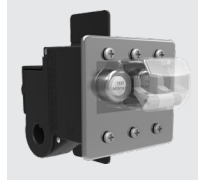


PB-Series

GFCI/ELCI & PANEL SEAL

The PB-Series, AC Residual Current Circuit Breaker with Overcurrent Protection (RCBO), combines the ground fault protection of a GFCI with the familiar overcurrent tripping characteristics of a normal circuit breaker. It utilizes the hydraulic magnetic principle which provides precise operation and performance even when exposed to extremely hot and/or cold application environments. These precision mechanisms are temperature stable and are not adversely affected by temperature changes in their operating environment. As such, derating considerations due to temperature variations are not normally required, and heat-induced nuisance tripping is avoided.



Resources:

[Configure a Complete Part](#)

[Download CAD & Sales Drawing >](#)

Product Highlights:

- Overload, short circuit and ground fault protection in a single package
- Handle or rocker style actuators
- Wiping Contacts - Mechanical linkage with two-step actuation - cleans contacts, provides high, positive contact pressure & longer contact life.
- A trip-free mechanism, a safety feature which makes it impossible to manually hold the contacts closed during overload or fault conditions.
- A common trip linkage between all poles, another safety feature, ensures that an overload in one pole will trip all adjacent poles.
- Front panel mounting
- Integral push-to-test button

Benefits:

- Increases safety around boats and marinas
- Protects against electrical shock hazards in areas near water
- Protects against defects in wires & conductors
- Reduces fire and shock hazards from defects in permanently installed appliances such as water heaters, battery chargers, lighting fixtures, etc.
- Detects lower level ground faults which do not trip ordinary circuit breakers, but can lead to fires, and shock hazards for boating occupants

Typical Applications:

- Marine
- Generators
- Lighting



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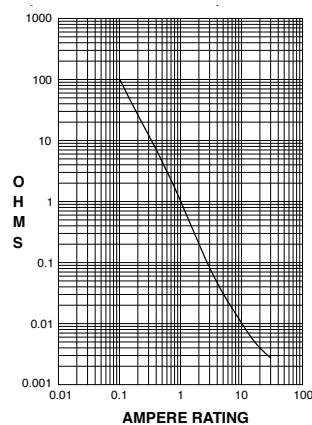
Electrical Tables

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

PB-SERIES TABLE A					
Circuit Configuration	Voltage			Current Rating (Amps)	Interrupting Capacity (Amps)
	Max Rating	Frequency	Phase		
Series	120	60	1	.10 - 30	5000

Electrical

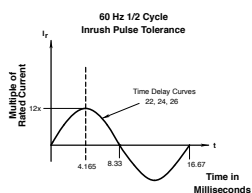
Maximum Voltage	120/240VAC 60 Hz
Current Ratings	Standard current coils: 0.100, 0.250, 0.500, 0.750, 1.00, 2.50, 5.00, 7.50, 10.0, 15.0, 20.0, 25.0 & 30.0 amps. Other ratings available, see ordering scheme.
Insulation Resistance	Minimum of 100 Megohms at 500 VDC.
Dielectric Strength	UL, CUL - 1500 V 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

Pulse Tolerance Curve



Leakage To Ground

Standard Must Trip	120/240VAC 60 Hz
Leakage Current Ratings	5 & 30 milliamps. 5± 1mA
Trip Time	For other ratings, consult factory. 300 ms Max. @ 100%, 40ms Max. @ 500% of must trip leakage current.
Test Button	On unit face along side of actuator.

