Loadcenters & Circuit Breakers

Contents

Residential Loadcenters and Breaker Family

Don't Give Up!

If you don't find the product you want in this catalog, try the Flex Center at 1-800-330-6479.

Product Description

Loadcenters are enclosures specifically designed to house the branch circuit breakers and wiring required to distribute power to individual circuits. They contain either a main breaker when used at the service entrance point or a main lug when used as a sub-panel to add circuits to existing service. The main breaker protects the main entire panel and can be used as a service disconnect. The branch breakers protect the wires leading to individual electrical loads such as fixtures and outlets.

Single-Phase Main Circuit Breaker — Top or Bottom Feed — NEMA® 1 Enclosure

Separately Packaged Covers

Three-Phase Main Circuit Breaker — NEMA 3R Enclosure

MLO Panel

Cutler-Hammer® Type CH Breaker Family

Surge Panel

Cutler-Hammer Type CH Convertible Family

Spa Panel or Ground Fault Protection Kit

Application Description

Loadcenter Construction

Cutler-Hammer Type CH loadcenters by Eaton Corporation feature silver flash plated copper bus in all interiors. Fingers are rated 200 amperes throughout the CH line. Therefore, the sum of the handle ratings connected to any one stab is limited to 200 amperes maximum. NEMA 1 boxes are manufactured from cold rolled 16 gauge sheet steel. Raintight boxes are manufactured from galvanized steel. All boxes and trims are finished using an electrostatic powder coat, baked urethane paint process.

Neutrals

Cutler-Hammer Type CH loadcenters feature three types of neutrals:

Factory-Bonded Split Neutral

Single-phase main circuit breaker panels are supplied with a factory-bonded twin neutral. When used as a sub-panel, the bonding strap should be removed, and the bonding screw should be reinstalled. The bonded side is now the ground, and the un-bonded side is the neutral. When used as a service entrance panel, the unused neutral holes on either side may be used for terminating ground wires.

Insulated Split Neutral

Most single-phase main lug panels (12 circuits and greater) are supplied with a twin neutral with an insulated cross strap. These panels are shipped in an un-bonded state. For service entrance applications, the neutral must be bonded utilizing the bonding strap supplied with the panel. For sub-feed applications, the panel may be installed as is. Separate ground bars are provided on these panels.

Insulated/Bondable Single Neutral

When a panel is supplied with a single neutral, it arrives from the factory in an "unbonded" state. All that is required to bond the neutral in a service entrance application is to loosen the bonding screw and the neutral screw directly beside it, insert the bonding strap into the neutral bar, and re-tighten both connections. The single neutral can be moved by the contractor to the other side of the panel, if desired. In a service entrance application, where the neutral is bonded, unused neutral connections may be used for the termination of equipment grounds.

Grounds

In service entrance applications where the neutral is bonded, unused neutral holes may be used for terminating ground conductors. In sub-feed panels, the neutral must be isolated (non-bonded), and ground wires must be terminated on a separate ground bar.

The Factory Bonded Split Neutral panels have sufficient terminations for both ground and neutral conductors. The Insulated Split Neutral panels are supplied with a separate factory-installed ground bar. Insulated/Bondable Single Neutral panels are supplied without a ground bar (unless otherwise noted), and ground bar kits if needed must be purchased separately.

Surge Protectors

The CHSURGE Surge Protector has indicating lights that indicate when the units should be replaced. The CHSA01 and CHSA03 Surge Protectors internally short, causing the circuit breaker feeding the surge protector to trip. All but the CHSURGE Surge Protector should be wired to the load side of 15 or 20 ampere feeder circuit breakers mounted adjacent to the main incoming device.

The CHSPULTRA Cutler-Hammer Home Surge Protector is an externally mounted TVSS unit that provides industrial level surge protection in a residential design.

The CHSPULTRA is also available factory installed in the loadcenter and carries a lifetime warranty.

Standards and Certifications

UL® Listings

All Cutler-Hammer Type CH loadcenters by are listed under UL File E8741.

Neutral and Ground Terminals

The standard terminals on grounds and neutrals are rated to accept (3) — #14 – #10 Cu/Al or (1) — #14 – 4 wires. For larger cables, add-on neutral lugs may be ordered from the accessories on **Pages 3-23** and **3-24**.

Note: NEC® allows only one current carrying conductor per hole on neutrals unless otherwise noted.

Bottom-Fed Loadcenters

When the power cable is brought into the loadcenter from below the panel; then the main lug panels, and single-phase, 225 amperes and below, loadcenters can be rotated 180 degrees to allow straight-in wiring of power cables to the main terminals. Because the CSR main circuit breaker handle operates horizontally, the orientation of the main circuit breaker handle is consistent with the requirements of NEC Article 240-81.

Gutter Splicing

Loadcenters are not UL listed as wiring troughs. Therefore, gutter splicing of riser cables to tap off to the main device is not permitted. Refer to NEC Article 373-8.

Fire Rating

Due to the numerous openings in both loadcenter boxes and trims, they should not be mounted in firewalls. There is no approval method for sealing the enclosures for this application.

Date Code

The date of manufacture of each loadcenter is printed on the outside of the carton as well as inside the loadcenter. On the carton, the date code is printed on the end carton label. In the loadcenter, the date code is located on the small white label located on the right side wall (with the main device on top).

The date code is in the following format: F # # # &. The "F" is the numeric code for the Lincoln, IL plant, and the three numbers are the year and week of manufacture e.g., 023. The "&" sign at the end signifies the decade of the 2000s. Therefore, the date code F023& would indicate that the product was manufactured in the 23rd week of 2000. The 1980s are represented by a "+" sign and the 1990s are represented by a "=" at the end of the code.

Plug-on Type CH Breakers

Description

Quick-make, quick-break switch mechanism combined with inverse time element tripping operation and trip-free handle design. Type CH circuit breakers trip to the OFF position eliminating nuisance callbacks. The thermal-magnetic trip curve avoids nuisance tripping on mild overloads while reacting almost instantaneously to severe short circuit conditions. Multipole breakers have internal common trip connection to operate all poles simultaneously. Handles are marked with ON-OFF indication and ampere rating of the breaker. Type CH breakers meet UL Standard 489, NEMA standards, and Federal Spec Classification W-C 375 b/Gen. They are UL listed under File Number E11713, E8741, E3624 and E51287: and CSA certified file number LR87196, except Type CHT breakers.

Type CH Circuit Breaker Ratings

Single- and double-pole CH breakers rated 15 and 20 amperes have low instantaneous magnetic trip levels. The 15 and 20 ampere breakers with "HM" suffix have high magnetic trip settings recommended for circuits with inherently high inrush currents. All Type CH breakers are marked for heating, air conditioning and refrigeration (HACR) equipment application. Single-pole 15 – 20 ampere breakers are also suitable for switching duty (SWD). Shunt trip coils operate on 120 Vac and require one additional pole space per breaker.

Features, Benefits and Functions

Extra 1.5-Inch (38.1 mm) Knockout for Bundling

Provides for easier installation, less installation time.

Top or Bottom Feed

- Straight-in wiring saves labor and material.
- Only one panel for either application — no modifications necessary.

Commercial Grade Main Breaker

- 35 kAIC series rated main breaker in 150 and 200 ampere loadcenters.
- 42 and 100 kAIC series ratings available.

Drywall Marking on Enclosure

Indicates proper mounting depth for flush applications.

One-Piece Silver Flash Plated Copper Bus

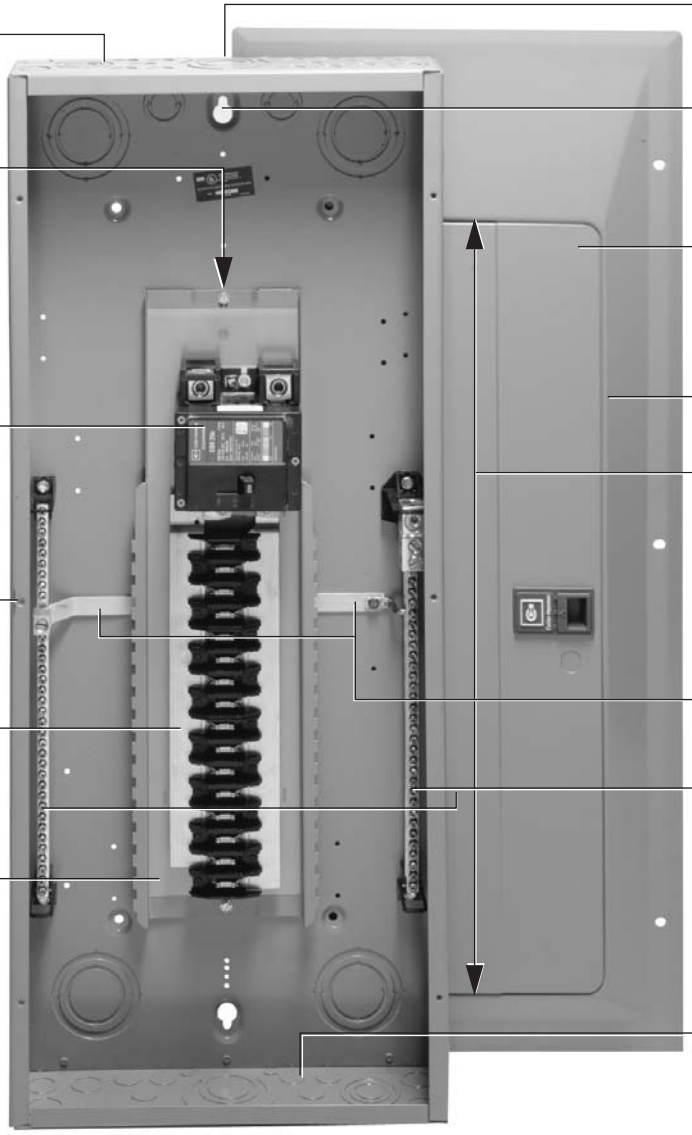
Provides superior conductivity throughout the entire product line.

Steel Backpan

- Provides positive, reliable breaker mounting.
- One-piece designed for stability.

Convertible Styles Available

- Uses field installable main breaker or main lug kits.
- Flexible inventory — same breaker is used in loadcenter and circuit breaker enclosures.



Type CH Loadcenter

"Tangential" Center Knockout

For easier installation

Single Keyhole Mounting

Just one keyhole at top and bottom for easier mounting and leveling.

Unique Sandalwood Finish

Immediately recognizable, esthetically appealing, scratch resistant powder coating.

Separately Packaged Covers

- Full line of "true" surface and combination covers.
- Built-in flush leveling feature.
- Choice of circuit identification by breaker labels or circuit directory.

Neutral Design (For styles as indicated)

- Bonding strap is easily removable for sub-panel applications providing a ground and neutral.
- Factory bonded for service entrance applications providing a split neutral.
- Ample additional 2/0 lugs provided; no kits necessary.
- 200% size neutral.

Improved Endwall Knockouts

Larger KOs are balanced to enhance installed appearance and to ease use of existing wiring.

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Product Specifications

General

A. The Contractor shall furnish and install 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 and NEMA 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. Federal Spec Classification W-C 375
5. UL 1699 — All Fault Interrupting

Qualifications

A. The manufacturer of the loadcenter shall be the manufacturer of the circuit breaker within the load center. All breakers shall be full size.

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. Eaton

Ratings

A. Loadcenters shall be rated for 240 Vac 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. Breakers shall be full size and a minimum of 125 ampere frame. Breakers 10 through 125 ampere trip size shall take up the same pole spacing.

C. Loadcenters shall be labeled with a UL short circuit rating. When series ratings are applied with integral or remote devices, a label shall be provided. Series 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 so designed that circuit breakers can be replaced without disturbing adjacent units and without removing the main bus connectors and shall be so designed that circuits may be changed without machining, drilling or tapping.

C. Physical means must be provided to prevent the installation of more overcurrent devices than that number for which the enclosure was designed. Full size breakers are required.

Bus

A. Bus bars for the main and cross connectors shall be of silver flash plated copper construction in accordance with UL standards. Bussing shall be braced to 65 kAIC.

B. Neutral bussing 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 suitable for copper or aluminum wire of the sizes indicated. All connectors shall meet the “Requirements for Wire Connectors and Soldering Lugs” UL 486B.

B. All loadcenters where marked shall be suitable for use with 60/75°C rated wire.

Circuit Breakers

A. Circuit breakers shall be molded case type, 3/4-inch (19.1 mm) wide per pole. Multipole circuit breakers shall be of a stack pole design to provide electrical phase isolation and have an internal common trip.

B. Each pole of the circuit breaker will have inverse time delay overload and instantaneous short circuit protection by means of both thermal and magnetic sensors. Circuit breakers shall be quick-make/quick-break.

C. The circuit breaker calibration shall not be affected by environmental changes in relative humidity. Breakers shall be calibrated after assembly.

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 good visual trip indication.

E. Contacts shall be of non-welding silver alloy.

F. All branch breaker handles shall be of a different color than the case of the breaker.

G. All terminals shall be listed for use with copper or aluminum conductors. Terminals shall be of the box lug design. The terminals shall meet UL 486B requirements and shall be suitable for use with either 60° or 75°C wire.

H. Breakers shall be SWD rated and/or HACR rated as required.

I. Arc Fault Interrupting circuit breakers, (AFC), shall be provided on all 15 and 20 ampere single-phase 120/240 Vac circuits except those indicated as remote controlled breakers. AFI breakers shall be “Classified for mitigating the effects of arcing faults,” or conforming to UL Standard 1699 and as defined by per article 210-12 Section A of the 1999 NEC Code.

Enclosures

A. Loadcenters shall have NEMA 1 general purpose or NEMA 3R rainproof enclosures as indicated on the drawings and shall be surface or flush mounted except where noted.

B. For indoor applications, enclosures shall be rated NEMA 1. Enclosures shall be manufactured from cold-rolled code-gauge sheet steel having multiple knockouts and painted per paint specification. For outdoor applications, enclosures shall be rated NEMA 3R. Enclosures shall be manufactured from galvanized steel which shall be painted per the painted as specified. Enclosures shall be of sufficient size to meet or exceed NEC wire bending space.

C. The cover shall have an easy adjustment feature for flush applications.

D. Boxes shall be factory assembled into a single rigid structure.

E. Provide circuit breaker marking labels and directories.

Finish

A. Boxes and trims shall be finished with a high scratch-resistant aesthetically pleasing finish. The finish shall be polyurethane coating electrostatically applied to a thickness of 1.8 to 2 mils.

B. All loadcenters shall be provided with provisions for accepting a paintable or wall paperable decorator accessory cover. Where loadcenters are installed in living areas, provide manufacturer designed and tested decorator cover kits.

Warranty

The minimum warranty for Residential loadcenters, breakers and surge protection devices shall be as follows:

- Lifetime loadcenter warranty
- Lifetime warranty on all Arc Fault Circuit Interrupting Circuit Breakers
- Lifetime Warranty on CHSPULTRA including $5000 connected load warranty
- Lifetime warranty on all thermal magnetic and GFCI branch circuit breakers
- 1-year warranty on plug-in surge protection device (CHSURGE)

Product Selection

Table 3-1. CH Loadcenter Selection Chart

Service	■ Single-phase, three-wire, 120/240 Vac. ■ Three-phase, three-wire, 240V corner grounded delta (see Accessories **Page 3-24**).	■ Three-phase, four-wire, 208Y/120 Vac. ■ Three-phase, three-wire, 240 Vac delta.
Short Circuit Current Rating	■ 10,000 AIC: All single- and three-phase loadcenters 40 through 400 amperes, 2 to 42 circuits except when series ratings are applied. ■ 35,000 AIC: All convertible and factory installed main breakers single-phase loadcenters rated 150 through 225 amperes using Type CSH main breakers. ■ 42,000 and 100,000 are available on some styles: single-phase and three-phase.	
Main Breaker/Main Lug Loadcenters	Single-Phase ■ Main Breaker: 100, 125, 150, 200, 225, 400 amperes. ■ Main Lugs: 40, 70, 125, 150, 200, 225, 400 amperes.	Three-Phase ■ Main Breaker: 150, 200, 225, 300, 400 amperes. ■ Main Lugs: 125, 150, 200, 225, 400 amperes.
Convertible Loadcenters	■ Main Breaker or Main Lugs: single-phase up to 225 amperes	
Branch Breakers	■ Type CH: 10 to 150 amperes. One-, two-, and three-pole. Selected amperages available in shunt trip, HACR and switching duty. ■ Ground Fault Breakers: 15 to 60 amperes. ■ Type CH-HID: 15 to 30 amperes. One-, two- and three-poles. ■ PMPCI Breakers. ■ CH-HM High Magnetic. ■ CH-M50 High Ambient.	■ Type CH-AFCI arc fault circuit interrupter. ■ Type CHP: 10 to 125 amperes. One-, two- and three-pole. Three-position commercial trip. Selected amperages available in HACR switching duty. ■ Type CHP-HID: 15 to 30 amperes. One-, two- and three-pole. ■ Type CHP-GFCI: 15 to 30 amperes. One-pole ground fault breakers.
Enclosures	■ NEMA Type 1 indoor. ■ NEMA Type 3R outdoor.	■ Meets or exceeds UL requirements for indoor or outdoor applications.
Loadcenter and Breaker Accessories	■ Branch Circuit Breaker: Auxiliary components, Hold down kits, Handle ties, Lockoffs, Lockdogs ■ Complete Line of Ground Bar Kits 5, 10, 14 and 21 circuits, some with additional #2/0 lugs. Each terminal will accommodate: (3) #14 – #10 Cu/Al or (1) #14 – #4 Cu/Al. ■ Sub-feed Lugs 125, 150 amperes — two- and three-pole. ■ Shunt trips.	■ Surge Protection: Single-phase whole home surge protector, Single-phase plug-on surge protector, Single-phase bottle type surge protector, Three-phase bottle type surge protector ■ Universal rainproof conduit hubs Group One: 3/4, 1, 1-1/4, 1-1/2, 2 inches (19.1, 25.4, 31.8, 38.1, 50.8 mm). Group Two: 2, 2-1/2, 3 inches (50.8, 63.5, 76.2 mm). ■ Adapter plate.
Bussing	■ Silver Flash Plated Copper Bus is a standard feature.	

Table 3-2. Loadcenters 100 – 225 Amperes and 12 – 42 Circuits Catalog Numbering System

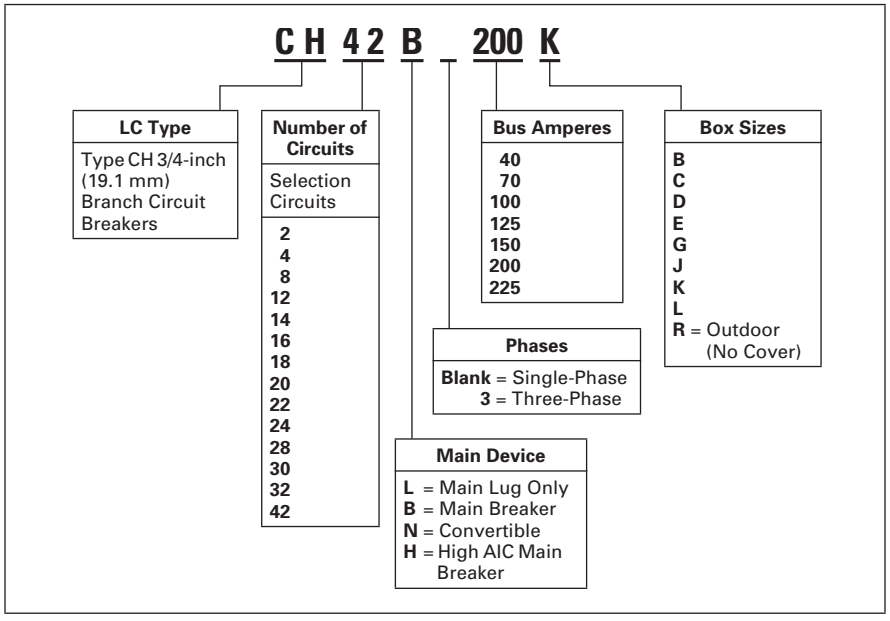
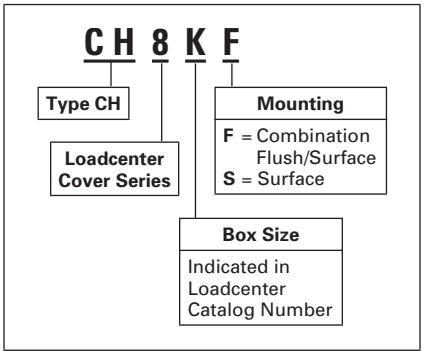


Table 3-3. Indoor Covers Ordered Separately



Note: All combinations are not valid, refer to the catalog section.

Single-Phase — Main Circuit Breaker Loadcenters
10,000/35,000 Amperes Interrupting Capacity

Table 3-4. Single-Phase 3-Wire — 120/240 Vac — Factory Bonded Split Neutral (Unless Otherwise Noted)

Main Breaker Type	Main Ampere Rating	Maximum Number 3/4-Inch (19.1 mm) Poles	Enclosure Type	Box Size	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker	Loadcenter ①② Catalog Number	Price U.S. $	Loadcenter Cover Catalog Number		Price U.S. $
								Combination ③	Surface	
CH 10 kAIC	100	14	Indoor	B	#6 – 1/0	**CH14B100B** ④⑤		**CH8BF**	**CH8BS**	
		14	Outdoor	B		**CH14B100R** ⑥⑦		—	—	
		18	Indoor	C		**CH18B100C** ④⑤		**CH8CF**	**CH8CS**	
		18	Outdoor	C		**CH18B100R** ⑥⑦		—	—	
		22	Indoor	C		**CH22B100C** ④⑤		**CH8CF**	**CH8CS**	
		22	Outdoor	C		**CH22B100R** ⑥⑦		—	—	
		30	Indoor	D		**CH30B100D** ④⑤		**CH8DF**	**CH8DS**	
		30	Outdoor	D		**CH30B100R** ⑥⑦		—	—	
	125	22	Indoor	C	#6 – 1/0	**CH22B125C** ④⑤		**CH8CF**	**CH8CS**	
		22	Outdoor	C		**CH22B125R** ⑥⑦		—	—	
		30	Indoor	D		**CH30B125D** ④⑤		**CH8DF**	**CH8DS**	
		30	Outdoor	D		**CH30B125R** ⑥⑦		—	—	
CSH 35 kAIC ⑧	150	8	Outdoor	E	#2 – 300 kcmil	**CH8B150RF** ⑥⑥⑨		—	—	
		24	Indoor	E		**CH24B150E** ④⑤		**CH8EF**	**CH8ES**	
		24	Outdoor	E		**CH24B150R** ⑥⑦		—	—	
		32	Indoor	J		**CH32B150J** ④⑤		**CH8JF**	**CH8JS**	
		32	Outdoor	J		**CH32B150R** ⑥⑦		—	—	
	200	8	Outdoor	E	#2 – 300 kcmil	**CH8B200RF** ⑥⑥⑨		—	—	
		24	Indoor	E		**CH24B200E** ④⑤		**CH8EF**	**CH8ES**	
		24	Outdoor	E		**CH24B200R** ⑥⑦		—	—	
		32	Indoor	J		**CH32B200J** ④⑤		**CH8JF**	**CH8JS**	
		32	Outdoor	J		**CH32B200R** ⑥⑦		—	—	
		42	Indoor	K		**CH42B200K** ④⑤		**CH8KF**	**CH8KS**	
		42	Outdoor	K		**CH42B200R** ⑥⑦		—	—	
	225	32	Indoor	J	#2 – 300 kcmil	**CH32B225J** ④⑤		**CH8JF**	**CH8JS**	
		32	Outdoor	J		**CH32B225R** ⑥⑦		—	—	
		42	Indoor	K		**CH42B225K** ④⑤		**CH8KF**	**CH8KS**	
		42	Outdoor	K		**CH42B225R** ⑥⑦		—	—	
DK 10 kAIC	300	42	Indoor	PM	(2) 3/0 – 250 kcmil	**CH42PM300**		**CH7PMF** ⑩	**CH7PMS**	
	400	42	Indoor	PM	(2) 3/0 – 250 kcmil	**CH42PM400**		**CH7PMF** ⑩	**CH7PMS**	

① All main circuit breaker loadcenters are listed for use as service entrance equipment.
② Ground bar kits priced separately. See **Page 3-24.**
③ Combination style covers may be used in surface or flush applications.
④ Loadcenters are factory bonded for service entrance applications. Remove bonding strap for separate neutral and ground bars for sub-feed applications.
⑤ Can be top or bottom fed by rotating the enclosure and trim 180 degrees.
⑥ Loadcenter contains single insulated/bondable neutral.
⑦ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-24**.
⑧ 35,000 AIC series combination rating is obtained when Types CH, CHT and CHP branch breakers are used with CSH main.
⑨ Panel includes #4 – 300 kcmil feed-through lugs.
⑩ This cover is for flush applications only (not combination).

Box Sizes . . . . . **Pages 3-37** and **3-38**
Discount Symbol **22CD**

Single-Phase — High Interrupting Rated Main Circuit Breaker Loadcenters 42,000/100,000 Amperes Interrupting Capacity

Table 3-5. Single-Phase 3-Wire — 120/240 Vac — Factory Bonded Split Neutral (Unless Otherwise Noted)

Main Breaker Type	Main Ampere Rating	Maximum Number 3/4-Inch (19.1 mm) Poles	Enclosure Type	Box Size	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker	Loadcenter ① Catalog Number	Price U.S. $	Loadcenter Cover Catalog Number		Price U.S. $
								Combination ②	Surface	
CHB4 42 kAIC ③	100	20 20 28 28	Indoor Outdoor Indoor Outdoor	C C D D	#6 – 1/0	**CH20H100C** ④⑤ **CH20H100R** ⑥⑦ **CH28H100D** ④⑤ **CH28H100R** ⑥⑦		**CH8CF** — **CH8DF** —	**CH8CS** — **CH8DS** —	
CHH 100 kAIC ⑧	150	32 32	Indoor Outdoor	L L	#2/0 – 300 kcmil	**CH32H150L** ④ **CH32H150R** ⑥⑦		**CH8LF** —	**CH8LS** —	
	200	32 32 42 42	Indoor Outdoor Indoor Outdoor	L L L L	#2/0 – 300 kcmil	**CH32H200L** ④ **CH32H200R** ⑥⑦ **CH42H200L** ④ **CH42H200R** ⑥⑦		**CH8LF** — **CH8LF** —	**CH8LS** — **CH8LS** —	
	225	42 42	Indoor Outdoor	L L	#2/0 – 300 kcmil	**CH42H225L** ④ **CH42H225R** ⑥⑦		**CH8LF** —	**CH8LS** —	

① All main circuit breaker loadcenters are listed for use as service entrance equipment.
② Combination style covers may be used in surface or flush applications.
③ Series rated for 42,000 AIC with all Types CH, CHT and CHP breakers.
④ Loadcenters are factory bonded for service entrance applications. Remove bonding strap for separate neutral and ground bars for sub-feed applications.
⑤ Loadcenter can be top or bottom fed by rotating the enclosure and trim 180 degrees.
⑥ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-24**.
⑦ Loadcenter contains single insulated/bondable neutral.
⑧ Series rated for 100,000 AIC with all Types CH, CHT and CHP breakers.

Box Sizes..... **Pages 3-37** and **3-38**
Discount Symbol **22CD**

2 Circuits 40 and 70 Amperes

Surface

Flush

Outdoor

4 and 8 Circuits 125 Amperes

Surface (No Door)

Flush (No Door)

Outdoor

2 Circuits 125 Amperes

Surface

Flush

Outdoor

Single-Phase — Main Lug Loadcenters

Table 3-6. Single-Phase 3-Wire — 120/240 Vac — Insulated/Bondable Neutral

Main Ampere Rating	Maximum Number 3/4-Inch (19.1 mm) Space	Maximum Number 3/4-Inch (19.1 mm) Poles	Enclosure Type	Type of Trim (Included)	Box Size	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Loadcenter Catalog Number	Price U.S. $
40	2	4 ①	Indoor	Surface (No Door)	5	#14 – 6	**CH2L40SP** ②③	
	2	4 ①	Outdoor	—	5R		**CH2L40RP** ②③④	
	2	4 ①	Indoor	Flush (No Door)	5		**CH2L40FP** ②③	
70	2	4 ①	Indoor	Surface (No Door)	5	#14 – 2	**CH2L70SP** ②③	
	2	4 ①	Outdoor	—	5R		**CH2L70RP** ②③④	
	2	4 ①	Indoor	Flush (No Door)	5		**CH2L70FP** ②③	
125	2	4 ①	Indoor	Surface (No Door)	6	#14 – 1/0	**CH2L125SP** ②③	
	2	4 ①	Outdoor	—	6R		**CH2L125RP** ②③④	
	2	2	Outdoor	—	—		**CH2L125RSE2P** ④⑤⑥	
	2	4 ①	Indoor	Flush (No Door)	6		**CH2L125FP** ②③	
	4	8 ①	Indoor	Surface (No Door)	7	#14 – 1/0	**CH4L125SP** ②⑦	
	4	8 ①	Outdoor	—	7R		**CH4L125RP** ②④⑦	
	4	8 ①	Indoor	Flush (No Door)	7		**CH4L125FP** ②⑦	
	8	16 ①	Indoor	Surface (No Door)	7	#6 – 1/0	**CH8L125SP** ②⑧	
	8	16 ①	Outdoor	—	7R		**CH8L125RP** ②⑥⑦	
	8	16 ①	Indoor	Flush (No Door)	7		**CH8L125FP** ②⑧	

① Requires the use of Type CHNT breakers.

② Ground bar kits priced separately, see **Page 3-24**.
– For 2/4 circuit loadcenters use Type GBK5 or GBK520 ground bar
– For 4/8 and 8/16 circuit loadcenters use Type GBK10 ground bar
– Ground bars mount to the left side wall of the enclosure for the 4/8 and 8/16 circuit loadcenters.

③ Suitable for use as service equipment when not more than two service disconnecting mains are provided or when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).

④ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-24**.

⑤ For use as service entrance applications only.

⑥ Neutral/ground holes (6) #14 – 6 and (3) #14 – 2/0 AWG Cu/Al.

⑦ Suitable for use as service equipment when not more than two service disconnecting mains are provided or when not more than six service disconnecting mains are provided and when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).

⑧ Suitable for use as service equipment when a main breaker is used or when not more than six service disconnecting mains are provided and when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).

Box Sizes . . . . . **Pages 3-37** and **3-38**
Discount Symbol **22CD**

3

Single-Phase — Main Lug Loadcenters

Table 3-7. Single-Phase 3-Wire — 120/240 Vac — Twin Neutral — Factory-Installed Ground Bar

Main Ampere Rating	Maximum Number 3/4-Inch (19.1 mm) Poles	Enclosure Type	Box Size	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Loadcenter Catalog Number	Price U.S. $	Loadcenter Cover Catalog Number		Price U.S. $
							Combination	Surface	
125	12	Indoor	B	#6 – 2/0	**CH12L125B** ①		**CH8BF**	**CH8BS**	
	12	Outdoor	B		**CH12L125R** ①②		—	—	
	16	Indoor	B		**CH16L125B** ①		**CH8BF**	**CH8BS**	
	16	Outdoor	B		**CH16L125R** ①②		—	—	
	20	Indoor	C		**CH20L125C** ①		**CH8CF**	**CH8CS**	
	20	Outdoor	C		**CH20L125R** ①②		—	—	
	24	Indoor	C		**CH24L125C** ①		**CH8CF**	**CH8CS**	
	24	Outdoor	C		**CH24L125R** ①②		—	—	
150	24	Indoor	D	#4 – 300 kcmil	**CH24L150D** ①		**CH8DF**	**CH8DS**	
	24	Outdoor	D		**CH24L150R** ②③		—	—	
	32	Indoor	D		**CH32L150D** ①		**CH8DF**	**CH8DS**	
	32	Outdoor	D		**CH32L150R** ②③		—	—	
200	12	Indoor	D	#4 – 300 kcmil	**CH12L200D** ①		**CH8DF**	**CH8DS**	
	12	Outdoor	D		**CH12L200R** ②③		–	—	
	16	Indoor	D		**CH16L200D** ①		**CH8DF**	**CH8DS**	
	16	Outdoor	D		**CH16L200R** ②③		—	—	
225	24	Indoor	D	#4 – 300 kcmil	**CH24L225D** ①		**CH8DF**	**CH8DS**	
	24	Outdoor	D		**CH24L225R** ②③		—	—	
	32	Indoor	D		**CH32L225D** ①		**CH8DF**	**CH8DS**	
	32	Outdoor	D		**CH32L225R** ②③		—	—	
	42	Indoor	G		**CH42L225G** ③		**CH8GF**	**CH8GS**	
	42	Outdoor	G		**CH42L225R** ②③		—	—	
400	42	Indoor	P	(2) 1/0 – 300 kcmil (1) 750 kcmil	**CH42PL400** ④		**CH7PF** ⑤	**CH7PS**	

① Suitable for use as service equipment when not more than six disconnecting means are provided and when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).

② Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-24**.

③ Suitable for use as service equipment when a circuit breaker is used as a main breaker. The main breaker is backfed and requires hold-down bracket kit catalog number **CH125RB**.

④ Suitable for use as service equipment when a circuit breaker is used as a main breaker. The main breaker is backfed and must be a Type CHB. **The breaker cannot be a Type CH.**

⑤ This cover is for flush application only (not combination).

Box Sizes . . . . . **Pages 3-37** and **3-38**
Discount Symbol **22CD**

3-Phase — Main Circuit Breaker Loadcenters
10,000 Amperes Interrupting Capacity

Table 3-8. 3-Phase 4-Wire — 208Y/120 Vac or 240 Vac Insulated/Bondable Neutral

Main Breaker Type	Main Ampere Rating	Maximum Number 3/4-Inch (19.1 mm) Poles	Enclosure Type	Box Size	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker	Loadcenter ①② Catalog Number	Price U.S. $	Loadcenter Cover Catalog Number		Price U.S. $
								Combination	Surface	
CC 10 kAIC	150	30 30	Indoor Outdoor	L L	#1 – 4/0	**CH30B3150L** **CH30B3150R** ③		**CH8LF** —	**CH8LS** —	
	200	30 30 42 42	Indoor Outdoor Indoor Outdoor	L L L L	#2/0 – 300 kcmil	**CH30B3200L** **CH30B3200R** ③ **CH42B3200L** **CH42B3200R** ③		**CH8LF** — **CH8LF** —	**CH8LS** — **CH8LS** —	
	225	30 30 42 42	Indoor Outdoor Indoor Outdoor	L L L L		**CH30B3225L** **CH30B3225R** ③ **CH42B3225L** **CH42B3225R** ③		**CH8LF** — **CH8LF** —	**CH8LS** — **CH8LS** —	
	400	42	Indoor	PM	(2) 3/0 – 350 kcmil	**CH424PM400**		**CH7PMF** ④	**CH7PMS**	

① All main circuit breaker loadcenters are listed for use as service entrance equipment.
② Ground bar kits priced separately. See **Page 3-24**.
③ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-24**.
④ This cover for flush application only (not combination).

Box Sizes . . . . . **Pages 3-37** and **3-38**
Discount Symbol **22CD**

3

3-Phase — Main Lug Loadcenters

Table 3-9. 3-Phase 4-Wire — 208Y/120 Vac or 240 Vac — Insulated/Bondable Neutral

Main Ampere Rating	Maximum Number 3/4-Inch (19.1 mm) Spaces	Maximum Number 3/4-Inch (19.1 mm) Poles	Enclosure Type	Type of Trim Included	Box Size	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Loadcenter Catalog Number	Price U.S. $
125	6 6 6	12 ① 12 ① 12 ①	Indoor Outdoor Indoor	Surface No Door — Flush No Door	7 7R 7	#14 – 1/0	**CH6L3125SP** ②③ **CH6L3125RP** ②③④ **CH6L3125FP** ②③	

① Requires the use of CHNT breakers.
② Suitable for use as service equipment when not more than two service disconnecting means are provided or when not more than six service disconnecting means are provided and when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).
③ Ground bar kits priced separately, see **Page 3-24**.
– Use GBK10 ground bar
– Ground bars mount to the left side wall of the enclosure.
④ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-24**.

