



**Littelfuse®**



**Carling Technologies®**

A Littelfuse® Brand

# B-Series

Hydraulic-Magnetic Circuit Breaker

**PRODUCT WEBPAGE**

*request sample, configure part*



## Global Regulatory Safety Compliant

The B-Series hydraulic-magnetic circuit breakers are an optimal choice for both general purpose and full amp loads. These versatile breakers offer global regulatory safety approvals, a wide choice of actuator styles, time delays, terminals and imprinting options. The B-Series is configurable in one to six poles, rated up to 50 amps and 277VAC or 80VDC, with a max IC of 7,500 amps.

**1-6**

Poles

**50**

Amps Max

**277**

VAC Max

**80**

VDC Max

## Typical Applications

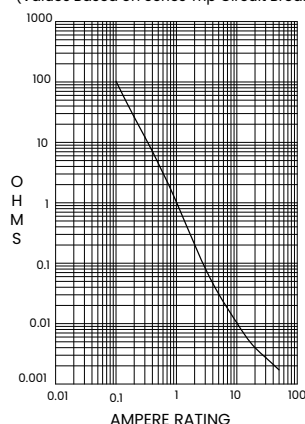
- Power Supplies
- Generators & Welders
- Control Panels
- Marine
- Industrial Automation
- Medical Equipment
- Office Equipment
- Datacom/Telecom
- Military
- Commercial Food

# Tech Specs

## Electrical

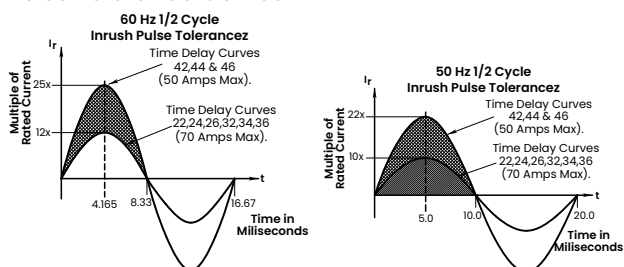
|                         |                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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



## Mechanical

|                 |                                                                                                            |
|-----------------|------------------------------------------------------------------------------------------------------------|
| Endurance       | 10,000 ON-OFF operations @ 6 per minute; with rated Current & Voltage.                                     |
| 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.                                                                                                                               |
| 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, 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 | -40° C to +85° C                                                                                                                                                                        |

# Tech Specs

## Tables

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

| Component Supplementary Protectors |            |           |                   |                   |                      |                               |                     |                   |               |                     |       |  |
|------------------------------------|------------|-----------|-------------------|-------------------|----------------------|-------------------------------|---------------------|-------------------|---------------|---------------------|-------|--|
| Circuit Configuration              | Voltage    |           |                   | Current Rating    |                      | Short Circuit Capacity (Amps) |                     | Application Codes |               | Construction Notes  |       |  |
|                                    | 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         |           |                   | 0.02-30           |                      |                               |                     | TC1,2, OL1,U1     | TC1,2, OL1,U1 |                     |       |  |
|                                    |            |           |                   | -                 | 31-50                |                               |                     | TC1,2, OL0,U1     | TC1,2, OL1,U1 |                     |       |  |
|                                    | 125        | 50/60     | 1                 | 1-50              | -                    |                               | 2000                | TC1, OL1,U2       | TC1, OL1,U2   |                     |       |  |
|                                    |            |           | 1 <sup>4</sup>    |                   |                      |                               | 1000                | TC1, OL1,U2       | TC1, OL1,U3   |                     |       |  |
|                                    | 125/250    |           | 1 <sup>3</sup>    |                   |                      |                               | 3000                | TC1,2, OL1,U1     | TC1,2, OL1,U1 |                     |       |  |
|                                    | 250        |           | 1                 | 0.02-30           |                      |                               | 1500                | TC1, OL0,U2       | TC1, OL0,U2   | Single Pole Breaker |       |  |
|                                    |            |           |                   | -                 | 31-50                |                               | 3000                | TC1, OL1,U2       | TC1, OL1,U2   | Two Pole Break      |       |  |
|                                    |            |           |                   |                   |                      |                               |                     | TC1,2, OL1,U1     | TC1,2, OL1,U3 |                     |       |  |
|                                    |            |           | 1 <sup>4</sup>    | 1-50              | -                    |                               | 1000                | TC1, OL1, U2      | TC3, OL1,U3   |                     |       |  |
|                                    |            |           | 3                 | 0.02-30           |                      |                               | 5000 <sup>2</sup>   | TC1,2, OL1,C1     | TC1,2, OL1,C1 |                     |       |  |
|                                    |            |           | -                 | 31-50             |                      |                               | 2000 <sup>1</sup>   | TC1,2, OL1, C1    | TC1,2, OL1,C1 |                     |       |  |
| 277                                | 1          |           | 5000 <sup>1</sup> | TC1,2, OL1,C1     |                      | TC1,2, OL1,C1                 |                     |                   |               |                     |       |  |
| Dual Coil                          | 65         | DC        | -                 | 0.02-30           | -                    | -                             | 7500                | TC1,2, OL1,U1     | TC1,2, OL1,U1 |                     |       |  |
|                                    | 80         |           |                   | -                 |                      |                               |                     | 31-50             | TC1,2, OL1,U1 | TC1,2, OL1,U1       |       |  |
|                                    |            |           |                   | -                 |                      |                               |                     |                   | TC1,2, OL0,U1 | TC1,2, OL0,U1       |       |  |
|                                    | 125        | 50/60     | 1                 | 1-50              | -                    |                               | 2000                | TC1, OL1,U2       | TC1, OL1,U2   |                     |       |  |
|                                    | 125/250    |           | 1 <sup>3</sup>    | 0.02-30           |                      |                               | 3000                | TC1,2, OL1,U1     | TC1,2, OL1,U1 |                     |       |  |
|                                    | 250        |           | 1                 | 0.02-30           |                      |                               | 1500                | TC1, OL0,U2       | TC1, OL0,U2   | Single Pole Breaker |       |  |
|                                    |            |           |                   | 0.02-30           |                      |                               | 3000                | TC1, OL1,U2       | TC1, OL1,U2   | Two Pole Break      |       |  |
|                                    |            |           |                   | -                 | 31-50                |                               | TC1,2, OL0,U2       | TC1,2, OL0,U2     |               |                     |       |  |
|                                    |            |           | 1 <sup>4</sup>    | 1-50              | -                    |                               | 1000                | TC1, OL1,U2       | TC3 OL0,U3    |                     |       |  |
|                                    | 3          |           | 0.20-30           | 5000 <sup>3</sup> |                      |                               | TC1,2, OL1,C1       | TC1,2, OL1,C1     |               |                     |       |  |
|                                    |            |           | 31-50             | 2000 <sup>1</sup> |                      |                               | TC1,2, OL1,C1       | TC1,2, OL1,C1     |               |                     |       |  |
|                                    | 277        | 1         | 5000 <sup>1</sup> | 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 <sup>3</sup>    |                   |                      |                               | 3000                | TC1,2, OL1,U1     | TC1,2, OL1,U1 |                     |       |  |
|                                    |            |           | 1                 |                   |                      |                               |                     | TC1,2, OL1,U1     | TC1,2, OL1,U1 |                     |       |  |
|                                    | 250        |           | 3                 |                   |                      |                               |                     | 5000 <sup>2</sup> | TC1,2, OL1,U1 | TC1,2, OL1,U1       |       |  |
|                                    | 277        |           | 1                 |                   |                      |                               |                     | 5000 <sup>1</sup> | TC1,2, OL1,U1 | TC1,2, OL1,U1       |       |  |
| Relay                              | 80         | DC        | -                 | 0.02-30           | -                    | -                             | 7500                | TC1,2, OL1,U1     | TC1,2, OL1,U1 |                     |       |  |
|                                    | 125/250    | 50/60     | 1 <sup>3</sup>    |                   |                      |                               | 3000                | TC1,2, OL1,U1     | TC1,2, OL1,U1 |                     |       |  |
|                                    |            |           | 1                 |                   |                      |                               |                     | -                 | TC1,2, OL1,U1 | TC1,2, OL1,U1       |       |  |
|                                    | 250        |           | 3                 |                   |                      |                               |                     | 5000 <sup>2</sup> | TC1,2, OL1,C1 | TC1,2, OL1,C1       |       |  |
|                                    | 277        |           | 1                 |                   |                      |                               |                     | 5000 <sup>1</sup> | TC1,2, OL1,C1 | TC1,2, OL1,C1       |       |  |
| Switch Only                        | 65         | DC        | -                 | 0.02-30           | -                    | -                             | -                   | -                 | -             |                     |       |  |
|                                    | 80         |           |                   |                   |                      |                               |                     |                   |               |                     |       |  |
|                                    | 250        | 50/60     | 1                 |                   |                      |                               |                     |                   |               | -                   | 31-50 |  |
|                                    |            |           | 3                 |                   |                      |                               |                     |                   |               | -                   |       |  |
|                                    | 277        |           | 1                 |                   |                      |                               |                     |                   |               | 31-50               |       |  |

**Notes:**

- 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.
- Same as note 1, except that backup fuse is limited to 80A maximum.
- 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.
- Satisfies the requirements of clause 11.2.8.2.5 of CSA STD C22.2 No 100 for the use of supplementary protectors with portable generators.

