



**Product Type**  
Hydraulic / Magnetic Circuit Breaker

**Product Series**  
C-Series

**Description**  
[C-Series PDF eLibrary](#) ↓

The C-Series hydraulic/magnetic circuit breakers are designed for those applications requiring higher amperage and voltage handling capability in a smaller package. Available with American Standard or Metric Threaded Stud terminals, or Saddle Clamp screw terminals. Optional

mid-trip handle style actuator allows visual indication of electrical overload with or without alarm feature. These circuit breakers are also available with new solid color rocker actuators and unique two-color Visi-rocker® actuators. Visi-rocker can be specified to indicate either the ON or TRIPPED/OFF mode. The exclusive Rockerguard and Push-To-Reset bezel help prevent inadvertent actuation.

The C-Series UL489 circuit breakers employ a unique arc chute design which results in obtaining higher interrupting capacities, up to 10,000 amps. New thermoset glass filled polyester half shell construction provides for increased mechanical and electrical strength. Wiping contacts, mechanical linkage with two step actuation, cleans contacts providing high, positive contact pressure and longer contact life.

C-Series circuit breakers are offered in 1-6 poles, 0.02-100amps, up to 480VAC or 80VDC, UL489 up to 240VAC or 125VDC, with choice of time delays, terminal options, actuator styles and colors.

|                                            |                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Series PDF eLibrary</b>                 | <ul style="list-style-type: none"> <li>• <a href="#">C-Series Cir. Breaker PDF (3.7 MB)</a></li> <li>• <a href="#">Cir. Breaker Time Delays for A,B,C,D &amp; PD-Series PDF (2.3 MB)</a></li> <li>• <a href="#">Cir. Breaker Accessories PDF (49.5 KB)</a></li> </ul>                                                             |
| <b>Certifications</b>                      | UL recognized, CSA, VDE -0642, UL-1500, TUV, UL489 Listed, UL489A Listed (Telecom)                                                                                                                                                                                                                                                |
| <b>Number of Poles</b>                     | 1-6 poles                                                                                                                                                                                                                                                                                                                         |
| <b>Available Delays</b>                    | Instant, Ultra-Short, Short, Medium, Long (motor loads), AC,DC, AC/DC; High Inrush - Short, Medium, Long                                                                                                                                                                                                                          |
| <b>Maximum Current and Voltage Ratings</b> | <p>UL Listed:</p> <p>0.1-100A @ 80VDC<br/> 0.1-60A @ 125VDC<br/> 0.1-70A @ 120VAC<br/> 0.1-30A @ 240VAC<br/> 110-250A @ 80VDC (UL489A Listed)</p> <p>UL Recognized:</p> <p>0.02-30A @ 480WYE/277VAC 2 pole 1 phase,<br/> 3 pole 3 phase<br/> 0.02-50A @ 277VAC<br/> 0.02-70A @ 250VAC, 80VDC<br/> 71-100A @ 120/240VAC, 65VDC</p> |

|                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Maximum Interrupting Capacity</b> | UL Listed:<br>10,000A @ 120VAC, 80VDC<br>5,000A @ 240VAC, 125VDC<br>10,000A @ 80VDC (UL489A Listed)<br>UL Recognized:<br>7,500A @ 80VDC<br>3,000A @ 125/250VAC (UL only)<br>5,000A @ 250VAC w/fuse back up<br>5,000A @ 480WYE/277VAC w/fuse back up                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Auxiliary Switch Ratings</b>      | 10.1A @ 250VAC<br>0.1A @ 125VAC (gold contacts)<br>5A @ 30VDC<br>0.5A @ 80VDC<br>1.0A @ 65VDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Available Circuits</b>            | Series, Shunt, Relay, Switch Only,<br>Series Mid-Trip w/ Alarm Switch,<br>Series w/Remote Shutdown, Relay<br>and Shunt Trip Dual Coil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Actuator Style</b>                | Solid Color Curved Rocker (1 per unit)<br>Two Color Visi-Rocker (1 per unit)<br>Handle (1 per pole or 1 per unit)<br>Mid Trip Handle (1 per pole)<br>Mid Trip Handle and Alarm Switch (1 per pole)                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Terminal Options</b>              | .250 Double QC Tabs<br>10-32 Threaded Stud<br>10-32 Screw<br>10-32 Screw with Washer and Saddle Clamp<br>1/4-20 Threaded Stud<br>M5 Threaded Stud<br>M6 Threaded Stud<br>Push in Stud Terminal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Mounting Method</b>               | Front Panel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Remote Operator Option</b>        | Custom designed remote operated motor (housed within a circuit breaker molding), coupled to a Carling Technologies C-Series hydraulic/magnetic circuit breaker. The breaker can be operated manually, or remotely to control circuits for maintenance, load shedding and power distribution control functions from locations that are unattended or difficult to access. Some key features include:<br><br>* Design flexibility with multiple motor mounting options<br>* Remote operated module operates 1 - 3 poles<br>* Motor voltage input: 12 - 80 VDC<br>* Motor start current: <1 amp<br>* ON - OFF trip indication<br>* Load shedding capable<br>* Auto reset capable |
| <b>Value Added</b>                   | Custom actuator colors<br>Non-standard amp ratings<br>Panel hole plug available<br><b>and more</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |



Designed for those applications requiring higher amperage and voltage handling capability in a compact design. Available with American Standard or Metric Threaded Stud terminals, or Saddle Clamp screw terminals. Available with optional mid-trip handle style actuator, solid color rocker actuators and Visi-rocker two color actuators. Visi-rocker can be specified to indicate either the ON or TRIPPED/OFF mode. Rockerguard and Push-To-Reset bezel help prevent inadvertent actuation.

The C-Series UL489 breakers employ a unique arc chute design which results in obtaining higher interrupting capacities, up to 50,000 amps. Thermoset glass filled polyester half shell construction for increased mechanical & electrical strength; Wiping Contacts - Mechanical linkage with two-step actuation – cleans contacts, provides high, positive contact pressure & longer contact life; 1-6 poles, 0.02 - 100 amps, up to 480 VAC or 80 VDC, UL489 up to 240 VAC or 125 VDC, with choice of time delays and actuator colors.