Table 3-10. 3-Phase 4-Wire — 208Y/120 Vac or 240 Vac — Insulated/Bondable Neutral

Main Ampere Rating	Maximum Number 3/4-Inch (19.1 mm) Poles	Enclosure Type	Box Size	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Loadcenter Catalog Number	Price U.S. $	Loadcenter Cover Catalog Number		Price U.S. $
							Combination	Surface	
125	12 12 18 18 24 24	Indoor Outdoor Indoor Outdoor Indoor Outdoor	B B C C C C	#6 – 2/0	**CH12L3125B** ⑤⑥ **CH12L3125R** ⑤⑥⑦ **CH18L3125C** ⑤⑥ **CH18L3125R** ⑤⑥⑨ **CH24L3125C** ⑤⑥ **CH24L3125R** ⑤⑥⑨		**CH8BF** — **CH8CF** — **CH8CF** —	**CH8BS** — **CH8CS** — **CH8CS** —	
150	30 30	Indoor Outdoor	D	#4 – 300 kcmil	**CH30L3150D** ⑤⑥ **CH30L3150R** ⑤⑦⑧		**CH8DF** —	**CH8DS** —	
225	24 24 30 30 42 42	Indoor Outdoor Indoor Outdoor Indoor Outdoor	D D D D G G	#4 – 300 kcmil	**CH24L3225D** ⑤⑥ **CH24L3225R** ⑤⑦⑧ **CH30L3225D** ⑤⑥ **CH30L3225R** ⑤⑦⑧ **CH42L3225G** ⑧⑨ **CH42L3225R** ⑦⑧⑨		**CH8DF** — **CH8DF** — **CH8GF** —	**CH8DS** — **CH8DS** — **CH8GS** —	
400	42	Indoor	P	(2) 1/0 – 300 kcmil (1) 750 kcmil	**CH424PL400** ⑩⑪		**CH7PF** ⑫	**CH7PS**	

⑤ Ground bar Type GBK14 is installed.
⑥ Suitable for use as service equipment when a circuit breaker is used as a main breaker. The main breaker is backfed and requires hold-down bracket kit catalog number Type **CH125RB**. Suitable for use as service equipment when not more than six service disconnecting means are provided and when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).
⑦ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-24**.
⑧ Suitable for use as service equipment when a circuit breaker is used as a main breaker. The main breaker is backfed and requires hold-down kit catalog number Type **CH125RB**.
⑨ Ground bar Type GBK21 is installed.
⑩ Suitable for use as service equipment when a circuit breaker is used as a main breaker. The main breaker is backfed and must be a Type CHB. **The breaker cannot be a Type CH**.
⑪ Ground bar kit priced separately, see **Page 3-24**.
⑫ This cover is for flush application only (not combination).

3-Phase — High Interrupting Rated Main Circuit Breaker Loadcenters — 100,000 Amperes Interrupting Capacity

Table 3-11. 3-Phase 4-Wire — 208Y/120 Vac or 240 Vac Insulated/Bondable Neutral

Main Breaker Type	Main Ampere Rating	Maximum Number 3/4-Inch (19.1 mm) Poles	Enclosure Type	Box Size	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker	Loadcenter ⑬⑭ Catalog Number	Loadcenter Cover Catalog Number	
							Combination	Surface
CHH 100 kAIC ⑮	200	30 30 42 42	Indoor Outdoor Indoor Outdoor	L L L L	#2/0 – 300 kcmil	**CH30H3200L** **CH30H3200R** ⑯ **CH42H3200L** **CH42H3200R** ⑯	**CH8LF** — **CH8LF** —	**CH8LS** — **CH8LS** —
	225	42 42	Indoor Outdoor	L L	#2/0 – 300 kcmil	**CH42H3225L** **CH42H3225R** ⑯	**CH8LF** —	**CH8LS** —

⑬ All main circuit breaker loadcenters are listed for use as service entrance equipment.
⑭ Ground bar kits priced separately.
⑮ 100,000 AIC series combination rating is obtained when Types CH and CHP branch breakers are used with CHH main.
⑯ Rainproof loadcenters are furnished with hub closure plates.

Box Sizes..... **Pages 3-37** and **3-38**
Discount Symbol **22CD**

Convertible Loadcenters MCB or MLO — Base Units and Main Devices 10,000/35,000 Amperes Interrupting Capacity

Complete assembly consists of: Loadcenter, Cover, and either Main Breaker Kit or Main Lug Kit.

Table 3-12. Indoor — Single-Phase — 3-Wire — 120/240 V — Factory Bonded Split Neutral — Top or Bottom Feed

Maximum		Box Size	Loadcenter Box and Panel		Loadcenter Cover			Main Lug Kit			Main Breaker Kit			
Main Ampere Rating	Number of Single Poles		Catalog Number ①②	Price U.S. $	Catalog Number Combination	Catalog Number Surface	Price U.S. $	Wire Size	Catalog Number	Price U.S. $	kAIC Rating	Wire Size	Catalog Number	Price U.S. $
125	22	C	**CH22N125C**		**CH8CF**	**CH8CS**		#10 – 1/0	**CHL125N**		10	#10 – 1/0	**CH2100N** ③ **CH2125N** ③	
200	32	J	**CH32N200J**		**CH8JF**	**CH8JS**		#4 – 300 kcmil	**CHL225N**		25	#2 – 300 kcmil	**CSH2125N** ④⑤ **CSH2150N** ④⑤ **CSH2175N** ④⑤ **CSH2200N** ④⑤	
225	42	K	**CH42N225K**		**CH8KF**	**CH8KS**		#4 – 300 kcmil	**CHL225N**		25	#2 – 300 kcmil	**CSH2125N** ④⑤ **CSH2150N** ④⑤ **CSH2175N** ④⑤ **CSH2200N** ④⑤ **CSH2225N** ④⑤	

① Panel does not include main. Order main breaker or main lug kit separately.
② Loadcenters are factory bonded for service entrance applications. Remove bonding strap for separate neutral and ground bars for sub-feed applications.
③ Hold down kit included.
④ 35,000 AIC series combination rating is obtained when Types CH, CHT and CHP branch breakers are used with CSR main.
⑤ CSH breakers include line lugs only as standard.
Note: Interrupting rating depends on main circuit breaker selected.

Table 3-13. Outdoor — Single-Phase — 3-Wire — 120/240 V — Insulated/Bondable Neutral

Maximum		Box Size	Loadcenter Box and Panel		Main Lug Kit			Main Breaker Kit			
Main Ampere Rating	Number of Single Poles		Catalog Number ⑥	Price U.S. $	Wire Size	Catalog Number	Price U.S. $	kAIC Rating	Wire Size	Catalog Number	Price U.S. $
200	8	E	**CH8N200RF** ⑦⑧		#4 – 300 kcmil	**CHL225N**		25	#2 – 300 kcmil	**CSH2125N** **CSH2150N** **CSH2175N** **CSH2200N**	
125	2 2	C	**CH22N125R** ⑦		#10 – 1/0	**CHL125N**		10	#10 – 1/0	**CH2100N** ⑨ **CH2125N** ⑨	
200	3 2	J	**CH32N200R** ⑦		#4 – 300 kcmil	**CHL225N**		25	#2 – 300 kcmil	**CSH2125N** ⑩⑪ **CSH2150N** ⑩⑪ **CSH2175N** ⑩⑪ **CSH2200N** ⑩⑪	
225	4 2	K	**CH42N225R** ⑦		#4 – 300 kcmil	**CHL225N**		25	#2 – 300 kcmil	**CSH2125N** ⑩⑪ **CSH2150N** ⑩⑪ **CSH2175N** ⑩⑪ **CSH2200N** ⑩⑪ **CSH2225N** ⑩⑪	

⑥ Panel does not include main. Order main breaker or main lug kit separately.
⑦ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-24**.
⑧ Includes feed-through lugs for both phase and neutral conductors.
⑨ Hold down kit included.
⑩ 35,000 AIC series combination rating is obtained when Types CH, CHT and CHP branch breakers are used with CSR main.
⑪ CSH breakers include line lugs only as standard.

Spa Panels

Table 3-14. Spa Panels Single-Phase 3-Wire — 120/240 Vac Insulated/Bondable Neutral — Factory Installed Ground Bar

Main Ampere Rating	Circuit Breaker Included	Enclosure Type	Type of Trim Included	Box Size	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Catalog Number	Price U.S. $
30	CH230GF	Outdoor	—	5R	#14 – 1/0	**CH30SPA** ⑫	
40	CH240GF	Outdoor	—	5R	#14 – 1/0	**CH40SPA** ⑬	
50	CH250GF	Outdoor	—	5R	#14 – 1/0	**CH50SPA** ⑭	
60	CH260GF	Outdoor	—	5R	#14 – 1/0	**CH60SPA** ⑮	

⑫ Includes a CH230GFI breaker, factory installed, and 2 extra circuits for convenience.
⑬ Includes a CH240GFI breaker, factory installed, and 2 extra circuits for convenience.
⑭ Includes a CH250GFI breaker, factory installed, and 2 extra circuits for convenience.
⑮ Includes a CH260GFI breaker, factory installed, and 2 extra circuits for convenience.

CH Spa Panel

Cutler-Hammer Quick-Pro℠
All you need to know to save time and make more money. Specified on certain Cutler-Hammer products, the Quick-Pro symbol allows for immediate recognition of products that are designed for straightforward installation. When you see Quick-Pro, you know you can install quickly — sometimes up to 50% less than the usual installation time — and move onto your next job.

Box Sizes ..... **Pages 3-37** and **3-38**
Discount Symbol **22CD**

Single-Phase and 3-Phase Circuit Breaker Unit Enclosures — 10,000/35,000 Amperes Interrupting Capacity

Circuit Breaker Unit Enclosures

CSH2200N

Table 3-15. Type ECB Circuit Breaker Unit Enclosure — Order Type CSR 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. $
Single-Phase 3-Wire — 240 Vac Maximum						
150	Outdoor	—	CSR (included) ①	④	**ECB150RB** ⑤⑥⑦	
200	Outdoor	—	CSR (included) ②	④	**ECB200RB** ⑤⑥⑦	
225	Indoor Indoor Outdoor	Flush Surface —	CSR ③ CSR ③ CSR ③	④ ④ ④	**ECB225F** ③⑥⑦ **ECB225S** ③⑥⑦ **ECB225R** ③⑤⑥⑦	

① CSR2150N factory installed circuit breaker.
② CSR2200N factory installed circuit breaker.
③ Order circuit breaker separately.
④ Wire size is determined by the circuit breaker installed in enclosure. Maximum wire size and ampere rating is determined by **Table 3-19**.
⑤ Rainproof panels are furnished with hub closures plates. For rainproof hubs, refer to **Page 3-24.**
⑥ One ground lug accepting (1) #14 – #2 is factory installed. Also, there are pre-drilled holes to accept a GBK5 ground bar.
⑦ Approved for service entrance.

Table 3-16. Type CSH Circuit Breakers 120/240 Vac — 35,000 AIC For Use in Type ECB Unit Enclosures

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C for Line Terminals	2-Pole Breakers	
		35,000 AIC	
		Catalog Number	Price U.S. $
100 125 150 175 200 225	#2 – 300 kcmil	**CSH2100N** **CSH2125N** **CSH2150N** **CSH2175N** **CSH2200N** **CSH2225N**	

Table 3-17. Shunt Trips

Description		Catalog Number Suffix Adder ⑧	Price U.S. $ Adder Each
Type	Volts		
CSH	12	**SR12**	
CSH	24	**SR24**	
CSH	120	**SR01**	

⑧ Add suffix indicated to end of breaker catalog number.

Table 3-18. CSR 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 CSR Breakers	#2 – 300 kcmil	**MCBK225**	

Table 3-19. Wire Data

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

Box Sizes . . . . . **Pages 3-37** and **3-38**
Discount Symbol **22CD**

Table 3-20. Type ECC Circuit Breaker Unit Enclosure — Order Type CC Circuit Breaker Separately

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. $
Single-Phase 3-Wire — 240 Vac Maximum						
225	Indoor	Flush	CC ①	②	**ECC225F** ①③④	
225	Indoor	Surface	CC ①	②	**ECC225S** ①③④	
225	Outdoor	—	CC ①	②	**ECC225R** ①③④⑤	

① Order circuit breaker separately.
② Wire size is determined by the circuit breaker installed in enclosure. Maximum wire size and ampere rating is determined by **Table 3-22**.
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 Rainproof panels are furnished with hub closures plates. For rainproof hubs, refer to **Page 3-24.**

Table 3-21. Type CC Circuit Breakers 240 Vac — 10,000 AIC For Use in Type ECC Unit Enclosures

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C for Line Terminals	Type CC 10,000 AIC	
		Catalog Number	Price U.S. $
2-Pole			
100 125 150	#4 – 4/0	**CC2100** **CC2125** **CC2150**	
175 200 225	#2/0 – 300 kcmil	**CC2175** **CC2200** **CC2225**	
3-Pole			
100 125 150	#4 – 4/0	**CC3100** **CC3125** **CC3150**	
175 200 225	#2/0 – 300 kcmil	**CC3175** **CC3200** **CC3225**	

Table 3-22. Wire Data

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 3-23. Shunt Trips, Auxiliary and Alarm Contacts

Description		Catalog Number Suffix Adder ⑥	Price U.S. $ Adder Each
Type	Volts		
Shunt Trip			
CC	12 dc	**SR12**	
CC	24 dc	**SR24**	
CC	120 ac	**SR01**	
CC	208 ac	**SR08**	
CC	240 ac	**SR02**	
Auxiliary Contact			
CC (1) NO and (1) NC	—	**AL1**	
Alarm Contact			
CSR	—	**CR1**	

⑥ Add suffix indicated to end of breaker catalog number.

Box Sizes. . . . . **Pages 3-37** and **3-38**
Discount Symbol **22CD**

3

Product Description

Surge Panel

The Type CH Surge Loadcenter includes a factory-mounted and wired surge suppressor device. There is a knockout in the cover which allows the user to view the status indication lights on the surge suppressor. The CH Surge Loadcenter reduces the surge current, helping protect sensitive home electronic equipment.

Quick Pro℠ Labor Saving Solution

Save labor by installing factory-mounted surge suppression.

Ratings

- Loadcenter
  - 35 kAIC main breaker, main lug only, and convertible main breaker/main lug
  - Factory installed or provision for field installed surge suppressor
  - Top or bottom feed
- Surge Suppressor (CHSPULTRA)
  - Total joules: 3,500 joules
  - Maximum surge current: 175,000 amperes
  - Per phase (L-N/L-G) Surge Current: 75,000 amperes
  - Warranty: Lifetime
  - Connected equipment warranty: $75,000

Table 3-24. Single-Phase Main Circuit Breaker Loadcenters with Factory Installed Surge Suppression — Indoor Single-Phase 3-Wire — 120/240 Vac — Factory Bonded Split Neutral

Main Breaker Type	Maximum Main Ampere Rating	Maximum Number 3/4-Inch (19.1 mm) Single Poles	Box Size	Wire Range Size	Loadcenter			Loadcenter Cover					
					UPC Code 782116	Catalog Number	Price U.S.$	Combination ①			Surface		
								Catalog Number	UPC Code 782116	Price U.S.$	Catalog Number	UPC Code 782116	Price U.S.$
CSH 35 kAIC	100	24 32	E K	#6 – 4/0	200054 200078	**CHSUR24B100E** **CHSUR32B100K**		**CHSUR8EF** **CHSUR8KF**	200221 200238		**CHSUR8ES** **CHSUR8KS**	200269 200276	
	150 200 200	32 32 42	K K L	#2 – 300 kcmil	200085 200108 320196	**CHSUR32B150K** **CHSUR32B200K** **CHSUR42B200L2**		**CHSUR8KF** **CHSUR8KF** **CHSUR8LF**	200238 200238 200245		**CHSUR8KS** **CHSUR8KS** **CHSUR8LS**	200276 200276 200283	

① Combination style covers may be used for surface or flushmount applications.

Table 3-25. Single-Phase Main Lug Loadcenters with Factory Installed Surge Suppression — Indoor Single-Phase 3-Wire — 120/240 Vac — Twin Neutral — Factory Installed Ground Bar

Maximum Main Ampere Rating	Maximum Number 3/4-Inch (19.1 mm) Single Poles	Box Size	Wire Range Size	Loadcenter			Loadcenter Cover					
				UPC Code 782116	Catalog Number	Price U.S.$	Combination ②			Surface		
							UPC Code 782116	Catalog Number	Price U.S.$	UPC Code 782116	Catalog Number	Price U.S.$
125	24	E	#6 – 2/0	200061	**CHSUR24L125E**		200221	**CHSUR8EF**		200269	**CHSUR8ES**	
225	32 42	K L	#2 – 300 kcmil	200092 320202	**CHSUR32L225K** **CHSUR42L225L2**		200238 200245	**CHSUR8KF** **CHSUR8LF**		200276 200283	**CHSUR8KS** **CHSUR8LS**	

② Combination style covers may be used for surface or flushmount applications.

Table 3-26. Single-Phase Convertible Loadcenters with Factory Installed Surge Suppression — Indoor (order main breaker kit separately) Single-Phase 3-Wire — 120/240 Vac — Twin Neutral — Factory Installed Ground Bar

Maximum Main Ampere Rating	Maximum Number 3/4-Inch (19.1 mm) Single Poles	Box Size	Wire Range Size	Loadcenter			Loadcenter Cover					
				UPC Code 782116	Catalog Number	Price U.S.$	Combination ③			Surface		
							UPC Code 782116	Catalog Number	Price U.S.$	UPC Code 782116	Catalog Number	Price U.S.$
225	32 42	K L	#2 – 300 kcmil	200115 320004	**CHSUR32N225K** **CHSUR42N225L**		200238 200245	**CHSUR8KF** **CHSUR8LF**		200276 200283	**CHSUR8KS** **CHSUR8LS**	

③ Combination style covers may be used for surface or flushmount applications.

Discount Symbol **22CD**

Table 3-27. Single-Phase Main Circuit Breaker Loadcenters with Field Installation Provision for Surge Suppression — Indoor Single-Phase 3-Wire — 120/240 Vac — Factory Bonded Split Neutral

Main Breaker Type	Maximum Main Ampere Rating	Maximum Number 3/4-Inch (19.1 mm) Single Poles	Box Size	Wire Range Size	Loadcenter			Loadcenter Cover					
					Catalog Number	UPC Code 782116	Price U.S.$	Combination ①			Surface		
								UPC Code 782116	Catalog Number	Price U.S.$	UPC Code 782116	Catalog Number	Price U.S.$
CSH 35 kAIC	100	24	E	#6 – 4/0	**CHEC24B100E**	200139		200221	**CHSUR8EF**		200269	**CHSUR8ES**	
		32	K		**CHEC32B100K**	200153		200238	**CHSUR8KF**		200276	**CHSUR8KS**	
	150	32	K	#2 – 300 kcmil	**CHEC32B150K**	200160		200238	**CHSUR8KF**		200276	**CHSUR8KS**	
	200	32	K		**CHEC32B200K**	200252		200238	**CHSUR8KF**		200276	**CHSUR8KS**	
	200	42	L		**CHEC42B200L**	200184		200245	**CHSUR8LF**		200283	**CHSUR8LS**	

① Combination style covers may be used for surface or flushmount applications.

Table 3-28. Single-Phase Main Lug Loadcenters with Field Installation Provision for Surge Suppression — Indoor Single-Phase 3-Wire — 120/240 Vac — Twin Neutral — Factory Installed Ground Bar

Maximum Main Ampere Rating	Maximum Number 3/4-Inch (19.1 mm) Single Poles	Box Size	Wire Range Size	Loadcenter			Loadcenter Cover					
				UPC Code 782116	Catalog Number	Price U.S.$	Combination ②			Surface		
							UPC Code 782116	Catalog Number	Price U.S.$	UPC Code 782116	Catalog Number	Price U.S.$
125	24	E	#6 – 2/0	200146	**CHEC24L125E**		200221	**CHSUR8EF**		200269	**CHSUR8ES**	
225	32	K	#2 – 300 kcmil	200177	**CHEC32L225K**		200238	**CHSUR8KF**		200276	**CHSUR8KS**	
	42	L		200191	**CHEC42L225L**		200245	**CHSUR8LF**		200283	**CHSUR8LS**	

② Combination style covers may be used for surface or flushmount applications.

Table 3-29. Single-Phase Convertible Loadcenters with Field Installation Provision for Surge Suppression — Indoor Single-Phase 3-Wire — 120/240 Vac — Twin Neutral — Factory Installed Ground Bar

Maximum Main Ampere Rating	Maximum Number 3/4-Inch (19.1 mm) Single Poles	Box Size	Wire Range Size	Loadcenter			Loadcenter Cover					
				UPC Code 782116	Catalog Number	Price U.S.$	Combination ③			Surface		
							UPC Code 782116	Catalog Number	Price U.S.$	UPC Code 782116	Catalog Number	Price U.S.$
225	32	K	#2 – 300 kcmil	200207	**CHEC32N225K**		200238	**CHSUR8KF**		200276	**CHSUR8KS**	
	42	L		200214	**CHEC42N225L**		200245	**CHSUR8LF**		200283	**CHSUR8LS**	

③ Combination style covers may be used for surface or flushmount applications.

Table 3-30. Main Breaker Kits

Maximum Main Ampere Rating	UPC Code 78211	Catalog Number	Price U.S.$
100	6318889	**CSH2100N**	
150	3099743	**CSH2150N**	
200	3099767	**CSH2200N**	
225	3099774	**CSH2225N**	

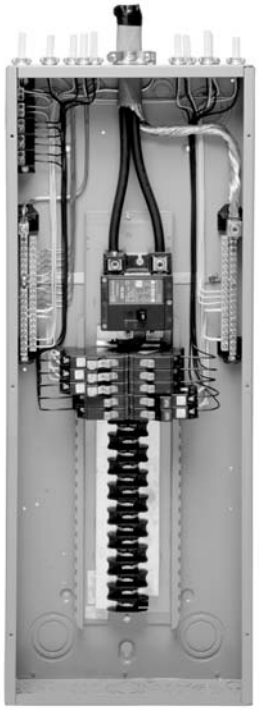
Table 3-31. Main Lug Kits

Maximum Main Ampere Rating	UPC Code 78211	Catalog Number	Price U.S.$
125	3098579	**CHL125N**	
225	3098487	**CHL225N**	

Discount Symbol **22CD**

3

Type CH Renovation Loadcenter



Renovation Panel

Product Description

The Cutler-Hammer Renovation Loadcenter by Eaton Corporation is designed for the service contractor. With the addition of a 5-circuit terminal block factory mounted in the top left corner of the loadcenter, the service contractor can terminate short circuit wires instead of having to use expensive wire nuts. Also, the Renovation Loadcenter incorporates a twin stacked neutral design that places the neutral and ground terminations higher in the loadcenter. Both of these features were added without increasing any size from a standard loadcenter. These features will eliminate the need for wire nuts and make for a much neater installation. There is a provision to field mount a second 5-circuit terminal block (RN5TB) in the top right corner of the loadcenter. Choose amongst Cutler-Hammer Type CH breaker family for use in the Renovation Panel.

Single-Phase — Main Circuit Breaker Loadcenters 35,000 Amperes Interrupting Capacity ②

Table 3-32. Single-Phase, 3-Wire — 120/240 Vac — Factory Bonded Stacked Split Neutral

Main Breaker Type	Main Ampere Rating	Max. Number 3/4-Inch (19.1 mm) Poles	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 or 70°C for Main Breakers	Loadcenter Catalog Number	Price U.S. $	Cover Catalog Number ①		Price U.S. $
								Combination	Surface	
CH CSH	100 150	20 32	Indoor Indoor	C J	#6 – 1/0 #2 – 300 kcmil	**CH22B100CRN** **CH32B150JRN**		**CH8CFF** **CH8JF**	**CH8CS** **CH8JS**	
CSH CSH	200 200	32 42	Indoor Indoor	J K	#2 – 300 kcmil #2 – 300 kcmil	**CH32B200JRN** **CH42B200KRN**		**CH8JF** **CH8KF**	**CH8JS** **CH8KS**	

① Combination style covers may be used in surface or flush applications.
② 100 ampere main breaker is rated 10 kAIC.

Note: All main circuit breaker loadcenters are listed for use as service entrance equipment. Loadcenters are factory bonded for service entrance applications. Remove bonding strap for separate neutral and ground bars for sub-feed applications.

Branch Circuit Breakers (CH)

See **Pages 3-2 – 3-23**.

Table 3-33. Renovation Loadcenter

Description	Catalog Number	Price U.S. $
5-Circuit Terminal Block Kit Ground Bar Kits	**RN5TB** (See **Page 3-63**)	

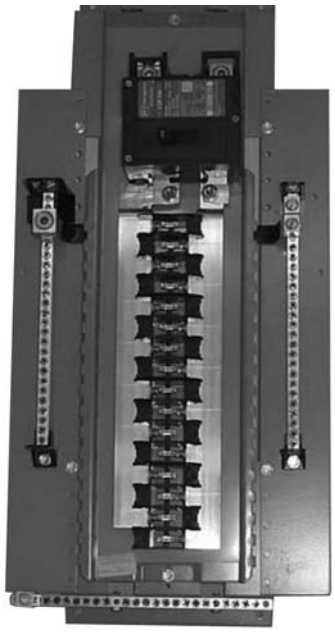
Cutler-Hammer Quick-Pro℠

All you need to know to save time and make more money. Specified on certain Cutler-Hammer products, the Quick-Pro symbol allows for immediate recognition of products that are designed for straightforward installation. When you see Quick-Pro, you know you can install quickly — sometimes up to 50% less than the usual installation time — and move onto your next job.

Discount Symbol **22CD**

Type CH Retrofit Interior Kits

Type CH Retrofit Interior with Cover Assembly



Type CH Retrofit Interior

Product Description

Replacing existing loadcenters and panelboards can be a time consuming and expensive job. CH retrofit kits can be the solution to save time and money. The kit consists of a standard trim to fit the interior, a picture frame trim to fit the existing box, and a field adjustable interior assembly which includes neutral and ground bars as well. These are especially applicable when the existing box is flush mounted in drywall, plaster or block wall. The existing box, and many times existing wiring, can remain. Interiors are UL recognized under UL 67, Panelboard standard.

Cutler-Hammer Quick-Pro℠

All you need to know to save time and make more money. Specified on certain Cutler-Hammer products, the Quick-Pro symbol allows for immediate recognition of products that are designed for straightforward installation. When you see Quick-Pro, you know you can install quickly — sometimes up to 50% less than the usual installation time — and move onto your next job.

Detailed Product Guide

All standard retrofit kits are suitable for a range of existing box sizes:

- Box width ranging from 14.50 to 22.00 inches (368.3 to 558.8 mm).
- Box depth ranging from 4.25 inches (108.0 mm) for CH to 6.00 inches (152.4 mm).
- Box height ranging from 21.00 to 45.00 inches (533.4 to 1143.0 mm).

For box dimensions outside of these ranges, contact the **Lincoln Flex Center at 800-330-6479**. Be sure to provide the existing incoming line wire size.

To select the retrofit kit:

1. From the existing box size determine which retrofit groups are suitable (may be more than one).
2. Use type of interior, number of phases, and type of main to find the selection chart.
3. Select part number from chart (if main breaker, replace XXX with specific amp rating).
4. Note that the overlap of the existing wall is the retro cover size minus the existing box size. If specific measurements are needed, communicate that you need a custom trim size.
5. Contact the Lincoln Flex Center at 800-330-6479 for pricing, lead-times, and order entry instructions.

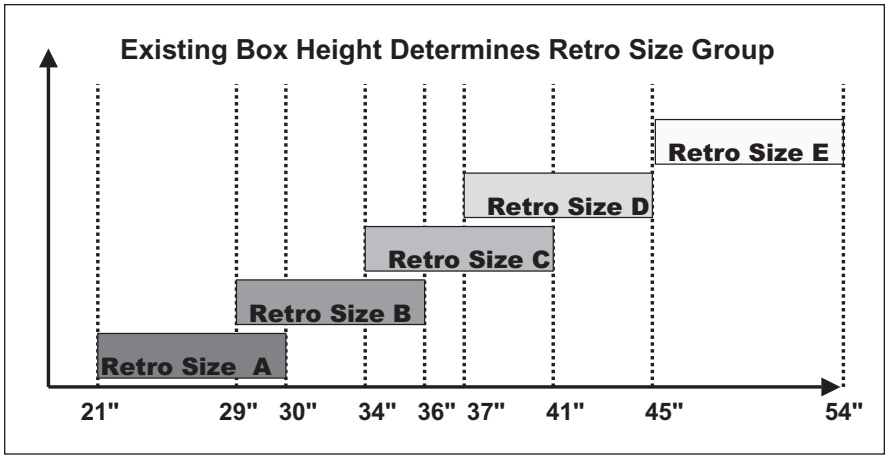


Figure 3-1. Retro Size Groups

Product Selection

Table 3-34. Type CH Interior — Dimensions in Inches (mm)

Main Breaker Rating		Existing Box Height		Wire Size	Number of Circuits	Part Number	Retro Size Group	Retro Cover Size ①	
Amperes	AIC	Minimum	Maximum					Height	Width
Single-Phase with Main Breaker									
60 – 125	10K	21.00 (533.4)	30.00 (762.0)	#2 – 1/0	22	**RACH22BXXX** ②	A	33.00 (838.2)	24.00 (609.6)
60 – 125	10K	29.00 (736.6)	36.00 (914.4)	#2 – 1/0	30	**RBCH30BXXX** ②	B	40.00 (1016.0)	24.00 (609.6)
100 – 200	25K	29.00 (736.6) 30.50 (774.7)	30.00 (762.0) 36.00 (914.4)	#2 – 250 kcmil #2 – 300 kcmil	24	**RBCH24BXXX** ②			
100 – 225	25K	34.00 (863.6)	41.00 (1041.4)	#2 – 300 kcmil	32	**RCCH32BXXX** ②	C	43.00 (1092.2)	24.00 (609.6)
100 – 225	25K 100K	37.00 (939.8)	45.00 (1143.0)	#2 – 300 kcmil #4 – 300 kcmil	42	**RDCH42BXXX** ② **RDCH42HXXX** ②	D	47.00 (1193.8)	24.00 (609.6)
Three-Phase with Main Breaker									
60 – 125	10K	21.00 (533.4)	30.00 (762.0)	#2 – 1/0	18	**RACH18B3XXX** ②	A	33.00 (838.2)	24.00 (609.6)
100 – 225	10K	37.00 (939.8)	45.00 (1143.0)	#2/0 – 300 kcmil	42	**RDCH42B3XXX** ②	D	47.00 (1193.8)	24.00 (609.6)
	100K	37.00 (939.8) 39.00 (990.6)	38.50 (977.9) 45.00 (1143.0)	#2/0 – 250 kcmil #2/0 – 300 kcmil		**RDCH42H3XXX** ②			

① Specific cover sizes are available. Be sure to specify the custom cover option and provide exact dimensions required.
② XXX is for Main Breaker specific ampere rating.

Table 3-35. Type CH Interior — Dimensions in Inches (mm)

Maximum Bus Ampere Rating	Existing Box Height		Wire Size	Number of Circuits	Part Number	Retro Size Group	Retro Cover Size ③	
	Minimum	Maximum					Height	Width
Single-Phase Main Lug Only								
125	21.00 (533.4)	30.00 (762.0)	#4 – 2/0	24	**RACH24L125**	A	33.00 (838.2)	24.00 (609.6)
125	25.00 (635.0) 26.50 (673.1)	30.00 (762.0) 30.00 (762.0)	#4 – 1	42	**RBCH42L125**	B	40.00 (1016.0)	24.00 (609.6)
225	29.00 (736.6)	36.00 (914.4)	#4 – 1/0	32	**RBCH32L225**			
225	28.50 (723.9)	36.00 (914.4)	#1 – 300 kcmil	42	**RBCH42L225**			
225	34.00 (863.6)	41.00 (1041.4)	#4 – 4/0	42	**RCCH42L225**	C	43.00 (1092.2)	24.00 (609.6)
225	37.00 (939.8)	45.00 (1143.0)	#1 – 300 kcmil	42	**RDCH42L225**	D	47.00 (1193.8)	24.00 (609.6)
Single-Phase with Sub-Feed Lugs								
225	29.00 (736.6)	31.00 (787.4)	#1 – 300 kcmil	24	**RBCH24D225**	B	40.00 (1016.0)	24.00 (609.6)
225	31.00 (787.4) 34.00 (863.6)	33.50 (850.9) 36.00 (914.4)	#1 – 300 kcmil #1 – 300 kcmil	30	**RBCH30D225**			
225	34.00 (863.6)	41.00 (1041.4)	#4 – 4/0	32	**RCCH32D225**	C	43.00 (1092.2)	24.00 (609.6)
225	37.00 (939.8)	45.00 (1143.0)	#1 – 300 kcmil	42	**RDCH42D225**	D	47.00 (1193.8)	24.00 (609.6)
Three-Phase Main Lug Only								
125	21.00 (533.4)	30.00 (762.0)	#6 – 2/0	24	**RACH24L3125**	A	33.00 (838.2)	24.00 (609.6)
125	22.00 (558.8)	30.00 (762.0)	#4 – #1	30	**RACH30L3125**			
150	22.50 (571.5)	30.00 (762.0)	#4 – 1/0	30	**RACH30L3225**			
225	24.50 (622.3)	30.00 (762.0)	#4 – 4/0					
225	29.00 (736.6)	36.00 (914.4)	#4 – 300 kcmil	30	**RBCH30L3225**	B		
125	25.00 (635.0)	28.00 (711.2)	#4 – #1	42	**RBCH42L3125**			
225	28.50 (723.9)	36.00 (914.4)	#4 – 4/0	42	**RBCH42L3225**			
225	34.00 (863.6)	41.00 (1041.4)	#4 – 300 kcmil	42	**RCCH42L3225**	C		
225	37.00 (939.8)	45.00 (1143.0)	#4 – 300 kcmil	42	**RDCH42L3225**	D		
Three-Phase with Sub-Feed Lugs								
225	29.00 (736.6)	36.00 (914.4)	#6 – 300 kcmil	24	**RBCH24D3225**	B	40.00 (1016.0)	24.00 (609.6)
	31.00 (787.4) 34.00 (863.6)	33.50 (850.9) 36.00 (914.4)	#6 – 250 kcmil #6 – 300 kcmil	30	**RBCH30D3225**			
225	34.00 (863.6)	41.00 (1041.4)	#6 – 300 kcmil	30	**RCCH30D3225**	C	43.00 (1092.2)	24.00 (609.6)
225	37.00 (939.8)	45.00 (1143.0)	#6 – 300 kcmil	42	**RDCH42D3225**	D	47.00 (1193.8)	24.00 (609.6)

③ Specific cover sizes are available. Be sure to specify the custom cover option and provide exact dimensions required.

Loadcenter Options and Accessories

CHSF2125

CHFP

CHRLS

CHSF3125

BINA

TDL

Table 3-36. Field Installation and Parts

Number of Poles	Ampere Rating	Number of 3/4-Inch (19.1 mm) Spaces Needed	Ordering Quantity ①	Catalog Number	Price U.S. $
Sub-Feed Lug Blocks					
2 3	125 125	2 3	1	**CHSF2125** **CHSF3125**	
Neutral/Ground Lug Add-on Neutral or Ground Lug			1	**NL20** **NL30** **NL300**	
Filler Plates 3/4-inch (19.1 mm) Space Circuit Breaker Space			25	**CHFP**	
CSR Main Circuit Breaker Filler Plate (with Hardware)			1	**CSRFP**	
Door Lock — 12 - 42 Circuits, and 100 – 225 Amperes			1	**TDL**	
Sandlewood Spray Paint			1	**SPCSW**	
ANSI-61 Light Gray Touchup Paint for Outdoor Loadcenters			1	**SPC61**	
Isolated Neutral Assembly (Computer Circuits)			1	**BINA**	
Circuit Directory — Adhesive Backed			10	**TCD**	
Cover Screws			25	**LCCS**	
Cover Replacement Latch 14-5/16 inch (363.55 mm) Wide Loadcenters Only			1	**CHRLS**	
Circuit Marking Strip (Next to Breakers)			10	**CHMS**	
Circuit Identification Label (Preprinted Breaker Labels Next to Breakers)			25	**CHBL**	
Series Rated Caution Label			25	**SRL**	
Branch Circuit Numbering Strip			20	**CHNS**	
Bonding Strap with Screw			1	**BSSUSE**	

① Must be purchased in multiples of ordering quantities indicated.