# Tech Specs

## Tables

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

| Component Supplementary Protectors |            |           |       |                |                                   |                               |                     |                        |                      |                        |                      |                   |               |                    |                     |      |               |               |      |               |               |  |
|------------------------------------|------------|-----------|-------|----------------|-----------------------------------|-------------------------------|---------------------|------------------------|----------------------|------------------------|----------------------|-------------------|---------------|--------------------|---------------------|------|---------------|---------------|------|---------------|---------------|--|
| Circuit Configuration              | Voltage    |           |       | Current Rating |                                   | Short Circuit Capacity (Amps) |                     |                        |                      |                        |                      | Application Codes |               | Construction Notes |                     |      |               |               |      |               |               |  |
|                                    | Max Rating | Frequency | Phase | Full Load Amps | General Purpose Amps <sup>1</sup> | UL/CSA                        |                     | VDE                    |                      | TUV                    |                      | UL                | CSA           |                    |                     |      |               |               |      |               |               |  |
|                                    |            |           |       |                |                                   | With Backup Fuse              | Without Backup Fuse | (Inc) With Backup Fuse | (Inc) Without Backup | (Inc) with Backup Fuse | (Inc) Without Backup |                   |               |                    |                     |      |               |               |      |               |               |  |
| Series                             | 80         | DC        | -     | 0.10-30        | -                                 | -                             | 7500                | 3000                   | 1500                 | 3000                   | 1500                 | TC1,2, OL1,UI     | TC1,2, OL1,UI |                    |                     |      |               |               |      |               |               |  |
|                                    |            |           |       | 31-50          | 31-50                             |                               |                     |                        |                      |                        |                      | TC1,2, OL0,UI     | TC1,2, OL0,UI |                    |                     |      |               |               |      |               |               |  |
|                                    |            |           |       | 0.10-30        | -                                 |                               |                     |                        |                      |                        |                      | TC1,2, OL1,UI     | TC1,2, OL1,UI |                    |                     |      |               |               |      |               |               |  |
|                                    |            |           |       | 31-32          | -                                 |                               |                     |                        |                      |                        |                      | TC1,2, OL1,UI     | TC1, OL1,UI   |                    |                     |      |               |               |      |               |               |  |
|                                    |            |           |       | 31-50          | 31-50                             |                               |                     |                        |                      |                        |                      | TC1,2, OL0,UI     | TC1,2, OL0,UI |                    |                     |      |               |               |      |               |               |  |
|                                    | 250        | 50/60     | 1     | 0.10-30        | -                                 | -                             | 3000                | -                      | -                    | 5000                   |                      | TC1,2, OL1,UI     | TC1,2, OL1,UI |                    |                     |      |               |               |      |               |               |  |
|                                    |            |           |       | 31-50          | 31-50                             |                               |                     | 6000                   | TC1, OL0,UI          |                        |                      | TC1, OL0,UI       |               |                    |                     |      |               |               |      |               |               |  |
|                                    |            |           |       | 31-32          |                                   |                               |                     |                        | TC1, OL1,UI          |                        |                      | TC1, OL1,UI       |               |                    |                     |      |               |               |      |               |               |  |
|                                    |            |           |       |                |                                   |                               |                     | 1500                   | 3000                 |                        |                      | 1500              | TC1,2, OL0,U2 | TC1, OL0,U2        | Single Pole Breaker |      |               |               |      |               |               |  |
|                                    |            |           |       |                |                                   |                               |                     | 3000                   |                      |                        |                      |                   | TC1, OL1, U2  | TC1, OL1,U2        | Two Pole Break      |      |               |               |      |               |               |  |
|                                    |            |           | 3     | 0.10-30        | -                                 |                               | -                   |                        | TC1,2, OL1,UI        | TC1,2, OL1,UI          |                      |                   |               |                    |                     |      |               |               |      |               |               |  |
|                                    | 415        | 50/60     | 3     |                | 5000 <sup>3</sup>                 | 1000                          | 3000                | 1500                   | 3000                 | TC1,2, OL1, UI         |                      | TC1,2, OL1,UI     |               |                    |                     |      |               |               |      |               |               |  |
|                                    | Dual Coil  | 80        | DC    | -              |                                   | -                             |                     |                        |                      | 7500                   |                      | TC1,2, OL0,UI     | TC1,2, OL0,UI |                    |                     |      |               |               |      |               |               |  |
|                                    |            |           |       |                | 250                               | 50/60                         |                     |                        |                      | 1                      |                      | -                 | 3000          | -                  | -                   | 5000 | TC1,2, OL1,UI | TC1,2, OL1,UI |      |               |               |  |
|                                    |            |           |       |                |                                   |                               |                     |                        |                      |                        |                      | 3                 | 0.10-30       |                    | 5000 <sup>3</sup>   | -    | 3000          | 1500          | 3000 | TC1,2 OL1,C1  | TC1,2 OL1,C1  |  |
|                                    |            |           |       |                |                                   |                               |                     |                        |                      |                        |                      |                   | 31-50         |                    | 2000 <sup>2</sup>   |      | -             | -             |      | TC1,2, OL1,C1 | TC1,2, OL1,C1 |  |
| Shunt                              |            |           |       |                |                                   |                               | 80                  | DC                     | -                    | 0.10-30                | -                    | -                 | 7500          | 3000               | 1500                | 3000 | TC1,2, OL1,UI | TC1,2, OL1,UI |      |               |               |  |
|                                    | 250        | 50/60     | 1     | 30-50          | 31-50                             | 3000                          |                     |                        |                      | -                      | -                    |                   | 5000          | TC1,2, OL1,UI      | TC1,2, OL1,UI       |      |               |               |      |               |               |  |
|                                    |            |           |       | 3              | 0.10-30                           | -                             |                     |                        |                      | 5000 <sup>3</sup>      | -                    |                   | 3000          | 1500               | 3000                |      | TC1,2, OL1,C1 | TC1,2, OL1,C1 |      |               |               |  |
|                                    |            |           |       |                | 31-50                             | -                             |                     |                        |                      | 2000 <sup>2</sup>      |                      |                   | -             | -                  |                     |      | 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.

| UL1500 (Marine Ignition Protection) |                 |           |                |                |                               |                   |               |
|-------------------------------------|-----------------|-----------|----------------|----------------|-------------------------------|-------------------|---------------|
| 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 <sup>1</sup> | DC        | -              | 0.02-50        | 5000                          | TC1,2, OL1,UI     | TC1,2, OL1,UI |
|                                     | 32 <sup>1</sup> |           |                |                |                               | TC1,2, OL0,U2     | TC1,2, OL0,U2 |
|                                     | 65              |           |                |                | 3000                          | TC1,2, OL1,UI     | TC1,2, OL1,UI |
|                                     | 125/250         | 50/60     | 1 <sup>2</sup> |                | 1500                          | TC1,2, OL1,UI     | TC1,2, OL1,UI |
|                                     | 250             |           | 1              |                | 1000                          | TC1,2, OL1,UI     | TC1,2, OL1,UI |

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 208V/120 VAC Power Systems. 1 pole protector required for : 125 VAC, 1Ø Power System.

