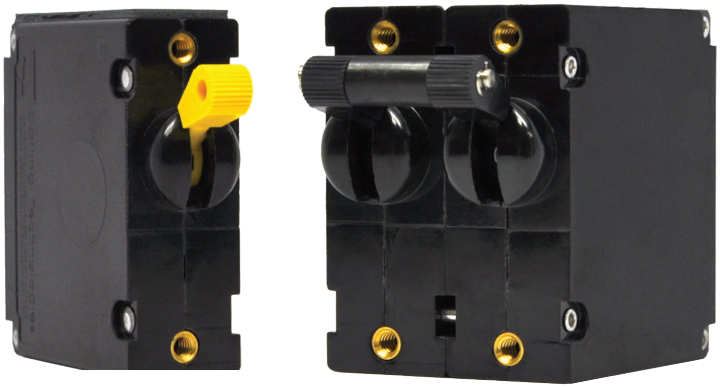
# B-Series
## Circuit Breaker

The B-Series hydraulic/magnetic circuit breakers are compact and temperature stable designed for precision operation in OEM markets requiring general purpose as well as full load amp applications. These circuit breakers are designed specifically for world market applications requiring extra insulation and tongue & groove half-shell constructions. Actuators available include handle for 1- 6 poles, rocker for 1-3 poles, and Visi-Rocker for 1-3 poles construction. They are also offered with ratings from 0.02 to 50 amps and up to 277VAC or 80VDC, with choices of time delays, terminals, wide range of standard colors, imprinting.



1 POLE 2 POLE

**Additional Features:**

- Meet CSA Standard 22.2 No. 100 for the Generator & Welder markets
- Extra insulation and tongue & groove half-shell constructions

**Applications:**

- Power Supplies
- Medical Equipment
- Generator & Welder Markets
- Office Equipment
- Control Panels
- Marine
- Military

**Agency Certifications:**

- UL Recognized – *UL Standard 508, 1077, 1500*
- UL Listed – *UL Standard 489, 489A*
- CSA Accepted
- TUV Certified
- VDE Certified

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Innovative Designs. Powerful Solutions.

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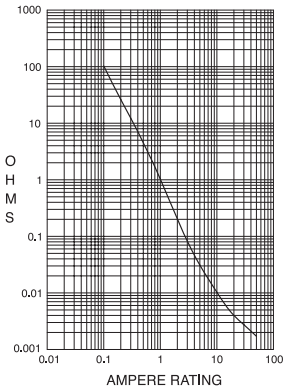
## Electrical

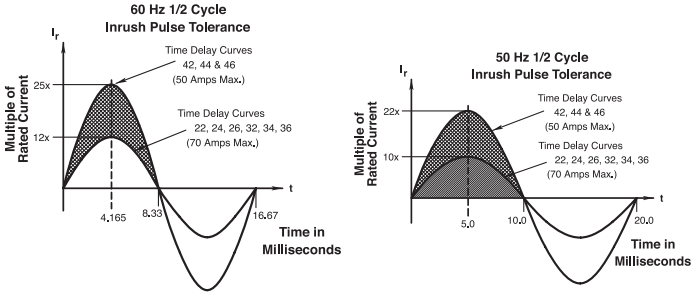
| | |
|---|---|
| Maximum Voltage | 277VAC 50/60 Hz, 80VDC |
| Current Ratings | Standard current coils: 0.100, 0.250, 0.500, 0.750, 1.00, 2.50, 5.00, 7.50, 10.0, 15.0, 20.0, 25.0, 30.0, 35.0, 40.0 and 50.0 amps. Other ratings available, see ordering scheme. |
| Standard Voltage Coils | DC - 6V, 12V; AC - 120V, other ratings available, see ordering scheme. |
| Auxiliary Switch Rating | SPDT; 10.1 AMPS - 250VAC,1.0A 65 VDC or 0.5A 80 VDC, 0.1 Amps - 125VAC (with gold contacts). VDE-1.0 Amp - 125VAC. |
| Insulation Resistance | Minimum of 100 Megohms at 500 VDC. |
| Dielectric Strength | UL, CSA - 1500 V 50/60 Hz for one minute between all electrically isolated terminals. B-Series circuit breakers comply with the 8mm spacing and 3750V 50/60 Hz dielectric requirements from hazardous voltage to operator accessible surfaces, between adjacent poles and from main circuits to auxiliary circuits per Publications EN 60950 and VDE 0805. |
| Resistance, Impedance | Values from Line to Load Terminal - based on Series Trip Circuit Breaker. |

RESISTANCE PER POLE VALUES
from Line to Load Terminals
(Values Based on Series Trip Circuit Breaker)




| CURRENT (AMPS) | TOLERANCE (%) |
|---|---|
| 0.10 - 5.0 | 15% |
| 5.1 - 20.0 | 25% |
| 20.1 - 50.0 | 35% |

Pulse Tolerance Curves




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

## Mechanical

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

## Physical

| | |
|---|---|
| Number of Poles | 1 - 6 poles at 30 Amps or less. 1 and 2 poles at 31 Amps thru 50 Amps. |
| Internal Circuit Config. | Series, (with or without auxiliary switch), Shunt and Relay with current or voltage trip coils, Dual Coil, Switch Only (with or without auxiliary switch). |
| Weight | Approximately 65 grams/pole. (Approximately 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 & MIL-STD-202 as follows:

| | |
|---|---|
| Shock | Withstands 100 Gs, 6ms, sawtooth while carrying rated current per Method 213, Test Condition "I". Instantaneous and 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; ten 24-hour cycles @ + 25°C to +65°C, 80-98% RH.56 days @ +85°C, 85% 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 | -40°C to +85°C. |

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# Electrical Tables

**Table A:** Lists UL Recognized & CSA Certified configurations and performance capabilities as a Component Supplementary Protector.

| B -SERIES TABLE A: COMPONENT SUPPLEMENTARY PROTECTORS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CIRCUIT CONFIGURATION | VOLTAGE | | | CURRENT RATING | | SHORT CIRCUIT CAPACITY (AMPS) | | APPLICATION CODES | | CONSTRUCTION NOTES |
| | | | | | | UL/CSA | | | | |
| | MAX. RATING | FREQUENCY | PHASE | FULL LOAD AMPS | GENERAL PURPOSE AMPS | WITH BACKUP FUSE | WITHOUT BACKUP FUSE | UL | CSA | |
| SERIES | 65 | DC | --- | 31 - 50 | --- | --- | 7500 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | 80 | DC | --- | 0.02 - 30 | --- | --- | 7500 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | | | | --- | 31 - 50 | --- | 7500 | TC1,2, OL0,U1 | TC1,2, OL0,U1 | |
| | 125 | 50 / 60 | 1 | 1 - 50 | --- | --- | 2000 | TC1, OL1,U2 | TC1, OL1,U2 | |
| | 125 | 50 / 60 | 1 [4] | 1 - 50 | --- | --- | 1000 | TC1, OL1,U2 | TC3, OL1,U3 | |
| | 125 / 250 | 50 / 60 | 1 [3] | 0.02 - 30 | --- | --- | 3000 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | 250 | 50 / 60 | 1 | 0.02 - 30 | --- | --- | 1500 | TC1, OL0,U2 | TC1, OL0,U2 | Single Pole Break |
| | | | | 0.02 - 30 | --- | --- | 3000 | TC1, OL1,U2 | TC1, OL1,U2 | Two Pole Break |
| | | | | --- | 31 - 50 | --- | 3000 | TC1,2, OL0,U1 | TC1,2, OL0,U1 | |
| | | | 1 [4] | 1 - 50 | --- | --- | 1000 | TC1, OL1,U2 | TC3, OL1,U3 | |
| | | | 3 | 0.02 - 30 | --- | 5000 [2] | --- | TC1,2, OL1,C1 | TC1,2, OL1,C1 | |
| | | | | 31 - 50 | --- | 2000 [1] | --- | TC1,2, OL1,C1 | TC1,2, OL1,C1 | |
| | 277 | 50 / 60 | 1 | 0.02 - 30 | --- | 5000 [1] | --- | TC1,2, OL1,C1 | TC1,2, OL1,C1 | |
| DUAL COIL | 65 | DC | --- | 0.02 - 50 | --- | --- | 7500 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | 80 | DC | --- | 0.02 - 30 | --- | --- | 7500 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | | | | --- | 31 - 50 | --- | 7500 | TC1,2, OL0,U1 | TC1,2, OL0,U1 | |
| | 125 | 50 / 60 | 1 | 1 - 50 | --- | --- | 2000 | TC1, OL1,U2 | TC1, OL1,U2 | |
| | 125 / 250 | 50 / 60 | 1 [3] | 0.02 - 30 | --- | --- | 3000 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | 250 | 50 / 60 | 1 | 0.02 - 30 | --- | --- | 1500 | TC1, OL0,U2 | TC1, OL0,U2 | Single Pole Break |
| | | | | 0.02 - 30 | --- | --- | 3000 | TC1, OL1,U2 | TC1, OL1,U2 | Two Pole Break |
| | | | | --- | 31 - 50 | --- | 3000 | TC1,2, OL0,U1 | TC1,2, OL0,U1 | |
| | | | 1 [4] | 1 - 50 | --- | --- | 1000 | TC1, OL1,U2 | TC3, OL1,U3 | |
| | | | 3 | 0.02 - 30 | --- | 5000 [2] | --- | TC1,2, OL1,C1 | TC1,2, OL1,C1 | |
| | | | | 31 - 50 | --- | 2000 [1] | --- | TC1,2, OL1,C1 | TC1,2, OL1,C1 | |
| | 277 | 50 / 60 | 1 | 0.02 - 30 | --- | 5000 [1] | --- | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| SHUNT | 80 | DC | --- | 0.02 - 30 | --- | --- | 7500 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | 125 / 250 | 50 / 60 | 1 [3] | 0.02 - 30 | --- | --- | 3000 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | 250 | 50 / 60 | 1 | 0.02 - 30 | --- | --- | 3000 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | | | 3 | 0.02 - 30 | --- | 5000 [2] | --- | TC1,2, OL1,C1 | TC1,2, OL1,C1 | |
| | 277 | 50 / 60 | 1 | 0.02 - 30 | --- | 5000 [1] | --- | TC1,2, OL1,C1 | TC1,2, OL1,C1 | |
| RELAY | 80 | DC | --- | 0.02 - 30 | --- | --- | 7500 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | 125 / 250 | 50 / 60 | 1 [3] | 0.02 - 30 | --- | --- | 3000 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | 250 | 50 / 60 | 1 | 0.02 - 30 | --- | --- | 3000 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | | | 3 | 0.02 - 30 | --- | 5000 [2] | --- | TC1,2, OL1,C1 | TC1,2, OL1,C1 | |
| | 277 | 50 / 60 | 1 | 0.02 - 30 | --- | 5000 [1] | --- | TC1,2, OL1,C1 | TC1,2, OL1,C1 | |
| SWITCH ONLY | 65 | DC | --- | 0.02 - 50 | --- | --- | --- | --- | --- | |
| | 80 | DC | --- | 0.02 - 30 | --- | --- | --- | --- | --- | |
| | 250 | 50 / 60 | 1 | --- | 31 - 50 | --- | --- | --- | --- | |
| | | | 3 | 0.02 - 50 | --- | --- | --- | --- | --- | |
| | 277 | 50 / 60 | 1 | 0.02 - 30 | 31 - 50 | --- | --- | --- | --- | |

Notes:
1 Requires branch circuit backup with a UL LISTED Type K5 or RK5 fuse (15A minimum) at no more than 4 times the rating of the protector.
2 Same as note 1, except that backup fuse is limited to 80A maximum.
3 2 pole protector required (with one pole per power line) for: 250/125 VAC, 125/250 VAC and 208Y/120 VAC Power Systems. 1 pole protector required for : 125 VAC, 1Ø Power System.

# Electrical Tables

**Table B:** Lists UL Recognized, CSA, VDE & TUV Certified configurations & performance capabilities as a Component Supplementary Protector.

