

Maximum flexibility, uptime and convenience



Switchboard solutions for fast changing of breakers have offered two choices—plug-on devices or drawout switchgear with power air circuit breakers. Plug-in breakers can be clumsy, and loadside conductors must be disconnected from the breaker, incurring excessive labor and time. While switchgear remains a highly reliable solution, the large footprint and the lack of front-accessible connections require valuable space within a facility.

In the past few years, requests for drawout molded-case circuit breakers (MCCBs) have increased in the form of a new drawout MCCB class of switchboard with front accessibility and front connections—introducing Eaton's drawout MCCB Pow-R-Line® switchboard.

This is the first design to offer two- and three-pole MCCBs in a mechanical drawout design. Breakers use unique drawout cassettes and have ratings from 20 A to 1200 A. Breakers are inserted and removed via a mechanical system similar to other drawout designs associated with switchgear; however, these breakers are horizontally mounted in a traditional switchboard group-mounted manner, providing greater density and reduced space.

Benefits

- Ease of maintenance
- Faster to remove and install
- Less downtime
- Space savings
- Safety

Market and segment applications

- Electrical distribution systems where a changeout of circuit breakers is needed to upgrade equipment to a new process
- Data centers
- Industrial facilities to minimize downtime
- Institutions
- Laboratories
- Healthcare facilities
- Critical load applications

Available ratings

Eaton's drawout Pow-R-Line switchboard is UL® 891 Listed through 5000 A and is rated at 240 Vac, 480 Vac and 600 Vac. Fault current is available up to 200 kAIC at 240 Vac, 100 kAIC at 480 Vac and 50 kAIC at 600 Vac. The short-circuit current rating of the switchboard is determined by the short-circuit current rating

of the lowest rated overcurrent device in the switchboard.

Drawout feeder MCCBs are available in two- and three-pole offerings from 20 A to 1200 A UL 489. Main breakers may be drawout or fixed-mounted.

Switchboard options

- Copper and silver-plated copper bus
- Density-rated bus
- Customer-owned meters
- Service equipment construction
- Surge protective devices
- Seismically qualified switchboards

Drawout MCCBs—group-mounted 1200 A maximum

Group-mounted drawout MCCBs include Eaton JG, LG and NG breaker families and include standard thermal-magnetic trip units or optional Eaton 310+ electronic trip units.

The design uses a cassette that has two distinct parts. The cassette "base" is specially designed so that the lineside connections to the switchboard's vertical bus and the loadside connection to the feeder conductors can be permanent. The "drawout" cassette allows the breaker and any breaker accessory connections to be removed.

Standards

- UL 891 Listed
- National Electrical Code®

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Base cassette

The base cassette is permanently factory-mounted to the switchboard's chassis. The cassette base lineside connections use bus connectors and are factory-connected to the switchboard vertical bus. The base cassette is designed to accept the drawout cassette that contains the breaker. The loadside feeder conductors are also part of the base cassette, allowing the loadside feeder conductors to remain with the base cassette when the breaker is removed without removing the loadside conductors.

The base cassette contains a drawout racking mechanism, a Connected/Disconnected position indicator and a pull-apart terminal block base (used for connections to the breaker accessories).

Note: Per industry practice, all power to the board section must be disconnected at its source before working on any electrical equipment.

Safety features include finger-safe connections to the drawout MCCB breaker cassette and a mechanism system that will not allow the breaker to be connected or removed while the breaker is in the energized, ON, position.

Drawout cassette

The drawout cassette contains the breaker and is group-mounted. The drawout cassette incorporates a viewing window and an external racking port. The viewing window allows personnel to visually inspect the breaker status and to see whether the breaker is connected to or disconnected from the bus. The window exposes the Connected/Disconnected position indicator on the base cassette. The external racking port allows access to the racking mechanism to draw out the breaker.

The drawout cassette also contains a wiring harness, which is factory-wired from the breaker accessory ports and contains a pull-apart terminal block that attaches the permanently mounted female terminal block located on the base cassette. External connections on the secondary side of the terminal block are provided by the installer.

The drawout cassette employs three breaker families—the JG, LG and the NG with standard thermal-magnetic trip unit. Optional 310+ electronic trip units offer ampere ratings from 20 A to 250 A on the JG, 100 A to 600 A on the LG and 800 A to 1200 A on the NG.

Breaker options

- Electronic trip units
- Shunt trips
- Auxiliary contacts
- Bell alarm
- Zone selective interlocking
- Arcflash Reduction Maintenance System™

The JG and LG families of drawout breakers are available in either a single group-mounted design or a high-density, space-saving dual group-mounted design where two breakers occupy the same vertical space. The NG family of drawout breaker is available in a single group-mounted design.



Drawout MCCB disconnected from bus



NG drawout molded-case circuit installed



JG and LG drawout molded-case circuit installed



Drawout molded-case circuit breaker base cassettes

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