

# D-Series

## HYDRAULIC-MAGNETIC CIRCUIT BREAKER

Designed for snap-on-back panel rail mounting on either a 35mm x 7.5mm, or a 35mm x 15mm Symmetrical Din Rail, allowing rapid and simple mounting and removal of the breaker. It features recessed, wire-ready, touch-proof, shock-resistant terminals, suitable for automatic screwdriver assembly, as well as “Dead Front” construction characteristics.

Available with a Visi-Rocker two-color actuator, which can be specified to indicate either the ON or the TRIPPED/OFF mode, or solid color rocker or handle type actuators. All actuator types fit in the same industry standard panel cutouts.



### Resources:

[Configure a Complete Part](#)

[\*\*Download CAD & Sales Drawing >\*\*](#)

### Product Highlights:

- 0.02 - 50 Amps
- 480 VAC or 65 VDC
- 1-4 poles (Handle)
- 1-3 poles (Rocker)
- Choice of Time Delays
- DIN rail mounting
- Precise temperature independent operation
- Wiping contacts – mechanical linkage with two-step
- Finger safe terminals
- Common trip linkage between poles ensures that an overload in one pole will trip all adjacent poles

### Typical Applications:

- Industrial Controls
- Renewable Energy



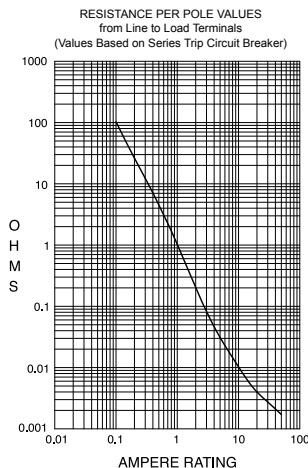
**Carling Technologies®**  
Innovative Designs. Powerful Solutions.

**Carling Technologies, Inc.**  
60 Johnson Avenue, Plainville, CT 06062  
Email: [sales@carlingtech.com](mailto:sales@carlingtech.com)  
Application Support: [team2@carlingtech.com](mailto:team2@carlingtech.com)  
Phone: 860.793.9281 Fax: 860.793.9231

[www.carlingtech.com](http://www.carlingtech.com)

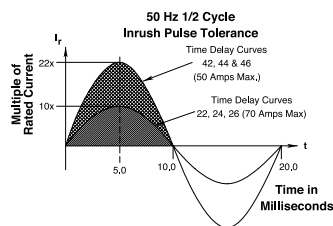
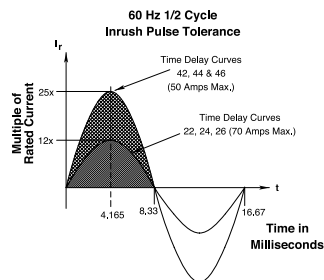
## Electrical

|                        |                                                                                                                                                                                                                                                                                                                 |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maximum Voltage        | AC, 480 wye/277 VAC<br>(See Table A), 50/60 Hz, 65VDC                                                                                                                                                                                                                                                           |
| 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 & 50.0.<br>Other ratings available - consult factory.                                                                                                                                                              |
| Standard Voltage Coils | DC - 6V, 12V; AC - 120V, other ratings available, see ordering scheme.                                                                                                                                                                                                                                          |
| Insulation Resistance  | Minimum of 100 Megohms at 500 VDC.                                                                                                                                                                                                                                                                              |
| Dielectric Strength    | UL, CSA: 1960 V 50/60 Hz for one minute between all electrically isolated terminals. D-Series circuit breakers comply with the 8mm spacing and 3750V 50/60 Hz dielectric requirements from hazardous voltage to operator accessible surfaces and between adjacent poles per Publications EN 60950 and VDE 0805. |
| Resistance, Impedance  | Values from Line to Load Terminal - 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 and Voltage.                                     |
| Trip Free       | All D-Series Circuit Breakers will trip on overload, even when actuator is forcibly held in the ON position. |
| Trip Indication | The operating actuator moves positively to the OFF position when an overload causes the breaker to trip.     |