**B-SERIES TABLE B: COMPONENT SUPPLEMENTARY PROTECTORS**

| CIRCUIT CONFIGURATION | VOLTAGE | | | CURRENT RATING | | SHORT CIRCUIT CAPACITY (AMPS) | | | | | | APPLICATION CODES | | CONSTRUCTION NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | UL/CSA | | VDE | | TUV | | | | |
| | MAX. RATING | FREQUENCY | PHASE | FULL LOAD AMPS | GENERAL PURPOSE AMPS [1] | WITH BACKUP FUSE | WITHOUT BACKUP FUSE | (Inc) WITH BACKUP FUSE | (Icn) WITHOUT BACKUP | (Inc) WITH BACKUP FUSE | (Icn) WITHOUT BACKUP | UL | CSA | |
| SERIES | 80 | DC | --- | 0.10 - 30 | --- | --- | 7500 | 3000 | 1500 | 3000 | 1500 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | | | | 31 - 50 | 31 - 50 | --- | 7500 | 3000 | 1500 | 3000 | 1500 | TC1,2, OL0,U1 | TC1,2, OL0,U1 | |
| | | | | 0.10 - 30 | --- | --- | 7500 | 3000 | 1500 | 3000 | 1500 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | | | | 31 - 32 | --- | --- | 7500 | 3000 | 1500 | 3000 | 1500 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | | | | 31 - 50 | 31 - 50 | --- | 7500 | 3000 | 1500 | 3000 | 1500 | TC1,2, OL0,U1 | TC1,2, OL0,U1 | |
| | 250 | 50 / 60 | 1 | 0.10 - 30 | --- | --- | 3000 | 3000 | 1500 | 5000 | 1500 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | | | | 31 - 50 | 31 - 50 | --- | 3000 | --- | --- | 5000 | 1500 | TC1,2, OL0,U1 | TC1,2, OL0,U1 | |
| | | | | 31 - 32 | --- | --- | 3000 | 6000 | 1500 | 5000 | 1500 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | | | | 0.10 - 30 | --- | --- | 1500 | 3000 | 1500 | 5000 | 1500 | TC1, OL0,U2 | TC1, OL0,U2 | Single Pole Break |
| | | | | 0.10 - 30 | --- | --- | 3000 | 3000 | 1500 | 5000 | 1500 | TC1, OL1,U2 | TC1, OL1,U2 | Two Pole Break |
| | | | 3 | 0.10 - 30 | --- | 5000 [3] | --- | 3000 | 1500 | 3000 | 1500 | TC1,2, OL1,C1 | TC1,2, OL1,C1 | |
| | 415 | 50 / 60 | 3 | 0.10 - 30 | --- | --- | 1000 | 3000 | 1500 | 3000 | 1500 | TC1,2, OL1,C1 | TC1,2, OL1,C1 | |
| DUAL COIL | 80 | DC | --- | 0.10 - 30 | --- | --- | 7500 | 3000 | 1500 | 3000 | 1500 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | 250 | 50 / 60 | 1 | 0.10 - 30 | --- | --- | 3000 | 3000 | 1500 | 5000 | 1500 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | | | | 30 - 50 | 31 - 50 | --- | 3000 | --- | --- | 5000 | 1500 | TC1,2, OL0,U1 | TC1,2, OL0,U1 | |
| | | | 3 | 0.10 - 30 | --- | 5000 [3] | --- | 3000 | 1500 | 3000 | 1500 | TC1,2, OL1,C1 | TC1,2, OL1,C1 | |
| | | | | 31 - 50 | --- | 2000 [2] | --- | --- | --- | 3000 | 1500 | TC1,2, OL1,C1 | TC1,2, OL1,C1 | |
| SHUNT | 80 | DC | --- | 0.10 - 30 | --- | --- | 7500 | 3000 | 1500 | 3000 | 1500 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | | | | 0.10 - 30 | --- | --- | 7500 | 3000 | 1500 | 3000 | 1500 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | 250 | 50 / 60 | 1 | 0.10 - 30 | --- | | 3000 | 3000 | 1500 | 5000 | 1500 | TC1,2, OL1,U1 | TC1,2, OL1,U1 | |
| | | | | 30 - 50 | 31 - 50 | --- | 3000 | --- | --- | 5000 | 1500 | TC1,2, OL0,U1 | TC1,2, OL0,U1 | |
| | | | 3 | 0.10 - 30 | --- | 5000 [3] | --- | 3000 | 1500 | 3000 | 1500 | TC1,2, OL1,C1 | TC1,2, OL1,C1 | |
| | | | | 31 - 50 | --- | 2000 [2] | --- | --- | --- | 3000 | 1500 | TC1,2, OL1,C1 | TC1,2, OL1,C1 | |

Notes:
1 General Purpose Ratings for UL/CSA Only.
2 Requires branch circuit backup with a UL LISTED Type K5 or RK5 fuse (15A minimum) at no more than 4 times the rating of the protector.
3 Same as note 1, except that backup fuse is limited to 80 A maximum.

**Table C:** Lists UL Recognized, CSA Certified configurations and performance capabilities as Protectors, Supplementary for Marine Electrical and Fuel Systems (CCN/Guide PEQZ2, File E75596). Ignition Protected per UL 1500. UL Classified Small Craft Electrical Devices, Marine in accordance with ISO 8846 (CCN/Guide UZMK, File MQ1515) as Marine Supplementary Protectors.

**B-SERIES TABLE C: UL1500 (Marine Ignition Protected)**

| CIRCUIT CONFIGURATION | VOLTAGE | | | CURRENT RATING | SHORT CIRCUIT CAPACITY (AMPS) | APPLICATION CODES | |
|---|---|---|---|---|---|---|---|
| | MAX. RATING | FREQUENCY | PHASE | FULL LOAD AMPS | WITHOUT BACKUP FUSE | UL | CSA |
| SERIES | 14 [1] | DC | — | 0.02 - 50 | 5000 | TC1,2,OL1,U1 | TC1,2,OL1,U1 |
| | 32 [1] | DC | — | 0.02 - 50 | 5000 | TC1,2,OL1,U2 | TC1,2,OL1,U2 |
| | 65 | DC | — | 0.02 - 50 | 3000 | TC1,2,OL1,U1 | TC1,2,OL1,U1 |
| | 125 / 250 | 50 / 60 | 1 [2] | 0.02 - 50 | 1500 | TC1,2,OL1,U1 | TC1,2,OL1,U1 |
| | 250 | 50 / 60 | 1 | 0.02 - 30 | 1000 | TC1,2,OL1,U1 | TC1,2,OL1,U1 |

Notes:
1 Available with special catalog number only (consult factory).
2 2 pole protector required (with one pole per power line) for: 250/125 VAC, 125/250 VAC and 208Y/120 VAC Power Systems. 1 pole protector required for : 125 VAC, 1Ø Power System.

**Table D:** Lists UL Listed configurations and performance capabilities as Circuit Breakers for use in Communications Equipment (CCN/Guide DITT, File E189195), under UL489A

| B-SERIES TABLE D: UL489A (COMMUNICATIONS EQUIPMENT) | | | | |
|---|---|---|---|---|
| CIRCUIT CONFIGURATION | VOLTAGE | | CURRENT RATING | INTERRUPTING CAPACITY (AMPS) |
| | MAX. RATING | FREQUENCY | GENERAL PURPOSE AMPS | WITHOUT BACKUP FUSE |
| SERIES | 80 | DC | 0.10 - 50 | 5000 |
| | 80 | DC | 60 - 90 [1] | 5000 |

Notes:
1 Parallel Pole Construction

**Table E:** Lists UL Listed (489) configuration and performance capabilities as a Molded Case Circuit Breaker.

| B SERIES TABLE E : UL489 LISTED BRANCH CIRCUIT BREAKERS | | | | | | |
|---|---|---|---|---|---|---|
| CIRCUIT CONFIGURATION | VOLTAGE | | | CURRENT RATING | INTERRUPTING CAPACITY (AMPS) | CONSTRUCTION NOTES |
| | MAX. RATING | FREQUENCY | PHASE | FULL LOAD AMPS | WITHOUT BACKUP FUSE | |
| SERIES | 120 | 50 / 60 | 1 | 0.10 - 30 | 5,000 | 1 Pole |
| | 120 / 240 | 50 / 60 | 1 | 0.10 - 30 | 5,000 | 2 Poles |
| | 120 / 240 | 50 / 60 | 1 | 0.10 - 30 | 5,000 | 2 or 3 Poles (1 Pole of a 3 Pole Unit is for Neutral Break) |
| SHUNT TRIP DUAL COIL | 120 | 50 / 60 | 1 | 0.10 - 30 | 5,000 | 1 Pole |
| | 120 / 240 | 50 / 60 | 1 | 0.10 - 30 | 5,000 | 2 Poles |
| | 120 / 240 | 50 / 60 | 1 | 0.10 - 30 | 5,000 | 2 or 3 Poles (1 Pole of a 3 Pole Unit is for Neutral Break) |

## Agency Certifications

**UL Recognized**

UL Standard 1077 — Component Recognition Program as Protectors Supplementary (Guide CCN/QVNU2, File E75596)

UL Standard 508 — Switches, Industrial Control (Guide CCN/NRNT2, File E148683)

UL Standard 1500 — Protectors, Supplementary for Marine Electrical & Fuel Systems (Guide PEQZ2, File E75596) Ignition Protection

**UL Listed**

UL Standard 489 — Circuit Breakers, Molded Case, (Guide DIVQ, File E129899)

UL Standard 489A — Communications Equipment (Guide CCN/DITT, File E189195)

**CSA Accepted** — Component Supplementary Protector under Class 3215 30, FIle 047848 0 000 CSA Standard C22.2 No. 235

**TUV Certified** — EN60934, under License No. R72040875

**VDE Certified** — EN60934, VDE 0642 under File No. 10537

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| B | A | 3 | – | B | 0 | – | 10 | – | 450 | – | 1 | B | 1 | – | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Series | 2 Actuator | 3 Poles | | 4 Circuit | 5 Aux/Alarm Switch | | 6 Frequency & Delay | | 7 Current Rating | | 8 Terminal | 9 Actuator Color | 10 Mounting/ Barriers | | 11 Agency Approval |

## 1 SERIES
**B**

## 2 ACTUATOR
| | |
|---|---|
| **A** | Handle, one per pole |
| **B** | Handle, one per multipole unit |
| **S** | Mid-Trip Handle, one per pole |
| **T** | Mid-Trip Handle, one per pole & Alarm Switch |

## 3 POLES
| | | | | | |
|---|---|---|---|---|---|
| **1** | One | **3** | Three | **5** | Five |
| **2** | Two | **4** | Four | **6** | Six |

## 4 CIRCUIT
| | |
|---|---|
| **A**[2] | Switch Only (No Coil) |
| **B** | Series Trip (Current) |
| **C** | Series Trip (Voltage) |
| **D**[3] | Shunt Trip (Current) |
| **E**[3] | Shunt Trip (Voltage) |
| **F**[3] | Relay Trip (Current) |
| **G**[3] | Relay Trip (Voltage) |
| **H**[3,4] | Dual Coil with Shunt Trip Voltage Coil |
| **H**[3,4] | Dual Coil with Shunt Trip Voltage Coil (side terminal) |
| **K**[3,4] | Dual Coil with Relay Trip Voltage Coil |

## 5 AUXILIARY/ALARM SWITCH[5]
| | |
|---|---|
| **0** | w/o Aux Switch |
| **1** | S.P.D.T., 0.093 Q.C. Term. |
| **2** | S.P.D.T., 0.110 Q.C. Term. |
| **3** | S.P.D.T., 0.139 Solder Lug |
| **4** | S.P.D.T., 0.110 Q.C. Term. (Gold Contacts) |
| **5** | S.P.S.T., 0.093 Q.C. Term. (Gold Contacts) |
| **6** | S.P.S.T., 0.139 Solder Lug |
| **7** | S.P.S.T., 0.110 Q.C. Term. (Gold Contacts) |
| **8** | S.P.S.T., 0.187 Q.C. Term. |
| **9** | S.P.D.T., 0.187 Q.C. Term. |

## 6 FREQUENCY & DELAY
| | | | |
|---|---|---|---|
| **03**[2] | DC 50/60Hz, Switch Only | **30** | DC, 50/60Hz Instantaneous |
| **10**[6] | DC Instantaneous | **31** | DC, 50/60Hz Ultra Short |
| **11** | DC Ultra Short | **32** | DC, 50/60Hz Short |
| **12** | DC Short | **34** | DC, 50/60Hz Medium |
| **14** | DC Medium | **36** | DC, 50/60Hz Long |
| **16** | DC Long | **42**[7] | 50/60Hz Short, Hi-Inrush |
| **20**[6] | 50/60Hz Instantaneous | **44**[7] | 50/60Hz Medium, Hi-Inrush |
| **21** | 50/60Hz Ultra Short | **46**[7] | 50/60Hz Long, Hi-Inrush |
| **22** | 50/60Hz Short | **52**[7] | DC, Short,Hi-Inrush |
| **24** | 50/60Hz Medium | **54**[7] | DC, Medium, Hi-Inrush |
| **26** | 50/60Hz Long | **56**[7] | DC, Long, Hi-Inrush |

