

Type BR Loadcenters and Circuit Breakers



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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.



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.

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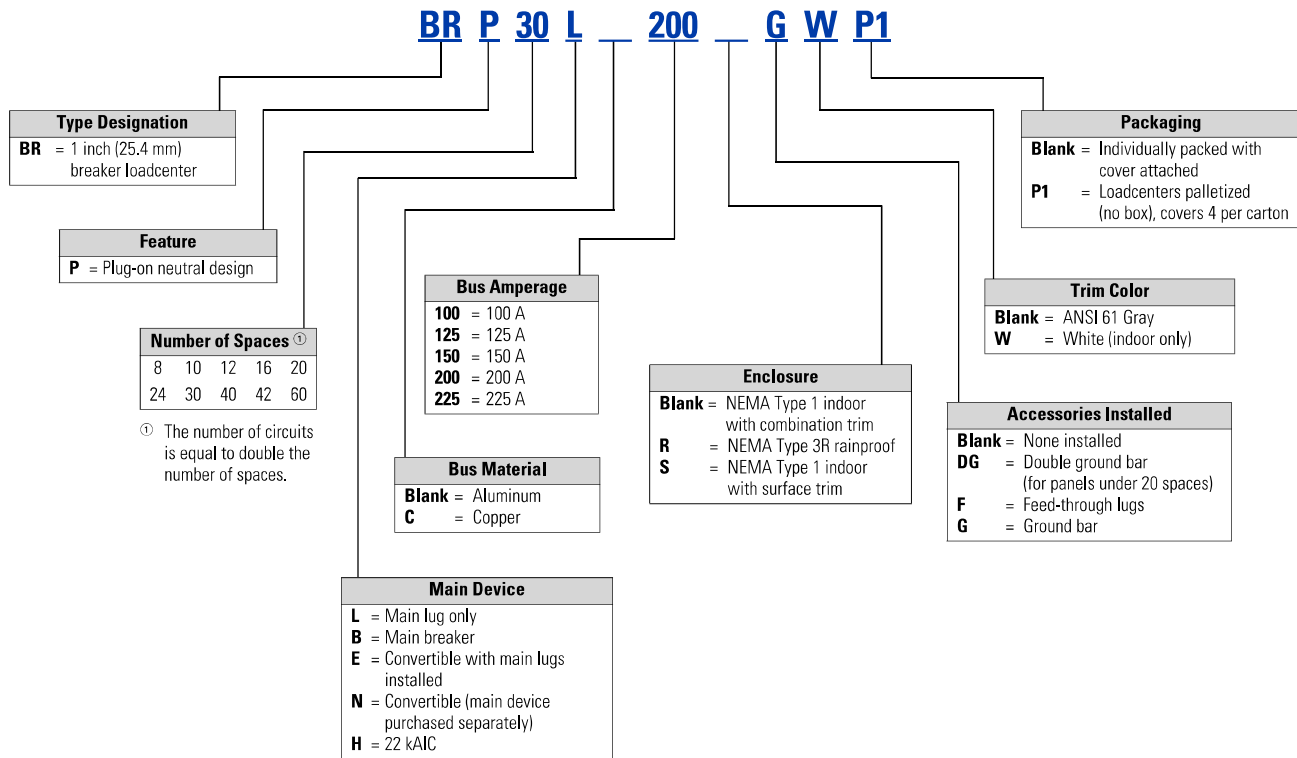
Loadcenters and Circuit Breakers

Type BR Loadcenters and Circuit Breakers

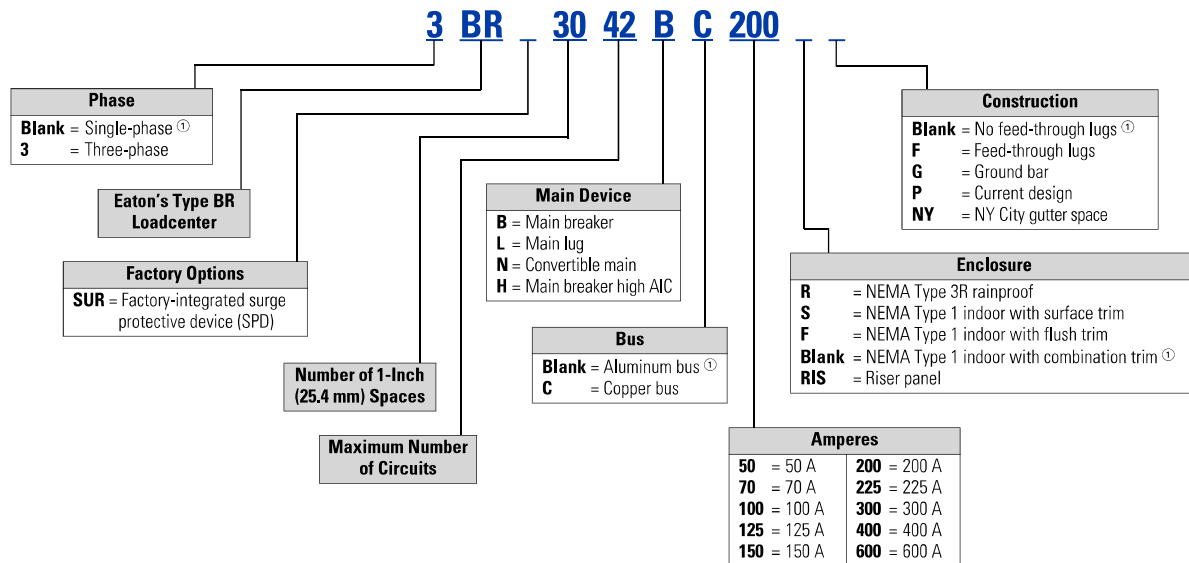
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Catalog Number Selection