## Physical

|                          |                                                                                        |
|--------------------------|----------------------------------------------------------------------------------------|
| Number of Poles          | Rocker Type: 1-3; Handle Type: 1-4                                                     |
| Internal Circuit Config. | Switch Only and Series Trip with current or voltage trip coils.                        |
| Weight                   | Approximately 128 grams/pole (Approximately 4.57 ounces/pole)                          |
| Standard Colors          | Housing - Black; Actuator - See Ordering Scheme.                                       |
| Mounting                 | Mounts on a standard 35mm Symmetrical DIN Rail (35 x 7.5 or 35 x 15mm per DIN EN5002). |

## 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 ultra-short 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                                                                                                                                                                         |

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

## Electrical Tables

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

| D-SERIES TABLE A: COMPONENT SUPPLEMENTARY PROTECTORS |                    |           |                    |                |                               |                  |                        |                           |                   |                |
|------------------------------------------------------|--------------------|-----------|--------------------|----------------|-------------------------------|------------------|------------------------|---------------------------|-------------------|----------------|
| CIRCUIT CONFIGURATION                                | VOLTAGE            |           |                    | CURRENT RATING | SHORT CIRCUIT CAPACITY (AMPS) |                  |                        |                           | APPLICATION CODES |                |
|                                                      | MAX. RATING        | FREQUENCY | PHASE <sup>1</sup> |                | UL/CSA                        |                  | VDE                    |                           | UL                | CSA            |
|                                                      |                    |           |                    | FULL LOAD AMPS | WITH BACKUP FUSE              | WITH BACKUP FUSE | (Inc) WITH BACKUP FUSE | (Inc) WITHOUT BACKUP FUSE |                   |                |
| SERIES                                               | 65                 | DC        | ---                | 0.02 - 50      | ---                           | 5,000            | 5,000                  | 1,500                     | TC1,2, OL1, U1    | TC1,2, OL1, U1 |
|                                                      | 80                 | DC        | ---                | 0.02 - 50      | ---                           | 5,000            | 5,000                  | 1,500                     | TC1,2, OL1, U1    | TC1,2, OL1, U1 |
|                                                      | 125 / 250          | 50 / 60   | 1                  | 0.02 - 50      | ---                           | 3,000            | ---                    | ---                       | TC1,2, OL1, U1    | TC1,2, OL1, U1 |
|                                                      | 250                | 50 / 60   | 1 & 3              | 0.02 - 50      | 5,000 <sup>2</sup>            | ---              | 5,000                  | 1,500                     | TC1,2, OL1, C1    | TC1,2, OL1, C1 |
|                                                      | 277                | 50 / 60   | 1                  | 0.02 - 50      | 5,000 <sup>2</sup>            | ---              | ---                    | ---                       | TC1,2, OL1, C1    | TC1,2, OL1, C1 |
|                                                      | 480 Y <sup>3</sup> | 50 / 60   | 1 & 3              | 0.02 - 50      | 5,000 <sup>2</sup>            | ---              | ---                    | ---                       | TC1,2, OL1, C1    | TC1,2, OL1, C1 |
| SWITCH ONLY                                          | 65                 | DC        | ---                | 0.02 - 50      |                               |                  |                        |                           |                   |                |
|                                                      | 250                | 50 / 60   | 3                  | 0.02 - 50      |                               |                  |                        |                           |                   |                |
|                                                      | 277                | 50 / 60   | 1                  | 0.02 - 50      |                               |                  |                        |                           |                   |                |
|                                                      | 480 Y <sup>3</sup> | 50 / 60   | 1 & 3              | 0.02 - 30      |                               |                  |                        |                           |                   |                |

**Notes:**

- 1 DC and 1 Phase 277 V ratings are 1 or 2 poles breaking. Three phase ratings are 3 poles breaking.
- 2 Requires branch circuit backup with a UL LISTED Type K5 or RK5 fuse rated 15A minimum and no more than 4 times full load amps not to exceed 150 A for 250V rating and 125 A for 277 and 480 V ratings.
- 3 UL recognition and CSA Acceptance at 480 volts refers to 3 and 4 pole versions, used only in a 3 phase WYE connected circuit or 2 pole versions connected with 2 poles breaking 1 phase and backed up with series fusing per note 2