## 7 CURRENT RATING (AMPERES)
| CODE | AMPERES | CODE | AMPERES | CODE | AMPERES | CODE | AMPERES |
|---|---|---|---|---|---|---|---|
| **020** | 0.020 | **225** | 0.250 | **420** | 2.000 | **611** | 11.000 |
| **025** | 0.025 | **230** | 0.300 | **522** | 2.250 | **711** | 11.500 |
| **030** | 0.030 | **235** | 0.350 | **527** | 2.750 | **612** | 12.000 |
| **035** | 0.035 | **240** | 0.400 | **430** | 3.000 | **712** | 12.500 |
| **040** | 0.040 | **245** | 0.450 | **435** | 3.500 | **613** | 13.000 |
| **045** | 0.045 | **250** | 0.500 | **440** | 4.000 | **614** | 14.000 |
| **050** | 0.050 | **255** | 0.550 | **445** | 4.500 | **615** | 15.000 |
| **055** | 0.055 | **260** | 0.600 | **450** | 5.000 | **616** | 16.000 |
| **060** | 0.060 | **265** | 0.650 | **455** | 5.500 | **617** | 17.000 |
| **065** | 0.065 | **270** | 0.700 | **460** | 6.000 | **618** | 18.000 |
| **070** | 0.070 | **275** | 0.750 | **465** | 6.500 | **620** | 20.000 |
| **075** | 0.075 | **280** | 0.800 | **470** | 7.000 | **622** | 22.000 |
| **080** | 0.080 | **285** | 0.850 | **475** | 7.500 | **624** | 24.000 |
| **085** | 0.085 | **290** | 0.900 | **480** | 8.000 | **625** | 25.000 |
| **090** | 0.090 | **295** | 0.950 | **485** | 8.500 | **630** | 30.000 |
| **095** | 0.095 | **410** | 1.000 | **490** | 9.000 | **635**[8] | 35.000 |
| **210** | 0.100 | **512** | 1.250 | **495** | 9.500 | **640**[8] | 40.000 |
| **215** | 0.150 | **415** | 1.500 | **610** | 10.000 | **645**[8] | 45.000 |
| **220** | 0.200 | **517** | 1.750 | **710** | 10.500 | **650**[8] | 50.000 |

### OR VOLTAGE COIL (NORMAL RATED VOLTAGE)[6]
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **A06** | 6 DC | **A32** | 32 DC | **J12** | 12 AC | **J65** | 65 AC |
| **A12** | 12 DC | **A48** | 48 DC | **J18** | 18 AC | **K20** | 120 AC |
| **A18** | 18 DC | **A65** | 65 DC | **J24** | 24 AC | **L40** | 240 AC |
| **A24** | 24 DC | **J06** | 6 AC | **J48** | 48 AC | | |

## 8 TERMINAL[9]
| | |
|---|---|
| **1**[10] | Push-On 0.250 Tab (Q.C.) |
| **2** | Screw 8-32 w/upturned lugs |
| **3**[11] | Screw 8-32 (Bus Type) |
| **4** | Screw 10-32 w/upturned lugs |
| **5**[11] | Screw 10-32 (Bus Type) |
| **6** | Screw 8-32 w/upturned lugs and 30° bend |
| **7** | Screw 8-32 (Bus Type) and 30° bend |
| **8** | Screw 10-32 w/upturned lugs and 30° bend |
| **9** | Screw 10-32 (Bus Type) and 30° bend |
| **B** | Screw M5 w/upturned lugs |
| **C** | Screw M4 w/upturned lugs |
| **E**[11] | Screw M4 (Bus Type) |
| **F** | Screw M5 w/upturned lugs and 30° bend |
| **G** | Screw M5 (Bus Type) and 30° bend |
| **H** | Screw M5 (Bus Type) |
| **J** | Screw M5 Back Connect |
| **K** | Screw 10-32 Back Connect |
| **L**[12] | 0.250 Q.C./ Solder Lug |
| **M**[11] | M6 Threaded Stud |
| **N** | Screw M4 Back Connect |
| **P**[13] | Printed Circuit Board Terminals |
| **Q**[16] | Push-In Stud |
| **R** | Screw M4 w/upturned lugs and 30° bend |
| **S**[15] | Push-On 0.110 Tab (Q.C.) |
| **T** | Screw M4 (Bus Type) and 30° bend |
| **Y** | Screw 8-32 Back Connect |

## 9 ACTUATOR COLOR & LEGEND
| Acuator Color | I-O | ON-OFF | Dual | Legend Color |
|---|---|---|---|---|
| White | **A** | **B** | **1** | Black |
| Black | **C** | **D** | **2** | White |
| Red | **F** | **G** | **3** | White |
| Green | **H** | **J** | **4** | White |
| Blue | **K** | **L** | **5** | White |
| Yellow | **M** | **N** | **6** | Black |
| Gray | **P** | **Q** | **7** | Black |
| Orange | **R** | **S** | **8** | Black |

## 10 MOUNTING/BARRIERS
| | MOUNTING STYLE | BARRIERS |
|---|---|---|
| | **Threaded Insert, 2 per pole** | |
| **1** | 6-32 x 0.195 inches | no |
| **A** | 6-32 x 0.195 inches *(multi-pole units only)* | yes |
| **2** | ISO M3 x 5mm | no |
| **B** | ISO M3 x 5mm | yes |
| | **Rectangular Adapter Plate with mounting centers of 2.062 inches [52.37mm] and Threaded insert, 2 per pole** | |
| **3**[14] | 6-32 x 0.225 inches | no |
| **C**[14] | 6-32 X 0.225 inches *(multi-pole units only)* | yes |
| **4**[14] | ISO M3 x 6.5mm | no |
| **D**[14] | ISO M3 x 6.5mm | yes |
| | **Front panel Snap-In, 0.75" [19.05mm] wide bezel** | |
| **5** | without Handleguard | no |
| **6** | without Handleguard (multipole only) | yes |
| | **Front panel Snap-In, 0.96" wide bezel** | |
| **7** | without Handleguard, 1-pole 0.96" wide; multipole units have .105" bezel overhang on all sides | no |
| **8** | without Handleguard, 1-pole 0.96" wide; (multipole only) .105" bezel overhang on all sides | yes |

## 11 AGENCY APPROVAL
| | |
|---|---|
| **C** | UL Recognized & CSA Accepted |
| **D** | VDE Certified, UL Recognized & CSA Accepted |
| **E** | TUV Certified, UL Recognized & CSA Accepted |
| **I** | UL Rec. STD 1077, UL Rec. 1500 (ignition protected), & CSA Accepted |

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
4 pole - two handles at center poles; 5 pole - three handles at center poles
6 pole - four handles at center poles
S: Handle moves to mid-position only upon electrical trip of the breaker. Available with circuit codes B, C, D, E, F, G, H and K.
T: Handle moves to mid-position and alarm switch activates only upon electrical trip of the breaker. Available with circuit codes B & C.

2 Switch Only circuits, rated up to 50 amps and 6 poles, and only available with VDE Certification when tied to a protected pole (Circuit Code B, C, D or H.), For .02 to 30 amps, select Current Code 630. For 35 - 50 amps, select Current Code 650.

3 Available with Terminal Codes 1, 2 and 3. Current Rating limited to 30 amps maximum.

4 Consult factory for available Dual Coil options, as special catalog number is required. With Shunt construction, Dual Coils will trip instantaneously on line voltage. Dual coils require 30VA minimum power to trip and are rated for intermittent duty only.

5 Auxiliary Switch breakers with Series Trip and Switch Only circuits. On multi-pole breakers, one aux. switch is supplied, mounted in the extreme right pole.

6 Separate pole type voltage coils not rated for continuous duty. Available only with delay codes 10 and 20.

7 Available with Circuit Codes B & D only. VDE Certified to 30 amps. UL Recognized and CSA Accepted to 50 amps.

8 VDE Certification available with single pole breakers with DC Delay only. UL Recognition and CSA Accepted available in one and two pole breakers.

9 Screw Terminals are recommended on ratings greater than 20 amps. Ratings over 30 amps are only available with Terminal Codes 5, 9, G, H, J, K, M and Q.

10 VDE Certification up to 25 amps and UL Recognition and CSA Acceptance up to 30 amps, but not recommended over 20 amps.

11 Terminal Codes 3, 5 E and H (Bus Type) with VDE, are supplied with Lock Washers, and Terminal Code M (M6 Threaded Stud) with VDE is supplied with Lock and Flat Washers. These breakers are only VDE Certified when the washers are used.

12 VDE Cert. available up to 12 amps. UL Rec. & CSA Acceptance available up to 30 amps.

13 Single pole breakers with Terminal Code P (Printed Circuit Board) are available up to 30 amps with VDE Certification and 50 amps with UL Recognition and CSA Acceptance, with Circuit Codes A, B and C. Two pole breakers with Terminal Code P (Printed Circuit Board) are available up to 40 amps with UL Recognition and CSA Acceptance with Circuit Codes A, B and C.

14 Available with Actuator Codes A, S and T.

15 Available with voltage coils only.

16 Terminal Code Q not available with VDE approvals.

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| B | A | 1 | – | B | 0 | – | 14 | – | 450 | – | 1 | B | 1 | – | M | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Series | 2 Actuator | 3 Poles | | 4 Circuit | 5 Aux/Alarm Switch | | 6 Frequency & Delay | | 7 Current Rating | | 8 Terminal | 9 Actuator Color | 10 Mounting/ Barriers | | 11 Max. Appl. Rating | 12 Agency Approval |

## 1 SERIES
**B**

## 2 ACTUATOR[1]
| | |
|---|---|
| **A** | Handle, one per pole |
| **B** | Handle, one per multipole unit |
| **S** | Mid-Trip Handle, one per pole |
| **T** | Mid-Trip Handle, one per pole & Alarm Switch |

## 3 POLES[2]
| | | | |
|---|---|---|---|
| **1** | One | **3** | Three |
| **2** | Two | **4** | Four |

## 4 CIRCUIT
| | |
|---|---|
| **B** | Series Trip (Current) |

## 5 AUXILIARY/ALARM SWITCH[2]
| | | | |
|---|---|---|---|
| **0** | w/o Aux Switch | **7** | S.P.S.T., 0.110 Q.C. Term. (Gold Contacts) |
| **1** | S.P.D.T., 0.093 Q.C. Term. | | |
| **2** | S.P.D.T., 0.110 Q.C. Term. | **8** | S.P.S.T., 0.187 Q.C. Term. |
| **3** | S.P.D.T., 0.139 Solder Lug | **9** | S.P.D.T., 0.187 Q.C. Term. |

## 6 FREQUENCY & DELAY[4]
| | | | |
|---|---|---|---|
| **11** | DC Ultra Short | **52** | DC, Short,Hi-Inrush |
| **12** | DC Short | **54** | DC, Medium, Hi-Inrush |
| **14** | DC Medium | **56** | DC, Long, Hi-Inrush |
| **16** | DC Long | | |

## 7 CURRENT RATING (AMPERES)
| CODE | AMPERES | CODE | AMPERES | CODE | AMPERES | CODE | AMPERES |
|---|---|---|---|---|---|---|---|
| **210** | 0.100 | **285** | 0.850 | **455** | 5.500 | **613** | 13.000 |
| **215** | 0.150 | **290** | 0.900 | **460** | 6.000 | **614** | 14.000 |
| **220** | 0.200 | **295** | 0.950 | **465** | 6.500 | **615** | 15.000 |
| **225** | 0.250 | **410** | 1.000 | **470** | 7.000 | **616** | 16.000 |
| **230** | 0.300 | **512** | 1.250 | **475** | 7.500 | **617** | 17.000 |
| **235** | 0.350 | **415** | 1.500 | **480** | 8.000 | **618** | 18.000 |
| **240** | 0.400 | **517** | 1.750 | **485** | 8.500 | **620** | 20.000 |
| **245** | 0.450 | **420** | 2.000 | **490** | 9.000 | **622** | 22.000 |
| **250** | 0.500 | **522** | 2.250 | **495** | 9.500 | **624** | 24.000 |
| **255** | 0.550 | **527** | 2.750 | **610** | 10.000 | **625** | 25.000 |
| **260** | 0.600 | **430** | 3.000 | **710** | 10.500 | **630** | 30.000 |
| **265** | 0.650 | **435** | 3.500 | **611** | 11.000 | **635**[3] | 35.000 |
| **270** | 0.700 | **440** | 4.000 | **711** | 11.500 | **640**[3] | 40.000 |
| **275** | 0.750 | **445** | 4.500 | **612** | 12.000 | **645**[3] | 45.000 |
| **280** | 0.800 | **450** | 5.000 | **712** | 12.500 | **650**[3] | 50.000 |

