Type BR Loadcenters and Circuit Breakers



Contents

Description	*Page*
Overview	
Standards and Certifications	**V1-T1-44**
Catalog Number Selection	**V1-T1-46**
Product Selection	**V1-T1-48**
BR Plug-on Neutral Loadcenters	**V1-T1-56**
Spa Panels	**V1-T1-59**
Riser Panel	**V1-T1-60**
Type BR Renovation Loadcenter	**V1-T1-61**
BR Loadcenter Options and Accessories	**V1-T1-62**
BR Circuit Breakers	**V1-T1-78**

Overview

General 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.

Plug-on Neutral Loadcenters

The BR Plug-on Neutral portfolio from Eaton offers a unique design that offers improved safety, ease of installation and leaves the end result with a clean and professional look and feel.

Features, Benefits and Functions

Plug-on Neutral Style Loadcenters

- The short-body BR electronic circuit breakers are optimized to save gutter space and installation time with an easier, more succinct installation process
- Unique self-leveling tabs to allow for quick drywall offset
- Added keyhole hanging feature on cover for ease of installation
- Common drive types on screw connections for added simplicity and convenience
- Inboard neutral to increase the gutter space for easier installation of conductors
- Backed-out neutral screws to allow for a quick connection of ground and neutral conductors
- Upgraded to embossed circuit numbers for a more clean and professional look

Loadcenter Construction

Eaton's Type BR loadcenters 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 A maximum on the 100 A and 125 A loadcenters, and 200 A on loadcenters with 150 A 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 BR loadcenters feature three types of neutrals:

Inboard Plug-on Neutral
Code changes and higher safety standards are leading to more arc fault circuit interrupter (AFCI) installations. With the electrical contractor in mind, Eaton has revolutionized the way combination AFCIs are installed with the Plug-on Neutral line of loadcenters and breakers.

Insulated/Bondable Split Neutral
Panels are supplied with split insulated neutrals with an insulated cross strap. For service entrance applications, the neutral must be bonded by using the bonding strap supplied with the panel. For non-service entrance (sub-panel) applications, the panel may be installed with the bonding strap not connected to the neutral. Separate ground bars must be used on non-service entrance panels.

Insulated/Bondable Single Neutral
Panels are supplied with a single insulated neutral. For service entrance applications, all that is required to bond the neutral 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. When used as a service entrance panel, unused neutral connections may be used for the termination of equipment grounds. For non-service entrance (sub-panel) applications, the panel may be installed with the bonding strap not connected to the neutral. Separate ground bars must be used on non-service entrance panels.

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 insulated/bondable single/split neutral panels have sufficient terminations for both ground and neutral conductors. The insulated/bondable single 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, provided the cables terminated are of the same material. For larger cables, add-on neutral lugs may be ordered from the accessories on **Page V1-T1-67**.

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

Bottom Fed Loadcenters

For single-phase 225 A and below loadcenters that are bottom fed, a standard panel 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 2008 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 2008 Article 312.8.

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 manufacturing, e.g., 023. The "!" sign at the end signifies the decade of the 2010. Therefore, the date code F023& would indicate that the product was manufactured in the 23rd week of 2010. The 1980s are represented by the "+" sign and the 1990s are represented by a "=" at the end of the code.

Surge Protectors

Complete home surge protection is available in multiple options, including a factory-installed option that provides the highest level of surge protection in a residential design. See Tab 3 for more details.

Circuit Breaker Case Interrupting Capacity

- 10 kAIC
- 22 kAIC
- 25 kAIC

Warranty Information

- 10-year limited loadcenter warranty
- 10-year limited branch breaker warranty

Standards and Certifications

UL Listings

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

Listed

Type BR Loadcenter



Optimized Knockouts
- Knockout locations for additional access
- Easier to remove

Smooth Case Edges
- Provides a more professional look and feel

Top or Bottom Feed
- Straight-in wiring saves labor and material
- One panel for either top or bottom applications

Plug-on Neutral
- Eliminates the pigtail connection providing time and labor savings
- Provides a professional installation

2/0 Lug
- Easily removable and can be installed in any location on the neutral bar

Type BR AFCI Breakers
- Compact design for easier wiring and improved wireway access
- Optional LED indicates one of six trip codes for circuit diagnostics
- Provides a clean gutter space

Inboard Neutral
- Increases gutter space to allow for the professional installation of conductors

Standard Tin-Plated Aluminum Bus
- Excellent conductivity and corrosion resistance
- Copper bus options available for select catalog numbers

Drywall Offset on Both Sides of the Enclosure
- Allow for faster installation using predetermined self-leveling tabs

"Tangential" Center Knockout
- Easier installation for conduit applications

Commercial Grade Main Breaker
- 25 kAIC series rated main breaker for superior protection

Common Drive Types
- Minimize number of tools required for installation as the neutral bar and breaker screws will share a common drive type

Grounding Screw
- Provides a quick and easy means of bonding the neutral and ground

Twin Neutral Bars
- Minimum 150% neutral capacity

Backed-Out Neutral Screws
- Allows for quick connection of neutral and ground conductors

Cover Features not Shown:

Cover Keyhole Hanging Feature
- Ease of cover installation

Rigid Center Cover Spine
- Provides strength when twistouts are removed

Improved Cover Twistouts
- Easier to remove twistouts

Embossed Cover Circuit Numbers
- Durable circuit numbering with added marking for twin breakers

Single Keyhole Mounting
- One keyhole at the top and bottom provides easier mounting and leveling

Warranty

10-year warranty on all Type BR loadcenters and circuit breakers.

1

Catalog Number Selection

Single-Phase Plug-on Neutral Loadcenters

BR P 30 L __ 200 __ G W P1

Type Designation
BR = 1 inch (25.4 mm) breaker loadcenter

Feature
P = Plug-on neutral design

Number of Spaces ①

8	10	12	16	20
24	30	40	42	60

① The number of circuits is equal to double the number of spaces.

Bus Amperage
100 = 100 A
125 = 125 A
150 = 150 A
200 = 200 A
225 = 225 A

Bus Material
Blank = Aluminum
C = Copper

Main Device
L = Main lug only
B = Main breaker
E = Convertible with main lugs installed
N = Convertible (main device purchased separately)
H = 22 kAIC

Enclosure
Blank = NEMA Type 1 indoor with combination trim
R = NEMA Type 3R rainproof
S = NEMA Type 1 indoor with surface trim

Trim Color
Blank = ANSI 61 Gray
W = White (indoor only)

Accessories Installed
Blank = None installed
DG = Double ground bar (for panels under 20 spaces)
F = Feed-through lugs
G = Ground bar

Packaging
Blank = Individually packed with cover attached
P1 = Loadcenters palletized (no box), covers 4 per carton

Single- and Three-Phase Legacy Loadcenters

3 BR __ 30 42 B C 200 __ __

Phase
Blank = Single-phase ①
3 = Three-phase

Eaton's Type BR Loadcenter

Factory Options
SUR = Factory-integrated surge protective device (SPD)

Number of 1-Inch (25.4 mm) Spaces

Maximum Number of Circuits

Main Device
B = Main breaker
L = Main lug
N = Convertible main
H = Main breaker high AIC

Bus
Blank = Aluminum bus ①
C = Copper bus

Amperes

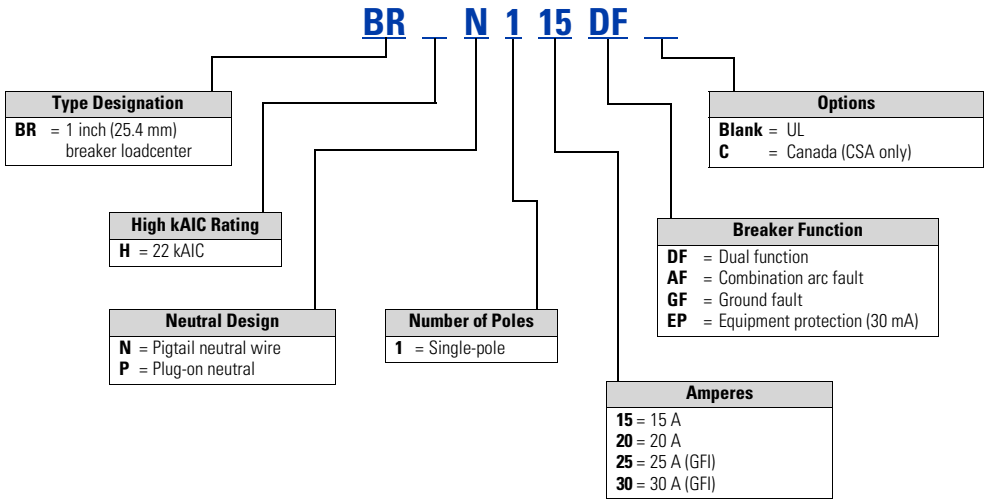
50 = 50 A	**200** = 200 A
70 = 70 A	**225** = 225 A
100 = 100 A	**300** = 300 A
125 = 125 A	**400** = 400 A
150 = 150 A	**600** = 600 A

Enclosure
R = NEMA Type 3R rainproof
S = NEMA Type 1 indoor with surface trim
F = NEMA Type 1 indoor with flush trim
Blank = NEMA Type 1 indoor with combination trim ①
RIS = Riser panel

Construction
Blank = No feed-through lugs ①
F = Feed-through lugs
G = Ground bar
P = Current design
NY = NY City gutter space

Note
① No character space used.

BR Electronic Circuit Breakers



1

Product Selection

Single-Phase—Plug-on Neutral—Main Circuit Breaker Loadcenters—10/25 kAIC

BRP10B100



Single-Phase Three-Wire—120/240 Vac—Insulated/Bondable Split Neutral

Main Breaker Type	Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Breaker	Loadcenter Catalog Number with Combination 1 or NEMA Type 3R Cover ①②
BR 10 kAIC	100	10	20	Indoor	X0	#4–1/0 2	**BRP10B100**
		10	20	Outdoor	X1R		**BRP10B100RF** ③④
		12	24	Indoor	X1		**BRP12B100**
		12	24	Outdoor	X1R		**BRP12B100R** ④
		16	32	Indoor	X2		**BRP16B100**
		16	32	Outdoor	X2R		**BRP16B100R** ④
		20	40	Outdoor	X11R		**BRP20B100R** ④
		20	40	Indoor	X3		**BRP20B100**
		30	60	Indoor	X5		**BRP30B100**
	125	16	32	Indoor	X2	#4–2/0	**BRP16B125**
		20	40	Indoor	X3		**BRP20B125**
		20	40	Outdoor	X11R		**BRP20B125R** ④
		30	60	Indoor	X5		**BRP30B125**
BRH ⑤ 22 kAIC	100	12	24	Indoor	X1	#4–1/0	**BRP12H100**
		20	40	Indoor	X3		**BRP20H100**
CSR ⑥ 25 kAIC	150	8	16	Outdoor	X11R	#2–300 kcmil	**BRP08B150RF** ③④
		16	32	Indoor	X4		**BRP12B150**
		20	40	Indoor	X4		**BRP20B150**
		24	48	Indoor	X6		**BRP24B150**
		20	40	Outdoor	X5R		**BRP20B150R** ④
		30	60	Indoor	X6		**BRP30B150**
	200	8	16	Outdoor	X11R		**BRP08B200RF** ③④
		16	32	Indoor	X4		**BRP16B200**
		20	40	Outdoor	X5R		**BRP20B200R** ④
		20	40	Indoor	X5		**BRP20B200**
		24	48	Indoor	X6		**BRP24B200**
		30	60	Indoor	X6		**BRP30B200**
		30	60	Indoor	X6		**BRP30B200G**
		30	60	Outdoor	X6R		**BRP30B200R** ④
		40	80	Indoor	X8		**BRP40B200**
		40	80	Outdoor	X8R		**BRP40B200R** ④
		60	120	Indoor	X10		**BRP60B200**
		60	120	Outdoor	X10R		**BRP60B200R** ④

Notes

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

② All main circuit breaker loadcenters are listed for use as service entrance equipment and are shipped with neutral bonding screw pre-attached. 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 V1-T1-67**.

③ Includes through-feed lugs for both phase and neutral conductors.

④ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page V1-T1-67**.

⑤ 22 kAIC series combination rating is obtained when Types BD, BR, BQ, BQC and ETN01 10 kAIC branch breakers are used in series with Type BRH main breaker.

⑥ 25 kAIC series combination rating is obtained when Types BD, BR, BQ, BQC and ETN01 10 kAIC branch circuit breakers are used in series with Type CSR main breaker.

Main Circuit Breaker Loadcenters—10/22 kAIC

BR4242B400F



Single-Phase Three-Wire—120/240 Vac—Insulated/Bondable Split Neutral

Main Breaker Type	Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Breaker	Commercial Loadcenter Catalog Number ①②③ With Flush or NEMA Type 3R Cover	With Surface Cover
DK ④	300	42	42	Indoor	24	(2) #3/0–250 kcmil	**BR4242B300F**	**BR4242B300S**
	400	42	42	Indoor	24	(2) #3/0–250 kcmil	**BR4242B400F**	**BR4242B400S**
		42	42	Outdoor	47	(2) #3/0–250 kcmil	**BR4242B400R** ⑤	—
HLD ⑥	600	42	42	Indoor	24	(2) #3/0–500 kcmil	—	**BR4242B600S**

Notes

① Ground bar kits priced separately. See **Page V1-T1-67**.
② The maximum rating of the panel is the main circuit breaker rating when used as service entrance equipment.
③ Door lock and key included with loadcenter.
④ 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.
⑤ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page V1-T1-67**.
⑥ 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 V1-T1-73** through **V1-T1-77**.

Please contact the Lincoln Flex Center for any configurations not listed.