Single-Phase Plug-on Neutral Loadcenters



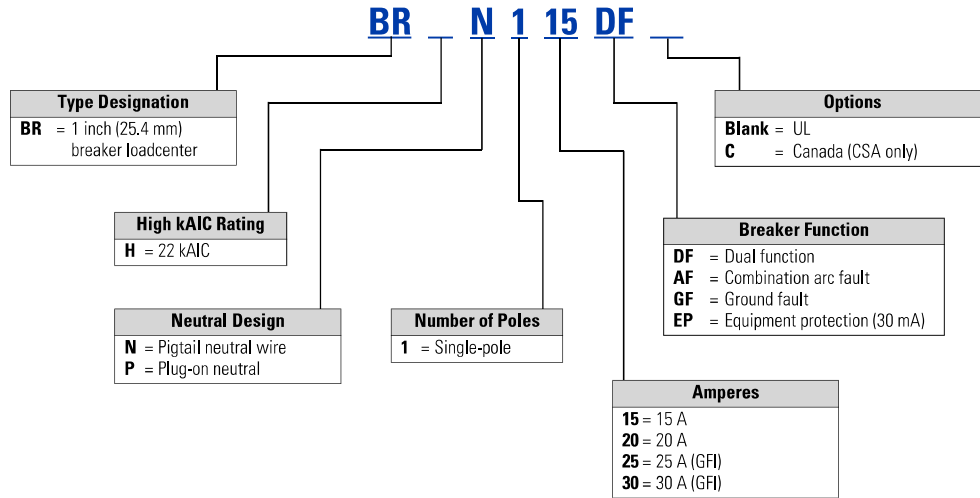
Single- and Three-Phase Legacy Loadcenters



Note

① No character space used.

BR Electronic Circuit Breakers



Product Selection

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

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}
BRP10B100 	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	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	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**

	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
Surface Outdoor 	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
Flush Outdoor 	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
Surface (No Door) 		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
Flush (No Door) 		4	8	Indoor	Flush (no door)	7	#14–#1	BR48L125FGP ③⑨
		6	12	Indoor	Surface (no door)	7		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
Outdoor 		6	12	Outdoor	—	7R	#14–#1	BR612L125SRP 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		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		BR816L125SRP ①④⑩
		8	16	Indoor	Flush (no door)	7		BR816L125FP ①⑩
		8	16	Indoor	Flush (no door)	7		BR816L125FGP ⑤⑩⑪
		8	16	Indoor	Flush (with door)	7		BR816L125FDP ①⑩
		8	16	Indoor	Flush (with door)	7		BR816L125FDGP ⑤⑩⑪

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**

	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}
BRP12L125 	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 ^{②③⑥}
		30	60	Indoor	X5		BRP30L125 ^{②③}
BRP12L200R 	150	16	32	Indoor	X3	#1–300 kcmil	BRP16L150 ^③
		20	40	Indoor	X3		BRP20L150 ^③
		20	40	Indoor	X3		BRP20L150G ^{③⑤}
	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**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
BR4242L400F 	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.

1.2

Loadcenters and Circuit Breakers

Type BR Loadcenters and Circuit Breakers

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 ⑦⑧
	16	32	Indoor	X2		BRP16N125
	16	32	Outdoor	X2R		BRP16N125R ⑦⑧
	20	40	Indoor	X3		BRP20N125G ⑩
	20	40	Outdoor	X11R		BRP20N125R ⑦⑧
200 ⑤	12	24	Indoor	X4		BRP12N200 ⑨
	12	24	Outdoor	X11R		BRP12N200R ⑦⑧
	20	40	Indoor	X5		BRP20N200 ⑨
	20	40	Indoor	X5		BRP20N200G ⑩
	20	40	Outdoor	X5R		BRP20N200R ⑦⑧
	30	60	Indoor	X6		BRP30N200 ⑨
	30	60	Indoor	X6		BRP30N200G ⑩
	30	60	Outdoor	X6R		BRP30N200R ⑦⑧
	40	80	Indoor	X8		BRP40N200
	40	80	Outdoor	G1R		BRP40N200R ⑦⑧
	40	80	Indoor	X8		BRP40N200G ⑩

Convertible MLO Loadcenters—Factory Installed Lugs ⑤⑩

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 BRPSE.