## Agency Certifications

### UL Recognized

UL Standard 1077



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

### CSA Accepted



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

### UL Listed

UL Standard 508



Switches, Industrial Control (Guide NRNT2, File E148683)

### VDE Certified



EN60934, VDE 0642 under File No. 10537

**1 SERIES****D****2 ACTUATOR<sup>1</sup>****Handle<sup>2</sup>****A** Handle, one per pole**B** Handle, one per multipole unit**Visi-Rocker<sup>3</sup>****C** Indicate ON, vertical legend**D** Indicate ON, horizontal legend**E** Indicate ON, no legend (VDE approval not available with no legend)**F** Indicate OFF, vertical legend**G** Indicate OFF, horizontal legend**H** Indicate OFF, no legend (VDE approval not available with no legend)**Single Color Rocker<sup>3</sup>****J** Vertical legend**K** Horizontal legend**L** No legend (VDE approval not available with no legend)**ROCKER STYLE DESCRIPTIONS**

|                  | INDICATE "ON" | INDICATE "OFF"    | SINGLE COLOR      |
|------------------|---------------|-------------------|-------------------|
| VERTICAL STYLE   | <br>CODE "C"  | <br>CODE "F", "N" | <br>CODE "J", "R" |
| HORIZONTAL STYLE | <br>CODE "D"  | <br>CODE "G", "O" | <br>CODE "K", "U" |

**3 POLES****1** One**2** Two**3** Three**4** Four**4 CIRCUIT****A0** Switch Only (No Coil)<sup>4</sup>**B0** Series Trip (Current)**C0** Series Trip (Voltage)**5 FREQUENCY & DELAY****03** DC 50/60Hz, Switch Only**10<sup>5</sup>** DC Instantaneous**11** DC Ultra Short**12** DC Short**14** DC Medium**16** DC Long**20<sup>5</sup>** 50/60Hz Instantaneous**21** 50/60Hz Ultra Short**22** 50/60Hz Short**24** 50/60Hz Medium**26** 50/60Hz Long**32** DC, 50/60Hz Short**34** DC, 50/60Hz Medium**36** DC, 50/60Hz Long**42<sup>6</sup>** 50/60Hz Short, High-inrush**44<sup>6</sup>** 50/60Hz Medium, High-inrush**46<sup>6</sup>** 50/60Hz Long, High-inrush**52<sup>6</sup>** DC, Short, High-inrush**54<sup>6</sup>** DC, Medium, High-inrush**56<sup>6</sup>** DC, Long, High-inrush**7 CURRENT RATING (AMPERES)<sup>9</sup>****CODE AMPERES**