# Tech Specs

## Tables

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

| UL489A (Communication 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                         |
|                                  |            |           | 60-90 <sup>1</sup>   |                              |

Notes:

<sup>1</sup> Parallel Pole Construction

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

| 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    |           |       |                |                              | 2 pole                                                          |
|                                      | 120/240    |           |       |                |                              | 2 or 3 poles<br>( 1 Pole of a 3 Pole Unit is for Neutral Break) |
| Dual Coil                            | 120        |           |       |                |                              | 1 pole                                                          |
|                                      | 120/240    |           |       |                |                              | 2 pole                                                          |
|                                      | 120/240    |           |       |                |                              | 2 or 3 poles<br>( 1 Pole of a 3 Pole Unit is for Neutral Break) |

## Time Delay Specs

To view all hydraulic-magnetic circuit breaker time delay values, please visit [www.carlingtech.com/sites/default/files/documents/Carling-HM-CB-Time-Delays.pdf](http://www.carlingtech.com/sites/default/files/documents/Carling-HM-CB-Time-Delays.pdf)

## Agency Approvals

|               |                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------|
| UL 1077       | Component Recognition Program as Protectors Supplementary (Guide CCN/QVNU2, File E75596)                      |
| UL 508        | Switches, Industrial Control (Guide CCN/NRNT2, File E148683)                                                  |
| UL 1500       | Protectors, Supplementary for Marine Electrical & Fuel Systems (Guide PEQZ2, File E75596) Ignition Protection |
| UL 489        | Circuit Breakers, Molded Case, (Guide DIVQ, File E129899)                                                     |
| UL 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. R72103448                                                                          |
| VDE Certified | EN60934, VDE 0642 under File No. 10537                                                                        |

# Ordering Scheme

Handle - UL 1077 Recognized

Sample  
Part Number

B A 3 - B 0 - 10 - 450 - 1 B 1 - C

Selection

1

2

3

4

5

6

7

8

9

10

11

## 1. SERIES

B

## 2. ACTUATOR <sup>1</sup>

- 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 Switch Only (No Coil) <sup>2</sup> G Relay Trip (Voltage) <sup>3</sup>  
B Series Trip (Current) H Dual Coil with Shunt Trip <sup>3,4</sup>  
C Series Trip (Voltage) Voltage Coil  
D Shunt Trip (Current) <sup>3</sup> K Dual Coil with Relay Trip <sup>3,4</sup>  
E Shunt Trip (Voltage) <sup>3</sup> Voltage Coil  
F Relay Trip (Current) <sup>3</sup>

## 5. AUXILIARY / ALARM SWITCH <sup>5</sup>

- 0 without Aux Switch 7 S.P.S.T., 0.110 Q.C. Term.  
2 S.P.D.T., 0.110 Q.C. Term. 8 S.P.S.T., 0.187 Q.C. Term.  
(Gold Contacts) (Gold Contacts)  
4 S.P.D.T., 0.110 Q.C. Term. 9 S.P.D.T., 0.187 Q.C. Term.

## 6. FREQUENCY & DELAY

- 03 DC 50/60Hz, Switch Only <sup>2</sup> 30 DC, 50/60Hz Instantaneous  
10 DC Instantaneous <sup>6</sup> 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 50/60Hz Short, High-inrush <sup>7</sup>  
20 50/60Hz Instantaneous 44 50/60Hz Medium, High-inrush <sup>7</sup>  
21 50/60Hz Ultra Short 46 50/60Hz Long, High-inrush <sup>7</sup>  
22 50/60Hz Short 52 DC, Short, High-inrush <sup>7</sup>  
24 50/60Hz Medium 54 DC, Medium, High-inrush <sup>7</sup>  
26 50/60Hz Long 56 DC, Long, High-inrush <sup>7</sup>

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 50A 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 A, select Current Code 630. For 35 - 50A, select Current Code 650.  
3 Available with Terminal Codes 1, 2 & 3. Current Rating limited to 30A 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 auxiliary 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 30A. UL Recognized and CSA Accepted to 50A.  
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 A. Ratings over 30 A are only available with Terminal Codes 5, 9, G, H, J, K, M and Q.  
10 VDE Certification up to 25 A and UL Recognition and CSA Acceptance up to 30 A, but not recommended over 20A.  
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 available up to 12A. UL Rec. & CSA Acceptance available up to 30A.  
13 1-pole breakers with Terminal Code P (Printed Circuit Board) available up to 30A with VDE and 50A with UL Recognition & CSA Acceptance, Circuit Codes A, B & C. Two pole breakers with Terminal Code P (Printed Circuit Board) are available up to 40A 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.

Configure Complete Part Number >

Browse Standard Parts >

## 7. CURRENT RATING (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 | 35.000 8 |
| 210  | 0.100   | 512 | 1.250 | 495 | 9.500  | 640 | 40.000 8 |
| 215  | 0.150   | 415 | 1.500 | 610 | 10.000 | 645 | 45.000 8 |
| 220  | 0.200   | 517 | 1.750 | 710 | 10.500 | 650 | 50.000 8 |

## OR VOLTAGE COIL (NORMAL RATED VOLTAGE) <sup>6</sup>

|     |       |     |       |     |       |     |        |
|-----|-------|-----|-------|-----|-------|-----|--------|
| 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 <sup>9</sup>

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

## 9. ACTUATOR COLOR & LEGEND

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

## 11 AGENCY APPROVAL

- C UL Recognized & CSA Accepted  
D VDE Certified, UL Recognized & CSA Accepted  
E TUV Certified, UL Recognized & CSA Accepted  
I UL Recognized STD 1077, UL Recognized 1500 (ignition protected), & CSA Accepted

# Ordering Scheme

Handle - UL 489A Listed

Sample  
Part Number

B A 1 - B 0 - 14 - 450 - 1 B 1 - M T

Selection

1

2

3

4

5

6

7

8

9

10

11

12

## 1. SERIES

B

## 2. ACTUATOR 1

A Handle, one per pole  
B Handle, one per multi-pole unit  
S Mid-Trip Handle, one per pole  
T Mid-Trip Handle, one per pole & Alarm Switch A Handle, one per pole  
B Handle, one per multi-pole 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 without Aux Switch 8 S.P.S.T., 0.187 Q.C. Term.  
2 S.P.D.T., 0.110 Q.C. Term. 9 S.P.S.T., 0.187 Q.C. Term.  
3 S.P.D.T., 0.110 Solder lug.  
7 S.P.S.T., 0.110 Q.C. Term. (Gold Contacts)

## 6 FREQUENCY & DELAY 4

11 DC Ultra Short 52 DC, Short, High-inrush  
12 DC Short 54 DC, Medium, High-inrush  
14 DC Medium 56 DC, Long, High-inrush  
16 DC Long

## 7. CURRENT RATING (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 | 35.000 |
| 270  | 0.700   | 440 | 4.000 | 711 | 11.500 | 640 | 40.000 |
| 275  | 0.750   | 445 | 4.500 | 612 | 12.000 | 645 | 45.000 |
| 280  | 0.800   | 450 | 5.000 | 712 | 12.500 | 650 | 50.000 |

## 8. TERMINAL 4

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

## 9 ACTUATOR COLOR & LEGEND

| Actuator 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 |
|---|------------------------------------------------------------------------------------------------------------------|----------|
|   | <b>Threaded Insert, 2 per pole</b>                                                                               |          |
| 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      |
|   | <b>Rectangular Adapter Plate with mounting centers of 2.062 inches [52.37mm] and Threaded insert, 2 per pole</b> |          |
| 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      |
|   | <b>Front panel Snap-In, 0.75" [19.05mm] wide bezel</b>                                                           |          |
| 5 | without Handleguard                                                                                              | no       |
| 6 | without Handleguard (multi-pole only)                                                                            | yes      |
|   | <b>Front panel Snap-In, 0.96" wide bezel</b>                                                                     |          |
| 7 | without Handleguard                                                                                              | no       |
| 8 | without Handleguard (multi-pole only)                                                                            | yes      |
|   | .105" bezel overhang on all sides, for multi-pole units.                                                         |          |

## 11. MAXIMUM APPLICATION RATING

M 80 DC

## 12. AGENCY APPROVAL

T UL489A Listed  
K UL489A Listed, VDE Certified  
J UL489A Listed, TUV Certified

Notes:

- 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.
- On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole.
- VDE Certification available with single pole breakers only. UL489A Listing available with one and two pole breakers.
- 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.
- Terminal Code I (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.
- 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.
- 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.
- Terminal Code Q not available with VDE approvals.

[Configure Complete Part Number >](#)

[Browse Standard Parts >](#)

# Ordering Scheme

Handle - UL 489 Listed

Sample  
Part Number

B A 1 - B 0 - 24 - 450 - 1 B A - K G

Selection 1 2 3 4 5 6 7 8 9 10 11 12

## 1. SERIES

B

## 2. ACTUATOR 1

A Handle, one per pole  
B Handle, one per multi-pole 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 Three 3

## 4. CIRCUIT

B Series Trip (Current)

## 5 AUXILIARY/ALARM SWITCH 4

0 without Aux Switch  
2 S.P.D.T., 0.110 Q.C. Term.  
3 S.P.D.T., 0.110 Solder Lug  
8 S.P.S.T., 0.187 Q.C. Term.  
9 S.P.D.T., 0.187 Q.C. Term.