## 8 TERMINAL[4]
| | | | |
|---|---|---|---|
| **1**[5] | Push-On 0.250 Tab (Q.C.) | **B** | Screw M5 w/upturned lugs |
| **2** | Screw 8-32 w/upturned lugs | **F** | Screw M5 w/upturned lugs and 30° bend |
| **3**[6] | Screw 8-32 (Bus Type) | **G** | Screw M5 (Bus Type) and 30° bend |
| **4** | Screw 10-32 w/upturned lugs | **H** | Screw M5 (Bus Type) |
| **5**[6] | Screw 10-32 (Bus Type) | **J** | Screw M5 Back Connect |
| **6** | Screw 8-32 w/upturned lugs and 30° bend | **K** | Screw 10-32 Back Connect |
| **7** | Screw 8-32 (Bus Type) and 30° bend | **M**[6] | M6 Threaded Stud |
| **8** | Screw 10-32 w/upturned lugs and 30° bend | **N** | Screw M4 Back Connect |
| **9** | Screw 10-32 (Bus Type) and 30° bend | **P**[7] | Printed Circuit Board Terminals |
| | | **Q**[8] | Push-In Stud |
| | | **Y** | Screw 8-32 Back Connect |

## 9 ACTUATOR COLOR & LEGEND
| Acuator Color | ON-OFF | Dual | Legend Color |
|---|---|---|---|
| White | **B** | **1** | Black |
| Black | **D** | **2** | White |
| Red | **G** | **3** | White |
| Green | **J** | **4** | White |
| Blue | **L** | **5** | White |
| Yellow | **N** | **6** | Black |
| Gray | **Q** | **7** | Black |
| Orange | **S** | **8** | Black |

## 10 MOUNTING/BARRIERS
| | MOUNTING STYLE | BARRIERS |
|---|---|---|
| | **Threaded Insert, 2 per pole** | |
| **1** | 6-32 x 0.195 inches | no |
| **A** | 6-32 x 0.195 inches *(multi-pole units only)* | yes |
| **2** | ISO M3 x 5mm | no |
| **B** | ISO M3 x 5mm | yes |
| | **Rectangular Adapter Plate with mounting centers of 2.062 inches [52.37mm] and Threaded insert, 2 per pole** | |
| **3** | 6-32 x 0.225 inches | no |
| **C** | 6-32 X 0.225 inches *(multi-pole units only)* | yes |
| **4** | ISO M3 x 6.5mm | no |
| **D** | ISO M3 x 6.5mm | yes |
| | **Front panel Snap-In, 0.75" [19.05mm] wide bezel** | |
| **5** | without Handleguard | no |
| **6** | without Handleguard (multipole only) | yes |
| | **Front panel Snap-In, 0.96" wide bezel** | |
| **7** | without Handleguard, 1-pole 0.96" wide; multipole units have .105" bezel overhang on all sides | no |
| **8** | without Handleguard, 1-pole 0.96" wide; (multipole only) .105" bezel overhang on all sides | yes |

## 11 MAXIMUM APPLICATION RATING
| | |
|---|---|
| **M** | 80 DC |

## 12 AGENCY APPROVAL
| | |
|---|---|
| **T** | UL489A LISTED |
| **K** | UL489A LISTED, VDE CERTIFIED |
| **J** | UL489A LISTED, TUV CERTIFIED |

Notes:
1. Actuator Code:
   A: Handle tie pin spacer(s) and retainers provided unassembled with multi-pole units.
   S: Handle moves to mid-position only upon electrical trip of the breaker.
   T: Handle moves to mid-position and alarm switch activates only upon electrical trip of the breaker.
2. On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole.
3. VDE Certification available with single pole breakers only. UL489A Listing available with one and two pole breakers.
4. Screw Terminals are recommended on ratings greater than 20 amps. Ratings over 30 amps are only available with Terminal Codes 5, 9, G, H, J, K, M and Q.
5. Terminal Code 1 (Push-On) available up to 25 amps with TUV or VDE Certification and 30 amps with UL489A Listing, but is not recommended over 20 amps.
6. Terminal Codes 3, 5 and H (Bus Type) with TUV or VDE, are supplied with Lock Washers, and Terminal Code M (M6 Threaded Stud) with TUV or VDE is supplied with Lock and Flat Washers. These breakers are only TUV or VDE Certified when the washers are used.
7. Single pole breakers with Terminal Code P (Printed Circuit Board) are available up to 30 amps with VDE Certification and 50 amps with UL489A Listing.
8. Terminal Code Q not available with VDE approvals.

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| B | A | 1 | – | B | 0 | – | 24 | – | 450 | – | 1 | B | A | – | K | G |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Series | 2 Actuator | 3 Poles | | 4 Circuit | 5 Aux/Alarm Switch | | 6 Frequency & Delay | | 7 Current Rating | | 8 Terminal | 9 Actuator Color | 10 Mounting/ Barriers | | 11 Max. Appl. Rating | 12 Agency Approval |

## 1 SERIES
**B**

## 2 ACTUATOR[1]
| | |
|---|---|
| **A** | Handle, one per pole |
| **B** | Handle, one per multipole unit |
| **S** | Mid-Trip Handle, one per pole |
| **T** | Mid-Trip Handle, one per pole & Alarm Switch |

## 3 POLES[2]
| | | | | | |
|---|---|---|---|---|---|
| **1** | One | **2** | Two | **3**[3] | Three |

## 4 CIRCUIT
| | |
|---|---|
| **B** | Series Trip (Current) |

## 5 AUXILIARY/ALARM SWITCH[4]
| | | | |
|---|---|---|---|
| **0** | w/o Aux Switch | **3** | S.P.D.T., 0.139 Solder Lug |
| **1** | S.P.D.T., 0.093 Q.C. Term. | **8** | S.P.S.T., 0.187 Q.C. Term. |
| **2** | S.P.D.T., 0.110 Q.C. Term. | **9** | S.P.D.T., 0.187 Q.C. Term. |

## 6 FREQUENCY & DELAY
| | | | |
|---|---|---|---|
| **21** | AC Ultra Short | **42** | AC, Short,Hi-Inrush |
| **22** | AC Short | **44** | AC, Medium, Hi-Inrush |
| **24** | AC Medium | **46** | AC, Long, Hi-Inrush |
| **26** | AC Long | | |

## 7 CURRENT RATING (AMPERES)
| CODE | AMPERES | CODE | AMPERES | CODE | AMPERES | CODE | AMPERES |
|---|---|---|---|---|---|---|---|
| **210** | 0.100 | **280** | 0.800 | **445** | 4.500 | **711** | 11.500 |
| **215** | 0.150 | **285** | 0.850 | **450** | 5.000 | **612** | 12.000 |
| **220** | 0.200 | **290** | 0.900 | **455** | 5.500 | **712** | 12.500 |
| **225** | 0.250 | **295** | 0.950 | **460** | 6.000 | **613** | 13.000 |
| **230** | 0.300 | **410** | 1.000 | **465** | 6.500 | **614** | 14.000 |
| **235** | 0.350 | **512** | 1.250 | **470** | 7.000 | **615** | 15.000 |
| **240** | 0.400 | **415** | 1.500 | **475** | 7.500 | **616** | 16.000 |
| **245** | 0.450 | **517** | 1.750 | **480** | 8.000 | **617** | 17.000 |
| **250** | 0.500 | **420** | 2.000 | **485** | 8.500 | **618** | 18.000 |
| **255** | 0.550 | **522** | 2.250 | **490** | 9.000 | **620** | 20.000 |
| **260** | 0.600 | **527** | 2.750 | **495** | 9.500 | **622** | 22.000 |
| **265** | 0.650 | **430** | 3.000 | **610** | 10.000 | **624** | 24.000 |
| **270** | 0.700 | **435** | 3.500 | **710** | 10.500 | **625** | 25.000 |
| **275** | 0.750 | **440** | 4.000 | **611** | 11.000 | **630** | 30.000 |

## 8 TERMINAL[5]
| | | | |
|---|---|---|---|
| **1** | Push-On 0.250 Tab (Q.C.) | **A** | Load Terminal: #8 Screw/QC Combination. (Special Cat.#) |
| **2** | Screw 8-32 w/upturned lugs | **B** | Screw M5 w/upturned lugs |
| **3** | Screw 8-32 (Bus Type) | **F** | Screw M5 w/upturned lugs and 30° bend |
| **4** | Screw 10-32 w/upturned lugs | **G** | Screw M5 (Bus Type) and 30° bend |
| **5** | Screw 10-32 (Bus Type) | **H** | Screw M5 (Bus Type) |
| **6** | Screw 8-32 w/upturned lugs and 30° bend | **J** | Screw M5 Back Connect |
| **7** | Screw 8-32 (Bus Type) and 30° bend | **K** | Screw 10-32 Back Connect |
| **8** | Screw 10-32 w/upturned lugs and 30° bend | **M** | M6 Threaded Stud |
| **9** | Screw 10-32 (Bus Type) and 30° bend | **N** | Screw M4 Back Connect |
| | | **Q** | Push-In Stud |
| | | **Y** | Screw 8-32 Back Connect |

## 9 ACTUATOR COLOR & LEGEND[6]
| Acuator Color | ON-OFF | Dual | Legend Color |
|---|---|---|---|
| White | **B** | **1** | Black |
| Black | **D** | **2** | White |
| Red | **G** | **3** | White |
| Green | **J** | **4** | White |
| Blue | **L** | **5** | White |
| Yellow | **N** | **6** | Black |
| Gray | **Q** | **7** | Black |
| Orange | **S** | **8** | Black |

## 10 MOUNTING/BARRIERS
| | MOUNTING STYLE | BARRIERS |
|---|---|---|
| | **Threaded Insert, 2 per pole** | |
| **A** | 6-32 x 0.195 inches *(multi-pole units only)* | yes |
| **B** | ISO M3 x 5mm | yes |
| | **Rectangular Adapter Plate with mounting centers of 2.062 inches [52.37mm] and Threaded insert, 2 per pole**[7] | |
| **C** | 6-32 X 0.225 inches *(multi-pole units only)* | yes |
| **D** | ISO M3 x 6.5mm | yes |
| | **Front panel Snap-In, 0.75" [19.05mm] wide bezel** | |
| **6** | without Handleguard (multipole only) | yes |
| | **Front panel Snap-In, 0.96" wide bezel** | |
| **8** | without Handleguard, 1-pole 0.96" wide; (multipole only) .105" bezel overhang on all sides | yes |

## 11 MAXIMUM APPLICATION RATING
| | |
|---|---|
| **C**[8] | 120/240VAC |
| **K** | 120VAC |

## 12 AGENCY APPROVAL
| | |
|---|---|
| **G** | UL489 Listed |
| **3** | UL489 Listed, TUV Certified |

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
   S: Handle moves to mid-position only upon electrical trip of the breaker. Available with circuit codes B, C, D, E, F, G, H and K.
   T: Handle moves to mid-position and alarm switch activates only upon electrical trip of the breaker. Available with circuit codes B & C.
2. All poles must be same polarity.
3. 3 pole units available only when 1 of 3 poles is neutral.
4. Auxiliary/Alarm Switch circuit must be same polarity as the main circuit. On multi-pole breakers, one aux. switch is supplied, mounted in the extreme right pole.
5. Screw Terminals are recommended on ratings greater than 20 amps.
6. Standard actuator colors are black and white.
7. Adapter plate with mounting centers of 2.082 inches. Available with Actuator Codes A, S and T.
8. Voltage Rating available with 2 and 3-pole breakers only.
9. Barriers supplied on multi-pole units only.

