

J-Series

Hydraulic Magnetic Circuit Breaker

PRODUCT WEBPAGE

request sample, configure part, watch video



Compact Size, Designed for High Power Density Applications

The J-Series is a compact hydraulic-magnetic circuit breaker featuring a 10,000 amp maximum interrupting capacity, making it ideally suited for high power density applications. This low profile circuit breaker offers a variety of actuator styles and terminal options. The J-Series is available in one to three poles with ratings from 1 to 20 amps, up to 240VAC and a max IC of 10,000 amps.

1-3

Poles

1-20

Amps

240

VAC Max

Up to 10,000AIC

Short Circuit Capacity

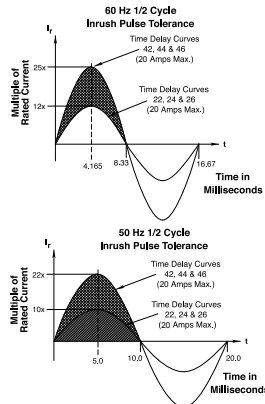
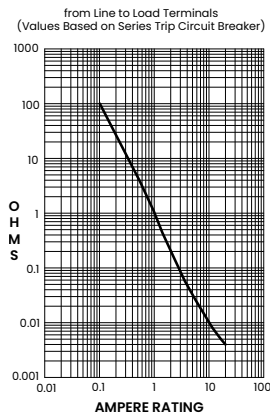
Typical Applications

- Datacom/Telecom,
- AC Power Supplies,
- Marine Applications Requiring High Interrupting Capacity
- AC Power Distribution Units
- Power Dense Motors & Controls

Tech Specs

Electrical

| | |
|------------------------|--|
| Dielectric Strength | Meets UL and cULus requirements and can withstand 1500 VAC, 60Hz for one minute between all electrically isolated terminals. |
| Insulation Resistance | Minimum of 100 Megohms @ 500VDC |
| Overload | 50 operations @ 600% of rated current for AC rated devices. |
| Inrush Pulse Tolerance | Standard delays 12 times rated current, high inrush delays 25x for ½ cycle @ 60Hz |
| Interrupt Capacity | See Table A |
| Resistance, Impedance | (Across circuit breaker terminals) |



| CURRENT (AMPS) | TOLERANCE (%) |
|----------------|---------------|
| 0.10 - 5.0 | +/- 15 |
| 5.1 - 20.0 | +/- 25 |

Mechanical

| | |
|-----------------|---|
| Endurance | 6,000 ON-OFF operations @ 6 per minute; with rated Current and Voltage. 4,000 ON-OFF operations with no load. |
| Trip Free | All J-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 |

Agency Approvals

UL489, cULus CAN/CSA 22.2 No. 5, TUV EN60947-2

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

Tables Table A: Voltage and Current Rating

| Electrical Ratings | | | | | | | | |
|-----------------------|------------|-----------|-------|---------------------|-------------------------------|------------|-------|---------------------|
| Circuit Configuration | Voltage | | | Current Rating | Short Circuit Capacity (Amps) | | | Construction Notes |
| | Max Rating | Frequency | Phase | | Full Load Amps | UL / cULus | TUV | |
| | | | | without backup fuse | | Ics | Icu | |
| Series | 120/240 | 50 / 60 | 1 | 1.0 - 20.0 | 10,000 | 5,000 | 5,000 | 10,000 ¹ |
| | 240 | | | | | | | |

Note:
1 Special Part Number Required. Consult Factory.

Physical

| | |
|--------------------------------|--|
| Number of Poles | 1 - 3 poles |
| Termination | Designed for use with straight, fork, flanged fork, and ring terminals. |
| Termination Torque | See dimensional specs page (Table I) for tightening torque specifications (Line and Load terminals) |
| Terminal Barrier | Foldable barriers to comply with regulatory standards. |
| Mounting | Threaded Insert: #6-32 UNC-2B or M3 x 0.5-6 H B ISO (2 per Pole). |
| Insert Termination Torque | 7-9 in-lbs |
| Actuator | Rocker with or without guard |
| Internal Circuit Configuration | Series Trip, without auxiliary switch |
| Materials | Housing - Glass Filled Polyester Rocker - Nylon Line/Load Terminals - Copper Alloy; Bright Acid Tin Plated |
| Weight | ~170 Grams (~5.75 Ounces) per pole |
| Standard Color | Housing - Black. Rocker - Several (see ordering scheme) |