## 6 FREQUENCY & DELAY

21 AC Ultra Short 42 AC, Short, High-inrush  
22 AC Short 44 AC, Medium, High-inrush  
24 AC Medium 46 AC, Long, High-inrush  
26 AC Long

## 7. CURRENT RATING (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 4

1 Push-On 0.250 Tab (Q.C.) A Load Terminal #8 Screw (Q.C.)  
2 Screw 8-32 with upturned lugs B Combination (Special Catalog #)  
3 Screw 8-32 (Bus Type) C Screw M5 with upturned lugs  
4 Screw 10-32 with upturned lugs F Screw M5 with upturned lugs & 30° bend  
5 Screw 10-32 (Bus Type) G Screw M5 (Bus Type) & 30° bend  
6 Screw 8-32 with upturned lugs & 30° bend H Screw M5 (Bus Type)  
7 Screw 8-32 (Bus Type) J Screw M5 Back Connect  
& 30° bend K Screw 10-32 Back Connect  
8 Screw 10-32 with upturned lugs & 30° bend M M6 Threaded Stud  
9 Screw 10-32 (Bus Type) & 30° bend N Screw M4 Back Connect  
Q Push-In Stud  
Y Screw 8-32 Back Connect

## 9 ACTUATOR COLOR & LEGEND

| Actuator 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 9

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

## 11. MAXIMUM APPLICATION RATING

C 8 120/240VAC  
K 120VAC

## 12. AGENCY APPROVAL

G UL489 Listed  
3 UL489 Listed, TUV Certified

Notes:

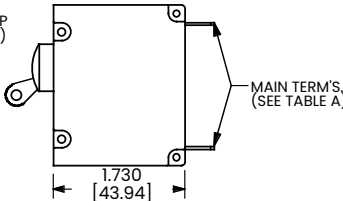
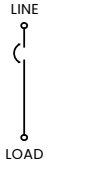
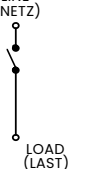
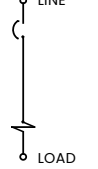
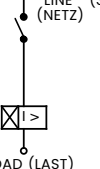
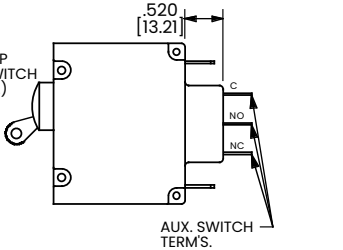
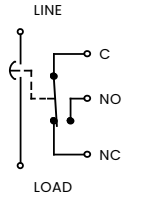
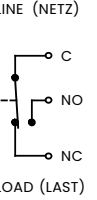
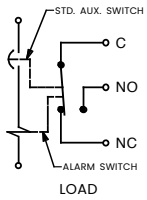
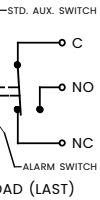
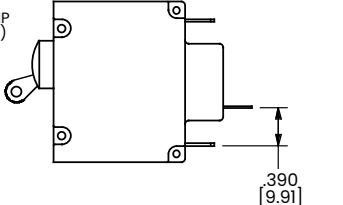
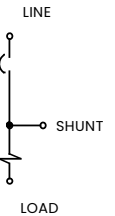
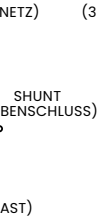
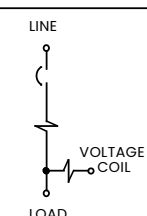
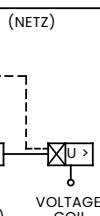
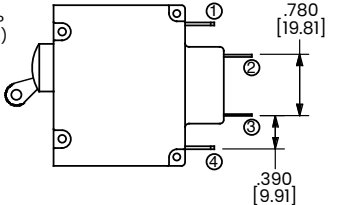
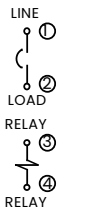
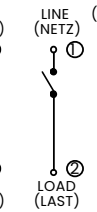
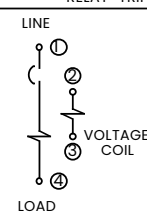
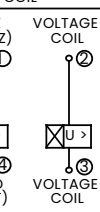
- Actuator Code:  
A: Handle tie pin spacer(s) and retainers provided un-assembled with multi-pole units.  
B: Handle location as viewed from front of breaker:  
2 pole - left pole 3 pole - center pole  
S: Handle moves to mid-position only upon electrical trip of the breaker. Available with circuit 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.
- All poles must be same polarity.
- 3 pole units available only when 1 of 3 poles is neutral.
- Auxiliary/Alarm Switch circuit must be same polarity as the main circuit. On multi-pole breakers, one auxiliary switch is supplied, mounted in the extreme right pole.
- Screw Terminals are recommended on ratings greater than 20 amps.
- Standard actuator colors are black and white.
- Adapter plate with mounting centers of 2.082 inches. Available with Actuator Codes A, S and T.
- Voltage Rating available with 2 and 3-pole breakers only.
- Barriers supplied on multi-pole units only.

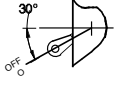
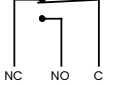
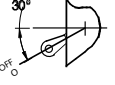
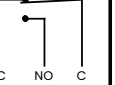
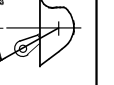
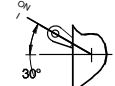
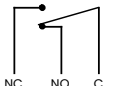
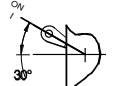
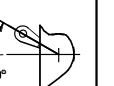
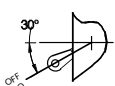
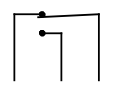
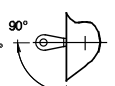
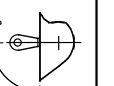
[Configure Complete Part Number >](#)

[Browse Standard Parts >](#)

# Circuit & Terminal Diagrams Handle

inches [millimeters]

|                                                                                                                                            | CIRCUIT SCHEMATIC                                                                   |                                                                                       |                                                                                       |   | CIRCUIT CODE                                                                        | AUX SWITCH CODE                                                                     | CIRCUIT SCHEMATIC                                               |   |     |  | CIRCUIT CODE | AUX SWITCH CODE |
|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------|---|-----|--|--------------|-----------------|
|                                                                                                                                            | ANSI                                                                                |                                                                                       | IEC                                                                                   |   |                                                                                     |                                                                                     | ANSI                                                            |   | IEC |  |              |                 |
|                                                                                                                                            | SWITCH ONLY (NO COIL)                                                               |                                                                                       |                                                                                       |   |                                                                                     |                                                                                     | SERIES TRIP                                                     |   |     |  |              |                 |
| <div>SERIES TRIP<br/>(2 TERM'S.)</div>                    |    |      | A                                                                                     | O |  |  | B<br>C                                                          | O |     |  |              |                 |
| <div>SERIES TRIP<br/>W/ AUX SWITCH<br/>(5 TERM'S.)</div>  | SWITCH ONLY (NO COIL)<br>WITH AUXILIARY SWITCH                                      |                                                                                       |                                                                                       |   | A                                                                                   | 2<br>3<br>4                                                                         | SERIES TRIP WITH<br>AUXILIARY / ALARM SWITCH                    |   |     |  | B<br>C       | 2<br>3<br>4     |
|                                                           |    |    |    |   |                                                                                     |                                                                                     |                                                                 |   |     |  |              |                 |
| <div>SHUNT TRIP<br/>(3 TERM'S.)</div>                    | SHUNT TRIP                                                                          |                                                                                       |                                                                                       |   | D<br>E                                                                              | O                                                                                   | DUAL COIL; SERIES TRIP CURRENT COIL,<br>SHUNT TRIP VOLTAGE COIL |   |     |  | H            | O               |
|                                                          |   |   |   |   |                                                                                     |                                                                                     |                                                                 |   |     |  |              |                 |
| <div>RELAY TRIP<br/>(4 TERM'S.)</div>                   | RELAY TRIP                                                                          |                                                                                       |                                                                                       |   | F<br>G                                                                              | O                                                                                   | DUAL COIL; SERIES TRIP CURRENT COIL,<br>RELAY TRIP VOLTAGE COIL |   |     |  | K            | O               |
|                                                         |  |  |  |   |                                                                                     |                                                                                     |                                                                 |   |     |  |              |                 |

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

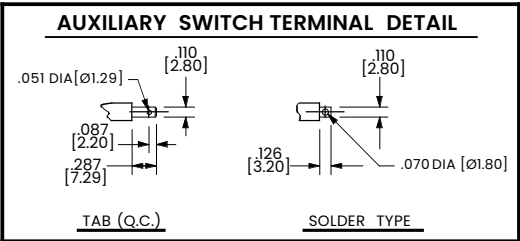
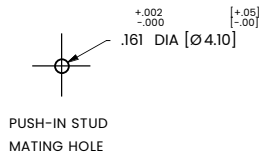
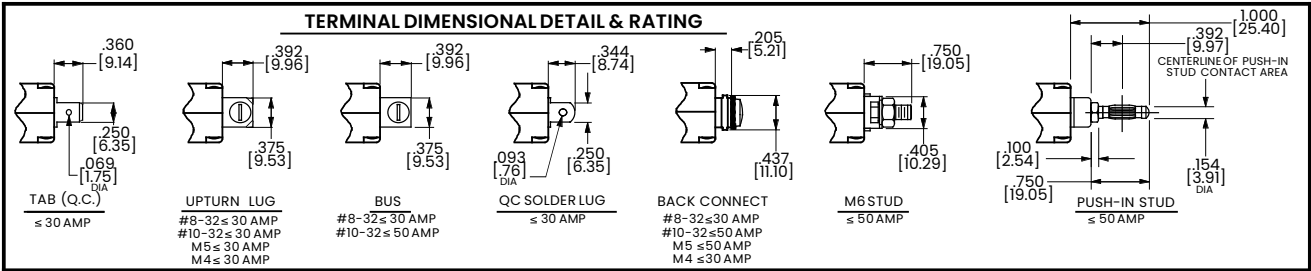
Notes:

1 Tolerance  $\pm .020$  [.51] unless otherwise specified.

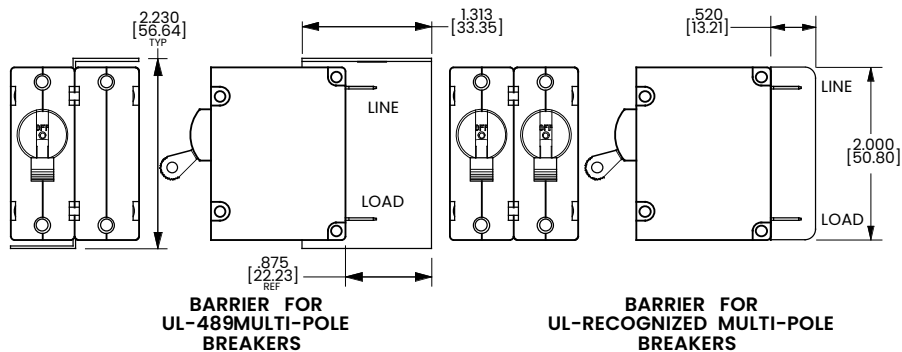
2 Alarm Switch available with .110 x .020 Q.C. & Solder Lug Terminals Only.

# Circuit & Terminal Diagrams Handle

inches [millimeters]

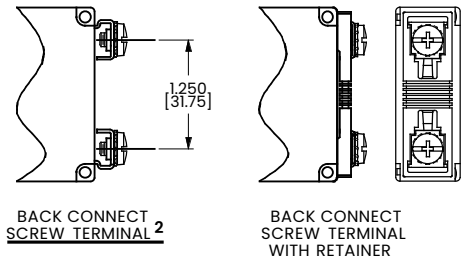
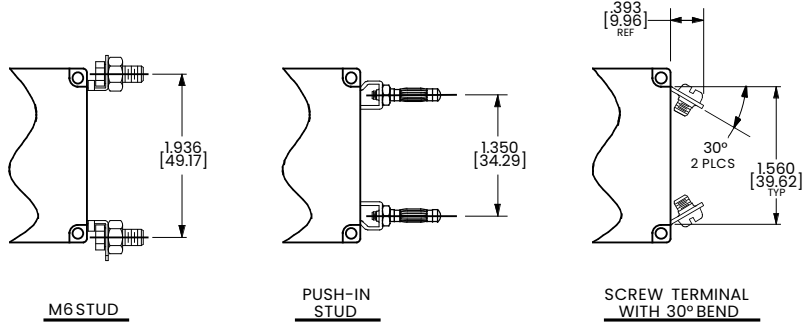
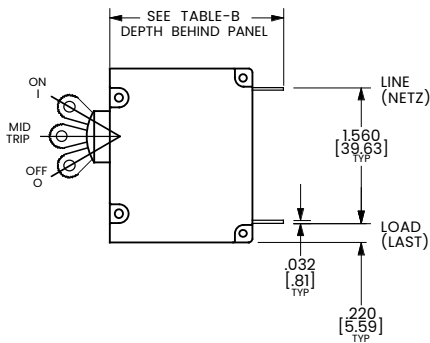


| TABLE A<br>TIGHTENING TORQUE<br>SPECIFICATIONS |                              |
|------------------------------------------------|------------------------------|
| THREAD SIZE                                    | TORQUE                       |
| #6-32 & M3 MOUNTING<br>HARDWARE                | 7-9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



| TABLE B                        |                                |
|--------------------------------|--------------------------------|
| TERMINAL DESCRIPTION           |                                |
| MAIN                           | TAB (Q.C.)                     |
|                                | DEPTH BEHIND PANEL             |
| SHUNT, RELAY<br>&<br>DUAL COIL | SCREW TYPE                     |
|                                | DEPTH BEHIND PANEL             |
| AUX. SWITCH*                   | TAB (Q.C.)                     |
|                                | DEPTH BEHIND PANEL             |
| AUX. SWITCH*                   | SCREW #8-32<br>W/UPTURNED LUGS |
|                                | DEPTH BEHIND PANEL             |
| AUX. SWITCH*                   | TAB (Q.C.) .110 x .020         |
|                                | DEPTH BEHIND PANEL             |
| AUX. SWITCH*                   | SOLDER TYPE                    |
|                                | DEPTH BEHIND PANEL             |

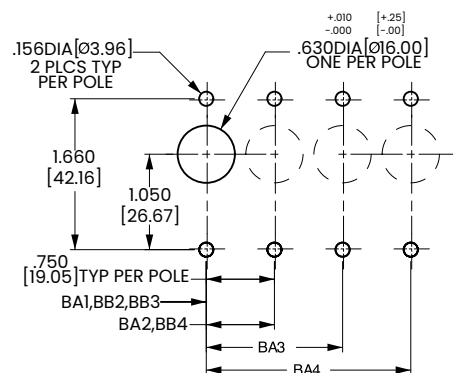
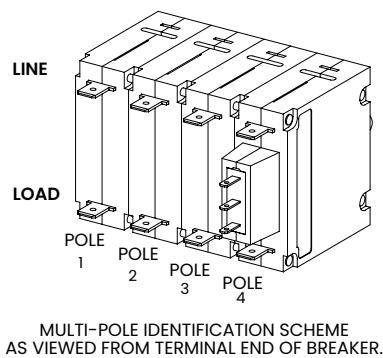
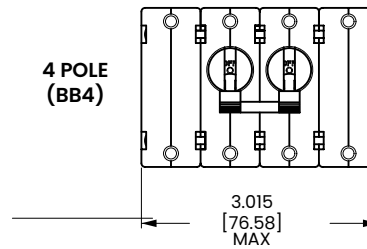
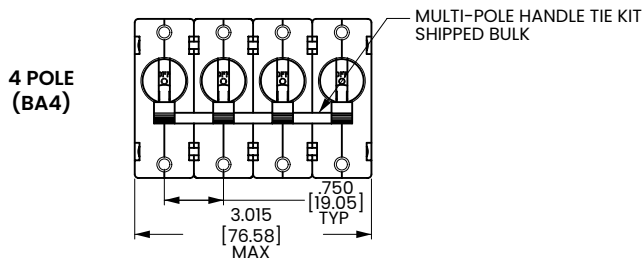
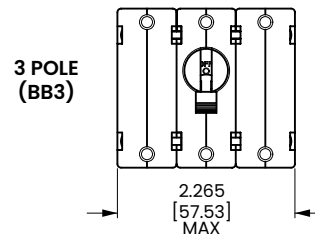
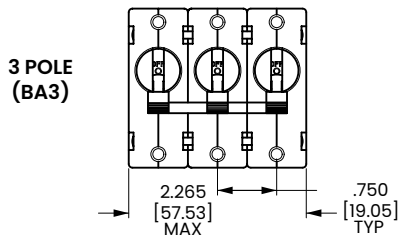
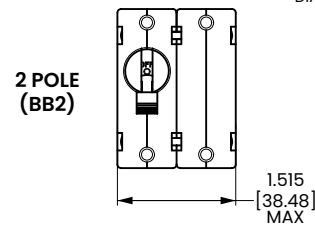
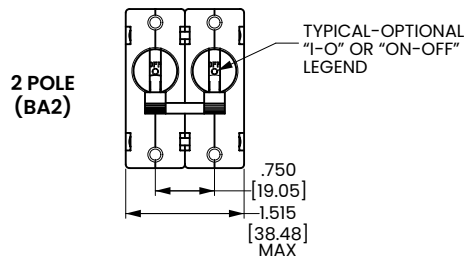
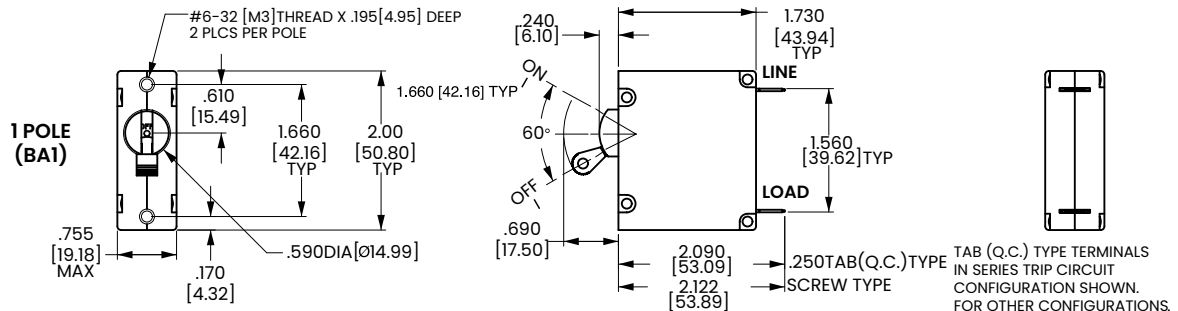
\* AVAILABLE ON SERIES TRIP AND SWITCH ONLY CIRCUITS.  
WHEN CALLED FOR ON MULTI-POLE UNITS, ONLY ONE AUX.  
SWITCH IS NORMALLY SUPPLIED, AS SHOWN IN MULTI-POLE  
IDENTIFICATION SCHEME.