Mechanical

Endurance	10,000 ON-OFF operations @ 6 per minute; 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

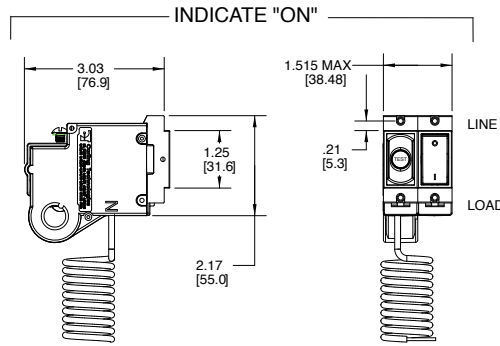
Designed and tested in accordance with requirements of specification MIL-PRF- 55629 and MIL-STD-202 as follows:	
Shock	Withstands 100 Gs, 6ms, sawtooth while carrying rated current per Method 213, Test Condition "I". Ultra-short curves tested @ 90% of rated current.
Vibration	Withstands 0.060" excursion 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 Certifications

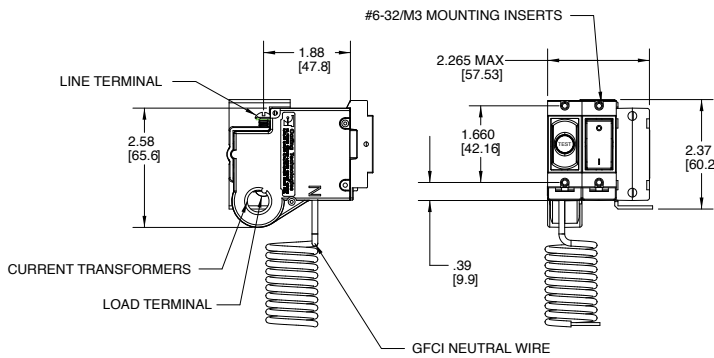
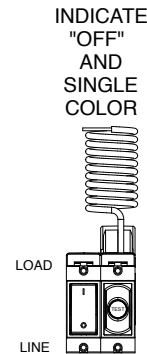
UL Listed	
UL Standard 489	Circuit Breakers, Molded Case, (Guide DIVQ, File E129899)
UL Standard 1077	Supplementary Protectors
UL Standard 1053	Ground Fault Sensing and Relaying Equipment

*Manufacturer reserves the right to change product specification without prior notice.

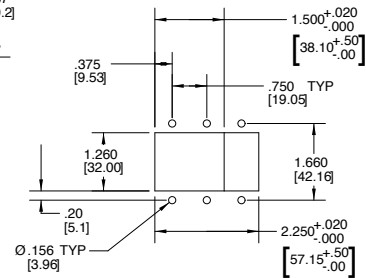
Dimensional Specifications: in. [mm]



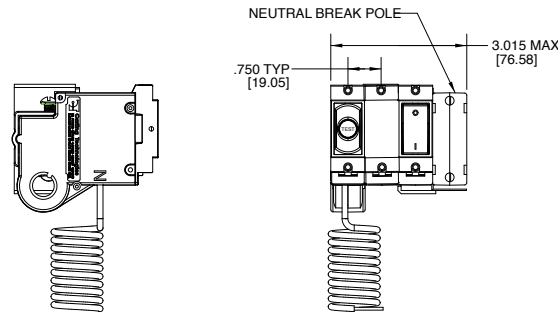
1-POLE 120 VAC VERSION



2-POLE 120/240 VAC VERSION

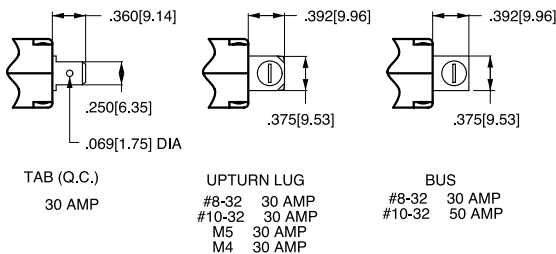


PANEL CUTOUT



2-POLE 120/240 VAC WITH NEUTRAL BREAK

TERMINAL DIMENSIONAL DETAIL & RATING

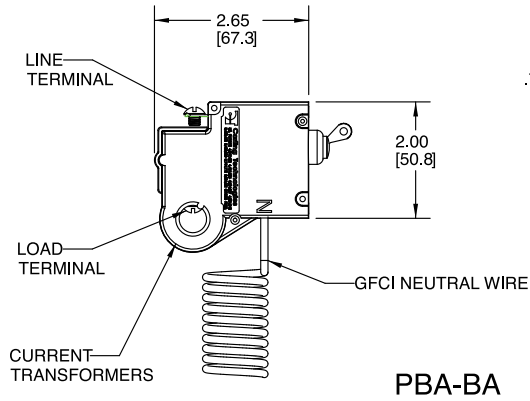


Notes:
1 All dimensions are in inches [millimeters].
2 Tolerance ±.020 [5.1] unless otherwise specified.

