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Type BR Loadcenters and Circuit Breakers

Contents

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 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-T1-72**.

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.

UL Listed

Type BR Loadcenter

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

Smooth Case Edges
- Provides a more professional look and feel

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

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

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

Type BR AFCI Breakers
- Compact design for easier wiring 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
- Minimizes 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 Twist-Outs
- Easier to remove twistouts

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

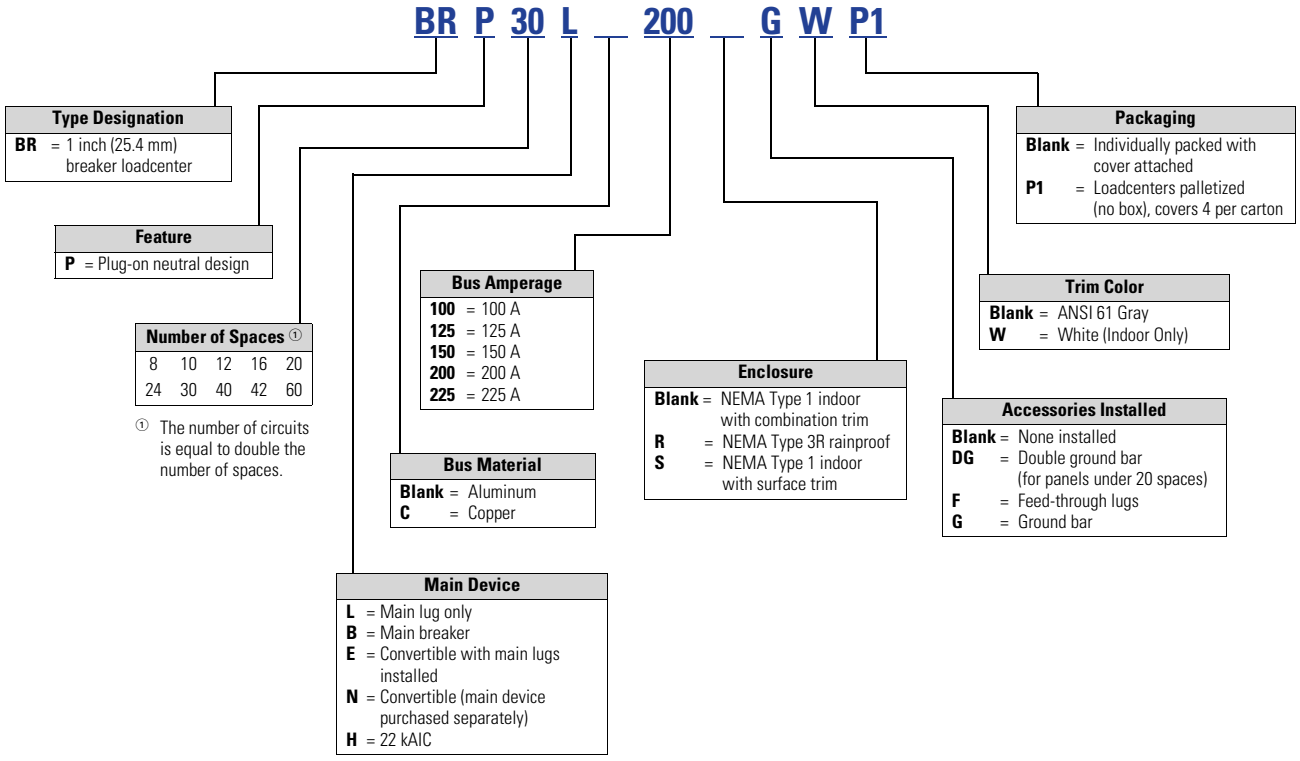
Single Keyhole Mounting
- One keyhole at the top and bottom provides easier mounting and leveling