Environmental

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

| | |
|-----------------------|--|
| Operation Temperature | -40° C to +85° C |
| Storage Temperature | -40° C to +85° C |
| Vibration | Withstands 0.060" excursion from 10-55Hz, and 10G's 55-500Hz, at rated current per Method 204C, Test Condition A. Instantaneous and ultrashort curves tested @ 90% of rated current. |
| Shock | Withstands 100G's, 6ms saw tooth while carrying rated current per Method 213B, Test Condition "I". Instantaneous and ultra short curves tested @ 90% rated current. |
| Moisture Resistance | Method 106G, i.e., Ten 24-hour cycles at +25°C to +65°C, 80-98% RH. |
| Salt Spray | Method 101, Condition A (90-95% RH @ 5% NaCl Solution, 96 hours) |
| Thermal Shock | Method 107G, Condition A (Five cycles @ -55°C to +25°C to +85°C to 25°C) |

Ordering Scheme

Rocker

Sample Part Number

J 1 1 - B 0 - 24-620 - 1 1 B - D G

Selection

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

1. SERIES

J J-Series Circuit Breaker

2. ACTUATOR

FLAT ROCKER:

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

CURVED ROCKER:

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

3. POLES

1 One 2 Two 3 Three¹

4. CIRCUIT

B Series Trip (Current)

5. AUXILIARY SWITCH

0 without Aux Switch

6. FREQUENCY & TIME DELAY

20 50 / 60Hz Instantaneous²
 21 50 / 60Hz Ultra Short
 22 50 / 60Hz Short
 24 50 / 60Hz Medium
 26 50 / 60Hz Long
 42 50 / 60Hz Short, Hi-Inrush
 44 50 / 60Hz Medium, Hi-Inrush
 46 50 / 60Hz Long, Hi-Inrush

7. CURRENT RATING (AMPERES)

| CODE | AMPERES | | | | | | |
|------|---------|-----|------|-----|-------|-----|-------|
| 410 | 1.00 | 435 | 3.50 | 480 | 8.00 | 712 | 12.50 |
| 512 | 1.25 | 440 | 4.00 | 485 | 8.50 | 613 | 13.00 |
| 415 | 1.50 | 445 | 4.50 | 490 | 9.00 | 614 | 14.00 |
| 517 | 1.75 | 450 | 5.00 | 495 | 9.50 | 615 | 15.00 |
| 420 | 2.00 | 455 | 5.50 | 610 | 10.00 | 616 | 16.00 |
| 522 | 2.25 | 460 | 6.00 | 710 | 10.50 | 617 | 17.00 |
| 425 | 2.50 | 465 | 6.50 | 611 | 11.00 | 618 | 18.00 |
| 527 | 2.75 | 470 | 7.00 | 711 | 11.50 | 619 | 19.00 |
| 430 | 3.00 | 475 | 7.50 | 612 | 12.00 | 620 | 20.00 |

8. TERMINAL

- 1 Push-On .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 and 30° Bend
- 7 Screw 8-32 (Bus Type) and 30° Bend
- 8 Screw 10-32 with upturned lugs and 30° Bend
- 9 Screw 10-32 (Bus Type) and 30° Bend
- B Screw M5 with upturned lugs
- C Screw M4 with upturned lugs
- F Screw M5 with upturned lugs and 30° Bend
- G Screw M5 (Bus Type) and 30° Bend
- H Screw M5 (Bus Type)
- J Screw M5 Back Connect
- K Screw 10-32 Back Connect
- L Screw 10-32 Back Connect, Alt. Spacing³
- M Screw M5 Back Connect, Alt. Spacing³
- N Screw M4 Back Connect
- P Screw M4 Back Connect, Alt. Spacing³
- R Screw 8-32 Back Connect, Alt. Spacing³
- Y Screw 8-32 Back Connect

9. ACTUATOR COLOR & LEGEND 4

| Actuator or Visi-Color | Marking: | | Marking Color: | |
|------------------------|----------|------|----------------|-------------|
| | ON-OFF | Dual | 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 5

Standard Rocker Bezel

- A 6-32 x .195 inches 1 6-32 x .195 inches
- B ISO M3 x 5 mm 2 ISO M3 x 5 mm

Rockerguard (Curved Rocker) / Push-to-Reset (Flat Rocker) Bezel

- C 6-32 x .195 inches 3 6-32 x .195 inches
- D ISO M3 x 5 mm 4 ISO M3 x 5 mm

Recessed Off (Flat Rocker)

- E 6-32 x .195 inches 5 6-32 x .195 inches
- F ISO M3 x 5 mm 6 ISO M3 x 5 mm

11. APPLICATION RATING

- C 120 / 240 VAC⁶
- D 240 VAC

12. AGENCY APPROVAL

- A Without Approvals
- G UL 489 Listed, cULus Listed
- 3 UL 489 Listed, cULus Listed, TUV Certified⁷

Notes:

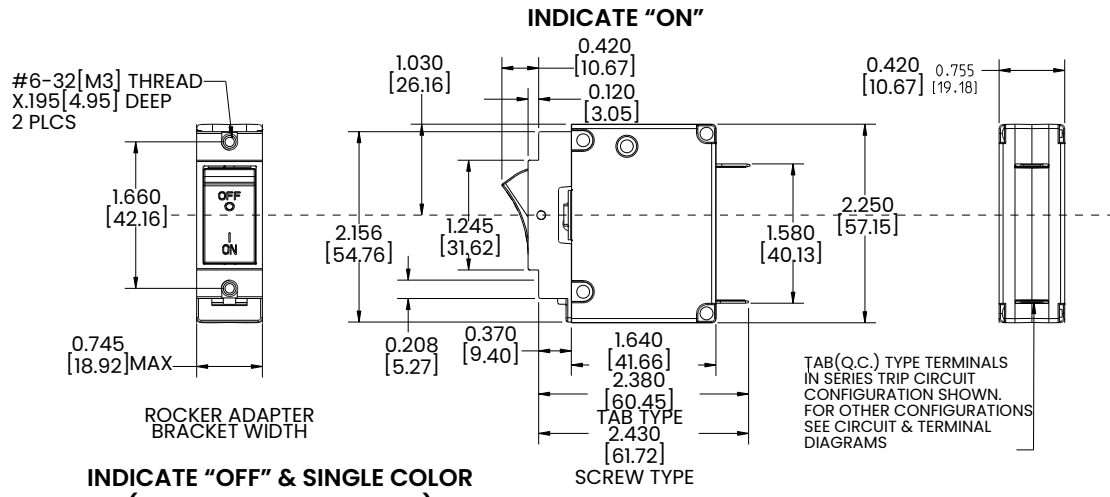
- 1 3 Pole Units available when 1 of 3 poles is neutral.
- 2 20 Delay available only with no agency approvals.
- 3 Refer to dimensional specifications for alternate back connect terminal spacing dimension.
- 4 TUV Approval requires Dual (I-O, ON-OFF) markings.
- 5 For codes A through F, rocker to be on Pole 1 for multi pole breakers with behind the panel standoff bracket on pole 2. For codes 1 through 6, rocker to be on pole 2 for multipole breakers with behind the panel standoff bracket on Pole 1. For 1 & 3 pole breakers use codes A-F.
- 6 Voltage Rating available with 2 and 3 pole breakers only.
- 7 Special Part Number Required for Tuv Icu 10kaic rating on label. Consult Factory.

[Configure Complete Part Number >](#)

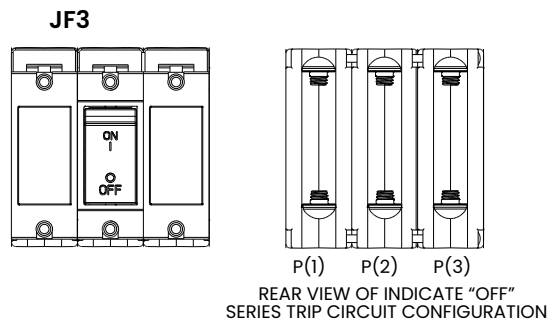
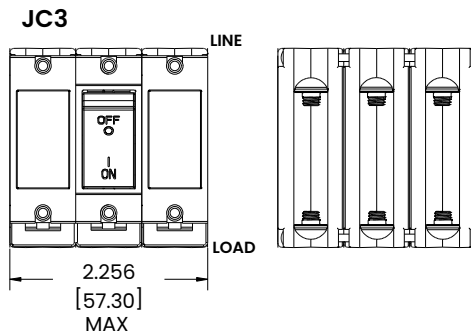
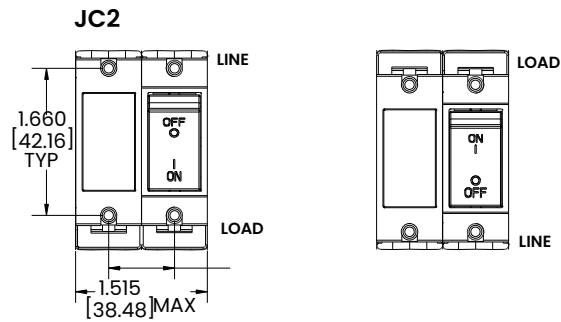
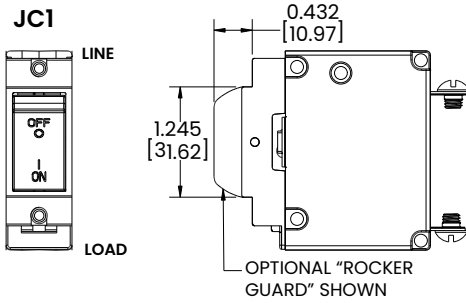
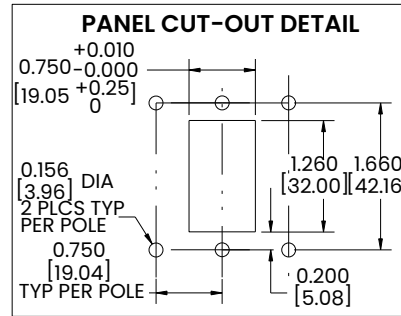
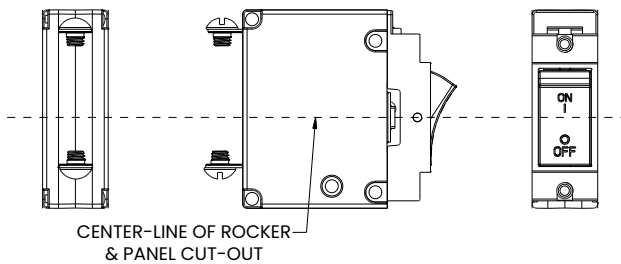
[Browse Standard Parts >](#)