Discount Symbol **22CD**

3

Table 3-37. Field Installation Rainproof Conduit Hubs

Description	Conduit Size		Ordering Quantity ①	Catalog Number	Price U.S. $
	Inches	mm			
Group 1 — For use with 70, 100 and 125 ampere MLO and MCB Loadcenters and Circuit Breaker Enclosures and the following 150 and 200 ampere panels: CH8B150RF CH8B200RF	.75 1.00 1.25 1.50 2.00	19.1 25.4 31.8 38.1 50.8	1 1 1 1 1	**DS075H1** **DS100H1** **DS125H1** **DS150H1** **DS200H1**	
Group 2 — For use with 150, 200 and 225 ampere MLO and MCB Loadcenters and Circuit Breaker Enclosure except for the following 150 and 200 ampere panels: CH8B150RF, CH8B200RF	2.00 2.50 3.00	50.8 63.5 76.2	1 1 1	**DS200H2** **DS250H2** **DS300H2**	
Adapter Kit — Allows Installing a Group 1 Hub on Devices Arranged for Group 2 Hubs	—	—	1	**DS900AP**	
Group 1 — Small Blank Hub Closure Plate	—	—	1	**DS900CP1**	
Group 2 — Large Blank Hub Closure Plate	—	—	1	**DS900CP2**	

① Must be purchased in multiples of ordering quantities indicated.

DS100H1

Table 3-38. Ground Bar Kits

Description (See Legend)	Length		Ordering Quantity ②	Catalog Number	Price U.S. $
	Inches	mm			
	2.54	64.5	1	**GBK5** ②	
	3.59	91.2	1	**GBK520** ②	
	4.29	109.0	1	**GBK10** ②	
	5.34	135.6	1	**GBK1020** ②	
	4.61	117.1	1	**GBK13** ②	
	5.69	144.5	1	**GBK14** ②	
	6.74	171.2	1	**GBK1420** ②	
	8.14	206.8	1	**GBK21** ②	
	9.19	233.4	1	**GBK2120** ②	
	7.94	201.7	1	**CH9GP21** ③④	

② Distance between mounting holes is 1-3/4 inches (44.5 mm).
③ For single- and 3-phase 400 ampere loadcenters.
④ Distance between mounting holes is 2-13/32 inches.

GBK14

Ground Bar Legend

- ○ = (3) #14 – #10 Cu/Al or (1) #14 – #4 Cu/Al
- ■ = (1) #6 – 2/0 Cu/Al
- ⬓ = (1) 1/0 – 14 or (3) #10 – 12 Cu/Al
- ◒ = (1) #14 – 1/0 Cu/Al or (3) #14 – #10 Cu/Al
- ● = Mounting Hole

Table 3-39. Grounded "B" Phase Adapters

Maximum Amperes	3-Phase Loadcenter Types of Panels	Kit Catalog Number ⑤	Price U.S. $
125	12 – 32 Circuit Main Lug	**CHGRD1**	
225	Main Lug and CHH Main Breaker Panels CC Main CB Panels	**CHGRD2** **CHGRD3**	

⑤ Cannot be used in Safety Breaker Panels. Classic Plus Panels only.

Table 3-40. Neutral Bar Accessories

Description	Catalog Number ⑥	Price U.S. $
Split Neutral Kit for 22 Circuit 125 A Maximum Split Neutral Kit for 32 Circuit 200 A Maximum Split Neutral Kit for 42 Circuit 200 A Maximum	**CHSN125C** **CHSN225J** **CHSN225K**	
Replacement Neutral for all C Type Boxes Replacement Neutral for all D Type Boxes Replacement Neutral for all L Type Boxes	**CHN125C** **CHN125D** **CHN225L**	
Isolated Neutral Assembly (Computer Circuits)	**BINA**	

⑥ Cannot be used in Safety Breaker Panels. Classic Plus Panels only.

Discount Symbol **22CD**

Mechanical Interlock Covers

Covers mechanically interlock two breakers. Type A covers interlock two CH breakers mounted across from one another. Type B covers interlock a main Type CSR Breaker with a Type CH.

CH8BRM Type A

CH8EFM Type B

Table 3-41. Mechanically Interlocks

Type	Fits Loadcenter Catalog Numbers	Mechanical Interlock Panel Cover			
		Catalog Number Flush	Price U.S. $	Catalog Number Surface	Price U.S. $
A	CH12L125B, CH16L125B, CH12L3125B, CH14B100B CH20L125C, CH24L125C, CH18L3125C, CH24L3125C, CH22B100C, CH22N100C CH24L150D, CH32L150D, CH24L3225D, CH30L3150D CH42L225G, CH42L3225G	**CH8BFM** **CH8CFM** **CH8DFM** **CH8GFM**		**CH8BSM** **CH8CSM** **CH8DSM** **CH8GSM**	
	Inner Cover of Box B Raintight Inner Cover of Box C Raintight	— —		**CH8BRM** **CH8CRM**	
B	CH24B150E, CH24B200E CH32B150J, CH32B200J, CH3242B200J, CH32N200J, CH32B225J CH42B200K, CH42N200K, CH42B225K	**CH8EFM** **CH8JFM** **CH8KFM**		**CH8ESM** **CH8JSM** **CH8KSM**	
	CHPC32B150L, CHPC32B200L, CHPC32N200L CHPC42B150L, CHPC42B200L, CHPC42N200L	**CHPC8B32LFM** **CHPC8B42LFM**		— —	
	CH8B150RF, CH8B200RF, CH8N200RF, CH24B150R, CH24B200R CH32B150R, CH32B200R, CH32N200R, CH32B225R CH42B200R, CH42N200R, CH42B225R	**CH3RDF7M** **CH3RDF9M** **CH3RDF10M**		— — —	

Note: For interlock covers for loadcenters not listed in chart, please contact the Flex Center at 1-800-330-6479.

Decorator Cover Accessory

- For easy use with CH Loadcenters mounted in living space.
- Easily wallpapered or painted to match any decor.
- Patented Loadcenter accessory — exclusively from Eaton.

Table 3-42. Decorator Cover Accessory

Catalog Number	
Corresponding Cover	**Existing CH Loadcenter Cover**
CH8BF	**CH8KDNB**
CH8CF	**CH8KDNC**
CH8DF/EF	**CH8KDND**
CH8GF/JF	**CH8KDNJ**
CH8KF	**CH8KDNK**

Now you see it . . .

. . .Now you don't.

Discount Symbol **22CD**

3

CH Loadcenter Goof Collars

Don't let an ugly drywall problem ruin a beautiful electrical installation.

The Cutler-Hammer Goof Collar is designed to cover gaps between the finished drywall and loadcenter enclosure. This is often necessary when upgrading the electrical service and the drywall surrounding the panel is damaged. The collar allows 2 inches of overhang beyond the standard flush trim.

Currently available in three sizes for the CH style Loadcenters.

Before

After

Product Selection

Table 3-43. Goof Collars

Dimensions in Inches (mm)		Catalog Number		Price U.S. $
Height	Width	Loadcenter Cover	Goof Collar	
26.00 (660.4)	19.00 (482.6)	**CH8CF**	**CH8CFC1926**	
39.00 (990.6)	19.00 (482.6)	**CH8JF**	**CH8JFC1939**	
42.00 (1066.8)	19.00 (482.6)	**CH8KF**	**CH8KFC1942**	

Goof Collars are also available for the BR style loadcenters upon request. Please contact the **Lincoln Flex Center at 1-800-330-6479** for questions and product opportunities.

Discount Symbol **22CD**

Circuit Analyzer

Circuit Analyzer

Product Description

Eaton's Cutler-Hammer Circuit Analyzer provides accurate testing of AFCI and GFCI devices while also testing for faulty wiring conditions.

There are other testing devices on the market but this will be the only one available from an AFCI manufacturer. Eaton has more than 100 years of electrical control and power distribution experience, and a thorough understanding of what arc faults are all about. This experience with AFCI breakers led to developing a patented feature of the analyzer that will save contractors time and aggravation. It allows contractors to verify whether they have a grounded neutral simply by depressing the red Neutral Isolation test button. In this way, they will be able to determine whether they have a grounded neutral or have other neutrals connected before they leave the job site. Additionally, the Circuit Analyzer has a button that tests AFCI and two that test GFCI devices (both 40 mA and 8 mA).

Application Description

The Circuit Analyzer serves as a handy troubleshooting tool for contractors and electrical inspectors. It's a circuit analyzer that provides accurate testing of AFCI and GFCI devices while also testing for faulty wiring conditions.

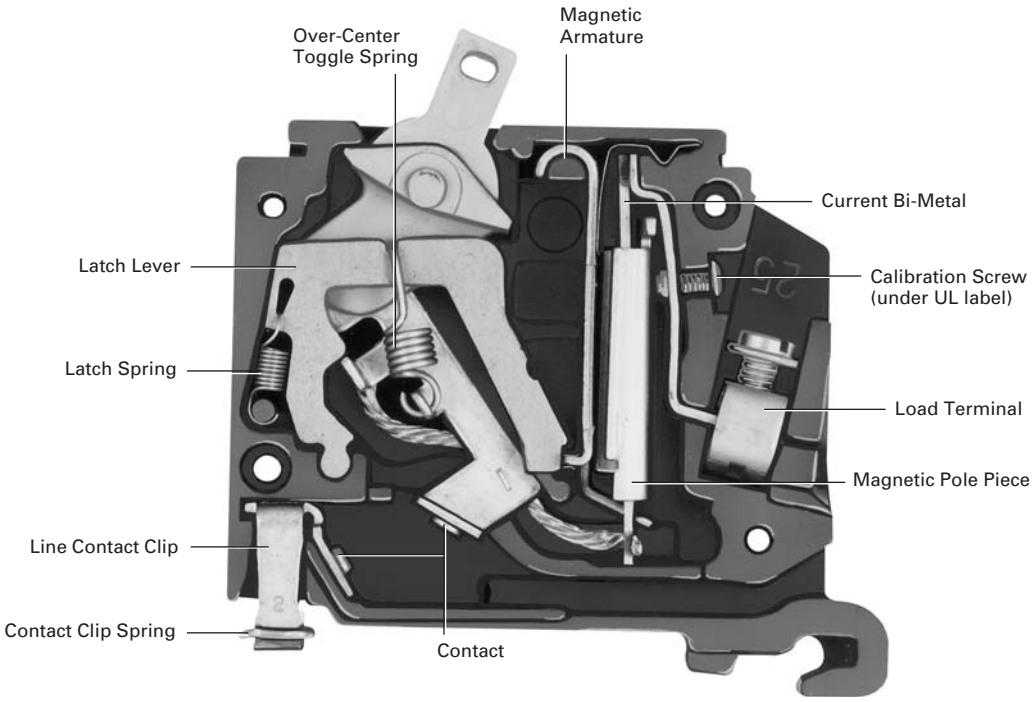
Features, Functions and Benefits

- All-in-one tester for ground fault, arc fault and faulty wiring conditions.
- Neutral Isolation Test Button is a patented feature that allows the contractor to determine whether they have a grounded neutral or have other neutrals connected before leaving the job.
- Additional test button for AFCI and two that test GFCI devices (40 mA and 8 mA).
- Only product available from an AFCI manufacturer.
- Three standard accessories enhance the usefulness of the Circuit Analyzer:
  - An alligator clip attachment to test hardwired circuits, such as smoke detectors, that lack a receptacle. The clip simply is attached to the smoke alarm's terminals
  - An adapter (3-prong to 2-prong) for testing in older homes that lack 3-prong receptacles
  - Light socket adapter for AFCI testing when no receptacle is available. Examples are ceiling fans that contain sockets and recessed lighting
  - Additionally, the Circuit Analyzer comes with a black carrying case

Technical Data and Specifications

How it Works

1. Plug the tester (or one of the accessories) into the receptacle, light fixture or hardwired terminals to be tested.
2. Check the wiring LEDs on the Circuit Analyzer to determine if the circuit is wired correctly.
3. If the circuit is wired correctly, then proceed to test for Neutral Isolation, Arc Fault or Ground Fault conditions, depending on the breaker or receptacle type that is on the circuit.
4. To perform these tests, press the corresponding button on the Circuit Analyzer and review the results.



Plug-on Type CH Breaker

Extended Residential Warranty Highlights

Note: See Cutler-Hammer Publication Number SA-365 for complete details.

- Lifetime feeder breaker warranty.
- Lifetime loadcenter warranty.

Product Selection

Plug-on Circuit Breakers, Type CH 10,000 Amperes Interrupting Capacity 120 Vac, 120/240 Vac and 240 Vac

Plug-on Circuit Breakers

Table 3-44. Type CH Breakers, 3/4-Inch (19.1 mm) per Pole 120, 120/240 or 240 Vac, 10,000 AIC

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	Catalog Number		
		1-Pole 120/240 Vac Requires One 3/4-Inch (19.1 mm) Space 	2-Pole 120/240 Vac Common Trip Requires Two 3/4-Inch (19.1 mm) Spaces 	3-Pole 240 Vac Common Trip Requires Three 3/4-Inch (19.1 mm) Spaces 
		10 per Shelf Carton	5 per Shelf Carton	5 per Shelf Carton
		10 kAIC	10 kAIC	10 kAIC
10	(1) #14 – 8 ①	**CH110**	**CH210**	**CH310**
15	(2) #14 – 10 ①②	**CH115** ⑦⑧	**CH215** ⑧	**CH315** ⑧
20	(1) #14 – 6 ③	**CH120** ⑦⑧	**CH220** ⑧	**CH320** ⑧
25		**CH125** ⑧	**CH225** ⑧	**CH325** ⑧
30		**CH130** ⑧	**CH230** ⑧	**CH330** ⑧
35	#14 – 2 ① #14 – 6 ③	**CH135** ⑧	**CH235** ⑧	**CH335** ⑧
40	#10 – 1/0 ④	**CH140** ⑧	**CH240** ⑧	**CH340** ⑧
45	#14 – 2 ⑤	**CH145** ⑧	**CH245** ⑧	**CH345** ⑧
50	#3/0 ⑥	**CH150** ⑧	**CH250** ⑧	**CH350** ⑧
60		**CH160** ⑧	**CH260** ⑧	**CH360** ⑧
70		**CH170**	**CH270**	**CH370**
80		—	**CH280**	**CH3080**
90		—	**CH290**	**CH3090**
100		—	**CH2100**	**CH3100**
110		—	**CH2110**	—
125		—	**CH2125**	—
150		—	**CH2150** ⑨	—

① For 1- and 2-pole breakers.
② Solid and stranded wire can be used together.
③ For 3-pole breakers.
④ 1-pole 60 – 70 amperes, 2-pole 80 – 125 amperes, 3-pole 40 – 100 amperes.
⑤ 1-pole 40 – 50 amperes, 2-pole 40 – 70 amperes.
⑥ 2-pole 150 amperes.
⑦ Switching duty rated.
⑧ HACR rated.
⑨ CH2150 requires 4-pole spaces and is not suitable for use on 3-phase panels, not CSA® certified.

Note: For factory installed options and pricing, refer to **Page 3-36.**

3

Plug-on Arc Fault Circuit Breakers, Type CH 10,000 Amperes Interrupting Capacity 120 Vac and 120/240 Vac

Type CH 1-Pole AFCI Circuit Breaker

An arc fault circuit interrupter is a device intended to provide protection from the effects of arc faults by recognizing characteristics unique to arcing and by functioning to de-energize the circuit when the arc fault is detected. As of January 1, 2002, the National Electrical Code (NEC) now requires that all branch circuits that supply 125 volt, single-phase, 15 and 20 ampere receptacle outlets installed in dwelling unit bedrooms shall be protected by an Arc Fault Circuit Interrupter(s).

Product Selection

Table 3-45. Type CH 3/4-Inch (19.1 mm) wide FIRE-GUARD™ AFCI Circuit Breakers

Poles	Ampere Rating	Configuration	Catalog Number
Single-Pole 10 kAIC	15	AFCI AFCI with GFCI AFCI in Clamshell Package	**CH115AF** **CH115AFGF** **CH115AFCS**
	20	AFCI AFCI with GFCI AFCI in Clamshell Package	**CH120AF** **CH120AFGF** **CH120AFCS**
Double-Pole 10 kAIC ①②	15	AFCI Common Trip AFCI Independent Trip AFCI Common Trip with GFCI	**CH215AF** **CH215AFIT** **CH215AFGF**
	20	AFCI Common Trip AFCI Independent Trip AFCI Common Trip with GFCI	**CH220AF** **CH220AFIT** **CH220AFGF**

① Common trip refers to 2-pole 240 volt load application sourced by 120/240 Vac (see **Figure 3-4**).
② Independent trip refers to 2-pole multi-wire, home run or shared neutral circuits (see **Figure 3-3** and **Figure 3-5**).

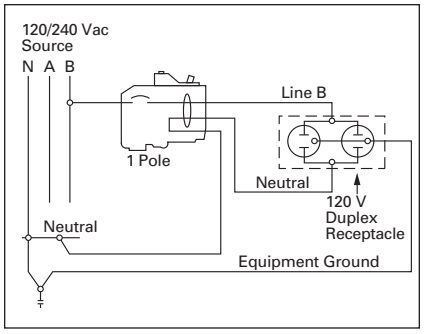


Figure 3-2. 1-Pole Single 120 Volt Load Application Sourced by 120/240 Vac

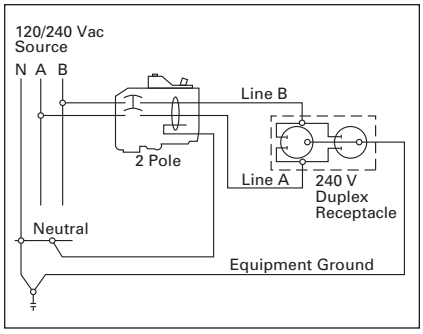


Figure 3-4. 2-Pole 240 Volt Load Application Sourced by 120/240 Vac

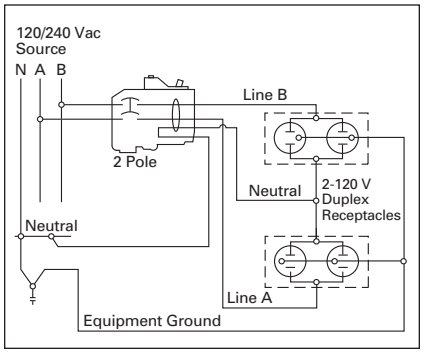


Figure 3-3. 1-Pole Shared Neutral with Multi-Duplex Receptacle Application

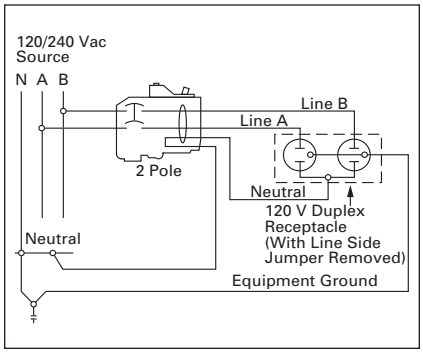


Figure 3-5. 2-Pole Shared Neutral with Duplex Receptacle Application

Plug-on Ground Fault Circuit Breakers, Type CH 10,000 Amperes Interrupting Capacity 120 Vac and 120/240 Vac

Type CH 1-Pole

Type CH 2-Pole

Ground Fault Application Notes

Single-pole Type CHGFIs are designed for use in 2-wire, 120 Vac circuits. **Figure 3-6** shows a typical wiring configuration.

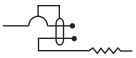
Two-pole Type CHGFIs are designed for use in 3-wire, 120/240 Vac circuits, 120 Vac multiwire circuits employing common, neutral and 2-wire, 240 Vac circuits obtained from a 120/240 Vac source.

Figure 3-7 and **Figure 3-8** illustrate typical wiring configurations for 120/240 Vac multiwire circuits.

Figure 3-9 depicts a 240 Vac, 2-wire circuit. Note the "panel neutral" conductor connects to the neutral bar, even though the neutral is not included in the load circuit. This connection is necessary to supply a 120 Vac power source to the ground fault sensing circuit.

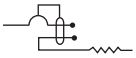
The figures are shown with a 120/240 Vac, single-phase, 3-wire power source, but are also applicable to a 120/208 Vac, 3-phase, 4-wire power supply. For all figures, the electrical operation of the Type CHGFI is not affected by the equipment ground.

Table 3-46. Type CH Ground Fault Circuit Breakers (5 Milliampere) 3/4-Inch (19.1 mm) per Pole 120 Vac or 120/240 Vac,10,000 AIC

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	Catalog Number — 10,000 AIC (1 per Shelf Carton)	
		1-Pole 120 Vac  Requires One 3/4-Inch (19.1 mm) Space	2-Pole 120/240 Vac Common Trip  Requires Two 3/4-Inch (19.1 mm) Spaces
15	#14 – 6 ①	CH115GF	CH215GF
20		CH120GF	CH220GF
25		CH125GF	CH225GF
30		CH130GF	CH230GF
35		—	CH235GF
40		—	CH240GF
45		—	CH245GF
50		—	CH250GF
60		—	CH260GF

① 60 ampere breaker listed for 75°C Cu wire only.

Table 3-47. Type CH Ground Fault Equipment Protectors (30 Milliampere) 3/4-Inch (19.1 mm) per Pole 120 Vac or 120/240 Vac, 10,000 AIC

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	Catalog Number — 10,000 AIC (1 per Shelf Carton)	
		1-Pole 120 Vac  Requires One 3/4-Inch (19.1 mm) Space	2-Pole 120/240 Vac Common Trip  Requires Two 3/4-Inch (19.1 mm) Spaces
15	#14 – 6 ②	CH115EPD	CH215EPD
20		CH120EPD	CH220EPD
25		CH125EPD	—
30		CH130EPD	CH230EPD
40		—	CH240EPD
50		—	CH250EPD
60		—	CH260EPD

② 60 ampere breaker listed for 75°C Cu wire only.

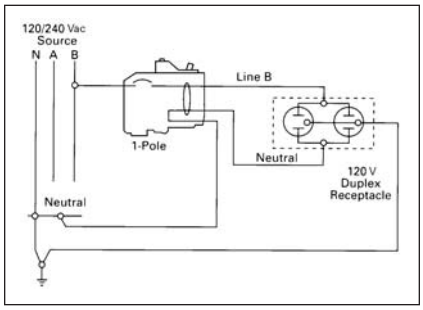


Figure 3-6. 1-Pole 120 Volt Duplex Receptacle Application

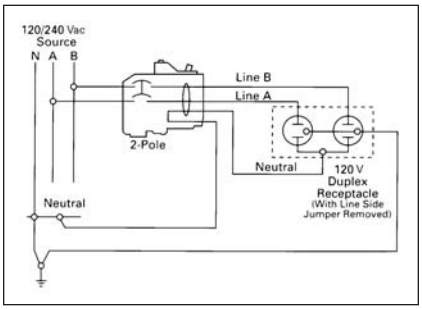


Figure 3-8. 2-Pole 120 Volt Duplex Receptacle Application

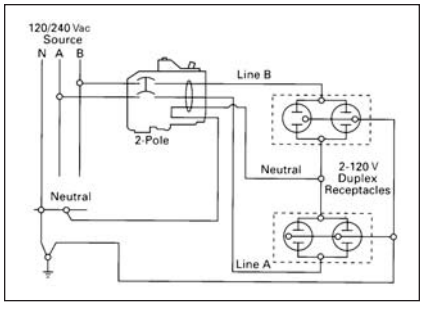


Figure 3-7. 2-Pole 120 Volt Multi-Duplex Receptacle Application

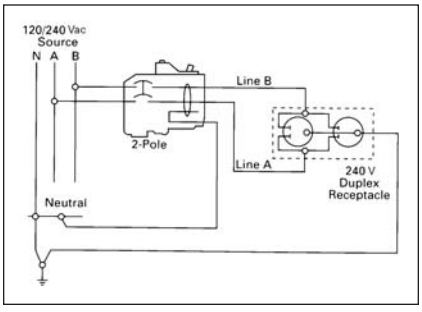


Figure 3-9. 2-Pole 240 Volt Duplex Receptacle Application

CH Switching Neutral Breakers — 10,000 Amperes Interrupting Capacity — 120 Vac and 120/240 Vac

Table 3-48. Type CH Switching Neutral Breakers, 3/4-Inch (19.1 mm) per Pole 120/240 or 240 Vac, 10,000 AIC

Used to open the neutral along power line(s) for applications of gas pumps.

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	Catalog Number — 10,000 AIC (1 per Shelf Carton)	
		2-Pole 120 Vac Common Trip Requires Two 3/4-Inch (19.1 mm) Spaces (Hot leg, Neutral Out, Neutral In)	3-Pole 120/240 Vac Common Trip Requires Three 3/4-Inch (19.1 mm) Spaces (Phase, Phase, Neutral Out, Neutral In)
15 20 30 40 50	#14 – 8	CH215SW ① CH220SW ① CH230SW ① CH240SW ① CH250SW ①	CH315SW ② CH320SW ② CH330SW ② CH340SW ② CH350SW ②

CH220SW

① For circuit breakers with shunt trip, add ST suffix. Shunt trip requires one additional pole space. Obtain pricing from **Page 3-36**.
② Switching duty rated.

CH-HID Circuit Breakers — 10,000 Amperes Interrupting Capacity — 120 Vac, 120/240 and 240 Vac

Table 3-49. Type CH-HID Circuit Breakers, 3/4-Inch (19.1 mm) per Pole 120 Vac, 120/240 and 240 Vac, 10,000 AIC

Suitable for use in circuits for fluorescent and High Intensity Discharge lighting. Also suitable for HACR applications.

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°	1-Pole 120/240 Vac Requires One 3/4-Inch (19.1 mm) Space		2-Pole 240 Vac Common Trip Requires Two 3/4-Inch (19.1 mm) Spaces		3-Pole 240 Vac Common Trip Requires Three 3/4-Inch (19.1 mm) Spaces	
		10 per Shelf Carton		5 per Shelf Carton		5 per Shelf Carton	
		10,000 AIC		10,000 AIC		10,000 AIC	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
15 20 30	#14 – 8	CH115HID CH120HID CH130HID		CH215HID ③ CH220HID CH230HID		CH315HID CH320HID CH330HID	

③ CH215HID is rated for 120/240 volts.

Non-CTL Plug-on Replacement Circuit Breakers, Type CHNT 10,000 Amperes Interrupting Capacity 120/240 Vac

Table 3-50. Type CHNT 3/4-Inch (19.1 mm) per Pole 120 Vac, Non-CTL 10,000 AIC

For use as replacement in loadcenters built prior to 1968 and within the current style 2 – 8 circuit loadcenters as indicated in the loadcenter section.

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	1-Pole (120/240 Vac, 120/240 Vac) Requires One 3/4-Inch (19.1 mm) Space	
		10 per Shelf Carton	
		10,000 AIC	
		Catalog Number	Price U.S. $
15 – 15 15 – 20 20 – 20	#14 – 8	CHNT1515 ④⑤ CHNT1520 ④⑤ CHNT2020 ④⑤	

④ Switching duty rated.
⑤ HACR rated.

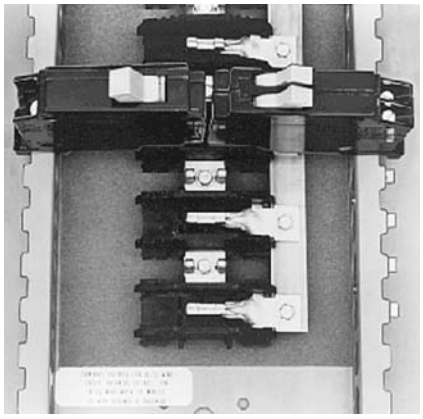
CTL Plug-on Circuit Breakers, Type CHT Twin 10,000 Amperes Interrupting Capacity 120/240 Vac

Table 3-51. Type CHT Twin (CTL) 3/4-Inch (19.1 mm) per Pole 120 Vac Class CTL 10,000 AIC

All circuit breakers have rejection feature. Use only with loadcenters marked for use with CHT breakers. See photo to the right.

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	1-Pole (120/240 Vac, 120/240 Vac) Requires One 3/4-Inch (19.1 mm) Space
		10 per Shelf Carton
		10,000 AIC
		Catalog Number
15 – 15 15 – 20 20 – 20	#14 – 8	CHT1515 ⑥⑦ CHT1520 ⑥⑦ CHT2020 ⑥⑦

⑥ Switching duty rated.
⑦ HACR rated.



Type CH and CHT Circuit Breakers Mounted in Twin Breaker Panel

Discount Symbol **22CD**

CHP Commercial Breakers — 10,000 Amperes Interrupting Capacity 120 Vac, 120/240 Vac and 240 Vac

Note: CHP Breakers feature on-off and trip positions for commercial applications.

Table 3-52. Type CHP Breakers, 3/4-Inch (19.1 mm) per Pole 120, 120/240 or 240 Vac, 10,000 AIC

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	1-Pole 120/240 Vac Requires One 3/4-Inch (19.1 mm) Space		2-Pole 120/240 Vac Common Trip Requires Two 3/4-Inch (19.1 mm) Spaces		3-Pole 240 Vac Common Trip Requires Three 3/4-Inch (19.1 mm) Spaces	
		10 per Shelf Carton		5 per Shelf Carton		5 per Shelf Carton	
		10,000 AIC		10,000 AIC		10,000 AIC	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
10 15 20 25 30	(1) #14 – 8 ① (2) #14 – 10 ①② (1) #14 – 6 ③	**CHP110** **CHP115** ⑥⑦ **CHP120** ⑥⑦ **CHP125** ⑦ **CHP130** ⑦		**CHP210** **CHP215** ⑦ **CHP220** ⑦ **CHP225** ⑦ **CHP230** ⑦		**CHP310** **CHP315** ⑦ **CHP320** ⑦ **CHP325** ⑦ **CHP330** ⑦	
35	#14 – 2 ① #14 – 6 ③	**CHP135** ⑦		**CHP235** ⑦		**CHP335** ⑦	
40 45 50 60 70 80 90 100 110 125	#10 – 1/0 ④ #14 – 2 ⑤	**CHP140** ⑦ **CHP145** ⑦ **CHP150** ⑦ **CHP160** ⑦ **CHP170** — — — — —		**CHP240** ⑦ **CHP245** ⑦ **CHP250** ⑦ **CHP260** ⑦ **CHP270** **CHP280** **CHP290** **CHP2100** **CHP2110** **CHP2125**		**CHP340** ⑦ **CHP345** ⑦ **CHP350** ⑦ **CHP360** ⑦ **CHP370** — — **CHP3100** — —	

① For 1- and 2-pole breakers.
② Solid and stranded wire can be used together.
③ For 3-pole breakers.
④ 1-pole 60 – 70 amperes, 2-pole 80 – 125 amperes, 3-pole 40 – 100 amperes.
⑤ 1-pole 40 – 50 amperes, 2-pole 40 – 70 amperes.
⑥ Switching duty rated.
⑦ HACR rated.

Note: CHP Breakers offer on-off and trip positions for commercial applications.

CHP-GFCI Circuit Breakers — 10,000 Amperes Interrupting Capacity 120 Vac and 120/240 Vac

Note: CHP Breakers offer on-off and trip positions for commercial applications.

Table 3-53. Type CHP-GFCI Breakers — 5 Milliampere — 3/4-Inch (19.1 mm) per Pole 120 V and 120/240 Vac, 10,000 AIC

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	1-Pole 120 Vac Requires One 3/4-Inch (19.1 mm) Space	
		1 per Individual Carton	
		10,000 AIC	
		Catalog Number	Price U.S. $
15 20 30	#14 – 6 #14 – 6 #14 – 6	**CHP115GF** **CHP120GF** **CHP130GF**	

Note: CHP Breakers offer on-off and trip positions for commercial applications.

Ground Fault Application Notes

Single-pole Type CHPGFI breakers are designed for use in 2-wire, 120 Vac circuits. **Figure 3-10** shows a typical wiring configuration.

The figure is shown with a 120/240 Vac, single-phase, 3-wire power source, but a 120/208 Vac, 3-phase, 4-wire power supply is also applicable. Electrical operation of the Type CHPGFI is not affected by the equipment ground.

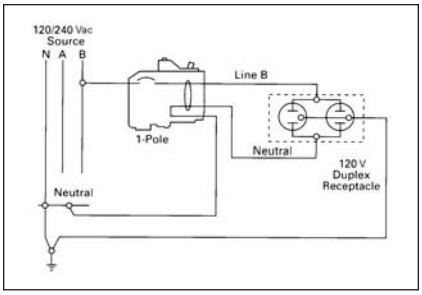


Figure 3-10. Typical 1-Pole Wiring Diagram

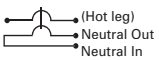
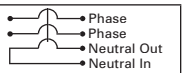
Discount Symbol **22CD**

CHP Neutral Switching Breakers — 10,000 Amperes Interrupting Capacity 120 Vac and 120/240 Vac

Table 3-54. Type CHP Neutral Switching Breakers, 3/4-Inch (19.1 mm) per Pole 120 or 120/240 Vac, 10,000 AIC

3

Used to open the neutral along power line(s) for applications of gas pumps.

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	2-Pole 120 Vac Common Trip Requires Two 3/4-Inch (19.1 mm) Spaces 		3-Pole 120/240 Vac Common Trip Requires Three 3/4-Inch (19.1 mm) Spaces 	
		1 per Shelf Carton		1 per Shelf Carton	
		10,000 AIC		10,000 AIC	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
15 20	#14 – 8	CHP215SW ① CHP220SW ①		CHP315SW ①② CHP320SW ①②	

① For circuit breakers with shunt trip, add ST suffix. Shunt trip requires one additional pole space, obtain pricing from **Page 3-36**.

② Contact your local Eaton sales office for pricing.

CH-M50 High Ambient Breaker

Table 3-55. Type CH-M50 High Ambient Breakers 3/4-Inch (19.1 mm) per Pole 120 or 120/240 Vac, 10,000 AIC

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	1-Pole 120/240 Vac Requires One 3/4-Inch (19.1 mm) Space		2-Pole 120/240 Vac  Common Trip Requires Two 3/4-Inch (19.1 mm) Spaces	
		10 per Shelf Carton		5 per Shelf Carton	
		10,000 AIC		10,000 AIC	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
15 20 25 30 35 40 45 50 60 70	(1) #14 – 8 (2) #14 – 10	CH115M50 CH120M50 CH125M50 CH130M50 CH135M50 CH140M50 CH145M50 CH150M50 — —		CH215M50 CH220M50 CH225M50 CH230M50 CH235M50 CH240M50 CH245M50 CH250M50 CH260M50 CH270M50	

CH-HM and CHP-HM High Magnetic Breakers

Table 3-56. Type CH-HM and CHP-HM High Magnetic Breakers 3/4-Inch (19.1 mm) per Pole 120 or 120/240 Vac, 10,000 AIC

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	1-Pole 120/240 Vac Requires One 3/4-Inch (19.1 mm) Space		2-Pole 120/240 Vac  Common Trip Requires Two 3/4-Inch (19.1 mm) Spaces	
		10 per Shelf Carton		5 per Shelf Carton	
		10,000 AIC		10,000 AIC	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
15 20	(1) #14 – 8 (2) #14 – 10	CH115HM CH120HM		CH215HM CH220HM	
15 20	(1) #14 – 8 (2) #14 – 10	CHP115HM CHP120HM		CHP215HM CHP220HM	

Circuit Breaker Options and Accessories


CH9MB270


CHLO


MCBPL


CHPL


MCBPL (Installed)


CHHT


CHPLGF


CH125RB


CHML

Table 3-57. Field Installation Kits and Parts

Description	Ordering Quantity ①	Catalog Number	Price U.S. $
Handle Ties ② Handle tie bar for physically joining the handles of two adjacent 1-pole Type CH Circuit Breakers. (Molded Plastic Handle Cover)	25	**CHHT**	
Handle Lockoffs ③④ Padlockable device for locking the handle of 1-, 2- or 3-pole Type CH Circuit Breakers (Escutcheon Mounted) ⑤ Padlockable device for locking the handle of a 1-, 2- or 3-pole Type CHGFI Circuit Breaker. (Escutcheon Mounted) ⑤ Padlockable device for locking the handle of main circuit breaker Types CC and CCH into the ON or OFF position. (Screw Mounted) ⑥ Padlockable device for locking the handle of main breaker Types BW and CSR into the ON or OFF position. (Escutcheon Mounted) ⑤	1 1 1 1	**CHPL** **CHPLGF** **CCPL** **MCBPL**	
Handle Lockdogs ④⑦ Device used to secure handle in ON or OFF position for 1-pole Type CH Circuit Breakers. (Handle Mounted) ⑧	10	**CHLO**	
Hold-Down Kits ⑨ Hold-down retainer kit for 1-, 2-, 3-pole Type CH Circuit Breakers. For 6 – 24 circuit 125 ampere single- and 3-phase, 12 – 42 circuit single-phase 225 ampere and 24 – 42 circuit 3-phase 225 ampere MLO Type CH Loadcenters.	1	**CH125RB**	
Hold-Down Kits ⑨ Hold-down retainer kit for 1-, 2-, 3-pole Type CH Circuit Breakers for 2 – 4 circuit MLO CH Loadcenters. **Mounting Bases** Mounting base for 2-pole Type CH Circuit Breaker — 70 ampere maximum. **Main Breaker Lug Kits** Types CC and CCH Main Breaker Lug Kit (2) 300 kcmil. Type CSR Main Breaker Lug Kit (2) 300 kcmil.	1 1 1 1	**CH125RB24** **CH9MB270** **CCL300** **MCBL300**	
Mechanical Interlock Type CH for 2-, 3- and 4-pole breakers.	10	**CHML**	

① Must be purchased in multiples of ordering quantities indicated.
② Handle Ties: Typically used to join two similar independent single-pole breakers to form a 2-pole noncommon trip breaker.
③ Handle Lockoffs: Devices that use a padlock to lock the circuit breaker's handle in the ON or OFF position.
④ Requires one additional pole space.
⑤ Escutcheon Mounted: Device mounted semipermanently to the face of the circuit breaker and secured by the loadcenter deadfront.
⑥ Screw Mounted: Device permanently mounted to the face of the circuit breaker by the use of a non-removable screw.
⑦ Handle Lockdogs: Devices that are used to secure a circuit breaker's handle in the ON or OFF position. Handle Lockdogs are not padlockable devices.
⑧ Handle Mounted: Device mounted above or below handle using spring pressure.
⑨ Hold-Down Kits: Devices used to secure the circuit breaker to the loadcenter for back-feed main application. See NEC Article 384-16(g).