|            |       |            |       |            |        |            |        |
|------------|-------|------------|-------|------------|--------|------------|--------|
| <b>020</b> | 0.020 | <b>275</b> | 0.750 | <b>450</b> | 5.000  | <b>616</b> | 16.000 |
| <b>025</b> | 0.025 | <b>280</b> | 0.800 | <b>455</b> | 5.500  | <b>617</b> | 17.000 |
| <b>030</b> | 0.030 | <b>285</b> | 0.850 | <b>460</b> | 6.000  | <b>618</b> | 18.000 |
| <b>050</b> | 0.050 | <b>410</b> | 1.000 | <b>465</b> | 6.500  | <b>619</b> | 19.000 |
| <b>075</b> | 0.075 | <b>512</b> | 1.250 | <b>470</b> | 7.000  | <b>620</b> | 20.000 |
| <b>080</b> | 0.080 | <b>413</b> | 1.300 | <b>572</b> | 7.250  | <b>621</b> | 21.000 |
| <b>085</b> | 0.085 | <b>414</b> | 1.400 | <b>475</b> | 7.500  | <b>622</b> | 22.000 |
| <b>210</b> | 0.100 | <b>415</b> | 1.500 | <b>480</b> | 8.000  | <b>623</b> | 23.000 |
| <b>215</b> | 0.150 | <b>517</b> | 1.750 | <b>485</b> | 8.500  | <b>624</b> | 24.000 |
| <b>220</b> | 0.200 | <b>420</b> | 2.000 | <b>490</b> | 9.000  | <b>625</b> | 25.000 |
| <b>225</b> | 0.250 | <b>522</b> | 2.250 | <b>495</b> | 9.500  | <b>626</b> | 26.000 |
| <b>230</b> | 0.300 | <b>425</b> | 2.500 | <b>610</b> | 10.000 | <b>627</b> | 27.000 |
| <b>235</b> | 0.350 | <b>527</b> | 2.750 | <b>710</b> | 10.500 | <b>628</b> | 28.000 |
| <b>240</b> | 0.400 | <b>430</b> | 3.000 | <b>611</b> | 11.000 | <b>629</b> | 29.000 |
| <b>245</b> | 0.450 | <b>532</b> | 3.250 | <b>711</b> | 11.500 | <b>630</b> | 30.000 |
| <b>250</b> | 0.500 | <b>435</b> | 3.500 | <b>612</b> | 12.000 | <b>632</b> | 32.000 |
| <b>255</b> | 0.550 | <b>436</b> | 3.600 | <b>712</b> | 12.500 | <b>635</b> | 35.000 |
| <b>260</b> | 0.600 | <b>440</b> | 4.000 | <b>613</b> | 13.000 | <b>640</b> | 40.000 |
| <b>265</b> | 0.650 | <b>445</b> | 4.500 | <b>614</b> | 14.000 | <b>645</b> | 45.000 |
| <b>270</b> | 0.700 | <b>547</b> | 4.750 | <b>615</b> | 15.000 | <b>650</b> | 50.000 |

**OR VOLTAGE COIL (NORMAL RATED VOLTAGE)<sup>7</sup>****CODE AMPERES**

|            |              |            |              |            |                |
|------------|--------------|------------|--------------|------------|----------------|
| <b>A06</b> | 6 DC, 5 DC   | <b>A48</b> | 48 DC, 40 DC | <b>J24</b> | 24 AC, 20 AC   |
| <b>A12</b> | 12 DC, 10 DC | <b>A65</b> | 65 DC, 55 DC | <b>J48</b> | 48 AC, 40 AC   |
| <b>A18</b> | 18 DC, 15 DC | <b>J06</b> | 6 AC, 5 AC   | <b>K20</b> | 120 AC, 65 AC  |
| <b>A24</b> | 24 DC, 20 DC | <b>J12</b> | 12 AC, 10 AC | <b>L40</b> | 240 AC, 130 AC |
| <b>A32</b> | 32 DC, 25 DC | <b>J18</b> | 18 AC, 15 AC |            |                |

**7 TERMINAL****1** #10 Screw & Pressure Plate for Direct Wire Connection**2** #10 Screw without Pressure Plate**8 ACTUATOR COLOR & LEGEND****Actuator or****Visi-Color Marking:****Marking Color:**

