

Pow-R-Flex low ampere busway

Commercial
Industrial
Telecommunications

Data centers
Research
Light manufacturing



Powering Business Worldwide

Pow-R-Flex low ampere busway

Pow-R-Flex™ low ampere busway provides flexible power distribution solutions for a variety of applications where change and adaptation are important.

Eaton's Pow-R-Flex low ampere busway is the latest design in a family of innovative busway products and is the newest in the industry. Pow-R-Flex offers a heavy-duty design and does not sacrifice on aesthetics. Standard features include an extruded aluminum housing, two standard color options, shutter mechanism safe plug-in outlets, integral ground path, high short-circuit withstand ratings and a variety of plug-in units.



Product offering

Plug-in busway

- 225 to 600 amperes copper
- 150 to 400 amperes aluminum
- Straight sections of plug-in busway are available in 24-inch (609.6 mm) incremental lengths from 2 feet (0.6m) to 10 feet (3.0m) maximum
- Plug-in outlets are on one side, spaced every 12 inches (304.8 mm) for a standard nine plug-in outlets per 10-foot (3.0m) section
- Each joint location is adjustable +/- 0.50-inch (12.7 mm) in length

Feeder busway

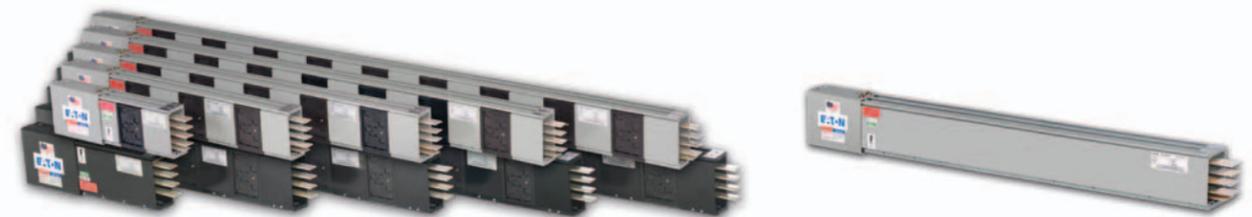
- 225 to 600 amperes copper
- 150 to 400 amperes aluminum
- Straight sections of indoor busway are available in 1-inch (25.4 mm) increments from 2 feet (0.6m) to 10 feet (3.0m)
- Each joint location is adjustable +/- 0.50-inch (12.7 mm) in length

Busway fittings

- Standard 90-degree elbow bends upward, downward, forward and rearward directions
- Standard tee fittings—forward and rearward directions
- Offset fittings—upward/downward, forward/rearward directions
- Cable tap boxes—end and center positions
- Gear flanges
- Phase transpositions
- Expansion joints
- Through barrier penetration fire barriers
- End closures

Plug-in units

- Molded case circuit breaker overcurrent protection from 15 to 250 amperes
- Fusible overcurrent protection from 30 to 200 amperes
- Surge protective devices (SPDs)
- 240V receptacle units with circuit breaker overcurrent protection from 15 to 60 amperes
- 480V receptacle units with circuit breaker overcurrent protection from 15 to 60 amperes



Pow-R-Flex capabilities



Product features and benefits

- This world-class product design meets the requirements of NEMA®, UL®, CSA® and ISO®
- The aluminum housing provides lightweight durability and product integrity
- The Pow-R-Bridge™ joint assembly and torque-indicating bolt provides a durable, flexible, secure and easy-to-install connection
- Unique housing design allows for simple flush mount or back-to-back installations
- Silver-plated contact surfaces provide high-quality connections
- Extruded housing channels provide simple and secure support and accessory connections
- Flexible neutral and ground options provide solutions for any application problem
- Multiple short-circuit withstand ratings coordinate with any electrical system
- A full family of plug-in units is available for every power need

Pow-R-Flex capabilities

- Plug-in units are available in stock for immediate shipment in select ampere ratings and system configurations
- The busway manufacturing facility is located in Greenwood, SC, and is able to meet your emergency or quick ship lead-times from one day to three weeks
- Customer approval drawings are available in three weeks or less to meet your project requirements
- The Eaton Final Field Fit program ensures accurate layout and allows for minor last-minute layout modifications during installation
- The Eaton Field Measurement Service takes the time and worry out of getting accurate layout measurements and guarantees an accurate installation

Product support

Busway product and application support is available from a professional team of Eaton employees that includes field sales engineers, application engineers, Eaton Engineering Services & Systems, and the Greenwood plant busway sales and product engineers.