Notes:  
1 Tolerance  $\pm .020$  [.51] unless otherwise specified.  
2 Special Catalog part number required for back connect screw terminal without retainer

# Dimensional Specs Handle

inches [millimeters]



**PANEL CUTOUT DETAIL**

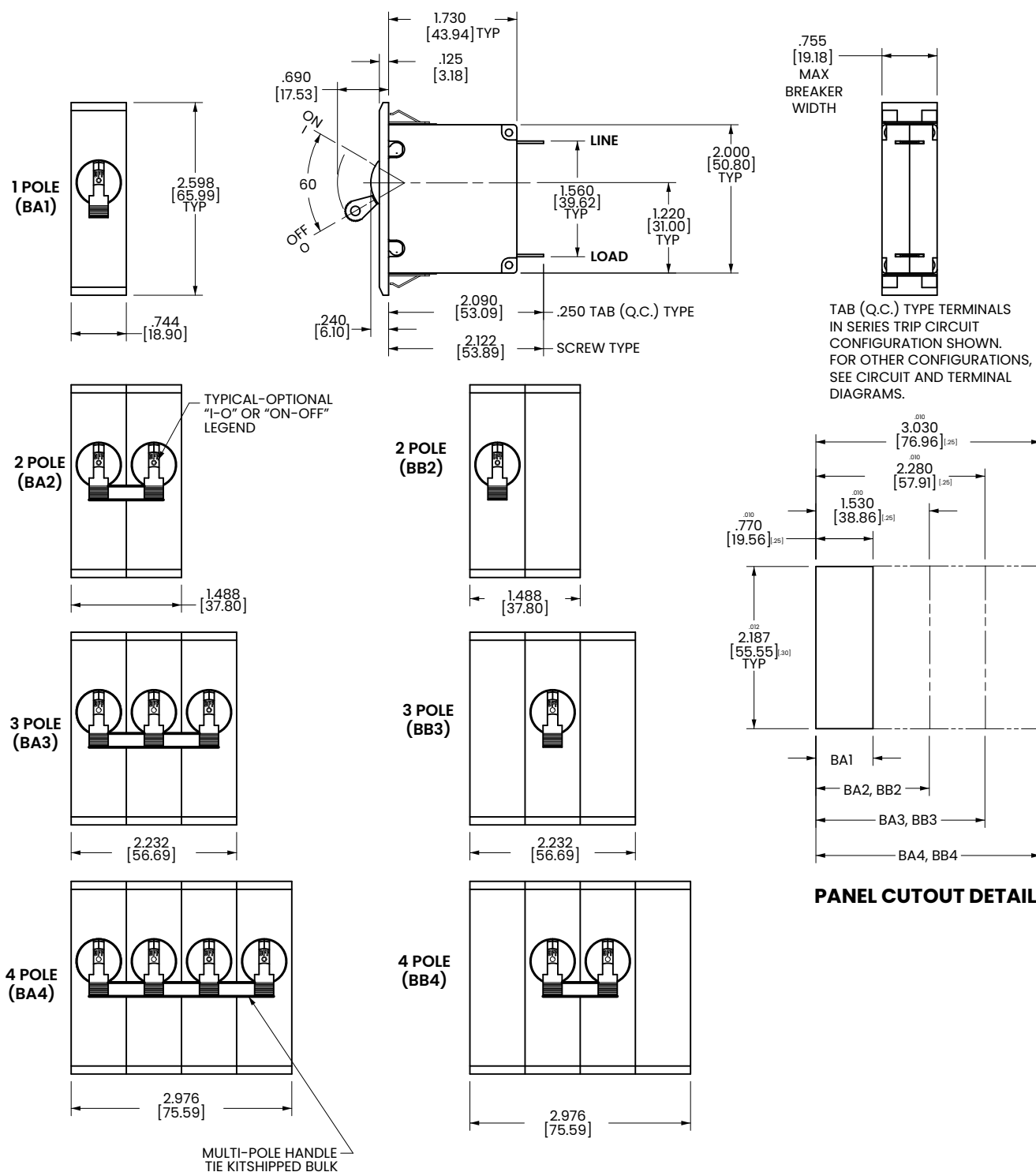
TOLERANCES ±.005 [±.12]

Notes:

1 Tolerance ± 0.20 [.5] unless otherwise specified.

# Dimensional Specs Handle

inches [millimeters]

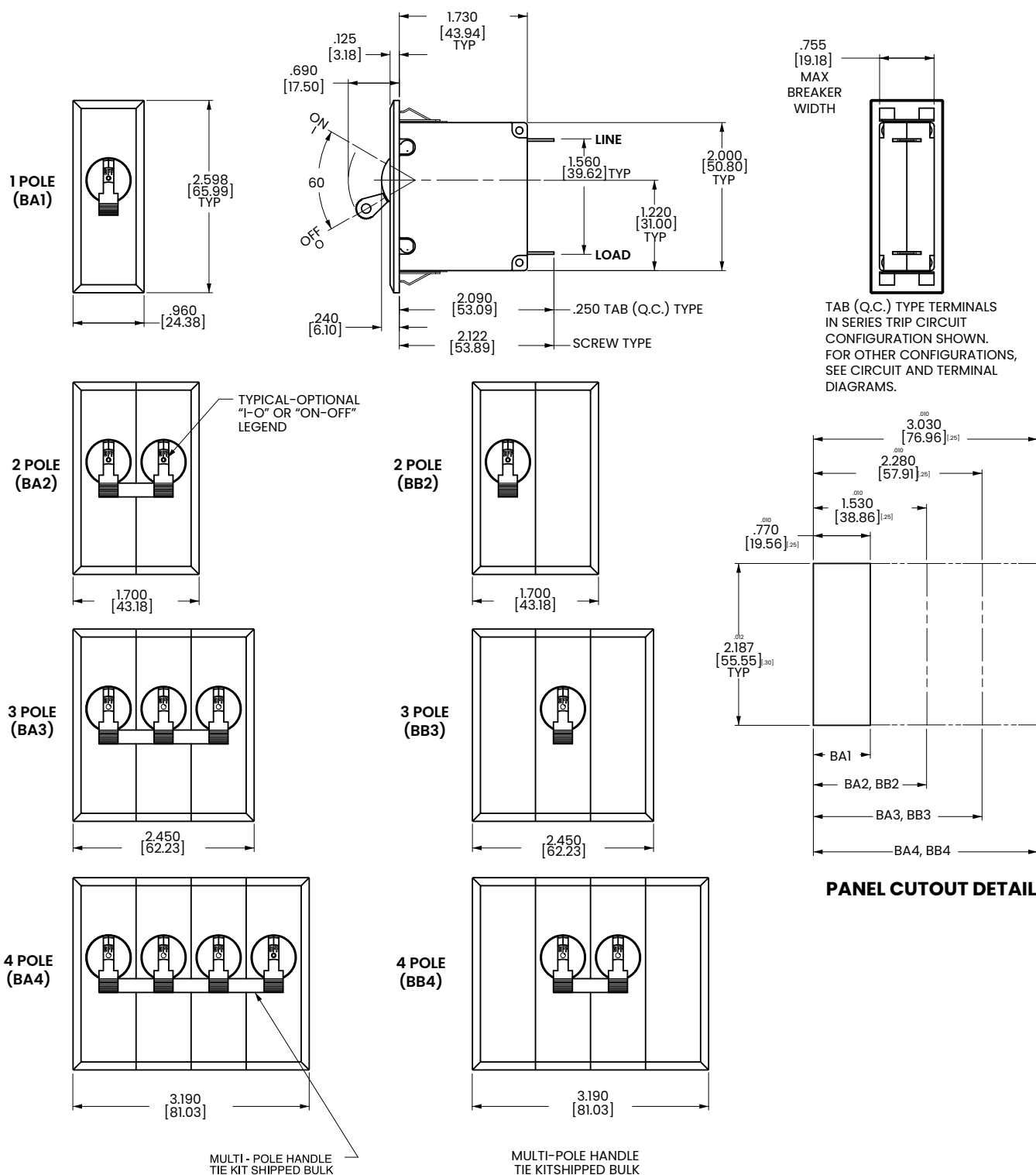


## Notes:

- 1 Recommended panel thickness: .040 [1.02] to .100 [2.54].
- 2 Tolerance  $\pm .020$  [.51] unless otherwise specified.