Dimensional Specs Rocker

inches [millimeters]



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

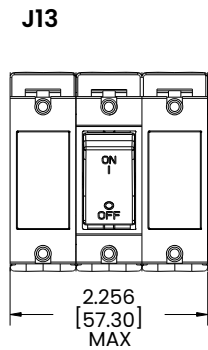
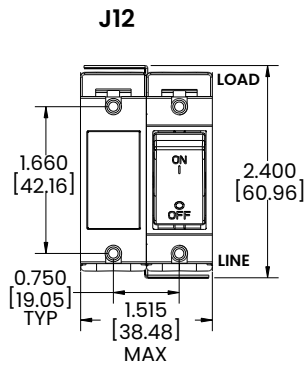
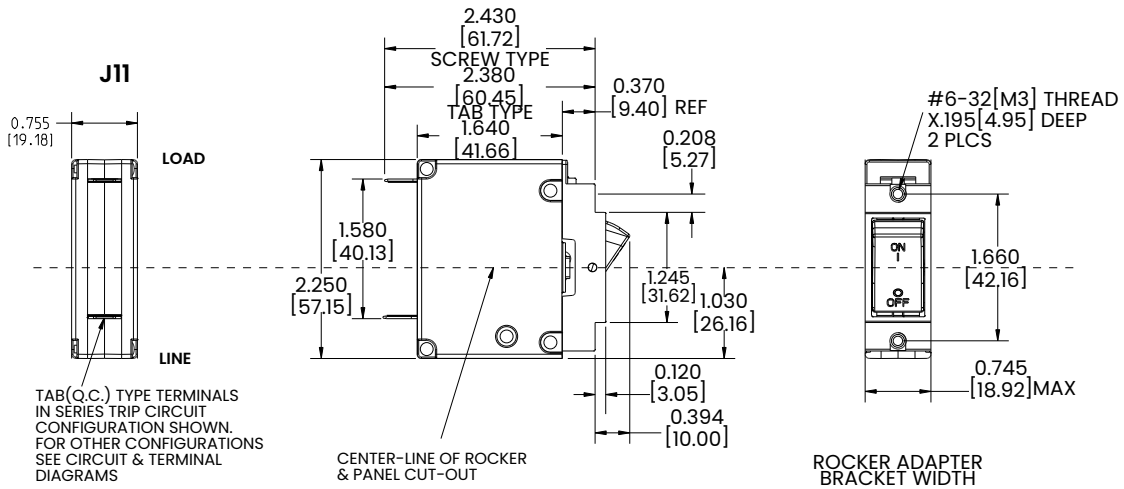


Notes:
1 Tolerance ± 0.020 [51] unless otherwise specified.

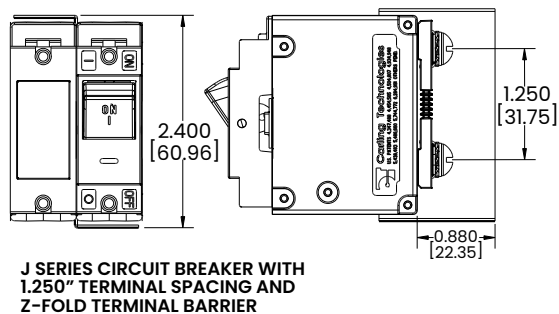
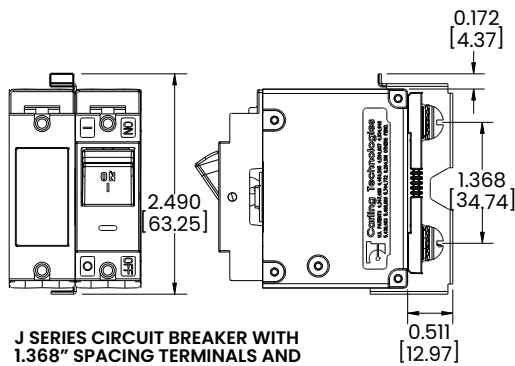
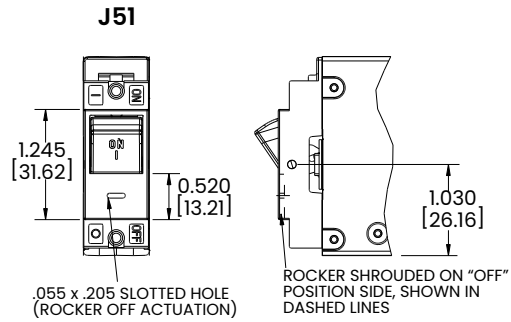
Dimensional Specs Rocker

inches [millimeters]

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



PUSH-TO-RESET ACTUATOR



Notes:
1 Tolerance ± 0.020 [.51] unless otherwise specified.