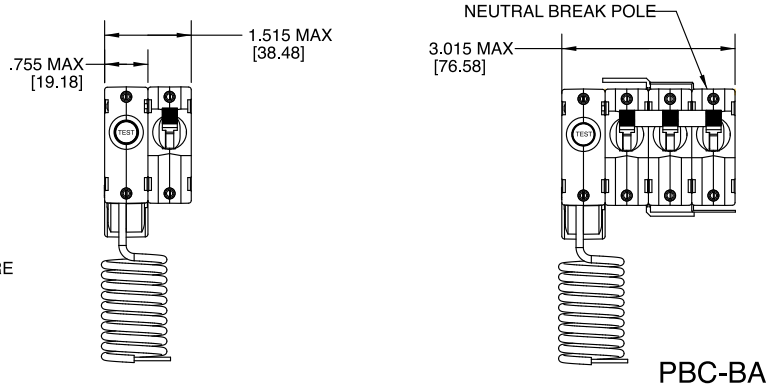
TABLE A TIGHTENING TORQUE SPECIFICATIONS	
THREAD SIZE	TORQUE
#6-32 & M3 MOUNTING HARDWARE	7-9 IN-LBS [0.8-1.0 NM]
#8-32 & M4 THREAD TERMINAL SCREW	12-15 IN-LBS [1.4-1.7 NM]
#10-32 & M5 THREAD TERMINAL SCREW	15-20 IN-LBS [1.7-2.3 NM]

Dimensional Specifications: in. [mm]

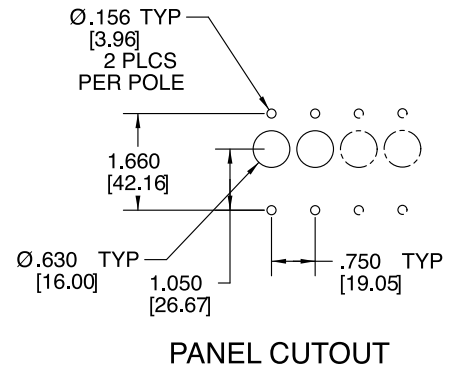
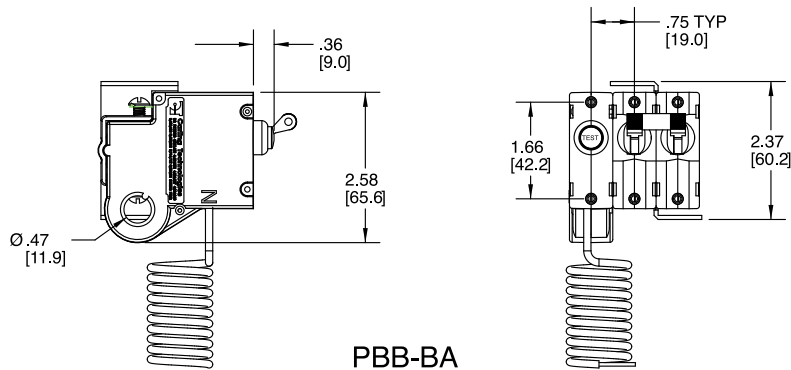
TYPICAL 1-POLE 120 VAC VERSION