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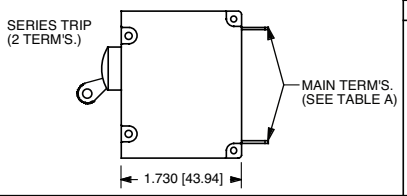
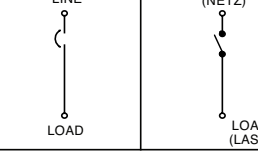
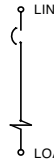
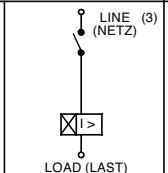
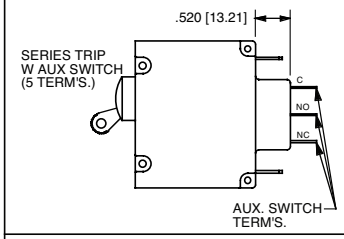
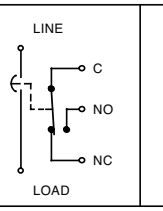
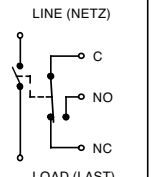
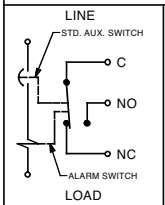
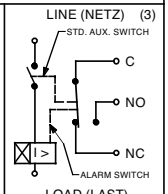
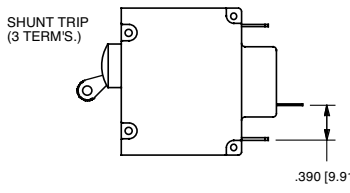
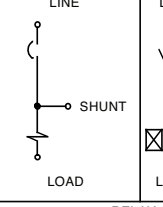
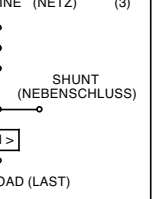
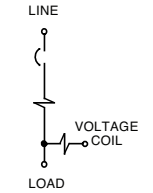
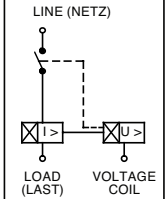
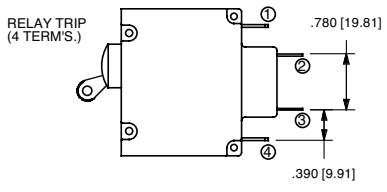
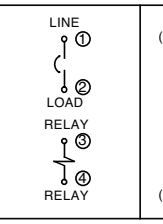
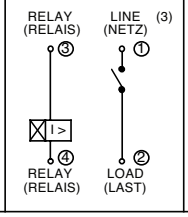
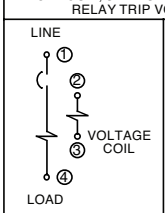
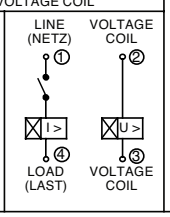
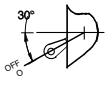
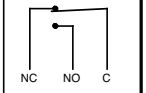
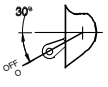
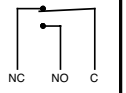
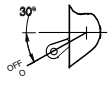
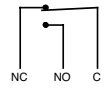
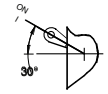
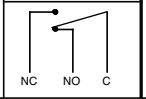
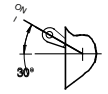
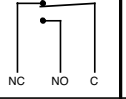
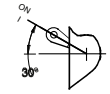
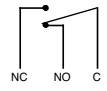
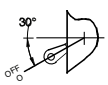
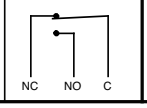
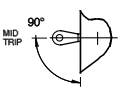
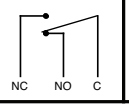
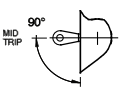
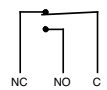
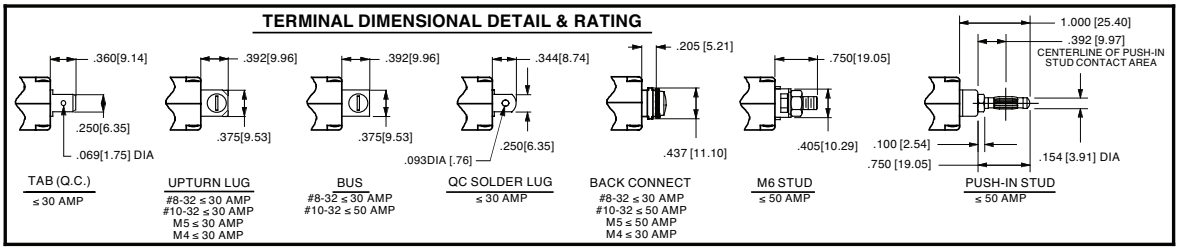
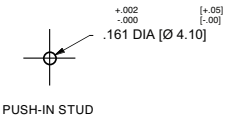
| | CIRCUIT SCHEMATIC | | CIRCUIT CODE | AUX SWITCH CODE | CIRCUIT SCHEMATIC | | CIRCUIT CODE | AUX SWITCH CODE |
|---|---|---|---|---|---|---|---|---|
| | ANSI | IEC | | | ANSI | IEC | | |
| | SWITCH ONLY (NO COIL) | | | | SERIES TRIP | | | |
|  |  | | A | O |  |  | B C | O |
|  | SWITCH ONLY (NO COIL) WITH AUXILIARY SWITCH | | A | 2 3 4 | SERIES TRIP WITH AUXILIARY / ALARM SWITCH | | B C | 2 3 4 |
| |  |  | | |  |  | | |
|  | SHUNT TRIP | | D E | 0 | DUAL COIL; SERIES TRIP CURRENT COIL, SHUNT TRIP VOLTAGE COIL | | H | 0 |
| |  |  | | |  |  | | |
|  | RELAY TRIP | | F G | 0 | DUAL COIL; SERIES TRIP CURRENT COIL, RELAY TRIP VOLTAGE COIL | | K | 0 |
| |  |  | | |  |  | | |

## HANDLE POSITION VS. AUX/ALARM SWITCH MODE

| | STANDARD C/B | | MID TRIP C/B | | MID TRIP C/B | |
|---|---|---|---|---|---|---|
| CIRCUIT BREAKER MODE | HANDLE POSITION | AUX. SWITCH MODE | HANDLE POSITION | ALARM SWITCH MODE | HANDLE POSITION | AUX. SWITCH MODE (w/o ALARM SWITCH) |
| OFF |  |  |  |  |  |  |
| ON |  |  |  |  |  |  |
| ELECTRICAL TRIP |  |  |  |  |  |  |

Notes:
1 All dimensions are in inches [millimeters].
2 Tolerance ±.020 [.51] unless otherwise specified.
3 Alarm Switch available with .110 x .020 Q.C. & Solder Lug Terminals Only.



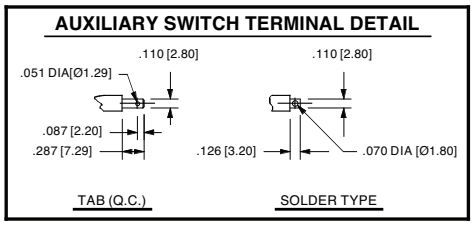
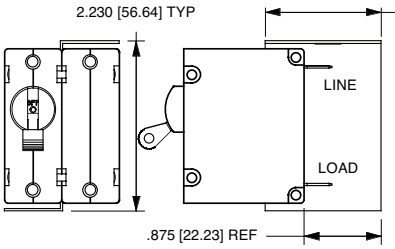
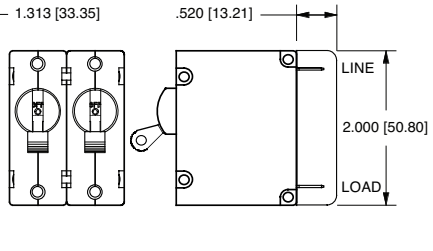




**TABLE A**
**TIGHTENING TORQUE SPECIFICATIONS**

| 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] |




**BARRIER FOR UL-489 MULTI-POLE BREAKERS**

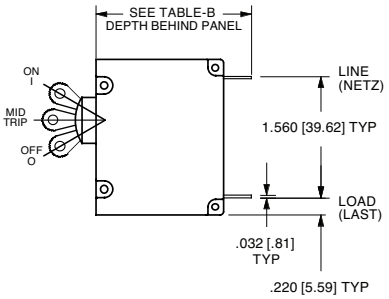


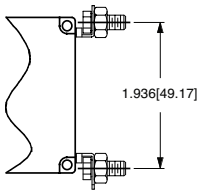

**BARRIER FOR UL-RECOGNIZED MULTI-POLE BREAKERS**

**TABLE B**

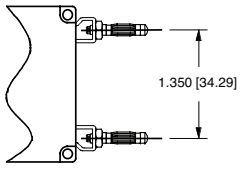
| TERMINAL DESCRIPTION | | DEPTH BEHIND PANEL |
|---|---|---|
| MAIN | TAB (Q.C.) | 2.090 [53.09] |
| | SCREW TYPE | 2.122 [53.90] |
| SHUNT, RELAY & DUAL COIL | TAB (Q.C.) | 2.612 [66.35] |
| | SCREW #8-32 W/UPTURNED LUGS | 2.644 [67.16] |
| AUX. SWITCH* | TAB (Q.C.) .110 x .020 | 2.537 [64.44] |
| | SOLDER TYPE | 2.348 [59.64] |

* AVAILABLE ON SERIES TRIP AND SWITCH ONLY CIRCUITS. WHEN CALLED FOR ON MULTI-POLE UNITS, ONLY ONE AUX. SWITCH IS NORMALLY SUPPLIED, AS SHOWN IN MULTI-POLE IDENTIFICATION SCHEME.

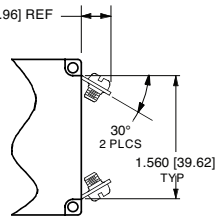


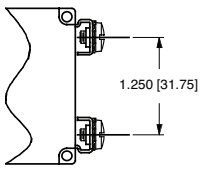

M6 STUD



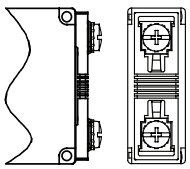

PUSH-IN STUD




SCREW TERMINAL WITH 30° BEND



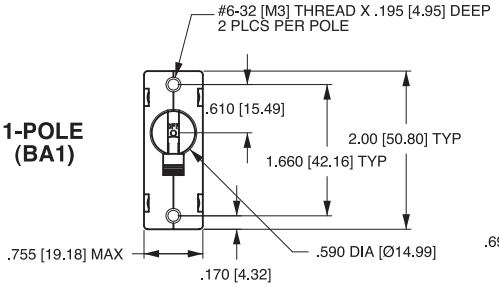

BACK CONNECT SCREW TERMINAL

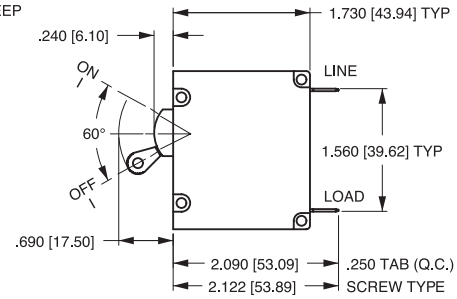


BACK CONNECT SCREW TERMINAL WITH RETAINER

Notes:
1 All dimensions are in inches [millimeters].
2 Tolerance ±.020 [.51] unless otherwise specified.

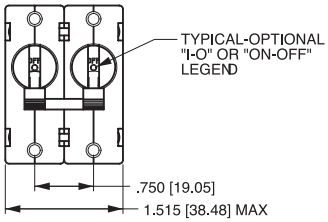
**1-POLE (BA1)**



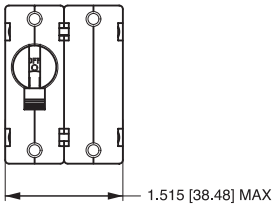



TAB (Q.C.) TYPE TERMINALS IN SERIES TRIP CIRCUIT CONFIGURATION SHOWN. FOR OTHER CONFIGURATIONS, SEE CIRCUIT AND TERMINAL DRAWINGS.