Discount Symbol **22CD**

3

Table 3-58. Shunt Trip Options

Description		Catalog Number Suffix Adder ①	Price U.S. $ Adder Each
Type	Volts		
CSR	12 dc	**SR12**	
CSR	24 dc	**SR24**	
CSR	120 ac	**SR01**	
CH	120 ac	**ST** ②	
CC	12 dc	**SR12**	
CC	24 dc	**SR24**	
CC	120 ac	**SR01**	
CC	208 ac	**SR08**	
CC	240 ac	**SR02**	

① Add suffix indicated to end of breaker catalog number.
② Requires one additional pole space.

Table 3-59. Handle Position Changeability Chart

Handle Lockoff and Lockdog Types	To Change Handle Position from "On to "Off" or "Off" to "On" You Must...		
	Remove Padlock	Remove Device	Remove Loadcenter Deadfront
Lockoff Escutcheon Mounted	Remove	—	—
Lockoff Screw Mounted	Remove	—	—
Lockdog Handle Mounted	N/A	Remove	—

Discount Symbol **22CD**

Technical Data and Specifications

Residential/Commercial/Unit Enclosure — Box Sizes

Table 3-60. Residential Loadcenters

Box Size	Dimensions in Inches			Dimensions in mm		
	Height	Width	Depth	Height	Width	Depth
NEMA Type 1 Indoor						
5	9.50	4.50	3.13	241.3	114.3	79.4
6	11.38	6.88	3.39	288.9	174.6	86.1
7	13.00	11.00	3.69	330.2	279.4	93.7
B	16.75	14.31	3.88	425.5	363.5	98.4
C	21.00	14.31	3.88	533.4	363.5	98.4
D	29.13	14.31	3.88	739.8	363.5	98.4
E	29.13	14.31	3.88	739.8	363.5	98.4
G	34.13	14.31	3.88	866.8	363.5	98.4
J	34.13	14.31	3.88	866.8	363.5	98.4
K	37.00	14.31	3.88	939.8	363.5	98.4
L	39.00	14.31	3.88	990.6	363.5	98.4
NEMA Type 3R Outdoor						
5R	9.50	4.50	3.13	241.3	114.3	79.4
6R	11.75	6.50	4.50	298.5	165.1	114.3
7R	13.00	11.00	3.69	330.2	279.4	93.7
B	16.75	14.31	5.19	425.5	363.5	131.8
C	21.00	14.31	5.19	533.4	363.5	131.8
D	29.13	14.31	5.19	739.8	363.5	131.8
E	29.13	14.31	5.19	739.8	363.5	131.8
G	34.13	14.31	5.19	866.8	363.5	131.8
J	34.13	14.31	5.19	866.8	363.5	131.8
K	37.00	14.31	5.19	939.8	363.5	131.8
L	39.00	14.31	5.19	990.6	363.5	131.8

Table 3-61. Commercial Loadcenters

Box Size	Dimensions in Inches			Dimensions in mm		
	Height	Width	Depth	Height	Width	Depth
NEMA Type 1 Indoor						
P	54.38	21.00	6.00	1381.1	533.4	152.4
PM	62.63	21.00	6.00	1590.7	533.4	152.4

Table 3-62. Types ECB and ECC Unit Enclosures

Dimensions in Inches			Dimensions in mm		
Height	Width	Depth	Height	Width	Depth
NEMA Type 1 Indoor					
23.25	8.88	4.50	590.6	225.4	114.3
NEMA Type 3R Outdoor					
23.69	9.31	5.44	601.7	236.5	138.1

Note: Box sizes do not include covers/fronts.

Residential Loadcenter Knockout Dimensions in Inches (mm)

Residential NEMA Type 1 Indoor and NEMA Type 3R Outdoor Enclosures.

Table 3-63. Knockouts for Box Sizes 5, 6, 7, 5R, 6R, 7R

Code	Diameter in Inches				Diameter in mm			
A	.50	—	—	—	12.7	—	—	—
B	.50	.75	—	—	12.7	19.1	—	—
C	.50	.75	1.00	—	12.7	19.1	25.4	—
D	.50	.75	1.00	1.25	12.7	19.1	25.4	31.8
E	.75	1.00	1.25	—	19.1	25.4	31.8	—
F	.75	1.00	1.25	1.50	19.1	25.4	31.8	38.1
G	1.00	1.25	1.50	—	25.4	31.8	38.1	—
H	1.00	1.25	1.50	2.00	25.4	31.8	38.1	50.8
I	1.25	1.50	2.00	—	31.8	38.1	50.8	—

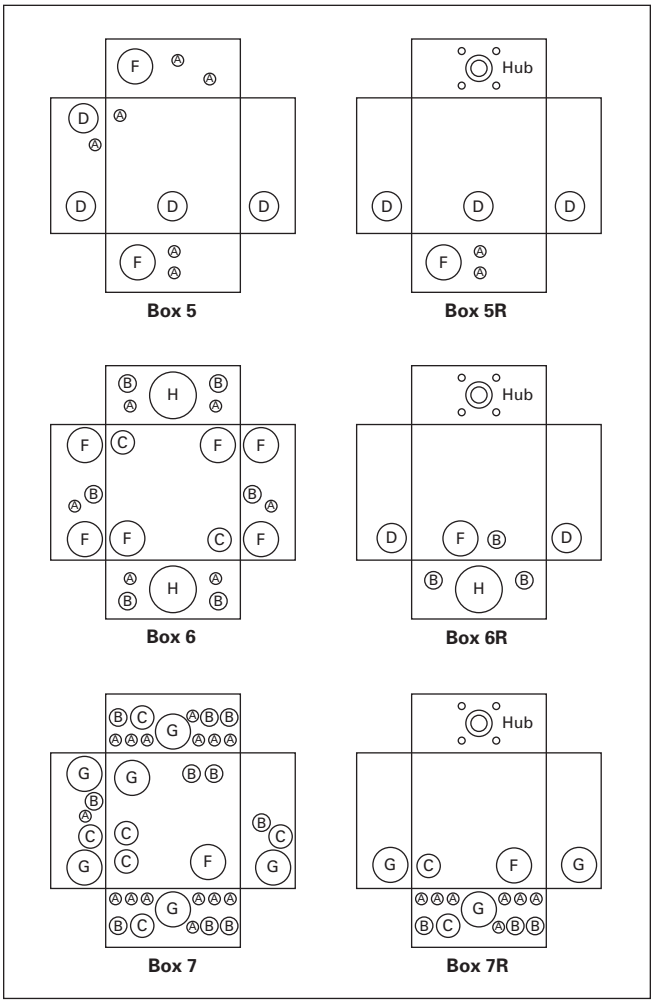


Figure 3-11. Knockout Positions

Residential and Commercial Loadcenter Knockout Dimensions in Inches (mm)

Residential NEMA Type 1 Indoor and NEMA Type 3R Outdoor Enclosures.

Table 3-64. Knockouts for Box Sizes 8, 8R, P, PM, B, C, D, E, G, J, K, L and Outdoor Boxes 12-42 CKT

Code	Diameter in Inches					Diameter in mm				
a	.75	—	—	—	—	19.1	—	—	—	—
b	.50	.75	—	—	—	12.7	19.1	—	—	—
c	.50	—	—	—	—	12.7	—	—	—	—
d	1.00	1.25	1.50	2.00	2.50	25.4	31.8	38.1	50.8	63.5
e	1.25	1.50	2.00	2.50	—	31.8	38.1	50.8	63.5	—
f	.75	1.25	1.50	2.00	—	19.1	31.8	38.1	50.8	—
g	.50	.75	1.00	—	—	12.7	19.1	25.4	—	—
h	1.50	2.00	2.50	—	—	38.1	50.8	63.5	—	—
i	.50	.75	1.00	1.25	1.50	12.7	19.1	25.4	31.8	38.1
j	1.00	1.25	1.50	—	—	25.4	31.8	38.1	—	—
k	1.25	1.50	2.00	—	—	31.8	38.1	50.8	—	—
m	.75	1.00	1.25	1.50	2.00	19.1	25.4	31.8	38.1	50.8
n	.75	1.00	1.25	1.50	—	19.1	25.4	31.8	38.1	—
p	2.00	2.50	—	—	—	50.8	63.5	—	—	—

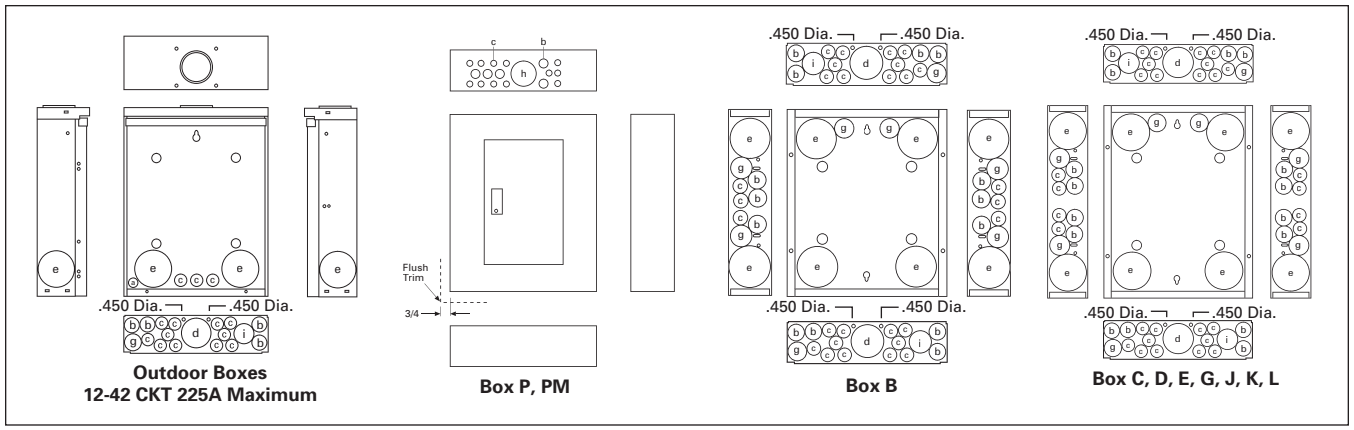


Figure 3-12. Knockout Diagram

Table 3-65. Type ECB and ECC Unit Enclosure Knockout

Code	Diameter in Inches					Diameter in mm				
NEMA Type 1 Indoor (Flush and Surface Trims)										
A	.50	—	—	—	—	12.7	—	—	—	—
B	1.25	1.50	1.75	2.00	2.50	31.8	38.1	44.5	50.8	63.5
NEMA Type 3R Outdoor										
A	.50	—	—	—	—	12.7	—	—	—	—
B	1.25	1.50	1.75	2.00	2.50	31.8	38.1	44.5	50.8	63.5

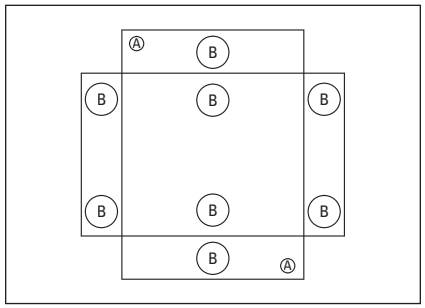


Figure 3-13. NEMA Type 1 — Indoor

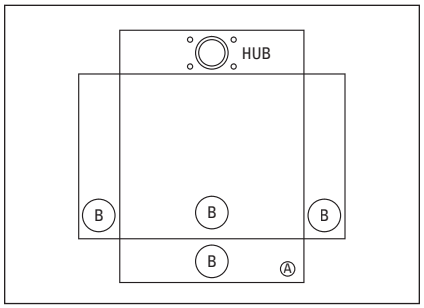


Figure 3-14. NEMA Type 3R — Outdoor

Product Description

Loadcenters are enclosures specifically designed to house the branch circuit breakers and wiring required to distribute power to individual circuits. They contain either a main breaker when used at the service entrance point or a main lug when used as a sub-panel to add circuits to existing service. The main breaker protects the main entire panel and can be used as a service disconnect. The branch breakers protect the wires leading to individual electrical loads such as fixtures and outlets.

Single-Phase

Main Circuit Breaker

Riser Panel

Single-Phase Main Lugs

Three-Phase

Main Circuit Breaker

Main Circuit Breaker Commercial

3-Phase Main Lugs

Convertible

Convertible — Outdoor

Outdoor Circuit Breaker Unit Enclosures

ECB Breaker Enclosure

3

Application Description

Loadcenter Construction

Cutler-Hammer Type BR loadcenters by Eaton Corporation have standard tin-plated aluminum bus with a limited availability of copper bus. The sum of the handle ratings connected to any stab is limited to 150 amperes maximum on the 100 and 125 ampere loadcenters, and 200 amperes on loadcenters with 150 ampere or higher main bus. NEMA Type 1 boxes or enclosures are manufactured from galvanized steel. Raintight boxes are manufactured from galvanized steel, then finished using an electrostatic powder coat, baked urethane paint process.

Neutrals

Eaton's Cutler-Hammer Type BR loadcenters have three types of neutrals:

Factory Bonded Split Neutral

Certain single-phase main circuit breaker panels are supplied with a factory-bonded twin neutral. When used as a sub panel, the bonding strap should be removed, and the bonding screw should be reinstalled. The bonded side is now the ground, and the un-bonded side is the neutral. When used as a service entrance panel, the unused neutral holes on either side may be used for terminating ground wires.

Insulated Split Neutral

Most single-phase panels (12 circuits and greater) are supplied with a twin neutral with an insulated cross strap. These panels are shipped in an un-bonded state. For service entrance applications, the neutral must be bonded utilizing the bonding strap supplied with the panel. For sub-feed applications, the panel may be installed as is. Separate ground bars are provided on these panels.

Single Neutral

Single-phase 2 – 8 circuit, three-phase and commercial loadcenters are supplied with a single insulated/bondable neutral. The three-phase loadcenter neutral is movable to the other side if desired. The neutral is bondable in the field by means of a bonding strap that is supplied with each loadcenter. For sub-feed applications, a separate ground bar must be used. In a service entrance application, where the neutral is bonded, unused neutral connections may be used for equipment ground protectors.

Grounds

In service entrance applications where the neutral is bonded, unused neutral holes may be used for terminating ground conductors. In sub-feed panels, the neutral must be isolated (non-bonded), and ground wires must be terminated on a separate ground bar.

The Factory Bonded Split Neutral panels have sufficient terminations for both ground and neutral conductors. The Insulated Split Neutral panels are supplied with a separate factory-installed ground bar if the catalog number contains a "G." If not, a separate ground bar should be installed. Insulated/Bondable Single Neutral panels are supplied without a ground bar (unless otherwise noted), and ground bar kits if needed must be purchased separately.

Neutral and Ground Terminals

The standard terminals on grounds and neutrals are rated to accept (3) — #14 – #10 Cu/Al or (1) — #14 – 4. For larger cables, add-on neutral lugs may be ordered from the accessories on **Page 3-63**.

Note: NEC allows only one current carrying conductor per hole on neutrals unless otherwise noted.

Bottom Fed Loadcenters

Where power cable is brought into the loadcenter from below the panel, main lug panels, and single-phase, 225 ampere and below loadcenters can be rotated 180 degrees to allow straight-in wiring of power cables to the main terminals. Because the main circuit breaker handle operates horizontally, the orientation of the main circuit breaker handle is consistent with the requirements of NEC Article 240-81.

Gutter Splicing

Loadcenters are not UL listed as wiring troughs. Therefore, gutter splicing of riser cables to tap off to the main device is not permitted. Refer to NEC Article 373-8.

Fire Rating

Due to the numerous openings in both loadcenter boxes and trims, they should not be mounted in firewalls. There is no approved method for sealing the enclosures for this application.

Date Code

The date of manufacture of each loadcenter is printed on the outside of the carton as well as inside the loadcenter. On the carton, the date code is printed on the end carton label. In the loadcenter, the date code is located on the small white label located on the right side wall (with the main device on top).

The date code is in the following format: F # # # &. The "F" is the numeric code for the Lincoln, IL plant, and the three numbers are the year and week of manufacture e.g., 023. The "&" sign at the end signifies the decade of the 2000s. Therefore, the date code F023& would indicate that the product was manufactured in the 23rd week of 2000. The 1980s are represented by a "+" sign and the 1990s are represented by a "=" at the end of the code.

Surge Protectors

The BRSURGE Surge Protector has indicating lights that indicate when the units should be replaced. The CHSA01 and CHSA03 Surge Protectors internally short, causing the circuit breaker feeding the surge protector to trip. All but the BRSURGE Surge Protector should be wired to the load side of 15 or 20 ampere feeder circuit breakers mounted adjacent to the main incoming device.

The CHSPULTRA Cutler-Hammer Home Surge Protector is an externally mounted TVSS unit that provides industrial level surge protection in a residential design.

Circuit Breaker Case Interrupting Capacity

- 10,000 AIC.
- 22,000 AIC.

Extended Residential Warranty Highlights

Note: See Cutler-Hammer Publication Number SA-365 for complete details.

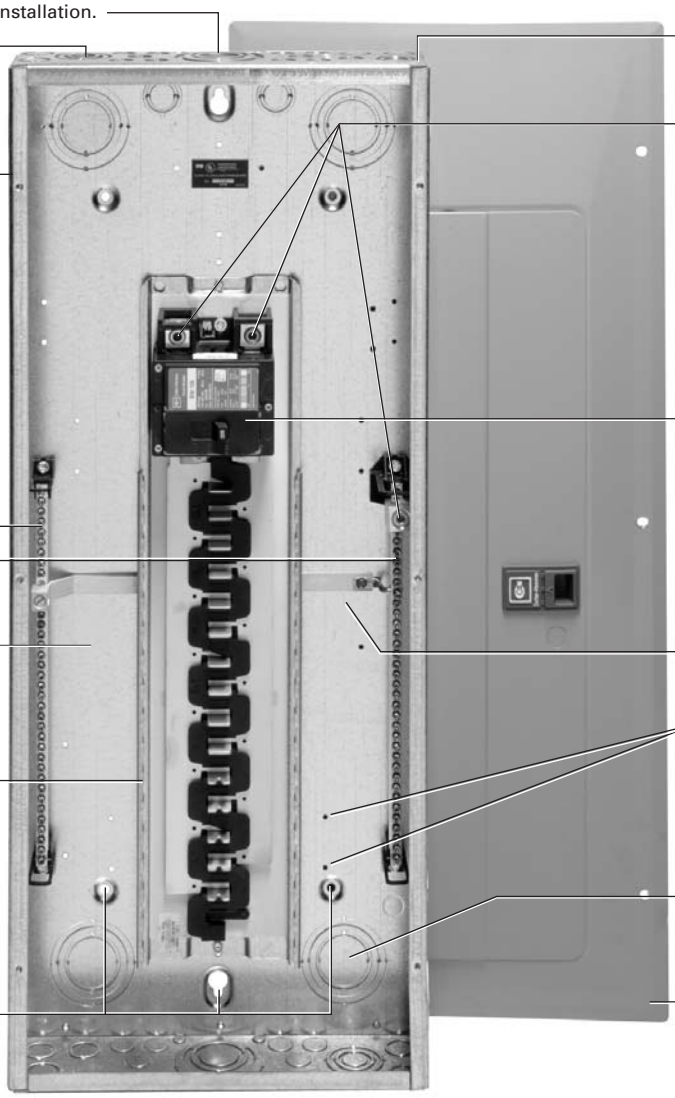
- Ten-year branch breaker warranty.
- Ten-year loadcenter warranty.

Standards and Certifications

UL Listings

All Cutler-Hammer Type BR loadcenters are listed under UL File E52977 except the 2 – 8 circuit loadcenters, up through and including 125 amperes, which are listed under UL File E8741.

Features, Benefits and Functions



BR4040B200

3

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 business.

Ratings

A. Loadcenters shall be rated for 120/240 Vac 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.

G. Branch circuit breakers may also be used in the 1/2-inch (12.7 mm) per pole ratings that include 2-pole 1-inch (25.4 mm) wide modules and 4-pole 2-inch (50.8 mm) wide modules. 2-pole circuit breakers must incorporate a common trip mechanism. The exclusive CTL rejection tab feature shall be provided to limit the number of branch devices for a loadcenter to 42, in compliance with NEC Article 384-15.

H. Circuit breakers shall be completely enclosed in a molded case of thermoset material. No internal aluminum parts shall be used. All internal ferrous parts shall be plated to prevent corrosion.

I. All terminals shall be listed for use with copper or aluminum conductors. Terminals shall be of the box lug or clamp type design. The terminals shall meet UL 486B requirements and shall be suitable for use with either 60°C or 75°C wire.

J. The calibrated bimetal assembly shall be mechanically isolated from the load terminal using a flexible braided copper shunt wire, such that movement of the terminals due to twisting and overtorquing does not affect breaker calibration.

K. Breakers shall be SWD rated and/or HACR rated as required.

L. Arc Fault Interrupting circuit breakers, (AFI), shall be provided on all 15 and 20 ampere single-phase 120/240 Vac circuits except those indicated as remote controlled breakers. AFI breakers shall be "Classified for mitigating the effects of arcing faults," or conforming to UL Standard 1699 and as defined by Article 210-12 Section A of the 1999 NEC Code.

Surge Protection Devices

All 120/240 Vac single-phase loadcenters shall have surge protection provided by a CHSPULTRA.

A. The CHSPULTRA, Home Surge Protector shall be supplied in its own enclosure and must be suitable for flush or surface mounting external of the loadcenter. The device shall provide surge protection for the loadcenter as well as protection for: two incoming telephone lines and one incoming coaxial cable. The surge protector shall be installed in accordance to NEC Article 280 and be listed under UL 1449, (2nd Edition), and UL 497A. The units shall be CSA certified and be tested to meet ANSI/IEEE Category B3 and C3 levels. The surge protector shall incorporate a surge plane design to facilitate a common point of grounding for all connected power, telephone, and coaxial incoming conductors. The device shall provide, as a minimum, the following protection:

   1. Up to 75 kA surge current protection per phase for transients on the incoming ac line.
   2. Up to 10 kA surge protection per pair for telephone lines.
   3. Up to 5 kA line to shield (ground) protection for coaxial conductors.

– OR –

A. The surge protection device shall be capable of plugging onto a maximum of two adjacent spaces in a single-phase loadcenter. The device shall provide, as a minimum, up to 10 kA surge current protection per phase for transients on the incoming ac line.

B. Surge protection devices must be equipped with LEDs to indicate proper functioning of the internal electronics.

Enclosures

A. Loadcenter shall have NEMA Type 1 general purpose or NEMA Type 3R rainproof enclosures as indicated on the drawings and shall be surface or combination flush/surface mounted except where noted.

B. Boxes shall be made from galvanized sheet steel having multiple knockouts. Rainproof boxes shall use galvanized steel or an approved coating system which meets or exceeds standards for outdoor NEMA Type 3R enclosures. Boxes shall be of sufficient size to provide at least a minimum code gutter space on all sides.

C. The deadfront shall have an easy adjustment feature for flush applications.

D. Boxes shall be factory assembled into a single rigid structure.

E. Unless otherwise noted on drawings, hinged doors covering all circuit breaker handles shall be included in all trims. Trim doors shall not uncover any live parts in making the circuit breaker handles accessible. If key locks are required, all locks shall be keyed alike.

F. Combination trims for flush and surface panels shall be flat and shall overlap the box by at least 5/8-inch (15.9 mm) all around. Trims shall be mounted by a screwdriver without the need for special tools.

Finish

A. Trims shall be bonderized and finished with a light gray ANSI-61 enamel. The paint finish shall be of a type to which field applied paint will adhere.

Factory Testing

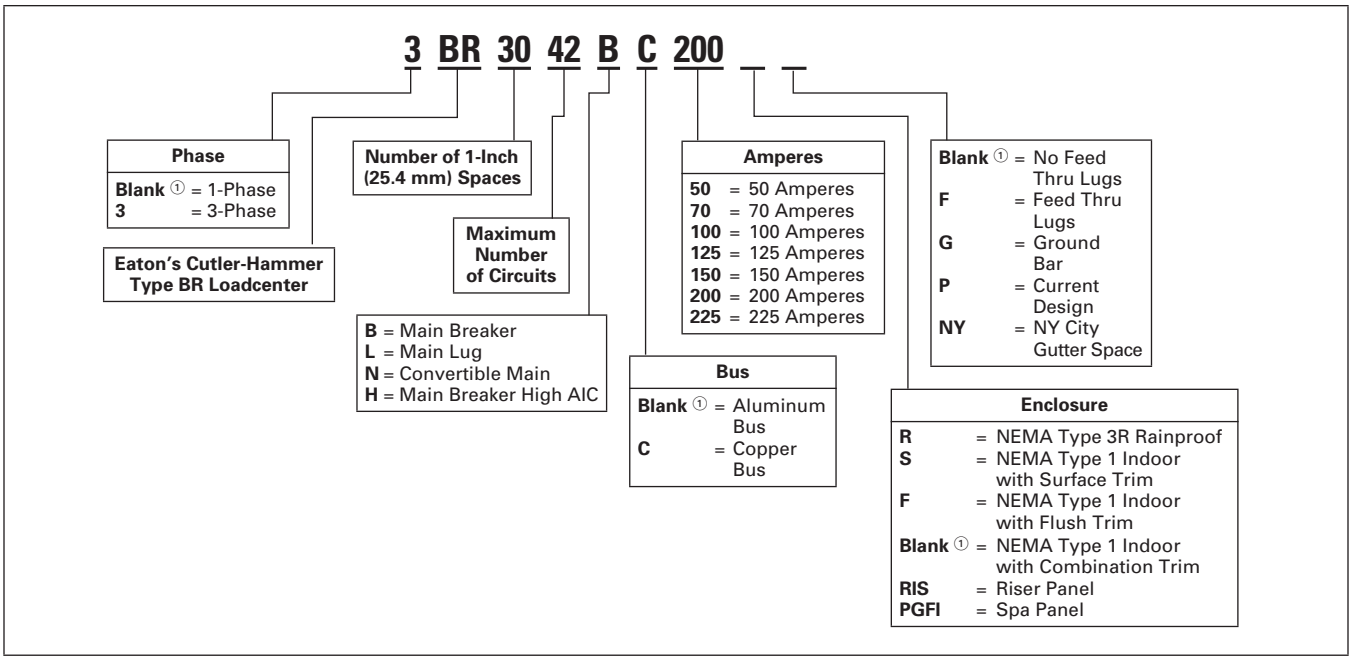
A. The standard factory tests shall be performed on the equipment provided under this section. All tests shall be in accordance with the latest version of UL and NEMA.

Product Selection

Table 3-66. BR Loadcenter Selection Chart

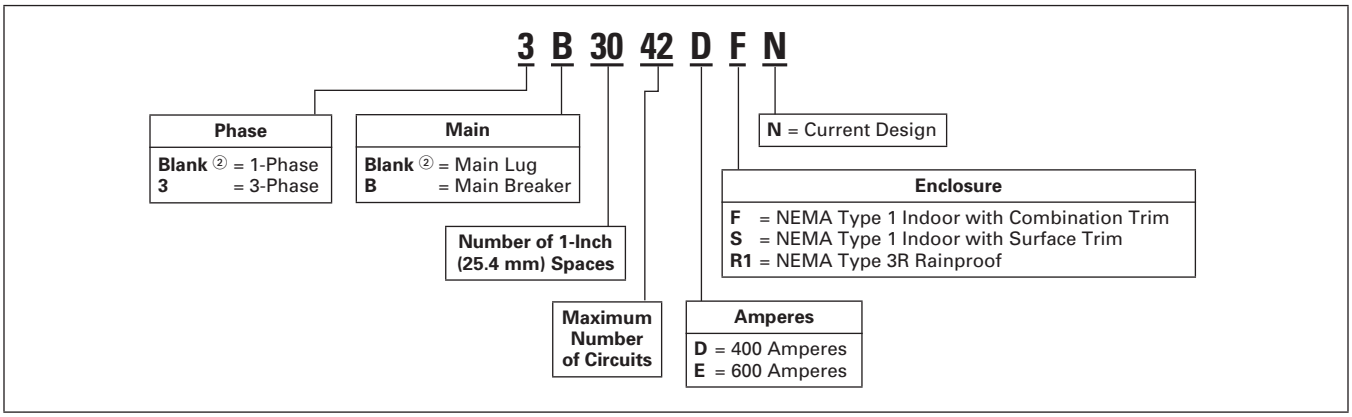
Service	■ Single-phase, three-wire, 120/240 Vac.	■ Three-phase, four-wire, 208Y/120 Vac. ■ Three-phase, three-wire, 240 Vac delta.
Short Circuit Current Rating	■ 10,000 AIC: All single- and three-phase loadcenters 70 through 225 amperes, 8 to 42 circuits. ■ 22,000 AIC: All convertible loadcenters using 125 amperes rated Type BRH main breakers or selected factory installed 125 ampere rated Type BRH main breaker.	■ 25,000 AIC: All convertible and factory installed single-phase loadcenters rated 150 and 200 amperes using Type BWH main breakers.
Main Breaker/Main Lug Loadcenters	Single-Phase ■ Main Breaker: 100, 125, 150, 200, 225, 400, 600 amperes. ■ Main Lugs: 70, 125, 150, 200, 225, 400, 600 amperes.	Three-Phase ■ Main Breaker: 100, 125, 150, 200, 225, 400, 600 amperes. ■ Main Lugs: 100, 125, 150, 200, 225, 400, 600 amperes.
Convertible Loadcenters	■ Main Breaker: Single-phase up to 200 amperes and three-phase up to 225 amperes. ■ Main Lugs: Single-phase up to 200 amperes and three-phase up to 150 amperes.	
Branch Breakers	■ Types BR, BRH, and BRH: 10 to 150 amperes. One-, two-, and three-pole. Selected amperages available in switching duty, HACR, shunt trip, and high magnetic setting. ■ Type GFCB: 15 to 50 amperes. One- and two-pole ground fault breakers. ■ Types BJ and BJH: 125 to 225 amperes Two- and three-pole. ■ Type BD Twin: 10 to 50 amperes Two of one-pole. Take one 1-inch (25.4 mm) space.	■ Type BQ and BQC Multibreaker: 15 to 30 amperes. Two of two-pole or one two-pole and two one-pole. Takes two 1-inch (25.4 mm) spaces. ■ Type BRW: 15 to 30 amperes. Two-pole water heater breakers. ■ Type BRSN: 15 to 30 amperes. Two-pole switching neutral breakers. ■ Type BR 15 to 100 amperes. Two-pole, 240 Vac delta breakers. ■ BR-AFCI arc fault circuit interrupter.
Enclosures	■ NEMA Type 1 indoor. ■ NEMA Type 3R outdoor.	■ Meets or exceeds UL requirements for indoor or outdoor applications.
Loadcenter and Breaker Accessories	■ Branch Circuit Breaker: Auxiliary components Hold Down Kits Handle ties Lockoffs Lockdogs ■ Complete Line of Ground Bar Kits 5, 10, 14 and 21 circuit, some with additional #2/0 lugs. Each terminal will accommodate: (3) #14 – #10 Cu/Al or (1) #14 – #4 Cu/Al. ■ Main and Sub-feed Lugs 125, 150, 225 amperes — two- and three-pole. ■ Shunt trips.	■ Surge Protection: Single-phase plug-on surge protector Single-phase bottle type surge protector Three-phase bottle type surge protector Single-phase whole home surge protector ■ Universal Rainproof Conduit Hubs Group One: 3/4, 1, 1-1/4, 1-1/2, 2 inches (19.1, 25.4, 31.8, 38.1, 50.8 mm) Group Two: 2, 2-1/2, 3 inches (50.8, 63.5, 76.2 mm) ■ Adapter plate.
Bussing	■ Tin-plated aluminum as standard. ■ Limited copper bus panels available.	

Table 3-67. Single- and Three-Phase Through 225 Amperes Catalog Numbering System



① No character space used.

Table 3-68. Single- and Three-Phase 400 Amperes Through 600 Amperes Catalog Numbering System



② No character space used.

Example No. 1: BR1224L125G

Single-Phase Cutler-Hammer Type BR Loadcenter Rated at 125 Amperes with Main Lugs, 12 Spaces Allowing 24 Poles, Indoor Combination Enclosure, Aluminum Bus and Ground Bar.

Example No. 2: BR24L70RP

Single-Phase Cutler-Hammer Type BR Loadcenter Rated at 70 Amperes with Main Lugs, 2 Spaces Allowing 4 Poles, Rainproof Enclosure with Aluminum Bus.

Example No. 3: 3B4242EFN

3-Phase Cutler-Hammer Type BR Loadcenter Rated at 600 Amperes with Main Breaker, 42 Spaces Allowing 42 Poles, Indoor Combination Enclosure.

Single-Phase — Main Circuit Breaker Loadcenters
10,000/25,000 Amperes Interrupting Capacity

Table 3-69. Single-Phase, 3-Wire — 120/240 Vac — Factory Bonded Split Neutral

Main Breaker Type	Main Ampere Rating	Maximum Number 1-Inch (25.4 mm) Space	Maximum Number 1-Inch (25.4 mm) Circuits	Enclosure Type	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker	Loadcenter Catalog Number with Combination Cover ①	Price U.S. $
BR 10 kAIC	100 100	20 16	20 24	Indoor Indoor	C2 C1	68 69	#4 – 1/0	**BR2020B100** **BR1624B100**	
BWH 25 kAIC	150 200 200 200	30 20 30 40	30 40 40 40	Indoor Indoor Indoor Indoor	G1 D1 G1 L1	70 71 72 70	#2 – 300 kcmil #2 – 300 kcmil	**BR3030B150** **BR2040B200** **BR3040B200** **BR4040B200**	

① Combination style covers may be used in surface or flush applications.