### Agency Certifications

#### UL Recognized

UL Standard 1077



Component Recognition Program as Protectors, Supplementary (Guide CCN/QVNU2, File E75596)

UL Standard 508



Switches, Industrial Control (Guide CCN/NRNT2, File E148683)

UL Standard 1500



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

#### UL Listed

UL Standard 489



Circuit Breakers, Molded Case, (Guide DIVQ, File E189195)

UL Standard 489A



Communications Equipment (Guide CCN/DITT, File E189195)

#### CSA Accepted



Component Supplementary Protector under Class 3215 30, File 047848 0 000 CSA Standard C22.2 No. 235

#### CSA Certified



Circuit Breaker Model Case (Class 1432 01, File 093910), CSA Standard C22.2 No. 5.1 - M

#### TUV Certified



EN60934, under License No. R72041016

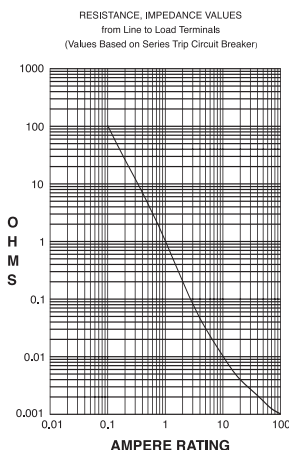
#### VDE Certified



EN60934, VDE 0642 under File No. 10537

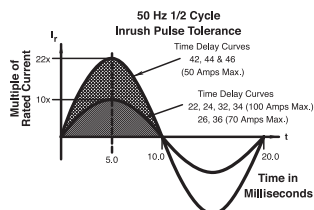
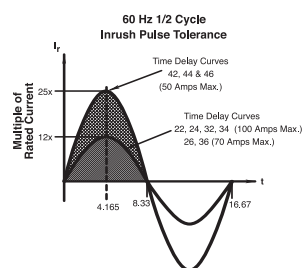
## Electrical

|                         |                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maximum Voltage         | AC, 480 WYE/277 VAC, 50/60 Hz<br>(see Table A.)<br>UL489: AC, 240 VAC. (See Table D),<br>50/60 Hz, 125 VDC                                                                                                                                                                                                                                                                                    |
| Current Rating          | Standard current coils: 0.100, 0.250,<br>0.500, 0.750, 1.00, 2.50, 5.00, 7.50,<br>10.0, 15.0, 25.0, 30.0, 35.0, 40.0,<br>50.0, 60.0, 70.0, 80.0, 90.0 and 100<br>amps. Other ratings available, see<br>Ordering Scheme.                                                                                                                                                                       |
| Standard Voltage Coils  | DC - 6V, 12V; AC - 120V; other rat-<br>ings available, see Ordering<br>Scheme.                                                                                                                                                                                                                                                                                                                |
| Auxiliary Switch Rating | SPDT; 10.1 amps-250VAC, DC Aux.<br>Switch 1.0A, 65 VDC. 0.5A,<br>80VDC, 1/4 HP, 125VAC, VDE & TUV<br>1.0 125 VAC.                                                                                                                                                                                                                                                                             |
| Insulation Resistance   | Minimum of 100 Megohms at 500 VDC.                                                                                                                                                                                                                                                                                                                                                            |
| Dielectric Strength     | UL, CSA: 1960 V 50/60 Hz for one<br>minute between all electrically isolat-<br>ed terminals. C-Series Circuit<br>Breakers comply with the 8mm<br>spacing and 3750V 50/60 Hz dielec-<br>tric requirements from hazardous<br>voltage to operator accessible sur-<br>faces, between adjacent poles and<br>from main circuits to auxiliary circuits<br>per Publications EN 60950 and VDE<br>0805. |
| Resistance, Impedance   | Values from Line to Load Terminal -<br>based on Series Trip Circuit Breaker.                                                                                                                                                                                                                                                                                                                  |



| CURRENT (AMPS) | TOLERANCE (%) |
|----------------|---------------|
| 0.10 - 5.0     | 15%           |
| 5.1 - 20.0     | 25%           |
| 20.1 - 100.0   | 35%           |

## Pulse Tolerance Curves



## Mechanical

|                 |                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Endurance       | 10,000 ON-OFF operations @ 6 per<br>minute; with rated current & voltage.                                                                                                                                                                                                                                                                                                                 |
| Trip Free       | All C-Series circuit breakers will trip<br>on overload, even when actuator is<br>forcibly held in the ON position.                                                                                                                                                                                                                                                                        |
| Trip Indication | The operating actuator moves posi-<br>tively to the OFF position when an<br>overload causes the breaker to trip.<br>With mid-trip, handle moves to the<br>mid position on electrical trip of the<br>circuit breaker. With mid trip handle<br>with alarm switch, handle moves to<br>the mid position and the alarm<br>switch actuates when the circuit<br>breaker is electrically tripped. |

## Physical

|                                 |                                                                                                                                                                                                                                                                                                           |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of Poles                 | 1-6 poles $\leq$ 50A; 1-4 poles @ 51-<br>70A; 1-2 poles 71-100A. UL489<br>Handle: 1 pole $\leq$ 100A, 2 pole $\leq$<br>50A; Rocker: 1 pole $\leq$ 100A.                                                                                                                                                   |
| Internal Circuit Configurations | Series (with or without auxiliary<br>switch, mid trip & mid trip with alarm<br>switch) Shunt & Relay with current<br>or voltage trip coils, Dual Coil,<br>Switch Only (with or without aux.<br>switch). UL489: Series (with or with-<br>out auxiliary switch, mid-trip & mid-<br>trip with alarm switch). |
| Weight                          | Approx. 112 grams/pole ( 3.95 oz).                                                                                                                                                                                                                                                                        |
| Standard Colors                 | Housing: Black                                                                                                                                                                                                                                                                                            |

## Environmental

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

|                       |                                                                                                                                                                                           |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Shock                 | Withstands 100 Gs, 6ms sawtooth<br>while carrying rated current per<br>Method 213, Test Condition "I".<br>Instantaneous and ultrashort curves<br>tested @ 90% of rated current.           |
| Vibration             | Withstands 0.060" excursion from 10-<br>55 Hz & 10 Gs 55-500 Hz, @ rated<br>current per Method 204C, Test Cond.<br>A. Instantaneous & ultrashort curves<br>tested @ 90% of rated current. |
| Moisture Resistance   | Method 106D, i.e., ten 24-hour<br>cycles @ +25°C to +65°C, 80-98%<br>RH.                                                                                                                  |
| Salt Spray            | Method 101, Condition A (90-95%<br>RH @ 5% NaCl Solution, 96 hrs).                                                                                                                        |
| Thermal Shock         | Method 107D, Condition A (five cycles<br>@ -55°C to +25°C to +85°C to +25°C).                                                                                                             |
| Operating Temperature | -40°C to +85°C                                                                                                                                                                            |

