J-Series
HYDRAULIC-MAGNETIC CIRCUIT BREAKER

Designed to provide high levels of circuit protection, the J-Series is a compact, low profile hydraulic magnetic circuit breaker ideally suited for high power density applications. This versatile circuit breaker is available with a variety of actuator styles and terminal options to suit most any requirement.

1-3 poles; ratings from: 1-20 amps, up to 240VAC; UL 489 Listed, cULus Listed and TUV EN60947-2.

Resources:
- Configure a Complete Part
- Download CAD & Sales Drawing
- Watch Product Video

Product Highlights:
- Low Profile / Depth
- Up to 10,000AIC Short Circuit Capacity
- UL 489 Listed, cULus Listed and TUV EN60947-2

Typical Applications:
- Datacom / Telecom
- AC Power Distribution Units
- AC Power Supplies
- Power Dense Motors & Controls
- Marine Applications Requiring Higher Interrupting Capacity
**Electrical Tables**

**Table A: Voltage and Current Rating**

<table>
<thead>
<tr>
<th>Circuit Configuration</th>
<th>Voltage</th>
<th>Current Rating</th>
<th>Short Circuit Capacity (Amps)</th>
<th>Construction Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Max Rating</td>
<td>Frequency</td>
<td>Phase</td>
<td>Full Load Amps</td>
</tr>
<tr>
<td>Series 120/240</td>
<td>50 / 60</td>
<td>1</td>
<td>1.0 - 20.0</td>
<td>10,000</td>
</tr>
<tr>
<td>240</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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

**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 1) 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 Config.**: 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**

- **Operating 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 “1”.
- **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)

**Agency Approvals**

UL489, cUL CAN/CSA 22.2 No. 5, TUV EN60947-2
### J-Series Circuit Breaker - Rocker - Ordering Scheme

**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

- CURVED ROCKER:
  - Two Color Visi-Rocker
    - C: Indicate ON, vertical legend
    - D: Indicate ON, horizontal legend
  - Single color
    - E: Vertical legend
    - F: Horizontal legend

**3 POLES**
- 1: Single color
- 2: Two Color Visi-Rocker
- 3: Push-To-Reset, Single color
- 4: Push-To-Reset, Visi-Rocker

**4 CIRCUIT**
- B = Series Trip (Current)

**5 AUXILIARY SWITCH**
- 0 = without Aux Switch

**6 FREQUENCY & TIME DELAY**
- 20: 50 / 60Hz Instantaneous
- 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)**

<table>
<thead>
<tr>
<th>CODE AMPERES</th>
<th>410</th>
<th>512</th>
<th>515</th>
<th>517</th>
<th>420</th>
<th>522</th>
<th>425</th>
<th>527</th>
<th>430</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>1.00</td>
<td>1.25</td>
<td>1.50</td>
<td>1.75</td>
<td>2.00</td>
<td>2.25</td>
<td>2.50</td>
<td>2.75</td>
<td>3.00</td>
</tr>
<tr>
<td>AMPERES</td>
<td>435</td>
<td>440</td>
<td>445</td>
<td>450</td>
<td>455</td>
<td>465</td>
<td>465</td>
<td>470</td>
<td>475</td>
</tr>
<tr>
<td>Voltage</td>
<td>3.50</td>
<td>4.00</td>
<td>4.50</td>
<td>5.00</td>
<td>5.50</td>
<td>6.00</td>
<td>6.50</td>
<td>7.00</td>
<td>7.50</td>
</tr>
<tr>
<td>Code</td>
<td>480</td>
<td>485</td>
<td>490</td>
<td>495</td>
<td>610</td>
<td>710</td>
<td>611</td>
<td>711</td>
<td>612</td>
</tr>
<tr>
<td>Current</td>
<td>8.00</td>
<td>8.50</td>
<td>9.00</td>
<td>9.50</td>
<td>10.00</td>
<td>10.50</td>
<td>11.00</td>
<td>11.50</td>
<td>12.00</td>
</tr>
<tr>
<td>Code</td>
<td>712</td>
<td>613</td>
<td>614</td>
<td>615</td>
<td>616</td>
<td>617</td>
<td>618</td>
<td>619</td>
<td>620</td>
</tr>
<tr>
<td>Rating</td>
<td>12.50</td>
<td>13.00</td>
<td>14.00</td>
<td>15.00</td>
<td>16.00</td>
<td>17.00</td>
<td>18.00</td>
<td>19.00</td>
<td>20.00</td>
</tr>
</tbody>
</table>

**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 M6 with upturned lugs
- 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
- M: Screw M5 Back Connect, Alt. Spacing
- N: Screw M4 Back Connect
- P: Screw M4 Back Connect, Alt. Spacing
- R: Screw 8-32 Back Connect, Alt. Spacing
- Y: Screw 8-32 Back Connect

**9 ACTUATOR COLOR & LEGEND**

<table>
<thead>
<tr>
<th>Actuator or</th>
<th>Marking Color:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visi-Color</td>
<td>Single Color</td>
</tr>
<tr>
<td>Marking</td>
<td>Visi-Rocker</td>
</tr>
</tbody>
</table>

- White  B: Black
- Black  D: White
- Red    G: White
- Green  J: White
- Blue   L: White
- Yellow N: Black
- Gray   Q: Black
- Orange S: Black

**10 MOUNTING**
- Standard Rocker Bezel
  - A = 6-32 x .195 inches
  - B = ISO M3 x 5 mm
- Rockerguard (Curved Rocker) / Push-to-Reset (Flat Rocker) Bezel
  - C = 6-32 x .195 inches
  - D = ISO M3 x 5 mm
- Recessed Off (Flat Rocker)
  - E = 6-32 x .195 inches
  - F = ISO M3 x 5 mm

**11 APPLICATION RATING**
- C = 120 / 240 VAC
- D = 240 VAC

**12 AGENCY APPROVAL**
- A = Without Approvals
- G = UL489 Listed, cULus Listed
- 3 = UL489 Listed, cULus Listed, TUV Certified

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 (IO, 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.