Additional information

- Technical Data TD01701003E
- Installation and Maintenance Instructions IB01701002E
- Distribution Equipment Catalog CA08101001E
- Busway Service and Solutions Brochure BR01701002E

Innovative housing design

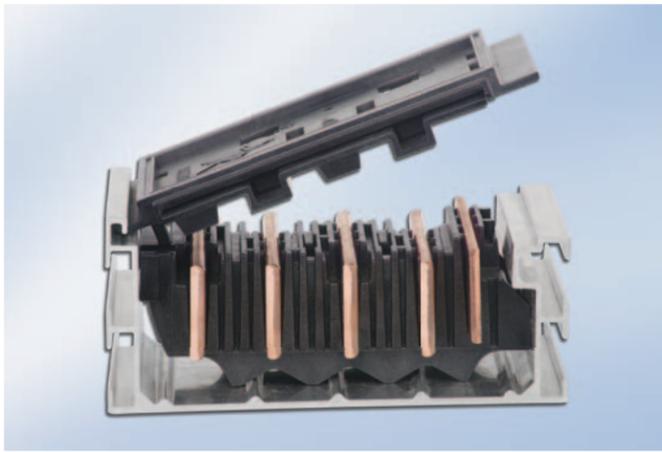
Pow-R-Flex is constructed with lightweight and rugged U-shaped extruded housing. The U-shaped housing is the base channel that holds the conductor support blocks. Front covers are then used and are also made from lightweight, extruded aluminum. The U-shaped base housing and front cover are joined together through a unique hinge design that locks in one side of the cover, reducing fasteners and offering clean lines. This adds to the aesthetic look and feel of the product. This innovative housing design puts safety first and totally encloses the conductors, preventing any incidental contact with live conductors. The non-magnetic, all-aluminum housing provides for excellent heat dissipation and a significant reduction in reactance and magnetic flux leakage as compared to a steel or steel and aluminum combination housing. The integrity and strength of the housing ensures specifiers and users of a safe and durable installation over a broad spectrum of applications.



Pow-R-Bridge joint

Pow-R-Flex joint connections are made with the heavy-duty Pow-R-Bridge joint package. One Pow-R-Bridge is installed on each section of Pow-R-Flex busway prior to shipment. The bridge joint assembly uses a double-headed, torque-indicating bolt to ensure that the proper installation torque is achieved. No special tools or equipment are required to torque down the joint bolt. Torque is applied only to the outer bolt head. When the proper torque value is achieved, this outer bolt head will shear off, allowing fall-away instruction tags to fall to the floor. The fall-away instruction tags allow for visual torque indication from a distance. Any joint that is improperly torqued will retain the highly visible (caution yellow) tag at the bolt head. The inner bolt head remains intact for future work and a label with the proper torque information is provided on the Pow-R-Bridge. Due to the single bolt non-rotating design, the Pow-R-Bridge maintains its configuration integrity when it is removed from a section of busway. The conductor plates and insulators do not displace or swivel, making re-installation quick and easy. The insulators are made of a high-strength, molded glass polyester and are rated as Class B, 130°C, insulating material.





A "safety-first" plug-in busway design

All Pow-R-Flex plug-in busway and plug-in devices are designed with the safety of the installer and user as key criteria. Plug-in outlets protect against accidental contact with live conductors by an operator/installer. Each outlet has a mechanical spring shutter that automatically pushes closed when a plug-in unit is removed and the outlet is no longer in use. Each outlet is shipped with the shutter held closed with a screw. The screw must first be removed before the outlet can be used. Once the screw is removed, the shutter is mechanically operated by the plug-in unit when the plug-in unit is being inserted into the outlet on the busway. One plug-in outlet or provision is provided every 12 inches (304.8 mm) along the busway.

Each plug-in unit ground stab makes positive contact connection with the integral busway housing ground and/or internal ground bar before the phase and neutral stabs make contact with the phase conductors.

