

EAT•N

Commercial Controls

Heinemann® GJ1P Series
Circuit Breakers



HEINEMANN® CIRCUIT BREAKERS

GJ1P Series Circuit Breakers (100-1200 Amperes DC)

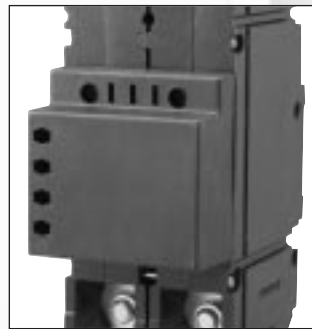
DESCRIPTION

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.

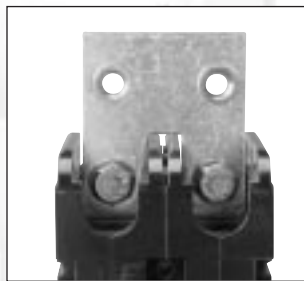
An optional shunt (25 or 50 millivolt full scale) permits metering of current. Since the shunt output is low voltage, light-gauge wiring can be used from shunt to meter. Indication may be displayed in



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)



circuit breakers, on the other hand, allow for differences in internal resistances by automatically distributing the current equally through the parallel current sensing elements, minimizing the danger of nuisance tripping.

The UL listed series GJ1P (UL489) models are available in a choice of fast, medium or slow response times to accurately match load conditions. They can be ordered in "series trip", "mid-trip" and "switch only" constructions and are available front- or back-mounted, front- or back-connected, with optional auxiliary switches for signaling.

HYDRAULIC-MAGNETIC BENEFITS

The magnetic/hydraulic load-sensing and time delay

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.



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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.

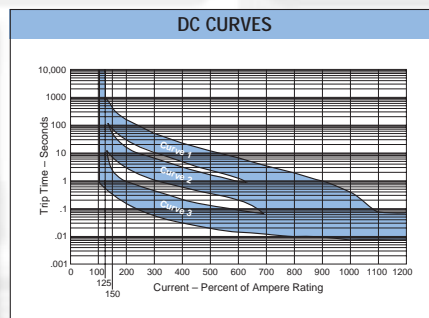
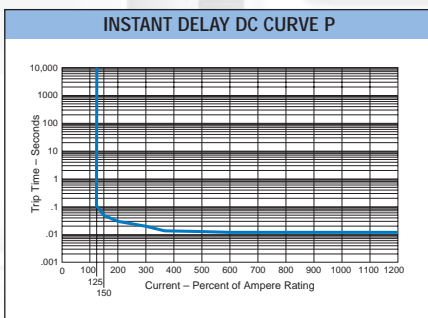
Curve 1. Standard time delay is furnished unless another optional delay is specified. It is the preferred characteristic for use where the load is composed of both resistive and inductive components.

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 GJ1P 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.



PERCENT OF RATED CURRENT VS. TRIP DELAY AT 25°C								
% (sec)	Delay	100%	125%	200%	400%	600%	800%	1000%
Delay Max.	1	no trip	1100	150	20	6	1.7	.065
Delay Min.	1	no trip	110	22	4	1.1	.01	.008
Delay Max.	2	no trip	110	15	3	.8	.28	.055
Delay Min.	2	no trip	12	2.5	.5	.18	.01	.008
Delay Max.	3	no trip	10	.8	.19	.08	.047	.038
Delay Min.	3	no trip	.44	.13	.03	.015	.01	.008

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DIMENSIONS

Dimensions are given here only as a preliminary guide to specifying. Final engineering