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

**1 SERIES****C****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<sup>2</sup>**

- |          |     |          |       |          |      |
|----------|-----|----------|-------|----------|------|
| <b>1</b> | One | <b>3</b> | Three | <b>5</b> | Five |
| <b>2</b> | Two | <b>4</b> | Four  | <b>6</b> | Six  |

**4 CIRCUIT<sup>3</sup>**

- |                      |                       |                        |                                        |
|----------------------|-----------------------|------------------------|----------------------------------------|
| <b>A<sup>4</sup></b> | Switch Only (No Coil) | <b>F<sup>4</sup></b>   | Relay Trip (Current)                   |
| <b>B</b>             | Series Trip (Current) | <b>G<sup>4</sup></b>   | Relay Trip (Voltage)                   |
| <b>C</b>             | Series Trip (Voltage) | <b>H<sup>4,5</sup></b> | Dual Coil with Shunt Trip Voltage Coil |
| <b>D<sup>4</sup></b> | Shunt Trip (Current)  | <b>K<sup>4,5</sup></b> | Dual Coil with Relay Trip Voltage Coil |
| <b>E<sup>4</sup></b> | Shunt Trip (Voltage)  |                        |                                        |

**5 AUXILIARY/ALARM SWITCH<sup>6</sup>**

- |          |                                            |          |                                            |
|----------|--------------------------------------------|----------|--------------------------------------------|
| <b>0</b> | w/o Aux Switch                             | <b>5</b> | S.P.S.T., 0.110 Q.C. Term. (Gold Contacts) |
| <b>2</b> | S.P.D.T., 0.110 Q.C. Term.                 | <b>6</b> | S.P.S.T., 0.139 Solder Lug                 |
| <b>3</b> | S.P.D.T., 0.139 Solder Lug                 | <b>7</b> | S.P.S.T., 0.110 Q.C. Term. (Gold Contacts) |
| <b>4</b> | S.P.D.T., 0.110 Q.C. Term. (Gold Contacts) | <b>8</b> | S.P.S.T., 0.187 Q.C. Term.                 |
|          |                                            | <b>9</b> | S.P.D.T., 0.187 Q.C. Term.                 |

**6 FREQUENCY & DELAY**

- |                       |                         |                       |                           |
|-----------------------|-------------------------|-----------------------|---------------------------|
| <b>03<sup>3</sup></b> | DC 50/60Hz, Switch Only | <b>30</b>             | DC, 50/60Hz Instantaneous |
| <b>10<sup>7</sup></b> | DC Instantaneous        | <b>31</b>             | DC, 50/60Hz Ultra Short   |
| <b>11</b>             | DC Ultra Short          | <b>32</b>             | DC, 50/60Hz Short         |
| <b>12</b>             | DC Short                | <b>34</b>             | DC, 50/60Hz Medium        |
| <b>14</b>             | DC Medium               | <b>36</b>             | DC, 50/60Hz Long          |
| <b>16</b>             | DC Long                 | <b>42<sup>8</sup></b> | 50/60Hz Short, Hi-Inrush  |
| <b>20<sup>7</sup></b> | 50/60Hz Instantaneous   | <b>44<sup>8</sup></b> | 50/60Hz Medium, Hi-Inrush |
| <b>21<sup>7</sup></b> | 50/60Hz Ultra Short     | <b>46<sup>8</sup></b> | 50/60Hz Long, Hi-Inrush   |
| <b>22</b>             | 50/60Hz Short           | <b>52<sup>8</sup></b> | DC, Short, Hi-Inrush      |
| <b>24</b>             | 50/60Hz Medium          | <b>54<sup>8</sup></b> | DC, Medium, Hi-Inrush     |
| <b>26</b>             | 50/60Hz Long            | <b>56</b>             | DC, Long, Hi-Inrush       |

**7 CURRENT RATING (AMPERES)**

|            |       |            |       |            |        |                        |         |
|------------|-------|------------|-------|------------|--------|------------------------|---------|
| <b>020</b> | 0.020 | <b>235</b> | 0.350 | <b>430</b> | 3.000  | <b>614</b>             | 14.000  |
| <b>025</b> | 0.025 | <b>240</b> | 0.400 | <b>435</b> | 3.500  | <b>615</b>             | 15.000  |
| <b>030</b> | 0.030 | <b>245</b> | 0.450 | <b>440</b> | 4.000  | <b>616</b>             | 16.000  |
| <b>035</b> | 0.035 | <b>250</b> | 0.500 | <b>445</b> | 4.500  | <b>617</b>             | 17.000  |
| <b>040</b> | 0.040 | <b>255</b> | 0.550 | <b>450</b> | 5.000  | <b>618</b>             | 18.000  |
| <b>045</b> | 0.045 | <b>260</b> | 0.600 | <b>455</b> | 5.500  | <b>620</b>             | 20.000  |
| <b>050</b> | 0.050 | <b>265</b> | 0.650 | <b>460</b> | 6.000  | <b>622</b>             | 22.000  |
| <b>055</b> | 0.055 | <b>270</b> | 0.700 | <b>465</b> | 6.500  | <b>624</b>             | 24.000  |
| <b>060</b> | 0.060 | <b>275</b> | 0.750 | <b>470</b> | 7.000  | <b>625</b>             | 25.000  |
| <b>065</b> | 0.065 | <b>280</b> | 0.800 | <b>475</b> | 7.500  | <b>630</b>             | 30.000  |
| <b>070</b> | 0.070 | <b>285</b> | 0.850 | <b>480</b> | 8.000  | <b>635</b>             | 35.000  |
| <b>075</b> | 0.075 | <b>290</b> | 0.900 | <b>485</b> | 8.500  | <b>640</b>             | 40.000  |
| <b>080</b> | 0.080 | <b>295</b> | 0.950 | <b>490</b> | 9.000  | <b>650</b>             | 50.000  |
| <b>085</b> | 0.085 | <b>410</b> | 1.000 | <b>495</b> | 9.500  | <b>660<sup>9</sup></b> | 60.000  |
| <b>090</b> | 0.090 | <b>512</b> | 1.250 | <b>610</b> | 10.000 | <b>670<sup>9</sup></b> | 70.000  |
| <b>095</b> | 0.095 | <b>415</b> | 1.500 | <b>710</b> | 10.500 | <b>680<sup>9</sup></b> | 80.000  |
| <b>210</b> | 0.100 | <b>517</b> | 1.750 | <b>611</b> | 11.000 | <b>685<sup>9</sup></b> | 85.000  |
| <b>215</b> | 0.150 | <b>420</b> | 2.000 | <b>711</b> | 11.500 | <b>690<sup>9</sup></b> | 90.000  |
| <b>220</b> | 0.200 | <b>522</b> | 2.250 | <b>612</b> | 12.000 | <b>695<sup>9</sup></b> | 95.000  |
| <b>225</b> | 0.250 | <b>425</b> | 2.500 | <b>712</b> | 12.500 | <b>810<sup>9</sup></b> | 100.000 |
| <b>230</b> | 0.300 | <b>527</b> | 2.750 | <b>613</b> | 13.000 |                        |         |