# Dimensional Specs Handle

inches [millimeters]



## Notes:

- 1 Recommended panel thickness: .040 [1.02] to .100 [2.54].
- 2 Tolerance  $\pm .020$  [.51] unless otherwise specified.

# Ordering Scheme

Rocker - UL 489 Listed

Sample  
Part Number

B F 1 - B 0 - 24 - 630 - 2 3 A - K G

Selection

1

2

3

4

5

6

7

8

9

10

11

12

## 1. SERIES

B

## 2. ACTUATOR 1

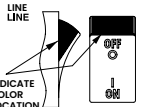
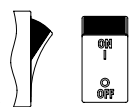
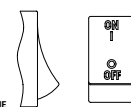
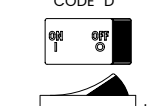
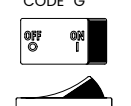
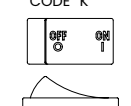
### Two Color Visi-Rocker

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   |  |  |  |
| HORIZONTAL STYLE |                                            |  |  |

## 3. POLES 1,2

1 One 2 Two 3 Three<sup>3</sup>

## 4. CIRCUIT

B Series Trip (Current)

## 5 AUXILIARY/ALARM SWITCH 4

0 without Aux Switch 7 S.P.S.T., 0.110 Q.C. Term.  
1 S.P.D.T., 0.093 Q.C. Term. (Gold Contacts)  
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., 0.110 Solder Lug 9 S.P.D.T., 0.187 Q.C. Term.

## 6. FREQUENCY & DELAY

21 AC Ultra Short 42 AC, Short, High-inrush  
22 AC Short 44 AC, Medium, High-inrush  
24 AC Medium 46 AC, Long, High-inrush  
26 AC Long

## 7. CURRENT RATING (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<sup>6</sup> Push-On 0.250 Tab (Q.C.) 9 Screw 10-32 (Bus Type)  
2 Screw 8-32 with upturned lugs & 30° bend  
3 Screw 8-32 (Bus Type) B Screw M5 with upturned lugs  
4 Screw 10-32 with upturned lugs C Screw M4 with upturned lugs  
5 Screw 10-32 (Bus Type) F Screw M5 with upturned lugs  
6 Screw 8-32 with upturned lugs & 30° bend G Screw M5 (Bus Type) & 30° bend  
7 Screw 8-32 (Bus Type) H Screw M5 (Bus Type)  
8 Screw 10-32 with upturned lugs & 30° bend J Screw M5 Back Connect  
K Screw 10-32 Back Connect  
N Screw M4 Back Connect  
Y Screw 8-32 Back Connect

## 9 ACTUATOR COLOR & LEGEND

| Actuator or Visi-Color <sup>7</sup> | Marking: | Marking Color                              |
|-------------------------------------|----------|--------------------------------------------|
|                                     | ON-OFF   | Dual <sup>7</sup> Single Color Visi-Rocker |
| White B                             | 1 Black  | White                                      |
| Black D                             | 2 White  | n/a                                        |
| Red G                               | 3 White  | Red                                        |
| Green J                             | 4 White  | Green                                      |
| Blue L                              | 5 White  | Blue                                       |
| Yellow N                            | 6 Black  | Yellow                                     |
| Gray Q                              | 7 Black  | Gray                                       |
| Orange S                            | 8 Black  | Orange                                     |

## 10. MOUNTING / BARRIERS

|   | MOUNTING STYLE                             | BARRIERS <sup>9</sup> |
|---|--------------------------------------------|-----------------------|
| A | Threaded Insert, 2 per pole                |                       |
| B | 6-32 x 0.195 inches (multipole units only) | yes                   |
|   | ISO M3 x 5mm                               | yes                   |
| C | ROCKERGARD BEZEL                           |                       |
| D | Threaded Insert, 2 per pole                |                       |
|   | 6-32 X 0.225 inches (multipole units only) | yes                   |
|   | ISO M3 x 6.5mm                             | yes                   |

## 11. MAXIMUM APPLICATION RATING

C<sup>8</sup> 120/240VAC  
K 120VAC

## 12. AGENCY APPROVAL

G UL489 Listed  
3 UL489 Listed, TUV Certified

Notes:

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

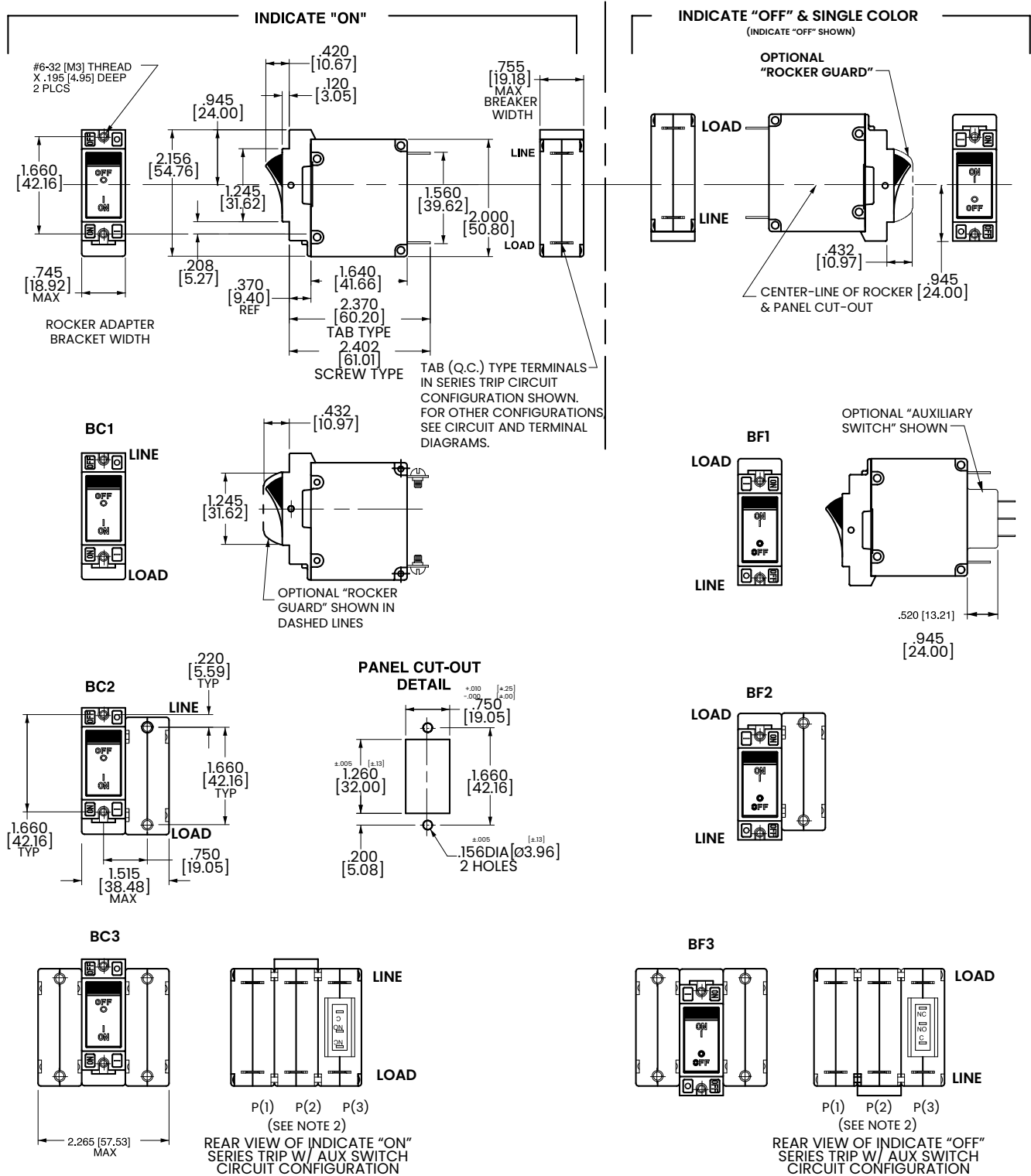
[Configure Complete Part Number >](#)

[Browse Standard Parts >](#)

# Dimensional Specs

Rocker - UL 489 Listed

inches [millimeters]