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



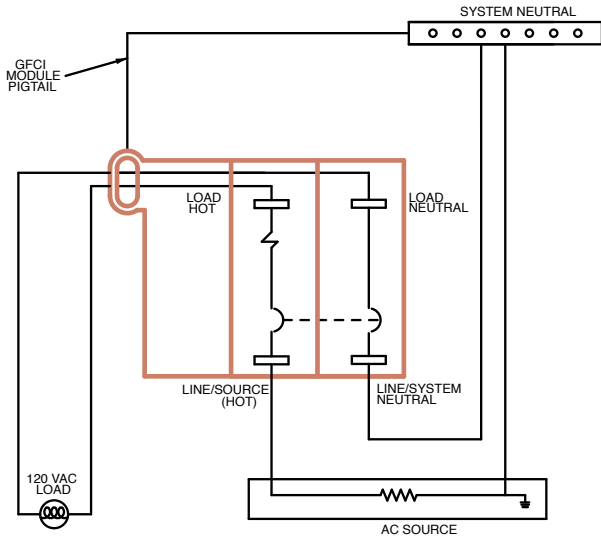
TYPICAL 2-POLE 120/240 VAC VERSION



Notes:

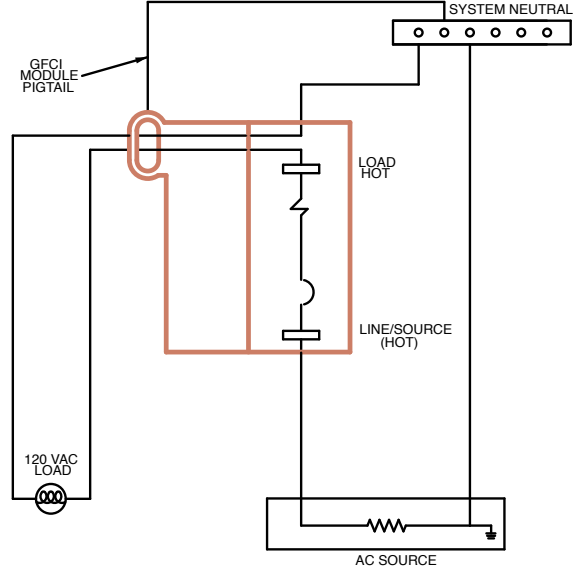
- 1 All dimensions are in inches [millimeters].
- 2 Tolerance ± 0.020 [.51] unless otherwise specified.