Single-Phase—Main Lug Loadcenters—Small Space

Single-Phase Three-Wire—120/240 Vac—Insulated/Bondable Split Neutral

Surface Outdoor



Flush Outdoor



Surface (No Door)



Flush (No Door)



Outdoor



Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Trim Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Lugs	Loadcenter Catalog Number
70	2	4	Indoor	Surface (no door)	5	#8–#2	**BR24L70SP** ①②
	2	4	Indoor	Surface (no door)	5		**BR24L70SGP** ②③
	2	4	Outdoor	—	5R		**BR24L70RP** ①②④
	2	4	Indoor	Flush (no door)	5		**BR24L70FP** ①②
	2	4	Indoor	Flush (no door)	5		**BR24L70FGP** ②⑤
125	2	4	Indoor	Surface (no door)	6	#14–1/0	**BR24L125SP** ①②
	2	4	Outdoor	—	6R		**BR2L125RP** ①②④
	2	4	Outdoor	—	6R		**BR24L125RSEP** ②⑦⑧
	2	4	Outdoor	—	6R		**BR24L125RSE2P** ②⑥⑦
	2	4	Indoor	Flush (no door)	6		**BR24L125FP** ①②
	4	8	Indoor	Surface (no door)	7	#14–1/0	**BR48L125SP** ①⑨
	4	8	Indoor	Surface (no door)	7		**BR48L125SGP** ③⑨
	4	8	Outdoor	—	6R		**BRC48L125RP** ①④⑨
	4	8	Indoor	Flush (no door)	7		**BR48L125FP** ①⑨
	4	8	Indoor	Flush (with door)	7		**BR48L125FDP** ①⑨
	4	8	Indoor	Flush (no door)	7		**BR48L125FGP** ③⑨
	6	12	Indoor	Surface (no door)	7	#14–#1	**BR612L125SP** ①⑩
	6	12	Indoor	Surface (no door)	7		**BR612L125SGP** ⑩⑪
	6	12	Indoor	Surface (with door)	7		**BR612L125SDP** ①⑩
	6	12	Indoor	Surface (with door)	7		**BR612L125SDGP** ⑩⑪
	6	12	Outdoor	—	7R		**BR612L125RP** ①④⑩
	6	12	Indoor	Flush (no door)	7		**BR612L125FP** ①⑩
	6	12	Indoor	Flush (no door)	7		**BR612L125FGP** ⑤⑩⑪
	6	12	Indoor	Flush (with door)	7		**BR612L125FDP** ⑩
	6	12	Indoor	Flush (with door)	7		**BR612L125FDGP** ⑤⑩⑪
	8	16	Indoor	Surface (no door)	7	#14–#1	**BR816L125SP** ①⑩
	8	16	Indoor	Surface (no door)	7		**BR816L125SGP** ⑩⑪
	8	16	Indoor	Surface (with door)	7		**BR816L125SDP** ①⑩
	8	16	Indoor	Surface (with door)	7		**BR816L125SDGP** ⑩⑪
	8	16	Outdoor	—	7R		**BR816L125RP** ①④⑩
	8	16	Indoor	Flush (no door)	7		**BR816L125FP** ①⑩
	8	16	Indoor	Flush (no door)	7		**BR816L125FGP** ⑤⑩⑩
	8	16	Indoor	Flush (with door)	7		**BR816L125FDP** ①⑩
	8	16	Indoor	Flush (with door)	7		**BR816L125FDGP** ⑤⑩⑫

Notes

① Ground bar kits priced separately. See **Page V1-T1-67**.
– 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.

③ Ground bar GBK5 is installed.

④ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page V1-T1-67**.

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.

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.

⑪ Ground bar GBK10 is installed.

⑫ Ground bar GBK14 is installed.

Box sizes **Pages V1-T1-73** through **V1-T1-77**.

Single-Phase—Main Lug Loadcenters

Single-Phase Three-Wire—120/240 Vac—Insulated/Bondable Split Neutral, continued

BRP12L125



Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Lugs	Loadcenter Catalog Number ①⑦
125	12	24	Indoor	X0	#6–2/0	**BRP12L125** ②③④
	12	24	Indoor	X0		**BRP12L125G** ②③④
	12	24	Indoor	X0		**BRP12L125DG** ②③④⑤
	12	24	Outdoor	X0R		**BRP12L125R** ②④⑥
	16	32	Indoor	X1		**BRP16L125** ②③④
	16	32	Indoor	X1		**BRP16L125G** ②③⑤
	16	32	Outdoor	X1R		**BRP16L125R** ②⑥
	20	40	Indoor	X2		**BRP20L125** ②③④
	20	40	Indoor	X2		**BRP20L125G** ②③⑤
	20	40	Outdoor	X2R		**BRP20L125R** ②⑥
	24	48	Indoor	X3		**BRP24L125** ②③
	24	48	Indoor	X3		**BRP24L125G** ②③⑤
	30	60	Indoor	X5		**BRP30L125** ②③
150	16	32	Indoor	X3	#1–300 kcmil	**BRP16L150** ③
	20	40	Indoor	X3		**BRP20L150** ③
	20	40	Indoor	X3		**BRP20L150G** ③⑤

BRP12L200R



200	12	24	Outdoor	X1R		**BRP12L200R** ④⑥
	20	40	Indoor	X3		**BRP20L200** ③
	20	40	Indoor	X3		**BRP20L200G** ③⑤
	20	40	Outdoor	X11R		**BRP20L200R** ⑥
	24	48	Indoor	X4		**BRP24L200** ③
	30	60	Indoor	X5		**BRP30L200** ③
	30	60	Indoor	X5		**BRP30L200G** ③⑤
	30	60	Outdoor	X5R		**BRP30L200R** ⑥
	40	80	Indoor	X6		**BRP40L200** ③
	40	80	Indoor	X6		**BRP40L200G** ③⑤
	40	80	Outdoor	X6R		**BRP40L200R** ⑥

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

BR4242L400F



Single-Phase Three-Wire—120/240 Vac—Insulated/Bondable Split Neutral

Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Lugs	Commercial Loadcenter Catalog Number ① With Flush or NEMA Type 3R Cover	With Surface Cover
400	12	24	Outdoor	42	(2) #3/0–400 kcmil	**BR1224L400R** ④⑤	—
	42	42	Indoor	22		**BR4242L400F**	**BR4242L400S**
	42	42	Outdoor	46		**BR4242L400R** ④	—
600	42	42	Indoor	22	(2) #2–500 kcmil	—	**BR4242L600S**

Notes

① Ground bar kits priced separately unless otherwise noted. See **Page V1-T1-67**.
② Has provision for BRPHD hold-down kit in 125 A and 200 A styles.
③ Combination cover style.
④ Suitable for use as service equipment when not more than six main disconnecting means are provided.
⑤ Ground bars installed.
⑥ Rainproof panels are furnished with hub closure plates. For rainproof hubs, refer to **Page V1-T1-67**.
⑦ Includes main lugs. Loadcenters can convert to main breaker using kit.

1

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

Note: Interrupting rating depends on main circuit breaker selected.

BRP12N125



Base Units—Single-Phase Three-Wire—120/240 Vac—Insulated/Bondable Split Neutral (Unless Otherwise Noted)

Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Lugs	Loadcenter Catalog Number With Combination or NEMA Type 3R ①②③
125 ④⑥	12	24	Indoor	X1	See main breaker kit and main lug kit tables on **Page V1-T1-53**.	**BRP12N125**
	12	24	Indoor	X2		**BRP12N125G** ⑩
	12	24	Outdoor	X1R		**BRP12N125R** ⑦⑨
	16	32	Indoor	X2		**BRP16N125**
	16	32	Outdoor	X2R		**BRP16N125R** ⑦⑨
	20	40	Indoor	X3		**BRP20N125G** ⑩
	20	40	Outdoor	X11R		**BRP20N125R** ⑦⑨
200 ⑤	12	24	Indoor	X4		**BRP12N200** ⑨
	12	24	Outdoor	X11R		**BRP12N200R** ⑦⑨
	20	40	Indoor	X5		**BRP20N200** ⑨
	20	40	Indoor	X5		**BRP20N200G** ⑩
	20	40	Outdoor	X5R		**BRP20N200R** ⑦⑨
	30	60	Indoor	X6		**BRP30N200** ⑨
	30	60	Indoor	X6		**BRP30N200G** ⑩
	30	60	Outdoor	X6R		**BRP30N200R** ⑦⑨
	40	80	Indoor	X8		**BRP40N200**
	40	80	Outdoor	G1R		**BRP40N200R** ⑦⑨
	40	80	Indoor	X8		**BRP40N200G** ⑩

Convertible MLO Loadcenters—Factory Installed Lugs ⑥⑪

Single-Phase Three-Wire—120/240 Vac—Insulated/Bondable Split Neutral

Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al	Catalog Number
200	8	16	Outdoor	X11R	#1–300 kcmil	**BRP08E200RF** ⑦
200	30	60	Indoor	X6	#1–300 kcmil	**BRP30E200G** ⑩
200	40	80	Indoor	X8	#1–300 kcmil	**BRP40E200G** ⑩
200	60	120	Indoor	X10	#1–300 kcmil	**BRP60E200**

① The maximum rating of the loadcenter is the main circuit breaker rating when used as service entrance equipment.
② 125 A and 200 A 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 408 of the NEC.
③ Ground bar kits priced separately except as noted, refer to **Page V1-T1-67**.
④ For main breaker, use Type BR. For main lug, use Type BRPSF.
⑤ For main breaker, use Type BW or CSR. For main lug, use Type BRPL200.
⑥ Convertible to maximum of 125 A main circuit breaker and 125 A main lug. BRPHD comes with loadcenter for back-fed Types BR and BRH main circuit breakers.
⑦ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to **Page V1-T1-67**.
⑧ Includes through-feed lugs for both phase and neutral conductors.
⑨ Insulated/bondable single neutral for legacy styles only. Does not apply to plug-on neutral style loadcenter.
⑩ Includes ground bar.
⑪ Main lugs come installed.

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

Note: Interrupting rating depends on main circuit breaker selected.

BW2200



Main Devices—Two- and Three-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 kAIC Catalog Number	22/25 kAIC Catalog Number ①
Two-Pole			
100	#4–1/0	**BR2100**	**BRH2100**
110	#4–1/0	**BR2110**	**BRH2110**
125	#4–2/0	**BR2125**	**BRH2125**
125	#2–300 kcmil	**BW2125**	**CSR2125N**
150	#2–300 kcmil	**BW2150**	**CSR2150N**
175	#2–300 kcmil	**BW2175**	**CSR2175N**
200	#2–300 kcmil	**BW2200**	**CSR2200N**
Three-Pole			
100	#1	**BR3100**	**BRH3100**

BRL200



Main Devices—Two- and Three-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
Two-Pole		
125	#6–2/0	**BRSF125**
150	#1–300 kcmil	**BRL200**
175	#1–300 kcmil	**BRL200**
200	#1–300 kcmil	**BRL200**
Three-Pole		
150	#6–3/0	**3BRSF150**

Main Circuit Breaker with Accessory

Example: BW22005R01 (Put description with catalog number on order. See **Page V1-T1-88**.)

Main Circuit Breaker Loadcenters—Copper Bus 10/22/25 kAIC

BRP20BC100



Main Circuit Breaker Loadcenters—With Copper Bus—Single-Phase Three-Wire—120/240 Vac—Insulated/Bondable Split Neutral

Main Breaker Type	Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Breaker	Loadcenter Catalog Number with Combination Cover ②③④
BR 10 kAIC	100	20	40	Indoor	X3	#4–1/0	**BRP20BC100**
		30	60	Indoor	X6	#4–1/0	**BRP30BC100**
	125	30	60	Indoor	X6	#4–1/0	**BRP30BC125**
BRH 22 kAIC ⑤	100	20	40	Indoor	X3	#4–1/0	**BRP20HC100**
		30	60	Indoor	X5	#4–1/0	**BRP30HC100**
CSR 25 kAIC	150	30	60	Indoor	X6	#2–300 kcmil	**BRP30BC150**
	200	20	40	Indoor	X3	#2–300 kcmil	**BRP20BC200**
		30	60	Indoor	X6	#2–300 kcmil	**BRP30BC200**
		40	80	Indoor	X8	#2–300 kcmil	**BRP40BC200**
	225	18	36	Outdoor	X5R	#2–300 kcmil	**BRP18BC225R**
		42	84	Indoor	X9	#2–300 kcmil	**BRP42BC225**

Main Lug Only Loadcenters—Copper Bus

BRP42LC225



Single-Phase Three-Wire—120/240 Vac—Insulated/Bondable Single Neutral with Copper Bus

Main Breaker Type	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Breaker	Loadcenter Catalog Number with Combination Cover ②③
225	42	84	Indoor	X8	#1–300 kcmil	**BRP42LC225** ④
	42	84	Indoor	X8	#1–300 kcmil	**BRP42LC225G** ⑥

Notes

① Series combination rating with Types BD, BR, BQ, BQC and ETN01 is 22 kAIC with BRH main and 25 kAIC with CSR main.
② All main circuit breaker loadcenters are listed for use as service entrance equipment and are shipped with neutral bonding screw pre-attached.
③ The maximum rating of the panel is the main circuit breaker rating when used as service entrance equipment.
④ Ground bar kits priced separately. See **Page V1-T1-67**.
⑤ 22 kAIC series combination rating is obtained when Types BD, BR, BQ, BQC and ETN01 10 kAIC branch breakers are used in series with Type BRH main breaker.
⑥ Includes ground bar.

Box sizes **Pages V1-T1-73** through **V1-T1-77**.

1

Convertible Loadcenters—Copper Bus 10/22/25 kAIC

BRP12NC125



Convertible—Single-Phase, Three-Wire—120/240 Vac—Insulated/Bondable Split Neutral

Main Breaker Type	Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main	Loadcenter Catalog Number (With Combination or NEMA Type 3R Cover) ①②③
10/22 kAIC ④⑤	125	12	24	Indoor	X1	See main breaker kit and main lug kit tables on **Page V1-T1-53**	**BRP12NC125**
		12	24	Outdoor	X1R		**BRP12NC125R** ⑤
		20	40	Indoor	X3		**BRP20NC125**
		20	40	Outdoor	X11R		**BRP20NC125R** ⑤
10/25 kAIC ⑥⑦	200	20	40	Indoor	X5		**BRP20NC200**
		20	40	Outdoor	X5R		**BRP20NC200R** ⑤
		30	60	Indoor	X6		**BRP30NC200**
		30	60	Outdoor	X6R		**BRP30NC200R** ⑤
		40	80	Indoor	X8		**BRP40NC200**
		40	80	Outdoor	X8R		**BRP40NC200R** ⑤
10/25 kAIC ⑥⑧	225	42	84	Outdoor	X10R		**BRP42NC225R** ⑤

Notes

① 125 A and 200 A 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.

② Ground bar kits priced separately, refer to **Page V1-T1-67**.

③ Interrupting rating depends on main circuit breaker selected. **Page V1-T1-67** for mains.

④ Hold-down screw BRPHD comes with loadcenter for back-fed Types BR and BRH main circuit breakers.

⑤ For main breaker, use Type BR. For main lug, use Type BRPSF.

⑥ For main breaker, use Type BW or CSR. For main lug, use Type BRPL.

⑦ Suitable for use as service equipment when not more than six main disconnecting means are provided.

⑧ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to **Page V1-T1-67**.

Loadcenters with White Covers

Note: Keyhole hanging feature not included.

Single-Phase Three-Wire—120/240 Vac—Insulated/Bondable Split Neutral

Plug-on Neutral—Main Circuit Loadcenters—10/25 kAIC

Main Breaker Type	Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Breaker	Loadcenter Catalog Number with Combination Cover ①②③
BR 10 kAIC	100	12	40	Indoor	X1	#4–1/0	**BRP12B100WP1** ④
		20	40	Indoor	X3		**BRP20B100GW** ⑥
		30	60	Indoor	X5		**BRP30B100GW** ⑥
	125	20	40	Indoor	X3	#4–2/0	**BRP20B125GW** ⑥
		30	60	Indoor	X5		**BRP30B125GW** ⑥
CSR ⑤ 25 kAIC	150	30	60	Indoor	X6	#2–300 kcmil	**BRP30B150GW** ⑥
	200	20	40	Indoor	X5		**BRP20B200GW** ⑥
		20	40	Indoor	X5		**BRP20B200WP1** ④
		30	60	Indoor	X6		**BRP30B200GW** ⑥
		40	60	Indoor	X8		**BRP40B200WP1** ④
		40	60	Indoor	X8		**BRP40B200GW** ⑥

Plug-on Neutral—Convertible Loadcenters MCB or MLO—Base Units and Main Devices 10/22/25 kAIC

Note: Interrupting rating depends on main circuit breaker selected.

Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Breaker	Loadcenter Catalog Number with Combination Cover ①②⑦⑧
125 ⑨	12	24	Indoor	X1	See main breaker kit and main lug kit tables on **Page V1-T1-63**.	**BRP12N125GW**
	20	40	Indoor	X3		**BRP20N125GW**
200 ⑩	20	40	Indoor	X5		**BRP20N200GW**
	30	60	Indoor	X6		**BRP30N200GW**
	40	80	Indoor	X8		**BRP40N200GW**

Plug-on Neutral—Main Lug Loadcenters

Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Breaker	Loadcenter Catalog Number with Combination Cover ①②
125	24	48	Indoor	X3	#6–2/0	**BRP24L125GW**
	24	48	Indoor	X3		**BRP24L125GWP1** ④
	30	60	Indoor	X5		**BRP30L125GW**
200	20	40	Indoor	X3	#1–300 kcmil	**BRP20L200GW** ⑥
	30	60	Indoor	X5		**BRP30L200GW**
	30	60	Indoor	X5		**BRP30L200GWP1** ④
	40	80	Indoor	X6		**BRP40L200GW**
225	42	84	Indoor	X8		**BRP42LC225GW** ⑥⑪

Notes

① Combination style white cover.
② Ground bars installed
③ All main circuit breaker loadcenters are listed for use as service entrance equipment and are shipped with neutral bonding screw pre-attached. The maximum rating of the panel is the main circuit breaker rating when used as service entrance equipment.
④ Must order pallet quantities.
⑤ 25 kAIC series combination rating is obtained when Types BD, BR, BQ, BQC and ETN01 10 kAIC branch circuit breakers are used in series with Type CSR main breaker.
⑥ Minimum order quantity required.
⑦ The maximum rating of the loadcenter is the main circuit breaker rating when used as service entrance equipment.
⑧ 125 A and 200 A 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 408 of the NEC.
⑨ For main breaker use, Type BR. For main lug, use Type BRPSF.
⑩ For main breaker use, Type BW or CSR. For main lug, use Type BRPL200.
⑪ Copper bus.

1

Three-Phase—Type BR Circuit Breaker Loadcenters

Three-Phase, Four-Wire—Main Lug Loadcenters—Copper Bus—208Y/120 Vac or 240 Vac, Insulated/Bondable Split Neutral

Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Breaker	Loadcenter Catalog Number (With Combination or NEMA Type 3R Cover)
125	12	24	Indoor	C1	#6–3/0	**3BR1224LC125**
150	24	42	Indoor	D1	#4–300 kcmil	**3BR2442LC150**
200	30	42	Indoor	G1	#4–300 kcmil	**3BR3042LC200**
200	30	42	Outdoor	G1R	#4–300 kcmil	**3BR3042LC200R**
200	42	42	Indoor	L1	#4–300 kcmil	**3BR4242LC200**
200	42	42	Outdoor	L1R	#4–300 kcmil	**3BR4242LC200R**
225	30	42	Indoor	L1	#4–300 kcmil	**3BR3042LC225**
225	30	42	Outdoor	L1R	#4–300 kcmil	**3BR3042LC225R**
400	42	42	Indoor	22	(2) 3/0–250 kcmil	**3BR4242LC400S**
600	42	42	Indoor	24	(2) 3/0–500 kcmil	**3BR4242LC600S**

Three-Phase, Four-Wire—Main Circuit Breaker Loadcenters—Copper Bus—208Y/120 Vac or 240 Vac, Insulated/Bondable Split Neutral

Main Breaker Type	Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Breaker	Loadcenter Catalog Number (With Combination or NEMA Type 3R Cover)
BR 10 kAIC	100	12	24	Outdoor	C1R	#14–1/0	**3BR1224BC100R**
CC 10 kAIC	200	42	42	Indoor	L2	2/0–300 kcmil	**3BR4242BC200**
	200	42	42	Outdoor	L2R	2/0–300 kcmil	**3BR4242BC200R**
	225	42	42	Indoor	L2	2/0–300 kcmil	**3BR4242BC225**
	225	42	42	Outdoor	L2R	2/0–300 kcmil	**3BR4242BC225R**
DK 22 kAIC	400	42	42	Indoor	24	(2) 3/0–250 kcmil	**3BR4242BC400S** ⑥
		42	42	Outdoor	47		**3BR4242BC400R**
HLD 10 kAIC	600	42	42	Indoor	24	(2) 3/0–500 kcmil	**3BR4242BC600S** ⑥

3BR4242B200



Three-Phase, Four-Wire—Main Circuit Breaker Loadcenters—Aluminum Bus—208Y/120 Vac or 240 Vac Insulated/Bondable Split Neutral

Main Breaker Type	Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Breaker	Loadcenter Catalog Number ①② (With Combination or NEMA Type 3R Cover)
BR 10 kAIC	100	12	24	Outdoor	C1R	#14–1/0	**3BR1224B100R** ③
CC 10 kAIC	125	30	42	Indoor	L1	#6–4/0	**3BR3042B125**
	150	30	42	Indoor	L1	#6–4/0	**3BR3042B150**
		30	42	Outdoor	L1R		**3BR3042B150R** ③
	200	30	42	Indoor	L1	2/0–300 kcmil	**3BR3042B200**
		30	42	Outdoor	L1R		**3BR3042B200R** ③
		42	42	Indoor	L2		**3BR4242B200**
		42	42	Outdoor	L2R		**3BR4242B200R** ③
CC 10 kAIC	225	42	42	Indoor	L2	2/0–300 kcmil	**3BR4242B225**
		42	42	Outdoor	L2R		**3BR4242B225R** ③
DK ④ 22 kAIC	400	42	42	Indoor	24	(2) #3/0–250 kcmil	**3BR4242B400S** ⑥
		42	42	Indoor	24		**3BR4242B400F**
		42	42	Outdoor	47		**3BR4242B400R** ③
LD ⑤	600	42	42	Indoor	24	(2) #3/0–500 kcmil	**3BR4242B600F**

Notes

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 V1-T1-67**.

③ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to **Page V1-T1-67**.

④ 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.

⑤ 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.

⑥ Includes CHH 100 kAIC rated main circuit breaker. 100 kAIC series rating combination is obtained when types BD, BR, BQ, BQC and GFGB branch breakers are used with CHH main.

3BR1224L125



Three-Phase, Four-Wire—Main Lug Loadcenters—Aluminum Bus—208Y/120 Vac or 240 Vac, Insulated/Bondable (Unless Otherwise Noted)

Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Lugs	Loadcenter Catalog Number ① (With Combination or NEMA Type 3R Cover)
100	3	3	Indoor	6	#6–1/0	**3BR3L100S** ②③
	3	3	Outdoor	6R		**3BR3L100R** ③④
125	12	24	Indoor	C1	#6–3/0	**3BR1224L125** ⑤⑥
	12	24	Outdoor	C1R		**3BR1224L125R** ④⑤⑥
150	18	36	Indoor	C2	#6–4/0	**3BR1836L150**
	18	36	Outdoor	C3R		**3BR1836L150R**
	24	42	Indoor	D1	#4–300 kcmil	**3BR2442L150**
	24	42	Outdoor	D1R		**3BR2442L150R** ④
200	12	24	Indoor	C4	#4–300 kcmil	**3BR1224L200** ⑥
	12	24	Outdoor	C3R		**3BR1224L200R** ④⑥
	18	36	Indoor	C4	#4–300 kcmil	**3BR1836L200**
	18	36	Outdoor	C3R		**3BR1836L200R**
	30	42	Indoor	G1	#4–300 kcmil	**3BR3042L200**
	30	42	Outdoor	G1R		**3BR3042L200R** ④
	42	42	Indoor	L1	#4–300 kcmil	**3BR4242L200**
	42	42	Outdoor	L1R		**3BR4242L200R** ④
225	42	42	Indoor	L1	#4–300 kcmil	**3BR4242L225**
	42	42	Outdoor	L1R		**3BR4242L225R** ④

3BR4242L400F



Three-Phase, Four-Wire—Main Lug Loadcenters—Aluminum Bus—208Y/120 Vac or 240 Vac, Insulated/Bondable Split Neutral

Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	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	With Surface Cover
400	42	42	Indoor	22	(1) 250–750 kcmil or (2) #3/0–250 kcmil	**3BR4242L400F**	**3BR4242L400S**
	42	42	Outdoor	46		**3BR4242L400R** ④	—
600	42	42	Indoor	22	(2) #2–500 kcmil	—	**3BR4242L600S**

Notes

① Ground bar kits priced separately. See **Page V1-T1-67**.
② Surface cover only.
③ Insulated/bondable single neutral.
④ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to **Page V1-T1-67**.
⑤ Has notch for BREQS125 hold-down kit.
⑥ 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.
⑦ Door lock and key included with loadcenter.

Box sizes **Pages V1-T1-73** through **V1-T1-77**.

3BR3030N100



3BR4242N225NY



Three-Phase, Four-Wire—Convertible Loadcenters—Aluminum Bus—208Y/120 Vac or 240 Vac, Insulated/Bondable Split Neutral

Main Ampere Rating ①	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Breaker	Loadcenter Catalog Number ②③ (With Combination or NEMA Type 3R Cover)
100 ④	30	30	Indoor	D1	See main breaker kit and main lug kit tables on **Page V1-T1-63**	**3BR3030N100** ⑤
	30	30	Outdoor	D1R		**3BR3030N100R** ⑤⑥
125 ④	12	24	Indoor	C1		**3BR1224N125** ⑤⑥⑦
	12	24	Outdoor	C1R		**3BR1224N125R** ⑤⑥⑦⑧
200	30	42	Indoor	L1		**3BR3042N200**
225	42	42	Indoor	L2		**3BR4242N225**
	42	42	Indoor	B		**3BR4242B225NY** ⑨

Notes

① The maximum rating of the loadcenter is the main circuit breaker rating when used as service entrance equipment.

② 100 A, 125 A and 200 A 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. See **Page V1-T1-67**.

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 Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to **Page V1-T1-67**.

⑦ Convertible to maximum of 100 A main circuit breaker and 125 A main lug.

⑧ 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.

⑨ Order 3BR42FTNY or 3BR42STNY cover separately.

Box sizes **Pages V1-T1-73** through **V1-T1-77**.

Spa Panels



Contents

Description	*Page*
Overview	**V1-T1-43**
BR Plug-on Neutral Loadcenters	**V1-T1-56**
Spa Panels	
Riser Panel	**V1-T1-60**
Type BR Renovation Loadcenter	**V1-T1-61**
BR Loadcenter Options and Accessories	**V1-T1-62**
BR Circuit Breakers	**V1-T1-78**

Spa Panels

Product Description

Eaton's BR Spa Panels distribute power to outdoor loads and provide protection for people from electric shock. Save time and money with streamlined installation procedures and easy-access features. Spa panels meet NEC requirements by providing a ground fault circuit interruption device and a disconnect switch in a single simple device. Ships assembled prewired, factory tested and ready to install.

Features

- 10-year warranty
- UL Listed
- Factory-installed two-pole ground fault circuit interrupter (GFCI)

Product Selection

BR Spa Panel



Spa Panel—Meets NEC Article 680.40 Through 680.43—Requirements for GFCI Protection

Main Ampere Rating	Maximum Number 1-Inch (25.4 mm) Space	Poles	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Lugs	Catalog Number
40	—	—	Outdoor	5R	#8–#2	**BR40SPAST** ①
50	—	—	Outdoor	5R	#8–#2	**BR50SPAST** ②

Notes

① Includes a GFTCB240 breaker, factory installed.
② Includes a GFTCB250 breaker, factory installed.

Riser Panel



Contents

Description	*Page*
Overview	**V1-T1-43**
BR Plug-on Neutral Loadcenters	**V1-T1-56**
Spa Panels	**V1-T1-59**
Riser Panel	
Type BR Renovation Loadcenter	**V1-T1-61**
BR Loadcenter Options and Accessories	**V1-T1-62**
BR Circuit Breakers	**V1-T1-78**

Riser Panel

Product Description

Eaton's 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.

Product Selection

BR1224L125RIS



Riser Panel

Main Ampere Rating	Number of 1-Inch (25.4 mm) Spaces	Maximum Number of Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Lugs	Catalog Number
125	12	24	Indoor	C4	#6–2/0	**BR1224L125RIS**
125	12	24	Indoor	C4	#6–2/0	**BR1224L125RISBP** ①
125	20	24	Indoor	C4	#6–2/0	**BR2024L125RIS**
125	20	24	Indoor	C4	#6–2/0	**BR2024L125RISBP** ①
125	20	30	Indoor	C2	#6–2/0	**BR2030L125RIS**
200	30	40	Indoor	D1	#1–300	**BR3040L200RIS**

BRGUTTER (Shown with Loadcenter)



Riser Panel Accessories

Catalog Number
BRGUTTER ②
GTAP250

Notes

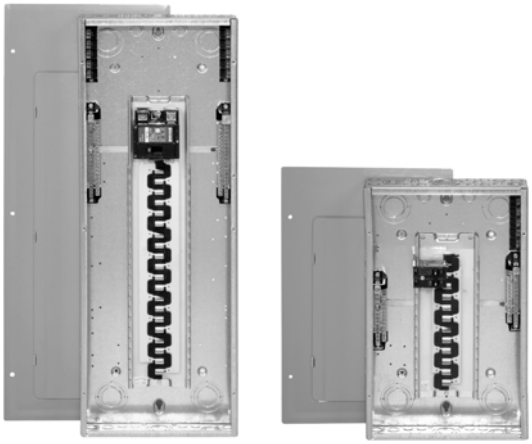
① Bulk-packaged loadcenter without carton. Must be ordered in multiples of 16.

② Refer to **Page V1-T1-74** for dimensions. BRGUTTER is box size C2.

Accessories

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

BR Renovation Loadcenters



Contents

Description	*Page*
Overview	**V1-T1-43**
BR Plug-on Neutral Loadcenters	**V1-T1-56**
Spa Panels	**V1-T1-59**
Riser Panel	**V1-T1-60**
Type BR Renovation Loadcenter	
BR Loadcenter Options and Accessories	**V1-T1-62**
BR Circuit Breakers	**V1-T1-78**

Type BR Renovation Loadcenter

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, Benefits and Functions

- 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
- Single-pole and two-pole breakers included
- 10-year warranty on loadcenter and breakers

Product Selection

BR2020B100RN



BR Value Packs ①

Main Breaker Type	Description	Wire Size Range	Number of 5-Circuit Terminal Blocks	Single-Pole Breakers	Two-Pole Breakers	Catalog Number
BR 10 kAIC	Single-phase 100 A 10k main breaker 10/20 circuit surface-mount box is 11.75" wide x 13" tall	#6–1/0	0	(2) BR115	(1) BR230	**BR1020B100SRNV**
	Single-phase 100 A 10k main breaker 10/20 circuit flush-mount box is 11.75" wide x 13" tall		0	(2) BR115	(1) BR230	**BR1020B100FRNV**

Note

① Indoor enclosure type.