**OR VOLTAGE COIL (NOMINAL RATED VOLTAGE<sup>7</sup>)**

|            |       |            |       |            |       |            |        |
|------------|-------|------------|-------|------------|-------|------------|--------|
| <b>A06</b> | 6 DC  | <b>A32</b> | 32 DC | <b>J12</b> | 12 AC | <b>J65</b> | 65 AC  |
| <b>A12</b> | 12 DC | <b>A48</b> | 48 DC | <b>J18</b> | 18 AC | <b>K20</b> | 120 AC |
| <b>A18</b> | 18 DC | <b>A65</b> | 65 DC | <b>J24</b> | 24 AC | <b>L40</b> | 240 AC |
| <b>A24</b> | 24 DC | <b>J06</b> | 6 AC  | <b>J48</b> | 48 AC |            |        |

**8 TERMINAL<sup>15</sup>**

- |                       |                         |                          |                            |
|-----------------------|-------------------------|--------------------------|----------------------------|
| <b>1<sup>10</sup></b> | Stud 10-32, threaded    | <b>6<sup>12</sup></b>    | Stud M6 threaded           |
| <b>2<sup>11</sup></b> | Screw 10-32             | <b>7<sup>13,15</sup></b> | 0.250 Double Quick Connect |
| <b>3<sup>12</sup></b> | Stud 1/4-20, threaded   | <b>8<sup>15</sup></b>    | 1/4" Clip Terminal         |
| <b>4<sup>11</sup></b> | Stud M5 x 0.8, threaded | <b>9<sup>12,15</sup></b> | 7/16" Clip Terminal        |
| <b>5<sup>11</sup></b> | Screw M5 x 0.8          | <b>A<sup>14</sup></b>    | Plug-In Stud               |
|                       |                         | <b>C<sup>11,15</sup></b> | 5/16" Clip Terminal        |

**9 ACTUATOR COLOR & LEGEND<sup>16</sup>**

| Actuator Color                     | I-O      | ON-OFF   | Dual     | Legend Color |
|------------------------------------|----------|----------|----------|--------------|
| White                              | <b>A</b> | <b>B</b> | <b>1</b> | Black        |
| Black                              | <b>C</b> | <b>D</b> | <b>2</b> | White        |
| Red                                | <b>F</b> | <b>G</b> | <b>3</b> | White        |
| Green                              | <b>H</b> | <b>J</b> | <b>4</b> | White        |
| Blue                               | <b>K</b> | <b>L</b> | <b>5</b> | White        |
| Yellow                             | <b>M</b> | <b>N</b> | <b>6</b> | Black        |
| Gray                               | <b>P</b> | <b>Q</b> | <b>7</b> | Black        |
| Orange                             | <b>R</b> | <b>S</b> | <b>8</b> | Black        |
| Black (short handle) <sup>17</sup> | <b>T</b> | <b>U</b> | <b>9</b> | White        |

**10 MOUNTING/BARRIERS**

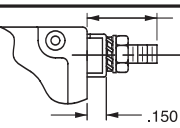
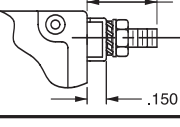
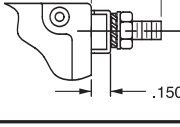
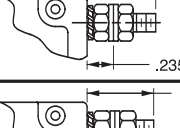
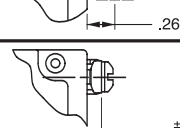
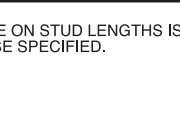
|                       | MOUNTING STYLE                                        | BARRIERS | VOLTAGE |
|-----------------------|-------------------------------------------------------|----------|---------|
|                       | <b>Threaded Insert</b>                                |          |         |
| <b>1</b>              | 6-32 x 0.195 inches                                   | no       | < 300   |
| <b>A</b>              | 6-32 X 0.195 inches                                   | yes      | < 300   |
| <b>C<sup>18</sup></b> | 6-32 X 0.195 inches                                   | yes      | ≥ 300   |
| <b>2</b>              | ISO M3 x 5mm                                          | no       | < 300   |
| <b>B</b>              | ISO M3 x 5mm                                          | yes      | < 300   |
| <b>D<sup>18</sup></b> | ISO M3 x 5mm                                          | yes      | ≥ 300   |
|                       | <b>Front panel Snap-In, 1.00" [25.4mm] wide bezel</b> |          |         |
| <b>E<sup>17</sup></b> | with Handleguard                                      | no       | < 300   |