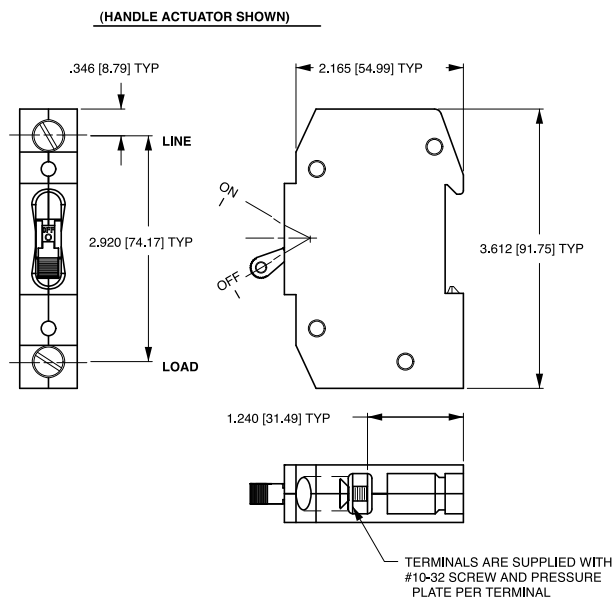
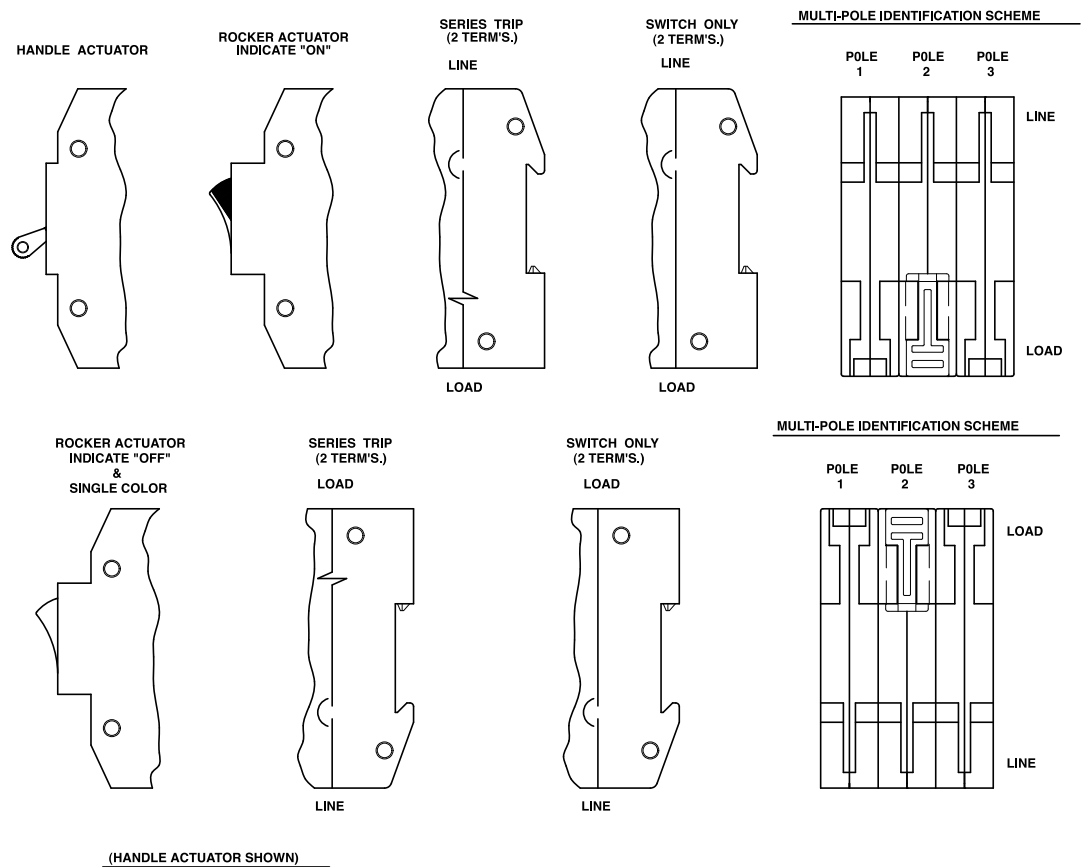
| Color  | I-O      | ON-OFF   | Dual     | Single Color Rocker/Handle | Visi-Rocker (Actuator Black) <sup>7</sup> |
|--------|----------|----------|----------|----------------------------|-------------------------------------------|
| White  | <b>A</b> | <b>B</b> | <b>1</b> | Black                 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

**9 MOUNTING / VOLTAGE**

|                      | MOUNTING STYLE         | VOLTAGE |
|----------------------|------------------------|---------|
|                      | <b>Threaded Insert</b> |         |
| <b>1</b>             | 6-32 x 0.195 inches    | < 300   |
| <b>C<sup>8</sup></b> | 6-32 X 0.195 inches    | ≥ 300   |
| <b>2</b>             | ISO M3 x 5mm           | < 300   |
| <b>D<sup>8</sup></b> | ISO M3 x 5mm           | ≥ 300   |