120 VAC with Switched Neutral



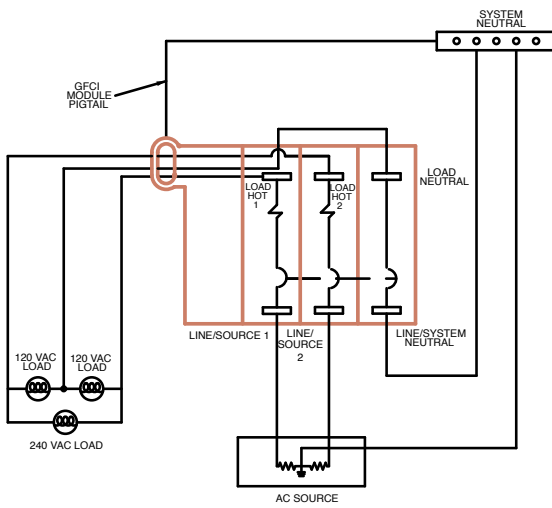
120 VAC WITH SWITCHED NEUTRAL

120 VAC without Switched Neutral



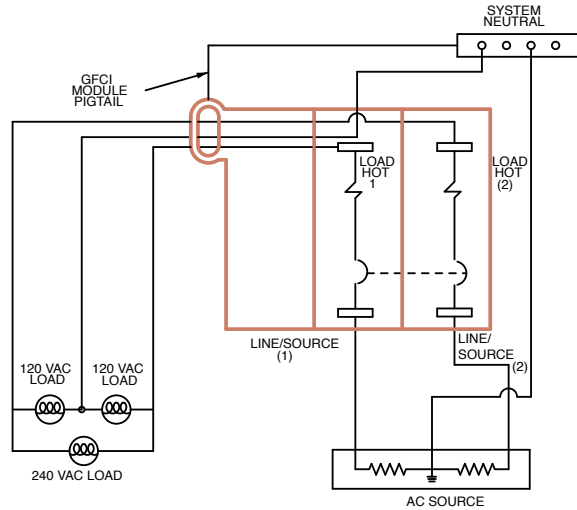
120 VAC WITHOUT SWITCHED NEUTRAL

120/240 VAC with Switched Neutral

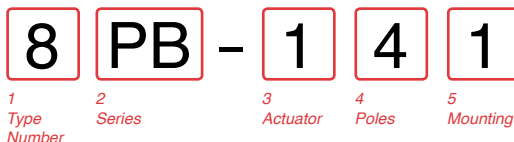


120 VAC WITH SWITCHED NEUTRAL

120/240 VAC without Switched Neutral



120 VAC WITHOUT SWITCHED NEUTRAL



1 TYPE NUMBER
8 Circuit Breaker Assembly

2 SERIES
PB

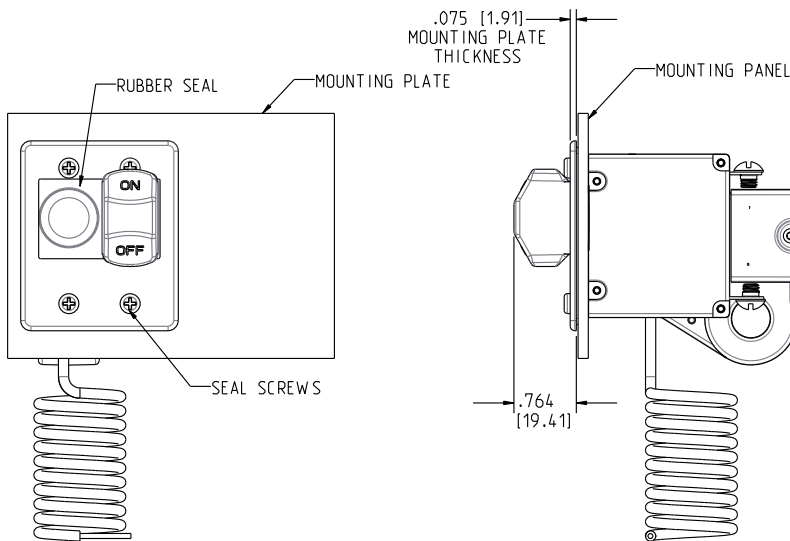
3 ACTUATOR TYPE
1 Handle, one per pole
2 Handle, one per multipole unit
A Rocker²

4 POLES PER UNIT - INCLUDING ELECTRONIC MODULE
2 Two
3 Three
4 Four

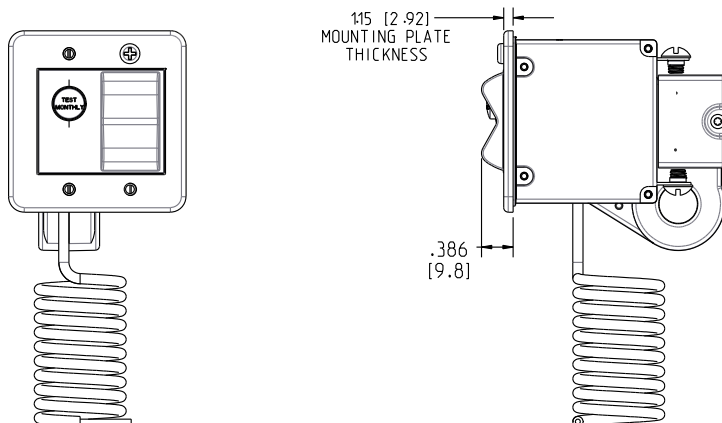
5 MOUNTING SCREWS / PLATE MATERIAL¹
1 6-32 Thread Phillips Head
2 M-3 Thread Phillips Head
3 6-32 Thread Slotted Head
4 M-3 Thread Slotted Head
5 6-32 Thread Phillips Head with Stainless Steel Plate
6 M-3 Thread Phillips Head with Stainless Steel Plate
7 6-32 Thread Slotted Head with Stainless Steel Plate
8 M-3 Thread Slotted Head with Stainless Steel Plate