**11 AGENCY APPROVAL**

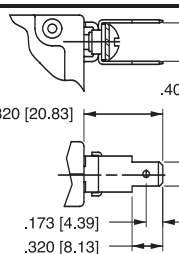
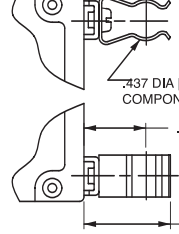
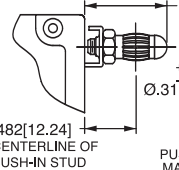
- C** UL Recognized & CSA Accepted  
**D** VDE Certified, UL Recognized & CSA Accepted  
**E** TUV Certified, UL Recognized & CSA Accepted  
**H** UL489 Construction: VDE Certified, UL Recognized & CSA Accepted  
**I** UL Rec. STD 1077, UL Rec. 1500 (ignition protected), & CSA Accepted  
**L** UL489 Construction: UL Recognized & CSA Accepted  
**R** UL489 Construction: TUV Certified, UL Recognized & CSA Accepted

**Notes:**

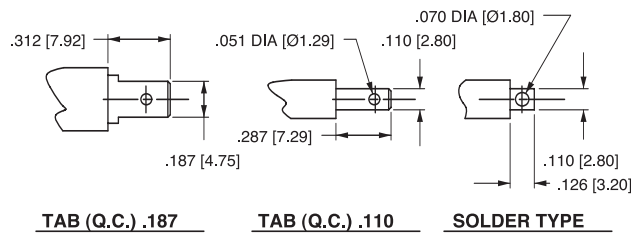
- 1** Actuator Code:  
**A:** Handle tie pin spacer(s) and retainers provided assembled with multi-pole units.  
**B:** Handle location as viewed from front of breaker:  
     2 pole - left pole      3 pole - center pole  
     4 pole - two handles at center poles      5 pole - three handles at center 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** Standard multipole units have all poles identical except when specifying auxiliary switch and/or mixed poles. 4 pole max w/VDE. 5th pole available as Series Trip w/Voltage Coil only.  
**3** Switch Only circuits, rated up to 50 amps and 6 poles, and only available with VDE Certification when tied to a protected pole (Circuit Code B, C, D or H.). For .02 to 30 amps, select Current Code 630. For 35 - 50 amps, select Current Code 650. For 55-70 amps, select Current Code 670. For 75-100 amps, select Current Code 810.  
**4** Circuit Codes D,E,F,G,H & K available with Terminal Codes 1,2,4 & 5 only. Circuit Codes D, F, H & K available up to 50 amps maximum Current Rating.  
**5** Consult factory for available Dual Coil options, as special catalog number is required. Dual Coil Voltage Coils with Shunt Trip Construction trip instantaneously on line voltage. Dual Coil Voltage Coils require 30VA minimum power to trip instantaneously and are rated for intermittent duty only.  
**6** Auxiliary Switch available with Series Trip and Switch Only circuits. On multi-pole breakers, one aux. switch is supplied, mounted in the extreme right pole.  
**7** Voltage coils not rated for continuous duty. Available only with delay codes 10 and 20.  
**8** Available with Circuit Codes B & D only, and up to 50 amps maximum.  
**9** Current Ratings 60 - 70 are available up to four poles maximum. Ratings 71 - 100 are available up to two poles maximum.  
**10** Terminal Code 1 available to 60 amps maximum.  
**11** Terminal Codes 2,4,5 and C available to 50 amps maximum.  
**12** Terminal Codes 3,6 & 9 available to 100 amps maximum.  
**13** Terminal Code 7 available to 25 amps maximum.  
**14** Terminal Code A available to 100 amps maximum.  
**15** Terminal Codes 7,8,9 & C are not VDE approved.  
**16** No marking available. Consult factory. VDE/TUV Approval requires dual (I-O, ON-OFF) or I-O markings on all handles.  
**17** Single pole only.  
**18** VDE/TUV: 30 amps max.; UL/CSA: 50 amps max.; Available in 2 - 4 poles only and limited to AC Delays. "General Purpose amps" not rated for "full load amps" or to be used in applications with a motor.

| TERMINAL     |      |                                                                                     |  | RATING (AMPS) |    |     |    |
|--------------|------|-------------------------------------------------------------------------------------|--|---------------|----|-----|----|
| DESCRIPTION  | CODE | DIMENSIONAL DETAIL                                                                  |  | 25            | 50 | 100 | 80 |
|              |      |                                                                                     |  |               |    |     |    |
| #10-32 STUD  | 1    |    |  |               |    |     |    |
| M5 STUD      | 4    |    |  |               |    |     |    |
| #1/4-20 STUD | 3    |    |  |               |    |     |    |
| M6 STUD      | 6    |    |  |               |    |     |    |
| #1/4-20 STUD | 3    |    |  |               |    |     |    |
| M6 STUD      | 6    |   |  |               |    |     |    |
| #10-32 SCREW | 2    |  |  |               |    |     |    |
| M-5 SCREW    | 5    |  |  |               |    |     |    |

NOTES: TOLERANCE ON STUD LENGTHS IS  $\pm .031$  [ $\pm .79$ ] UNLESS OTHERWISE SPECIFIED.

| TERMINAL             |      |                                                                                     |  | RATING (AMPS) |    |     |    |
|----------------------|------|-------------------------------------------------------------------------------------|--|---------------|----|-----|----|
| DESCRIPTION          | CODE | DIMENSIONAL DETAIL                                                                  |  | 25            | 50 | 100 | 80 |
|                      |      |                                                                                     |  |               |    |     |    |
| .250 DOUBLE Q.C.     | 7    |  |  |               |    |     |    |
| 7/16" CLIP TERMINALS | 9    |  |  |               |    |     |    |
| PUSH-IN STUD         | A    |  |  |               |    |     |    |

