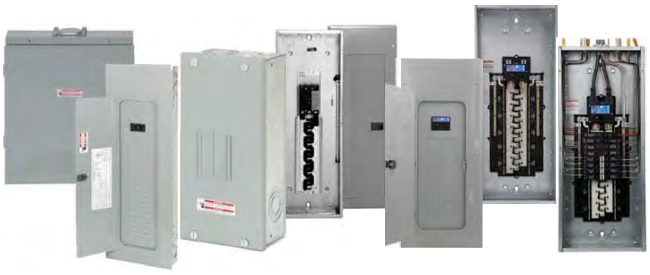
1

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

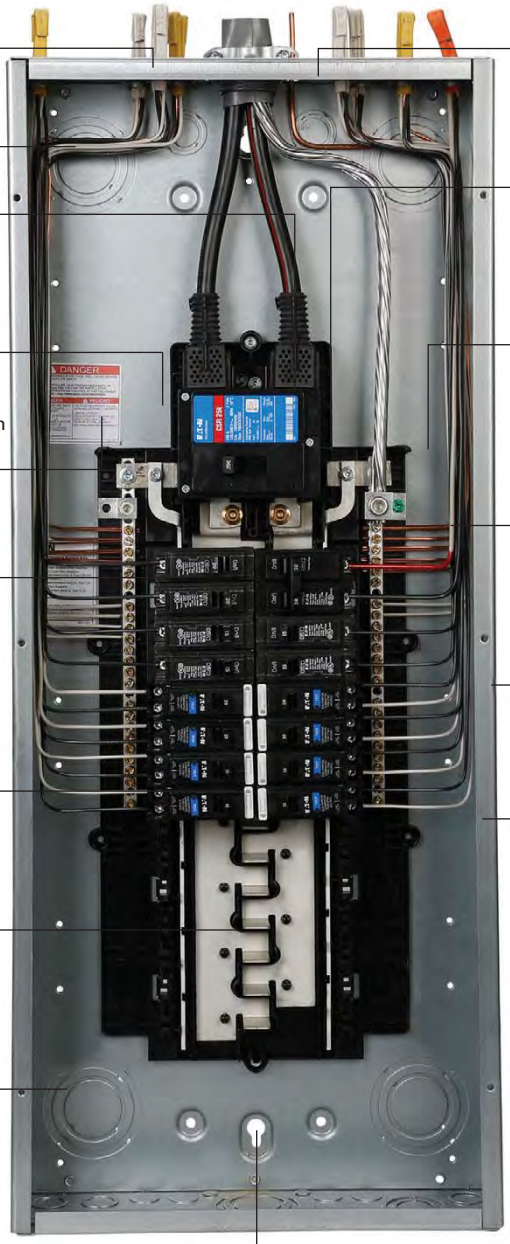
UL Listings

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

1

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

BR P 30 L __ 200 __ G W P1

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

Feature
P = Plug-on neutral design

Number of Spaces ①

8	10	12	16	20
24	30	40	42	60

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

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

Bus Material
Blank = Aluminum
C = Copper

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

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

Trim Color
Blank = ANSI 61 Gray
W = White (Indoor Only)

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

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

Single- and Three-Phase Legacy Loadcenters

3 BR __ 30 42 B C 200 __ __

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

Eaton's Type BR Loadcenter

Factory Options
SUR = Factory integrated surge

Number of 1-Inch (25.4 mm) Spaces

Maximum Number of Circuits

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

Bus
Blank = Aluminum bus ①
C = Copper bus

Amperes

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

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

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

Note
① No character space used.

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	Maximum Number 1-Inch (25.4 mm) Spaces	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 ④⑤	12	24	Indoor	X1	See main breaker kit and main lug kit tables on **Page V1-T1-67**.	**BRP12N125**
	12	24	Indoor	X2		**BRP12N125G** ⑩
	12	24	Outdoor	B1R		**BR1224N125R** ⑦⑨⑫
	16	32	Indoor	X2		**BRP16N125**
	16	24	Outdoor	B2R		**BR1624N125R** ⑦⑨⑫
	20	40	Indoor	X3		**BRP20N125G** ⑩
	20	24	Outdoor	C1R		**BR2024N125R** ⑦⑨⑫
200 ⑤	8	16	Outdoor	B2R		**BR816N200RF** ⑦⑧⑨⑫
	12	24	Indoor	X4		**BRP12N200** ⑨
	12	24	Outdoor	B2R		**BR1224N200R** ⑦⑨⑫
	16	32	Indoor	X4		**BRP16N200** ⑨
	20	40	Indoor	X5		**BRP20N200** ⑨
	20	40	Indoor	X5		**BRP20N200G** ⑩
	20	40	Outdoor	C3R		**BR2040N200R** ⑦⑨⑫
	30	60	Indoor	X6		**BRP30N200** ⑨
	30	60	Indoor	X6		**BRP30N200G** ⑩
	30	60	Indoor	X6	#1–300 kcmil	**BRP30E200G** ⑩⑪
	30	40	Outdoor	D1R		**BR3040N200R** ⑦⑨⑫
	40	80	Indoor	X8	See main breaker kit and main lug kit tables on **Page V1-T1-57**.	**BRP40N200**
	40	80	Indoor	X8	#1–300 kcmil	**BRP40E200G** ⑩⑪
	40	40	Outdoor	G1R		**BR4040N200R** ⑦⑨⑫
	40	80	Indoor	X8	See main breaker kit and main lug kit tables on **Page V1-T1-67**.	**BRP40N200G** ⑩
	60	120	Indoor	X10	#1–300 kcmil	**BRP60E200** ⑪

Convertible MLO Loadcenters—Factory Installed Lugs ⑥

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

Main Amp Rating	Spaces	Maximum Number of 1" Circuits	Enclosure Type	Box Size	Wire Size Range Cu/Al	Catalog Number
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 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-T1-72**.

④ For main breaker, use Type BR. For main lug use Type BRPSF.

⑤ For main breaker, use Type BW or CSR. For main lug, use Type BRPL200.

⑥ Convertible to maximum of 125 A main circuit breaker and 125 A main lug.

⑦ Rainproof loadcenters are furnished with hub closure plates. For rainproof hubs, refer to **Page V1-T1-71**.

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.

⑫ These styles will be replaced in 2019 with new plug-on neutral style loadcenter.

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