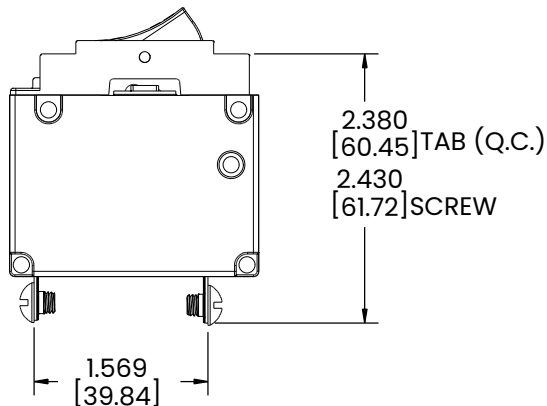
Dimensional Specs

Rocker

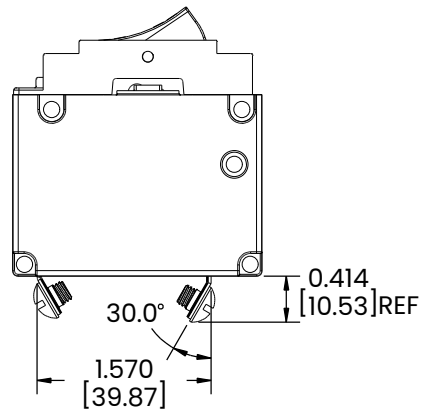
inches [millimeters]

TERMINAL SPACING

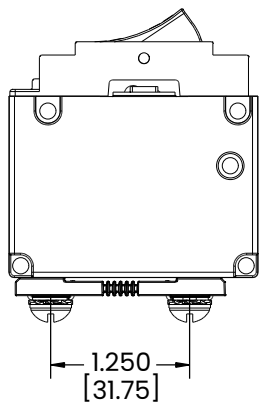
SCREW TERMINAL & PUSH-IN Q.C. TAB



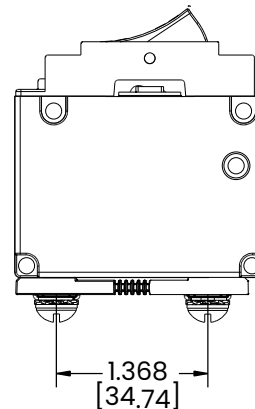
SCREW TERMINAL WITH 30° BEND



BACK CONNECT SCREW TERMINAL WITH RETAINER



BACK CONNECT SCREW TERMINAL WITH RETAINER-ALTERNATIVE SPACING



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

Notes:

1 Tolerance ± 0.020 [.51] unless otherwise specified.

Ordering Scheme Handle

Sample Part Number

J A 1 - B 0 - 24 - 620 - 1 2 1 - D 3

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

1. SERIES

J J-Series Circuit Breaker

2. ACTUATOR

A Handle, one per pole
B Handle, one per multi-pole unit ¹

3. POLES

1 One **2** Two **3** Three

4. CIRCUIT

B Series Trip (Current)

5. AUXILIARY SWITCH

0 without Aux Switch

6. FREQUENCY & TIME DELAY

21 50 / 60Hz Ultra Short
22 50 / 60Hz Short
24 50 / 60Hz Medium
26 50 / 60Hz Long
42 50 / 60Hz Short, Hi-Inrush
44 50 / 60Hz Medium, Hi-Inrush
46 50 / 60Hz Long, Hi-Inrush

7. CURRENT RATING (AMPERES)

| CODE | AMPERES | | | | |
|------------|---------|------------|------|------------|-------|
| 410 | 1.00 | 435 | 3.50 | 480 | 8.00 |
| 512 | 1.25 | 440 | 4.00 | 485 | 8.50 |
| 415 | 1.50 | 445 | 4.50 | 490 | 9.00 |
| 517 | 1.75 | 450 | 5.00 | 495 | 9.50 |
| 420 | 2.00 | 455 | 5.50 | 610 | 10.00 |
| 522 | 2.25 | 460 | 6.00 | 710 | 10.50 |
| 425 | 2.50 | 465 | 6.50 | 611 | 11.00 |
| 527 | 2.75 | 470 | 7.00 | 711 | 11.50 |
| 430 | 3.00 | 475 | 7.50 | 612 | 12.00 |
| | | | | 712 | 12.50 |
| | | | | 613 | 13.00 |
| | | | | 614 | 14.00 |
| | | | | 615 | 15.00 |
| | | | | 616 | 16.00 |
| | | | | 617 | 17.00 |
| | | | | 618 | 18.00 |
| | | | | 619 | 19.00 |
| | | | | 620 | 20.00 |