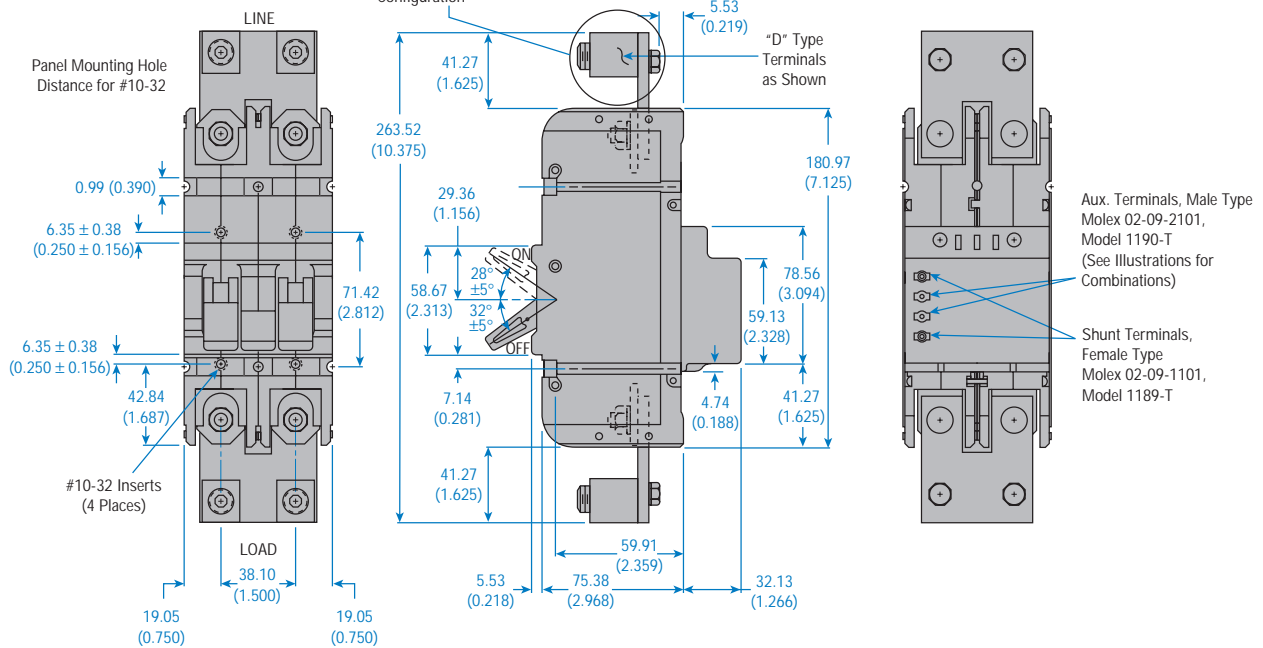
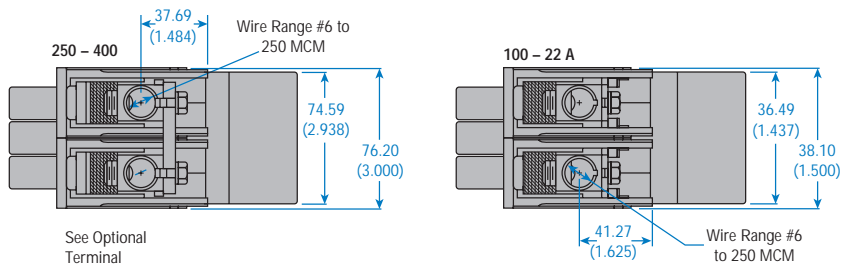
drawings should be made from the latest Heinemann drawings. Contact Customer Service Center.

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

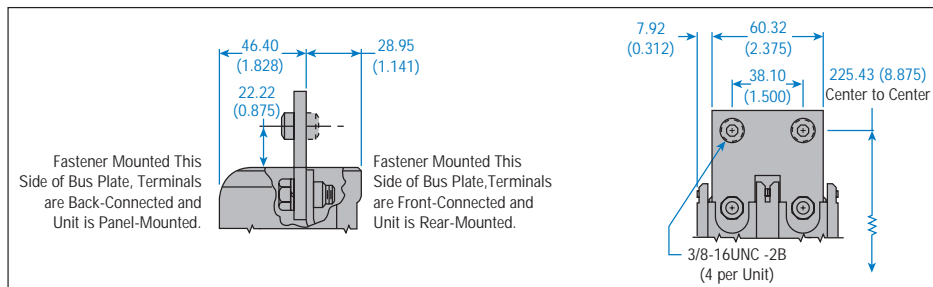
DIMENSIONS APPROXIMATE IN MM (INCHES)

STANDARD FRONT-CONNECTED CONSTRUCTION

Width dimensions are as follows:	
100 – 225	38.1 (1.5)
250 – 400 A	76.2 (3.0)
450 – 700 A	114.3 (4.5)
701 – 800A	142.4 (6.0)
801 – 1000A	190.5 (7.5)
1001 – 1200A	228.6 (9.0)

