

BR Main Breakers



BR Main Breaker



BR Main Breaker Loadcenter

Product Description

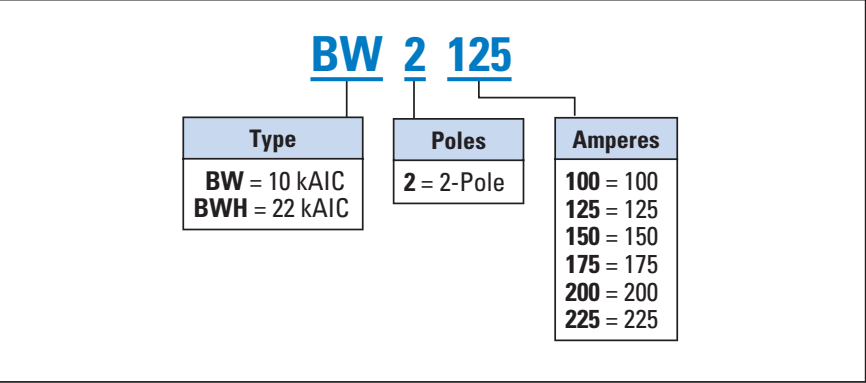
The main circuit breaker protects the entire loadcenter. It can also be used as a service disconnect. The main breaker delivers electricity to the branch circuit breakers within the loadcenter. It is either factory installed or sold separately depending on the model and application.

Features, Functions and Benefits

- ✓ Full range from 125 to 225 amperes, 120/240 volts.
- ✓ 10 kAIC and 25 kAIC available.
- ✓ Approved for service entrance.
- ✓ Five-year warranty.
- ✓ Meet UL 489, CSA, NEMA standards, Federal Spec Classification W-C 375 b/GEN.

Catalog Numbering System

TABLE 1-52. CATALOG NUMBERING SYSTEM



Note: All packaged quantities or single units.

Data Tables

TABLE 1-53. TYPES BW AND BWH CIRCUIT BREAKERS 120/240 VAC — 25 kAIC FOR USE IN TYPE ECB UNIT ENCLOSURES

Ampere Rating	Number of Poles	Wire Size Range Cu/Al 60°C or 75°C for Line Terminals	Catalog Number	UPC Code
10,000 AIC				
100	2	#2 – 300 kcmil	BW2100	782116061099
125			BW2125	786676460361
150			BW2150	786676460408
175			BW2175	786676460507
200			BW2200	786676460552
225			BW2225	786679122556
25,000 AIC				
100	2	#2 – 300 kcmil	BWH2100	782116061105
125			BWH2125	786676460439
150			BWH2150	786676460453
175			BWH2175	786676449700
200			BWH2200	786676460606
225			BWH2225	786679122563

Accessories

TABLE 1-54. SHUNT TRIPS, AUXILIARY AND ALARM CONTACTS

Description	Catalog Number Suffix Adder ①
Shunt Trip for Types BW/BWH	
12 Volts	SR12
24 Volts	SR24
120 Volts	SR01
Auxiliary Contact for Types BW/BWH	
(1) NO and (1) NC	AL1
(2) NO and (2) NC	AL2
Alarm Contacts for Types BW/BWH	
Types BW/BWH	CR1
Alarm Contacts for Type GFCB (1-Pole)	
Alarm Contact for GFCB (1-Pole)	W1
(1) NO and (1) NC	W2

① Add suffix indicated to end of breaker catalog number.