Options and Accessories—Mechanical Interlocks



Contents

Description	*Page*
Overview	**V1-T1-43**
BR Plug-on Neutral Loadcenters	**V1-T1-56**
Spa Panels	**V1-T1-59**
Riser Panel	**V1-T1-60**
Type BR Renovation Loadcenter	**V1-T1-61**
BR Loadcenter Options and Accessories	
Type BR Mechanical Interlock Kits	**V1-T1-64**
Technical Data and Specifications	**V1-T1-69**
Dimensions	**V1-T1-73**
BR Circuit Breakers	**V1-T1-78**

BR Loadcenter Options and Accessories

Product Selection

Plug-on Neutral Installation Kits and Parts

Plug-on Neutral Installation and Parts

Description	Ordering Quantity ①	Catalog Number
Bonding kit for bonding the neutral bus to the loadcenter	1	**BONDKITP**
Cover replacement latch—indoor loadcenters (white)	1	**LATCHPW**
Door replacement latch—outdoor loadcenters	1	**CH3RLATCH**
Incoming 2/0 neutral lug	1	**NLP20**
Incoming 300 kcmil neutral lug	1	**NLP300**
Screws used to mount loadcenter cover	25	**LCCS**
Screws used to mount loadcenter cover (white)	25	**LCCSW**
Spray paint—12 oz can (white)	1	**SPCWH**
Series rating caution label	25	**SRL**
Circuit directory (2) 42 Ckt cards, (2) adhesive plastic sleeves	12	**CKTDIR**
Circuit directory—adhesive backed	10	**TCD**
Keyed door lock for loadcenter trim door	1	**TDL**
Terminal insulator kit—Type CSR, CSH, BW, BWH mains	10	**TICSR300**
Terminal insulator kit—Type CH, BR, BRH, BRHH, BRX mains	10	**TIMCB3/0**
Five-circuit terminal block for renovation	1	**RN5TB**
Retaining bracket for backfed main breaker—BR	1	**BRPHD**
Mechanical interlock kit for BR loadcenters with backfed main breaker	1	**BRPMIKBR** ②
Bulk pack—mechanical interlock kit for BR loadcenters with backfed main breaker	10	**BRPMIKBRP** ②
Mechanical interlock kit for BR loadcenters with Type CSR main breaker	1	**BRPMIKCSR** ②
Bulk pack—mechanical interlock kit for BR loadcenters with Type CSR main breaker	10	**BRPMIKCSRP** ②
Gutter tap kit for riser panels (250 mcm)	1	**GTAP250**
Replacement main lugs for 200 A/225 A MLO or convertible panels (#1–300 kcmil)	1	**BRPL200**
1-inch filler plates for branch breakers slot in BR loadcenter	25	**BRFP**
Multipack—1-inch filler plates for branch breakers slot in BR loadcenter (5 pieces)	1	**BRFPP**
Circuit marking strip for BR loadcenter cover/ door	1	**BRMS**
CSR main breaker filler plate (gray)	1	**CSRFPG**
Cover replacement latch—indoor loadcenters (gray)	1	**LATCHPG**
Spray paint—12 oz can (ANSI 61 light gray)	1	**SPC61**

Notes

① Must be purchased in multiples of ordering quantities indicated.
② Not compatible with legacy style BR loadcenters.

BRSF125



3BRS225



BRL200



TDL



Legacy 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
Main and Sub-Feed Lug Blocks					
2	125	2	#8–2/0	1	**BRSF125**
	150	2	#8–2/0	1	**BRSF150** ②
	225	4	#2–300 kcmil	1	**BRPSF225**
3	150	3	#8–2/0	1	**3BRSF150** ②
	225	6	#2–300 kcmil	1	**3BRS225**
Main Lugs					
Two-pole, 200 A stud mounted (includes deadfront filler plate)			#1–300 kcmil	1	**BRL200**
Neutral/ground lug Add-on neutral or ground lug			#2/0 maximum	1	**NL20**
			#3/0 maximum	1	**NL30**
			300 kcmil maximum	1	**NL300**
Filler Plates					
1-inch (25.4 mm) circuit breaker space				25	**BRFP**
BW main circuit breaker space (with hardware)				1	**BWFP**
Door lock —12–42 circuits, and 100–225 A				1	**TDL**
Door lock—4–8 circuits, 125 A				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**

Three-Phase Accessories

Three-Phase Main Breaker Kits—10 kAIC

Ampere Rating	Wire Size Range Cu/Al 60 °C or 75 °C	Catalog Number
100	#6–4/0	**CC3100N**
125	#6–4/0	**CC3125N**
150	#6–4/0	**CC3150N**
175	#2/0–300 kcmil	**CC3175N**
200	#2/0–300 kcmil	**CC3200N**
225	#2/0–300 kcmil	**CC3225N**

Three-Phase Main Lugs Kit for Convertible Loadcenters

Ampere Rating	Wire Size Range Cu/Al 60 °C or 75 °C	Catalog Number
225	#1–300 kcmil	**3BRL225**
225	#1–300 kcmil	**3BRS225** ③

Notes

① Must be purchased in multiples of ordering quantities indicated.
② #8–2/0 wire size range is 75 °C rated only.
③ For subfeed.

Box sizes **Pages V1-T1-73** through **V1-T1-77**.



Type BR Loadcenter with Mechanical Interlock Kit

Contents

Description	*Page*
Overview	**V1-T1-43**
BR Plug-on Neutral Loadcenters	**V1-T1-56**
Spa Panels	**V1-T1-59**
Riser Panel	**V1-T1-60**
Type BR Renovation Loadcenter	**V1-T1-61**
BR Loadcenter Options and Accessories	
Type BR Mechanical Interlock Kits	**V1-T1-64**
Technical Data and Specifications	**V1-T1-69**
Dimensions	**V1-T1-73**
BR Circuit Breakers	**V1-T1-78**

Type BR Mechanical Interlock Kits

Product Description

With the aging electrical infrastructure and frequent severe storms, power outages are becoming more and more frequent, affecting thousands of people nationwide. Eaton mechanical interlock kit provides an easy and cost-effective solution when using backup emergency power.

This solution expands the robust line of emergency power products and accessories.

Features and Benefits

- Prevents utility and generator supplies from being on at the same time
- Protects utility linemen from dangerous generator backfeed
- Robust interlock design
- Offered in two unique styles for almost any BR loadcenter, which can reduce inventory levels
- Quick and easy installation—drill points or fixtures for pilot holes are provided on all applicable BR loadcenters; no additional assembly is required

Standards and Certifications

- UL 67 Listed—For use with BR loadcenters
- Meets NEC Article 702

Product Selection

Each mechanical interlock kit includes:

- Interlock assembly
- Hold down kit ①
- New labels
- Necessary screws

Warranty information:

- 10-year warranty on all Type BR circuit breakers and loadcenters
- Refer to Eaton for complete warranty details

Mechanical Interlock Kits ②

	Description	Legacy Style Loadcenters Catalog Number	Plug-On Neutral Style Loadcenters Catalog Number
BRMIKBR 	Single	**BRMIKBR**	**BRPMIKBR**
	Bulk pack ③	**BRMIKBRBP**	**BRPMIKBRBP**
BRMIKCSR 	Single	**BRMIKCSR**	**BRPMIKCSR**
	Bulk pack ③	**BRMIKCSRBP**	**BRPMIKCSRBP**

Notes

① For breakers under 70 A used in backfed applications, add "B" to the end of the catalog string to get the appropriate "hold-down" version.

② Clamshell packaged.

③ Bulk pack contains 10 units, individually packaged.

Mechanical Interlock Cover

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

Mechanical Interlock Cover

Fits Loadcenter Catalog Numbers	Mechanical Interlock Trim/Deadfront Catalog Numbers	Mechanical Interlock Kit Catalog Numbers
Indoor		
BR816B100	BRCOVC10M	BRMIKBR
BR816N100		
BR1212B100	BRCOVC12M	
BR1220B100		
BR1220H100		
BR1224N125	BRCOVC13M	
BR1616B100	BRCOVC16M	
BR1620B100		
BR1624B100		
BR1624B125	BRCOVC17M	
BR1624N125		
BR2020B100, BR2020BC100, BR2020H100, BR2020HC100	BRCOVC22M	
BR2024H100		
BR2020HC100		
BR2030B100		
BR2040B100		
BR2024B125	BRCOVC23M	
BR2024N125, BR2024NC125		
BR3030B100, BR3030BC100	BRCOVC59M	
BR3030H100, BR3030HC100		
Raintight		
BR1020B100R	BR3RDF1M	Field-installed interlock kits not available for these catalog numbers.
BR1224B100R		
BR1224N125R, BR1224NC125R		
BR1624B100R	BR3RDF2M	
BR1624N125R		
BR2024B100R, BR2024B125R	BR3RDF4M	
BR2024N125R, BR2024NC125R		

Mechanical Interlock Cover, continued

Fits Loadcenter Catalog Numbers	Mechanical Interlock Trim/Deadfront Catalog Numbers	Mechanical Interlock Kit Catalog Numbers
Indoor		
BR1630B150	BRCOV16C4FM	BRMIKCSR
BR1224N200		
BR1632B200		
BR1632N200		
BR2030B150	BRCOV20C4FM	
BR2030H150		
BR2040B150		
BR2040B200, BR2040BC200	BRCOV20D1FM	
BR2040H200		
BR2040N200, BR2040NC200		
BR2430B150, BR2430BC150	BRCOV30G1FM	
BR3030B150		
BR3030H150		
BR3040B150		
BR2440B200		
BR2440N200		
BR3040BC200		
BR3040N200, BR3040NC200		
BR4040BC200	BRCOV40L1FM	
BR4040N200, BR4040NC200		
BR4242B225	BRCOV42L2FM	
Raintight		
BR816B150RF	BR3RDF5M ①	
BR816B200RF		
BR816N200RF		
BR1224N200R		
BR2030B150R	BR3RDF11M ①	
BR2040B150R		
BR2040B200R		
BR2040B225R		
BR2040N200R		
BR3030B150R	BR3RDF12M ①	
BR3040B200R		
BR3040N200R		
BR4040B200R	BR3RDF13M ①	
BR4040N200R		
BR48B200RF	BR3RDF14M	
BR4242B225R	BR3RDF15M ①	
Mechanical Interlock Loadcenter Replacement Covers ②		
BR2020B100M, BR2020BC100M	BRCOV20C2FM	Field-installed interlock kits not available for these catalog numbers.
BR2024H100M		
BR3030BC100M	BRCOV30D1FM	

Notes

① Deadfront only.

② Can only be provided as replacement covers for factory-installed mechanically interlock loadcenters.

Field-Installable Rainproof Conduit Hubs

Description	Conduit Size—Inches (mm)	Ordering Quantity ①	Catalog Number
Group 1—for use with 70, 100 and 125 A MLO and MCB loadcenters and circuit breaker enclosures and the following 150 and 200 A panels: BR48B200RF	0.75 (19.1)	1	**DS075H1**
	1.00 (25.4)	1	**DS100H1**
	1.25 (31.8)	1	**DS125H1**
	1.50 (38.1)	1	**DS150H1**
	2.00 (50.8)	1	**DS200H1**
Group 2—for use with 150, 200 and 225 A MLO and MCB loadcenters and circuit breaker enclosures except for the following 200 A loadcenters: BR48B200RF. Also for use with 400 and 600 A loadcenters and New York City loadcenters manufactured after November 1, 2005	2.00 (50.8)	1	**DS200H2**
	2.50 (63.5)	1	**DS250H2**
	3.00 (76.2)	1	**DS300H2**
Type H conduit hubs for loadcenters PL0724R and S3100RN	0.75 (19.1)	1	**RH75P**
	1.00 (25.4)	1	**RH100P**
	1.25 (31.8)	1	**RH125P**
	1.50 (38.1)	1	**RH150P**
Adapter kit—allows installing a Group 1 hub on devices arranged for Group 2 hubs	—	1	**DS900AP**
Group 1 small blank hub plate with bump	—	1	**DS900CP1**
Group 2 Large blank hub plate with bump	—	1	**DS900CP2**

GBKP1420



Plug-on Neutral Ground Bar Kits

Description (See Legend)	Length Inches (mm)	Ordering Quantity ①	Catalog Number
●○○○○○●○○○○○	4.05	1	**GBKP10** ②
●○○○○○●○○○○○	5.05	1	**GBKP1020** ②
●○○○○○●○○○○○■	4.05	1	**GBKP10P** ②③
●○○○○○●○○○○○○○○○	5.39	1	**GBKP14** ②
●○○○○○●○○○○○○○○○■	6.39	1	**GBKP1420** ②
●○○○○○●○○○○○○○○○	5.39	1	**GBKP14P** ②③
●○○○○○●○○○○○○○○○○○○○○	7.72	1	**GBKP21** ②
●○○○○○●○○○○○○○○○○○○○○■	8.72	1	**GBKP2120** ②
●○○○○○●○○○○○○○○○○○○○○	7.72	1	**GBKP21P** ②③
●○○○○○●	2.39	1	**GBKP5** ②
●○○○○○●■	3.39	1	**GBKP520** ②
●○○○○○●	2.39	1	**GBKP5P** ②③

GBK14



BRGBK39512



Legacy Ground Bar Kits

Description (See Legend)	Length Inches (mm)	Ordering Quantity ①	Catalog Number
●○○○○●○	2.54 (64.5)	1	**GBK5** ④
●○○○○●○■	3.59 (91.2)	1	**GBK520** ④
●○○○○●○○○○○○	4.29 (109.0)	1	**GBK10** ④
●○○○○●○○○○○○■	5.34 (135.6)	1	**GBK1020** ④
●○○○○●○○○○○○○○○○	5.69 (144.5)	1	**GBK14** ④
●○○○○●○○○○○○○○○○■	6.74 (171.2)	1	**GBK1420** ④
●○○○○●○○○○○○○○○○○○○○	8.14 (206.8)	1	**GBK21** ④
●○○○○●○○○○○○○○○○○○○○■	9.19 (233.4)	1	**GBK2120** ③④

Ground Bar Legend

○ = (3) #14–#10 Cu/Al or (1) #14–#4 Cu/Al
■ = (1) #6–2/0 Cu/Al
● = Mounting hole

Notes

① Must be purchased in multiples of ordering quantities indicated
② Distance between mounting holes is 2 inches (50.8 mm).
③ Individually packaged.
④ Distance between mounting holes is 1-3/4 inches (44.5 mm).

1

Loadcenter Goof Collars

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

Eaton's 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.



Before



After

BR Goof Collars

Inches (mm)		Catalog Number	
Height	**Width**	**BR Box Size**	**Goof Collar**
21.00 (533.4)	19.00 (482.6)	X0	**BRPX0GC2119**
23.00 (584.2)	19.00 (482.6)	X1	**BRPX1GC2319**
25.00 (635.0)	19.00 (482.6)	X2	**BRPX2GC2519**
27.00 (685.8)	19.00 (482.6)	X3	**BRPX3GC2719**
31.00 (787.4)	19.00 (482.6)	X4	**BRPX4GC3119**
34.00 (863.6)	19.00 (482.6)	X5	**BRPX5GC3419**
39.00 (965.2)	19.00 (482.6)	X6	**BRPX6GC3919**
41.00 (1041.4)	19.00 (482.6)	X7	**BRPX7GC4119**
43.00 (1092.2)	19.00 (482.6)	X8	**BRPX8GC4319**
48.00 (1219.2)	19.00 (482.6)	X9	**BRPX9GC4819**

Note

Type BD Duplex, BQ and BQC Quadplex circuit breakers can be installed in Circuit Limiting (CTL) listed BR loadcenters. Type BR twin breakers can be installed in Non-CTL BR loadcenters.