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

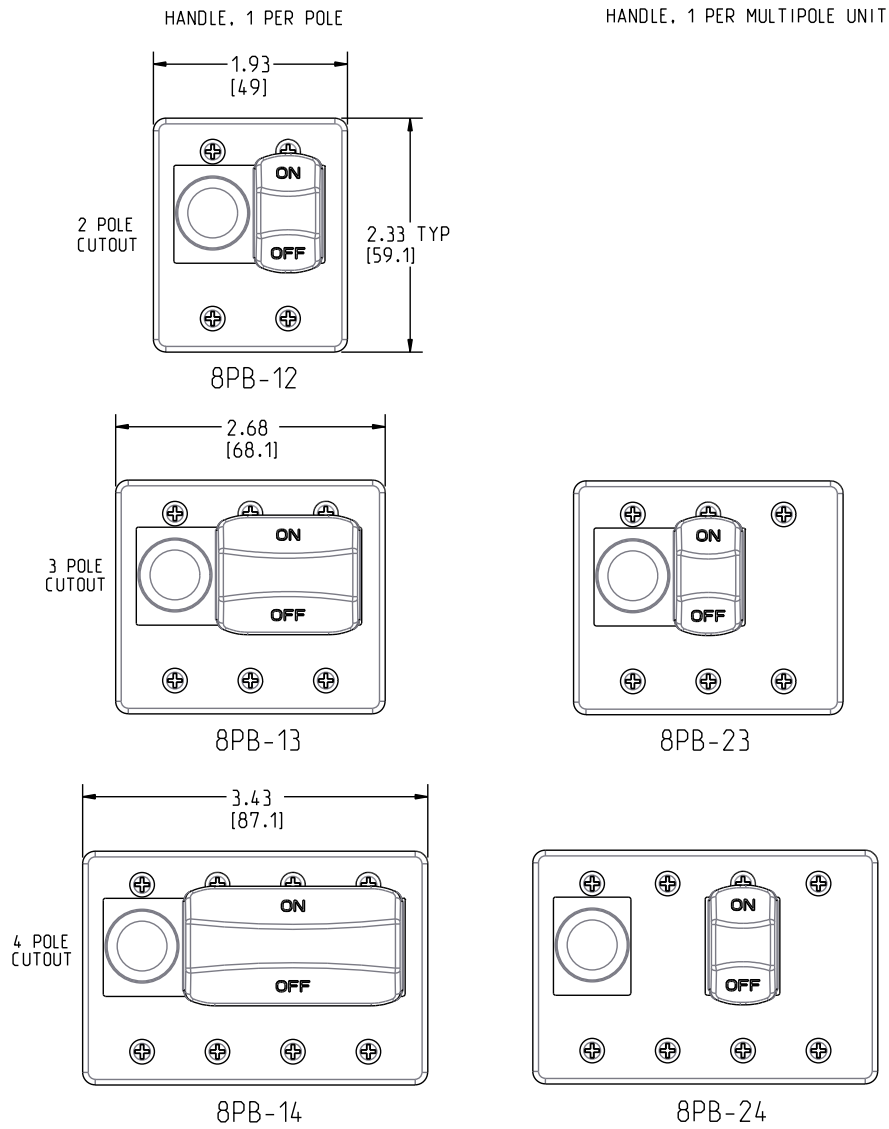
Handle Style Panel Seal



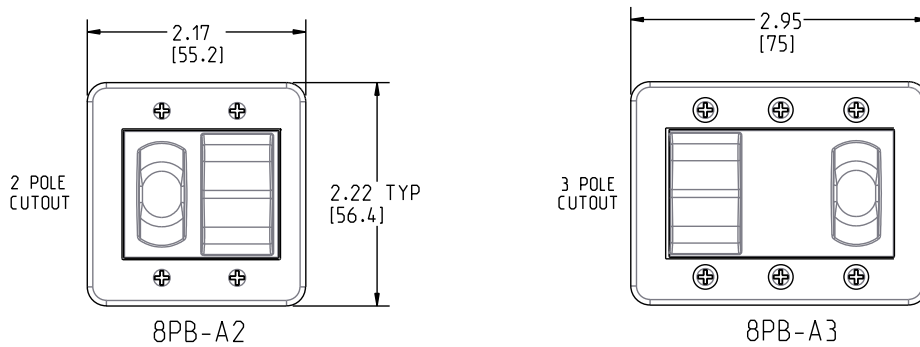
Rocker Style Panel Seal



Handle Actuator

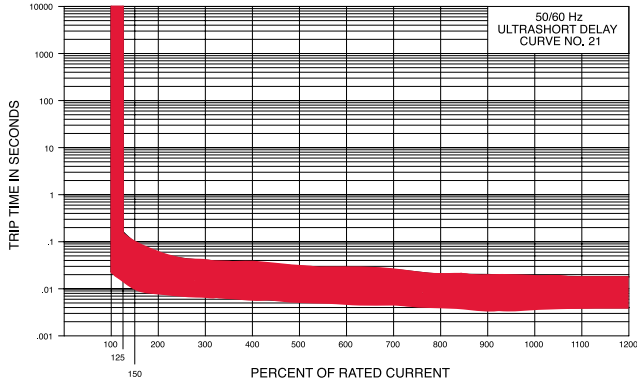