Warranty

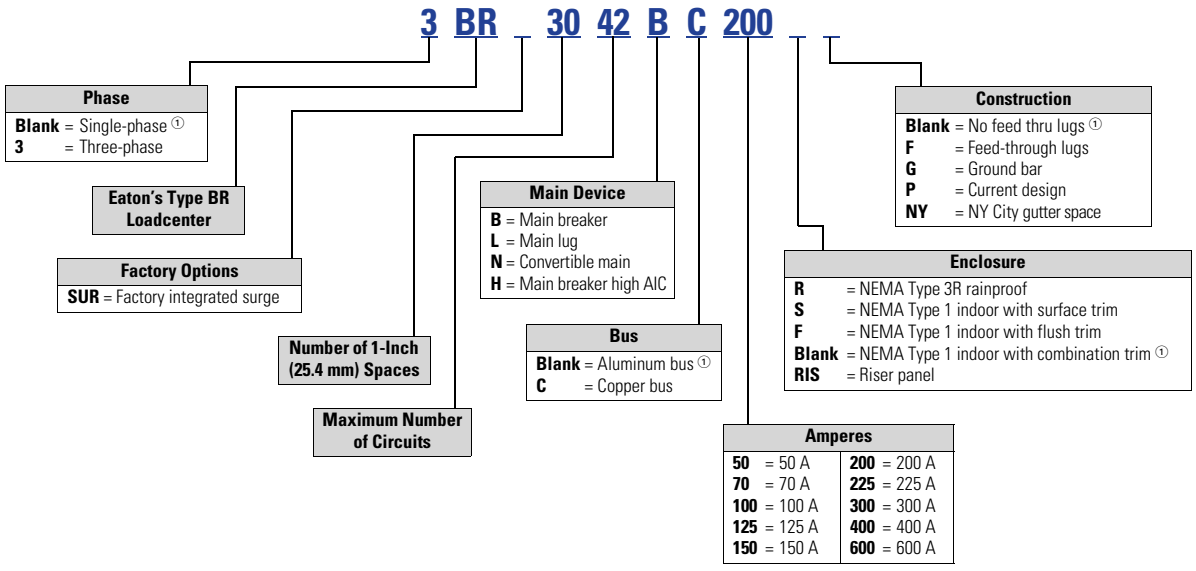
10-year warranty on all Type BR loadcenters and circuit breakers.

Catalog Number Selection

Single-Phase Plug-on Neutral Loadcenters



Single- and Three-Phase Legacy Loadcenters



Note

① No character space used.

Product Selection

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

BRP10B100

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

Main Breaker Type	Main Amp Rating	Maximum Number 1-Inch (25.4 mm) Spaces	Maximum Number 1-Inch (25.4 mm) Poles	Enclosure Type	Box Size	Wire Size Range Cu/Al 60 °C or 75 °C for Main Breaker	Loadcenter Catalog Number with Combination 1 or NEMA Type 3R Cover ①②
BR 10 kAIC	100	10	20	Indoor	X0	#4–1/0 2	**BRP10B100**
		10	20	Outdoor	B2R		**BR1020B100RF** ③④⑦
		12	24	Indoor	X1		**BRP12B100**
		12	24	Outdoor	B2R		**BR1224B100R** ④⑦
		16	32	Indoor	X2		**BRP16B100**
		16	24	Outdoor	C1R		**BR1624B100R** ④⑦
		20	24	Outdoor	C3R		**BR2024B100R** ④⑦
		20	40	Indoor	X3		**BRP20B100**
		30	60	Indoor	X5		**BRP30B100**
	125	16	32	Indoor	X2	#4–2/0	**BRP16B125**
		20	40	Indoor	X3		**BRP20B125**
		20	24	Outdoor	C3R		**BR2024B125R** ④⑦
		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	C3R	#2–300 kcmil	**BR816B150RF** ③④⑦
		16	32	Indoor	X4		**BRP12B150**
		20	40	Indoor	X4		**BRP20B150**
		20	30	Outdoor	D1R		**BR2030B150R** ④⑦
		24	48	Indoor	X6		**BRP24B150**
		20	40	Outdoor	D1R		**BR2040B150R** ④⑦
		30	60	Indoor	X6		**BRP30B150**
	200	8	16	Outdoor	C3R		**BR816B200RF** ③④⑦
		16	32	Indoor	X4		**BRP16B200**
		20	40	Outdoor	D1R		**BR2040B200R** ④⑦
		20	40	Indoor	X5		**BRP20B200**
		24	48	Indoor	X6		**BRP24B200**
		30	60	Indoor	X6		**BRP30B200**
		30	60	Indoor	X6		**BRP30B200G**
		30	40	Outdoor	G1R		**BR3040B200R** ④⑦
		40	80	Indoor	X8		**BRP40B200**
		40	40	Outdoor	L1R		**BR4040B200R** ④⑦
		60	120	Indoor	X10		**BRP60B200**
		60	120	Outdoor	L3R		**BR60120B200R** ④⑦

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 preattached. The maximum rating of the panel is the main circuit breaker rating when used as service entrance equipment. Ground bar kits priced separately. See **Page V1-T1-72**.

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-T1-71**.

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.

⑦ These styles will be replaced in 2019 with new plug-on neutral style loadcenter.