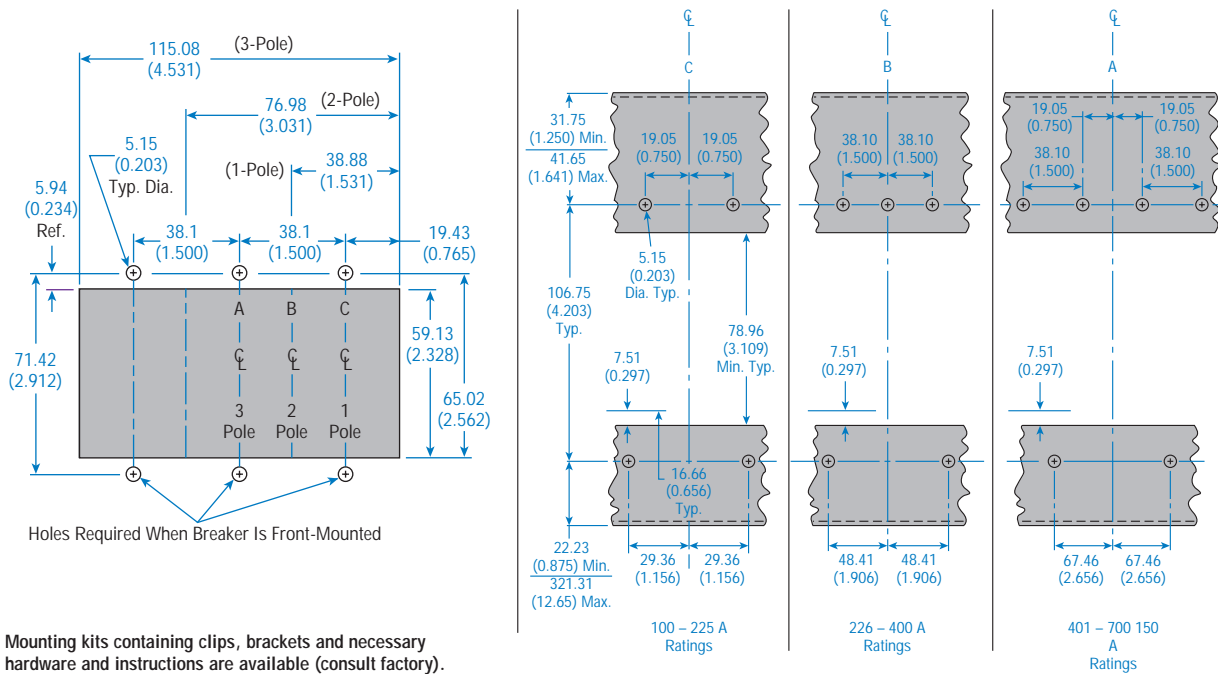


Optional Terminal Configurations



DIMENSIONS APPROXIMATE IN MM (INCHES)

FRONT MOUNTING PANEL AND SUPPORT BRACKET



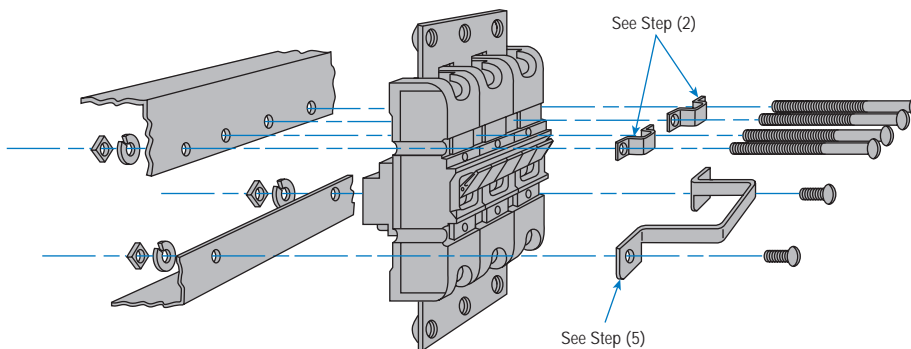
Mounting kits containing clips, brackets and necessary hardware and instructions are available (consult factory).

- 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.

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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:

Add each appropriate Number or Letter...				
Series Prefix	Terminal Location		Internal Circuit 1 2	Metering Shunt
GJ1P	B		3-	P

SELECTION TABLE

Series Prefix	Terminal Location		Internal Circuit 1 2		Metering Shunt					
	Location	Code	Internal Circuit	Code	Description	Shunt	Code			
GJ1P	Back Front	B H	Switch (No Coil)	0-	No Shunts 3	—	P			
			Series Trip w/SPDT Aux. Switch 2	2-						
			Series Trip	3-				Metering Shunt	25mV	M
			Series Trip and Mid-Trip	98-				Metering Shunt	50mV	N
			Series Trip, Mid-Trip and SPST Alarm Switch	99-						

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.