**10 AGENCY APPROVAL****C** UL Recognized & CSA Accepted**D<sup>9</sup>** VDE Certified, UL Recognized & CSA Accepted**Notes:****1** Handle breakers available up to four poles. Rocker breakers available up to three poles.**2** Actuator Code:**A:** Multi-pole units factory assembled with common handle tie.**B:** Handle location as viewed from front of breaker:**2** pole - left pole**3** pole - center pole**4** pole - two handles at center poles**3** Multipole rocker breakers have one rocker per breaker, as viewed from the front of the panel. Two pole - left pole. Three pole - center pole**4** ≤ 30A, select Current Rating code 630. 31-50A, select Current Rating code 650.**5** Voltage coil only available with delay codes 10 & 20.**6** Available to 50A max with circuit code B0 only.**7** Color shown is visi and legend with remainder of rocker black.**8** ≥ 300V. Three pole breaker 3Ø or 2 pole breaker 1Ø, UL/CSA limited to 30 FLA max.**9** VDE Approval requires Dual (I-O, ON-OFF) or I-O markings

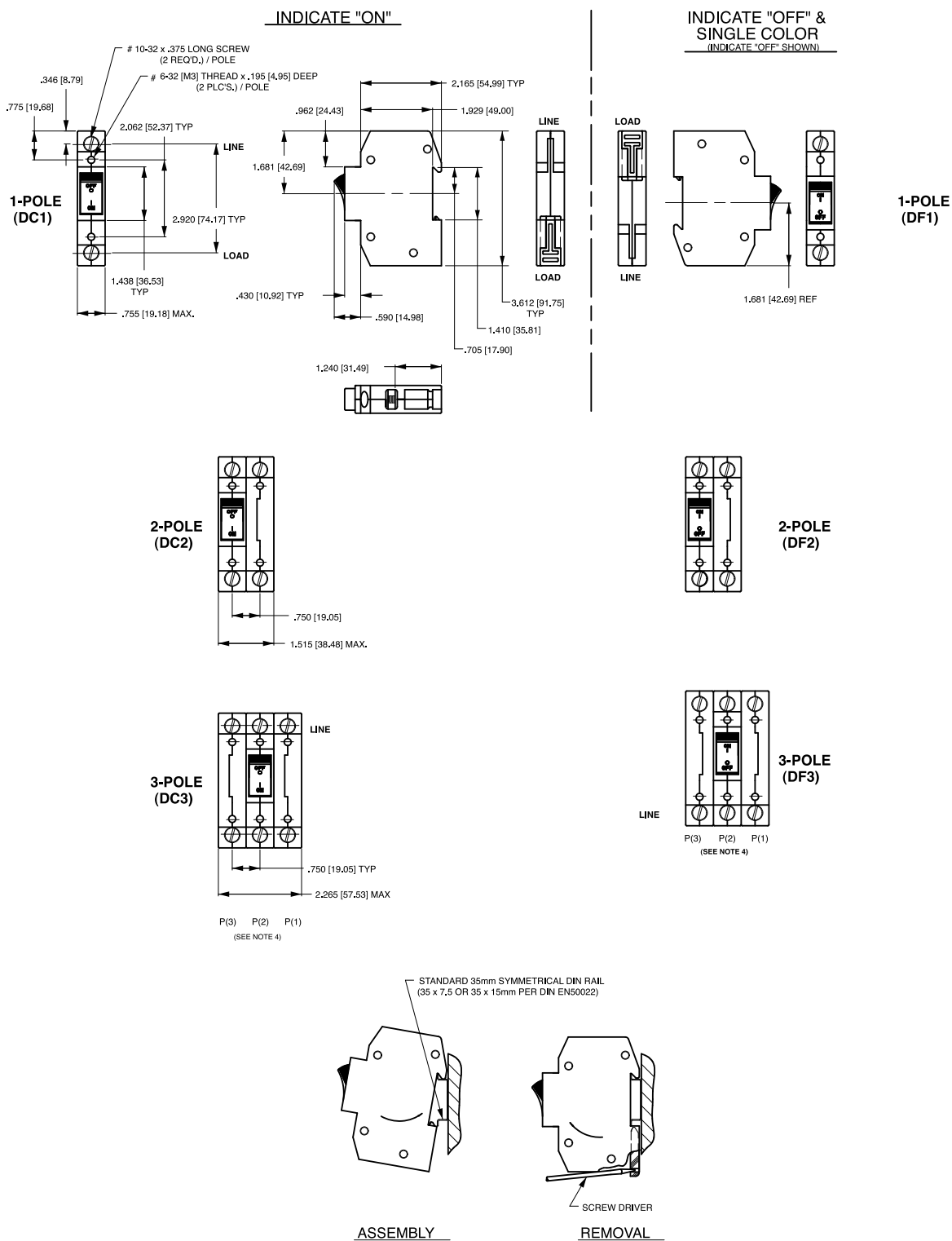
Circuit & Terminal Diagrams: in. [mm]