Pow-R-Flex offers grounding and neutral options to meet every customer preference and need

50%

50% integral ground

The extruded aluminum housing is UL listed as a 50% integral ground path (integral earth) and is fully fault rated. The system ground continuity is maintained through each joint by ground path contact surfaces in the joint covers. When the covers are installed, the contact surfaces are bolted directly to the extruded aluminum housing.

50%

50% internal ground bus

If a traditional 50% internal ground bar conductor is preferred, Pow-R-Flex can be fitted with a ground bus that runs internal to the housing similar to the phase conductors. The internal ground bus is raised within the housing to ensure that plug-in unit ground stabs make positive ground contact before making contact with the phase conductors.

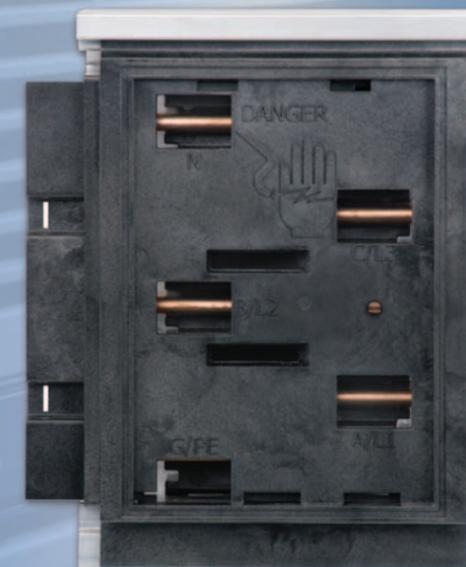
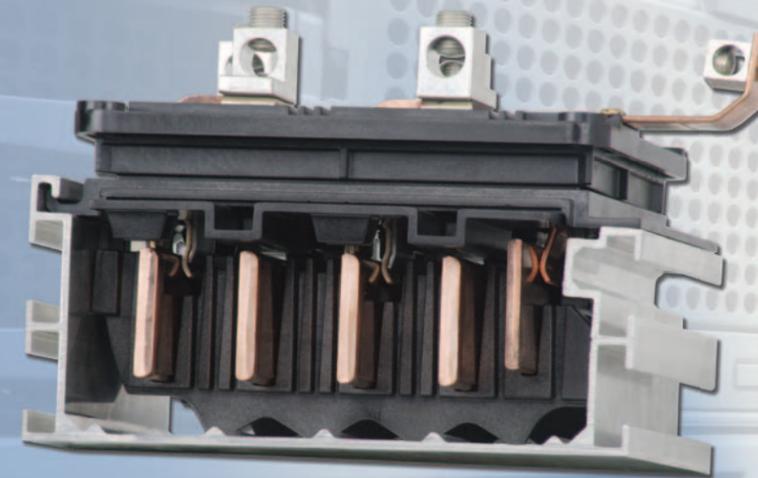
100%

100% ground option

In certain industrial applications, a ground path greater than 50% may be required. Pow-R-Flex makes this possible without the need to overrate the busway. By combining the 50% integral ground with the 50% internal ground bus, a fully rated 100% ground path is achieved.

Oversized neutral option

Power system harmonics are generated by various types of nonlinear loads. Examples of nonlinear loads are personal computers, UPS systems, variable frequency motor controllers, electronic lighting ballasts, medical test equipment, and many other microprocessor-based loads. On 208 volt wye systems, certain nonlinear loads cause odd triple harmonics that are additive and will not cancel each other in the neutral. The neutral current can be as high as 1.73 times the phase current. This can lead to a deterioration of equipment performance and shortened life cycle. Pow-R-Flex offers oversized neutral ratings on its low to mid current ratings. The additional neutral capacity prevents the overheating caused by high harmonic neutral currents.





A complete line of fittings to meet any application

Pow-R-Flex offers an extensive range of fittings to meet every application need. Flanges, elbows, end cable tap boxes and end closures are some of the basic fittings that are included in the Pow-R-Flex design. For more complex layouts, combination elbows and offsets can be used along with expansion joints, tees, phase transpositions and vapor–fire barriers. With Eaton’s experienced engineering staff, customized fittings and connections are available to meet unique applications.