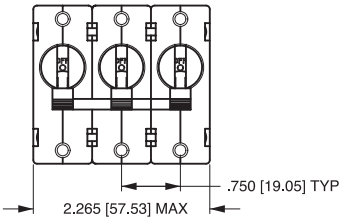
**2-POLE (BA2)**



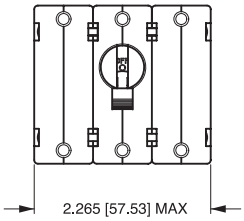

**2-POLE (BB2)**



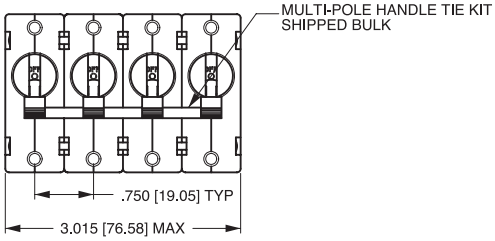

**3-POLE (BA3)**



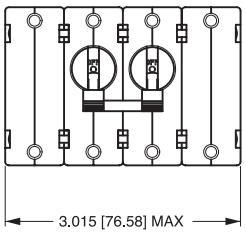

**3-POLE (BB3)**

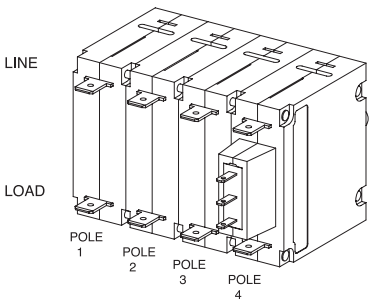



**4-POLE (BA4)**

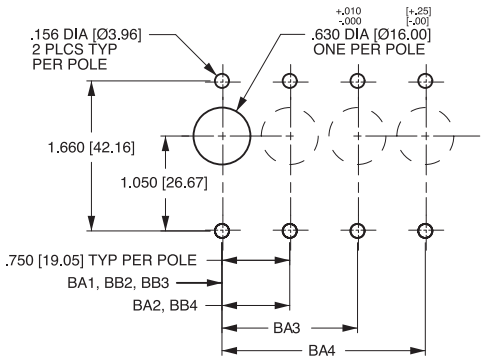



**4-POLE (BB4)**



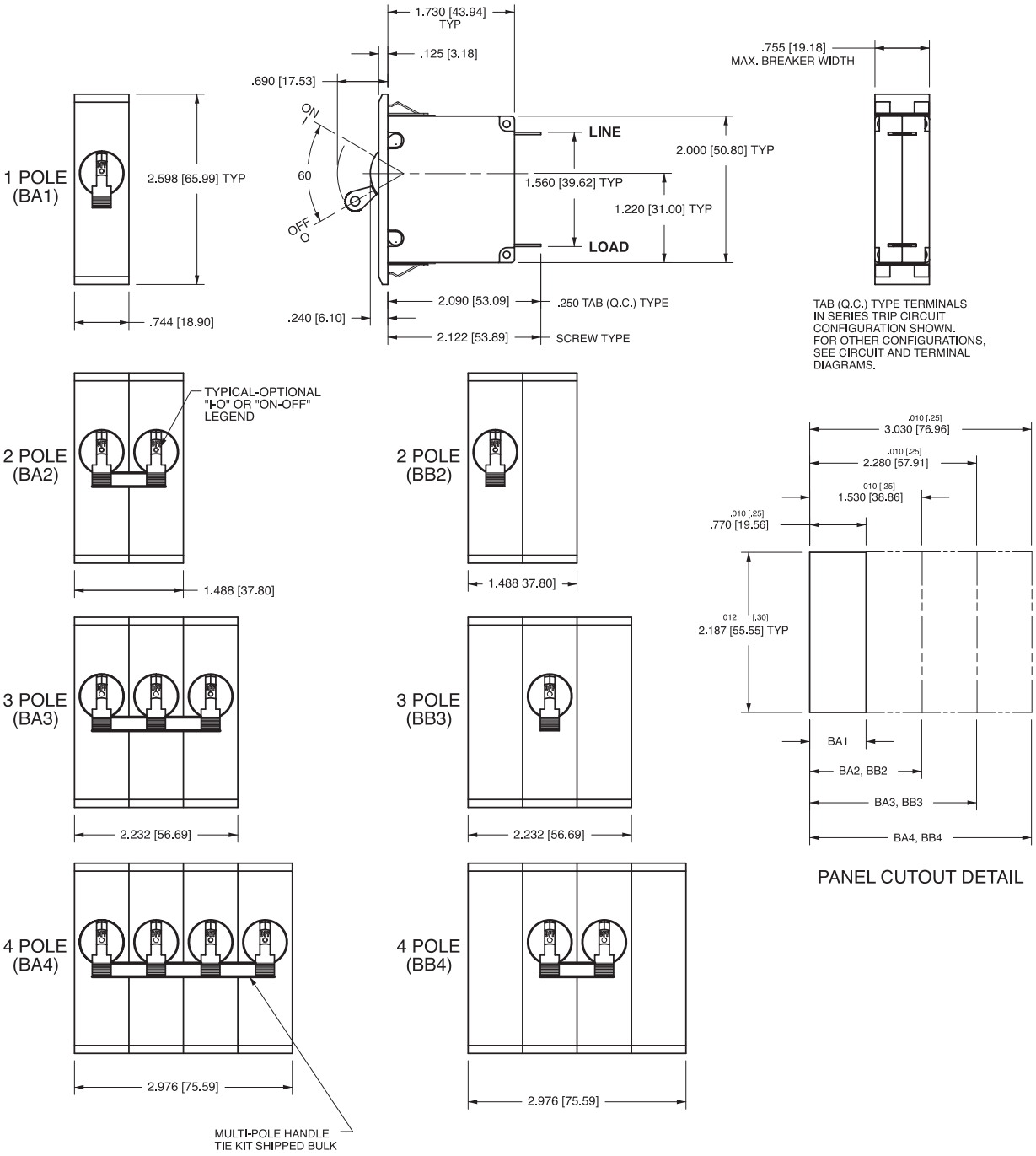




MULTI-POLE IDENTIFICATION SCHEME
AS VIEWED FROM TERMINAL END OF BREAKER.

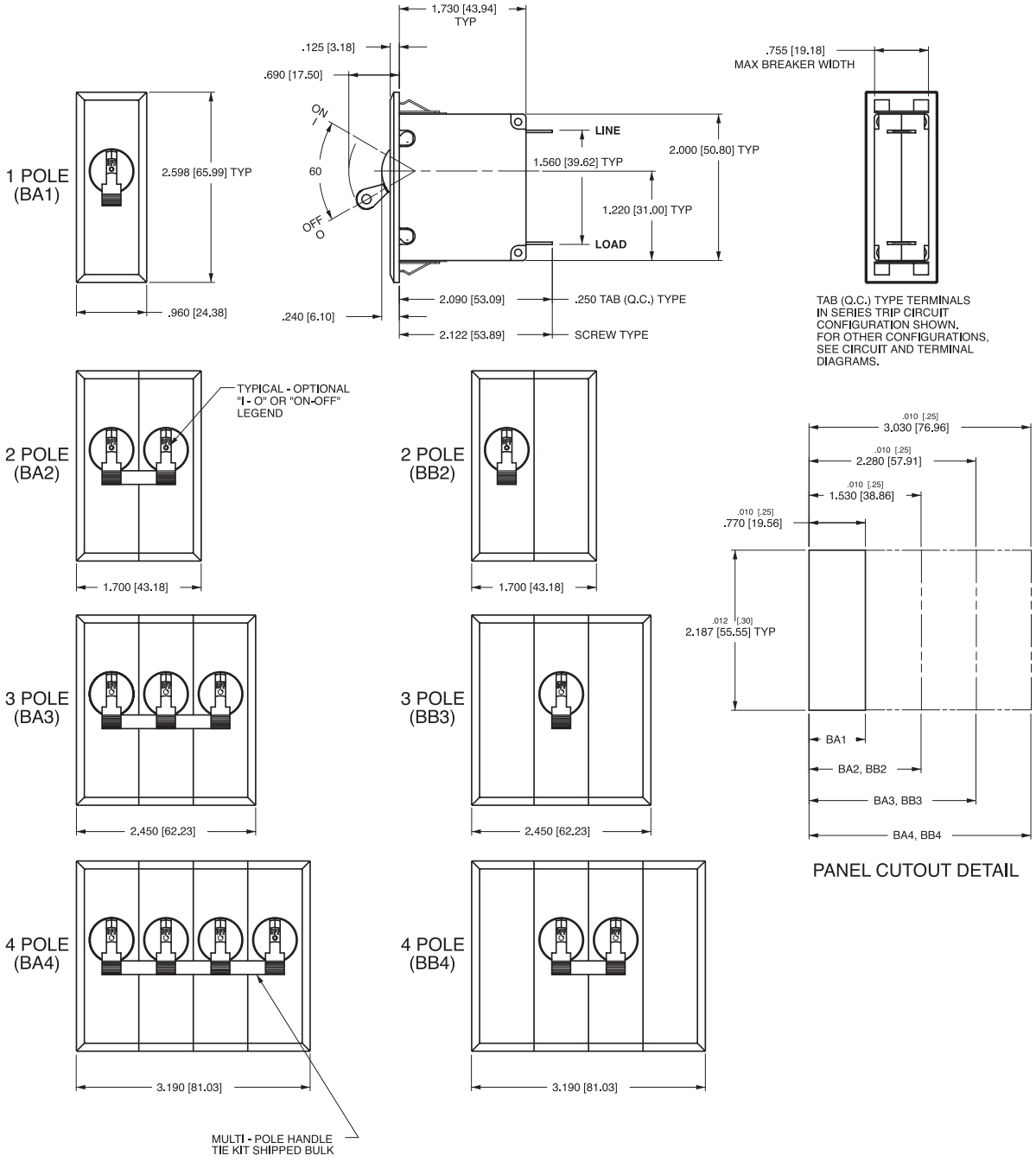



**PANEL CUTOUT DETAIL**
TOLERANCES ±.005 [±.12]

Notes:
1 All dimensions are in inches [millimeters].
2 Tolerance ± 0.20 [.51] unless otherwise specified.




Notes:
1 All dimensions are in inches [millimeters].
2 Recommended panel thickness: .040 [1.02] to .100 [2.54].
3 Tolerance ±.020 [.51] unless otherwise specified.




Notes:
1 All dimensions are in inches [millimeters].
2 Recommended panel thickness: .040 [1.02] to .100 [2.54].
3 Tolerance ±.020 [.51] unless otherwise specified.

| B | F | 1 | – | B | 0 | – | 24 | – | 630 | – | 2 | 3 | A | – | K | G |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Series | 2 Actuator | 3 Poles | | 4 Circuit | 5 Aux/Alarm Switch | | 6 Frequency & Delay | | 7 Current Rating | | 8 Terminal | 9 Actuator Color | 10 Mounting/ Barriers | | 11 Max. Appl. Rating | 12 Agency Approval |

## 1 SERIES
**B**

## 2 ACTUATOR
**Two Color Visi-Rocker**

| | |
|---|---|
| **C** | Indicate ON, vertical legend |
| **D** | Indicate ON, horizontal legend |
| **F** | Indicate OFF, vertical legend |
| **G** | Indicate OFF, horizontal legend |

**Single color**

| | |
|---|---|
| **J** | Vertical legend |
| **K** | Horizontal legend |

**ROCKER STYLE DESCRIPTIONS**

| | INDICATE "ON" | INDICATE "OFF" | SINGLE COLOR |
|---|---|---|---|
| VERTICAL STYLE | CODE "C" | CODE "F" | CODE "J" |
| HORIZONTAL STYLE | CODE "D" | CODE "G" | CODE "K" |

## 3 POLES[1,2]

| | | | | | |
|---|---|---|---|---|---|
| **1** | One | **2** | Two | **3**[3] | Three |

## 4 CIRCUIT

| | |
|---|---|
| **B** | Series Trip (Current) |

## 5 AUXILIARY/ALARM SWITCH[4]

| | | | |
|---|---|---|---|
| **0** | w/o Aux Switch | **7** | S.P.S.T., 0.110 Q.C. Term. (Gold Contacts) |
| **1** | S.P.D.T., 0.093 Q.C. Term. | **8** | S.P.S.T., 0.187 Q.C. Term. |
| **2** | S.P.D.T., 0.110 Q.C. Term. | **9** | S.P.D.T., 0.187 Q.C. Term. |
| **3** | S.P.D.T., 0.139 Solder Lug | | |