TABLE 1-55. BW/BWH LUG TREE KIT FOR REPLACEMENT PURPOSES ONLY FOR USE IN TYPE ECB UNIT ENCLOSURES

Ampere Rating	Description	Wire Size Range Cu/Al 60°C or 75°C for Line Terminals	Catalog Number	UPC Code
225	For use on 125, 150, 175, 200 and 225 Ampere BW and BWH Breakers	#2 – 300 kcmil	MCBK225	782114110591

Type BR

Product Specifications

General

- A. The Contractor shall furnish and install deadfront loadcenters incorporating circuit breakers of the number, rating and type as specified herein and as shown on the contract drawings.
- B. The loadcenter and all components shall be designed, manufactured and tested in accordance with the latest applicable standards of UL, NEMA and NEC including:
 - 1. UL 67 — Standards for Panelboards.
 - 2. UL 50 — Standards for Cabinets and Boxes.
 - 3. UL 489 — Standards for Molded Case Circuit Breakers.
 - 4. UL 869 — Standards for Service Equipment.
 - 5. Federal Specification W-C 375B — Circuit Breakers.
 - 6. Federal Specification W-C P115b — Panel Power Distribution Type 1, Class 2.

Qualifications

- A. The manufacturer of the loadcenter shall be the manufacturer of the circuit breaker within the loadcenter.
- B. For the equipment specified herein, the manufacturer shall be ISO 9000 certified.
- C. The manufacturer of this equipment shall have produced similar electrical equipment for a minimum period of seven (7) years.

Manufacturers

- A. Cutler-Hammer.

Ratings

- A. Loadcenters shall be rated for 120/240V AC and shall have short circuit ratings as shown on the drawings or as herein scheduled, but not less than 10,000 amperes RMS symmetrical.
- B. Circuit breakers shall be a minimum of 125 ampere frame. Circuit breakers 15 through 125 amperes trip size shall take up the same pole spacing.

- C. Loadcenters shall be labeled with a UL short circuit rating. When series combination ratings are applied with integral or remote upstream devices, a label shall be provided. Series combination ratings shall cover all trip ratings of installed frames. It shall state the conditions of the UL series ratings including:
 - 1. Size and type of upstream device.
 - 2. Branch devices that can be used.
 - 3. UL series short circuit rating.

Construction

- A. All interiors, with the exception of the branch circuit breakers, shall be completely factory assembled with main breakers, main lugs, or no main device.
- B. Interiors shall be designed so that circuit breakers can be replaced without disturbing adjacent units and without removing the main bus connectors and shall be designed so that circuits may be changed without machining, drilling, or tapping.
- C. Physical means shall be provided to prevent the installation of more overcurrent devices than that number for which the enclosure was designed, rated, and approved. Half-size breakers shall have a UL listed rejection tab over the line terminals. Loadcenter interiors must have notched stabs to accept these rejection tab class CTL breakers, if required and approved.

Bus

- A. Bus bars for the main and cross connectors shall be [tin-plated aluminum] [copper] in accordance with Underwriters Laboratories standards. Busing shall be braced throughout to conform to industry standard practice governing short circuit stresses in loadcenters.

Note: Note to spec writer — select one (copper available in limited ratings).

- B. Neutral busing shall have a suitable lug for each outgoing feeder requiring a neutral connection of same ampacity as branch.

Wiring/Termination

- A. All wire connectors and terminals shall be of the anti-turn solderless type and shall be suitable for copper or aluminum wire of the sizes indicated. All connectors must meet the "Requirements for Wire Connectors and Soldering Lugs" as stated in UL 486B.
- B. All loadcenters where marked shall be suitable for use with 60°C or 75°C rated wire.

Circuit Breakers

- A. Circuit breakers shall be molded case type. Circuit breakers shall have four-rivet construction (GFI Type — 5 rivets). Multipole circuit breakers shall be of a stack pole design to provide electrical phase isolation.
- B. Each pole of the circuit breaker will provide inverse time delay overload and instantaneous short circuit protection by means of both thermal and magnetic sensors.
- C. The circuit breaker calibration shall not be affected by environmental changes in relative humidity. The thermal bimetal element shall be welded to the steel frame and calibration shall be set independent of the molded case by computer controlled equipment.
- D. All circuit breakers shall be operated by a toggle-type handle and multipole circuit breakers shall have an internal common trip mechanism. The circuit breakers shall incorporate trip mechanisms that are mechanically trip-free from the handle. The handle position shall provide visual trip indication.
- E. Contacts shall be of non-welding silver alloy.
- F. All circuit breakers shall have the trip rating inscribed on the handle on each circuit breaker pole. Also, unique color-coded cases that indicate the UL listed 10 kA or 22 kA interrupting ratings. Breakers shall be able to be used as main or branch disconnect devices.