Notes:

- Actuator code B (multi-pole only): Handle location as viewed from front of breaker with mounting/barrier code A or B:
 2 pole - right pole 3 pole - center pole
- Refer to dimensional specifications for alternate back connect terminal spacing dimension.
- Single pole only
- ON-OFF markings only available with agency code G. TUV approval requires dual markings
- Codes 1 and 2 are only available for single pole breaker options
 Codes C and D are only available for 2 pole breakers with actuator code B:
 Handle location on left pole as viewed from front of breaker
- Special Part Number Required for Tuv Icu 10kaic rating on label. Consult Factory.

[Configure Complete Part Number >](#)

[Browse Standard Parts >](#)

8. TERMINAL

1 Push-On .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 and 30° Bend
7 Screw 8-32 (Bus Type) and 30° Bend
8 Screw 10-32 with upturned lugs and 30° Bend
9 Screw 10-32 (Bus Type) and 30° Bend
B Screw M5 with upturned lugs
C Screw M4 with upturned lugs
F Screw M5 with upturned lugs and 30° Bend
G Screw M5 (Bus Type) and 30° Bend
H Screw M5 (Bus Type)
J Screw M5 Back Connect
K Screw 10-32 Back Connect
L Screw 10-32 Back Connect, Alt. Spacing ²
M Screw M5 Back Connect, Alt. Spacing ²
N Screw M4 Back Connect
P Screw M4 Back Connect, Alt. Spacing ²
R Screw 8-32 Back Connect, Alt. Spacing ²
Y Screw 8-32 Back Connect

9. ACTUATOR COLOR & LEGEND ⁴

| Handle Color | ON-OFF | Dual | Legend Color |
|-----------------------------------|----------|----------|--------------|
| White | B | 1 | Black |
| Black | D | 2 | White |
| Red | G | 3 | White |
| Yellow | N | 6 | Black |
| Black (Short Handle) ³ | U | 9 | White |

10. MOUNTING / BARRIERS ⁵

| | Barriers |
|--|----------|
| 1 6-32 x .195 inches threaded inserts | No |
| A 6-32 x .196 inches threaded inserts | Yes |
| 2 ISO M3 x 5 mm threaded inserts | No |
| B ISO M3 x 6 mm threaded inserts | Yes |
| C 6-32 x .195 inches threaded inserts | Yes |
| D ISO M3 x 6 mm threaded inserts | Yes |