## 6 FREQUENCY & DELAY

| | | | |
|---|---|---|---|
| **21** | AC Ultra Short | **42** | AC, Short,Hi-Inrush |
| **22** | AC Short | **44** | AC, Medium, Hi-Inrush |
| **24** | AC Medium | **46** | AC, Long, Hi-Inrush |
| **26** | AC Long | | |

## 7 CURRENT RATING (AMPERES)

| CODE | AMPERES | CODE | AMPERES | CODE | AMPERES | CODE | AMPERES |
|---|---|---|---|---|---|---|---|
| **210** | 0.100 | **285** | 0.850 | **455** | 5.500 | **613** | 13.000 |
| **215** | 0.150 | **290** | 0.900 | **460** | 6.000 | **614** | 14.000 |
| **220** | 0.200 | **295** | 0.950 | **465** | 6.500 | **615** | 15.000 |
| **225** | 0.250 | **410** | 1.000 | **470** | 7.000 | **616** | 16.000 |
| **230** | 0.300 | **512** | 1.250 | **475** | 7.500 | **617** | 17.000 |
| **235** | 0.350 | **415** | 1.500 | **480** | 8.000 | **618** | 18.000 |
| **240** | 0.400 | **517** | 1.750 | **485** | 8.500 | **620** | 20.000 |
| **245** | 0.450 | **420** | 2.000 | **490** | 9.000 | **622** | 22.000 |
| **250** | 0.500 | **522** | 2.250 | **495** | 9.500 | **624** | 24.000 |
| **255** | 0.550 | **527** | 2.750 | **610** | 10.000 | **625** | 25.000 |
| **260** | 0.600 | **430** | 3.000 | **710** | 10.500 | **630** | 30.000 |
| **265** | 0.650 | **435** | 3.500 | **611** | 11.000 | | |
| **270** | 0.700 | **440** | 4.000 | **711** | 11.500 | | |
| **275** | 0.750 | **445** | 4.500 | **612** | 12.000 | | |
| **280** | 0.800 | **450** | 5.000 | **712** | 12.500 | | |

## 8 TERMINAL[5]

| | | | |
|---|---|---|---|
| **1**[6] | Push-On 0.250 Tab (Q.C.) | **B** | Screw M5 w/upturned lugs |
| **2** | Screw 8-32 w/upturned lugs | **C** | Screw M4 w/upturned lugs |
| **3** | Screw 8-32 (Bus Type) | **F** | Screw M5 w/upturned lugs and 30° bend |
| **4** | Screw 10-32 w/upturned lugs | **G** | Screw M5 (Bus Type) and 30° bend |
| **5** | Screw 10-32 (Bus Type) | **H** | Screw M5 (Bus Type) |
| **6** | Screw 8-32 w/upturned lugs and 30° bend | **J** | Screw M5 Back Connect |
| **7** | Screw 8-32 (Bus Type) and 30° bend | **K** | Screw 10-32 Back Connect |
| **8** | Screw 10-32 w/upturned lugs and 30° bend | **N** | Screw M4 Back Connect |
| **9** | Screw 10-32 (Bus Type) and 30° bend | **Y** | Screw 8-32 Back Connect |

## 9 ACTUATOR COLOR & LEGEND

| Actuator or Visi-Color[7] | Marking: I-O | Marking: ON-OFF | Marking: Dual[7] | Marking Color: Single Color | Marking Color: 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 |

## 10 MOUNTING/BARRIERS

| | MOUNTING STYLE | BARRIERS[9] |
|---|---|---|
| | **Threaded Insert, 2 per pole** | |
| **A** | 6-32 x 0.195 inches *(multi-pole units only)* | yes |
| **B** | ISO M3 x 5mm | yes |
| | **ROCKERGUARD BEZEL** | |
| | **Threaded Insert, 2 per pole** | |
| **C** | 6-32 X 0.225 inches *(multi-pole units only)* | yes |
| **D** | ISO M3 x 6.5mm | yes |

## 11 MAXIMUM APPLICATION RATING

| | |
|---|---|
| **C**[8] | 120/240 VAC |
| **K** | 120 VAC |

## 12 AGENCY APPROVAL

| | |
|---|---|
| **G** | UL489 Listed |
| **3** | UL489 Listed, TUV Certified |

Notes:

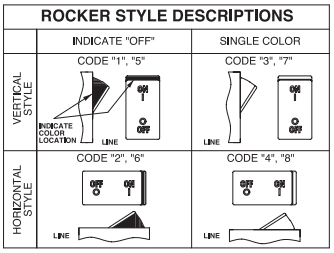
1. Multi-pole breakers have all breakers identical except when specifying Aux. switch and/or mixed poles, and have one rocker per breaker.
2. All poles must be same polarity.
3. 3 pole units available only when1 of 3 poles is neutral.
4. On multi-pole breakers, one aux. switch is supplied, mounted in the extreme right pole.
5. Screw Terminals are recommended on ratings greater than 20 amps.
6. Terminal Code 1 (Push-On) available up to 30 amps, but are not recommended over 20 amps.
7. Dual legend = ON-OFF/I-O
8. Voltage Rating available with 2 and 3-pole breakers only.
9. Barriers supplied on multi-pole units only.

60 Johnson Avenue • Plainville, CT 06062–1177 • Phone: (860) 793–9281 • Fax: (860) 793–9231
Email: sales@carlingtech.com • www.carlingtech.com

| B | 1 | 1 | – | B | 0 | – | 24 | – | 630 | – | 2 | 3 | A | – | K | G |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Series | 2 Actuator | 3 Poles | | 4 Circuit | 5 Aux/Alarm Switch | | 6 Frequency & Delay | | 7 Current Rating | | 8 Terminal | 9 Actuator Color | 10 Mounting/ Barriers | | 11 Max. Appl. Rating | 12 Agency Approval |

## 1 SERIES
**B**

## 2 ACTUATOR[1]
**Two Color Visi-Rocker**
**1** Indicate OFF, vertical legend
**2** Indicate OFF, horizontal legend
**Single color**
**3** Vertical legend
**4** Horizontal legend
**Push-To-Reset, Visi-Rocker**
**5** Indicate OFF, vertical legend
**6** Indicate OFF, horizontal legend
**Push-To-Reset , Single color**
**7** Vertical legend
**8** Horizontal legend




## 3 POLES[2,3]
**1** One **2** Two **3**[4] Three

## 4 CIRCUIT
**B** Series Trip (Current)

## 5 AUXILIARY/ALARM SWITCH[4]
| | | | |
|---|---|---|---|
| **0** | w/o Aux Switch | **7** | S.P.S.T., 0.110 Q.C. Term. (Gold Contacts) |
| **1** | S.P.D.T., 0.093 Q.C. Term. | | |
| **2** | S.P.D.T., 0.110 Q.C. Term. | **8** | S.P.S.T., 0.187 Q.C. Term. |
| **3** | S.P.D.T., 0.139 Solder Lug | **9** | S.P.D.T., 0.187 Q.C. Term. |

## 6 FREQUENCY & DELAY
| | | | |
|---|---|---|---|
| **21** | AC Ultra Short | **42** | AC, Short,Hi-Inrush |
| **22** | AC Short | **44** | AC, Medium, Hi-Inrush |
| **24** | AC Medium | **46** | AC, Long, Hi-Inrush |
| **26** | AC Long | | |

## 7 CURRENT RATING (AMPERES)
| CODE | AMPERES | CODE | AMPERES | CODE | AMPERES | CODE | AMPERES |
|---|---|---|---|---|---|---|---|
| **210** | 0.100 | **285** | 0.850 | **455** | 5.500 | **613** | 13.000 |
| **215** | 0.150 | **290** | 0.900 | **460** | 6.000 | **614** | 14.000 |
| **220** | 0.200 | **295** | 0.950 | **465** | 6.500 | **615** | 15.000 |
| **225** | 0.250 | **410** | 1.000 | **470** | 7.000 | **616** | 16.000 |
| **230** | 0.300 | **512** | 1.250 | **475** | 7.500 | **617** | 17.000 |
| **235** | 0.350 | **415** | 1.500 | **480** | 8.000 | **618** | 18.000 |
| **240** | 0.400 | **517** | 1.750 | **485** | 8.500 | **620** | 20.000 |
| **245** | 0.450 | **420** | 2.000 | **490** | 9.000 | **622** | 22.000 |
| **250** | 0.500 | **522** | 2.250 | **495** | 9.500 | **624** | 24.000 |
| **255** | 0.550 | **527** | 2.750 | **610** | 10.000 | **625** | 25.000 |
| **260** | 0.600 | **430** | 3.000 | **710** | 10.500 | **630** | 30.000 |
| **265** | 0.650 | **435** | 3.500 | **611** | 11.000 | | |
| **270** | 0.700 | **440** | 4.000 | **711** | 11.500 | | |
| **275** | 0.750 | **445** | 4.500 | **612** | 12.000 | | |
| **280** | 0.800 | **450** | 5.000 | **712** | 12.500 | | |

## 8 TERMINAL[6]
| | | | |
|---|---|---|---|
| **1**[7] | Push-On 0.250 Tab (Q.C.) | **B** | Screw M5 w/upturned lugs |
| **2** | Screw 8-32 w/upturned lugs | **C** | Screw M4 w/upturned lugs |
| **3** | Screw 8-32 (Bus Type) | **F** | Screw M5 w/upturned lugs and 30° bend |
| **4** | Screw 10-32 w/upturned lugs | **G** | Screw M5 (Bus Type) and 30° bend |
| **5** | Screw 10-32 (Bus Type) | **H** | Screw M5 (Bus Type) |
| **6** | Screw 8-32 w/upturned lugs and 30° bend | **J** | Screw M5 Back Connect |
| **7** | Screw 8-32 (Bus Type) and 30° bend | **K** | Screw 10-32 Back Connect |
| **8** | Screw 10-32 w/upturned lugs and 30° bend | **N** | Screw M4 Back Connect |
| **9** | Screw 10-32 (Bus Type) and 30° bend | **Y** | Screw 8-32 Back Connect |

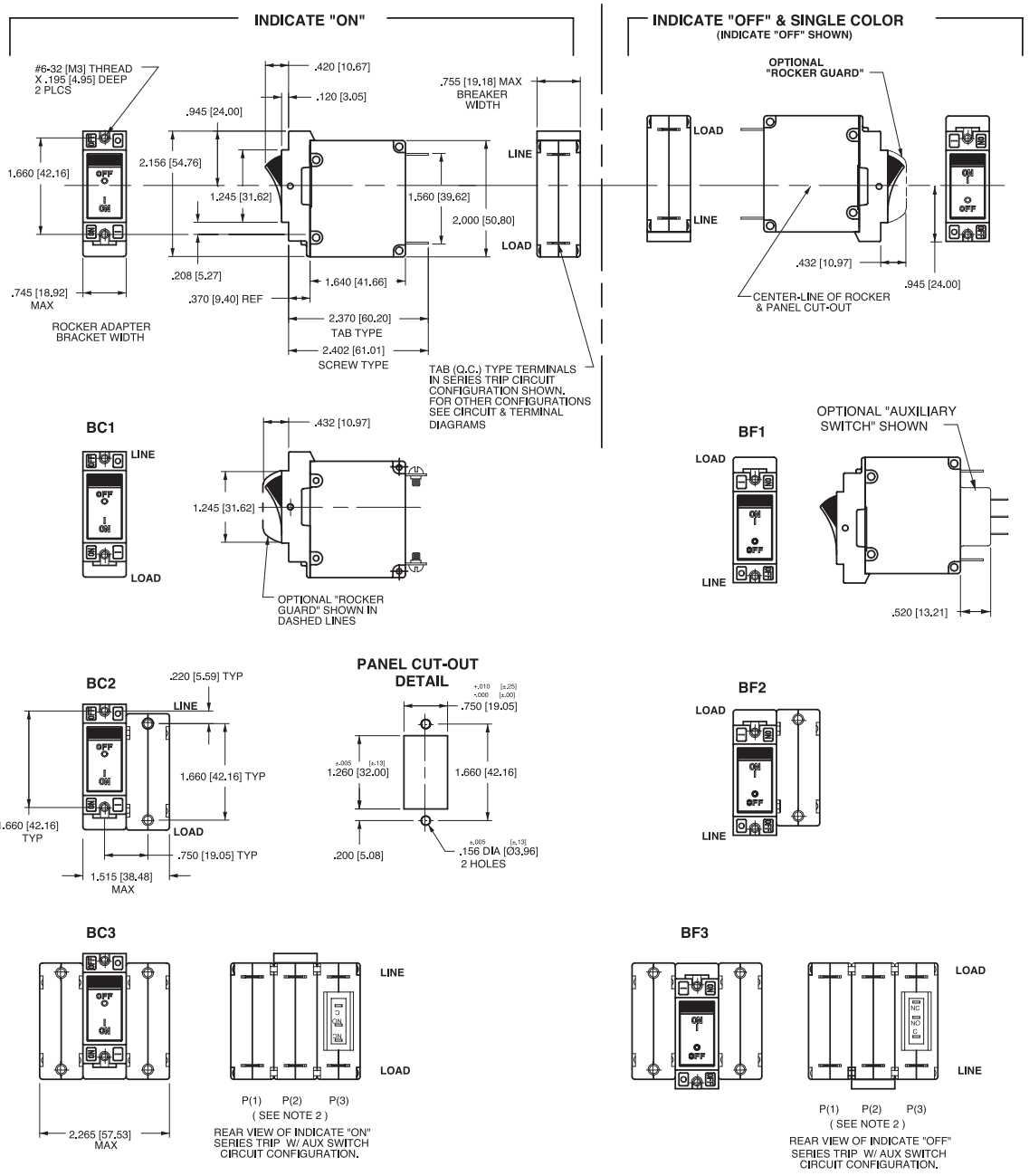
## 9 ACTUATOR COLOR & LEGEND
| Actuator or Visi-Color[8] | Marking: I-O | Marking: ON-OFF | Marking: Dual[8] | Marking Color: Single Color | Marking Color: Visi-Rocker |
|---|---|---|---|---|---|
| White | **A** | **B** | **1** | Black | White |
| Black | **C** | **D** | **2** | White | n/a |
| Red | **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 |