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	40	Indoor	X3	#2–300 kcmil	BRP20BC200
			60	Indoor	X6	#2–300 kcmil	BRP30BC200
	225	40	80	Indoor	X8	#2–300 kcmil	BRP40BC200
		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 ⑤

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.**

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 ^⑥
		20	40	Indoor	X3		BRP20NC125
		20	40	Outdoor	X11R		BRP20NC125R ^⑥
10/25 kAIC ^{⑥⑦}	200	20	40	Indoor	X5		BRP20NC200
		20	40	Outdoor	X5R		BRP20NC200R ^⑥
		30	60	Indoor	X6		BRP30NC200
		30	60	Outdoor	X6R		BRP30NC200R ^⑥
		40	80	Indoor	X8		BRP40NC200
		40	80	Outdoor	X8R		BRP40NC200R ^⑥
10/25 kAIC ^{⑥⑧}	225	42	84	Outdoor	X10R		BRP42NC225R ^⑥

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 ^⑤
		30	60	Indoor	X5		BRP30B100GW ^⑤
	125	20	40	Indoor	X3	#4–2/0	BRP20B125GW ^⑤
		30	60	Indoor	X5		BRP30B125GW ^⑤
CSR ^⑥ 25 kAIC	150	30	60	Indoor	X6	#2–300 kcmil	BRP30B150GW ^⑤
	200	20	40	Indoor	X5		BRP20B200GW ^⑤
		20	40	Indoor	X5		BRP20B200WP1 ^④
		30	60	Indoor	X6		BRP30B200GW ^⑤
		40	60	Indoor	X8		BRP40B200WP1 ^④
		40	60	Indoor	X8		BRP40B200GW ^⑤

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 ^⑨	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 ^⑤
	30	60	Indoor	X5		BRP30L200GW
	30	60	Indoor	X5		BRP30L200GWP1 ^④
	40	80	Indoor	X6		BRP40L200GW
225	42	84	Indoor	X8		BRP42LC225GW ^{⑥⑩}

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.

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
		30	42	Indoor	L1	#6–4/0	3BR3042B150
		30	42	Outdoor	L1R		3BR3042B150R ④
		30	42	Indoor	L1	2/0–300 kcmil	3BR3042B200
	200	30	42	Outdoor	L1R		3BR3042B200R ④
		42	42	Indoor	L2		3BR4242B200
		42	42	Outdoor	L2R		3BR4242B200R ④
		42	42	Indoor	L2	2/0–300 kcmil	3BR4242B225
CC 10 kAIC	225	42	42	Outdoor	L2R		3BR4242B225R ④
		42	42	Indoor	L2	2/0–300 kcmil	3BR4242B225
		42	42	Outdoor	L2R		3BR4242B225R ④
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 ④
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 strap). 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	
400	42	42	Indoor	22	(1) 250–750 kcmil	3BR4242L400F	3BR4242L400S
	42	42	Outdoor	46	or (2) #3/0–250 kcmil	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**.

1.2

Loadcenters and Circuit Breakers

Type BR Loadcenters and Circuit Breakers

1

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 BRSE.
- 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



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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



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.

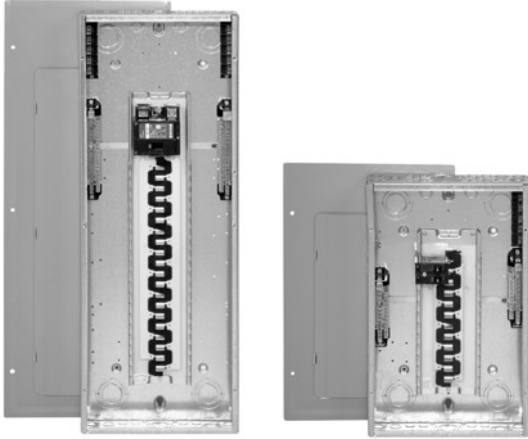
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BR Renovation Loadcenters



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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.

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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	TCO
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	BRPMIKCSR 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	CSRFP
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			#2/0 maximum	1	NL20
Add-on neutral or ground lug			#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 Mechanical Interlock Kits



**Type BR Loadcenter with
Mechanical Interlock Kit**

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

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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
	Single	BRMIKBR	BRPMIKBR
	Bulk pack ③	BRMIKBRBP	BRPMIKBRBP
	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

Legacy Ground Bar Kits



BRGBK39512



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).

1.2

Loadcenters and Circuit Breakers

Type BR Loadcenters and Circuit Breakers

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 overtightening 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-AFCL 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	22,000	BRH	22,000	③, BRCAF, GFTCB
Type 1MTB, 3MTB	22,000	QBHW	22,000	③, BRCAF
Main Switch Module Family	25,000	CSR, CCVH ^④	25,000	③, BRCAF, GFTCB
Type 1MFS, 3MFS Type 1BS, 3BPS	42,000	BRHH, CVS	42,000	③, BRCAF, GFTCB
Main Breaker Module Family	65,000	BRX	65,000	③, BRCAF, GFTCB
Type 1MCB, 3MCB	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 (1,143.0)	14.31 (363.5)	3.88 (98.4)
L3	48.38 (1,228.3)	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 (1,238.2)	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 (1,143.0)	14.31 (363.5)	5.19 (131.8)
L3R	48.75 (1,238.2)	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)