11. APPLICATION RATING

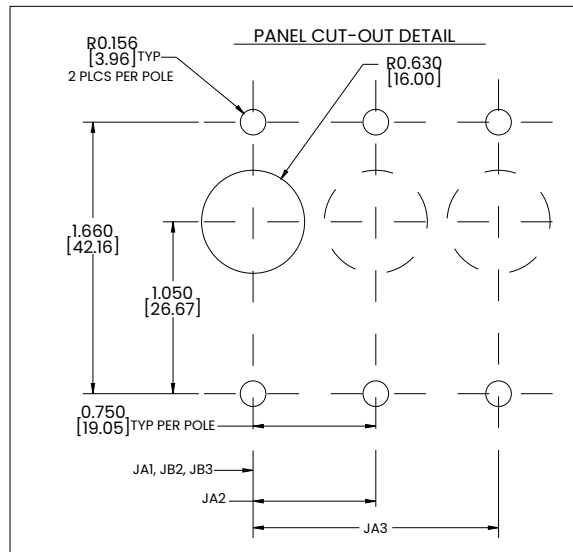
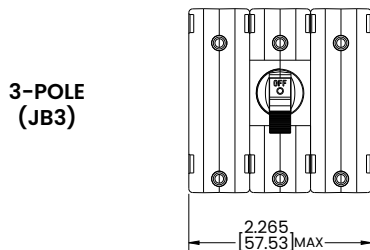
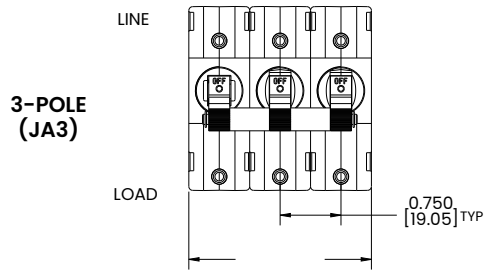
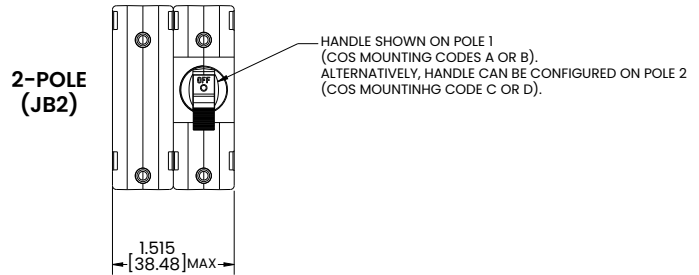
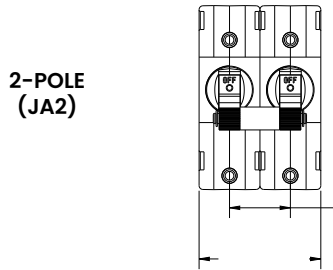
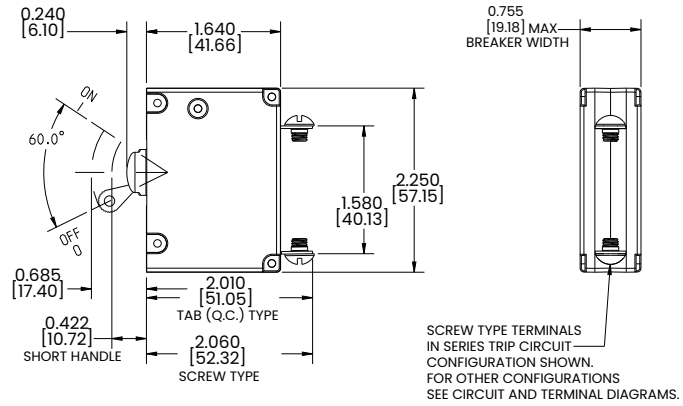
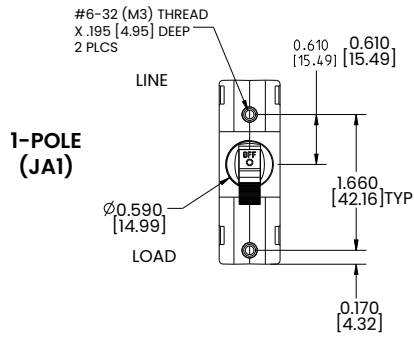
C 120 / 240 VAC (2 and 3 pole only)
D 240 VAC (1 and 2 pole only)

12. AGENCY APPROVAL

A Without Approvals
G UL 489 Listed, cULus Listed
3 UL 489 Listed, cULus Listed, TUV Certified ⁶

Dimensional Specs Handle

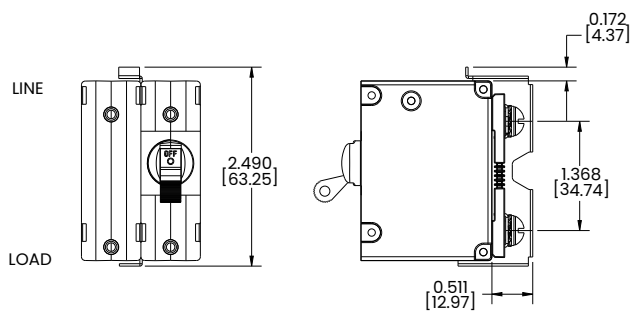
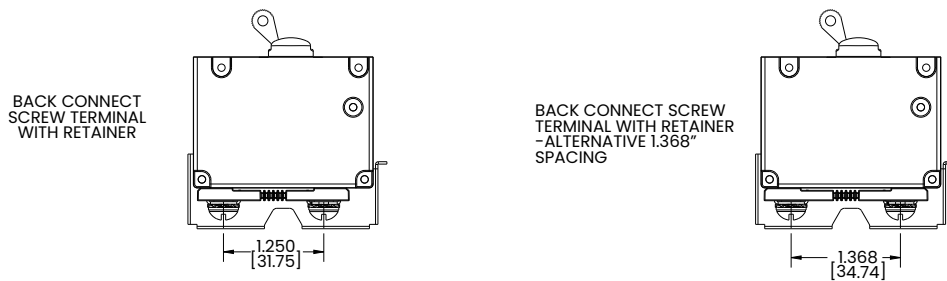
inches [millimeters]



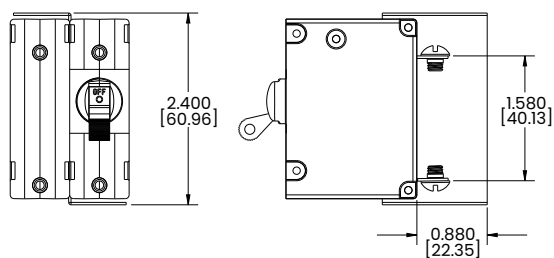
Notes:
1 Tolerance ± 0.020 [51] unless otherwise specified.