## 10 MOUNTING/BARRIERS[9]
| | | BARRIERS[12] |
|---|---|---|
| | **STANDARD ROCKER BEZEL,Threaded Insert, 2 per pole FLAT ROCKER ACTUATOR** | |
| **A** | 6-32 x 0.195 inches *(multi-pole units only)* | yes |
| **B** | ISO M3 x 5mm | yes |
| | **RECESSED OFF SIDE ROCKER ACTUATOR**[10] | |
| **E** | 6-32 X 0.225 inches *(multi-pole units only)* | yes |
| **F** | ISO M3 x 6.5mm | yes |
| | **PUSH-TO-RESET BEZEL,Threaded Insert, 2 per pole** | |
| **C** | 6-32 x 0.195 inches | yes |
| **D** | ISO M3 x 5mm | yes |

## 11 MAXIMUM APPLICATION RATING
**C**[11] 120/240VAC
**K** 120VAC

## 12 AGENCY APPROVAL
**G** UL489 Listed
**3** UL489 Listed, TUV Certified

Notes:
1 Push-To-Reset actuators have OFF portion of rocker shrouded.
2 Multi-pole breakers have all breakers identical except when specifying Aux. switch and/or mixed poles, and have one rocker per breaker.
3 All poles must be same polarity.
4 3 pole units available only when1 of 3 poles is neutral.
5 On multi-pole breakers, one aux. switch is supplied, mounted in the extreme right pole.
6 Screw Terminals are recommended on ratings greater than 20 amps.
7 Terminal Code 1 (Push-On) available up to 30 amps, but are not recommended over 20 amps.
8 Color shown is visi and legend with remainder of rocker black, Dual = ON-OFF/I-O legend.
9 Legend on Push-to-reset bezel/shroud is white with single color actuator codes 7 & 8. Legend on Push-To-Reset bezel/shroud matches Visi-Color of rocker with actuator codes 5 & 6.
10 Recessed “off-side” available with actuator codes 1, 2, 3 & 4. Legends on rocker are available in ink stamping only.
11 Voltage rating available with 2 & 3-pole breakers only.
12 Barriers supplied on multi-pole units only.



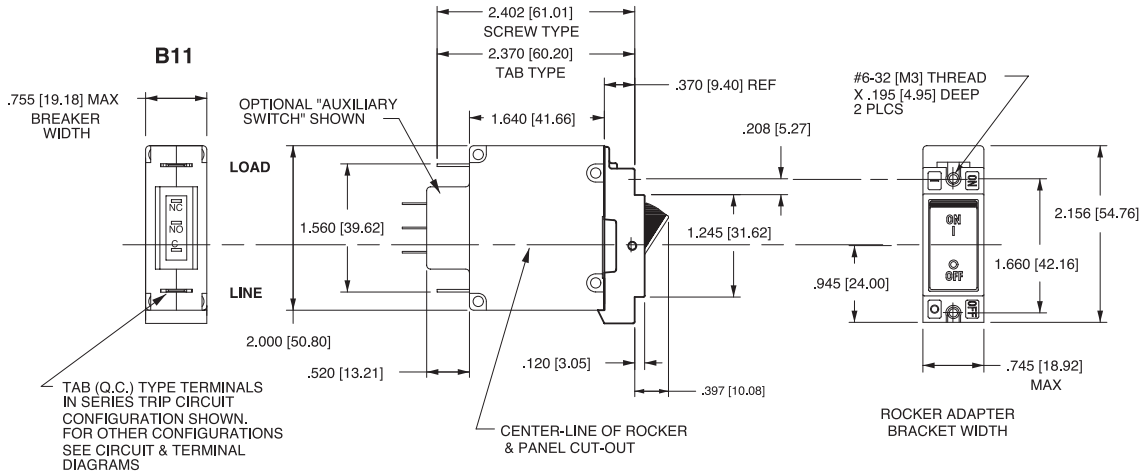

Notes:

1 Dimensions apply to all variations shown. Notice that circuit breaker line & load terminal orientation on indicate "OFF" is opposite of indicate "ON".
2 For pole orientation with horizontal legend, rotate front view clockwise 90°.
3 All dimensions are in inches [millimeters].
4 Tolerance ±.020 [.51] unless otherwise specified.

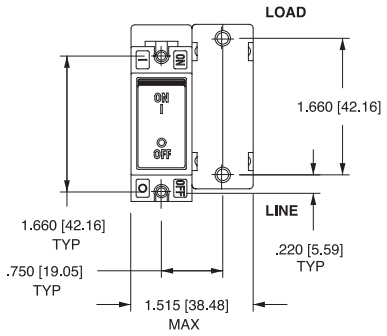
## INDICATE "OFF" & SINGLE COLOR

(INDICATE "OFF" SHOWN)

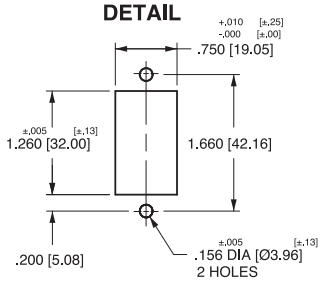
### B11

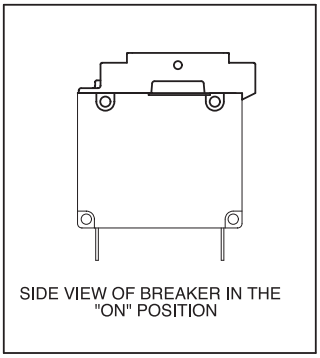



### B12



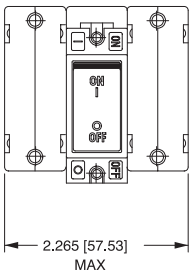

### PANEL CUT-OUT DETAIL

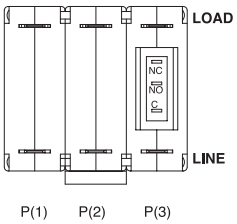


SIDE VIEW OF BREAKER IN THE "ON" POSITION

### B13

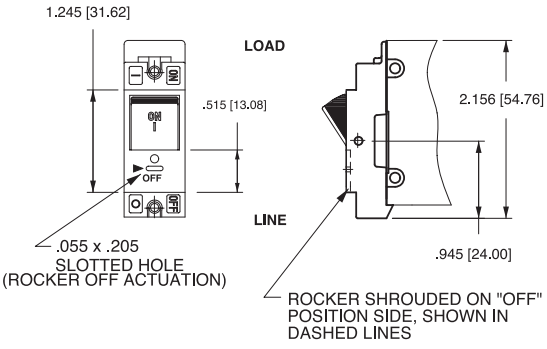



REAR VIEW OF INDICATE "OFF"
SERIES TRIP W/ AUX SWITCH
CIRCUIT CONFIGURATION.

### PUSH-TO-RESET ACTUATOR

### B51




ACTUATOR SIDE VIEW

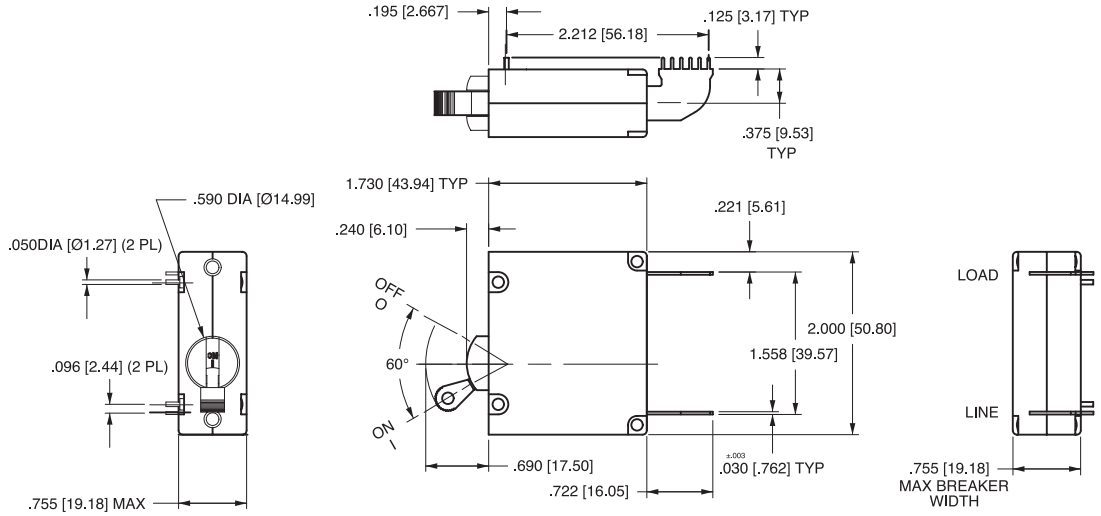
(SURFACE CONTOURS)

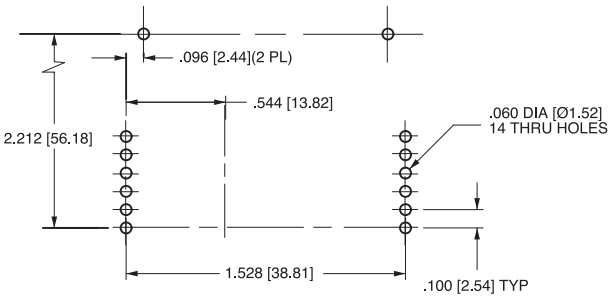
FLAT ROCKER

RECESSED OFF SIDE
ROCKER

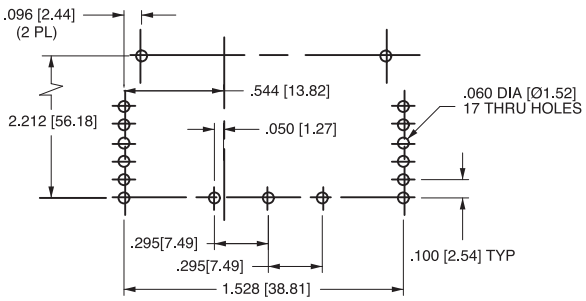
Notes:

1 All dimensions are in inches [millimeters].
2 For pole orientation with horizontal legend, rotate front view clockwise 90°.
3 Tolerance ±.020 [.51] unless otherwise specified.




**P.C. FOOT PRINT**




**P.C. FOOT PRINT WITH AUX. SWITCH**

Notes:
1 All dimensions are in inches [millimeters].
2 For pole orientation with horizontal legend, rotate front view clockwise 90°.
3 Tolerance ±.010 [.25] unless otherwise specified.

REV_CB_B_0812

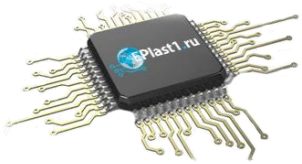
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.




**Как с нами связаться**

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