Note: All main circuit breaker loadcenters are listed for use as service entrance equipment. Loadcenters are factory bonded for service entrance applications. Remove bonding strap for separate neutral and ground bars for sub-feed applications

Table 3-70. Single-Phase 3-Wire — 120/240 Vac — Insulated/Bondable Neutral

Main Breaker Type	Main Ampere Rating	Maximum Number 1-Inch (25.4 mm) Spaces	Maximum Number 1-Inch (25.4 mm) Circuits	Enclosure Type	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker	Loadcenter Catalog Number with Combination ② or NEMA Type 3R Cover	Price U.S. $
BR 10 kAIC	100	8 10 10 10 12 12 12 16 16 16 20 30	16 20 20 20 12 20 24 16 20 24 24 30	Indoor Indoor Indoor Outdoor Indoor Indoor Outdoor Indoor Indoor Outdoor Outdoor Indoor	B1 A1 A1 B2R B2 B2 B2R C1 C1 C1R C3R ⑥	17 65 65 59 5 19 17 5 60 24 10 ⑥	#4 – 1/0 ③ ⑥	**BR816B100** **BR1020B100S11** **BR1020B100F11** **BR1020B100RF** ④⑤ **BR1212B100** **BR1220B100** **BR1224B100R** ⑤ **BR1616B100** **BR1620B100** **BR1624B100R** ⑤ **BR2024B100R** ⑤ ⑥	
	125	16 20 20	24 24 24	Indoor Indoor Outdoor	C1 C1 C3R	24 10 10	#4 – 2/0	**BR1624B125** **BR2024B125** **BR2024B125R** ⑤	
BRH ⑦ 22 kAIC	100	20	24	Indoor	C2	10	#2/0 – 300 kcmil	**BR2024H100** ⑦	
BWH ⑧ 25 kAIC	150	8 16 20 20 20 20 24 30 30	16 30 30 30 40 40 30 30 40	Outdoor Indoor Indoor Outdoor Indoor Outdoor Indoor Outdoor Indoor	C3R C4 C4 D1R D1 D1R G1 G1R G1	18 25 26 26 29 29 27 28 30	#2 – 300 kcmil	**BR816B150RF** ④⑤ **BR1630B150** **BR2030B150** **BR2030B150R** ⑤ **BR2040B150** **BR2040B150R** ⑤ **BR2430B150** **BR3030B150R** ⑤ **BR3040B150**	
	200	4 8 16 20 24 30 40	8 16 32 40 40 40 40	Outdoor Outdoor Indoor Outdoor Indoor Outdoor Outdoor	8R C3R C4 D1R G1 G1R L1R	46 18 29 29 61 30 28	#2 – 300 kcmil	**BR48B200RF** ④⑨⑩ **BR816B200RF** ④⑤ **BR1632B200** **BR2040B200R** ⑤ **BR2440B200** **BR3040B200R** ⑤ **BR4040B200R** ⑤	
	225	42 42	42 42	Indoor Outdoor	L2 L2R	31 31	#1 – 250 kcmil	**BR4242B225** **BR4242B225R** ⑤	

② Combination style covers may be used in surface or flush applications.
③ Wire range size for BR1020B100SP is #6 – #1 Cu/Al.
④ Includes through-feed lugs for both phase and neutral conductors.
⑤ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-62.**
⑥ See Copper Bus Offering, **Page 3-54.**
⑦ 22 kAIC series combination rating is obtained when Types BD, BR, BQ, BQC and GFCB 10 kAIC branch breakers are used in series with Type BRH main breaker.
⑧ 25 kAIC series combination rating is obtained when Types BD, BR, BQ, BQC and GFCB 10 kAIC branch circuit breakers are used in series with Type BWH main breaker.
⑨ Supplied with adapter plate to use DS Group1 hubs on **Page 3-62**. If 2.50-inch (63.5 mm) hub is needed, remove adapter and use ARP00007CH25 hub.
⑩ Neutral is bonded — suitable for service entrance only — cannot be converted for sub-feed application.

Note: All main circuit breaker loadcenters are listed for use as service entrance equipment and are shipped with neutral bonding strap preattached. The maximum rating of the panel is the main circuit breaker rating when used as service entrance equipment. Ground bar kits priced separately. See **Page 3-63**.

Box Sizes. . . . . **Pages 3-75** through **3-77**
Discount Symbol **22C**

Main Circuit Breaker Loadcenters
10,000/22,000/25,000 Amperes Interrupting Capacity

Table 3-71. Main Circuit Breaker Loadcenters — With Copper Bus — Single-Phase 3-Wire — 120/240 Vac — Factory Bonded Split Neutral

Main Breaker Type	Main Ampere Rating	Maximum Number 1-Inch (25.4 mm)		Enclosure Type	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker	Loadcenter Catalog Number with Combination Cover ①②	Price U.S. $
		Spaces	Circuits						
BR 10 kAIC	100	20 30	20 30	Indoor Indoor	C2 D1	68 16	#4 – 1/0 #4 – 1/0	**BR2020BC100** **BR3030BC100**	
BRH 22 kAIC③	100	30	30	Indoor	D1	16	#4 – 1/0	**BR3030HC100**	
BWH 25 kAIC	150	30	30	Indoor	G1	70	#2 – 300 kcmil	**BR3030BC150**	
	200	20 30 40	40 40 40	Indoor Indoor Indoor	D1 G1 L1	71 72 70	#2 – 300 kcmil #2 – 300 kcmil #2 – 300 kcmil	**BR2040BC200** **BR3040BC200** **BR4040BC200**	

① All main circuit breaker loadcenters are listed for use as service entrance equipment and are shipped with neutral bonding strap preattached. The maximum rating of the panel is the main circuit breaker rating when used as service entrance equipment.
② Ground bar kits priced separately. See **Page 3-63**.
③ 22 kAIC series combination rating is obtained when Types BD, BR, BQ, BQC and GFCB 10 kAIC branch breakers are used in series with Type BRH main breaker

Main Circuit Breaker Loadcenters
10,000/22,000 Amperes Interrupting Capacity

Table 3-72. Single-Phase 3-Wire — 120/240 Vac — Insulated/Bondable Neutral

Main Breaker Type	Main Ampere Rating	Maximum Number 1-Inch (25.4 mm)		Enclosure Type	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker	Commercial Loadcenter Catalog Number ④⑤⑥			
		Spaces	Circuits					With Flush or NEMA Type 3R Cover	Price U.S. $	With Surface Cover	Price U.S. $
DK ⑦	300	42	42	Indoor	24	36	(2) #3/0 – 250 kcmil	**BR304242F**		**BR304242S**	
	400	42 42	42 42	Indoor Outdoor	24 47	36 36	(2) #3/0 – 250 kcmil	**B4242DFN** **B4242DR1N** ⑧		**B4242DSN** —	
HLD ⑨	600	42	42	Indoor	24	36	(2) #3/0 – 500 kcmil	**B4242EFN**		**B4242ESN**	

④ Ground bar kits priced separately. See **Page 3-63**.
⑤ The maximum rating of the panel is the main circuit breaker rating when used as service entrance equipment.
⑥ Door lock and key included with loadcenter.
⑦ Type DK main circuit breaker is rated 65 kAIC at 240 Vac and allows a 22 kAIC series rating on the panel when Types BR, BD and BJ branch circuit breakers are used.
⑧ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-62.**
⑨ Type HLD main circuit breaker is rated 65 kAIC at 240 Vac. Type HLD circuit breaker **is not** series rated with Types BR, BD and BJ branch circuit breakers.

Box Sizes ..... **Pages 3-75** through **3-77**
Discount Symbol **22CD**

3

2 Circuits, 20 Amperes


Surface


Flush


Outdoor

4, 6 and 8 Circuits, 125 Amperes


Surface (No Door)


Flush (With Door)


Outdoor

2 Circuits, 125 Amperes


Surface


Flush


Outdoor

Single-Phase — Main Lug Loadcenters

Table 3-73. Single-Phase 3-Wire — 120/240 Vac — Insulated/Bondable Neutral

Main Ampere Rating	Maximum Number 1-Inch (25.4 mm) Spaces	Maximum Number 1-Inch (25.4 mm) Circuits	Type of Enclosure	Type of Trim	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Loadcenter Catalog Number	Price U.S. $
70	2	4	Indoor	Surface (No Door)	5	1	#8 - #2	**BR24L70SP** ①②	
	2	4	Indoor	Surface (No Door)	5	1		**BR24L70SGP** ②③	
	2	4	Outdoor	—	5R	1		**BR24L70RP** ①②④	
	2	4	Indoor	Flush (No Door)	5	1		**BR24L70FP** ①②	
	2	4	Indoor	Flush (No Door)	5	1		**BR24L70FGP** ②⑤	
125	2	4	Indoor	Surface (No Door)	6	1	#14 - 1/0	**BR24L125SP** ①②	
	2	4	Outdoor	—	6R	1		**BR24L125RP** ①②④	
	2	4	Outdoor	—	6R	1		**BR24L125RSEP** ②⑥⑦⑧	
	2	4	Outdoor	—	6R	1		**BR24L125RSE2P** ②⑥⑦⑧	
	2	4	Indoor	Flush (No Door)	6	1		**BR24L125FP** ①②	
	4	8	Indoor	Surface (No Door)	7	2	#14 - 1/0	**BR48L125SP** ①⑨	
	4	8	Indoor	Surface (No Door)	7	2		**BR48L125SGP** ③⑨	
	4	8	Outdoor	—	7R	2		**BR48L125RP** ①④⑨	
	4	8	Indoor	Flush (No Door)	7	2		**BR48L125FP** ①⑨	
	4	8	Indoor	Flush (With Door)	7	2		**BR48L125FDP** ①⑨	
	4	8	Indoor	Flush (No Door)	7	2		**BR48L125FGP** ③⑨	
	6	12	Indoor	Surface (No Door)	7	3	#14 - #1	**BR612L125SP** ①⑩	
	6	12	Indoor	Surface (No Door)	7	3		**BR612L125SGP** ⑩⑪	
	6	12	Indoor	Surface (With Door)	7	3		**BR612L125SDP** ①⑩	
	6	12	Indoor	Surface (With Door)	7	3		**BR612L125SDGP** ⑩⑪	
	6	12	Outdoor	—	7R	3		**BR612L125RP** ①④⑩	
	6	12	Indoor	Flush (No Door)	7	3		**BR612L125FP** ①⑩	
	6	12	Indoor	Flush (No Door)	7	3		**BR612L125FGP** ⑤⑩⑪	
	6	12	Indoor	Flush (With Door)	7	3		**BR612L125FDP** ⑩	
	6	12	Indoor	Flush (With Door)	7	3		**BR612L125FDGP** ⑤⑩⑪	
	8	16	Indoor	Surface (No Door)	7	4	#14 - #1	**BR816L125SP** ①⑩	
	8	16	Indoor	Surface (No Door)	7	4		**BR816L125SGP** ⑩⑫	
	8	16	Indoor	Surface (With Door)	7	4		**BR816L125SDP** ①⑩	
	8	16	Indoor	Surface (With Door)	7	4		**BR816L125SDGP** ⑩⑫	
	8	16	Outdoor	—	7R	4		**BR816L125RP** ①④⑩	
	8	16	Indoor	Flush (No Door)	7	4		**BR816L125FP** ①⑩	
	8	16	Indoor	Flush (No Door)	7	4		**BR816L125FGP** ⑤⑩⑫	
	8	16	Indoor	Flush With Door	7	4		**BR816L125FDP** ①⑩	
	8	16	Indoor	Flush (With Door)	7	4		**BR816L125FDGP** ⑤⑩⑫	

① Ground bar kits priced separately. See **Page 3-63**.
– For 2/4 circuit loadcenters use GBK5 or GBK520 Ground Bar.
– For 4/8, 6/12 and 8/16 circuit loadcenters use GBK10 Ground Bar.
– Ground bars mount to the left side wall of the enclosure for the 4/8, 6/12 and 8/16 circuit loadcenters.

② Suitable for use as service equipment when not more than two service disconnecting mains are provided or when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).

③ Ground bar GBK5 is installed.

④ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-62**.

⑤ CSA and UL approved.

⑥ Neutral/ground holes (6) #14 – 6 and (3) #14 – 2/0 AWG Cu/Al.

⑦ For use as service entrance applications only.

⑧ Neutral/ground holes (6) #14 – 6 and (3) #14 – 1/0 AWG Cu/Al.

⑨ Suitable for use as service equipment when not more than two service disconnecting mains are provided or when not more than six service disconnecting mains are provided and when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).

⑩ Suitable for use as service equipment when a main breaker is used or when not more than six service disconnecting mains are provided and when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).

⑪ Ground bar GBK10 is installed.

⑫ Ground bar GBK14 is installed.

Box Sizes . . . . . **Pages 3-75** through **3-77**
Discount Symbol **22CD**

Single-Phase — Main Lug Loadcenters

Table 3-73. Single-Phase 3-Wire — 120/240 Vac — Insulated/Bondable Neutral (Continued)

Main Ampere Rating	Maximum Number 1-Inch (25.4 mm) Spaces	Circuits	Enclosure Type	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Loadcenter Catalog Number with Combination or NEMA Type 3R Cover ①	Price U.S. $
125	12	12	Indoor	B1	9	#6 – 2/0	**BR1212L125** ②③④⑤	
	12	24	Indoor	B1	6		**BR1224L125** ②④⑤	
	12	24	Indoor	B1	6		**BR1224L125G** ②④⑤⑥	
	12	24	Indoor	B1	6		**BR1224L125DG** ②④⑤⑦	
	12	24	Outdoor	B1R	6		**BR1224L125R** ②⑤⑧	
	16	16	Indoor	B2	5		**BR1616L125** ②⑤	
	16	24	Indoor	B2	7		**BR1624L125** ②④	
	16	24	Indoor	B2	7		**BR1624L125G** ②④⑥	
	16	24	Outdoor	B2R	7		**BR1624L125R** ②⑧	
	20	20	Indoor	C1	5		**BR2020L125** ②⑤	
	20	24	Indoor	C1	8		**BR2024L125** ②④	
	20	24	Indoor	C1	8		**BR2024L125G** ②④⑨	
	20	24	Outdoor	C1R	8		**BR2024L125R** ②⑧	
	24	24	Indoor	C2	5		**BR2424L125** ②④	
	24	24	Indoor	C2	5		**BR2424L125G** ②④⑨	
150	16	30	Indoor	C2	62	#1 – 300 kcmil	**BR1630L150** ④⑩	
	20	30	Indoor	C2	11		**BR2030L150** ④⑩	
200	8	16	Outdoor	B2R	63	#1 – 300 kcmil	**BR816L200RF** ⑤⑧⑪	
	12	24	Indoor	B2	12		**BR1224L200** ④⑤⑩	
	12	24	Outdoor	B2R	12		**BR1224L200R** ⑤⑧⑩	
	20	40	Indoor	C2	12		**BR2040L200** ④⑩	
	20	40	Indoor	C2	12		**BR2040L200G** ④⑨⑩	
	20	40	Outdoor	C3R	12		**BR2040L200R** ⑧⑩	
	24	40	Indoor	C4	64		**BR2440L200** ④⑩	
	30	40	Indoor	D1	15		**BR3040L200** ④⑩	
	30	40	Indoor	D1	15		**BR3040L200G** ④⑨⑩	
	30	40	Outdoor	D1R	15		**BR3040L200R** ⑧⑩	
	40	40	Indoor	G1	5		**BR4040L200** ④⑩	
	40	40	Indoor	G1	5		**BR4040L200G** ④⑩	
	40	40	Outdoor	G1R	5		**BR4040L200R** ⑧⑩	
225	42	42	Indoor	L1	20	#1 – 300 kcmil	**BR4242L225**	
	42	42	Outdoor	L1R	20		**BR4242L225R** ⑧	

① Ground bar kits priced separately unless otherwise noted. See **Page 3-63**.
② Has notch for BREQS125 hold-down kit.
③ Single, movable neutral is provided.
④ Combination cover style.
⑤ Suitable for use as service equipment when not more than six main disconnecting means are provided and when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).
⑥ Ground bar GBK10 installed.
⑦ Ground bars GBK5 and GBK520 installed.
⑧ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-62**.
⑨ Ground bar GBK1220 installed.
⑩ Has notch for BRHDK125 hold-down kit.
⑪ Includes through-feed lugs for both phase and neutral conductors.

Single-Phase — Main Lug Loadcenters, Non-Metallic

Table 3-74. Single-Phase 3-Wire — 120/240 Vac — Insulated/Bondable Neutral

Main Ampere Rating	Maximum Number 1-Inch (25.4 mm) Spaces	Circuits	Enclosure Type	Type of Trim	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Loadcenter Catalog Number	Price U.S. $
40 ⑫	⑬	⑬	Indoor	Flush No Door	2	66	⑬	**TT120FLGNM** ⑬⑭	
	⑬	⑬	Indoor	Surface No Door	2	66		**TT120SLGNM** ⑬⑭	
60	2	4	Indoor	Flush No Door	2	1	#14 – 2	**2460FNM**	
	2	4	Indoor	Surface No Door	2	1		**2460SNM**	
	2	4	Indoor	Flush No Door	2	1		**2460FGNM** ⑭	
	2	4	Indoor	Surface No Door	2	1		**2460SGNM** ⑭	
	2	4	Outdoor	—	⑮	1		**2460RNM**	

⑫ Suitable for use as service equipment when not more than six main disconnecting means are provided and when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).
⑬ This device has no main lugs. A Type BR or BD breaker is required to be backfed to supply power to branch breakers. This device is single-phase 120 Vac only. With the use of three Type BR breakers there are two branch circuits available. With the use of three Type BD breakers there are five branch circuits available.
⑭ Includes GB4NM ground bar.
⑮ 2460 RNM uses the non-metrical ACD enclosure. See **ACD Section** for dimensions.

Box Sizes ..... **Pages 3-75** through **3-77**
Discount Symbol..... **22CD**

Single-Phase — Main Lug Loadcenters — 400 and 600 Ampere

Table 3-75. Single-Phase 3-Wire — 120/240 Vac — Insulated/Bondable Neutral

Main Ampere Rating	Maximum Number 1-Inch (25.4 mm)		Enclosure Type	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Commercial Loadcenter Catalog Number ①②③			
	Spaces	Circuits					With Flush or NEMA Type 3R Cover	Price U.S. $	With Surface Cover	Price U.S. $
400	12	24	Indoor	19	44	(1) #4/0 – 750 kcmil or (2) #3/0 – 400 kcmil	—		**1224DSN** ⑤	
	12	24	Outdoor	42	44		**1224DR1N** ④⑤		—	
	24	42	Indoor	20	21		—		**2442DSN**	
	42	42	Indoor	22	14		**4242DFN**		**4242DSN**	
	42	42	Outdoor	46	14		**4242DR1N** ④		—	
600	42	42	Indoor	22	14	(2) #2 – 500 kcmil	—		**4242ESN**	

① Ground bar kits priced separately unless otherwise noted. See **Page 3-63**.
② Has notch for BRHDK125 hold-down kit.
③ Ground bar GBK8 installed.
④ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-62**.
⑤ Suitable for use as service equipment when not more than six main disconnecting means are provided and when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).

Table 3-76. Single-Phase 3-Wire — 120/240 Vac — Single Neutral with Copper Bus

Main Ampere Rating	Maximum Number 1-Inch (25.4 mm)		Enclosure Type	Type of Trim	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Loadcenter Catalog Number	Price U.S. $
	Spaces	Circuits							
125	8	16	Indoor	Surface w/door	7	7	#14 – 1	**BR816LC125SDP**	
	8	16	Indoor	Flush w/door	7	7		**BR816LC125FDP**	

Box Sizes . . . . . **Pages 3-75** through **3-77**
Discount Symbol **22CD**

3-Phase — Main Circuit Breaker Loadcenters
10,000 Amperes Interrupting Capacity

Table 3-77. 3-Phase 4-Wire — 208Y/120 Vac or 240 Vac Insulated/Bondable Neutral

Main Breaker Type	Main Ampere Rating	Maximum Number 1-Inch (25.4 mm) Spaces	Maximum Number 1-Inch (25.4 mm) Circuits	Enclosure Type	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker	Loadcenter Catalog Number ①② (With Combination or NEMA Type 3R Cover)	Price U.S. $
BR 10 kAIC	100	12 12	24 24	Indoor Outdoor	C1 C1R	65 65	#4 – 1/0	**3BR1224B100** **3BR1224B100R** ③	
CC 10 kAIC	150	30 30	42 42	Indoor Outdoor	L1 L1R	41 41	#1 – 3/0	**3BR3042B150** **3BR3042B150R** ③	
	200	30 30 42 42	42 42 42 42	Indoor Outdoor Indoor Outdoor	L1 L1R L2 L2R	41 41 43 43	#1 – 250 kcmil	**3BR3042B200** **3BR3042B200R** ③ **3BR4242B200** **3BR4242B200R** ③	
	225	42 42	42 42	Indoor Outdoor	L2 L2R	43 43	#1 – 300 kcmil	**3BR4242B225** **3BR4242B225R** ③	

① All main circuit breaker loadcenters are listed for use as service entrance equipment and are shipped with a neutral bonding strap pre-attached (commercial loadcenters do not have a pre-attached bonding strip). The maximum main rating of the panel is the main circuit breaker rating when used as service entrance equipment.
② Ground bar kits priced separately. See **Page 3-63**.
③ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-62**.

3-Phase — Main Circuit Breaker Loadcenters
22,000/65,000 Amperes Interrupting Capacity

Table 3-78. 3-Phase, 4-Wire — 208Y/120 Vac or 240 Vac Insulated/Bondable Neutral

Main Breaker Type	Main Ampere Rating	Maximum Number 1-Inch (25.4 mm) Spaces	Maximum Number 1-Inch (25.4 mm) Circuits	Enclosure Type	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker	Commercial Loadcenter Catalog Number ④⑤⑥ With Combination or NEMA Type 3R Cover	Price U.S. $
DK ⑦ 22 kAIC	400	42 42	42 42	Indoor Outdoor	24 47	42 42	(2) #3/0 – 250 kcmil	**3B4242DFN** **3B4242DR1N** ⑧	
LD ⑨	600	42	42	Indoor	24	42	(2) #3/0 – 500 kcmil	**3B4242EFN**	

④ All main circuit breaker loadcenters are listed for use as service entrance equipment and are shipped with a neutral bonding strap pre-attached (commercial loadcenters do not have a pre-attached bonding strip). The maximum main rating of the panel is the main circuit breaker rating when used as service entrance equipment.
⑤ Ground bar kits priced separately. See **Page 3-63**.
⑥ Door lock and key included with loadcenter.
⑦ Type DK main circuit breaker is rated 65 kAIC at 240 Vac and allows a 22 kAIC series rating on the loadcenter when Types BR, BD and BJ branch circuit breakers are used.
⑧ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-62**.
⑨ The LD main circuit breaker is rated 65 kAIC at 240 Vac. Type LD circuit breaker **is not** series rated with Types BR, BD and BJ branch circuit breakers.

3-Phase — High Interrupting Rated Main Circuit Breaker Loadcenters
22,000/100,000 Amperes Interrupting Capacity

Table 3-79. 3-Phase 4-Wire — 208Y/120 Vac or 240 Vac Insulated/Bondable Neutral

Main Breaker Type	Main Ampere Rating	Maximum Number 1-Inch (25.4 mm) Spaces	Maximum Number 1-Inch (25.4 mm) Poles	Enclosure Type	Box Size	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker	Loadcenter Catalog Number ⑩⑪ with Combination Cover	Loadcenter Catalog Number ⑩⑪ with Surface Cover
BRH 22 kAIC ⑫	100	12	24	Indoor	C1	#4 – 1/0	**3BR1224H100**	**3BR1224H100S**
CHH 100 kAIC ⑬	150	30	42	Indoor	L1	#1 – 250 kcmil	**3BR3042H150**	**3BR3042H150S**
CHH 100 kAIC ⑬	200	30 42	42 42	Indoor Indoor	L1 L2	#1 – 250 kcmil	**3BR3042H200** **3BR4242H200**	**3BR3042H200S** **3BR4242H200S**

⑩ All main circuit breaker loadcenters are listed for use as service entrance equipment and are shipped with a neutral bonding strap pre-attached.
⑪ Ground bar kits priced separately.
⑫ 22,000 AIC series combination rating is obtained when Types BD, BR, BQ, BQC and GFGB branch breakers are used with BRH main.
⑬ 100,000 AIC series combination rating is obtained when Types BD, BR, BQ, BQC and GFGB branch breakers are used with CHH main

Box Sizes . . . . . **Pages 3-75** through **3-77**
Discount Symbol **22CD**

3

3-Phase — Main Lug Loadcenters

Table 3-80. 3-Phase 4-Wire — 208Y/120 Vac or 240 Vac Insulated/Bondable Neutral

Main Ampere Rating	Maximum Number 1-Inch (25.4 mm) Spaces	Maximum Number 1-Inch (25.4 mm) Circuits	Enclosure Type	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Loadcenter Catalog Number ① (With Combination or NEMA Type 3R Cover)	Price U.S. $
100	3	3	Indoor	9	32	#14 – 1/0	**3BR3L100S** ②	
	3	3	Outdoor	9R	32		**3BR3L100R** ③	
125	12	24	Indoor	C1	35	#6 – 2/0	**3BR1224L125** ④⑤	
	12	24	Outdoor	C1R	35		**3BR1224L125R** ③④⑤	
150	24	42	Indoor	D1	34	#1 – 300 kcmil	**3BR2442L150**	
	24	42	Outdoor	D1R	34		**3BR2442L150R** ③	
200	12	24	Indoor	C4	35	#1 – 300 kcmil	**3BR1224L200** ⑤	
	12	24	Outdoor	C3R	35		**3BR1224L200R** ③⑤	
	30	42	Indoor	G1	33		**3BR3042L200**	
	30	42	Outdoor	G1R	33		**3BR3042L200R** ③	
	42	42	Indoor	L1	37		**3BR4242L200**	
	42	42	Outdoor	L1R	37		**3BR4242L200R** ③	
225	42	42	Indoor	L1	37	#1 – 300 kcmil	**3BR4242L225**	
	42	42	Outdoor	L1R	37		**3BR4242L225R** ③	

① Ground bar kits priced separately. See **Page 3-63**.
② Surface cover only.
③ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-62**.
④ Has notch for BREQS125 hold-down kit.
⑤ Suitable for use as service equipment when not more than six main disconnecting means are provided and when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).
⑥ Door lock and key included with loadcenter.

3-Phase — Main Lug Loadcenters

Table 3-81. 3-Phase, 4-Wire — 208Y/120 Vac or 240 Vac Insulated/Bondable Neutral

Main Ampere Rating	Maximum Number 1-Inch (25.4 mm) Spaces	Maximum Number 1-Inch (25.4 mm) Circuits	Enclosure Type	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Commercial Loadcenter Catalog Number ⑦ With Flush or NEMA Type 3R Cover	Price U.S. $	With Surface Cover	Price U.S. $
400	18	36	Indoor	19	40	(1) 250 – 750 kcmil	—		—	
	18	36	Outdoor	43	40	or	—		—	
	24	42	Indoor	19	38	(2) #3/0 – 250 kcmil	—		—	
	42	42	Indoor	22	39		**34242DFN**		**34242DSN**	
	42	42	Outdoor	46	39		**34242DR1N** ⑧		—	
600	42	42	Indoor	22	39	(2) #2 – 500 kcmil	—		**34242ESN**	

⑦ Door lock and key included with loadcenter.
⑧ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-62**.

Box Sizes..... **Pages 3-75** through **3-77**
Discount Symbol **22CD**

Convertible Loadcenters MCB or MLO — Base Units and Main Devices
10,000/22,000/25,000 Amperes Interrupting Capacity
Complete Assembly Consists of: Loadcenter and Either Main Breaker Kit or Main Lug Kit

Note: Interrupting rating depends on main circuit breaker selected.

Table 3-82. Base Units — Single-Phase 3-Wire — 120/240 Vac — Insulated/Bondable Neutral

Main Ampere Rating ①	Maximum Number 1-Inch (25.4 mm) Spaces	Circuits	Enclosure Type	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main	Loadcenter Catalog Number With Combination or NEMA Type 3R Cover ②③	Price U.S. $
125 ④	12	24	Indoor	B2	49	See main breaker and main lug kit tables next page.	**BR1224N125** ⑤⑥	
	12	24	Outdoor	B2R	49		**BR1224N125R** ⑤⑥⑦	
	16	24	Indoor	C1	45		**BR1624N125** ⑤	
	16	24	Outdoor	C1R	45		**BR1624N125R** ⑤⑦	
	20	24	Indoor	C2	50		**BR2024N125** ⑤	
	20	24	Outdoor	C3R	50		**BR2024N125R** ⑤⑦	
200 ⑧	8	16	Outdoor	C3R	52		**BR816N200RF** ⑦⑨⑩	
	12	24	Indoor	C4	13		**BR1224N200** ⑩	
	12	24	Outdoor	C3R	13		**BR1224N200R** ⑦⑩	
	16	32	Indoor	C4	13		**BR1632N200** ⑩	
	20	40	Indoor	D1	13		**BR2040N200** ⑩	
	20	40	Indoor	D1	13		**BR2040N200G** ⑪	
	20	40	Outdoor	D1R	13		**BR2040N200R** ⑦⑩	
	20	40	Outdoor	D1R	13		**BR2040N200RG** ⑪	
	24	40	Indoor	G1	61		**BR2440N200** ⑦⑩	
	30	40	Indoor	G1	53		**BR3040N200** ⑩	
	30	40	Indoor	G1	53		**BR3040N200G** ⑪	
	30	40	Outdoor	G1R	53		**BR3040N200R** ⑦⑩	
	30	40	Outdoor	G1R	53		**BR3040N200RG** ⑪	
	40	40	Indoor	L1	47		**BR4040N200** ⑩	
	40	40	Indoor	L1	47		**BR4040N200G** ⑪	
	40	40	Outdoor	L1R	47		**BR4040N200R** ⑦⑩	
	40	40	Outdoor	L1R	47		**BR4040N200RG** ⑪	

① The maximum rating of the loadcenter is the main circuit breaker rating when used as service entrance equipment.
② 100, 125 and 200 ampere Convertible base unit catalog numbers include interior, box and cover only. Main devices and accessories must be ordered separately for field installation. All Convertible base units are listed as suitable for use as service entrance equipment when used per Article 384 of the NEC.
③ Ground bar kits priced separately except as noted, refer to **Page 3-63**.
④ For main breaker, use Type BR. For main lug use Type BRSF.
⑤ BREQS125 hold-down screw comes with loadcenter for back-fed Types BR and BRH main circuit breakers.
⑥ Convertible to maximum of 100 ampere main circuit breaker and 125 ampere main lug.
⑦ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-62**.
⑧ For main breaker, use Type BW. For main lug use Type BRL.
⑨ Includes through-feed lugs for both phase and neutral conductors.
⑩ No hold-down provisions for back-fed Types BR and BRH main circuit breakers.
⑪ Includes GBK2120 ground bar.

Table 3-83. Base Units — 3-Phase 4-Wire — 208Y/120 Vac or 240 Vac Insulated/Bondable Neutral

Main Ampere Rating ⑫	Maximum Number 1-Inch (25.4 mm) Spaces	Circuits	Enclosure Type	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main	Loadcenter Catalog Number ⑬⑭ (With Combination or NEMA Type 3R Cover)	Price U.S. $
100 ⑮	30	30	Indoor	D1	48	See main breaker and main lug kit tables next page.	**3BR3030N100** ⑯	
	30	30	Outdoor	D1R	48		**3BR3030N100R** ⑯⑰	
125 ⑮	12	24	Indoor	C1	51		**3BR1224N125** ⑯⑰⑱	
	12	24	Outdoor	C1R	51		**3BR1224N125R** ⑯⑰⑱⑲	

⑫ The maximum rating of the loadcenter is the main circuit breaker rating when used as service entrance equipment.
⑬ 100, 125 and 200 ampere Convertible base unit catalog numbers include interior, box and cover only. Main devices and accessories must be ordered separately for field installation. All Convertible base units are listed as suitable for use as service entrance equipment when used per Article 384 of the NEC.
⑭ Ground bar kits priced separately, refer to **Page 3-63**.
⑮ For main breaker, use Type BR. For main lug use Type BRSF
⑯ BREQS125 hold-down screw comes with loadcenter for back-fed Types BR and BRH main circuit breakers.
⑰ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-62**.
⑱ Convertible to maximum of 100 ampere main circuit breaker and 125 ampere main lug.
⑲ Suitable for use as service equipment when not more than six main disconnecting means are provided and when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).

Box Sizes . . . . . **Pages 3-75** through **3-77**
Discount Symbol. **22CD**

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Convertible Loadcenters — With Copper Bus 10,000/22,000/25,000 Amperes Interrupting Capacity

Table 3-84. Convertible — Single-Phase 3-Wire — 120/240 Vac — Insulated/Bondable Neutral

Main Ampere Rating	Maximum Number 1-Inch (25.4 mm)		Enclosure Type	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main	Loadcenter Catalog Number with Combination or NEMA Type 3R Cover ①②③	Price U.S. $
	Spaces	Circuits						
125 10/22 kAIC ④⑤	12 12 20 20	24 24 24 24	Indoor Outdoor Indoor Outdoor	B2 B2R C2 C3R	49 49 50 50	See main breaker and main lug kit tables on **Page 3-54**.	**BR1224NC125** ⑥⑦ **BR1224NC125R** ⑥⑦⑧ **BR2024NC125** ⑥ **BR2024NC125R** ⑥⑧	
200 10/25 kAIC ④⑨	20 20 30 30 40 40	40 40 40 40 40 40	Indoor Outdoor Indoor Outdoor Indoor Outdoor	D1 D1R G1 G1R L1 L1R	13 13 53 53 47 47		**BR2040NC200** **BR2040NC200R** ⑧ **BR3040NC200** **BR3040NC200R** ⑧ **BR4040NC200** **BR4040NC200R** ⑧	

① All main circuit breaker loadcenters are listed for use as service entrance equipment and are shipped with a neutral bonding strap preattached. The maximum main rating of the loadcenter is the main breaker rating when used as service entrance equipment.
② Ground bar kits priced separately. See **Page 3-63**.
③ 100, 125 and 200 ampere Convertible base unit catalog numbers include interior, box and cover only. Main devices must be ordered separately from **Page 3-54**. Accessories must also be ordered separately for field installation. All Convertible base units are listed as suitable for use as service entrance equipment when used per Article 384 of the NEC.
④ Interrupting rating depends on main circuit breaker selected. See **Page 3-54** for mains.
⑤ For main breaker, use Type BW. For main lug use Type BRL
⑥ Hold-down screw BREQS125 comes with loadcenter for back-fed Types BR and BRH main circuit breakers.
⑦ Suitable for use as service equipment when not more than six main disconnecting means are provided and when not used as a lighting and appliance panelboard (see Article 408.34 of the NEC).
⑧ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-62**.
⑨ For main breaker, use Type BR. For main lug use Type BRSF.

Convertible Loadcenters MCB or MLO — Base Units and Main Devices
10,000/22,000/25,000 Amperes Interrupting Capacity
Complete Assembly Consists of: Loadcenter and Either Main Breaker Kit or Main Lug Kit

Note: Interrupting rating depends on main circuit breaker selected.

Table 3-85. Main Devices
2- and 3-Pole Main Circuit Breakers
120/240 Vac or 208Y/120 Vac or 240 Vac

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker	10,000 AIC		22,000/25,000 AIC	
		Catalog Number	Price U.S. $	Catalog Number ⑩	Price U.S. $
2-Pole					
100 110 125	#4 – 1/0 #4 – 1/0 #4 – 2/0	**BR2100** **BR2110** **BR2125**		**BRH2100** **BRH2110** **BRH2125**	
125 150 175 200	#2 – 300 kcmil #2 – 300 kcmil #2 – 300 kcmil #2 – 300 kcmil	**BW2125** **BW2150** **BW2175** **BW2200**		**BWH2125** **BWH2150** **BWH2175** **BWH2200**	
3-Pole					
100	#1	**BR3100**		**BRH3100**	

⑩ Series combination rating with Types BD, BR, BQ, BQC and GFCB is 22,000 AIC with BRH main and 25,000 AIC with BWH main.

Table 3-86. Main Devices
2- and 3-Pole Main Lug Kits
120/240 Vac or 208Y/120 Vac or 240 Vac

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Catalog Number	Price U.S. $
2-Pole			
125 150 175 200	#6 – 2/0 #1 – 300 kcmil #1 – 300 kcmil #1 – 300 kcmil	**BRSF125** **BRL200** **BRL200** **BRL200**	
3-Pole			
150	#6 – 3/0	**3BRSF150**	

Main Circuit Breaker with Accessory

Example: BW22005R01
(Put description with catalog number on order.
See **Page 3-74**.)

Spa Panels

Table 3-87. Spa Panel

Main Ampere Rating	Maximum Number 1-Inch (25.4 mm)		Enclosure Type	Wiring Diagram Figure Number	Box Size	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Catalog Number	Price U.S. $
	Space	Poles						
40 50	— —	— —	Outdoor Outdoor	— —	5R 5R	#8 – #2 #8 – #2	**BR40SPA** ⑪ **BR50SPA** ⑫	

⑪ Includes a GFCB240 breaker, factory installed.
⑫ Includes a GFCB250 breaker, factory installed.

Box Sizes . . . . . **Pages 3-75** through **3-77**
Discount Symbol **22CD**

Commercial Loadcenters — Indoor Enclosures
Main Circuit Breaker, Main Lug and Convertible, New York City Approved
Single-Phase and Three-Phase

Table 3-88. Single-Phase Main Circuit Breaker — Factory Installed

Main Breaker Type	Main Ampere Rating	Maximum Number 1-Inch (25.4 mm)		Enclosure Type	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker	Loadcenter Catalog Number	Price U.S. $	Loadcenter Cover Catalog Number		Price U.S. $
		Spaces	Circuits							Flush	Surface	
Single-Phase 3-Wire — 120/240 Vac Insulated/Bondable Neutral												
CC 10 kAIC	200	42	42	Indoor	A	56	#1 – 300 kcmil	**BR4242B200NY** ①		**3BR42FTNY**	**3BR42STNY**	

① Approved for 150 ampere and up for residential services in New York City.

