Heinemann® Gj 1P Series
Circuit Breakers
Optional Low-Voltage Shunt for Current Metering

Eaton Corporation's Cutler-Hammer series of Heinemann GJ1P breakers offer high quality circuit protection for DC applications from 100 to 1200 Amperes.

Their precisely tailored time delays and ability to interrupt high currents makes them ideally suited for critical applications. On overloads exceeding 1000 – 1400% of rating, there is no intentional time delay and the breaker interrupts currents of as much as 25,000 A at 65V DC.

An optional shunt (25 or 50 millivolt full scale) permits metering of current. Since the shunt output is low voltage, light-gauge wiring can be used from shunt to meter. Indication may be displayed in percent, watts, safe/danger or other dial calibrations. In addition, the busbar is available in two versions: Standard Size and Reduced Size. Contact your Eaton Sales Representative for more information.

Precision Current Equalization (PCE) Circuit Breakers

GJ1P breakers rated 250 to 1200 A are built in parallel construction. Conventional parallel pole breakers can experience uneven current distribution because of variations in internal resistances. This condition can result in nuisance tripping since the higher current in one parallel branch has the same effect as an overload on the sensing element in that branch. Proprietary Precision Current Equalization (PCE) mechanisms used in GJ1P breakers are insensitive to changes in ambient or enclosure temperature. Therefore, GJ1P circuit breakers are suited for service conditions encountered in telecommunications, transportation, air conditioning and other outdoor or “heat-loaded” equipment.

SPECIFICATIONS

Standard Current Ratings:
100, 125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500, 600, 700, 800, 900, 1000, 1100, 1200 A.

Standard Maximum Voltages:
160V DC up to 700A
65V DC from 701 to 1200A

Breakers will be labeled with standard maximum (UL) voltage unless otherwise specified.

Special Current Ratings:
Any integral rating between 100 and 1200 A DC. Consult factory for ordering information and metering shunt restrictions.

Interrupting Capacities:
UL Listed:
10,000 A @ 160V DC
25,000 A @ 65V DC

Non-UL:
14,000 A @ 160V DC.

Operating Temperature Range:
-40°C to +85°C.

Approximate Weight:
1-pole (100-225A) 1.13kg (2.5lbs)
2-pole (250-400A) 2.27kg (5lbs)
3-pole (450-700A) 3.40kg (7.5lbs)
4-pole (701-800A) 4.54kg (10lbs)
5-pole (801-1000A) 5.67kg (12.5lbs)
6-pole (1001-1200A) 6.80kg (15lbs)

Weight may vary based on shunt and busbar.

APPROVALS

UL Listing:
GJ1P breakers are UL listed per UL489. For CSA certification, consult application engineering.

Heinemann is a registered trademark of the Eaton Corporation, Commercial Controls Business Unit.
**TIME DELAY CHARACTERISTICS**

Time delay, in all models, is inversely proportional to the magnitude of the overload, adjusting automatically to limit transient power to the load. On overloads exceeding 1,000 – 1,400%, the circuit breaker trips without any deliberately imposed delay.

**Curve 1. Standard time delay** is furnished unless another optional delay is specified. It is the preferred characteristic for use where the load is composed of both resistive and inductive components.

**Curve 2. Medium time delay** is for general use in mixed (inductive and resistive) circuits where the breaker rating is matched to the current carrying capacity of the mains.

**Curve 3. Short time delay** permits a very brief delay period before tripping.

**Curve P. Non-time delay breakers** are available for applications which cannot tolerate even brief transient overloads. These breakers have no time delay mechanism other than that imposed by the coil self-inductance and the inertia of the mechanism.

**Tripping specifications**

The time delay curves depict breaker response time vs. percent of rated load with no preloading. The function is plotted at an ambient temperature of 77°F (25°C) with the breaker in a vertical or wall-mounted position. Series G1P circuit breakers will carry 100% of rated load continuously. Both time delay and non-time delay breakers may trip between 101% and 125% of rated load, and must trip at 125% and above.

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**PERCENT OF RATED CURRENT VS. TRIP DELAY AT 25°C**