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

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

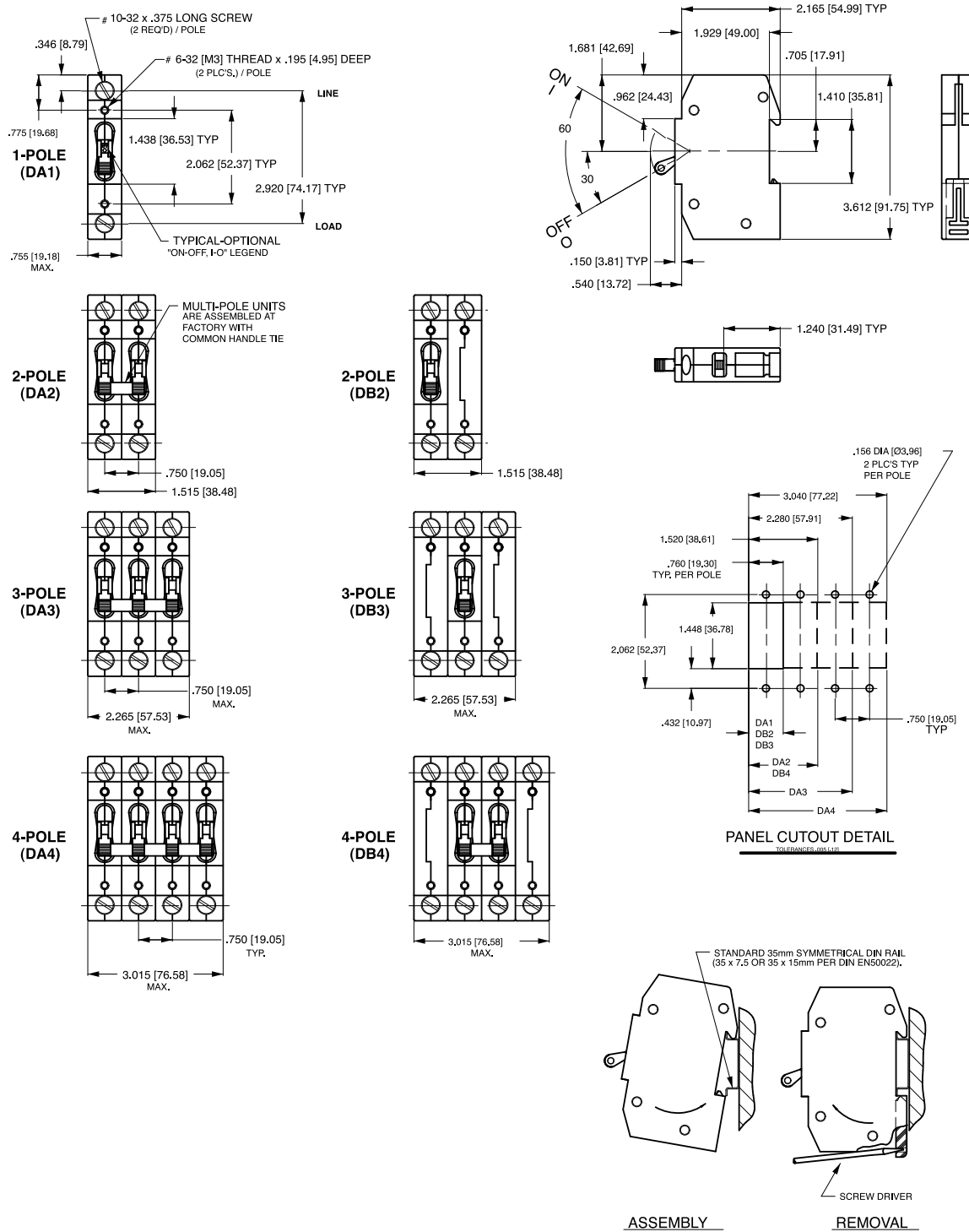
## Dimensional Specifications: in. [mm]