## AUXILIARY / ALARM SWITCH TERMINAL DETAIL<sup>3</sup>



| TIGHTENING TORQUE SPECIFICATIONS |                           |
|----------------------------------|---------------------------|
| THREAD SIZE                      | TORQUE                    |
| #6-32 [M3] MOUNTING INSERTS      | 7-9 IN-LBS [0.8-1.0 NM]   |
| #10-32 & M5 THD STUDS            | 15-20 IN-LBS [1.7-2.3 NM] |
| #10-32 THD SCREW                 | 15-20 IN-LBS [1.7-2.3 NM] |
| #1/4-20 & M6 THD STUDS           | 30-35 IN-LBS [3.4-4.0 NM] |

| TERMINAL HARDWARE    |       |                     |               |                                           |
|----------------------|-------|---------------------|---------------|-------------------------------------------|
| TERMINAL DESCRIPTION | CODE  | AGENCY APPROVAL     | AMPERE RATING | HARDWARE SUPPLIED                         |
| #10-32 STUD          | 1     | ALL                 | .02 - 50      | LOCK WASHER - FLAT WASHER - NUT           |
| M5 STUD              | 4     | ALL                 | .02 - 50      | LOCK WASHER - FLAT WASHER - NUT           |
| #1/4-20 STUD         | 3     | ALL                 | .02 - 80      | LOCK WASHER - FLAT WASHER - NUT           |
|                      |       |                     | 81 - 100      | LOCK WASHER - NUT - (2) FLAT WASHER - NUT |
| M6 STUD              | 6     | ALL                 | .02 - 80      | LOCK WASHER - FLAT WASHER - NUT           |
|                      |       |                     | 81 - 100      | LOCK WASHER - NUT - (2) FLAT WASHER - NUT |
| #10-32 SCREW         | 2 & 5 | UL RECOGNIZED       | .02 - 50      | * SADDLE CLAMP - FLAT WASHER - SCREW      |
|                      |       | UL-489 LISTED       | .02 - 50      | LOCK WASHER - FLAT WASHER - SCREW         |
|                      |       | TUV & VDE CERTIFIED | .02 - 16      | * SADDLE CLAMP - FLAT WASHER - SCREW      |
|                      |       | TUV & VDE CERTIFIED | 16.1 - 50     | LOCK WASHER - FLAT WASHER - SCREW         |

\* THE SADDLE CLAMP IS FOR DIRECT WIRE CONNECTION USE. DISCARD SADDLE CLAMP IF WIRE TERMINAL LUG IS USED

### Notes:

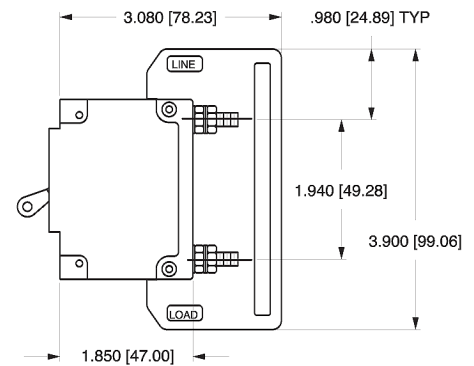
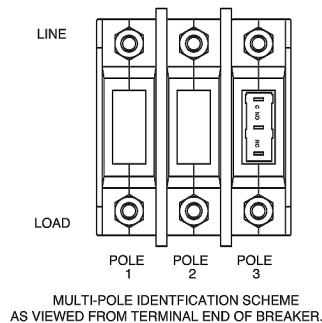
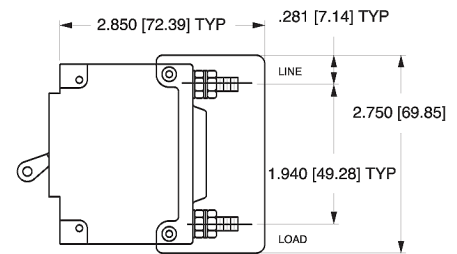
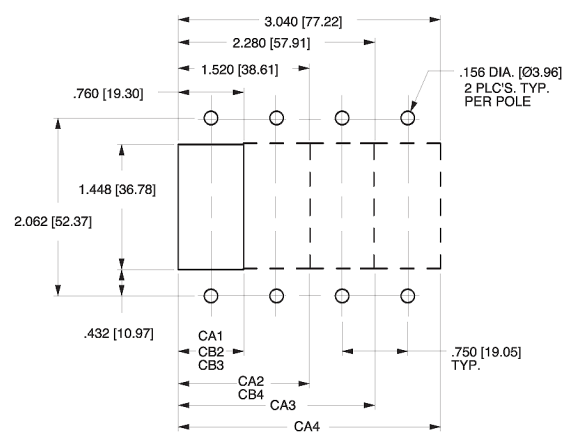
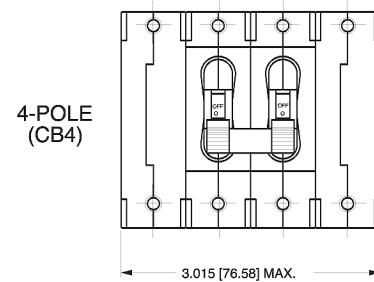
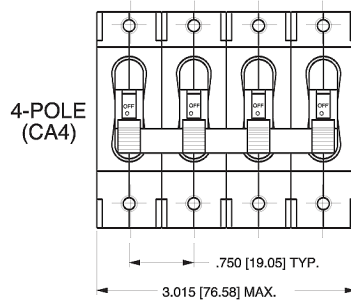
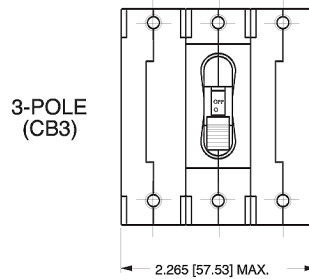
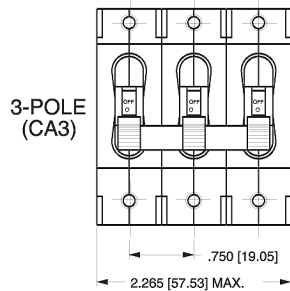
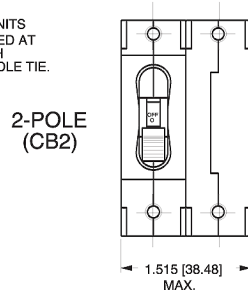
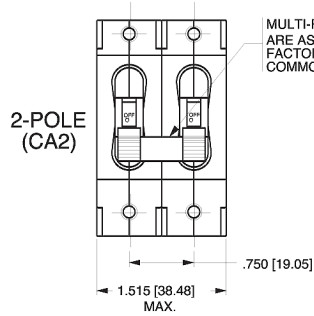
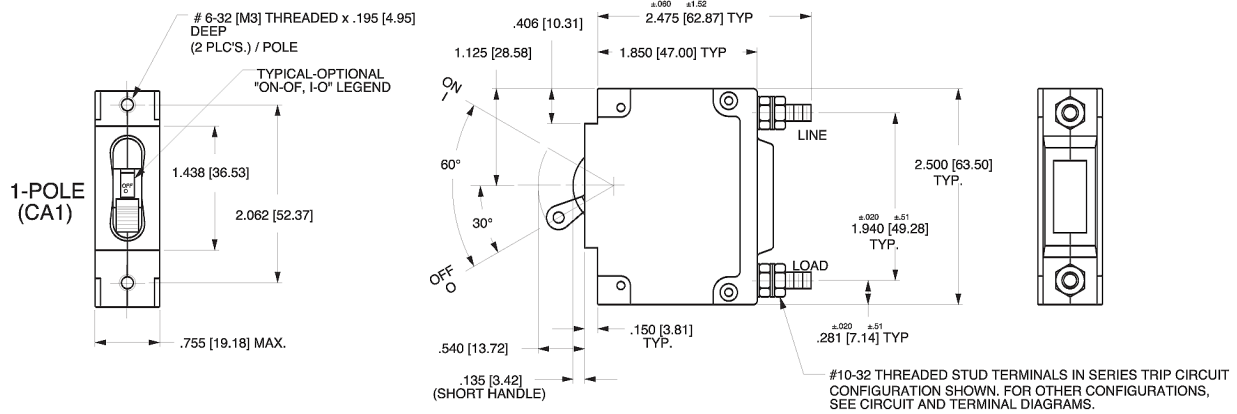
- All dimensions are in inches [millimeters].
- Tolerance  $\pm .020$  [.51] unless otherwise specified.
- Available on Series Trip and Switch Only Circuits when called for on multi-pole units. Only one aux. switch is normally supplied, as viewed in multi-pole identification scheme.