Table 3-89. Single-Phase Main Lugs — Factory Installed

Main Lug Ampere Rating	Maximum Number 1-Inch (25.4 mm)		Enclosure Type	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Loadcenter Catalog Number	Price U.S. $	Loadcenter Cover Catalog Number		Price U.S. $
	Spaces	Circuits							Flush	Surface	
Single-Phase 3-Wire — 120/240 Vac Insulated/Bondable Neutral											
225	42	42	Indoor	A	55	#1 – 300 kcmil	**BR4242L225NY** ②		**3BR42FTNY**	**3BR42STNY**	

② Approved for 150 ampere and up for residential services in New York City.

Table 3-90. Three-Phase Convertible Loadcenters

Main Ampere Rating	Maximum Number 1-Inch (25.4 mm)		Enclosure Type	Box Size	Wiring Diagram Figure Number	Wire Size Range Cu/Al 60°C or 75°C for Main Breaker	Loadcenter Catalog Number	Price U.S. $	Loadcenter Cover Catalog Number		Price U.S. $
	Spaces	Circuits							Flush	Surface	
3-Phase 4-Wire — 120/240 Vac Insulated/Bondable Neutral											
225	42	42	Indoor	B	56	#1 – 300 kcmil	**3BR4242N225NY** ③④		**3BR42FTNY**	**3BR42STNY**	

③ Approved for 150 ampere and up for residential services in New York City.
④ Order main device from **Table 3-91** and **Table 3-92** below.

Table 3-91. Three-Phase Main Breaker Kits

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	Main Breaker Kit 10 kAIC	Price U.S. $
150 175 200 225	#4 – 4/0 #2/0 – 300 kcmil	**CC3150N** **CC3175N** **CC3200N** **CC3225N**	

Table 3-92. Three-Phase Main Lugs Kit

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	Main Lugs Kit	Price U.S. $
225	#2/0 – 300 kcmil	**3BRL225**	

Box Sizes . . . . . **Pages 3-75** through **3-77**
Discount Symbol **22CD**

3

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

Circuit Breaker Unit Enclosures

BWH2200

Table 3-93. 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. $
Single-Phase 3-Wire — 240 Vac Maximum						
225	Indoor	Flush	BW, BWH	①	**ECB225F** ②③④	
225	Indoor	Surface	BW, BWH	①	**ECB225S** ②③④	
225	Outdoor	—	BW, BWH	①	**ECB225R** ②③④⑤	

① Wire size is determined by the circuit breaker installed in enclosure. Maximum wire size and ampere rating is determined by **Table 3-95**.
② Order circuit breaker separately.
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 Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page 3-62.**

Table 3-94. Types BW and BWH Circuit Breakers 120/240 Vac — 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**		#2 – 300 kcmil	**BWH2125**	
150	**BW2150**			**BWH2150**	
175	**BW2175**			**BWH2175**	
200	**BW2200**			**BWH2200**	
225	**BW2225**			**BWH2225**	

Table 3-95. 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 3-96. 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**	

Table 3-97. Shunt Trips, Auxiliary and Alarm Contacts

Description	Catalog Number Suffix Adder ⑥	Price U.S. $ ⑦ Adder Each
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) (1) NO and (1) NC	**W1** **W2**	

⑥ Add suffix indicated to end of breaker catalog number.
⑦ Add amount shown to circuit breaker list price.

Box Sizes . . . . . **Pages 3-75** through **3-77**
Discount Symbol **22CD**

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

Table 3-98. Type ECC Circuit Breaker Unit Enclosure — Order Type CC Circuit Breaker Separately

Main Ampere Rating	Unit Enclosure Type	Type of Mounting	Type of Circuit Breaker	Wire Size Range Cu/Al 60°C or 75°C	Catalog Number	Price U.S. $
Single-Phase 3-Wire — 240 Vac Maximum						
225	Indoor	Flush	CC	⑤	**ECC225F** ①②③	
225	Indoor	Surface	CC	⑤	**ECC225S** ①②③	
225	Outdoor	—	CC	⑤	**ECC225R** ①②③④	

① Order circuit breaker separately.
② One ground lug accepting (1) #14 – #2 is factory installed. Also, there are pre-drilled holes to accept a GBK5 ground bar.
③ Approved for service entrance.
④ Rainproof panels are furnished with hub closures plates. For rainproof hubs, refer to **Page 3-62.**
⑤ Wire size is determined by the circuit breaker installed in enclosure. Maximum wire size and ampere rating is determined by **Table 3-95**.

Table 3-99. Type CC Circuit Breaker 240 Vac — 10 kAIC for Use in Type ECC Unit Enclosures

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C for Line Terminals	Type CC 10 kAIC	
		Catalog Number	Price U.S. $
2-Pole			
100 125 150	#4 – 4/0	**CC2100** **CC2125** **CC2150**	
175 200 225	#2/0 – 300 kcmil	**CC2175** **CC2200** **CC2225**	
3-Pole			
100 125 150	#4 – 4/0	**CC3100** **CC3125** **CC3150**	
175 200 225	#2/0 – 300 kcmil	**CC3175** **CC3200** **CC3225**	

Table 3-100. 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 3-101. Shunt Trips and Auxiliary Contacts

Description		Catalog Number Suffix Adder ⑥	Price U.S. $ Adder Each
Type	Volts		
Shunt Trip			
CC CC	12 dc 24 dc	**SR12** **SR24**	
CC CC CC	120 ac 208 ac 240 ac	**SR01** **SR08** **SR02**	
Auxiliary Contact			
CC (1) NO and (1) NC	—	**AL1**	

⑥ Add suffix indicated to end of breaker catalog number.

Box Sizes . . . . . **Pages 3-75** through **3-77**
Discount Symbol **22CD**

3

Riser Panel

Riser Panel

Product Description

The Cutler-Hammer Riser Panel is a loadcenter with an offset interior to allow riser cables to pass through the enlarged gutter. By using lay-in tap lugs, the contractor is able to simply strip off a length of the riser cable's insulation, and tap off to the riser panel's main lugs. These panels are used in the construction of assisted living homes, dormitories, public housing complexes and apartments.

Eaton offers two 125 ampere main lug riser panels, a 12/24 and a 20/24. The panels are convertible to main breaker by adding the appropriate breaker and a BREQS125 hold-down kit. Additionally, the 12/24 is offered in a bulk-packed version. The bulk-packed product must be ordered in multiples of 16, and consists of a pallet with uncartoned loadcenters on the bottom, and cartoned trims on top. The entire pallet is shrink-wrapped for protection. By supplying the loadcenter without a carton, the contractor is able to save the unpacking time as well as saving on the scrap cardboard on the site.

For applications higher than 125 amperes, or the circuits provided by the panels above, we offer the BRGUTTER. This is essentially a junction box that mounts next to, and assembles to standard BR or CH loadcenters. There is a matching concentric knockout that allows the tapped cables to pass through from the BRGUTTER to the loadcenter. The trims of the loadcenter and the BRGUTTER are designed to allow the two boxes to bolt to one another in a flush application. There is no need to allow for the trim overhang.

Also offered is the GTAP250, which is a set of three lay-in, insulated tap lugs. The maximum wire size for the GTAP250 is 250 kcmil. GTAP250 can be used with either the riser panels, or the BRGUTTER.

Table 3-102. Riser Panel

Main Ampere Rating	Maximum Number 1-Inch (25.4 mm)		Enclosure Type	Wiring Diagram Figure Number	Box Size	Wire Size Range Cu/Al 60°C or 75°C for Main Lugs	Catalog Number	Price U.S. $
	Space	Circuits						
125	12	24	Indoor	73	C4	#6 – 2/0	**BR1224L125RIS**	
125	12	24	Indoor	73	C4	#6 – 2/0	**BR1224L125RISBP** ①	
125	20	24	Indoor	74	C4	#6 – 2/0	**BR2024L125RIS**	

① Bulk-packaged loadcenter without carton. Must be ordered in multiples of 16.

Mechanical Interlock Cover

Covers mechanically interlock two breakers — Type BW or BWH main breaker with a Type BR.

Table 3-103. Mechanical Interlock Cover

Type	Fits Loadcenter Catalog Numbers	Mechanical Interlock Panel Cover	
		Catalog Number Flush	Price U.S. $
B	**BR816B200RF** **BR2040B200R** **BR3040B200R** **BR4040B200R**	**BR3RDF5M** **BR3RDF11M** **BR3RDF12M** **BR3RDF13M**	
	BR2040B200 **BR3040B200** **BR4040B200**	**BRCOV20D1FM** **BRCOV30G1FM** **BRCOV40L1FM**	

BRGUTTER (Shown with Loadcenter)

Table 3-104. Riser Panel Accessories

Description	Price U.S. $
BRGUTTER ② **GTAP250**	

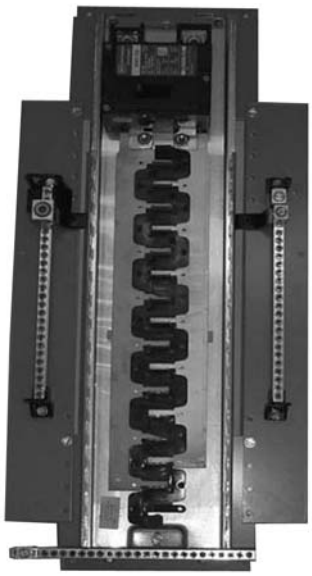
② Refer to **Page 3-75** for dimensions. BRGUTTER is box size C2.

For riser panels not shown, contact the Flex Center at 1-800-330-6479 for both CH and BR riser panels.

Type B

Discount Symbol **22CD**

Type BR Retrofit Interior Kits



Type BR Retrofit Interior

Product Description

Replacing existing loadcenters and panelboards can be a time consuming and expensive job. BR retrofit kits can be the solution to save time and money. The kit consists of a standard trim to fit the interior, a picture frame trim to fit the existing box, and a field adjustable interior assembly which includes neutral and ground bars as well. These are especially applicable when the existing box is flush mounted in drywall, plaster or block wall. The existing box, and many times existing wiring, can remain. Interiors are UL recognized under UL 67, Panelboard standard.

Cutler-Hammer Quick-Pro℠

All you need to know to save time and make more money. Specified on certain Cutler-Hammer products, the Quick-Pro symbol allows for immediate recognition of products that are designed for straightforward installation. When you see Quick-Pro, you know you can install quickly — sometimes up to 50% less than the usual installation time — and move onto your next job.

Detailed Product Guide

All standard retrofit kits are suitable for a range of existing box sizes:

- Box width ranging from 14.50 to 22.00 inches (368.3 to 558.8 mm).
- Box depth ranging from 4.00 inches (101.6 mm) for BR.
- Box height ranging from 21.00 to 45.00 inches (533.4 to 1143.0 mm).

For box dimensions outside of these ranges contact the Lincoln Flex Center at 800-330-6479. Be sure to provide the existing incoming line wire size.

To select the retrofit kit:

1. From the existing box size determine which retrofit groups are suitable (may be more than one).
2. Use type of interior, number of phases, and type of main to find the selection chart.
3. Select part number from chart (if main breaker, replace XXX with specific amp rating).
4. Note that the overlap of the existing wall is the retro cover size minus the existing box size. If specific measurements are needed, communicate that you need a custom trim size.
5. Contact the **Lincoln Flex Center at 800-330-6479** for pricing, lead-times, and order entry instructions.

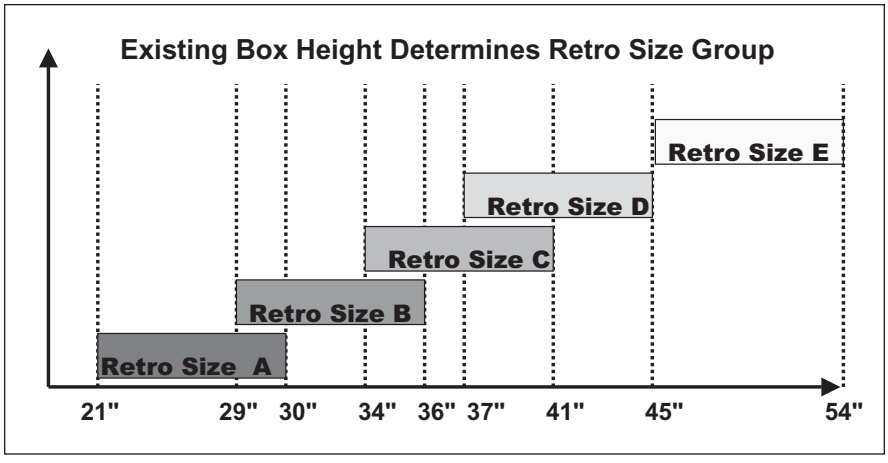


Figure 3-15. Retro Size Groups

3

Product Selection

Table 3-105. Type BR Interior — Dimensions in Inches (mm)

Main Breaker Rating		Existing Box Height		Wire Size	Number of Circuits	Part Number	Retro Size Group	Retro Cover Size ①	
Amperes	AIC	Minimum	Maximum					Height	Width
Single-Phase with Main Breaker									
60 – 125	10K 22K	21.00 (533.4)	30.00 (762.0)	#4 – 2/0 #4 – 2/0	20	**RABR20BXXX** ② **RABR20HXXX** ②	A	33.00 (838.2)	24.00 (609.6)
60 – 125	10K 22K	29.00 (736.6)	36.00 (914.4)	#4 – 1/0 #4 – 1/0	30	**RBBR30BCXXX** ② **RBBR30HCXXX** ②	B	40.00 (1016.0)	24.00 (609.6)
100 – 200	25K	29.00 (736.6) 31.00 (787.4)	30.50 (774.7) 36.00 (914.4)	#2 – 250 kcmil #2 – 300 kcmil	20	**RBBR20HXXX** ②			
100 – 225	25K	34.00 (863.6) 36.00 (914.4)	35.50 (901.7) 41.00 (1041.4)	#2 – 250 kcmil #2 – 300 kcmil	30	**RCBR30HXXX** ②	C	43.00 (1092.2)	24.00 (609.6)
100 – 225	25K	37.00 (939.8) 39.00 (990.6) 41.00 (1041.4)	38.50 (977.9) 40.50 (1028.7) 45.00 (1143.0)	#2 – 4/0 #2 – 250 kcmil #2 – 300 kcmil	40	**RDBR40HXXX** ②	D	47.00 (1193.8)	24.00 (609.6)
Three-Phase with Main Breaker									
60 – 100	10K 22K	21.00 (533.4)	30.00 (762.0)	#4 – 2/0 #4 – 2/0	12	**RABR12B3XXX** ② **RABR12H3XXX** ②	A	33.00 (838.2)	24.00 (609.6)
60 – 100	10K 22K	29.00 (736.6)	36.00 (914.4)	#4 – 1/0 #4 – 1/0	30	**RBBR30BXXX** ② **RBBR30H3XXX** ②	B	40.00 (1016.0)	24.00 (609.6)
100 – 200	10K	37.00 (939.8)	45.00 (1143.0)	2/0 – 300 kcmil	30	**RDBR30B3XXX** ②			
	100K	37.00 (939.8) 39.00 (990.6)	38.50 (977.9) 45.00 (1143.0)	2/0 – 250 kcmil 2/0 – 300 kcmil		**RDBR30H3XXX** ②	D	47.00 (1193.8)	24.00 (609.6)
100 – 225	10K 100K	34.00 (863.6) 36.00 (914.4)	35.50 (901.7) 41.00 (1041.4)	2/0 – 250 kcmil 2/0 – 300 kcmil	42	**REBR42B3XXX** ② **REBR42H3XXX** ②	E	56.00 (1422.4)	24.00 (609.6)

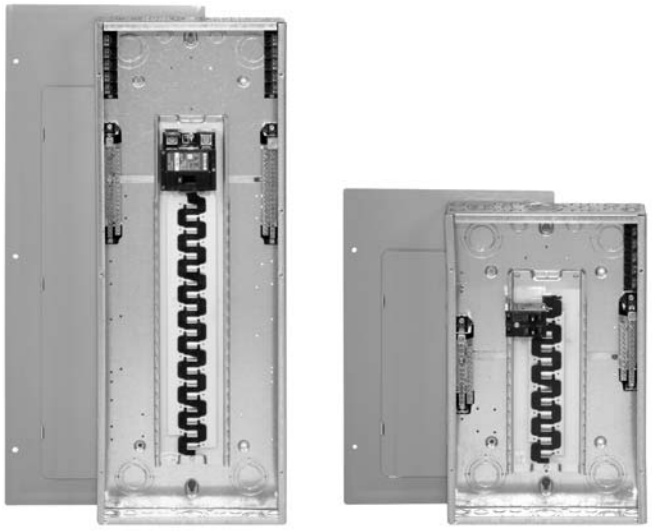
① Specific cover sizes are available. Be sure to specify the custom cover option and provide exact dimensions required.
② XXX is for Main Breaker specific ampere rating.

Table 3-106. Type BR Interior — Dimensions in Inches (mm)

Maximum Bus Ampere Rating	Existing Box Height		Wire Size	Number of Circuits	Part Number	Retro Size Group	Retro Cover Size ③	
	Minimum	Maximum					Height	Width
Single-Phase Main Lug Only								
125	21.00 (533.4)	30.00 (762.0)	#14 – 2/0	24	**RABR20L125**	A	33.00 (838.2)	24.00 (609.6)
200	29.00 (736.6) 32.00 (812.9)	31.50 (800.1) 36.00 (914.4)	#1 – 250 kcmil #1 – 300 kcmil	30	**RBBR30L200**	B	40.00 (1016.0)	24.00 (609.6)
200	34.00 (863.6) 37.00 (939.8)	36.50 (927.1) 41.00 (1041.4)	#1 – 250 kcmil #1 – 300 kcmil	40	**RCBR40L200**	B	43.00 (1092.2)	24.00 (609.6)
200	37.00 (939.8) 39.00 (990.6)	38.50 (977.9) 45.00 (1143.0)	#1 – 250 kcmil #1 – 300 kcmil	42	**RDBR42L225**	B	47.00 (1193.8)	24.00 (609.6)
Three-Phase Main Lug Only								
125	21.00 (533.4)	30.00 (762.0)	#8 – 2/0	24	**RABR12L3125**	A	33.00 (838.2)	24.00 (609.6)
100	29.00 (736.6)	36.00 (914.4)	#8 – 2/0	24	**RBBR30L3100**	B	40.00 (1016.0)	24.00 (609.6)
150			#4 – 4/0	24	**RBBR24L3150**			
200	34.00 (863.6) 36.00 (914.4)	35.50 (901.7) 41.00 (1041.4)	#4 – 250 kcmil #4 – 300 kcmil	30	**RCBR30L3200**	C	43.00 (1092.2)	24.00 (609.6)
225	37.00 (939.8) 39.00 (990.6)	38.50 (977.9) 45.00 (1143.0)	#4 – 250 kcmil #4 – 300 kcmil	42	**RDBR42L3225**	D	47.00 (1193.8)	24.00 (609.6)
225	45.00 (1143.0)	54.00 (1371.6)	#4 – 300 kcmil	42	**REBR42L3225**	E	56.00 (1422.4)	24.00 (609.6)

③ Specific cover sizes are available. Be sure to specify the custom cover option and provide exact dimensions required.

BR Renovation Loadcenter Value Packs



BR Renovation Loadcenters

Product Description

- Available in 10, 20, 30 and 40 circuit main breaker styles.
- Designed to replace existing loadcenters and fuse boxes.
- Type BR loadcenter packaged with circuit breakers.
- Factory-installed 5-circuit terminal block(s).
- Twin-stacked neutral design.

Features, Functions & Benefits

- Factory-installed terminal block(s) allows installer to terminate existing short wires without using wire nuts or junction boxes.
- Twin-stacked neutrals are mounted up high in the loadcenter, which allows for all neutral and ground wires to be terminated in the top half of the loadcenter.
- Specifically designed for the service contractor — this is the ONLY renovation line in the industry.
- Single-pole and two-pole breakers included.
- 10-year warranty on loadcenter and breakers.

Product Selection

Table 3-107. BR Value Packs

Main Breaker Type	Description	Wire Size Range	Number of 5-Circuit Terminal Blocks	Single-Pole Breakers	Two-Pole Breakers	Catalog Number	UPC Code
BR 10 kAIC	Single-Phase 100 Ampere 10 k Main Breaker 10/20 Circuit Surface-Mount Box is 11.75" Wide x 13" Tall	#6 – 1/0	0	(2) BR115	(1) BR230	**BR1020B100S11RN**	782116417070
	Single-Phase 100 Ampere 10 k Main Breaker 10/20 Circuit Flush-Mount Box is 11.75" Wide x 13" Tall		0	(2) BR115	(1) BR230	**BR1020B100F11RN**	782116417087
BWH 25 kAIC	Single-Phase 100 Ampere 10 kAIC Main Breaker 20/20 Circuit	#2 – 300 kcmil	1	(5) BR120	(1) BR230	**BR2020B100RN**	782116417094
	Single-Phase 200 Ampere 10 kAIC Main Breaker 30/40 Circuit		2	(5) BR115 (5) BR120	(1) BR230 (1) BR250	**BR3040B200RN**	782116417100
	Single-Phase 200 Ampere 10 kAIC Main Breaker 40/40 Circuit		2	(6) BR115 (6) BR120	(1) BR230 (1) BR250	**BR4040B200RN**	782116417117

Note: Indoor enclosure type.

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3

Loadcenter Options and Accessories

Table 3-108. Field Installation Kits and Parts

Number of Poles	Ampere Rating	Number of 1-Inch (25.4 mm) Spaces Needed	Wire Size Range Cu/Al 60°C or 75°C	Ordering Quantity ①	Catalog Number	Price U.S. $ Each
Main and Sub-Feed Lug Blocks						
2	125 150 225	2 2 4	#8 – 2/0 #8 – 2/0 #2 – 300 kcmil	1 1 1	**BRSF125** **BRSF150** **BRS225**	
3	150 225	3 6	#8 – 2/0 #2 – 300 kcmil	1 1	**3BRSF150** **3BRS225**	
Main Lugs 2-Pole, 200 Ampere Stud Mounted (Includes Deadfront Filler Plate)			#1 – 300 kcmil	1	**BRL200**	
Neutral/Ground Lug Add-On Neutral or Ground Lug			#2/0 Maximum #3/0 Maximum 300 kcmil Maximum	1 1 1	**NL20** **NL30** **NL300**	
Filler Plates 1-Inch (25.4 mm) Circuit Breaker Space BW Main Circuit Breaker Space (with Hardware)				25 1	**BRFP** **BWFP**	
Door Lock —12 through 42 Circuits, and 100 through 225 Amperes				1	**TDL**	
Door Lock — 4 through 8 Circuits, 125 Amperes				1	**CH9FL**	
ANSI-61 Light Gray Touchup Paint for Current Loadcenters				1	**SPC61**	
Isolated Neutral Assembly (Computer Circuits)				1	**BINA**	
Circuit Directory — Adhesive Backed				10	**TCD**	
Cover Screws				25	**LCCS**	
Cover Replacement Latch (Gray) 14-5/16 (363.5 mm) Wide Loadcenters Only				1	**BRRL**	
Circuit Marking Strip (Next to Breaker)				10	**BRMS**	
Circuit Identification Label (Preprinted Breaker Labels)				25	**CHBL**	
Series Rated Caution Label				25	**SRL**	
Bonding Strip with Screw				1	**BSSUSE**	

① Must be purchased in multiples of ordering quantities indicated.

BRSF125

3BRS225

BRL200

TDL

DS300H2

Table 3-109. Field Installation Rainproof Conduit Hubs

Description	Conduit Size Inches (mm)	Ordering Quantity ②	Catalog Number	Price U.S. $ Each
Group 1 — For use with 70, 100 and 125 Ampere MLO and MCB Loadcenters and Circuit Breaker Enclosures and the following 150 and 200 Ampere Panels: BR816B150RF, BR816B200RF	.75 (19.1) 1.00 (25.4) 1.25 (31.8) 1.50 (38.1) 2.00 (50.8)	1 1 1 1 1	**DS075H1** **DS100H1** **DS125H1** **DS150H1** **DS200H1**	
Group 2 — For use with 150, 200 and 225 Ampere MLO and MCB Loadcenters and Circuit Breaker Enclosures except for the following 200 Ampere Loadcenters: BR48B200RF. Also for use with 400 and 600 Ampere Loadcenters and New York City Loadcenters Manufactured after November 1, 2005	2.00 (50.8) 2.50 (63.5) 3.00 (76.2)	1 1 1	**DS200H2** **DS250H2** **DS300H2**	
Type H Conduit Hubs for Loadcenters PL0724R and S3100RN	.75 (19.1) 1.00 (25.4) 1.25 (31.8) 1.50 (38.1)	1 1 1 1	**RH75P** **RH100P** **RH125P** **RH150P**	
Adapter Kit — Allows Installing a Group 1 Hub on Devices Arranged for Group 2 Hubs Group 1 Small Blank Hub Plate with Bump Group 2 Large Blank Hub Plate with Bump	— — —	1 1 1	**DS900AP** **DS900CP1** **DS900CP2**	

② Must be purchased in multiples of ordering quantities indicated.

Discount Symbol **22CD**

Loadcenter Options and Accessories (Continued)

GBK14

BRGBK39512

Table 3-110. Ground Bar Kits

Description (See Legend)	Length Inches (mm)	Ordering Quantity ①	Catalog Number	Price U.S. $ Each
●○○○○●○	2.54 (64.5)	1	**GBK5** ②	
●○○○○●○■	3.59 (91.2)	1	**GBK520** ②	
●○○○○●○○○○○○	4.29 (109.0)	1	**GBK10** ②	
●○○○○●○○○○○○■	5.34 (135.6)	1	**GBK1020** ②	
◒●◒◒◒⬓◒●◒⬓◒◒◒	4.61 (117.1)	1	**GBK13** ②	
●○○○○●○○○○○○○○○○	5.69 (144.5)	1	**GBK14** ②	
●○○○○●○○○○○○○○○○■	6.74 (171.2)	1	**GBK1420** ②	
●○○○○●○○○○○○○○○○○○○	8.14 (206.8)	1	**GBK21** ②	
●○○○○●○○○○○○○○○○○○○○○■	9.19 (233.4)	1	**GBK2120** ②	
◪◐◪●◪◐◪◪◪◐◪●◪◐◪◪◪◐◪	5.78 (146.8)	1	**BRGBK39512** ③④	
○○○○○	1.84 (46.7)	1	**GB4NM** ⑤	

① Must be purchased in multiples of ordering quantities indicated.
② Distance between mounting holes is 1.75 inches (44.5 mm).
③ For single- and 3-phase 400 and 600 ampere applications.
④ Distance between mounting holes is 2.34 inches (59.5 mm).
⑤ For non-metallic enclosures. Snaps into molded base.

Ground Bar Legend

- ○ (3) #14 – #10 Cu/Al or (1) #14 – #4 Cu/Al
- ■ (1) #6 – 2/0 Cu/Al
- ◪ (1) #14 – #6 Cu/Al or (2) #14 – #12 Cu/Al
- ⬓ (1) 1/8 – 14 or (3) #10 – 12 Cu/Al
- ◒ (1) #14 – 1/0 Cu/Al or (3) #14 – #10 Cu/Al
- ◐ (1) #6 – 14 Cu/Al or (2) #1/0 – 14 Cu/Al
- ● Mounting Hole

Discount Symbol **22CD**

Plug-on Circuit Breakers, Types BR
10,000/22,000/42,000 Amperes
Interrupting Capacity 120 Vac, 120/240 Vac and 240 Vac

3

BR120

BR215

BR320

Table 3-111. Type BR Breakers, 1-Inch (25.4 mm) per Pole 120/240, 10,000, 22,000 and 42,000 AIC

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	1-Pole 120/240 Vac Requires One 1-Inch (25.4 mm) Space				2-Pole 120/240 Vac Common Trip Requires Two 1-Inch (25.4 mm) Spaces					
		10 per Shelf Carton				5 per Shelf Carton					
		10 kAIC		22 kAIC		10 kAIC		22 kAIC		42 kAIC	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $	Catalog Number	Price U.S. $	Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
10	#14 – 4	**BR110**		**—**		**BR210**		**—**		**—**	
15		**BR115** ①②		**BRH115**		**BR215** ③		**BRH215**		**—**	
20		**BR120** ①②		**BRH120**		**BR220** ③		**BRH220**		**—**	
25		**BR125**		**BRH125**		**BR225** ③		**BRH225**		**—**	
30		**BR130**		**BRH130**		**BR230** ③		**BRH230**		**—**	
35	#14 – 4	**BR135**		**BRH135**		**BR235** ③		**BRH235**		**—**	
40		**BR140**		**BRH140**		**BR240** ③		**BRH240** ③		**—**	
45		**—**		**BRH145**		**BR245** ③		**BRH245**		**—**	
50		**BR150**		**BRH150**		**BR250** ③		**BRH250** ③		**—**	
55	#14 – 3	**BR150**		**BRH155**		**BR255**		**BRH255**		**—**	
60	#4 – 1/0	**BR160**		**BRH160**		**BR260**		**BRH260**		**BRHH260**	
70		**BR170**		**BRH170**		**BR270**		**BRH270**		**BRHH270**	
80		**—**		**—**		**BR280**		**BRH280**		**BRHH280**	
90		**—**		**—**		**BR290**		**BRH290**		**BRHH290**	
100		**—**		**—**		**BR2100**		**BRH2100**		**BRHH2100**	
110		**—**		**—**		**BR2110**		**BRH2110**		**BRHH2110**	
125	#4 – 2/0	**—**		**—**		**BR2125**		**BRH2125**		**BRHH2125**	
150		**—**		**—**		**BR2150** ④		**—**		**—**	

① One pole, 1-inch (25.4 mm) per pole circuit breakers are available with high magnetic setting for switching large tungsten lamp loads. Add suffix H to catalog number.

② Switching duty rated.

③ On the black handle breaker, add suffix "B" to the catalog number and $4.00 to the list price to obtain a tapped molded opening for proper use with hold-down kits.

④ For use as a branch circuit breaker in 400 and 600 ampere panels only.

Note: All Type BR 1-, 2-, and 3-pole circuit breakers carry listing for HACR application.
For circuit breakers with a shunt trip, add ST suffix and obtain pricing from table on **Page 3-74**.

Discount Symbol **22CD**

Table 3-112. Type BR Breakers, 1-Inch (25.4 mm) per Pole 240 Vac, 10,000, 22,000 and 42,000 AIC

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	3-Pole 240 Vac Common Trip Requires Three 1-Inch (25.4 mm) Spaces 			
		5 per Shelf Carton			
		10 kAIC		22 kAIC	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
10	#14 – 4	**BR310**		**—**	
15		**BR315** ①		**BRH315**	
20		**BR320** ①		**BRH320**	
25		**BR325**		**BRH325**	
30		**BR330**		**BRH330**	
35	#14 – 4	**BR335**		**BRH335**	
40		**BR340**		**BRH340**	
45		**BR345**		**BRH345**	
50		**BR350**		**BRH350**	
55	#14 – 3	**BR355**		**BRH355**	
60	#4 – 1/0	**BR360**		**BRH360**	
70		**BR370**		**BRH370**	
80		**BR380**		**BRH380**	
90		**BR390**		**BRH390**	
100		**BR3100**		**BRH3100**	

① One pole, 1-inch (25.4 mm) per pole circuit breakers are available with high magnetic setting for switching large tungsten lamp loads. Add suffix H to catalog number.

Note: All Type BR 1-, 2- and 3-pole circuit breakers carry listing for HACR application.
For circuit breakers with a shunt trip, add ST suffix and obtain pricing from table on **Page 3-74**.

Discount Symbol **22CD**

Plug-on Arc Fault Circuit Breakers, Type BR 10,000 Amperes Interrupting Capacity 120 Vac and 120/240 Vac

3

Type BR AFCI Circuit Breaker

An arc fault circuit interrupter is a device intended to provide protection from the effects of arc faults by recognizing characteristics unique to arcing and by functioning to de-energize the circuit when the arc fault is detected. As of January 1, 2002, the National Electrical Code (NEC) now requires that all branch circuits that supply 125 volt, single-phase, 15 and 20 ampere receptacle outlets installed in dwelling unit bedrooms shall be protected by an Arc Fault Circuit Interrupter(s).

Product Selection

Table 3-113. Type BR, 1-Inch (25.4 mm) wide FIRE-GUARD™ AFCI Circuit Breakers

Poles	Ampere Rating	Configuration	Catalog Number	Price U.S. $
Single-Pole 10 kAIC	15	AFCI AFCI with GFCI AFCI in Clamshell Package	**BR115AF** **BR115AFGF** **BR115AFCS**	
	20	AFCI AFCI with GFCI AFCI in Clamshell Package	**BR120AF** **BR120AFGF** **BR120AFCS**	
Double-Pole 10 kAIC ①②	15	AFCI Common Trip AFCI Independent Trip AFCI Common Trip with GFCI	**BR215AF** **BR215AFIT** **BR215AFGF**	
	20	AFCI Common Trip AFCI Independent Trip AFCI Common Trip with GFCI	**BR220AF** **BR220AFIT** **BR220AFGF**	

① Common trip refers to 2-pole 240 volt load application sourced by 120/240 Vac (see **Figure 3-18**).
② Independent trip refers to 2-pole multi-wire, home run or shared neutral circuits (see **Figure 3-17** and **Figure 3-19**).

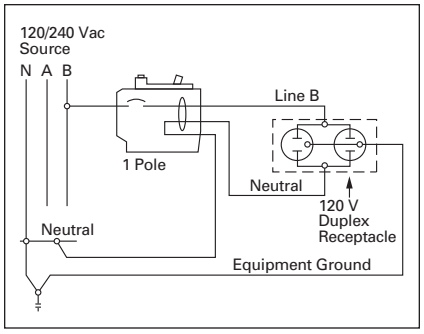


Figure 3-16. 1-Pole 120 Volt Load Application Sourced by 120/240 Vac

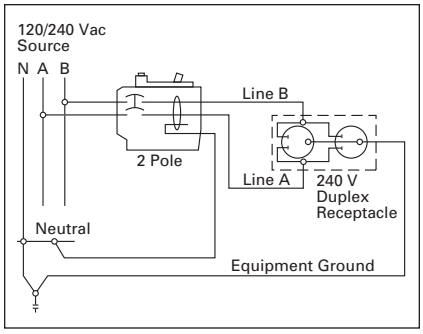


Figure 3-18. 2-Pole 240 Volt Load Application Sourced by 120/240 Vac

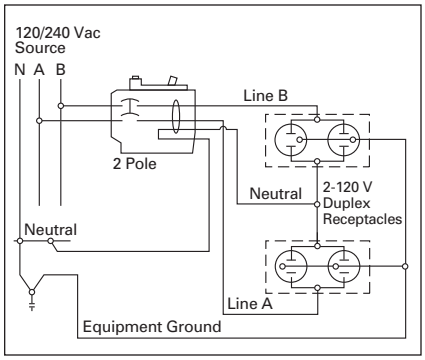


Figure 3-17. 1-Pole Shared Neutral with Multi-Duplex Receptacle Application

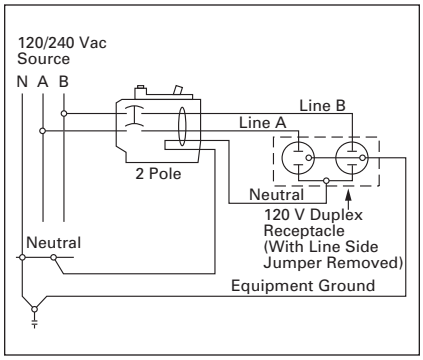


Figure 3-19. 2-Pole Shared Neutral with Duplex Receptacle Application

Discount Symbol **22CD**

Plug-on Ground Fault Circuit Breakers, Type GFCB and GFEP 10,000/22,000 Amperes Interrupting Capacity 120 Vac and 120/240 Vac

Type GFCB 1-Pole

Type GFCB 2-Pole

Table 3-114. Type GFCB Ground Fault Circuit Breakers — 5 Milliampere — 1-Inch (25.4 mm) per Pole 120 Vac or 120/240 Vac, 10,000 AIC

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	1-Pole 120 Vac Requires One 1-Inch (25.4 mm) Space		2-Pole 120/240 Vac Common Trip Requires Two 1-Inch (25.4 mm) Spaces	
		1 per Shelf Carton		1 per Shelf Carton	
		10,000 AIC		10,000 AIC	
		Catalog Number ①	Price U.S. $	Catalog Number	Price U.S. $
15 20 25 30 40 50	#14 – 4	GFCB115 GFCB120 GFCB125 GFCB130 GFCB140 —		GFCB215 GFCB220 GFCB225 GFCB230 GFCB240 GFCB250 ②	

① Available with bell alarm or auxiliary switch. See circuit breaker accessories on **Page 3-73**.
② For use with copper wire only.