COS-8085 Rev. A

Email: sales@carlingtech.com  Application Support: team2@carlingtech.com
Phone: (860) 793–9281  Fax: (860) 793–9231  www.carlingtech.com
Dimensional Specifications: in. [mm]

Notes:
1 All dimensions are in inches [millimeters].
2 Tolerance ± 0.020 [.51] unless otherwise specified.

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www.carlingtech.com
Dimensional Specifications: in. [mm]

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

Notes:
1. All dimensions are in inches [millimeters].
2. Tolerance ± 0.020 [0.51] unless otherwise specified.

J SERIES CIRCUIT BREAKER WITH 136° SPACING TERMINALS AND SCREW TERMINAL BARRIER

J SERIES CIRCUIT BREAKER WITH 125° TERMINAL SPACING AND Z-FOLD TERMINAL BARRIER

PUSH-TO-RESET ACTUATOR

Rocker should go on "OFF" position size, shown in dashed lines.
Dimensional Specifications: in. [mm]

**TERMINAL SPACING**

**SCREW TERMINAL & PUSH-IN O.C. TAB**

- TAB (O.C.) 2.380 [60.45]
- SCREW 2.430 [61.72]
- 1.569 [39.84]

**SCREW TERMINAL WITH 30° BEND**

- 0.441 [10.37] REF
- 1.570 [39.87]

**BACK CONNECT SCREW TERMINAL WITH RETAINER**

- 1.250 [31.75]

**BACK CONNECT SCREW TERMINAL WITH RETAINER - ALTERNATIVE SPACING**

- 1.368 [34.74]

**TABLE 1 - TIGHTENING TORQUE SPECIFICATIONS**

<table>
<thead>
<tr>
<th>THREAD SIZE</th>
<th>TORQUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>#6-32 &amp; M3 MOUNTING HARDWARE</td>
<td>7-9 IN-LBS [0.8-1.0 Nm]</td>
</tr>
<tr>
<td>#8-32 &amp; M4 THREAD TERMINAL SCREW</td>
<td>12-15 IN-LBS [1.4-1.7 Nm]</td>
</tr>
<tr>
<td>#10-32 &amp; M5 THREAD TERMINAL SCREW</td>
<td>15-20 IN-LBS [1.7-2.3 Nm]</td>
</tr>
</tbody>
</table>

Notes:
1. All dimensions are in inches [millimeters].
2. Tolerance ± 0.020 [0.51] unless otherwise specified.
### J-Series Circuit Breaker - Handle - Ordering Scheme

#### 1 SERIES
- **J**: J-Series Circuit Breaker

#### 2 ACTUATOR
- **A**: Handle, one per pole
- **B**: Handle, one per multi-pole unit

#### 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
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  - 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.)
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- **4**: Screw 10-32 with upturned lugs
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- **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
- **D**: Screw M5 with upturned lugs and 30° Bend
- **G**: Screw M5 (Bus Type)
- **H**: Screw M5 (Bus Type)
- **J**: Screw M5 Back Connect
- **K**: Screw 10-32 Back Connect
- **L**: Screw 10-32 Back Connect, Alt. Spacing
- **M**: Screw 10-32 Back Connect, Alt. Spacing
- **N**: Screw M4 Back Connect
- **P**: Screw M4 Back Connect, Alt. Spacing
- **R**: Screw 8-32 Back Connect, Alt. Spacing
- **Y**: Screw 8-32 Back Connect

#### 9 ACTUATOR COLOR & LEGEND
- **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)**: U 9 White

#### 10 MOUNTING / BARRIERS
- **1**: 6-32 x .195 inches threaded inserts
- **A**: 6-32 x .196 inches threaded inserts
- **B**: ISO M3 x 5 mm threaded inserts
- **C**: ISO M3 x 6 mm threaded inserts
- **D**: ISO M3 x 6 mm threaded inserts

#### 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**: UL489 Listed, cULus Listed
- **3**: UL489 Listed, cULus Listed, TUV Certified

**Notes:**
1. 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
2. Refer to dimensional specifications for alternate back connect terminal spacing dimension.
3. Single pole only
4. ON-OFF markings only available with agency code G. TUV approval requires dual markings
5. Codes C and D are only available for single pole breaker options
6. 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
Dimensional Specifications: in. [mm]

### 1-POLE (JA1)
- **0.170** [4.32]
- **0.590** [14.99]
- **1.640** [41.66]

### 2-POLE (JA2)
- **0.750** [19.05]
- **1.516** [38.48]
- **2.265** MAX [57.53]

### 3-POLE (JA3)
- **2.265** MAX [57.53]
- **0.750** TYP [19.05]

### 2-POLE (JB2)
- **0.472** [11.97]
- **2.000** [50.80]
- **2.070** [52.08]

### 3-POLE (JB3)
- **0.240** [6.09]
- **0.685** [17.44]

### Notes:
1. All dimensions are in inches [millimeters].
2. Tolerance ± 0.020 [0.51] unless otherwise specified.
Dimensional Specifications: in. [mm]

Notes:
1. All dimensions are in inches [millimeters].
2. Tolerance ± 0.020 [0.51] unless otherwise specified.
Trip Time Delays

Ultrashort

AC

Short

Medium

Long

High Inrush AC

Short

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 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.

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