Accessory fittings make installation easy

Pow-R-Flex offers a complete complement of accessory fittings to finish off every installation. Wall flanges are available to help close off the cutout opening around the busway as it passes through the wall. Several types of hangers are available to help suspend, support and stabilize the busway system. Hardware is included with each accessory fitting.

Innovative plug-in unit designs

A variety of plug-in units have been designed for the Pow-R-Flex low ampere busway to meet multiple applications and a variety of installation conditions. Plug-in unit devices provide easy and flexible access to a building’s electrical power system, while providing safe and overcurrent protection to equipment and wiring.

All Pow-R-Flex plug-in units are designed with the safety of the installer and user in mind. The following safety features are standard for all fusible and molded case circuit breaker plug-in units:

- **Positive Ground Contact**
Each plug-in unit ground stab makes positive contact with the busway ground (integral or internal) before the phase or neutral stabs make contact with the conductors.
- **Guide Tabs**
Plug-in unit molded guide tabs are provided in the stab support base. These ensure proper phase alignment and open the busway outlet shutter mechanism.
- **Interface Bracket**
Each plug-in unit has an interface bracket, which prevents the unit from being installed onto or removed from the busway while the device is in the ON or CLOSED position.
- **Door Interlock**
Each plug-in unit has a door interlock, preventing the front cover from being opened while the device is in the ON or CLOSED position and preventing accidental closing of the device while the front cover is open.
- **Line-Side Barriers**
Line-side barriers are provided over the line-side terminals to help prevent accidental contact with line-side connections.
- **Outlet Seating Ridge**
When the plug-in unit is installed, the stab base assembly on the plug-in unit is recessed into the busway outlet cover to help seal against moisture and dust.
- **Mounting Flanges**
Each plug-in unit has mounting flanges that bolt the unit to the housing and help protect the stab base assembly. Mounting hardware is included.