Table 3-115. Type GFCBH Ground Fault Breakers — 5 Milliampere — 1-Inch (25.4 mm) per Pole 120 Vac or 120/240 Vac, 22,000 AIC

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	1-Pole 120 Vac Requires One 1-Inch (25.4 mm) Space		2-Pole 120/240 Vac Common Trip Requires Two 1-Inch (25.4 mm) Spaces	
		1 per Shelf Carton		1 per Shelf Carton	
		22,000 AIC		22,000 AIC	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
15 20 25 30	#14 – 4	GFCBH115 GFCBH120 GFCBH125 GFCBH130		GFCBH215 GFCBH220 GFCBH225 GFCBH230	

Table 3-116. Type GFEP Ground Fault Equipment Protectors — 30 Milliampere — 1-Inch (25.4 mm) per Pole 120 Vac or 120/240 Vac, 10,000 AIC

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	1-Pole 120 Vac Requires One 1-Inch Space		2-Pole 120/240 Vac Common Trip Requires Two 1-Inch Spaces	
		1 per Shelf Carton		1 per Shelf Carton	
		10,000 AIC		10,000 AIC	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
15 20 25 30 40 50	#14 – 4	GFEP115 GFEP120 GFEP125 GFEP130 — —		GFEP215 GFEP220 GFEP225 GFEP230 GFEP240 GFEP250 ③	

③ For use with copper wire only.

Discount Symbol **22CD**

Ground Fault Application Notes

Single-pole GFCBs are designed for use in 2-wire, 120 Vac circuits. **Figure 3-20** shows a typical wiring configuration.

Two-pole GFCBs are designed for use in 3-wire, 120/240 Vac circuits, 120 Vac multiwire circuits employing common, neutral and 2-wire, 240 Vac circuits obtained from a 120/240 Vac source.

Figure 3-21 and **Figure 3-22** illustrate typical wiring configurations for a 120/240 Vac multiwire circuits.

Figure 3-23 depicts a 240 Vac, 2-wire circuit. Note the "panel neutral" conductor connects to the neutral bar, even though the neutral is not included in the load circuit. This connection is necessary to supply a 120 Vac power source to the ground fault sensing circuit.

The figures are shown with a 120/240 Vac, single-phase, 3-wire power source, but are also applicable to a 120/208 Vac, 3-phase, 4-wire power supply. For all figures, the electrical operation of the GFCB is not affected by the equipment ground.

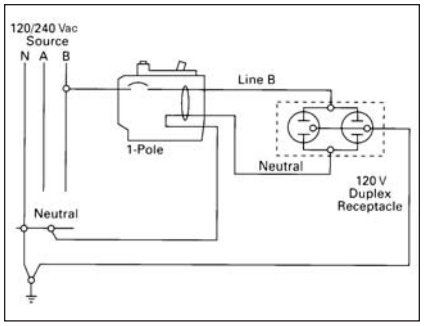


Figure 3-20. 1-Pole 120 Volt Duplex Receptacle Application

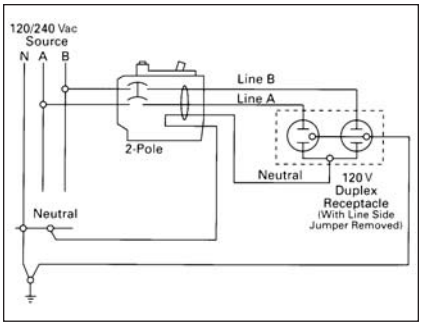


Figure 3-22. 2-Pole 120 Volt Duplex Receptacle Application

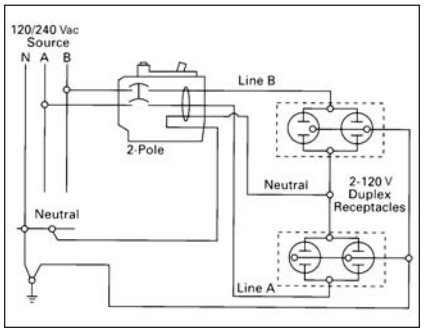


Figure 3-21. 2-Pole 120 Volt Multi-Duplex Receptacle Application

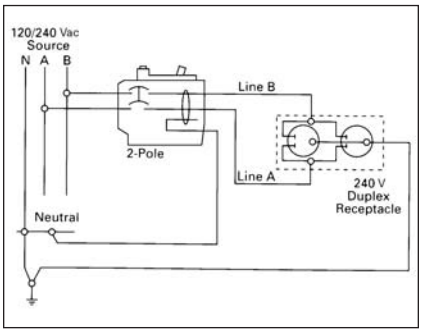
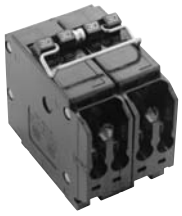


Figure 3-23. 2-Pole 240 Volt Duplex Receptacle Application

CTL Plug-on Circuit Breakers, Type BD Duplex, BQ and BQC Quadplex
10,000 Amperes Interrupting Capacity 120/240 Vac

BD2020

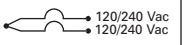
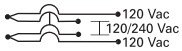
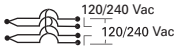
BQ2302115



BQ230230

Duplex and Independent Trip Quadplex Breakers

Table 3-117. Class CTL, 1-Inch (25.4 mm) per Pole 10,000 AIC — All Circuit Breakers Have Rejection Tab Feature

Type BD Duplex (UL Type BRD)			Wire Size Range Cu/Al 65°C or 75°C	Type BQ Quadplex Independent Trip (UL Type BRD)					Type BQ Quadplex Independent Trip (UL Type BRD)			
1-Pole ②				2-Pole ① and 1-Pole ②					2-Pole			
Requires One 1-Inch (25.4 mm) Space				Requires Two 1-Inch (25.4 mm) Spaces					Requires Two 1-Inch (25.4 mm) Spaces			
10 per Shelf Carton				5 per Shelf Carton					5 per Shelf Carton			
Ampere Rating	10,000 AIC			10,000 AIC					10,000 AIC			
	120 Vac			120 Vac	120/240 Vac	120 Vac	Catalog Number	Price U.S. $	120/240 Vac		Catalog Number	Price U.S. $
	Catalog Number	Price U.S. $		Ampere Rating					Ampere Rating			
				Outer Left 1-Pole	Center 2-Poles Independent Trip	Outer Right 1-Pole			Outer 2-Poles Independent Trip	Center 2-Poles Independent Trip		
10 – 10	**BD1010**		#14 – 4	15	20	15	**BQ2202115**		15	15	**BQ215215**	
15 – 15	**BD1515**			20	20	20	**BQ2202120**		15	20	**BQ215220**	
15 – 20	**BD1520**			15	30	15	**BQ2302115**		15	30	**BQ215230**	
15 – 30	**BD1530**			20	30	20	**BQ2302120**		15	40	**BQ215240**	
20 – 15	**BD2015**			15	40	15	**BQ2402115**		15	50	**BQ215250**	
20 – 20	**BD2020**			20	40	20	**BQ2402120**		20	20	**BQ220220**	
20 – 30	**BD2030**			15	50	15	**BQ2502115**		20	30	**BQ220230**	
25 – 25	**BD2525**			20	50	20	**BQ2502120**		20	40	**BQ220240**	
30 – 15	**BD3015**			—	—	—	**—**		20	50	**BQ220250**	
30 – 20	**BD3020**			—	—	—	**—**		25	25	**BQ225225**	
30 – 30	**BD3030**			—	—	—	**—**		30	30	**BQ230230**	
30 – 40	**BD3040**			—	—	—	**—**		30	40	**BQ230240**	
30 – 50	**BD3050**			—	—	—	**—**		30	50	**BQ230250**	
50 – 30	**BD5030**			—	—	—	**—**		40	40	**BQ240240**	
50 – 50	**BD5050**			—	—	—	**—**		40	50	**BQ240250**	
—	—			—	—	—	**—**		50	50	**BQ250250**	
—	—			—	—	—	**—**		—	—	**—**	
—	—			—	—	—	**—**		—	—	**—**	

① All Type BD Duplex and BQ Quadplex circuit breakers carry listing for HACR applications.
② All 15 and 20 ampere single poles are switch-duty rated.

Discount Symbol **22CD**

3

Non-CTL Plug-on Replacement Circuit Breakers, Type BRD 10,000 Amperes Interrupting Capacity 120/240 Vac

Non-CTL 10,000 AIC for Replacement Purposes Only

For replacement in enclosures manufactured prior to 1968 with unnotched stabs. Circuit breakers do not have rejection tab.

BR1515

Table 3-118. Class Non-CTL, 1-Inch (25.4 mm) per Pole 10,000 AIC — Breakers Do Not Have Rejection Tab Feature

Type BR Duplex			Wire Size Range Cu/Al 65°C or 75°C	Type Brand BRD Quadplex Independent Trip				Type BRD Quadplex Common Trip center and Outer Poles			
1-Pole 120/240 Vac 120/240 Vac Requires One 1-Inch (25.4 mm) Space				2-Pole 120/240 Vac 120/240 Vac Requires Two 1-Inch (25.4 mm) Spaces				2-Pole 120/240 Vac 120/240 Vac Requires Two 1-Inch (25.4 mm) Spaces			
10 per Shelf Carton				5 per Shelf Carton				5 per Shelf Carton			
Ampere Rating	10,000 AIC			10,000 AIC				10,000 AIC			
	120 Vac			120/240 Vac	120/240 Vac	Catalog Number	Price U.S. $	120/240 Vac		Catalog Number	Price U.S. $
	Catalog Number	Price U.S. $		Ampere Rating				Ampere Rating			
				Outer 2-Poles Independent Trip	Center 2-Poles Independent Trip			Outer 2-Poles Common Trip	Center 2-Poles Common Trip		
15 – 15	**BR1515**		#14 – 4	15	15	**BR415**		15	15	**BRDC215215**	
15 – 20	**BR1520**			20	20	**BR420**		30	30	**BRDC230230**	
20 – 15	**BR2015**			30	30	**BR430**		30	40	**BRDC230240**	
20 – 20	**BR2020**			20	30	**BRD220230**		30	50	**BRDC230250**	
30 – 30	**BR3030**			30	40	**BRD230240**		—	—	—	
30 – 50	**BR3050**			30	50	**BRD230250**		—	—	—	

Note: Type BD Duplex, BQ and BQC Quadplex (CTL) circuit breakers conform to Section 384-15 of the latest National Electrical Code. Install breaker only in panel positions that have notched bus stabs.

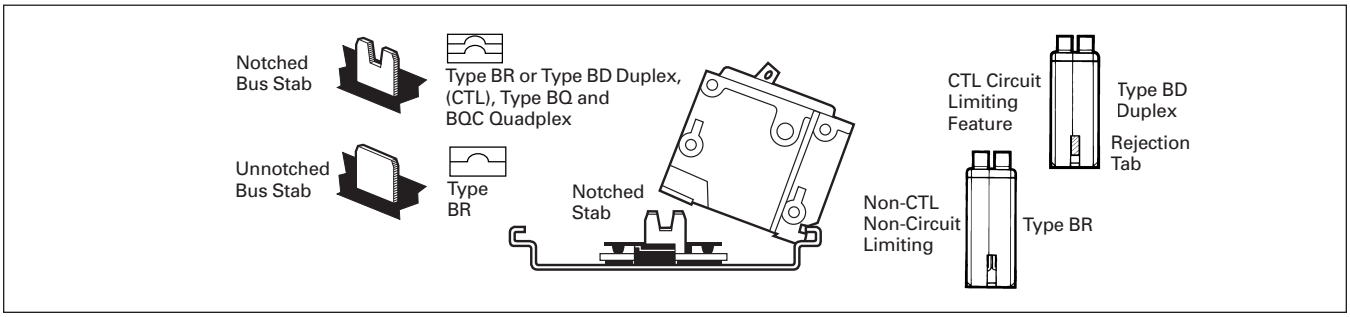
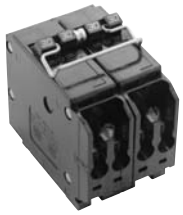


Figure 3-24. CTL and Non-CTL Breakers

Discount Symbol **22CD**

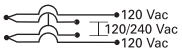
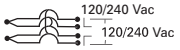
Common Trip Quadplex Breakers

BQC2302115



BQC230230

Table 3-119. Class CTL, 1-Inch (25.4 mm) per Pole 10,000 AIC — All Circuit Breakers Have Rejection Tab Feature

Type BQC Quadplex Common Trip Center Poles (UL Type BRD)					Wire Size Range Cu/Al 65°C or 75°C	Type BQC Quadplex Common Trip Center and Outer Poles (UL Type BRD)			
2-Pole ① and 1-Pole ②						2-Pole ①			
Requires Two 1-Inch (25.4 mm) Spaces						Requires Two 1-Inch (25.4 mm) Spaces			
5 per Shelf Carton						5 per Shelf Carton			
10,000 AIC						10,000 AIC			
120 Vac	120/240 Vac	120 Vac	Catalog Number	Price U.S. $		120/240 Vac		Catalog Number	Price U.S. $
Ampere Rating						Ampere Rating			
Outer Left 1-Pole	Center 2-Poles Common Trip	Outer Right 1-Pole				Outer 2-Poles Common Trip	Center 2-Poles Common Trip		
15	20	15	**BQC2202115**		#14 – 4	15	15	**BQC215215**	
15	25	15	**BQC2252115**			15	20	**BQC215220**	
15	30	15	**BQC2302115**			15	30	**BQC215230**	
15	40	15	**BQC2402115**			20	15	**BQC220215**	
15	50	15	**BQC2502115**			20	20	**BQC220220**	
—	—	—	**—**			20	30	**BQC220230**	
—	—	—	**—**			20	40	**BQC220240**	
—	—	—	**—**			20	50	**BQC220250**	
20	15	20	**BQC2152120**		#14 – 4	25	25	**BQC225225**	
20	20	20	**BQC2202120**			25	30	**BQC225230**	
20	25	20	**BQC2252120**			30	15	**BQC230215**	
20	30	20	**BQC2302120**			30	30	**BQC230230**	
20	40	20	**BQC2402120**			30	40	**BQC230240**	
20	50	20	**BQC2502120**			30	50	**BQC230250**	
30	50	20	**BQC2502030**		#14 – 4	40	30	**BQC240230**	
—	—	—	**—**			40	40	**BQC240240**	
—	—	—	**—**			40	50	**BQC240250**	
—	—	—	**—**			50	20	**BQC250220**	
—	—	—	**—**			50	50	**BQC250250**	

① All Type BQC Quadplex circuit breakers carry listing for HACR applications.
② All 15 and 20 ampere single poles are switch-duty rated.

Discount Symbol **22CD**

Plug-on Circuit Breakers, Types BJ and BJH
10,000/22,000 Amperes Interrupting Capacity
120/240 Vac and 240 Vac

For Use in Single-Phase and 3-Phase Loadcenters
150 Amperes and Above

3

Type BJ

Table 3-120. Types BJ and BJH Breakers, 1-Inch (25.4 mm) per Pole, 120/240 or 240 Vac, 10,000, 22,000 AIC

Ampere Rating	2-Pole 120/240 Vac Common Trip Requires Four 1-Inch (25.4 mm) Spaces ①				Wire Size Range Cu/Al 60°C or 75°C	3-Pole 240 Vac Common Trip Requires Six 1-Inch (25.4 mm) Spaces ②			
	10 per Shelf Carton					5 per Shelf Carton			
	10,000 AIC		22,000 AIC			10,000 AIC		22,000 AIC	
	Catalog Number	Price U.S. $	Catalog Number	Price U.S. $		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
125	**BJ2125**		**BJH2125**		#2 – 300 kcmil	**BJ3125**		**BJH3125**	
150	**BJ2150**		**BJH2150**			**BJ3150**		**BJH3150**	
175	**BJ2175**		**BJH2175**			**BJ3175**		**BJH3175**	
200	**BJ2200**		**BJH2200**			**BJ3200**		**BJH3200**	
225	**BJ2225**		**BJH2225**			**BJ3225**		**BJH3225**	

① Breaker uses two 1-inch (25.4 mm) pole spaces on left side and two 1-inch (25.4 mm) pole spaces on right side of loadcenter.
② Breaker uses three 1-inch (25.4 mm) pole spaces on left side and three 1-inch (25.4 mm) pole spaces on right side of loadcenter.
Note: If BJ or BJH breakers are used as a main or a back feed device, a hold-down kit is required. See **Page 3-73.**

Plug-on Special Application Circuit Breakers
10,000 Amperes Interrupting Capacity
120 Vac, 120/240 Vac and 240 Vac

BRWH215
Water Heater Breaker

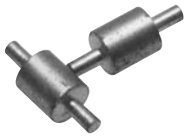
BRSN220
Switching Neutral Breaker

Table 3-121. Special Application Circuit Breakers, 1-Inch (25.4 mm) per Pole

Water Heater Breakers			Switching Neutral Breakers			Wire Size Range Cu/Al 60°C or 75°C	240 V Breakers			Non-Automatic Molded Case Switches		
2-Pole 120/240 Vac Common Trip Requires Two 1-Inch (25.4 mm) Spaces (LINE, LOAD)			2-Pole 120 Vac Common Trip Requires Two 1-Inch (25.4 mm) Spaces (NEUTRAL, OUT, IN)				2-Pole 240 Vac Common Trip Requires Two 1-Inch (25.4 mm) Spaces			2-Pole 240 Vac Requires Two 1-Inch (25.4 mm) Spaces		
With Isolated Line Terminals for Separately Metered Water Heaters			With Switching Neutral Pole for Gasoline Pump Applications				Where Voltage to Ground is 240 Vac			For Use as Disconnect Contains No Magnetic or Thermal Trip Properties		
5 per Shelf Carton			5 per Shelf Carton				5 per Shelf Carton			5 per Shelf Carton		
10,000 AIC			10,000 AIC				10,000 AIC			5,000 AIC		
Ampere Rating	Catalog Number	Price U.S. $	Ampere Rating	Catalog Number	Price U.S. $		Ampere Rating	Catalog Number	Price U.S. $	Ampere Rating	Catalog Number	Price U.S. $
15	**BRWH215**		15	**BRSN215**		#14 – 4	10	**BR210H**		—	—	
20	**BRWH220**		20	**BRSN220**			15	**BR215H**		—	—	
30	**BRWH230**		25	**BRSN225**			20	**BR220H**		—	—	
—	—		30	**BRSN230**			25	**BR225H**		—	—	
—	—		—	—			30	**BR230H**		—	—	
—	—		—	—			35	**BR235H**		—	—	
—	—		—	—			40	**BR240H**		—	—	
—	—		—	—			45	**BR245H**		—	—	
—	—		—	—			50	**BR250H**		50	**BR250NA**	
—	—		—	—			55	**BR255H**		—	—	
—	—		—	—		#4 – 1/0	60	**BR260H**		60	**BR260NA**	
—	—		—	—			70	**BR270H**		—	—	
—	—		—	—			80	**BR280H**		—	—	
—	—		—	—			90	**BR290H**		—	—	
—	—		—	—			100	**BR2100H**		100	**BR2100NA**	

Discount Symbol **22CD**

Circuit Breaker Accessories


THS1


BHLW2


BRLW2

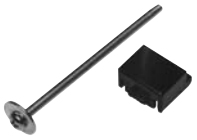

BREQS125


THOW (Installed)


MCBPL (Installed)


BRQLW


BHLW


BRHDK125


BRML

Table 3-122. Field Installation Kits and Parts

Description	Ordering Quantity ①	Catalog Number	Price U.S. $ Each
Handle Ties ②			
Handle tie bar for physically joining the handles of two adjacent 1-pole Type BR Circuit Breakers. (Metal Cylinder Pin Type)	10	**BHT**	
Handle tie bar for joining two independent outside poles of Types BQ and BQC Quadplex and outside poles of two Type BD Duplex Circuit Breakers.	10	**THOW**	
Handle tie bar for joining two adjacent outside poles of Types BQ and BQC Quadplex and outside poles of two Type BD Duplex Circuit Breakers.	10	**THS1**	
Handle Lockoffs ③④			
Padlockable device for locking the handle of 1-, 2- or 3-pole Type BR Circuit Breakers and 1-pole of a Type BD Duplex or one independent outside pole of a Type BQ or BQC Quadplex Circuit Breakers. (Escutcheon Mounted) ⑤	10	**BRLW**	
Padlockable device for locking the handle of a 1-pole Type BR Circuit Breaker. (Handle Mounted) ⑥	10	**BRLW1**	
Padlockable device for locking the handle of a 2- and 3-pole Type BR Circuit Breaker. (Handle Mounted) ⑥	10	**BRLW2**	
Padlockable device for locking the handle of a 1-pole Type BD Duplex, BQ or BQC Quadplex Breaker. (Handle Mounted) ⑥	10	**BRDL1**	
Padlockable device for locking the handle of the two center poles and the two outer poles of a 2-pole Types BQ and BQC Quadplex Circuit Breakers. (Escutcheon Mounted) ⑤	10	**BRQLW**	
Padlockable device for locking the handle of main circuit breaker Types CC and CHH into the ON or OFF position. (Screw Mounted) ⑦	1	**CCPL**	
Padlockable device for locking the handle of main breaker Types BW and BWH into the ON or OFF position. (Escutcheon Mounted) ⑤	1	**MCBPL**	
Handle Lockdogs ④⑧			
Device used to secure handle in ON or OFF position for 1-, 2- or 3-pole Type BR Circuit Breakers and 1-pole of Type BD Duplex and one independent outside pole of Type BQ or BQC Quadplex Circuit Breakers. (Escutcheon Mounted) ⑤	10	**BHLW**	
Device used to secure handle in ON or OFF position for 1-pole Type BR Circuit Breakers. (Handle Mounted) ⑥	10	**BHLW1**	
Device used to secure handle in ON or OFF position for 2- and 3-pole Type BR Circuit Breakers. (Handle Mounted) ⑥	10	**BHLW2**	
Device used to secure handle in ON or OFF position for 1-pole Type GFCB Ground Fault Circuit Breakers. (Handle Mounted) ⑥	10	**BHGW**	
Device used to secure handle in ON or OFF position for one independent outside pole of Types BQ and BQC Quadplex or 1-pole Type BD Duplex Circuit Breakers. (Handle Mounted) ⑥	10	**HLW1**	
Hold-Down Kits ⑨			
Hold-down retainer kit for 3-pole Type BR Circuit Breakers in S3100 and 3100R Loadcenters only.	1	**BRHDB**	
Hold-down screw kit for 2-pole Type BR Circuit Breakers in 1-phase MLO Loadcenters through 125 amperes.	1	**BREQS125**	
Hold-down screw kit for 2-pole Type BR Circuit Breakers in MLO Loadcenters 150 through 225 amperes (1-phase only).	1	**BRHDK125**	
Hold-down screw kit for 2-pole Types BJ and BJH Circuit Breakers in MLO Loadcenters 125 through 225 amperes.	1	**BJHDS**	
Hold-down screw kit for 3-pole Types BJ and BJH Circuit Breakers in MLO Loadcenters 125 through 225 amperes.	1	**BJHDS3P**	
Main Breaker Lug Kits			
Types CC and CHH Main Breaker Lug Kit (2) 300 kcmil.	1	**CCL300**	
Types BW/BWH Main Breaker Lug Kit (2) 300 kcmil.	1	**MCBL300**	
Mechanical Interlocks			
Types BR for 2-, 3- and 4-pole breakers.	10	**BRML**	

① Must be purchased in multiples of ordering quantities indicated.
② Handle Ties: Typically used to join two similar independent single-pole breakers to form a 2-pole noncommon trip breaker.
③ Handle Lockoffs: Devices that use a padlock to lock the circuit breaker's handle in the "On" or "Off" position.
④ See **Table 3-124** for Handle Position Changeability Chart.
⑤ Escutcheon Mounted: Device mounted semipermanently to the face of the circuit breaker and secured by the loadcenter deadfront.
⑥ Handle Mounted: Device mounted directly to the handle by the use of a set screw.
⑦ Screw Mounted: Device permanently mounted to the face of the circuit breaker by the use of a non-removable screw.
⑧ Handle Lockdogs: Devices that are used to secure a circuit breaker's handle in the "On" or "Off" position. Handle Lockdogs are not padlockable devices.
⑨ Hold-Down Kits: Devices used to secure the circuit breaker to the loadcenter for back-feed main application. See NEC Article 384-16(g).

Discount Symbol **22CD**

3

Table 3-123. Shunt Trips, Auxiliary and Alarm Contacts

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

① Add suffix indicated to end of breaker catalog number.
② Add amount shown to circuit breaker list price.

Table 3-124. Handle Position Changeability Chart

Handle Lockoff and Lockdog Types	To Change Handle Position from "On to "Off," or "Off" to "On" You Must...		
	Remove Padlock	**Remove Device**	**Remove Loadcenter Deadfront**
Lockoff Escutcheon Mounted Lockoff Handle Mounted Lockoff Screw Mounted	Remove Remove Remove	— Remove —	— — —
Lockdog Escutcheon Mounted Lockdog Handle Mounted	N/A N/A	Remove Remove	Remove —

Discount Symbol **22CD**

Technical Data and Specifications

Residential/Commercial/New York City Loadcenters, Unit Enclosures — Box Sizes

Note: Box sizes do not include covers/fronts.

Table 3-125. Residential Loadcenters — NEMA Type 1 Indoor

Box Size	Dimensions in Inches			Dimensions in mm		
	Height	Width	Depth	Height	Width	Depth
A1	15.00	11.25	3.75	381.0	285.8	95.3
B1	16.75	14.31	3.88	425.5	363.5	98.4
B2	18.75	14.31	3.88	476.3	363.5	98.4
C1	21.00	14.31	3.88	533.4	363.5	98.4
C2	23.00	14.31	3.88	584.2	363.5	98.4
C4	27.00	14.31	3.88	685.8	363.5	98.4
D1	29.13	14.31	3.88	739.8	363.5	98.4
G1	34.13	14.31	3.88	866.8	363.5	98.4
L1	39.00	14.31	3.88	990.6	363.5	98.4
L2	45.00	14.31	3.88	1143.0	363.5	98.4
2	8.63	5.00	3.50	219.1	127.0	88.9
3	9.44	4.50	3.00	239.7	114.3	76.2
4	13.00	11.00	3.56	330.2	279.4	90.5
5	9.44	4.50	3.00	239.7	114.3	76.2
6	12.00	6.88	4.50	304.8	174.6	114.3
7	13.00	11.00	3.56	330.2	279.4	90.5
9	14.50	6.50	3.50	368.3	165.1	88.9

Table 3-126. Residential Loadcenters — NEMA Type 3R Outdoor

Box Size	Dimensions in Inches			Dimensions in mm		
	Height	Width	Depth	Height	Width	Depth
B1R	16.75	14.31	5.19	425.5	363.5	131.8
B2R	18.75	14.31	5.19	476.3	363.5	131.8
C3R	25.00	14.31	5.19	635.0	363.5	131.8
D1R	29.13	14.31	5.19	739.8	363.5	131.8
G1R	34.13	14.31	5.19	866.8	363.5	131.8
L1R	39.00	14.31	5.19	990.6	363.5	131.8
L2R	45.00	14.31	5.19	1143.0	363.5	131.8
2R	8.63	5.00	3.50	219.1	127.0	88.9
3R	9.44	4.50	3.00	239.7	114.3	76.2
4R	13.00	11.00	3.56	330.2	279.4	90.5
5R	9.44	4.50	3.00	239.7	114.3	76.2
6R	11.75	6.50	4.50	298.5	165.1	114.3
7R	13.00	11.00	3.56	330.2	279.4	90.5
8R	27.00	10.50	4.75	685.8	266.7	120.7
9R	14.25	6.50	4.00	362.0	165.1	101.6
C1R	21.00	14.31	5.19	533.4	363.5	131.8

Table 3-127. Commercial Loadcenters — NEMA Type 1 Indoor

Box Size	Dimensions in Inches			Dimensions in mm		
	Height	Width	Depth	Height	Width	Depth
19	44.00	16.16	6.25	1117.6	410.4	158.8
20	44.00	16.16	6.25	1117.6	410.4	158.8
22	54.00	16.22	6.31	1371.6	412.0	160.3
24	66.50	16.22	6.31	1689.1	412.0	160.3

Table 3-128. Commercial Loadcenters — NEMA Type 3R Outdoor

Box Size	Dimensions in Inches			Dimensions in mm		
	Height	Width	Depth	Height	Width	Depth
42	38.00	16.31	6.38	965.2	414.3	161.9
43	44.00	16.31	6.38	1117.6	414.3	161.9
46	54.00	16.31	6.38	1371.6	414.3	161.9
47	66.56	16.31	6.38	1690.7	414.3	161.9

Table 3-129. New York City Loadcenters — NEMA Type 1 Indoor

Box Size	Dimensions in Inches			Dimensions in mm		
	Height	Width	Depth	Height	Width	Depth
A	38.00	18.13	5.00	965.2	460.4	127.0
B	44.00	18.13	5.00	1117.6	460.4	127.0
C	66.50	18.13	6.25	1689.1	460.4	158.8

Table 3-130. Types ECB and ECC Unit Enclosures — NEMA Type 1 Indoor

Dimensions in Inches			Dimensions in mm		
Height	Width	Depth	Height	Width	Depth
23.25	8.88	4.50	590.6	225.4	114.3

Table 3-131. Types ECB and ECC Unit Enclosures — NEMA Type 3R Outdoor

Dimensions in Inches			Dimensions in mm		
Height	Width	Depth	Height	Width	Depth
23.68	9.31	5.44	601.7	236.5	138.1

3

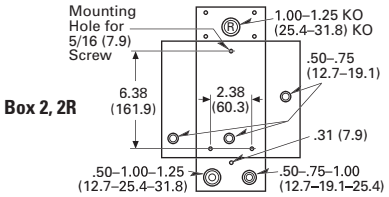
Residential Loadcenter Knockouts — Dimensions in Inches (mm)

Knockouts for Box Sizes A1, B1, B2, C1, C2, C4, D1, G1, L1, L2, B1R, B2R, C1R C3R, D1R, G1R, L1R, L2R

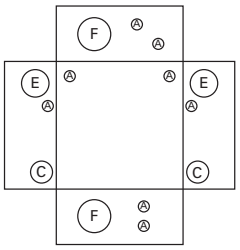
Code	Diameter in Inches					Diameter in mm				
A	.50	.75	—	—	—	12.7	19.1	—	—	—
B	.50	—	—	—	—	12.7	—	—	—	—
C	.50	1.25	1.50	2.00	2.50	12.7	31.8	38.1	50.8	63.5
D	1.25	1.25	2.00	2.50	—	31.8	38.1	50.8	63.5	—
E	.50	.75	1.00	—	—	12.7	19.1	25.4	—	—
F	.50	.75	1.00	1.50	2.00	12.7	19.1	25.4	38.1	50.8
G	1.25	1.50	2.00	—	—	31.8	38.1	50.8	—	—
H	.50	.75	1.00	1.25	1.50	12.7	19.1	25.4	31.8	38.1
I	1.00	1.25	1.50	2.00	2.50	25.4	31.8	38.1	50.8	63.5
J	1.00	1.25	1.50	—	—	25.4	31.8	38.1	—	—

Knockouts for Box Sizes 3, 4, 5, 6, 7, 9, 2R, 3R, 4R, 5R, 6R, 7R, 8R, 9R

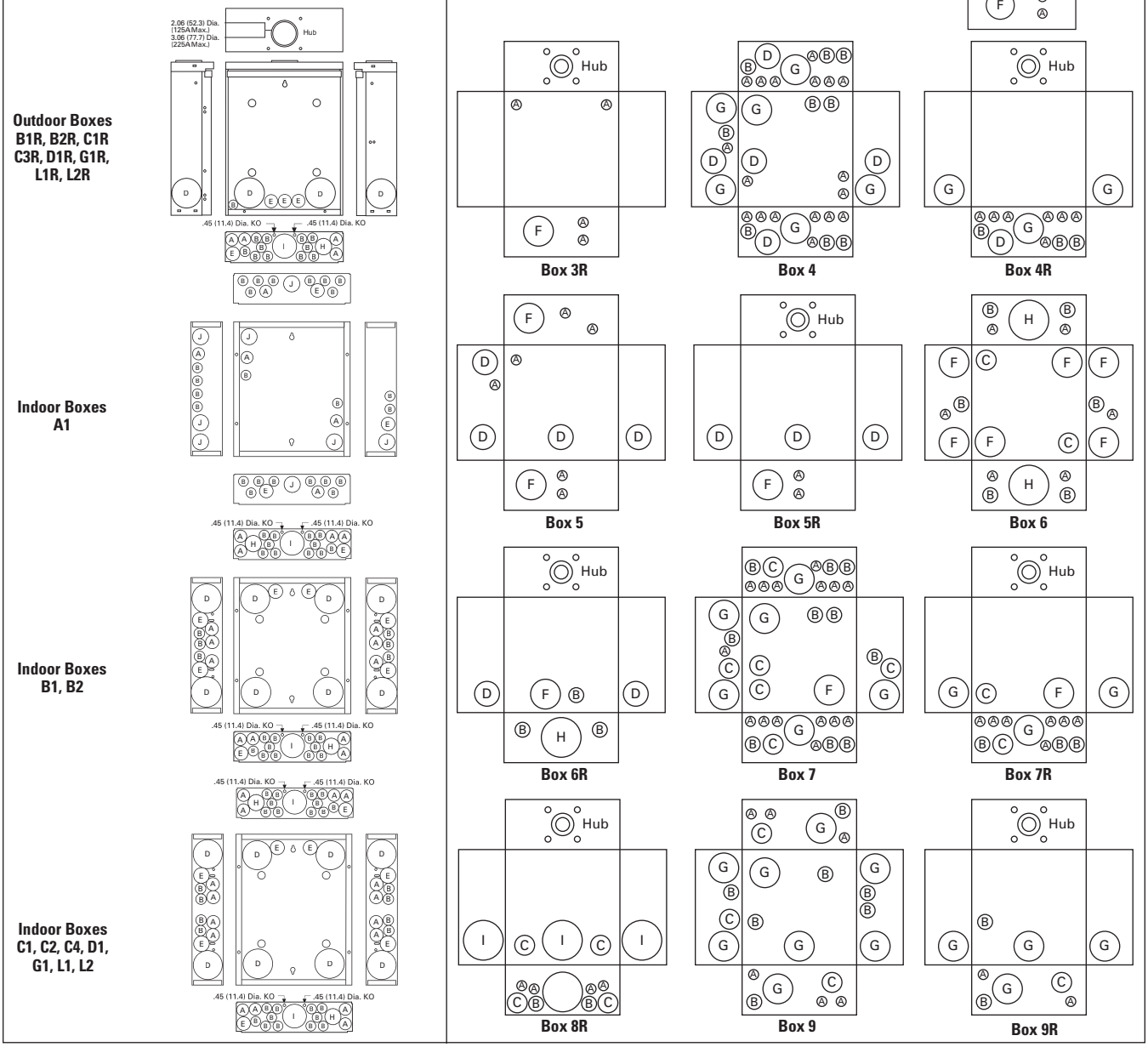
Code	Diameter in Inches				Diameter in mm			
A	.50	—	—	—	12.7	—	—	—
B	.50	.75	—	—	12.7	19.1	—	—
C	.50	.75	1.00	—	12.7	19.1	25.4	—
D	.50	.75	1.00	1.25	12.7	19.1	25.4	31.8
E	.75	1.00	1.25	—	19.1	25.4	31.8	—
F	.75	1.00	1.25	1.50	19.1	25.4	31.8	38.1
G	1.00	1.25	1.50	—	25.4	31.8	38.1	—
H	1.00	1.25	1.50	2.00	25.4	31.8	38.1	50.8
I	1.25	1.50	2.00	—	31.8	38.1	50.8	—