Dimensional Specs Handle

inches [millimeters]



J SERIES CIRCUIT BREAKER WITH 1.368" TERMINAL SPACING AND SCREW TERMINAL BARRIER



J SERIES CIRCUIT BREAKER WITH 1.250" TERMINAL SPACING AND Z-FOLD TERMINAL BARRIER

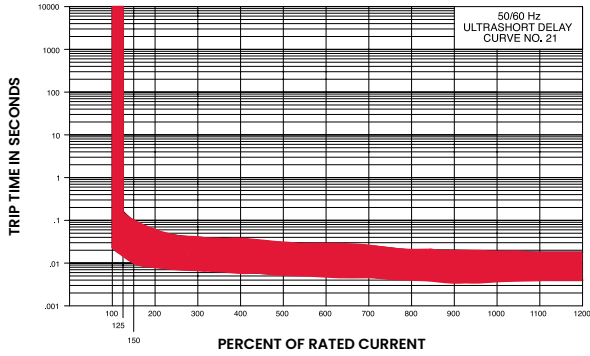
Notes:

1 Tolerance ± 0.020 [.51] unless otherwise specified.

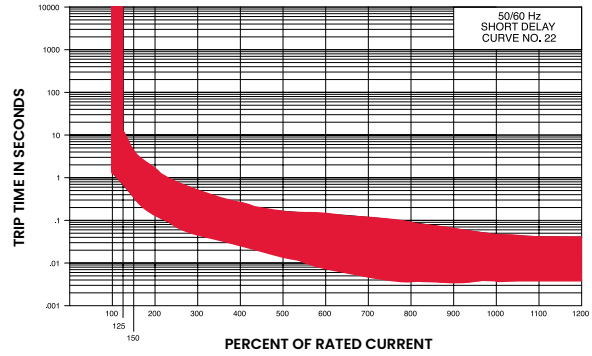
Time Delay

AC

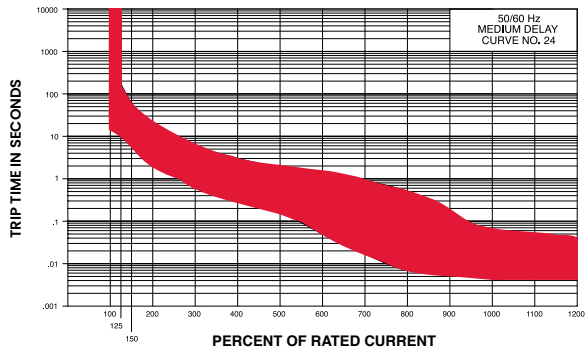
Ultrashort



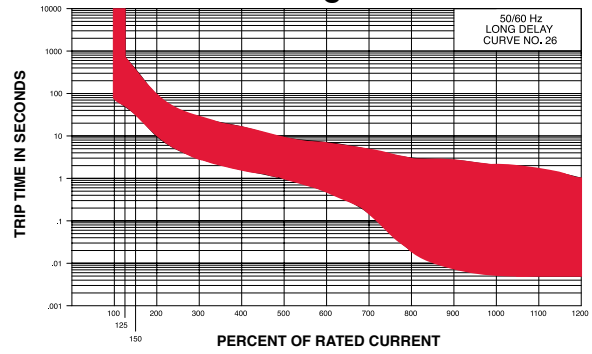
Short



Medium



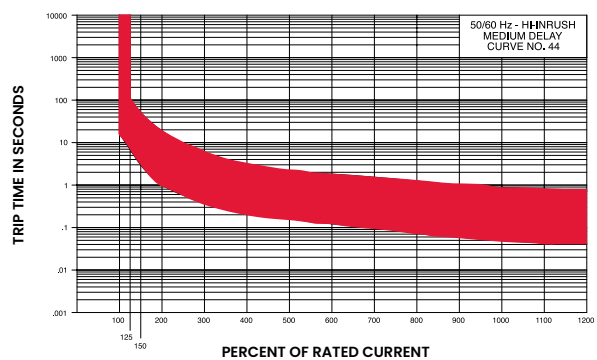
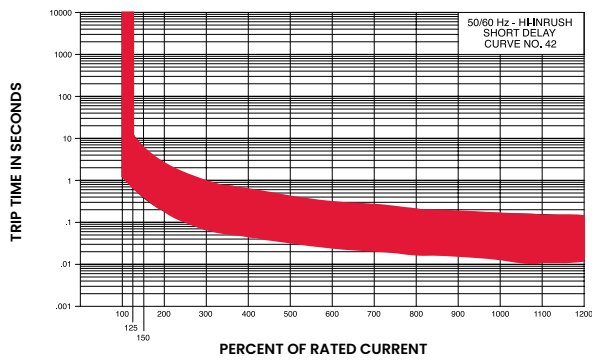
Long



Short

High Inrush AC

Medium



Long



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.



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 six 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.

To view all of Carling's environmental, quality, health & safety certifications please visit www.carlingtech.com/environmental-certifications.

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