Complete Catalog Number: GJ1PB3-PEDU0700-02

Terminal Configuration	US/European Approval	Standard Current Ratings ⁴	Trip Curves ⁵
E	DU	0700	-02

Terminals		Market		Standard Current Ratings ⁴	Trip Curve ⁵	
Description	Code	Standard	Code	Ampere	Curve	Code
Solderless Connector	D	UL-489	DU	0 – 1200 (Add 0 before amp rating if less than 1000A. Example: 0700)	1	-01
Bus Bar Connection	E				2	-02
		3	-03			
		P	-0P			

⁴ Add 0 before amp rating if less than 1000. For example: a 700A rating would be designated as 0700.

The width of the breaker is determined by the current rating:

100 – 225 A 1.5" (1-pole wide)

250 – 400 A 3" (2-pole wide)

450 – 700 A 4.5" (3-pole wide)

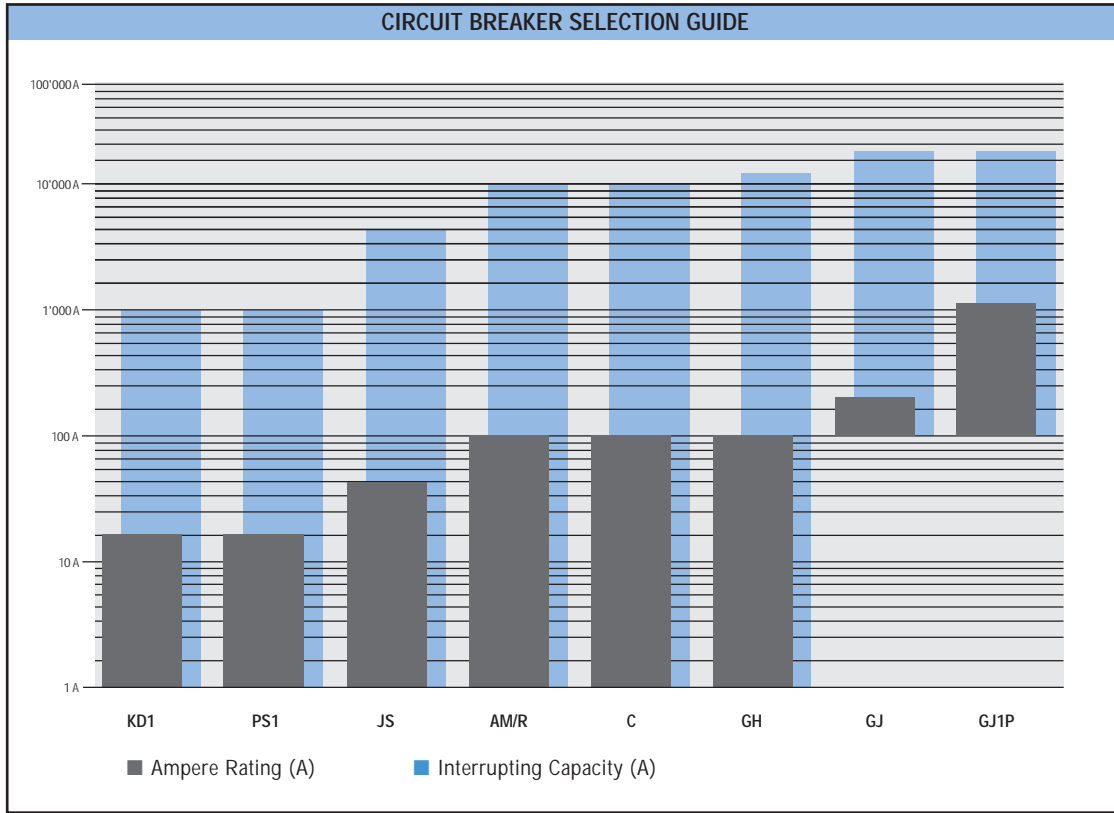
701 – 800A 6" (4-pole wide)

801 – 1000A 7.5" (5-pole wide)

1001 – 1200A 9" (6-pole wide)

⁵ 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.



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 Printed in USA
 Form No. BR5401SE0002A / CSS 65322
 June 2001