Technical Data and 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.

C. UL 50—Standards for Cabinets and Boxes.

D. UL 489—Standards for Molded Case Circuit Breakers.

E. UL 869—Standards for Service Equipment.

F. Federal Specification W-C 375B—Circuit Breakers.

G. 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. Eaton.

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 A rms symmetrical.

B. Circuit breakers shall be a minimum of 125 A frame. Circuit breakers 15 A through 125 A 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. Busbars 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 two-pole 1-inch (25.4 mm) wide modules and four-pole 2-inch (50.8 mm) wide modules. Two-pole circuit breakers must incorporate a common trip mechanism.

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 A 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

See Volume 1, Tab 2 for complete details on surge protection.

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.

BR Loadcenters

Description	
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 kAIC: All single- and three-phase loadcenters 70–225 A, 8 to 42 circuits 22 kAIC: All convertible loadcenters using 125 A rated Type BRH main breakers or selected factory-installed 125 A rated Type BRH main breaker	25 kAIC: All convertible and factory-installed single-phase loadcenters rated 150 and 200 A using Type CSR main breakers
Main Breaker/Main Lug Loadcenters	
Single-phase Main breaker: 100, 125, 150, 200, 225, 400, 600 A Main lugs: 70, 125, 150, 200, 225, 400, 600 A	Three-phase Main breaker: 100, 125, 150, 200, 225, 400, 600 A Main lugs: 100, 125, 150, 200, 225, 400, 600 A
Convertible Loadcenters	
Main breaker: single-phase up to 200 A and three-phase up to 225 A	Main lugs: single-phase up to 200 A and three-phase up to 150 A
Branch Breakers	
Types BR, BRH and BRHH: 10–150 A. single-, two- and three-pole; selected amperage available in switching duty, HACR, shunt trip and high magnetic setting Type GFTCB: 15–60 A Types BJ and BJH: 125–225 A; two- and three-pole Type BD Twin: 10–50 A; two of one-pole; take one 1-inch (25.4 mm) space	Type BQ and BQC Multibreaker: 15–30 A. Two of two-pole or one two-pole and two one-pole; takes two 1-inch (25.4 mm) spaces Type BRW: 15–30 A; two-pole water heater breakers Type BRSN: 15–30 A; two-pole switching neutral breakers Type BR 15–100 A; two-pole, 240 Vac delta breakers BR-AFCI arc fault circuit interrupter
Enclosures	
NEMA Type 1 indoor NEMA Type 3R outdoor	NEMA 4X 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 A—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

BR Series Short Circuit Ratings

Main Module Breaker Family or Class Fuse	System AIC Rating at 240 Vac Maximum	Meter Module Tenant Breaker or Loadcenter Main Breaker Family	M.M. Tenant Breaker or Loadcenter Main Breaker Short Circuit Rating	Loadcenter Branch Breaker (Single-, Two- or Three-Pole) ①②
None	10,000	None	N/A	③, BRCAF, GFTCB
Without Main Disconnect	10,000	BR, CC, BW, CCV	10,000	③, BRCAF, GFTCB
Cable Tap Box Family Type 1MTB, 3MTB	22,000	BRH	22,000	③, BRCAF, GFTCB
	22,000	QBHW	22,000	③, BRCAF
Main Switch Module Family Type 1MFS, 3MFS Type 1BS, 3BPS	25,000	CSR, CCVH ④	25,000	③, BRCAF, GFTCB
	42,000	BRHH, CVS	42,000	③, BRCAF, GFTCB
Main Breaker Module Family Type 1MCB, 3MCB	65,000	BRX	65,000	③, BRCAF, GFTCB
	65,000	CV ⑤	65,000	BR, BD, BRD, BQ, BQC, GFTCB
	65,000	ED, GHB	65,000	③, BRCAF, GFTCB
	65,000	FD ⑥	65,000	③, GFTCB
	65,000	KD, HKD	100,000	BR
	100,000	KDC	100,000	BR
	100,000	CVH	100,000	BR, BD, BRD, BQ, BQC, GFTCB
	65,000	T-/J-fuse (200 A max.)	100,000	③, BRH
Main Breaker Module Family Type 1MCB, 3MCB RGH 2000 A, NGS 1200 A MDL 800 A, LGS/LD 600 A, KD 400 A	65,000	BRHX	22,000	③, BRCAF, GFTCB
Type 1MCB, 3MCB RGH 2000 A, NGS 1200 A MDL 800 A, LGS/LD 600 A, KD 400 A	100,000	BRHX ⑦	22,000	BR ⑦, ETN01, BRAFGF, BRCAF, GFTCB
Main Switch Module Family Type 1MFS, 3MFS				
with Class T fuse 600 A maximum	100,000	BRH	22,000	③, BRCAF, GFTCB
with Class T fuse 1200 A maximum	100,000	BRHH, CVS	42,000	③, BRCAF, GFTCB

Notes

① Breakers in this column may not fit in this loadcenter, see breaker info to left.
② GFTCB/GFCB: 50 A maximum unless otherwise noted.
③ Also includes these branch breaker families: BR, BD, BRD, BQ, BQC, BRAFGF, ETN01.
④ GFTCB: 30 A maximum.
⑤ GFTCB: single-pole, 40 A maximum.
⑥ FD: 150 A only with ETN01.
⑦ BR: 110 A maximum.

Dimensions

Approximate Dimensions in Inches (mm)

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

Note: Box sizes do not include covers/fronts.

Plug-on Neutral Residential Loadcenters—NEMA Type 1 Indoor

Box Size	Height	Width	Depth
X0	16.75 (425.5)	14.30 (363.2)	3.80 (96.5)
X1	18.75 (476.3)	14.30 (363.2)	3.80 (96.5)
X2	21.00 (533.4)	14.30 (363.2)	3.80 (96.5)
X3	23.00 (584.2)	14.30 (363.2)	3.80 (96.5)
X4	27.00 (685.8)	14.30 (363.2)	3.80 (96.5)
X5	29.13 (739.9)	14.30 (363.2)	3.80 (96.5)
X6	34.13 (866.9)	14.30 (363.2)	3.80 (96.5)
X7	37.00 (939.8)	14.30 (363.2)	3.80 (96.5)
X8	39.00 (990.6)	14.30 (363.2)	3.80 (96.5)
X9	45.00 (1,143.0)	14.30 (363.2)	3.80 (96.5)
X10	48.38 (1,228.9)	14.30 (363.2)	3.80 (96.5)

Legacy Residential Loadcenters—NEMA Type 1 Indoor

Box Size	Height	Width	Depth
A1	15.00 (381.0)	11.25 (285.8)	3.75 (95.3)
B1	16.75 (425.5)	14.31 (363.5)	3.88 (98.4)
B2	18.75 (476.3)	14.31 (363.5)	3.88 (98.4)
C1	21.00 (533.4)	14.31 (363.5)	3.88 (98.4)
C2	23.00 (584.2)	14.31 (363.5)	3.88 (98.4)
C4	27.00 (685.8)	14.31 (363.5)	3.88 (98.4)
D1	29.13 (739.8)	14.31 (363.5)	3.88 (98.4)
G1	34.13 (866.8)	14.31 (363.5)	3.88 (98.4)
L1	39.00 (990.6)	14.31 (363.5)	3.88 (98.4)
L2	45.00 (1143.0)	14.31 (363.5)	3.88 (98.4)
L3	48.38 (1228.3)	14.31 (363.5)	3.88 (98.4)
2	8.63 (219.1)	5.00 (127.0)	3.50 (88.9)
3	9.44 (239.7)	4.50 (114.3)	3.00 (76.2)
4	13.00 (330.2)	11.00 (279.4)	3.56 (90.5)
5	9.44 (239.7)	4.50 (114.3)	3.00 (76.2)
6	12.00 (304.8)	6.88 (174.6)	4.50 (114.3)
7	13.00 (330.2)	11.00 (279.4)	3.56 (90.5)
9	14.50 (368.3)	6.50 (165.1)	3.50 (88.9)

Plug-on Neutral Residential Loadcenters—NEMA Type 3R Outdoor

Box Size	Height	Width	Depth
X0R	16.75 (425.5)	14.31 (363.5)	5.19 (131.8)
X1R	18.75 (476.3)	14.31 (363.5)	5.19 (131.8)
X2R	21.00 (533.4)	14.31 (363.5)	5.19 (131.8)
X11R	25.00 (635.0)	14.31 (363.5)	5.19 (131.8)
X5R	29.13 (739.8)	14.31 (363.5)	5.19 (131.8)
X6R	34.13 (866.8)	14.31 (363.5)	5.19 (131.8)
X7R	37.00 (939.8)	14.31 (363.5)	5.19 (131.8)
X8R	39.00 (990.6)	14.31 (363.5)	5.19 (131.8)
X10R	48.75 (1238.2)	14.31 (363.5)	5.19 (131.8)
2R	8.63 (219.1)	5.00 (127.0)	3.50 (88.9)
3R	9.44 (239.7)	4.50 (114.3)	3.00 (76.2)
4R	13.00 (330.2)	11.00 (279.4)	3.56 (90.5)
5R	9.44 (239.7)	4.50 (114.3)	3.00 (76.2)
6R	11.75 (298.5)	6.50 (165.1)	4.50 (114.3)
7R	13.00 (330.2)	11.00 (279.4)	3.56 (90.5)
8R	27.00 (685.8)	10.50 (266.7)	4.75 (120.7)
9R	14.25 (362.0)	6.50 (165.1)	4.00 (101.6)

Legacy Residential Loadcenters—NEMA Type 3R Outdoor

Box Size	Height	Width	Depth
B1R	16.75 (425.5)	14.31 (363.5)	5.19 (131.8)
B2R	18.75 (476.3)	14.31 (363.5)	5.19 (131.8)
C3R	25.00 (635.0)	14.31 (363.5)	5.19 (131.8)
D1R	29.13 (739.8)	14.31 (363.5)	5.19 (131.8)
G1R	34.13 (866.8)	14.31 (363.5)	5.19 (131.8)
L1R	39.00 (990.6)	14.31 (363.5)	5.19 (131.8)
L2R	45.00 (1143.0)	14.31 (363.5)	5.19 (131.8)
L3R	48.75 (1238.2)	14.31 (363.5)	5.19 (131.8)
2R	8.63 (219.1)	5.00 (127.0)	3.50 (88.9)
3R	9.44 (239.7)	4.50 (114.3)	3.00 (76.2)
4R	13.00 (330.2)	11.00 (279.4)	3.56 (90.5)
5R	9.44 (239.7)	4.50 (114.3)	3.00 (76.2)
6R	11.75 (298.5)	6.50 (165.1)	4.50 (114.3)
7R	13.00 (330.2)	11.00 (279.4)	3.56 (90.5)
8R	27.00 (685.8)	10.50 (266.7)	4.75 (120.7)
9R	14.25 (362.0)	6.50 (165.1)	4.00 (101.6)
C1R	21.00 (533.4)	14.31 (363.5)	5.19 (131.8)

Approximate Dimensions in Inches (mm)

Commercial Loadcenters—NEMA Type 1 Indoor

Box Size	Height	Width	Depth
19	44.00 (1117.6)	16.16 (410.4)	6.25 (158.8)
20	44.00 (1117.6)	16.16 (410.4)	6.25 (158.8)
22	54.00 (1371.6)	16.22 (412.0)	6.31 (160.3)
24	66.50 (1689.1)	16.22 (412.0)	6.31 (160.3)

Commercial Loadcenters—NEMA Type 3R Outdoor

Box Size	Height	Width	Depth
42	38.00 (965.2)	16.31 (414.3)	6.38 (161.9)
43	44.00 (1117.6)	16.31 (414.3)	6.38 (161.9)
46	54.00 (1371.6)	16.31 (414.3)	6.38 (161.9)
47	66.56 (1690.7)	16.31 (414.3)	6.38 (161.9)

New York City Loadcenters—NEMA Type 1 Indoor

Box Size	Height	Width	Depth
A	38.00 (965.2)	18.13 (460.4)	5.00 (127.0)
B	44.00 (1117.6)	18.13 (460.4)	5.00 (127.0)
C	66.50 (1689.1)	18.13 (460.4)	6.25 (158.8)

ECC Unit Enclosures—NEMA Type 1 Indoor

Height	Width	Depth
23.25 (590.6)	8.88 (225.4)	4.50 (114.3)

ECC Unit Enclosures—NEMA Type 3R Outdoor

Height	Width	Depth
23.68 (601.7)	9.31 (236.5)	5.44 (138.1)

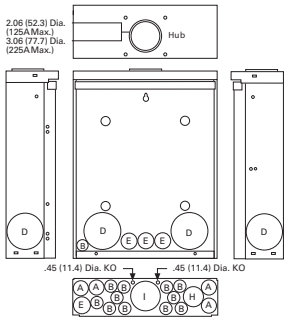
Residential Loadcenter Knockouts

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

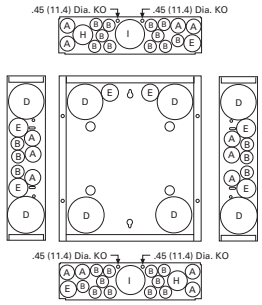
Code	Diameter	Additional KO	Additional KO	Additional KO	Additional KO
A	0.50 (12.7)	0.75 (19.1)	—	—	—
B	0.50 (12.7)	—	—	—	—
C	0.50 (12.7)	1.25 (31.8)	1.50 (38.1)	2.00 (50.8)	2.50 (63.5)
D	1.25 (31.8)	1.25 (31.8)	2.00 (50.8)	2.50 (63.5)	—
E	0.50 (12.7)	0.75 (19.1)	1.00 (25.4)	—	—
F	0.50 (12.7)	0.75 (19.1)	1.00 (25.4)	1.50 (38.1)	2.00 (50.8)
G	1.25 (31.8)	1.50 (38.1)	2.00 (50.8)	—	—
H	0.50 (12.7)	0.75 (19.1)	1.00 (25.4)	1.25 (31.8)	1.50 (38.1)
I	1.00 (25.4)	1.25 (31.8)	1.50 (38.1)	2.00 (50.8)	2.50 (63.5)
J	1.00 (25.4)	1.25 (31.8)	1.50 (38.1)	—	—

Note: Additional KOs are placed concentrically.