### Notes:

- 1 All dimensions are in inches [millimeters].
- 2 Tolerance  $\pm 0.020$  [.51] unless otherwise specified.
- 3 Dimensions apply to all variations shown. Notice that circuit breaker line and load terminal orientation on indicate OFF is opposite of indicate ON.
- 4 For pole orientation with horizontal legend, rotate front view clockwise 90°.

## Dimensional Specifications: in. [mm]



### Notes:

- 1 All dimensions are in inches [millimeters].
- 2 Tolerance  $\pm 0.10$  [.25] unless otherwise specified.

## Authorized Sales Representatives and Distributors

Click on a region of the map below to find your local representatives and distributors or visit [www.carlingtech.com/findarep](http://www.carlingtech.com/findarep).



## About Carling

Founded in 1920, Carling Technologies is a leading manufacturer of electrical and electronic switches and assemblies, circuit breakers, electronic controls, power distribution units, and multiplexed power distribution systems. With four ISO9001 and IATF16949 registered manufacturing facilities and technical sales offices worldwide, Carling Technologies Sales, Service and Engineering teams do much more than manufacture electrical components, they engineer powerful solutions! To learn more about Carling please visit [www.carlingtech.com/company-profile](http://www.carlingtech.com/company-profile).

To view all of Carling's environmental, quality, health & safety certifications please visit [www.carlingtech.com/environmental-certifications](http://www.carlingtech.com/environmental-certifications)

## **Worldwide Headquarters**

Carling Technologies, Inc.  
60 Johnson Avenue, Plainville, CT 06062  
**Phone:** 860.793.9281 **Fax:** 860.793.9231  
**Email:** sales@carlingtech.com

**Northern Region Sales Office:** nrsm@carlingtech.com  
**Southeast Region Sales Office:** sersm@carlingtech.com  
**Midwest Region Sales Office:** mrsm@carlingtech.com  
**West Region Sales Office:** wrsm@carlingtech.com  
**Latin America Sales Office:** larsm@carlingtech.com

## **Asia-Pacific Headquarters**

Carling Technologies, Asia-Pacific Ltd.,  
Suite 1607, 16/F Tower 2, The Gateway,  
Harbour City, 25 Canton Road,  
Tsimshatsui, Kowloon, Hong Kong  
**Phone:** Int + 852-2737-2277 **Fax:** Int + 852-2736-9332  
**Email:** sales@carlingtech.com.hk

**Shenzhen, China:** shenzhen@carlingtech.com  
**Shanghai, China:** shanghai@carlingtech.com  
**Pune, India:** india@carlingtech.com  
**Kaohsiung, Taiwan:** taiwan@carlingtech.com  
**Yokohama, Japan:** japan@carlingtech.com

## **Europe | Middle East | Africa Headquarters**

Carling Technologies LTD  
4 Airport Business Park, Exeter Airport,  
Clyst Honiton, Exeter, Devon, EX5 2UL, UK  
**Phone:** Int + 44 1392.364422 **Fax:** Int + 44 1392.364477  
**Email:** ltd.sales@carlingtech.com

**Germany:** gmbh@carlingtech.com  
**France:** sas@carlingtech.com



**Carling Technologies®**

Innovative Designs. Powerful Solutions.

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)

[www.lifeelectronics.ru](http://www.lifeelectronics.ru)