<table>
<thead>
<tr>
<th>% (sec)</th>
<th>Delay</th>
<th>100%</th>
<th>125%</th>
<th>200%</th>
<th>400%</th>
<th>600%</th>
<th>800%</th>
<th>1000%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delay Max.</td>
<td>1</td>
<td>no trip</td>
<td>1100</td>
<td>150</td>
<td>20</td>
<td>6</td>
<td>1.7</td>
<td>.065</td>
</tr>
<tr>
<td>Delay Min.</td>
<td>1</td>
<td>no trip</td>
<td>110</td>
<td>22</td>
<td>4</td>
<td>1.1</td>
<td>.01</td>
<td>.008</td>
</tr>
<tr>
<td>Delay Max.</td>
<td>2</td>
<td>no trip</td>
<td>110</td>
<td>15</td>
<td>3</td>
<td>.8</td>
<td>.28</td>
<td>.055</td>
</tr>
<tr>
<td>Delay Min.</td>
<td>2</td>
<td>no trip</td>
<td>12</td>
<td>2.5</td>
<td>.5</td>
<td>.18</td>
<td>.01</td>
<td>.008</td>
</tr>
<tr>
<td>Delay Max.</td>
<td>3</td>
<td>no trip</td>
<td>10</td>
<td>.18</td>
<td>.08</td>
<td>.047</td>
<td>.008</td>
<td></td>
</tr>
<tr>
<td>Delay Min.</td>
<td>3</td>
<td>no trip</td>
<td>.44</td>
<td>.13</td>
<td>.03</td>
<td>.015</td>
<td>.01</td>
<td>.008</td>
</tr>
</tbody>
</table>
STANDARD FRONT-CONNECTED CONSTRUCTION

Wire Range #6 to 250 MCM

74.59 (2.938) 76.20 (3.000)

Aux. Terminals, Male Type
Molex 02-09-2101, Model 1190-T
See Illustrations for Combinations

Shunt Terminals, Female Type
Molex 02-09-1101, Model 1189-T

37.69 (1.484) 42.84 (1.687)

#10-32 Inserts
(4 Places)

19.05 (0.750) 38.10 (1.500)

Panel Mounting Hole Distance for #10-32

0.99 (0.390) 6.35 ± 0.38 (0.250 ± 0.156) 38.1 (1.5) 76.2 (3.0)

6.35 ± 0.38 (0.250 ± 0.156) 38.1 (1.5) 76.2 (3.0)

100 – 225 250 – 400 450 – 700 701 – 800 801 – 1000 1001 – 1200

A 76.2 (3.0) A 114.3 (4.5) A 76.2 (3.0) A 114.3 (4.5) A 190.5 (7.5) A 228.6 (9.0)

78.56 (3.094) 59.13 (2.328) 28° ± 5° 32° ± 5°

SEE OPTIONAL TERMINAL CONFIGURATION

Line Load

Load

Optional Terminal Configurations

Fastener Mounted This Side of Bus Plate, Terminals are Front-Connected and Unit is Panel-Mounted.

Fastener Mounted This Side of Bus Plate, Terminals are Rear-Connected and Unit is Panel-Mounted.

Tolerance:
±0.79 (0.031) except where noted. For metric threads, contact Customer Service Center.

28.95 (1.141) 26.17 (1.030) 19.05 (0.750) 38.10 (1.500) 32.13 (1.266)

208 (8.17) 7.92 (0.312)

3/8-16UNC -2B (4 per Unit)

Central to Central

1.02 (0.040) 1.02 (0.040) 1.02 (0.040) 1.02 (0.040) 1.02 (0.040) 1.02 (0.040)

180.97 (7.125) 208.97 (8.22) 208.97 (8.22) 208.97 (8.22) 208.97 (8.22) 208.97 (8.22)

Wire Range #6 to 250 MCM

5.53 (0.219) 5.86 (0.230) 5.86 (0.230) 6.35 (0.250) 6.35 (0.250) 6.35 (0.250)

37.69 (1.484) 42.84 (1.687) 59.91 (2.356) 78.56 (3.094)

6.35 ± 0.38 (0.250 ± 0.156) 6.35 ± 0.38 (0.250 ± 0.156) 6.35 ± 0.38 (0.250 ± 0.156) 6.35 ± 0.38 (0.250 ± 0.156) 6.35 ± 0.38 (0.250 ± 0.156) 6.35 ± 0.38 (0.250 ± 0.156)

96 (3.78) 105 (4.13) 114.3 (4.5) 123.6 (4.86) 132.9 (5.25) 142.4 (5.61)

38.10 (1.500) 38.10 (1.500) 38.10 (1.500) 38.10 (1.500) 38.10 (1.500) 38.10 (1.500)

10.375 (0.406) 228.6 (9.0) 228.6 (9.0) 228.6 (9.0) 228.6 (9.0) 228.6 (9.0)

78.56 (3.094) 59.13 (2.328) 5.53 (0.219) 5.53 (0.219) 5.53 (0.219) 5.53 (0.219)

28° ± 5° 32° ± 5° 5.53 (0.219) 5.86 (0.230) 5.86 (0.230) 6.35 (0.250)

29.36 (1.156) 28.95 (1.141) 26.17 (1.030)

19.05 (0.750) 38.10 (1.500) 38.10 (1.500) 38.10 (1.500) 38.10 (1.500) 38.10 (1.500)

263.52 (10.375) 263.52 (10.375) 263.52 (10.375) 263.52 (10.375) 263.52 (10.375) 263.52 (10.375)