## 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 Tolerance  $\pm .020$  [51] unless otherwise specified.

# Ordering Scheme

Flat Rocker - UL 489 Listed

Sample  
Part Number

B 1 1 - B 0 - 24 - 630 - 2 3 A - K G

Selection

1 2 3 4 5 6 7 8 9 10 11 12

## 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

### ROCKER STYLE DESCRIPTIONS

|                  | INDICATE "OFF"    | SINGLE COLOR      |
|------------------|-------------------|-------------------|
| VERTICAL STYLE   | CODE "1", "5"<br> | CODE "3", "7"<br> |
| HORIZONTAL STYLE | CODE "2", "6"<br> | CODE "4", "8"<br> |

## 3. POLES 1,2

- 1 One
- 2 Two
- 3 Three 4

## 4. CIRCUIT

B Series Trip (Current)

## 5 AUXILIARY/ALARM SWITCH 4

- 0 without 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., 0.110 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

- 21 AC Ultra Short
- 22 AC Short
- 24 AC Medium
- 26 AC Long
- 42 AC, Short, High-inrush
- 44 AC, Medium, High-inrush
- 46 AC, Long, High-inrush

## 7. CURRENT RATING (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.)
- 2 Screw 8-32 with upturned lugs
- 3 Screw 8-32 (Bus Type)
- 4 Screw 10-32 with upturned lugs
- 5 Screw 10-32 (Bus Type)
- 6 Screw 8-32 with upturned lugs & 30° bend
- 7 Screw 8-32 (Bus Type) & 30° bend
- 8 Screw 10-32 with upturned lugs & 30° bend
- 9 Screw 10-32 (Bus Type) & 30° bend
- B Screw M5 with upturned lugs
- C Screw, M4 with upturned lugs
- F Screw M5 with upturned lugs & 30° bend
- G Screw M5 (Bus Type) & 30° bend
- H Screw M5 (Bus Type)
- J Screw M5 Back Connect
- K Screw 10-32 Back Connect
- N Screw M4 Back Connect
- Y Screw 8-32 Back Connect

## 9 ACTUATOR COLOR & LEGEND

| Actuator or<br>Visi-Color 8 | Marking: |        | Marking Color |             |
|-----------------------------|----------|--------|---------------|-------------|
|                             | ON-OFF   | Dual 7 | Single Color  | Visi-Rocker |
| White                       | B        | 1      | Black         | White       |
| Black                       | D        | 2      | White         | n/a         |
| Red                         | G        | 3      | White         | Red         |
| Green                       | J        | 4      | White         | Green       |
| Blue                        | L        | 5      | White         | Blue        |
| Yellow                      | N        | 6      | Black         | Yellow      |
| Gray                        | Q        | 7      | Black         | Gray        |
| Orange                      | S        | 8      | Black         | Orange      |

## 10. MOUNTING / BARRIERS

|   | STANDARD ROCKER BEZEL<br>Threaded Insert, 2 per pole<br>FLAT ROCKER ACTUATOR | BARRIERS 12 |
|---|------------------------------------------------------------------------------|-------------|
| 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 120/240VAC 11
- 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 Auxiliary switch and/or mixed poles, and have one rocker per breaker.
- 3 All poles must be same polarity.
- 4 3 pole units available only when 1 of 3 poles is neutral.
- 5 On multi-pole breakers, one auxiliary 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.

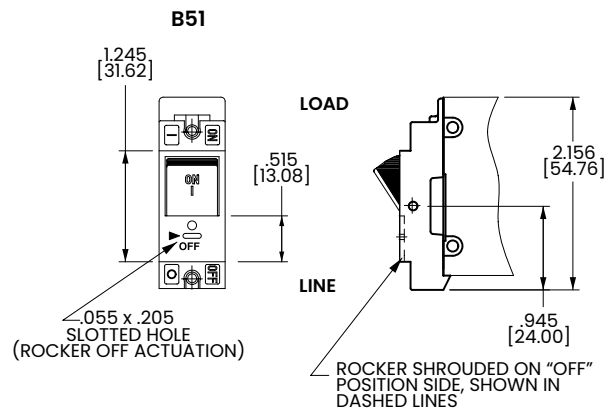
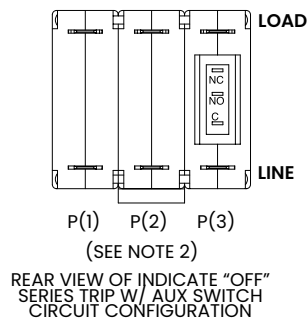
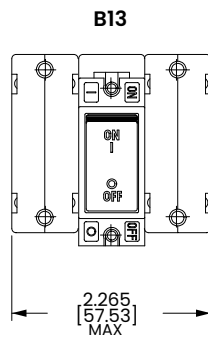
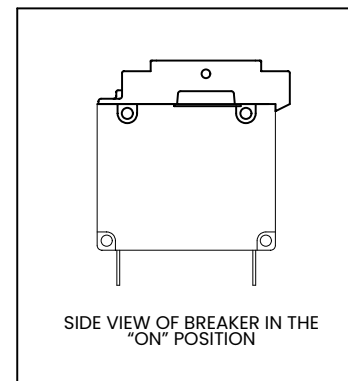
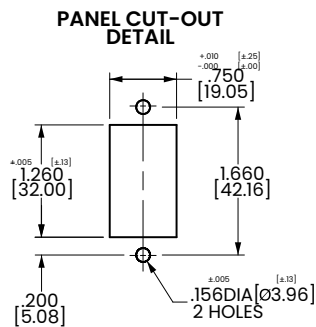
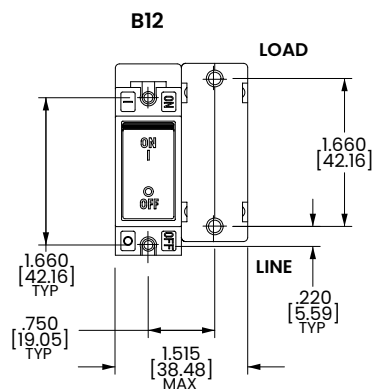
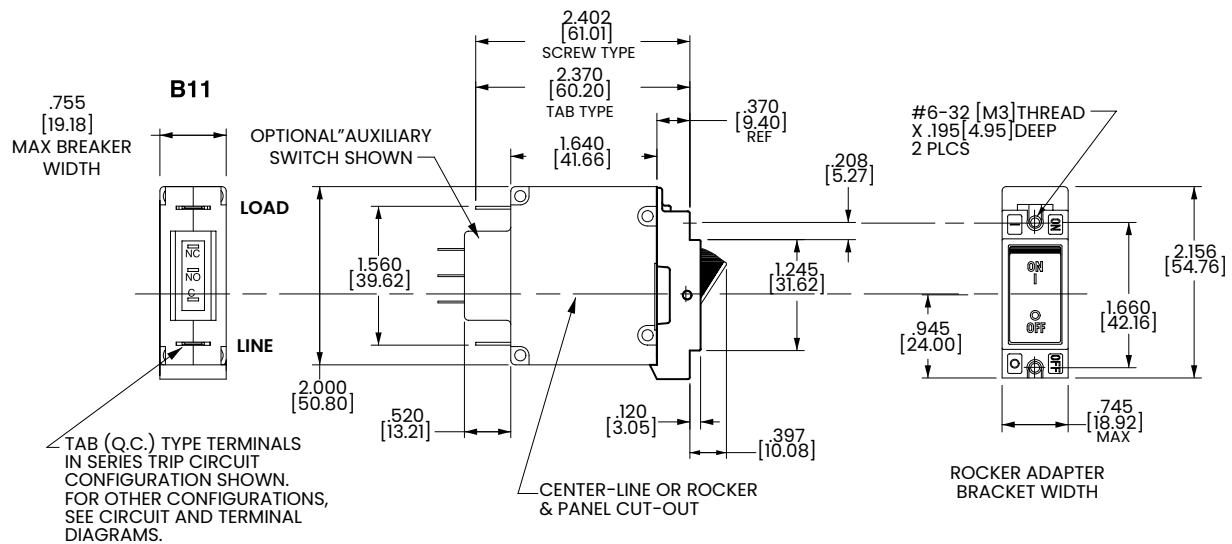
[Configure Complete Part Number >](#)

[Browse Standard Parts >](#)

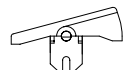
Flat Rocker UL489 Listed

inches [millimeters]

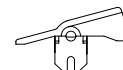
**INDICATE "OFF" & SINGLE COLOR**  
(INDICATE "OFF" SHOWN)



ACTUATOR SIDE VIEW  
(SURFACE CONTOURS)



FLAT ROCKER



RECESSED OFF SIDE  
ROCKER

Notes:

- Notes:  
1 For pole orientation with horizontal legend, rotate front view clockwise 90°.  
2 Tolerance  $\pm .010$  [.25] unless otherwise specified.

## inches [millimeters]



Notes:  
1 For pole orientation with horizontal legend, rotate front view clockwise 90°.  
2 Tolerance  $\pm .010$  [.25] unless otherwise specified.

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