1.2

Loadcenters and Circuit Breakers

Type BR Loadcenters and Circuit Breakers

1

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)

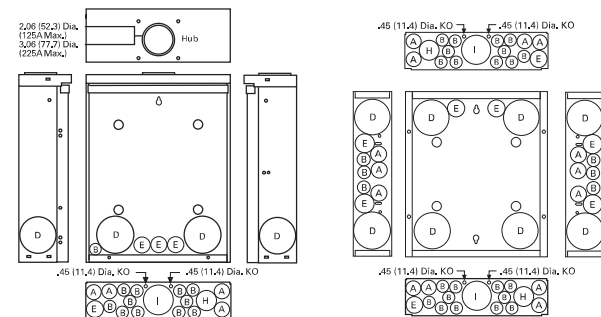
Residential Loadcenter Knockouts

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)	—	—

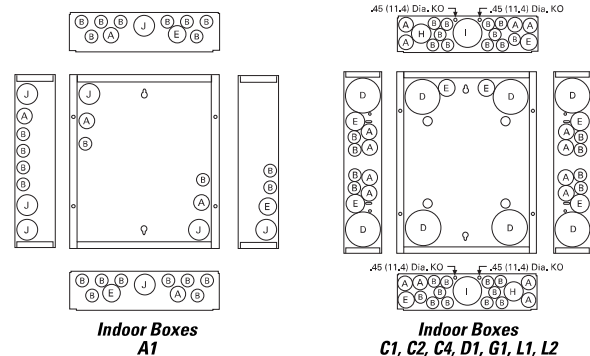
Note: Additional KOs are placed concentrically.