Type BR

1-Phase and 3-Phase Circuit Breaker Unit Enclosures 10,000/25,000 Amperes Interrupting Capacity



Circuit Breaker Unit Enclosures



BW2200

Table 3-99. Type ECB Circuit Breaker Unit Enclosure — Order Type BW and BWH Circuit Breaker Separately — Unit Enclosure Includes Lug Tree Kit

Main Ampere Rating	Unit Enclosure Type	Mounting	Type of Circuit Breaker	Wire Size Range Cu/Al 60°C or 75°C	Catalog Number	Price U.S. \$
1-Phase 3-Wire — 240V AC Maximum						
225	Indoor	Flush	BW, BWH	⑤	ECB225F ①③④	146.
225	Indoor	Surface	BW, BWH	⑤	ECB225S ①③④	146.
225	Outdoor	—	BW, BWH	⑤	ECB225R ①②③④	279.

① Order circuit breaker separately.

② Rainproof panels are furnished with hub closures plates. For rainproof hubs refer to **Page 3-60**.

③ One ground lug accepting (1) #14 – #2 is factory installed. Also, there are pre-drilled holes to accept a GBK5 ground bar.

④ Approved for service entrance.

⑤ Wire size is determined by the circuit breaker installed in enclosure. Maximum wire size and ampere rating is determined by **Table 3-101**.Table 3-100. Types BW and BWH Circuit Breakers
120/240V AC — 25,000 AIC for Use in Type ECB Unit Enclosures

Ampere Rating	2-Pole Breakers 10,000 AIC		Wire Size Range Cu/Al 60°C or 75°C for Line Terminals	2-Pole Breakers 25,000 AIC	
	Catalog Number	Price U.S. \$		Catalog Number	Price U.S. \$
125	BW2125	269.	#2 – 300 kcmil	BWH2125	620.
150	BW2150	269.		BWH2150	620.
175	BW2175	269.		BWH2175	620.
200	BW2200	269.		BWH2200	620.
225	BW2225	269.		BWH2225	620.

Table 3-101. Wire/Application Chart

Wire/Application	Maximum Wire Size	Maximum Ampere Rating
Aluminum — Standard	250 kcmil	200
Aluminum — Service Entrance	250 kcmil	225
Copper — Standard and Service Entrance	250 kcmil	225

Table 3-102. BW/BWH Lug Tree Kit for Replacement Purposes Only
for Use in Type ECB Unit Enclosures

Ampere Rating	Description	Wire Size Range Cu/Al 60°C or 75°C for Line Terminals	Catalog Number	Price U.S. \$
225	For use on 125, 150, 175, 200 and 225 Ampere BW and BWH Breakers	#2 – 300 kcmil	MCBK225	87.

Table 3-103. Shunt Trips, Auxiliary and Alarm Contacts

Description	Catalog Number Suffix Adder ⑥	Price U.S. \$ ⑦ Adder Each
Shunt Trip for Types BW/BWH		
12V	SR12	371.
24V	SR24	371.
120V	SR01	371.

Auxiliary Contact for Types BW/BWH

(1) N.O. and (1) N.C.	AL1	170.
(2) N.O. and (2) N.C.	AL2	334.

Alarm Contacts for Types BW/BWH

Types BW/BWH	CR1	170.
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Alarm Contacts for Type GFCB (1-Pole)

Alarm Contact for GFCB (1-Pole)	W1	117.
(1) N.O. and (1) N.C.	W2	117.

⑥ Add suffix indicated to end of breaker catalog number.

⑦ Add amount shown to circuit breaker list price.