Rocker Actuator

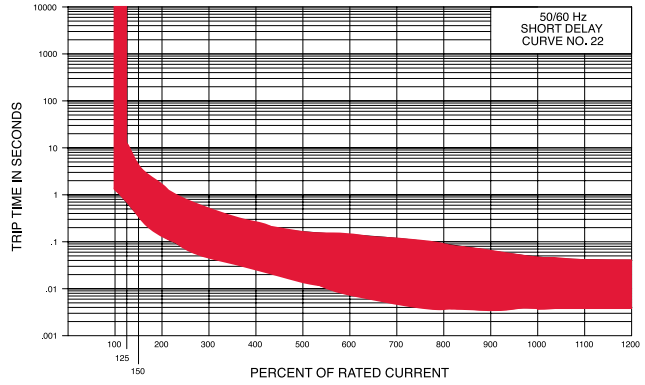


Time Delay Curves

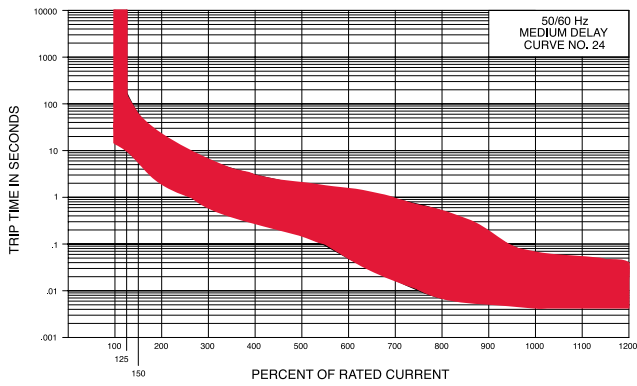
Ultra Short



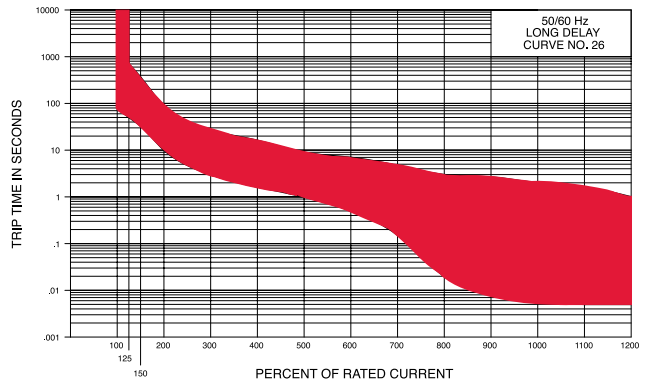
Medium



Short



Long



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