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

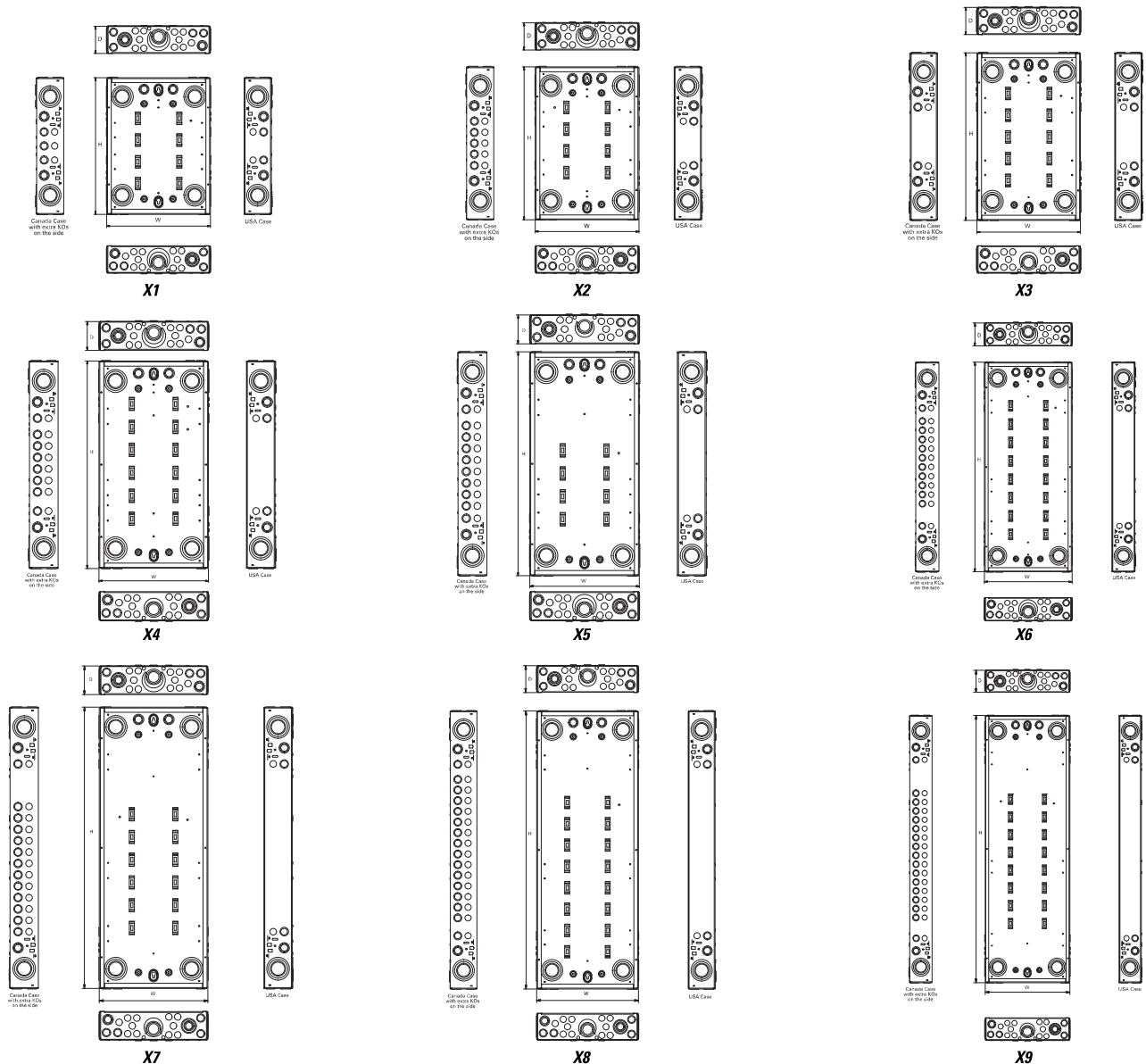
Indoor Boxes
C1, C2, C4, D1, G1, L1, L2

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



1.2

Loadcenters and Circuit Breakers

Type BR Loadcenters and Circuit Breakers

1

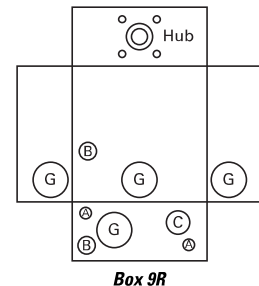
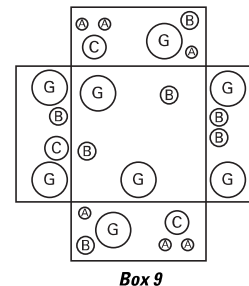
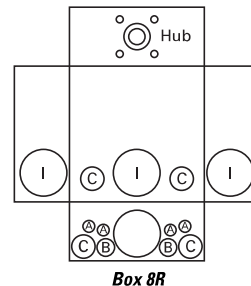
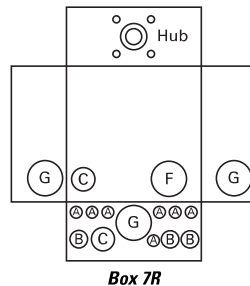
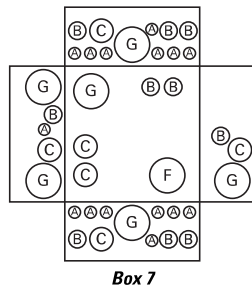
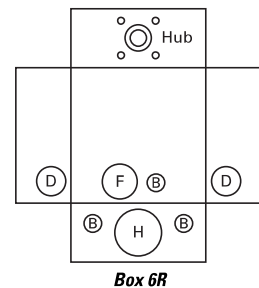
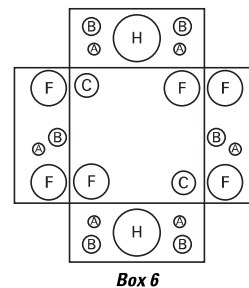
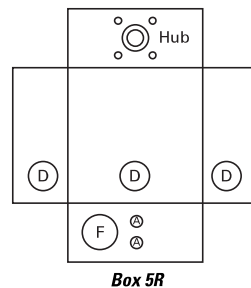
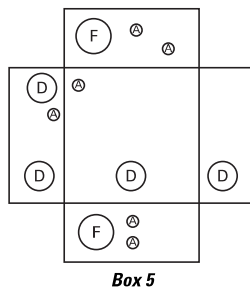
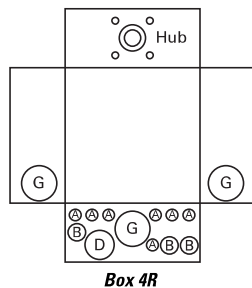
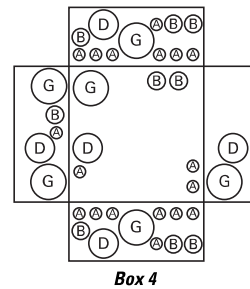
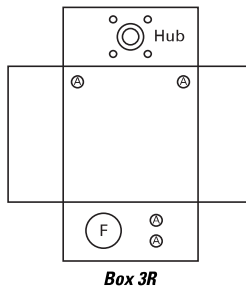
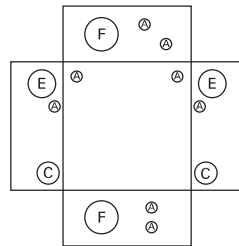
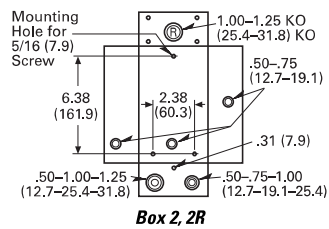
Approximate Dimensions in Inches (mm)

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



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.	—	—	—

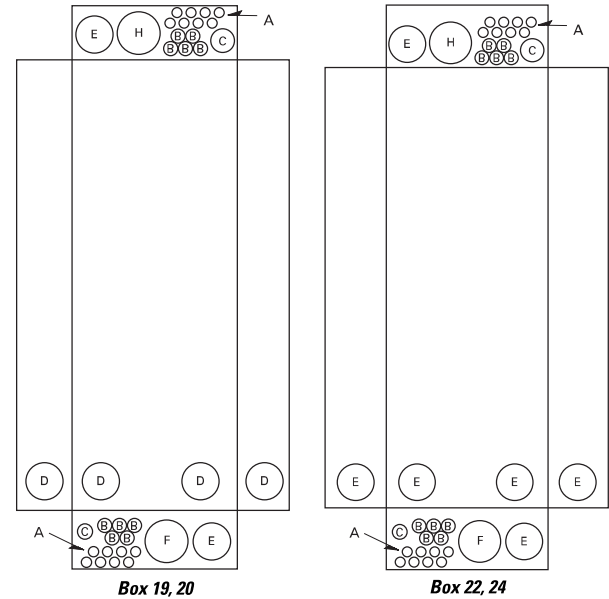
Note: Additional KOs are placed concentrically.