|                                                                                                                                         | CIRCUIT SCHEMATIC                                    |                                                                                       | CIRCUIT CODE | AUX SWITCH CODE | CIRCUIT SCHEMATIC                                                                                |                                                                                                                    | CIRCUIT CODE | AUX SWITCH CODE |
|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------------------------|--------------|-----------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------|-----------------|
|                                                                                                                                         | ANSI                                                 | IEC                                                                                   |              |                 | ANSI                                                                                             | IEC                                                                                                                |              |                 |
|                                                                                                                                         | SWITCH ONLY (NO COIL)                                |                                                                                       |              |                 | SERIES TRIP                                                                                      |                                                                                                                    |              |                 |
| <p>1.850 [46.99] TYP.</p> <p>LINE</p> <p>MAIN TERM'S. (SEE TABLE-A)</p> <p>LOAD</p> <p>.625 [15.88] TYP.</p>                            | <p>LINE</p> <p>LOAD</p>                              | <p>LINE (NETZ)</p> <p>LOAD (LAST)</p>                                                 | A            | O               | <p>LINE</p> <p>LOAD</p>                                                                          | <p>LINE (3) (NETZ)</p> <p>LOAD (LAST)</p>                                                                          | B<br>C       | O               |
| <p>2.250 [57.15] TYP.</p> <p>.675 [17.15] TYP.</p> <p>1.265 [32.13] TYP.</p> <p>.970 [24.64] TYP.</p> <p>AUX SWITCH TERM. (3 PLCS.)</p> | <p>LINE</p> <p>C</p> <p>NO</p> <p>NC</p> <p>LOAD</p> | <p>LINE (NETZ)</p> <p>C</p> <p>NO</p> <p>NC</p> <p>LOAD (LAST)</p>                    | A            | 2<br>3<br>4     | <p>LINE</p> <p>STD. AUX. SWITCH</p> <p>C</p> <p>NO</p> <p>NC</p> <p>ALARM SWITCH</p> <p>LOAD</p> | <p>LINE (NETZ) (3)</p> <p>STD. AUX. SWITCH</p> <p>C</p> <p>NO</p> <p>NC</p> <p>ALARM SWITCH</p> <p>LOAD (LAST)</p> | B<br>C       | 2<br>3<br>4     |
| <p>.646 [16.41] TYP.</p> <p>.812 [20.62] TYP.</p> <p>.646 [16.41] TYP.</p>                                                              | <p>LINE</p> <p>SHUNT</p> <p>LOAD</p>                 | <p>LINE (NETZ) (3)</p> <p>SHUNT (NEBENSCHLUSS)</p> <p>LOAD (LAST)</p>                 | D<br>E       | 0               | <p>LINE</p> <p>VOLTAGE COIL</p> <p>LOAD</p>                                                      | <p>LINE (NETZ)</p> <p>VOLTAGE COIL</p> <p>LOAD (LAST)</p>                                                          | H            | 0               |
| <p>.646 [16.41] TYP.</p> <p>.812 [20.62] TYP.</p> <p>.646 [16.41] TYP.</p>                                                              | <p>LINE</p> <p>LOAD</p> <p>RELAY</p> <p>RELAY</p>    | <p>RELAY (RELAIS)</p> <p>LINE (NETZ) (3)</p> <p>RELAY (RELAIS)</p> <p>LOAD (LAST)</p> | F<br>G       | 0               | <p>LINE</p> <p>VOLTAGE COIL</p> <p>LOAD</p>                                                      | <p>LINE (NETZ)</p> <p>VOLTAGE COIL</p> <p>LOAD (LAST)</p>                                                          | K            | 0               |

| HANDLE POSITION VS. AUX/ALARM SWITCH MODE |                       |                  |                       |                            |                                        |
|-------------------------------------------|-----------------------|------------------|-----------------------|----------------------------|----------------------------------------|
| CIRCUIT BREAKER MODE                      | STANDARD C/B          |                  | MID TRIP C/B          |                            |                                        |
|                                           | HANDLE POSITION       | AUX. SWITCH MODE | HANDLE POSITION       | STANDARD ALARM SWITCH MODE | REVERSE ALARM SWITCH MODE <sup>4</sup> |
| OFF                                       | <p>30°</p> <p>OFF</p> | <p>NC NO C</p>   | <p>30°</p> <p>OFF</p> | <p>NC NO C</p>             | <p>NC NO C</p>                         |
| ON                                        | <p>30°</p> <p>ON</p>  | <p>NC NO C</p>   | <p>30°</p> <p>ON</p>  | <p>NC NO C</p>             | <p>NC NO C</p>                         |
| ELECTRICAL TRIP                           | <p>30°</p> <p>OFF</p> | <p>NC NO C</p>   | <p>90°</p>            | <p>NC NO C</p>             | <p>NC NO C</p>                         |