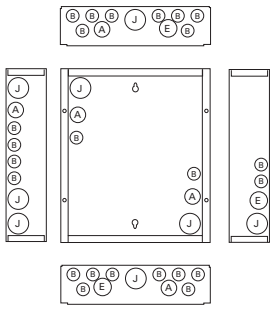
Residential NEMA Type 1 Indoor and NEMA Type 3R Outdoor Enclosures



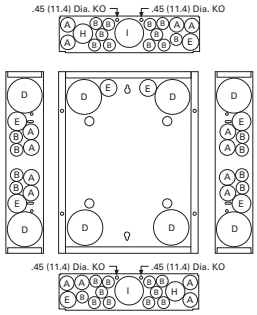
Outdoor Boxes B1R, B2R, C1R, C3R, D1R, G1R, L1R, L2R, X0R, X1R, X2R, X5R, X6R, X7R, X8R, X10R, X11R



Indoor Boxes B1, B2



Indoor Boxes A1



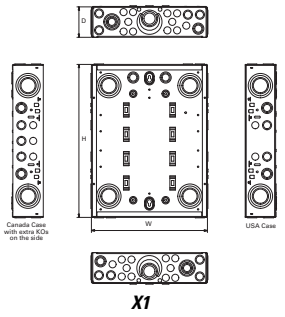
Indoor Boxes C1, C2, C4, D1, G1, L1, L2

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

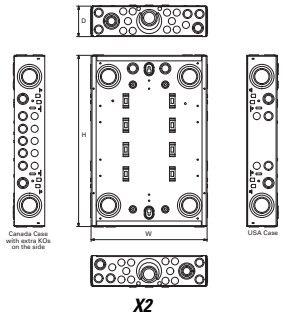
Box Sizes for X1–X9

Box Size	Height	Width	Depth
X1	18.90 (480.1)	14.30 (363.2)	3.80 (96.5)
X2	21.10 (535.9)	14.30 (363.2)	3.80 (96.5)
X3	23.10 (586.7)	14.30 (363.2)	3.80 (96.5)
X4	27.10 (688.3)	14.30 (363.2)	3.80 (96.5)
X5	29.20 (741.7)	14.30 (363.2)	3.80 (96.5)
X6	34.20 (868.7)	14.30 (363.2)	3.80 (96.5)
X7	37.10 (942.3)	14.30 (363.2)	3.80 (96.5)
X8	39.10 (993.1)	14.30 (363.2)	3.80 (96.5)
X9	45.10 (1145.5)	14.30 (363.2)	3.80 (96.5)

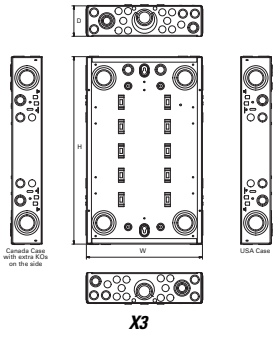
Knockout Positions



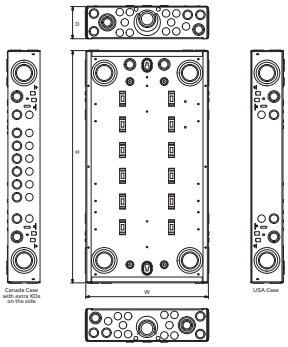
X1



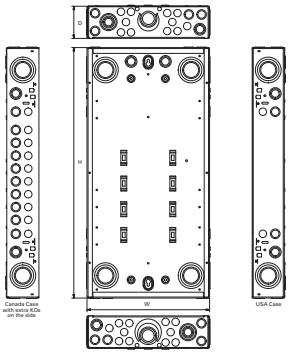
X2



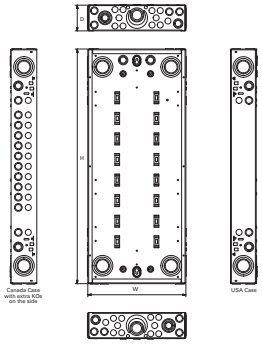
X3



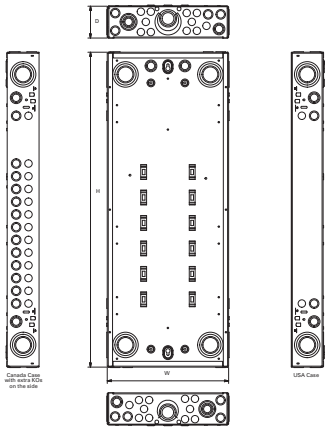
X4



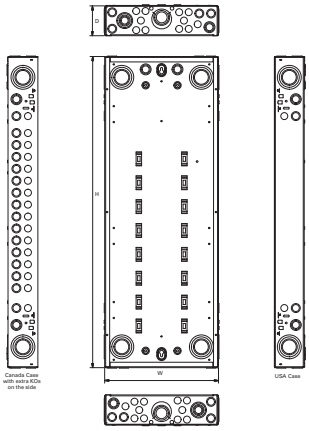
X5



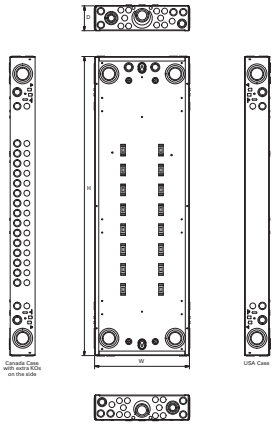
X6



X7



X8



X9

1

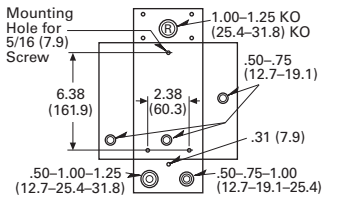
Approximate Dimensions in Inches (mm)

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

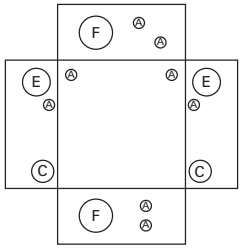
Code	Diameter	Additional KO	Additional KO	Additional KO
A	0.50 (12.7)	—	—	—
B	0.50 (12.7)	0.75 (19.1)	—	—
C	0.50 (12.7)	0.75 (19.1)	1.00 (25.4)	—
D	0.50 (12.7)	0.75 (19.1)	1.00 (25.4)	1.25 (31.8)
E	0.75 (19.1)	1.00 (25.4)	1.25 (31.8)	—
F	0.75 (19.1)	1.00 (25.4)	1.25 (31.8)	1.50 (38.1)
G	1.00 (25.4)	1.25 (31.8)	1.50 (38.1)	—
H	1.00 (25.4)	1.25 (31.8)	1.50 (38.1)	2.00 (50.8)
I	1.25 (31.8)	1.50 (38.1)	2.00 (50.8)	—

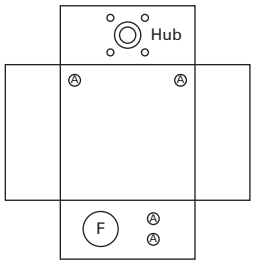
Note: Additional KOs are placed concentrically.

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

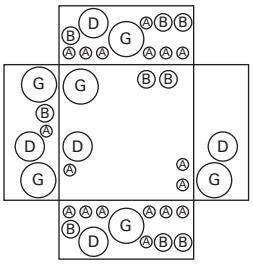


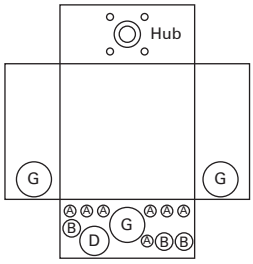
Box 2, 2R


Box 3

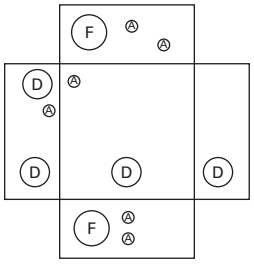


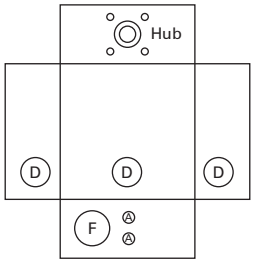
Box 3R


Box 4

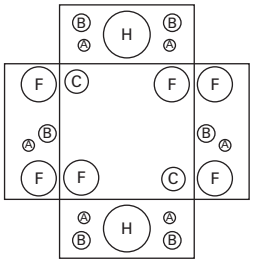


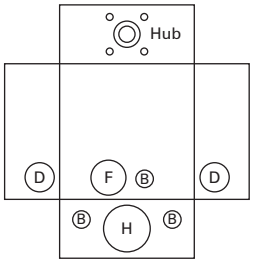
Box 4R


Box 5

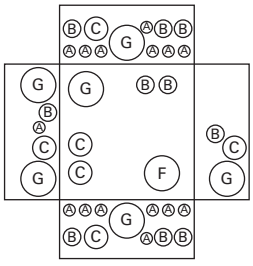


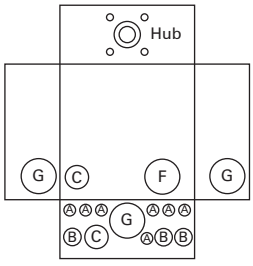
Box 5R


Box 6

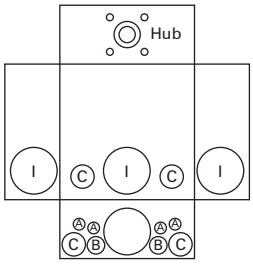


Box 6R

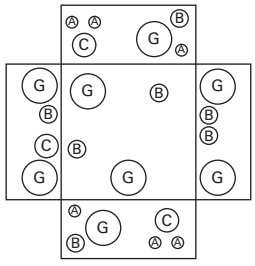

Box 7

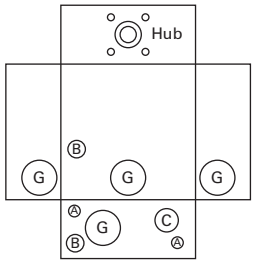


Box 7R



Box 8R


Box 9



Box 9R

Approximate Dimensions in Inches (mm)

Commercial Loadcenter Knockouts

NEMA Type 1 Indoor Commercial Enclosures Knockouts for Box Sizes 19, 20, 22, 24

Code	Diameter	Additional KO	Additional KO	Additional KO
A	0.50 (12.7)	—	—	—
B	0.50 (12.7)	0.75 (19.1)	—	—
C	0.75 (19.1)	1.00 (25.4)	1.50 (38.1)	—
D	1.50 (38.1)	2.00 (50.8)	2.50 (63.5)	3.00 (76.2)
E	2.00 (50.8)	2.50 (63.5)	3.00 (76.2)	—
F	2.50 (63.5)	3.00 (76.2)	3.50 (88.9)	—

Note: Additional KOs are placed concentrically.

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

Code	Diameter	Additional KO	Additional KO	Additional KO
A	0.50 (12.7)	—	—	—
B	0.50 (12.7)	0.75 (19.1)	—	—
C	0.75 (19.1)	1.00 (25.4)	1.25 (31.8)	—
D	1.50 (38.1)	2.00 (50.8)	2.50 (63.5)	—
E	2.00 (50.8)	2.50 (63.5)	3.00 (76.2)	—
F	2.50 (63.5)	3.00 (76.2)	3.50 (88.9)	—
G	1.25 (31.8)	1.50 (38.1)	2.00 (50.8)	2.50 (63.5)
H	3.25 (82.6) Sq.	—	—	—

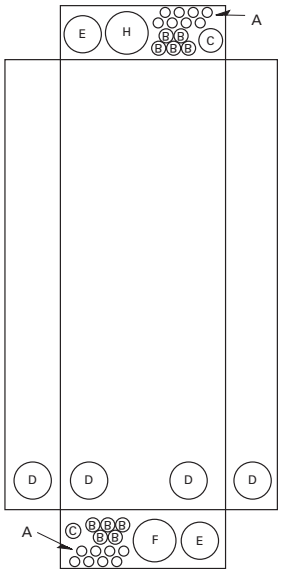
Note: Additional KOs are placed concentrically.

Unit Enclosure Knockouts, Types ECB and ECC Knockouts

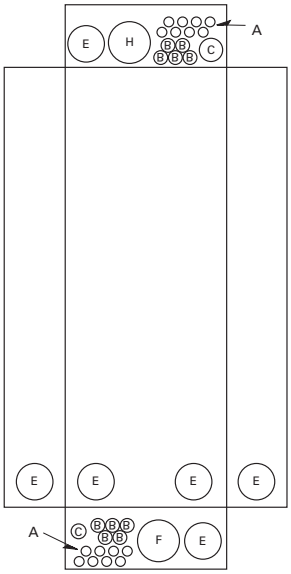
Code	Diameter	Additional KO	Additional KO	Additional KO	Additional KO
NEMA Type 1 Indoor (Flush and Surface Trims)					
A	0.50 (12.7)	—	—	—	—
B	1.25 (31.8)	1.50 (38.1)	1.75 (44.5)	2.00 (50.8)	2.50 (63.5)
NEMA Type 3R Outdoor					
A	0.50 (12.7)	—	—	—	—
B	1.25 (31.8)	1.50 (38.1)	1.75 (44.5)	2.00 (50.8)	2.50 (63.5)

Note: Additional KOs are placed concentrically.

Indoor Commercial Enclosures

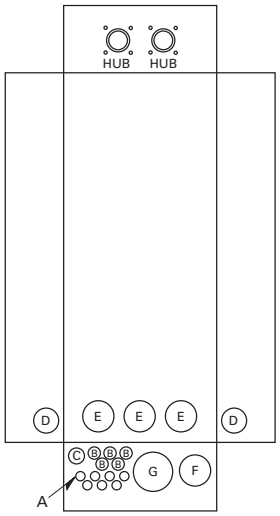


Box 19, 20

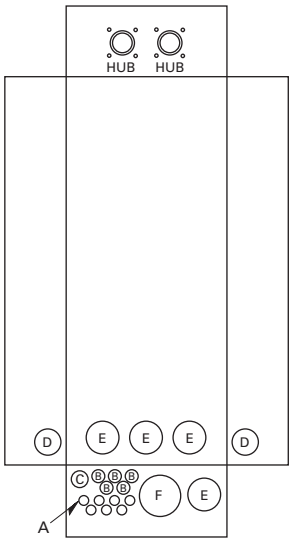


Box 22, 24

Outdoor Commercial Enclosures

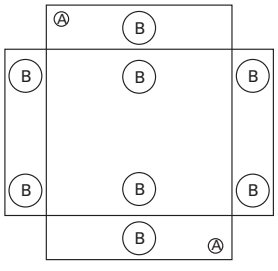


Box 42

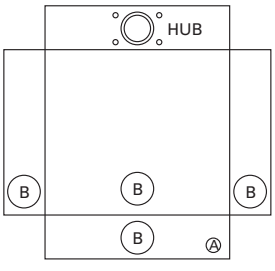


Box 43, 46, 47

Unit Enclosure Knockouts



NEMA Type 1—Indoor



NEMA Type 3R—Outdoor

1

BR Circuit Breakers



Contents

Description	*Page*
Overview	**V1-T1-43**
BR Plug-on Neutral Loadcenters	**V1-T1-56**
Spa Panels	**V1-T1-59**
Riser Panel	**V1-T1-60**
Type BR Renovation Loadcenter	**V1-T1-61**
BR Loadcenter Options and Accessories	
Type BR Mechanical Interlock Kits	**V1-T1-64**
BR Circuit Breakers	
Product Selection	**V1-T1-79**
Options and Accessories	**V1-T1-86**
Wiring Diagrams	**V1-T1-88**

BR Circuit Breakers

Product Description

Plug-on Branch Feeder Type Arc Fault Circuit Breakers, Type BR—10 kAIC, 120 Vac and 120/240 Vac

A branch feeder type arc fault circuit interrupter is a device intended to mitigate high current arcing faults in the complete circuit, including connected cords. High current arcing faults can occur from line to neutral or line to ground. These arcing faults are in parallel with the load and produce the most energy of all arcing faults.

The branch feeder type AFCI is required in the 1999 and 2002 National Electrical Code.

The combination type AFCI is required in the 2005, 2008 and 2011 National Electrical Code.