Unit Enclosure Knockouts, Types ECB and ECC Knockouts

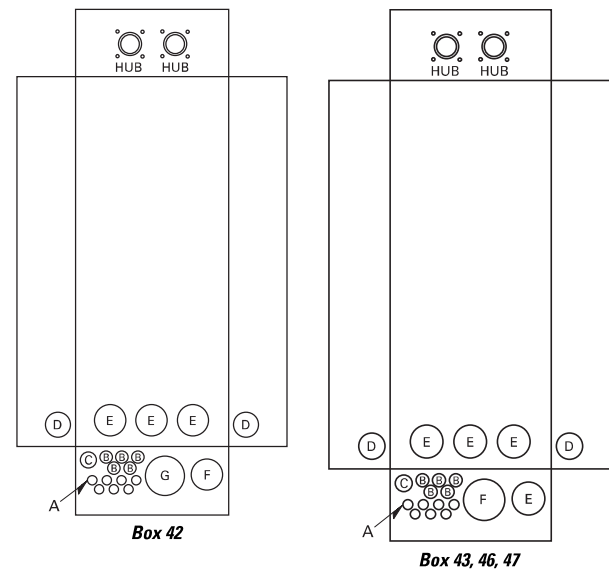
Code	Diameter	Additional KO	Additional KO	Additional KO	Additional KO
NEMA Type 1 Indoor (Flush and Surface Trims)					
A	0.50 (12.7)	—	—	—	—
B	1.25 (31.8)	1.50 (38.1)	1.75 (44.5)	2.00 (50.8)	2.50 (63.5)
NEMA Type 3R Outdoor					
A	0.50 (12.7)	—	—	—	—
B	1.25 (31.8)	1.50 (38.1)	1.75 (44.5)	2.00 (50.8)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

Note: Additional KOs are placed concentrically.

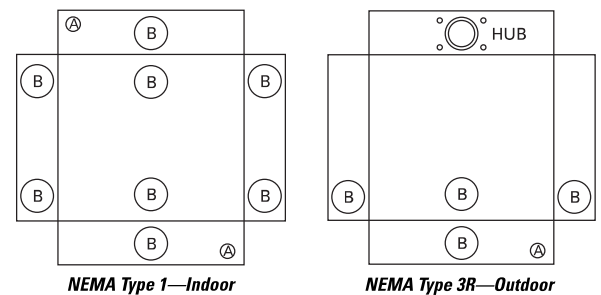
Indoor Commercial Enclosures



Outdoor Commercial Enclosures



Unit Enclosure Knockouts



BR Circuit Breakers



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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		Two-Pole 120/240 Vac Common Trip Requires Two 1-Inch (25.4 mm) Spaces				
		10 per Shelf Carton		5 per Shelf Carton				
		10 kAIC Catalog Number	22 kAIC Catalog Number	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.

1.2

Loadcenters and Circuit Breakers

Type BR Loadcenters and Circuit Breakers

1

BR Breakers



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

Three-Pole 240 Vac
Common Trip Requires Three
1-Inch (25.4 mm) Spaces
5 per Shelf Carton



Ampere Rating	Wire Size Range Cu/Al 60 °C or 75 °C	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.

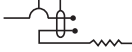
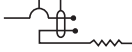
All Type BR single-, two- and three-pole circuit breakers carry listing for HACR application. For circuit breakers with a shunt trip, add ST suffix.

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

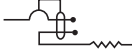
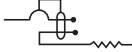
**Type GFTCB Ground Fault Personnel Protection Circuit Breakers—
5 mA—1-Inch (25.4 mm) per Pole 120 Vac or 120/240 Vac, 10 kAIC**

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**

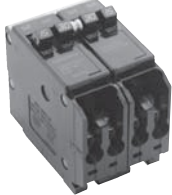
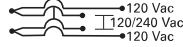
Ampere Rating	Wire Size Range Cu/Al 60 °C or 75 °C	 Single-Pole 120 Vac Requires One 1-Inch (25.4 mm) Space 1 per Shelf Carton Plug-on Neutral Catalog Number	 Single-Pole 120 Vac Requires One 1-Inch (25.4 mm) Space 1 per Shelf Carton Pigtail Catalog Number	 Two-Pole 120/240 Vac Common Trip Requires Two 1-Inch (25.4 mm) Spaces 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.