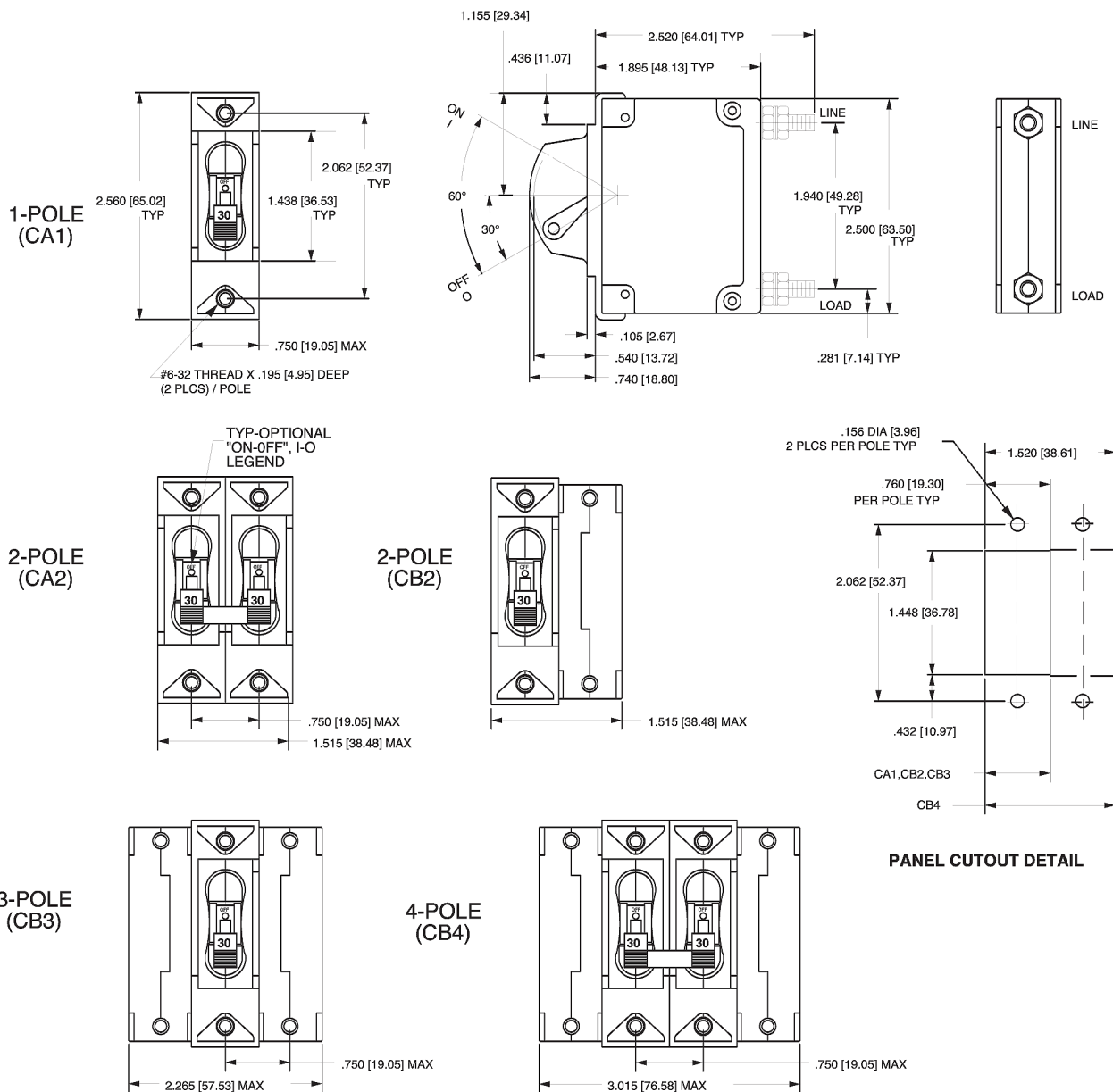
## Notes:

- All dimensions are in inches [millimeters].
- Tolerance  $\pm .020$  [.51] unless otherwise specified.
- Schematic shown represents current trip circuits.
- Available only as special catalog number.

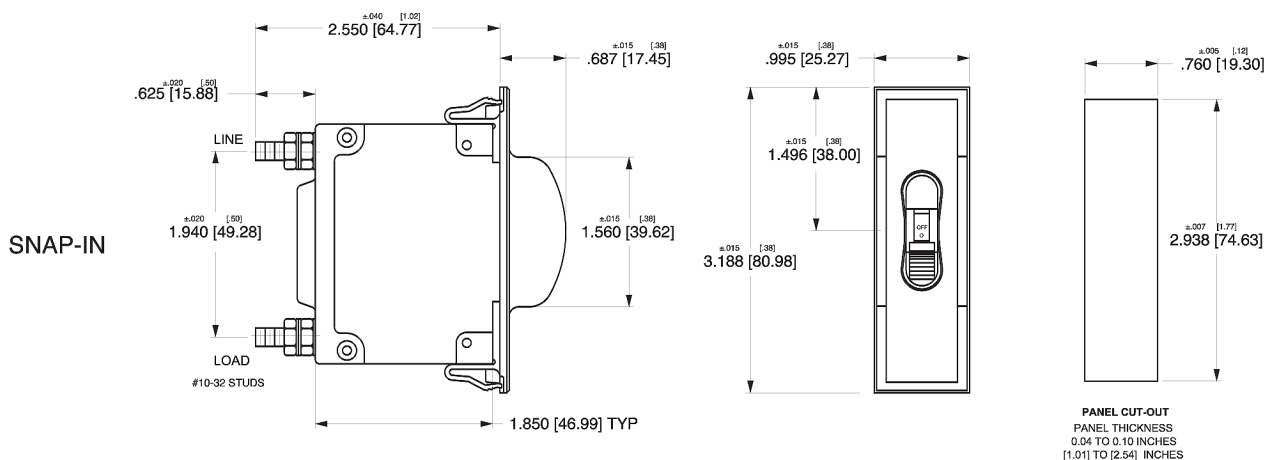


## Notes:

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



\*Handleguard available as special catalog number only



- Notes:
- 1 All dimensions are in inches [millimeters].
  - 2 Tolerance  $\pm .020$  [.51] unless otherwise specified.