Plug-on Combination Type Arc Fault Circuit Breakers, Type BR—10 kAIC, 120 Vac and 120/240 Vac

A combination type arc fault circuit interrupter is a device that includes all of the protection offered by the branch feeder AFCI (mitigation of high current arcing faults in the complete circuit, including connected cords). In addition it provides direct detection of persistent low current arcing faults down to 5 A with associated mitigation of fire hazards in the cords connected to the outlets. High current arcing faults can occur from line to neutral or line to ground. These arcing faults are in parallel with the load and produce the most energy of all arcing faults. The current level of low current arcing faults is limited by the load.

Plug-on Ground Fault Circuit Breakers, Type GFTCB and GFEP—10/22 kAIC, 120 Vac and 120/240 Vac

Ground Fault Application Notes

Single-pole GFTCBs are designed for use in two-wire, 120 Vac circuits. See **Page V1-T1-88** for a typical wiring configuration.

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

Page V1-T1-88 shows typical wiring configurations for a 120/240 Vac multiwire circuits, and a 240 Vac, two-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, three-wire power source, but are also applicable to a 120/208 Vac, three-phase, four-wire power supply. For all figures, the electrical operation of the GFTCB is not affected by the equipment ground.

Non-CTL Plug-on Replacement —Circuit Breakers, Type BRD—10 kAIC, 120/240 Vac

Non-CTL 10 kAIC for Replacement Purposes Only

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

Product Selection

Plug-on Circuit Breakers, Types BR—10/22/42 kAIC, 120 Vac, 120/240 Vac and 240 Vac

BR120



BR215



BR320



BRH2100



BRX2125



Type BR Breakers, 1-Inch (25.4 mm) per Pole 120/240, 10, 22 and 42 kAIC

Ampere Rating	Wire Size Range Cu/Al 60 °C or 75 °C	Single-Pole 120/240 Vac Requires One 1-Inch (25.4 mm) Space 10 per Shelf Carton 10 kAIC Catalog Number	22 kAIC Catalog Number	Two-Pole 120/240 Vac Common Trip Requires Two 1-Inch (25.4 mm) Spaces 5 per Shelf Carton 10 kAIC Catalog Number	22 kAIC Catalog Number	22 kAIC Catalog Number ⑤	42 kAIC Catalog Number	65 kAIC Catalog Number
10	#14–4	**BR110**	—	**BR210**	—	—	—	—
15	#14–4	**BR115** ①②	**BRH115**	**BR215** ③	**BRH215**	—	—	—
20	#14–4	**BR120** ①②	**BRH120**	**BR220** ③	**BRH220**	—	—	—
25	#14–4	**BR125**	**BRH125**	**BR225** ③	**BRH225**	—	—	—
30	#14–4	**BR130**	**BRH130**	**BR230** ③	**BRH230**	—	—	—
35	#14–4	**BR135**	**BRH135**	**BR235** ③	**BRH235**	—	—	—
40	#14–4	**BR140**	**BRH140**	**BR240** ③	**BRH240** ③	—	—	—
45	#14–4	—	**BRH145**	**BR245** ③	**BRH245**	—	—	—
50	#14–4	**BR150**	**BRH150**	**BR250** ③	**BRH250** ③	—	—	—
55	#14–3	**BR155**	**BRH155**	**BR255**	**BRH255**	—	—	—
60	#8–1/0	**BR160**	**BRH160**	**BR260**	**BRH260**	**BRHX260**	**BRHH260**	**BRX260**
70	#8–1/0	**BR170**	**BRH170**	**BR270**	**BRH270**	**BRHX270**	**BRHH270**	**BRX270**
80	#8–1/0	—	—	**BR280**	**BRH280**	**BRHX280**	**BRHH280**	**BRX280**
90	#8–1/0	—	—	**BR290**	**BRH290**	**BRHX290**	**BRHH290**	**BRX290**
100	#8–1/0	—	—	**BR2100**	**BRH2100**	**BRHX2100**	**BRHH2100**	**BRX2100**
110	#8–1/0	—	—	**BR2110**	**BRH2110**	**BRHX2110**	**BRHH2110**	**BRX2110**
125	#4–2/0	—	—	**BR2125**	**BRH2125**	**BRHX2125**	**BRHH2125**	**BRX2125**

Notes

① Single-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 to obtain a tapped molded opening for proper use with hold-down kits.
④ For use as a branch circuit breaker in 400 A and 600 A panels only.
⑤ System series rating of 65 kAIC upstream when used in series with 22 kAIC BRHX breakers.

All Type BR single-, two- and three-pole circuit breakers carry listing for HACR application. For circuit breakers with a shunt trip, add ST suffix.

1

BR Breakers



Type BR Breakers, 1-Inch (25.4 mm) per Pole 240 Vac, 10, 22 and 42 kAIC

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

Plug-on, Dual Function Arc Fault / Ground Fault Circuit Breakers, Type BR—10 kAIC, 120 Vac

BRP120DF



Type BR, 1-Inch (25.4 mm) Dual Function Type AFCI Circuit Breakers ②③

Poles	Ampere Rating	Wire Size	Breaker Type	UL Type Designation for Series Ratings	Pigtail Catalog Number	Plug-on Neutral Catalog Number
Single-pole, 10 kAIC	15	#14–4	Dual Function AFCI/GFCI	ETN01	**BRN115DF**	**BRP115DF**
	20	#14–4	Dual Function AFCI/GFCI	ETN01	**BRN120DF**	**BRP120DF**

Plug-on Combination Type Arc Fault Circuit Breakers, Type BR—10 kAIC, 120 Vac and 120/240 Vac

BRP120AF



Type BR, 1-Inch (25.4 mm) Wide Combination Type AFCI Circuit Breakers

Poles	Ampere Rating	Wire Size	Breaker Type	UL Type Designation for Series Ratings	Pigtail Catalog Number	Plug-on Neutral Catalog Number
Single-pole, 10 kAIC	15	#14–4	Combination AFCI	ETN01	**BRN115AF** ④	**BRP115AF** ④
	20	#14–4	Combination AFCI	ETN01	**BRN120AF** ④	**BRP120AF** ④
Two-pole, 10 kAIC	15	—	Combination AFCI	BRCAF	**BRL215CAF**	—
	20	—	Combination AFCI	BRCAF	**BRL220CAF**	—

Notes

① Single-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 Breaker qualifies as combination arc fault, per UL 1699.

③ Breaker qualifies as personnel protection ground fault, (5 mA) per UL 943.

④ Clamshell packaging available with CS modification code on the end of catalog number.

All Type BR single-, two- and three-pole circuit breakers carry listing for HACR application. For circuit breakers with a shunt trip, add ST suffix.

See **Volume 4** for bolt-on AF/GF breakers; QB1015AFGF. QB1020AFGF, QBH1015AFGF and QBH1020AFGF.

Plug-on Ground Fault Circuit Breakers, Type GFTCB and GFEP—10/22 kAIC, 120 Vac and 120/240 Vac

GFTCB220



Type GFTCB Ground Fault Personnel Protection Circuit Breakers—5 mA—1-Inch (25.4 mm) per Pole 120 Vac or 120/240 Vac, 10 kAIC

Ampere Rating	Wire Size Range Cu/Al 60 °C or 75 °C	Single-Pole 120 Vac Requires One 1-Inch (25.4 mm) Space 1 per Shelf Carton Plug-on Neutral Catalog Number	Single-Pole 120 Vac Requires One 1-Inch (25.4 mm) Space 1 per Shelf Carton Pigtail Catalog Number	Two-Pole 120/240 Vac Common Trip Requires Two 1-Inch (25.4 mm) Spaces 1 per Shelf Carton Catalog Number
15	#14–4	**BRP115GF**	**BRN115GF**	**GFTCB215**
20	#14–4	**BRP120GF**	**BRN120GF**	**GFTCB220**
25	#14–4	—	**BRN125GF**	**GFTCB225**
30	#14–4	—	**BRN130GF**	**GFTCB230**
35	#14–4	—	—	**GFTCB235**
40	#14–4	—	—	**GFTCB240**
45	#14–4	—	—	**GFTCB245**
50	#14–4	—	—	**GFTCB250** ①
60	#14–6	—	—	**GFTCB260**

Type GFTCBH Ground Fault Personnel Protection Circuit Breakers—5 mA—1-Inch (25.4 mm) per Pole 120 Vac or 120/240 Vac, 22 kAIC

Ampere Rating	Wire Size Range Cu/Al 60 °C or 75 °C	Single-Pole 120 Vac Requires One 1-Inch (25.4 mm) Space 1 per Shelf Carton Pigtail Catalog Number	Two-Pole 120/240 Vac Common Trip Requires Two 1-Inch (25.4 mm) Spaces 1 per Shelf Carton Catalog Number
15	#14–4	**BRHN115GF**	**GFTCBH215**
20	#14–4	**BRHN120GF**	**GFTCBH220**
25	#14–4	**BRHN125GF**	**GFTCBH225**
30	#14–4	**BRHN130GF**	**GFTCBH230**

Type GFEP Ground Fault Equipment Protectors—30 mA—1-Inch (25.4 mm) per Pole 120 Vac or 120/240 Vac, 10 kAIC

Ampere Rating	Wire Size Range Cu/Al 60 °C or 75 °C	Single-Pole 120 Vac Requires One 1-Inch (25.4 mm) Space 1 per Shelf Carton Plug-on Neutral Catalog Number	Single-Pole 120 Vac Requires One 1-Inch (25.4 mm) Space 1 per Shelf Carton Pigtail Catalog Number	Two-Pole 120/240 Vac Common Trip Requires Two 1-Inch (25.4 mm) Space 1 per Shelf Carton Catalog Number
15	#14–4	**BRP115EP**	**BRN115EP**	**GFEP215**
20	#14–4	**BRP120EP**	**BRN120EP**	**GFEP220**
25	#14–4	**BRP125EP**	**BRN125EP**	**GFEP225**
30	#14–4	**BRP130EP**	**BRN130EP**	**GFEP230**
40	#14–4	—	—	**GFEP240**
50	#14–4	—	—	**GFEP250** ①

Note

① For use with copper wire only.

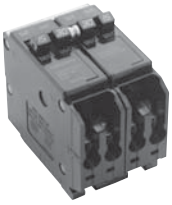
1

CTL Plug-on Circuit Breakers, Type BD Duplex, BQ and BQC Quadplex—10 kAIC, 120/240 Vac

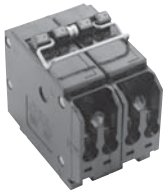
BD2020



BQ2302115



BQ230230



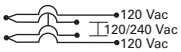
Class CTL, 1-Inch (25.4 mm) per Pole 10 kAIC—All Circuit Breakers Have Rejection Tab Feature ①

Type BD Duplex (UL Type BRD)



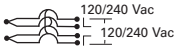
Single-Pole ②
Requires One 1-Inch (25.4 mm) Space
10 per Shelf Carton

Type BQ Quadplex Independent Trip (UL Type BRD)



Two-Pole ③ and Single-Pole ②
Requires Two 1-Inch (25.4 mm) Spaces
5 per Shelf Carton

Type BQ Quadplex Independent Trip (UL Type BRD)



Two-Pole
Requires Two 1-Inch (25.4 mm) Spaces
5 per Shelf Carton

	120 Vac		120 Vac	120/240 Vac	120 Vac		120/240 Vac		
			Ampere Rating				Ampere Rating		
Ampere Rating	Catalog Number	Wire Size Range Cu/Al 65 °C or 75 °C	Outer Left Single-Pole	Center Two-Pole Independent Trip	Outer Right Single-Pole	Catalog Number	Outer Two-Pole Independent Trip	Center Two-Pole Independent Trip	Catalog Number
10–10	**BD1010**	#14–4	15	20	15	**BQ2202115**	15	15	**BQ215215**
15–15	**BD1515**	#14–4	20	20	20	**BQ2202120**	15	20	**BQ215220**
15–20	**BD1520**	#14–4	15	30	15	**BQ2302115**	15	30	**BQ215230**
15–30	**BD1530**	#14–4	20	30	20	**BQ2302120**	15	40	**BQ215240**
20–15	**BD2015**	#14–4	15	40	15	**BQ2402115**	15	50	**BQ215250**
20–20	**BD2020**	#14–4	20	40	20	**BQ2402120**	20	20	**BQ220220**
20–30	**BD2030**	#14–4	15	50	15	**BQ2502115**	20	30	**BQ220230**
25–25	**BD2525**	#14–4	20	50	20	**BQ2502120**	20	40	**BQ220240**
30–15	**BD3015**	#14–4	—	—	—	**—**	20	50	**BQ220250**
30–20	**BD3020**	#14–4	—	—	—	**—**	25	25	**BQ225225**
30–30	**BD3030**	#14–4	—	—	—	**—**	30	30	**BQ230230**
30–40	**BD3040**	#14–4	—	—	—	**—**	30	40	**BQ230240**
30–50	**BD3050**	#14–4	—	—	—	**—**	30	50	**BQ230250**
50–30	**BD5030**	#14–4	—	—	—	**—**	40	40	**BQ240240**
50–50	**BD5050**	#14–4	—	—	—	**—**	40	50	**BQ240250**
—	**—**	—	—	—	—	**—**	50	50	**BQ250250**

Notes

① Not suitable for use in plug-on neutral style loadcenters.
② All 15 and 20 A single poles are switch-duty rated.
③ All Type BD duplex and BQ quadplex circuit breakers carry listing for HACR applications.

Non-CTL Plug-on Replacement—Circuit Breakers, Type BRD—10 kAIC, 120/240 Vac

BR2020



Class Non-CTL, 1-Inch (25.4 mm) per Pole 10 kAIC—Breakers Do Not Have Rejection Tab Feature ①

Type BR Duplex

120 Vac
120 Vac

Single-Pole Requires One 1-Inch (25.4 mm) Space
10 per Shelf Carton

Type Brand BRD Quadplex Independent Trip

120/240 Vac
120/240 Vac

Two-Pole Requires Two 1-Inch (25.4 mm) Spaces
5 per Shelf Carton

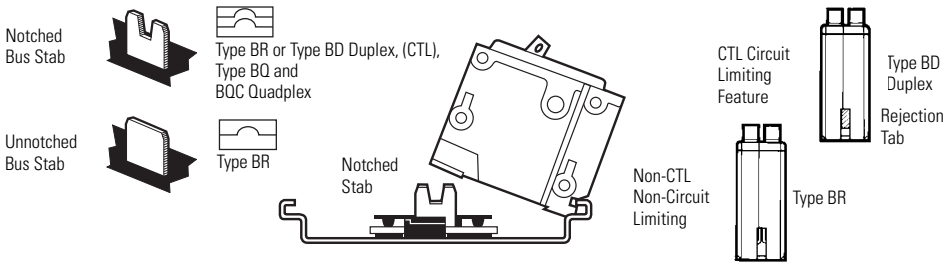
Type BRD Quadplex Common Trip Center and Outer Poles

120/240 Vac
120/240 Vac

Two-Pole Requires Two 1-Inch (25.4 mm) Spaces
5 per Shelf Carton

	120 Vac	Wire Size Range	120/240 Vac Ampere Rating			120/240 Vac Ampere Rating		
Ampere Rating	Catalog Number	Cu/Al 65 °C or 75 °C	Outer Two-Pole Independent Trip	Center Two-Pole Independent Trip	Catalog Number	Outer Two-Pole Common Trip	Center Two-Pole Common Trip	Catalog Number
15–15	**BR1515**	#14–4	15	15	**BR415**	15	15	**BRDC215215**
15–20	**BR1520**	#14–4	20	20	**BR420**	30	30	**BRDC230230**
20–15	**BR2015**	#14–4	30	30	**BR430**	30	40	**BRDC230240**
20–20	**BR2020**	#14–4	20	30	**BRD220230**	30	50	**BRDC230250**
30–30	**BR3030**	#14–4	30	40	**BRD230240**	—	—	**—**
30–50	**BR3050**	#14–4	30	50	**BRD230250**	—	—	**—**

CTL and Non-CTL Breakers



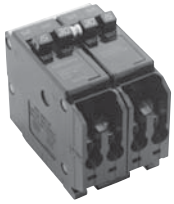
Note

① Suitable for use in plug-on neutral style loadcenters.