CTL Plug-on Circuit Breakers, Type BD Duplex, BQ and BQC Quadplex—10 kAIC, 120/240 Vac**BD2020****Type BD Duplex
(UL Type BRD)**

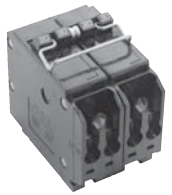
Single-Pole ②
Requires One 1-Inch
(25.4 mm) Space
10 per Shelf Carton

BQ2302115**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

BQ230230

Ampere Rating	Catalog Number	Wire Size Range Cu/Al 65 °C or 75 °C	120 Vac Ampere Rating Outer Left Single-Pole	120/240 Vac Center Two-Pole Independent Trip	120 Vac Outer Right Single-Pole	Catalog Number	120/240 Vac Ampere Rating 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



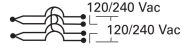
Type BR Duplex



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

Ampere Rating	Catalog Number	Wire Size Range Cu/Al 65 °C or 75 °C
15–15	BR1515	#14–4
15–20	BR1520	#14–4
20–15	BR2015	#14–4
20–20	BR2020	#14–4
30–30	BR3030	#14–4
30–50	BR3050	#14–4

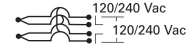
Type Brand BRD Quadplex Independent Trip



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

120/240 Vac Ampere Rating	120/240 Vac Center Two-Pole Independent Trip
15	15
20	20
30	30
20	30
30	40
30	50

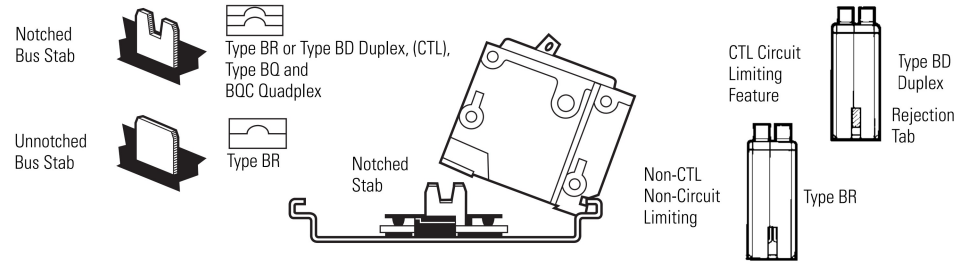
Type BRD Quadplex Common Trip Center and Outer Poles



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

120/240 Vac Ampere Rating	120/240 Vac Outer Two-Pole Common Trip	120/240 Vac Center Two-Pole Common Trip
15	15	15
30	30	30
30	40	40
30	50	50
—	—	—
—	—	—

CTL and Non-CTL Breakers



Note

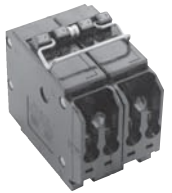
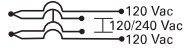
① Suitable for use in plug-on neutral style loadcenters.

Common Trip Quadplex Breakers

BQC2302115



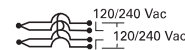
BQC2302115

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

120 Vac 120/240 Vac 120 Vac

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
15	20	15	BQC2202115	#14–4
15	25	15	BQC2252115	#14–4
15	30	15	BQC2302115	#14–4
15	40	15	BQC2402115	#14–4
15	50	15	BQC2502115	#14–4
—	—	—	—	#14–4
—	—	—	—	#14–4
—	—	—	—	#14–4
20	15	20	BQC2152120	#14–4
20	20	20	BQC2202120	#14–4
20	25	20	BQC2252120	#14–4
20	30	20	BQC2302120	#14–4
20	40	20	BQC2402120	#14–4
20	50	20	BQC2502120	#14–4
30	50	20	BQC2502030	#14–4
—	—	—	—	#14–4
—	—	—	—	#14–4
—	—	—	—	#14–4
—	—	—	—	#14–4
—	—	—	—	#14–4

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

120/240 Vac

Ampere Rating

Outer Two-Pole Common Trip	Center Two-Pole Common Trip	Catalog Number
15	15	BQC215215
15	20	BQC215220
15	30	BQC215230
20	15	BQC220215
20	20	BQC220220
20	30	BQC220230
20	40	BQC220240
20	50	BQC220250
25	25	BQC225225
25	30	BQC225230
30	15	BQC230215
30	30	BQC230230
30	40	BQC230240
30	50	BQC230250
40	30	BQC240230
40	40	BQC240240
40	50	BQC240250
50	20	BQC250220
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**

**Ampere
Rating** **10 kAIC
Catalog Number**

**Wire Size Range
Cu/Al 60 °C or 75 °C**



**Three-Pole 240 Vac
Common Trip Requires Six
1-Inch (25.4 mm) Spaces ^②
5 per Shelf Carton**

**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

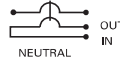
Plug-on Special Application Circuit Breakers—10 kAIC, 120 Vac, 120/240 Vac and 240 Vac**BRWH215****Water Heater Breaker****Water Heater Breakers**

**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**

**Ampere
Rating** **Catalog
Number**

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**

**Ampere
Rating** **Catalog
Number**

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**

**Ampere
Rating** **Catalog
Number**

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**

BRSN220**Switching Neutral
Breaker**

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**.