59.91 (2.356) 75.38 (2.968) 5.53 (0.219) 5.53 (0.219) 5.53 (0.219) 5.53 (0.219)

41.27 (1.625) 41.27 (1.625) 41.27 (1.625) 41.27 (1.625) 41.27 (1.625) 41.27 (1.625)

15 (0.591) 15 (0.591) 15 (0.591) 15 (0.591) 15 (0.591) 15 (0.591)

28.95 (1.141) 26.17 (1.030) 26.17 (1.030) 26.17 (1.030) 26.17 (1.030) 26.17 (1.030)

41.27 (1.625) 41.27 (1.625) 41.27 (1.625) 41.27 (1.625) 41.27 (1.625) 41.27 (1.625)

15 (0.591) 15 (0.591) 15 (0.591) 15 (0.591) 15 (0.591) 15 (0.591)

36.90 (1.457) 38.10 (1.500) 38.10 (1.500) 38.10 (1.500) 38.10 (1.500) 38.10 (1.500)
DIMENSIONS  APPROXIMATE IN MM (INCHES)

FRONT MOUNTING PANEL AND SUPPORT BRACKET

Mounting kits containing clips, brackets and necessary hardware and instructions are available (consult factory).

009-18234 100 – 225 A 1.5 (1-pole wide)
009-18235 250 – 400 A 3 (2-pole wide)
009-18232 450 – 700 A 4.5 (3-pole wide)

For 701-1200A devices, contact your Eaton Sales Representative for mounting kit part numbers.

NOTE: Standard size busbar is shown above. For the reduced size busbar, contact your Eaton Sales Representative for mounting dimensions.

BACK MOUNTING CIRCUIT BREAKER

Back mounting circuit breaker mounting instructions

1. Position circuit breaker to support brackets.
2. Place mounting bracket in recess on front top portion of circuit breaker.
3. Install four (4) #10-32 by 3-1/4" long screws through holes in mounting bracket and support structure.
4. Install lock washer and nut on each of the screws and tighten.
5. Place mounting bracket on front lower portion of circuit breaker.
6. Install two (2) #10-32 by 5/8" screws through holes in mounting bracket and support structure.
7. Repeat step 4.

See Step (2)

See Step (5)
GJ1P Series Circuit Breakers

HOW TO ORDER — Series GJ1P

To determine your Complete Catalog Number, you must start with appropriate Series Prefix and add the appropriate Code Letters and/or Numbers as in the example below:

<table>
<thead>
<tr>
<th>Series Prefix</th>
<th>Terminal Location</th>
<th>Internal Circuit</th>
<th>Metering Shunt</th>
</tr>
</thead>
<tbody>
<tr>
<td>GJ1P</td>
<td>B</td>
<td>3-</td>
<td>P</td>
</tr>
</tbody>
</table>

SELECTION TABLE

<table>
<thead>
<tr>
<th>Series Prefix</th>
<th>Terminal Location</th>
<th>Internal Circuit</th>
<th>Metering Shunt</th>
</tr>
</thead>
<tbody>
<tr>
<td>GJ1P</td>
<td>Back B</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Front H</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Multi-pole construction — Consult factory.
   An auxiliary switch, if supplied, will be located in the right pole space. If the auxiliary switch is supplied in a breaker which has a metering shunt, it will be single-pole single throw (SPST). The single-pole double throw (SPDT) auxiliary switch can be supplied only in a breaker without a metering shunt.

2. Cannot be used on breaker containing metering shunt.

3. Only for breakers rated in excess of 250 A. Breakers up to 250 A without metering shunt are available as standard GJ1 type breakers. Please consult Series GJ catalog.
## Terminal Configuration

<table>
<thead>
<tr>
<th>Description Code</th>
<th>US/European Approval</th>
<th>Standard Current Ratings</th>
<th>Trip Curves</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>DU</td>
<td>0700</td>
<td>-02</td>
</tr>
</tbody>
</table>

### Standard Current Ratings

- 0 – 1200 (Add 0 before amp rating if less than 1000A. Example: 0700)
- 100 – 225 A 1.5" (1-pole wide)
- 250 – 400 A 3" (2-pole wide)
- 450 – 700 A 4.5" (3-pole wide)
- 701 – 800A 6" (4-pole wide)
- 801 – 1000A 7.5" (5-pole wide)
- 1001 – 1200A 9" (6-pole wide)

### Trip Curves

- 1 -01
- 2 -02
- 3 -03
- P -0P

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1. Add 0 before amp rating if less than 1000. For example: a 700A rating would be designated as 0700.
2. The width of the breaker is determined by the current rating.
3. See page 3 for time delay characteristics and trip curve information.
For the Widest Selection of Circuit Protection, from 0.01 to 1200 Amperes, Look to Eaton.