Box 2, 2R



Box 3



Outdoor Boxes B1R, B2R, C1R C3R, D1R, G1R, L1R, L2R

Box 3R

Box 4

Box 4R

Indoor Boxes A1

Box 5

Box 5R

Box 6

Indoor Boxes B1, B2

Box 6R

Box 7

Box 7R

Indoor Boxes C1, C2, C4, D1, G1, L1, L2

Box 8R

Box 9

Box 9R

Figure 3-25. Residential NEMA Type 1 Indoor and NEMA Type 3R Outdoor Enclosures

Commercial Loadcenter Knockouts

Table 3-132. NEMA Type 1 Indoor Commercial Enclosures Knockouts for Box Sizes 19, 20, 22, 24

Code	Diameter in Inches				Diameter in mm			
A	.50	—	—	—	12.7	—	—	—
B	.50	.75	—	—	12.7	19.1	—	—
C	.75	1.00	1.50	—	19.1	25.4	38.1	—
D	1.50	2.00	2.50	3.00	38.1	50.8	63.5	76.2
E	2.00	2.50	3.00	—	50.8	63.5	76.2	—
F	2.50	3.00	3.50	—	63.5	76.2	88.9	—

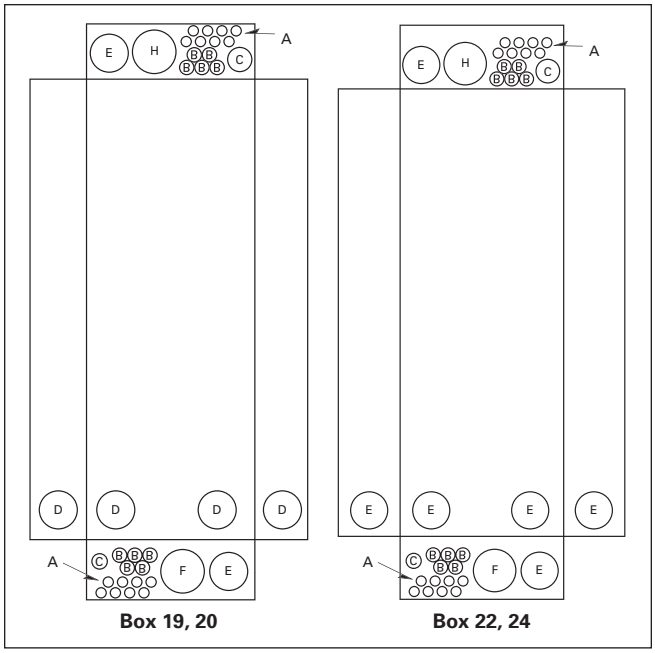


Figure 3-26. Indoor Commercial Enclosures

Table 3-133. NEMA Type 3R Outdoor Commercial Enclosures Knockouts for Box Sizes 42, 43, 46, 47

Code	Diameter in Inches				Diameter in mm			
A	.50	—	—	—	12.7	—	—	—
B	.50	.75	—	—	12.7	19.1	—	—
C	.75	1.00	1.25	—	19.1	25.4	31.8	—
D	1.50	2.00	2.50	—	38.1	50.8	63.5	—
E	2.00	2.50	3.00	—	50.8	63.5	76.2	—
F	2.50	3.00	3.50	—	63.5	76.2	88.9	—
G	1.25	1.50	2.00	2.50	31.8	38.1	50.8	63.5
H	3.25 Sq.	—	—	—	82.6 Sq.	—	—	—

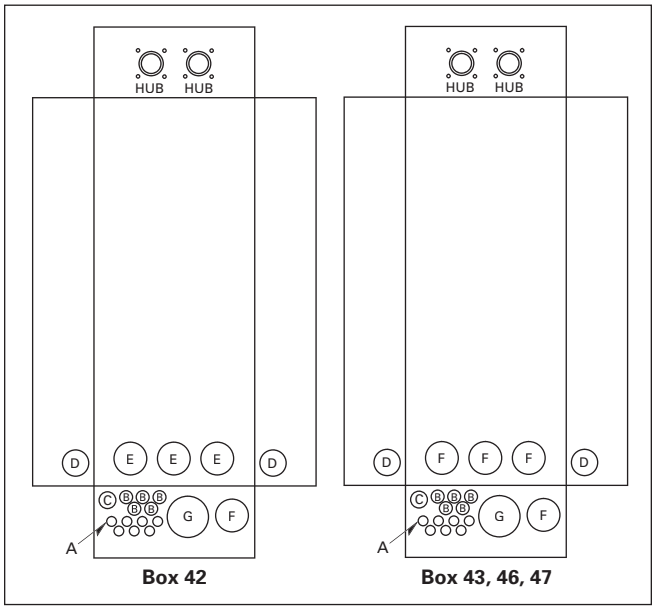


Figure 3-27. Outdoor Commercial Enclosures

Table 3-134. Unit Enclosure Knockouts, Types ECB and ECC Knockouts

Code	Diameter in Inches					Diameter in mm				
NEMA Type 1 Indoor (Flush and Surface Trims)										
A	.50	—	—	—	—	12.7	—	—	—	—
B	1.25	1.50	1.75	2.00	2.50	31.8	38.1	44.5	50.8	63.5
NEMA Type 3R Outdoor										
A	.50	—	—	—	—	12.7	—	—	—	—
B	1.25	1.50	1.75	2.00	2.50	31.8	38.1	44.5	50.8	63.5

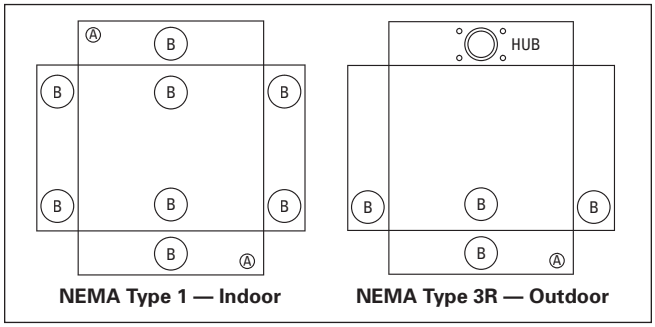


Figure 3-28. Unit Enclosure Knockouts

Cross-Reference

Table 3-135. Loadcenter Cross-Reference

3/4-Inch (19.1 mm) Loadcenters		1-Inch (25.4 mm) Loadcenters			
Cutler-Hammer — CH ①	**Square D® — QO** ①	**Cutler-Hammer — BR** ②	**Siemens®** ①	**GE® — PowerMark Plus™/Gold™** ①	**Square D — HOMELINE®** ②
Main Lug Loadcenters					
CH2L125RP	—	BR24L125RP	—	TPL212R ②	—
CH4L125RP	—	BR48L125RP	W0408ML1125 ②	TL412R1 ②	—
CH8L125SP	—	BR816LC125SDP ①	E0816ML1125FCU	TLM812S1 ②	—
CH8L125RP	—	BR816L125RP	W0816ML1125SCU	TLM812R ②	—
CH12L125B	QO112L125G	BR1212L125	G1212ML1125CU	TLM1212CCU	—
CH12L125R	QO112L125GRB	BR1224L125R	W1212ML1125CU	TLM1212RCU	—
CH16L125B	QO116L125G	BR1624L125	G1616ML1125CU	TLM1612RCCU	HOM16-24L125C
CH20L125C	QO120L125G	BR2024L125	G2020ML1125CU	TLM2412CCU	HOM20-24L125TC
CH24L125C	QO124L125G	BR2424L125	G2424ML1125 ②	TLM2412CCU	—
CH32L150D	QO130L150G	—	—	—	—
CH32L225D	—	—	—	—	—
CH24L3125C	QO324L125G	—	—	—	—
CH42L225G	QO142L225G	BR4242L225	G4242ML1225CU	TLM4222CCU	—
CH42L3225G	QO342M225	3BR4242L225	G4242ML3225CU	TL42422C ②	—
—	—	BR1224L125	G1224ML1125 ②	TLM1212CCU	—
—	—	BR1224L125G	—	TLM1212CG ②	HOM12-24L125TC
—	—	BR3040L200	G3040ML1200 ②	—	HOM3040L200TC
—	—	BR4040L200	G4040ML1200 ②	TLM4020CCU	HOM40L200C
—	—	3BR4242L200	G4242ML3200CU	TL42420C	—
Main Breaker Loadcenters					
CH8B200RF	QO18-16M200FTRB	BR816B200RF	W0816ML1200CT	TM820RCUFL	HOM8-16M200FTRB
CH22B100C	QO20M100	BR2020B100	G2020MB1100CU	TM2010CCU	HOM20M100C
CH22B100R	QO20M100RB	BR2024B100R	W2020MB1100CU	TM2010RCU	HOM20M100RB
CH32B150J	QO30M150RB	BR3030B150	G3030MB1150CU	TM3215CCU	HOM30M150C
CH32B150R	QO30M150RB	BR3030B150R	W3030MB1150CU	TM3215RCU	HOM30M150RB
CH32B200J	QO30M200	BR3040B200	G3030MB1200CU	TM3220CCU	HOM30-40M200TC
CH32B200R	QO30M200RB	BR3040B200R	W3030MB1200CU	TM3220RCU	—
CH42B200R	QO40M200RB	BR4040B200R	W4040MB1200CU	TM4020RCU	HOM40M200RB
CH42B200K	QO40M200	BR4040B200	G4040MB1200CU	—	HOM40M200C
CH30B3200L	QO330M200	3BR3042B200	G3042MB3200CU	TM30420C ②	—
CH42B3200L	QO342M200	3BR4242BC200 ①	G4242MB3200CU	TM42420C ②	—
—	—	BR48B200RF	—	—	—
—	—	BR1220B100	G1224MB1100 ②	TM1210CCUG	HOM12-24M100TC
—	—	BR2040B200	G2040MB1200 ②	TM2020CCU	HOM20-40M200C
—	—	BR2040B200R	—	TN2020RCU	—
—	—	BR3030B150	G3030MB1150 ②	TM3215CCU	HOM30M150C
—	—	3BR3042B200	—	—	—
—	—	3BR4242DSN	—	TM42440S ②	—

① Copper bus unless otherwise specified.

② Aluminum bus unless otherwise specified.

Note: These products are by no means equivalent but functionally similar. There are differences in the number of circuits and/or conductor material. This is a cross-reference tool not an interchangeability chart.

Table 3-136. Circuit Breakers

3/4-Inch Breakers (19.1 mm)		1-Inch Breakers (25.4 mm)			
CH Breakers	**Square D — QO**	**BR Breakers**	**Siemens**	**GE**	**Square D — HOMELINE**
CH115 CH120 CH130	QO115 QO120 QO130	BR115 BR120 BR130	Q115 Q120 Q130	THQL1115 THQL1120 THQL1130	HOM115 HOM120 —
CH210 CH2100 CH2125	QO210 QO2100 QO2125	— BR2100 BR2125	— Q2100 Q2125	— THQL21110 THQL21125	— HOM2100 HOM2125
CH215 CH220 CH225	QO215 QO220 QO225	BR215 BR220 BR225	Q215 Q220 Q225	THQL2115 THQL2120 THQL2125	HOM215 HOM220 HOM225
CH230 CH240 CH250	QO230 QO240 QO250	BR230 BR240 BR250	Q230 Q240 Q250	THQL2130 THQL2140 THQL2150	HOM230 HOM240 HOM250
CH260 CH270 CH280	QO260 QO270 QO280	BR260 BR270 BR280	Q260 Q270 Q280	THQL2160 THQL2170 THQL2180	HOM260 HOM270 —
CH3100 CH320 CH330	QO3100 QO320 QO330	BR3100 BR320 BR330	Q3100 Q320 Q330	THQL32100 THQL32020 THQL32030	— — —
CH340 CH350 CH360	QO340 QO350 QO360	BR340 BR350 BR360	Q340 Q350 Q360	THQL32040 THQL32050 THQL32060	— — —
CHNT1515 CHNT2020	— —	BR1515 BR2020	— —	— —	— —
CHQ120 CHQ230	QO120 QO230	— —	— —	— —	— —
CHT1515 CHT1520 CHT2020	QOT1515 — QOT2020	BD1515 BD1520 BD2020	Q1515 Q1520 Q2020	— — —	HOMT1515 HOMT1520 HOMT2020
CHQ120 CHQ230 —	QO120 QO230 —	— — BQ230240	Q120 Q230 —	TQ1120 TQ2130 —	— — —
— —	— —	BQ220230 BD3020	Q23020 Q2030	— —	— —

Note: These products are by no means equivalent but functionally similar. This is a cross-reference tool not an interchangeability chart.

Table 3-137. Ground Fault Breakers

3/4-Inch Breakers (19.1 mm)		1-Inch Breakers (25.4 mm)			
CH Breakers	**Square D — QO**	**BR Breakers**	**Siemens**	**GE**	**Square D — HOMELINE**
CH115GF CH120GF CH220GF	QO115GFI QO120GFI QO220GFI	GFCB115 GFCB120 GFCB220	QF115 QF120 QF220	THQL1115GF THQL1120GF THQL2120GF1	HOM115GFI HOM120GFI HOM220GFI
CH230GF CH240GF CH250GF CH260GF	QO230GFI QO240GFI QO250GFI QO260GFI	GFCB230 GFCB240 GFCB250 —	QF230 QF240 QF250 QF260	THQL2130GF1 THQL2140GF1 THQL2150GF1 —	HOM230GFI HOM240GFI HOM250GFI —

3

UL Classified Circuit Breakers

Cutler-Hammer UL classified Replacement Circuit Breakers by Eaton Corporation are available in both 3/4-inch Type CHQ and 1-inch Type CL, 1- and 2-pole configurations. These breakers are classified as direct replacements by Underwriters Laboratories. In addition to a UL listing, they also come with a 15-year warranty.

Specified vs. UL Classified

Specified breakers are listed by the manufacturer of the panelboard for use in a particular panel. This doesn't mean that the panelboard manufacturer produced the specified breaker; it merely means that the panelboard manufacturer has tested the breaker in the panel. In fact, through the years, Eaton has manufactured thousands of breakers for other panelboard manufacturers.

UL classified breakers are produced by one manufacturer for use in place of the breakers specified on the panelboard. Like specified breakers, UL classified breakers have been tested in the panels for which they are approved.

Testing

Classified breakers are tested extensively in numerous GE, Siemens, Murray®, Thomas & Betts®, Square D, and Crouse-Hinds® panels. The tests are conducted with witnesses from Underwriters Laboratories Inc. and involve short circuit, temperature, and insertion/withdrawal applications. This level of testing assures that the breakers meet identified standards and have been found suitable by UL for the specified purpose.

Understanding Classified Breaker Terminology

Definitions

Specified Circuit Breaker — Each manufacturer lists the brands of circuit breakers that can be used in their panelboards. Often, manufacturers will not list competitors as specified, even though they are suitable replacements.

Classified Circuit Breaker — A breaker that is considered suitable, by a qualified third party organization, for use in another manufacturer's panelboard.

Listed Breaker — The listing of a circuit breaker is by an independent third party. Cutler-Hammer classified breakers are listed by UL.

Labeled Breaker — A breaker with a label affixed by an independent third party.

Type CHQ Replacement Breakers for Square D Type QO Loadcenters

10,000 Amperes Interrupting Capacity
120 and 120/240 Vac

CHQ120 CHQ230

Table 3-138. Type CHQ Classified Breakers 3/4-Inch (19.1 mm) per Pole 120 or 120/240 Vac, 10 kAIC

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	1-Pole 120/240 Vac Requires One 3/4-Inch (19.1 mm) Space		2-Pole 120/240 Vac Common Trip Requires Two 3/4-Inch (19.1 mm) Spaces	
		10 per Shelf Carton		5 per Shelf Carton	
		10,000 AIC		10,000 AIC	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
15	(1) #14 – 8	CHQ115		CHQ215	
20	(2) #14 – 10	CHQ120		CHQ220	
25		CHQ125		CHQ225	
30		CHQ130		CHQ230	
35		CHQ135		CHQ235	
40		CHQ140		CHQ240	
45		CHQ145		CHQ245	
50		CHQ150		CHQ250	
60		—		CHQ260	

Type CHQ Ground Fault and Arc Fault Replacement Breakers for Square D Type QO Loadcenters

10,000 Amperes Interrupting Capacity
120 and 120/240 Vac

CHQ115GF CHQ220GF

Table 3-139. Type CHQ Breakers — 5 Milliampere — 3/4-Inch (19.1 mm) per Pole

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	1-Pole 120 Vac Requires One 3/4-Inch (19.1 mm) Space		2-Pole 120/240 Vac Common Trip Requires Two 3/4-Inch (19.1 mm) Spaces	
		10 per Shelf Carton		5 per Shelf Carton	
		10,000 AIC		10,000 AIC	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
Ground Fault					
15	(1) #14 – 8	CHQ115GF		CHQ215GF	
20	(2) #14 – 10	CHQ120GF		CHQ220GF	
25		CHQ125GF		CHQ225GF	
30		CHQ130GF		CHQ230GF	
35		—		CHQ235GF	
40		—		CHQ240GF	
45		—		CHQ245GF	
50		—		CHQ250GF	
Arc Fault					
15	—	CHQ115AF		—	
20		CHQ120AF		—	
Arc Fault/Ground Fault					
15	#14 – 4	CHQ115AFGF		—	
20		CHQ120AFGF		—	

Table 3-140. Type CHQ Surge Arrester

Catalog Number	Price U.S. $
CHQSA	

Table 3-141. CHQ Breaker Accessories

Description	Catalog Number	Price U.S. $
Breaker Handle Lock	CHLO	

Discount Symbol **22CD**

Type CL Replacement Breakers for Square D HOMELINE, General Electric, Crouse-Hinds, Thomas & Betts, Murray and ITE®/Siemens Loadcenters

CL

CLAF

CLR

Table 3-142. Type CL Breakers, 1-Inch (25.4 mm) per Pole

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	1-Pole 120/240 V Requires One 1-Inch (25.4 mm) Space		2-Pole 120/240 V Common Trip Requires Two 1-Inch (25.4 mm) Spaces	
		10 per Shelf Carton		5 per Shelf Carton	
		10 kAIC		10 kAIC	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
15 20 25 30 35 40 45 50	#14 – 4	CL115 CL120 CL125 CL130 CL135 CL140 CL145 CL150		CL215 CL220 CL225 CL230 CL235 CL240 CL245 CL250	

Table 3-143. Type CL Classified Arc and Ground Fault Breakers (5 Milliampere), 1-Inch (25.4 mm) per Pole

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	1-Pole 120/240 V Requires One 1-Inch (25.4 mm) Space	
		1 per Shelf Carton	
		10 kAIC	
		Catalog Number	Price U.S. $
Arc Fault Breakers			
15 20	#14 – 4	CL115AF CL120AF	
Arc Fault/Ground Fault Breakers			
15 20	#14 – 4	CL115AFGF CL120AFGF	
Ground Fault Breakers			
15 20 30	#14 – 4	CL115GF CL120GF CL130GF	

Table 3-144. Type CL Classified Latching Remote Control Smart Breakers ™, 1-Inch (25.4 mm) per Pole

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C	1-Pole 120 V Requires One 1-Inch (25.4 mm) Space		2-Pole 120/240 V Common Trip Requires Two 1-Inch (25.4 mm) Spaces	
		10 per Shelf Carton		5 per Shelf Carton	
		10 kAIC		10 kAIC	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
15 20 25 30	(2) #14 – 10 (1) #8 – 6	CLRP115 CLRP120 CLRP125 CLRP130		CLRP215 CLRP220 CLRP225 CLRP230	

Discount Symbol **22CD**

Technical Data

Arc Fault Application Notes

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An arc fault circuit interrupter is a device intended to provide protection from the effects of arc faults by recognizing characteristics unique to arcing and by functioning to de-energize the circuit when the arc fault is detected. As of January 1, 2002, the National Electrical Code (NEC) now requires all branch circuits that supply 125 volt, single-phase, 15 and 20 ampere receptacle outlets installed in dwelling unit bedrooms shall be protected by an arc fault circuit interrupter(s). This includes ceiling lighting (recessed, ceiling fans, etc.) as well as smoke detectors and all other bedroom outlets.

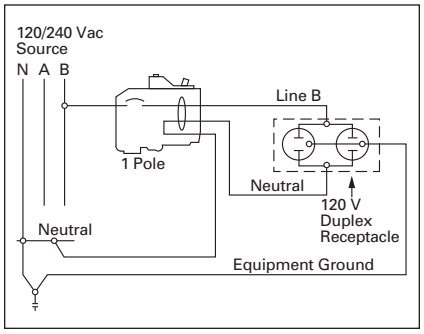

Figure 3-29. 1-Pole 120 Volt Load Application Sourced by 120/240 Vac

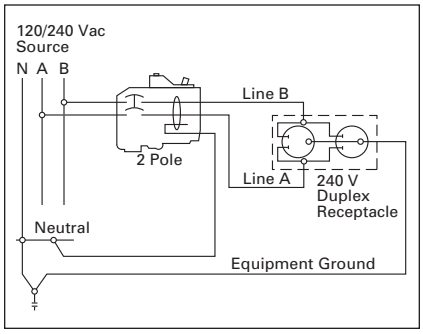

Figure 3-33. 2-Pole 240 Volt Load Application Sourced by 120/240 Vac

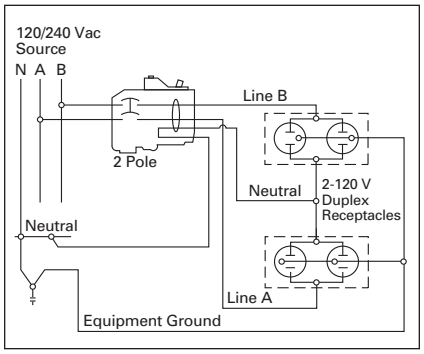

Figure 3-30. 2-Pole Shared Neutral with Multi-Duplex Receptacle Application

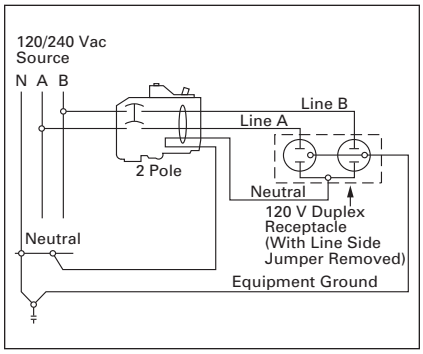

Figure 3-34. 2-Pole Shared Neutral with Duplex Receptacle Application

Ground Fault Application Notes

Single-pole GFCBs are designed for use in 2-wire, 120 Vac circuits. **Figure 3-31** shows a typical wiring configuration.

Two-pole GFCBs are designed for use in 3-wire, 120/240 Vac circuits, 120 Vac multiwire circuits employing common, neutral and 2-wire, 240 Vac circuits obtained from a 120/240 Vac source.

Figure 3-32 and **Figure 3-35** illustrate typical wiring configurations for 120/240 Vac multiwire circuits.

Figure 3-36 depicts a 240 Vac, 2-wire circuit. Note the "panel neutral" conductor connects to the neutral bar, even though the neutral is not included in the load circuit. This connection is necessary to supply a 120 Vac power source to the ground fault sensing circuit.

The figures are shown with a 120/240 Vac, single-phase, 3-wire power source, but are also applicable to a 120/208 Vac, 3-phase, 4-wire power supply. For all figures, the electrical operation of the GFCB is not affected by the equipment ground.

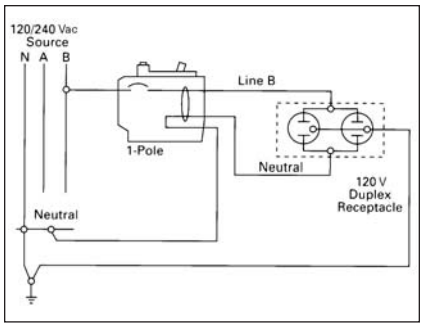

Figure 3-31. 1-Pole 120 Volt Duplex Receptacle Application

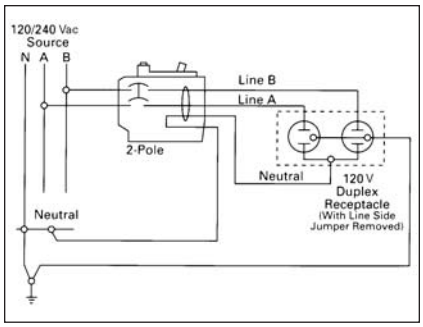

Figure 3-35. 2-Pole 120 Volt Duplex Receptacle Application

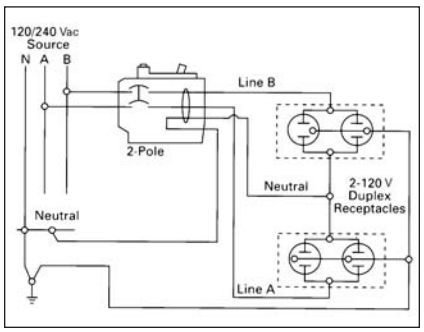

Figure 3-32. 2-Pole 120 Volt Multi-Duplex Receptacle Application

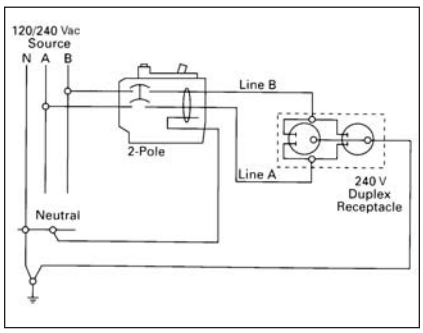

Figure 3-36. 2-Pole 240 Volt Duplex Receptacle Application

OEM Loadcenter Interiors

Product Description

As a leader in the electrical distribution equipment business, Eaton has a unique product offering for equipment manufacturers, panel builders and virtually any OEM that has a need for power distribution within their equipment. The OEM interior offering consists of a wide variety of power distribution options utilizing components from Cutler-Hammer CH and BR Loadcenter product lines. With high-volume, standardized products, OEMs can expect to receive high-quality products covering configurations meeting virtually any power distribution need.

Coupled with Eaton's expertise in circuit breaker design and manufacturing, our OEM interiors provide solid power distribution and circuit protection in a compact, easy-to-install package. Interiors are offered from 2 to 42 circuits and from 70 to 225 amperes.

Quality

Built in our ISO 9002 certified manufacturing facilities, customers can be assured of the process quality in place for the manufacture of these products. Utilizing the latest in computer-controlled plating, painting, molding, stamping and welding processes, our customers have come to expect consistent high-quality from shipment to shipment.

Two Products Offer Design Flexibility

As a manufacturer of two lines of loadcenters, we are in a unique position to offer the broadest range of interiors in the market. Each line has its own unique characteristics that appeal to various segments of the market. OEM interiors are UL recognized components and are listed in either of the following UL files: E8741 or E52977.

The CH interiors feature 100% copper bus and use the CH 3/4-inch (19.1 mm) wide circuit breaker, which minimizes panel space. Recognized by contractors for its sturdy design, the CH interior will appeal to those customers seeking an industrial quality bolted bus bar and the space saving of 3/4-inch (19.1 mm) per bus stab. With a typical 12 circuit CH interior, this space savings amounts to an inch and a half savings over its 1-inch (25.4 mm) counterparts. The stab rating of the CH interiors is 140 amperes maximum meaning that the handle rating of breakers mounted across from one another may not exceed 140 amperes.

The BR interiors are manufactured of formed, plated aluminum or copper, and use the Cutler-Hammer Type BR 1-inch (25.4 mm) wide circuit breaker. This design affords customers the most circuit flexibility as many of these interiors allow the installation of standard 1- and 2-pole breakers as well duplex (2 poles in a 1-inch (25.4 mm) space) or quadplex (4 poles in a 2-inch (50.8 mm) space) breakers. The stab rating of the BR interiors is 200 amperes maximum, meaning that the handle rating of the breakers that are mounted across from one another may not exceed 200 amperes.

The interiors are designed for either horizontal (single-row breaker mounting), or vertical (double-row breaker mounting). To comply with National Electrical Code (NEC) requirements, if mounted horizontally, when the breaker is "ON," the handle should be in the UP position. When mounted vertically, the handle toggles from left to right, so this is not a concern.

Standards and Certifications

Class CTL

National Electrical Code Paragraph 384-15 requires branch circuit panelboards to be provided with physical means to prevent the installation of more overcurrent devices than that number of which the enclosure was designed, rated and approved. Class CTL Duplex, Quadplex and twin breakers (identified by a catalog number prefix BD, BQ, BQC and CHT) are equipped with a UL listed rejection tab over the line terminal. All OEM interiors have appropriately notched stabs to accept these rejection tab Class CTL breakers.

Duplex, Quadplex and twin breakers manufactured without the rejection tab (identified by a catalog number prefix BR, BRD and CHNT) are available for replacement purposes in older interiors.

Federal Specifications

All loadcenter enclosures meet Federal Specifications W-P-115b, Type 1, Class 2 requirements.

All 120/240 volt breakers, both 1-inch (25.4 mm), 1/2-inch (12.7 mm) and 3/4-inch (19.1 mm) per pole meet the requirement of Federal Specifications W-C 375B/Gen Type 1.

Canadian Standards Association Listing

All 1-pole and 2-pole, 120/240 volt breakers, both 1-inch (25.4 mm), 1/2-inch (12.7 mm) and 3/4-inch (19.1 mm) per pole, 225 ampere maximum, are listed as Certified by the Canadian Standards Association, Guide No. 69-11.19, Class 1432, File 18328.

Underwriters Laboratories Listing

All grounding bars manufactured comply with Underwriters Laboratories standards and are listed under Guide No. DHJR, File E31424, Volume W, Section 17.

All circuit breakers 10 amperes and larger comply with the Underwriters Laboratories "Standard for Branch Circuit and Service Circuit-Breakers" UL 489; Guide No. 60 10.2 File E31424, and "Requirements for Wire Connectors and Soldering Lugs," UL 486B, Guide No. 461 10-C File E7830.

All Cutler-Hammer breakers where marked, are suitable for use with 60/75°C rated wire, unless otherwise specified.

All devices comply with the 22 kAIC – 10 kAIC UL series connected components File DKSY2 of the Recognized Components Index.

Lighting and Appliance Panelboards

Lighting and appliance branch circuit panelboards are defined in NEC (Article 384) as "One having more than 10 percent of its overcurrent devices rated 30 amperes or less for which neutral connections are provided." Article 384 also limits the number of overcurrent devices (branch circuit poles) to a maximum of 42 in any one cabinet. When the 42 poles are exceeded, two or more separate panels are required.

For more details and engineering drawings, see BR.31.02.S.E.

3

OEM Loadcenter Interiors

Table 3-145. Type CH Loadcenter Interior Assemblies

Ampere Rating	Maximum Number 3/4-Inch (19.1 mm) Spaces	Single Poles	UL File Reference	Main Terminal Size (Per Phase)	Standard Package Quantity	Catalog Number	Price U.S. $
Single-Phase Single Row Breaker Mounting — Copper Bus — 120/240 Vac, 3-Wire							
70	2	4	E8741	(1) #8 – #2 AWG Cu/Al	1	**CH9MB270**	
Single-Phase Double Row Breaker Mounting — Copper Bus — 120/240 Vac, 3-Wire							
125	2	2	E8741	(1) 2/0 – #6 AWG Cu/Al	20	**CH2L125INT**	
125	4	4	E8741	(1) 2/0 – #6 AWG Cu/Al	20	**CH4L125INT**	
125	8	8	E8741	(1) 2/0 – #6 AWG Cu/Al	20	**CH8L125INT**	
125	12	12	E8741	(1) 2/0 – #6 AWG Cu/Al	20	**CH12L125INT**	
125	16	16	E8741	(1) 2/0 – #6 AWG Cu/Al	20	**CH16L125INT**	
200	12	12	E8741	(1) 300 kcmil – #4 Cu/A	20	**CH12L200INT**	
200	16	16	E8741	(1) 300 kcmil – #4 Cu/Al	10	**CH16L200INT**	
225	24	24	E8741	(1) 300 kcmil – #4 Cu/Al	10	**CH24L225INT**	
225	32	32	E8741	(1) 300 kcmil – #4 Cu/Al	10	**CH32L225INT**	
225	42	42	E8741	(1) 300 kcmil – #4 Cu/Al	10	**CH42L225INT**	
Three-Phase Double Row Breaker Mounting — Copper Bus — 208Y/120 Vac, 4-Wire — 240 Vac, 3-Wire — 120/240 Vac, 4-Wire Delta							
125	12	12	E8741	(1) 2/0 – #6 AWG Cu/Al	10	**CH12L3125INT**	
125	18	18	E8741	(1) 2/0 – #6 AWG Cu/Al	10	**CH18L3125INT**	
125	24	24	E8741	(1) 2/0 – #6 AWG Cu/Al	10	**CH24L3125INT**	
225	24	24	E8741	(1) 300 kcmil – #4 Cu/Al	10	**CH24L3225INT**	
225	30	30	E8741	(1) 300 kcmil – #4 Cu/Al	10	**CH30L3225INT**	
225	42	42	E8741	(1) 300 kcmil – #4 Cu/Al	10	**CH42L3225INT**	

Table 3-146. Type BR Loadcenter Interior Assemblies

Ampere Rating	Maximum Number 1-Inch (24.5 mm) Spaces	Single Poles	UL File Reference	Main Terminal Size (Per Phase)	Standard Package Quantity	Catalog Number	Price U.S. $
Single-Phase Single Row Breaker Mounting — Aluminum Bus — 120/240 Vac, 3-Wire							
70	2	4	—	(1) #8 – #2 AWG Cu/Al	20	**24INT70B**	
125	2	4	E8741	(1) 1/0 – #14 AWG Cu 2/0 – 12 AWG All	20	**24INT125B**	
125	6	12	E52977	(1) 2/0 – #14 AWG Cu/Al	20	**612INT125SRB**	
Single-Phase Double Row Breaker Mounting — Aluminum Bus — 120/240 Vac, 3-Wire							
125	4	8	E8741	(1) 2/0 – #14 AWG Cu/Al	20	**48INT125B**	
125	6	12	E8741	(1) 2/0 – #14 AWG Cu/Al	20	**612INT125B**	
125	8	16	E8741	(1) 2/0 – #14 AWG Cu/Al	20	**816INT125B**	
125	12	12	E52977	(1) 2/0 – #14 AWG Cu/Al	20	**1212INT125B**	
125	12	24	E52977	(1) 2/0 – #14 AWG Cu/Al	20	**1224INT125B**	
125	16	24	E52977	(1) 2/0 – #14 AWG Cu/Al	20	**1624INT125B**	
125	20	24	E52977	(1) 2/0 – #14 AWG Cu/Al	10	**2024INT125B**	
125	24	24	E52977	(1) 2/0 – #14 AWG Cu/Al	10	**2424INT125B**	
200	8	16	E52977	(1) 300 kcmil – #1 AWG Cu/Al	20	**816INT200B**	
200	12	24	E52977	(1) 300 kcmil – #1 AWG Cu/Al	20	**1224INT200B**	
200	30	40	E52977	(1) 300 kcmil – #1 AWG Cu/Al	10	**3040INT200B**	
225	42	42	E52977	(1) 300 kcmil – #1 AWG Cu/Al	10	**4242INT225B**	
Single-Phase Double Row Breaker Mounting — Copper Bus — 120/240 Vac, 3-Wire							
125	8	16	E52977	(1) 2/0 – #14 AWG Cu/Al	20	**816INT125BC**	
125	12	12	E52977	(1) 2/0 – #14 AWG Cu/Al	20	**1212INT125BC**	
200	12	24	E52977	(1) 300 kcmil – #1 AWG Cu/Al	20	**1224INT200BC**	
Three-Phase Double Row Breaker Mounting — Aluminum Bus — 208Y/120 Vac, 4-Wire — 240 Vac, 3-Wire — 120/240 Vac, 4-Wire Delta							
125	12	34	E52977	(1) 2/0 – #8 AWG Cu/Al	10	**1224INT3125B**	
150	18	36	E52977	(1) 300 kcmil – #2 AWG Cu/Al	10	**1836INT3150B**	
150	24	42	E52977	(1) 300 kcmil – #2 AWG Cu/Al	10	**2442INT3150B**	
200	30	42	E52977	(1) 300 kcmil – #2 AWG Cu/Al	10	**3042INT3200B**	
225	42	42	E52977	(1) 300 kcmil – #2 AWG Cu/Al	10	**4242INT3225B**	
Three-Phase Double Row Breaker Mounting — Copper Bus — 208Y/120 Vac, 4-Wire — 240 Vac, 3-Wire — 120/240 Vac, 4-Wire Delta							
125	12	24	E52977	(1) 2/0 – #8 AWG Cu/Al	10	**1224INT3125BC**	
200	12	24	E52977	(1) 300 kcmil – #2 AWG Cu/Al	10	**1224INT3200BC**	

Discount Symbol **22CD**