short



Long



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