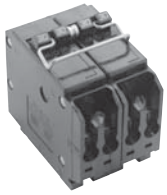
1

Common Trip Quadplex Breakers

BQC2302115

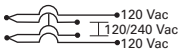


BQC2302115



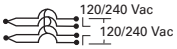
Class CTL, 1-Inch (25.4 mm) per Pole 10 kAIC—All Circuit Breakers Have Rejection Tab Feature ①

Type BQC Quadplex Common Trip Center Poles (UL Type BRD)



Two-Pole ② and Single-Pole ③
Requires Two 1-Inch (25.4 mm) Spaces
5 per Shelf Carton

Type BQC Quadplex Common Trip Center and Outer Poles (UL Type BRD)



Two-Pole ②
Requires Two 1-Inch (25.4 mm) Spaces
5 per Shelf Carton

120 Vac	120/240 Vac	120 Vac			120/240 Vac		
Ampere Rating					**Ampere Rating**		
Outer Left Single-Pole	**Center Two-Pole Common Trip**	**Outer Right Single-Pole**	**Catalog Number**	**Wire Size Range Cu/Al 65 °C or 75 °C**	**Outer Two-Pole Common Trip**	**Center Two-Pole Common Trip**	**Catalog Number**
15	20	15	**BQC2202115**	#14–4	15	15	**BQC215215**
15	25	15	**BQC2252115**	#14–4	15	20	**BQC215220**
15	30	15	**BQC2302115**	#14–4	15	30	**BQC215230**
15	40	15	**BQC2402115**	#14–4	20	15	**BQC220215**
15	50	15	**BQC2502115**	#14–4	20	20	**BQC220220**
—	—	—	**—**	#14–4	20	30	**BQC220230**
—	—	—	**—**	#14–4	20	40	**BQC220240**
—	—	—	**—**	#14–4	20	50	**BQC220250**
20	15	20	**BQC2152120**	#14–4	25	25	**BQC225225**
20	20	20	**BQC2202120**	#14–4	25	30	**BQC225230**
20	25	20	**BQC2252120**	#14–4	30	15	**BQC230215**
20	30	20	**BQC2302120**	#14–4	30	30	**BQC230230**
20	40	20	**BQC2402120**	#14–4	30	40	**BQC230240**
20	50	20	**BQC2502120**	#14–4	30	50	**BQC230250**
30	50	20	**BQC2502030**	#14–4	40	30	**BQC240230**
—	—	—	**—**	#14–4	40	40	**BQC240240**
—	—	—	**—**	#14–4	40	50	**BQC240250**
—	—	—	**—**	#14–4	50	20	**BQC250220**
—	—	—	**—**	#14–4	50	50	**BQC250250**

Notes

① Not suitable for use in plug-on neutral style loadcenters.
② All Type BQC quadplex circuit breakers carry listing for HACR applications.
③ All 15 A and 20 A single poles are switch-duty rated.

Plug-on Circuit Breakers, Types BJ and BJH—10/22 kAIC, 120/240 Vac and 240 Vac

For Use in Single-Phase and Three-Phase Loadcenters—150 A and Above

Type BJ



Types BJ and BJH Breakers, 1-Inch (25.4 mm) per Pole, 120/240 or 240 Vac, 10, 22 kAIC

	 Two-Pole 120/240 Vac Common Trip Requires Four 1-Inch (25.4 mm) Spaces ① 10 per Shelf Carton		 Three-Pole 240 Vac Common Trip Requires Six 1-Inch (25.4 mm) Spaces ② 5 per Shelf Carton
Ampere Rating	**10 kAIC Catalog Number**	**Wire Size Range Cu/Al 60 °C or 75 °C**	**10 kAIC Catalog Number**
125	**BJ2125**	#2–300 kcmil	**BJ3125**
150	**BJ2150**	#2–300 kcmil	**BJ3150**
175	**BJ2175**	#2–300 kcmil	**BJ3175**
200	**BJ2200**	#2–300 kcmil	**BJ3200**
225	**BJ2225**	#2–300 kcmil	**BJ3225**

Plug-on Special Application Circuit Breakers—10 kAIC, 120 Vac, 120/240 Vac and 240 Vac

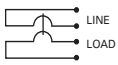
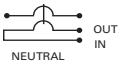
BRWH215
Water Heater Breaker



BRSN220
Switching Neutral Breaker



Special Application Circuit Breakers, 1-Inch (25.4 mm) per Pole

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

Notes

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.

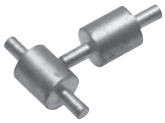
If BJ or BJH breakers are used as a main or a back feed device, a hold-down kit is required. See **Page V1-T1-86**.

1

Options and Accessories

Field Installation Kits and Parts

THS1



BHLW2



BRQLW



MCBPL (Installed)



BHLW



BRLW2



Description	Ordering Quantity ①	Catalog Number
New Products		
Padlockable device for locking the handle of BR long body AF/GF breaker into the ON or OFF position		**BRLAFGFLOFF**
Padlockable device for locking the handle of BR short body BRCAF, BRAFGF, QBCAF, QBAFGF breakers into the ON or OFF position		**BRCAFLOFF**
Handle Ties ②		
Handle tie bar for physically joining the handles of two adjacent single-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 single-, two- or three-pole Type BR circuit breakers and single-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 single-pole Type BR circuit breaker (handle mounted) ⑥	10	**BRLW1**
Padlockable device for locking the handle of a two- and three-pole Type BR circuit breaker (handle mounted) ⑥	10	**BRLW2**
Padlockable device for locking the handle of a single-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 two-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 CSR into the ON or OFF position (escutcheon mounted) ⑤	1	**MCBPL**
Device used to secure handle in ON or OFF position for single-, two- or three-pole Type BR circuit breakers and single-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 single-pole Type BR circuit breakers (handle mounted) ⑥	10	**BHLW1**
Device used to secure handle in ON or OFF position for two- and three-pole Type BR circuit breakers (handle mounted) ⑥	10	**BHLW2**
Device used to secure handle in ON or OFF position for single-pole Type GFTCB 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 single-pole Type BD duplex circuit breakers (handle mounted) ⑥	10	**HLW1**

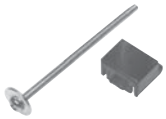
Notes

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 two-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 on **Page V1-T1-87** 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.

BREQS125



BRHDK125



BRML



Field Installation Kits and Parts, continued

Description	Ordering Quantity ①	Catalog Number
Hold-Down Kits ②		
Hold-down retainer kit for three-pole Type BR circuit breakers in S3100 and 3100R loadcenters only	1	**BRHDB**
Hold-down screw kit for two- and three-pole Type BR circuit breakers in single-phase MLO loadcenters through 100–125 A	1	**BREQS125**
Hold-down screw kit for two- and three-pole Type BR circuit breakers in MLO loadcenters 150–200 A	1	**BRHDK125**
Hold-down screw kit for two-pole Types BJ and BJH circuit breakers in MLO loadcenters 125–225 A	1	**BJHDS**
Hold-down screw kit for three-pole Types BJ and BJH circuit breakers in MLO loadcenters 125–225 A	1	**BJHDS3P**
Main Breaker Lug Kits		
Types CC and CHH main breaker lug kit (2) 300 kcmil	1	**CCL300**
Types BW/CSR main breaker lug kit (2) 300 kcmil	1	**MCBL300**
Mechanical Interlocks		
Types BR for two-, three- and four-pole breakers	10	**BRML**
Padlock Brackets		
BR padlock mounting bracket	10	**BRPLOFF**
BR three-pole lock-off bracket	10	**BRPLOFF3P**
BJ two-pole lock-off bracket	10	**BJL2P**
BJ three-pole lock-off bracket	10	**BJL3P**

Shunt Trips, Auxiliary and Alarm Contacts

Description	Catalog Number ③ Suffix Adder
Shunt Trip for Types BW/CSR	
12 Volts	**SR12**
24 Volts	**SR24**
120 Volts	**SR01**
Shunt Trip for Types BR	
120 Volts	**ST**
Auxiliary Contact for Types BW/CSR	
1NO and 1NC	**AL1**
2NO and 2NC	**AL2**
Alarm Contacts for Types BW/CSR	
Types BW/CSR	**CR1**
Alarm Contacts for Type GFTCB (Single-Pole)	
Alarm contact for GFTCB (single-pole)	**W1**
1NO and 1NC	**W2**

Handle Position Changeability Chart

	To Change Handle Position from ON to OFF, or OFF to ON You Must...		
Handle Lockoff and Lockdog Types	Remove Padlock	Remove Device	Remove Loadcenter Deadfront
Lockoff escutcheon mounted	Remove	—	—
Lockoff handle mounted	Remove	Remove	—
Lockoff screw mounted	Remove	—	—
Lockdog escutcheon mounted	N/A	Remove	Remove
Lockdog handle mounted	N/A	Remove	—

Notes

① Must be purchased in multiples of ordering quantities indicated.

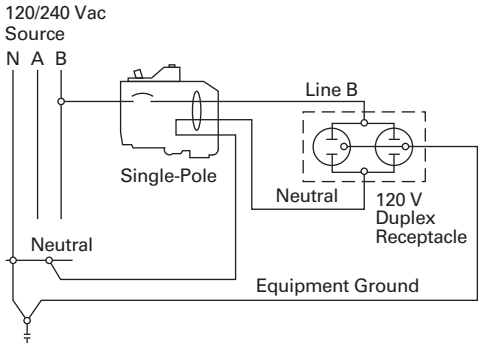
② Hold-down kits: devices used to secure the circuit breaker to the loadcenter for back-feed main application. See NEC Article 408.36(D). Add "B" suffix to two-pole breaker for tapped hole for hold-down kit (ex. BR230B) for BR breakers below 60 A.

③ Add suffix indicated to end of breaker catalog number.

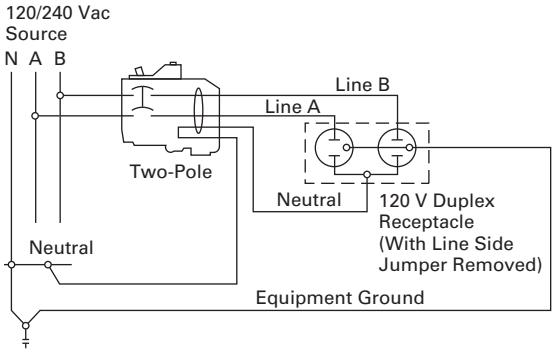
1

Wiring Diagrams

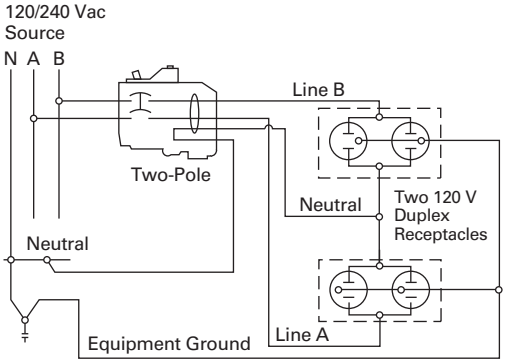
Single-Pole 120 V Load Application Sourced by 120/240 Vac



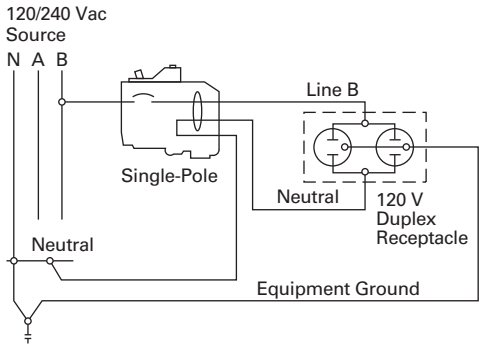
Two-Pole Shared Neutral with Duplex Receptacle Application



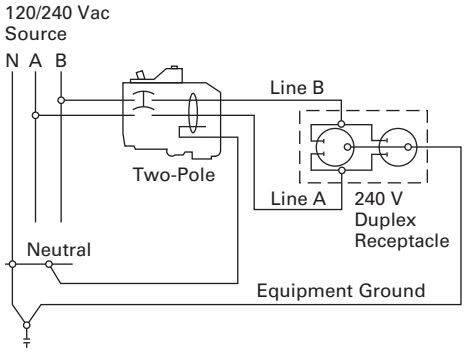
Two-Pole Shared Neutral with Multi-Duplex Receptacle Application



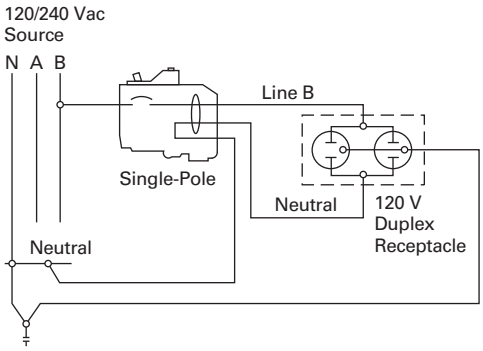
Single-Pole 120 V Load Application Sourced by 120/240 Vac



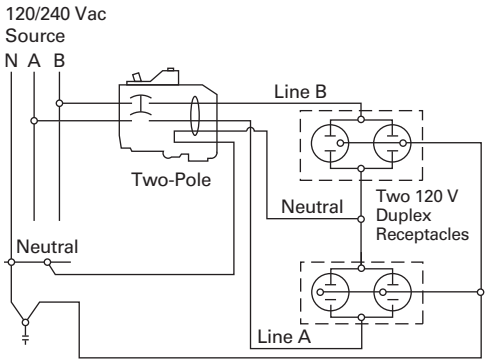
Two-Pole 240 V Load Application Sourced by 120/240 Vac



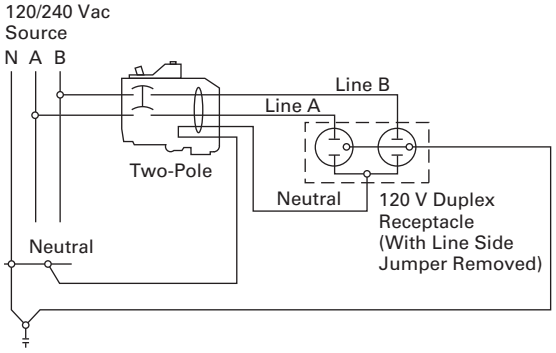
Single-Pole 120 V Duplex Receptacle Application



Two-Pole 120 V Multi-Duplex Receptacle Application



Two-Pole 120 V Duplex Receptacle Application



Two-Pole 240 V Duplex Receptacle Application