Plug-in units

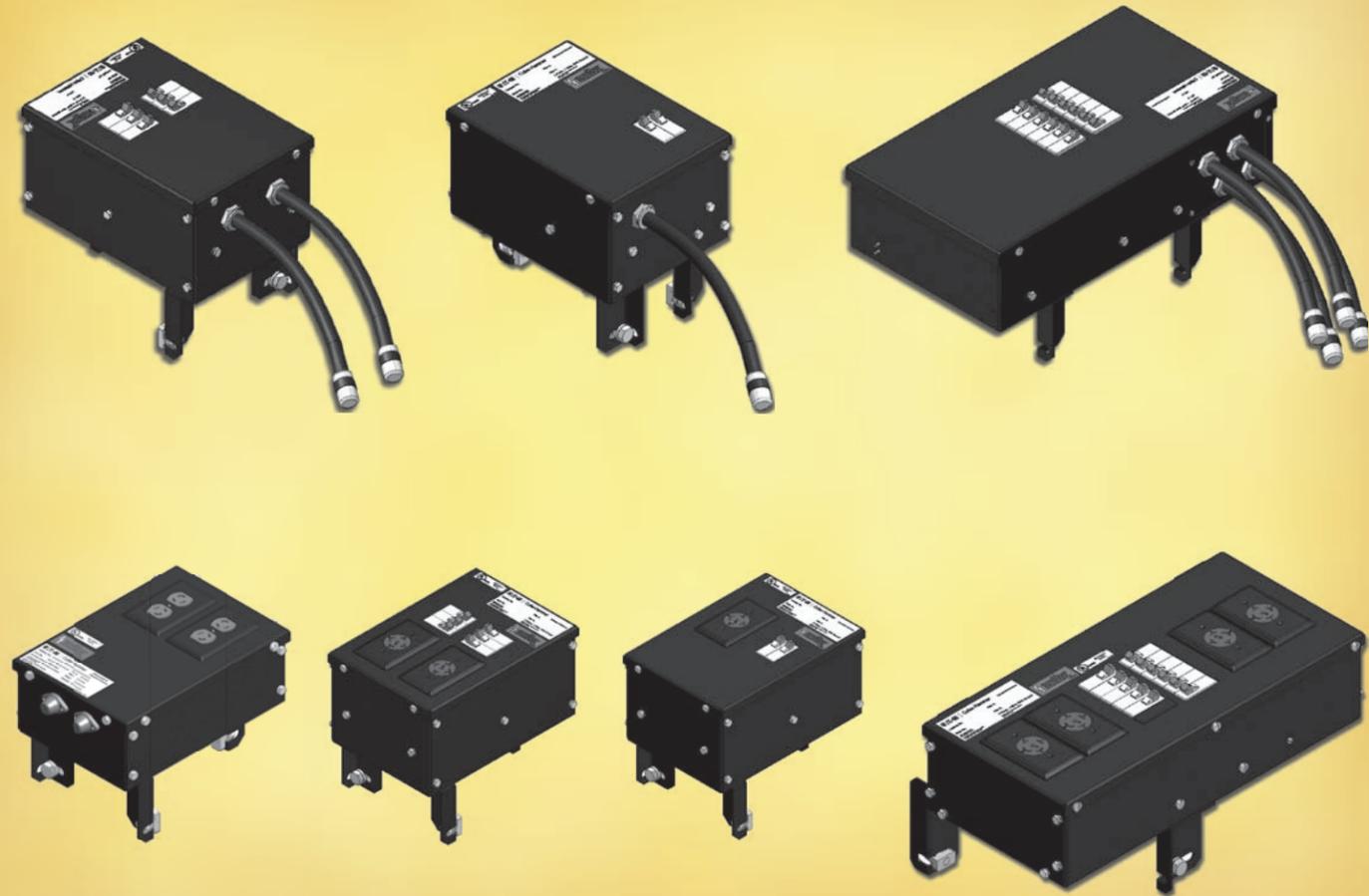
Receptacle plug-in units

Eaton's unique receptacle plug-in unit design makes them the most flexible receptacle units in the industry. They are well adapted for use in data centers, laboratories, machining shops, industrial manufacturing or anywhere small blocks of power are required. Pow-R-Flex receptacle plug-in units come fully assembled and wired, reducing installation time. Each unit is built to order based upon the receptacle type and rating combinations. Additionally, Eaton optimally phase balances each unit for the entire run. This eliminates the need to manually phase balance during installation. Each unit is UL and CSA listed and comes in seven different styles and two different breaker options using standard NEMA receptacle configurations.

- **Single Receptacle**
Single receptacle units come with one receptacle and may be fitted with a single- or three-phase receptacle up to 60 amperes and 480 volts.
- **Double Receptacle**
Double receptacle units come with two receptacles and may be fitted with any combination of single- and three-phase receptacles up to 60 amperes and 480 volts.
- **Quad Receptacle**
Quad receptacle units come with up to four receptacles and may be fitted with any combination of single- and three-phase receptacles up to 60 amperes and 480 volts.

Receptacles may be fixed-mounted to the front of the enclosure or cord-mounted to S/O cable dropping out the bottom of the unit.

240V plug-in unit devices



400/480V plug-in unit devices



SPD plug-in units



Surge protective device (SPD) plug-in units are available in Pow-R-Flex plug-in units. The Eaton SPD Series products not only protect against externally created high-energy surges, such as lightning, but also provide needed protection against internally generated surges. Such surges may come from arc welders, adjustable frequency controllers and the switching on and off of electrical distribution equipment. The Eaton SPD combines metal oxide varistors (MOVs) for suppression and filtering capacitors to eliminate electrical line noise and ringing transients.



IQ Energy Sentinel

The Pow-R-Flex molded case circuit breaker plug-in units optionally include the IQ Energy Sentinel, a UL listed microprocessor-based submetering device capable of communication energy usage, demand usage. This innovative device offers internal CTs and is powered off the load-side cable terminations. Communications are done via customer-installed twisted-pair communications cable. Communication protocols include RS-232, Modbus, Ethernet and Eaton INCOM.™



Eaton's Electrical Sector is a global leader in power distribution, power quality, control & automation and monitoring products. When combined with Eaton's full-scale engineering services, these products provide customer-driven PowerChain Management® solutions to serve the power system needs of the data center, industrial, institutional, public sector, utility, commercial, residential, IT, mission critical, alternative energy and OEM markets worldwide.

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