Options and Accessories

THS1



BHLW2



BRQLW



MCBPL (Installed)



BHLW



BRLW2



Field Installation Kits and Parts

Description

Ordering
Quantity ^①Catalog
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

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

1.2

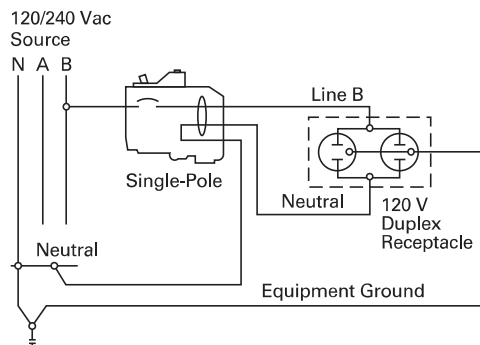
Loadcenters and Circuit Breakers

Type BR Loadcenters and Circuit Breakers

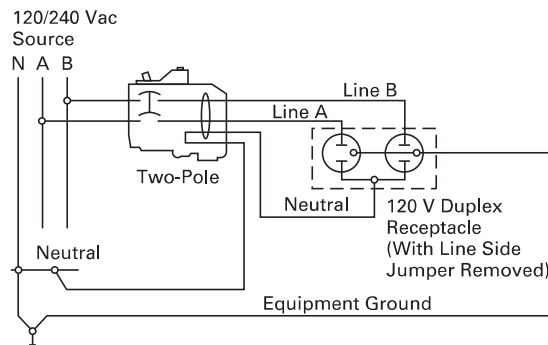
1

Wiring Diagrams

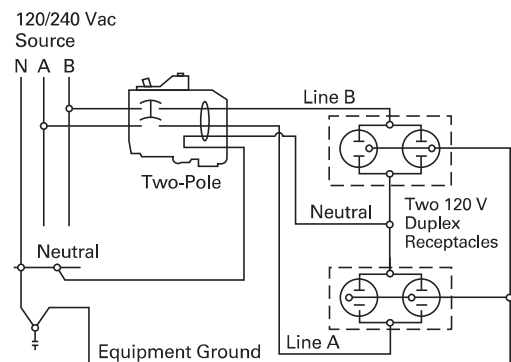
Single-Pole 120 V Load Application Sourced by 120/240 Vac



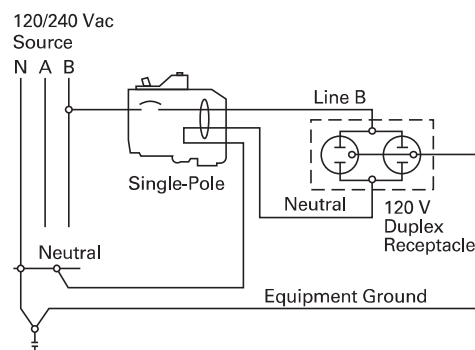
Two-Pole Shared Neutral with Duplex Receptacle Application



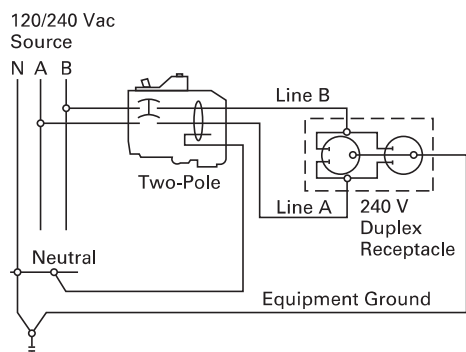
Two-Pole Shared Neutral with Multi-Duplex Receptacle Application



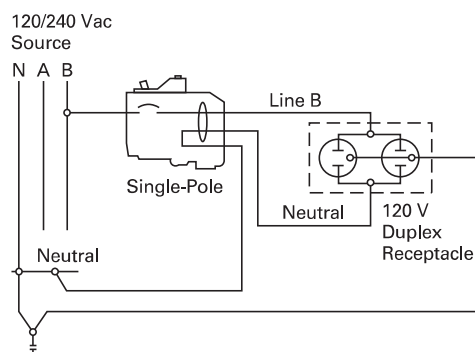
Single-Pole 120 V Load Application Sourced by 120/240 Vac

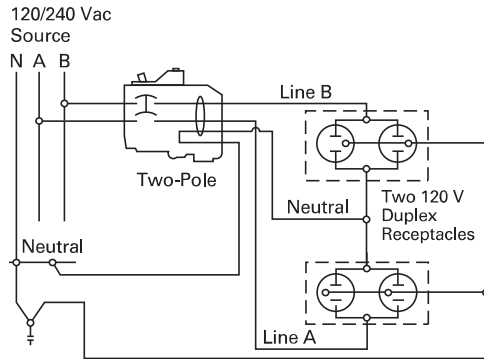
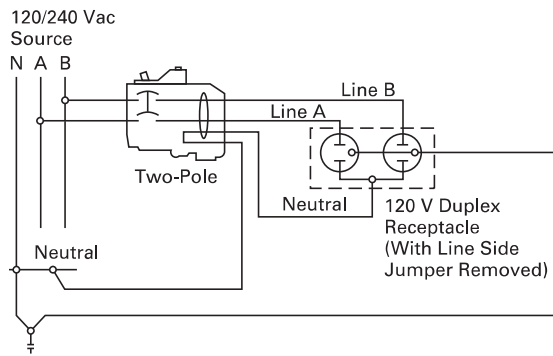


Two-Pole 240 V Load Application Sourced by 120/240 Vac



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**