

BR (1-inch) and QB (bolt-on) dual-purpose arc fault / ground fault circuit interrupter



Description

We know that safe, easy-to-install products with efficient troubleshooting and maintenance is a top priority. That's why Eaton is continuously improving its circuit protection technology, with features to help keep your installation up and running in residential and light commercial applications. Eaton's BR and QB arc fault/ground fault (AF/GF) enhancements are designed to address those challenging installation and troubleshooting efficiencies that can get you on and off the job more quickly.

Eaton's BR (1-inch) and QB (bolt-on) dual-purpose AF/GF circuit interrupters are available in 15 A and 20 A ratings with a short body configuration for easier installation. A diagnostic LED trip code indicator is also included, which displays six different codes to assist in troubleshooting.

Design features

- Short body allows for better access to the wireway
- Overvoltage protection
- Continuous self-test of electronic components
- Advanced troubleshooting with six unique trip codes (including thermal overload)

Product selection

Table 1. BR (1-inch) BRAFGF and QBAFGF selection chart

Amperes	Number of poles	kAIC	Catalog number
Standard—pigtail			
15	1	10	BRAFGF115
20	1	10	BRAFGF120
15	1	10	QB1015AFGF
20	1	10	QB1020AFGF
15	1	22	BRHAFGF115
20	1	22	BRHAFGF120
15	1	22	QBH1015AFGF
20	1	22	QBH1020AFGF



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Specifications

Table 2. Specifications

Description	Specification
Catalog number	BRAFGF115, BRAFGF120, QB1015AFGF, QB1020AFGF, BRHAFGF115, BRHAFGF120, QBH1015AFGF, QBH1020AFGF
Voltage requirement	$102 \leq V_{RMS} \leq 132$
Frequency requirement	60 Hz \pm 2 Hz
Power consumption	0.6 W
Surge	In accordance with IEC 61000-4-5
Ambient operating temperature	-31 °F to +150 °F (-35 °C to +66 °C)
Humidity	0% to 95%, noncondensing
Warranty	10-year
UL® standards	UL 489—molded-case circuit breakers, molded-case switches, and circuit breaker enclosures UL 943—ground fault circuit interrupters UL 1699—arc fault circuit interrupters UL 1998—software in programmable components
UL file number	E-45310

Table 3. Trip codes

AF/GF breakers are equipped with a red diagnostic LED that blinks a repeating pattern, from 1 to 6 blinks, indicating the cause of trip. This pattern is the “trip code.” The LED will blink the trip code for 30 iterations after being turned back on.

Trip code	Description
No code recorded	Mechanical disconnect (thermal, short circuit, manual disconnect) No trip code is recorded for mechanical actions. These include: <ul style="list-style-type: none"> Loss of power from the utility or upstream breaker Manually switching the breaker OFF Pressing the TEST button Short circuit Thermal overload trip caused by mechanical part of breaker (This is rare. The electronics should trip on thermal overload before the mechanical side in most instances.)
1	Series arc A low-current arc has been detected within one of the current pathways. Low-current arcs are typically series arcs, and are typically found in worn or degraded appliance and extension cords, poor connections in appliances or fixtures, or in contacts within equipment.
2	Parallel arc A high-current arc has been detected between two conductors. Look for damaged insulation usually found in installed wiring where the wire has been compromised by a nail or screw, tight staple, or damaged insulation.
3	Overload The circuit is drawing more current than the breaker is rated for. Remove some load from the circuit.
4	Overvoltage The breaker will trip if it experiences voltage of 160 V rms or greater. The breaker can be reset and the TEST button can be pushed to verify that the breaker is working properly. Most likely caused by a loose or floating neutral, either in the service entrance or at the transformer.
5	Ground fault / grounded neutral Current has found an alternate path to ground, or the neutral and ground are in contact downstream of the breaker; this could cause harm to people or property.
6	Self test failure The breaker continually tests the internal electronics and software to ensure that the arc fault and ground fault detection technology is working properly. If the self-diagnostics fail, the breaker will trip. The built-in self-test features will not allow the AF/GF breaker to re-latch if it detects a malfunction in the AF/GF detection circuit. Replace the breaker.

Wiring diagrams

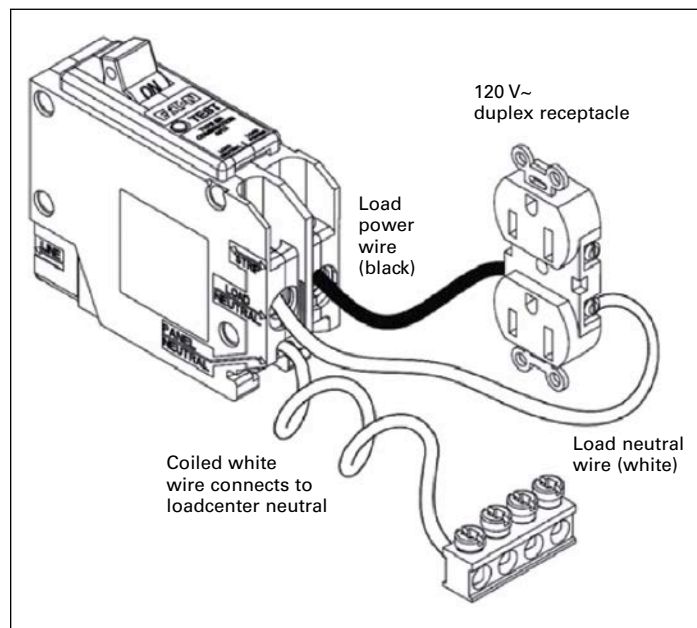


Figure 1. BR AF/GF circuit breaker

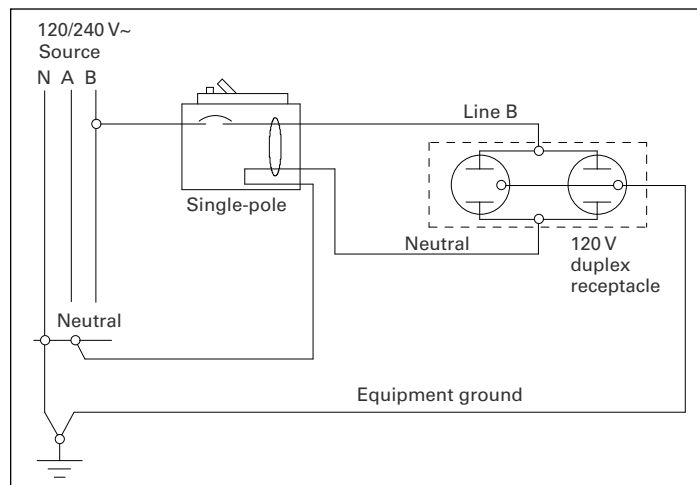


Figure 2. Single-pole 120 V load application sourced by 120/240 Vac

Dimensions

Dimensions in inches (mm).

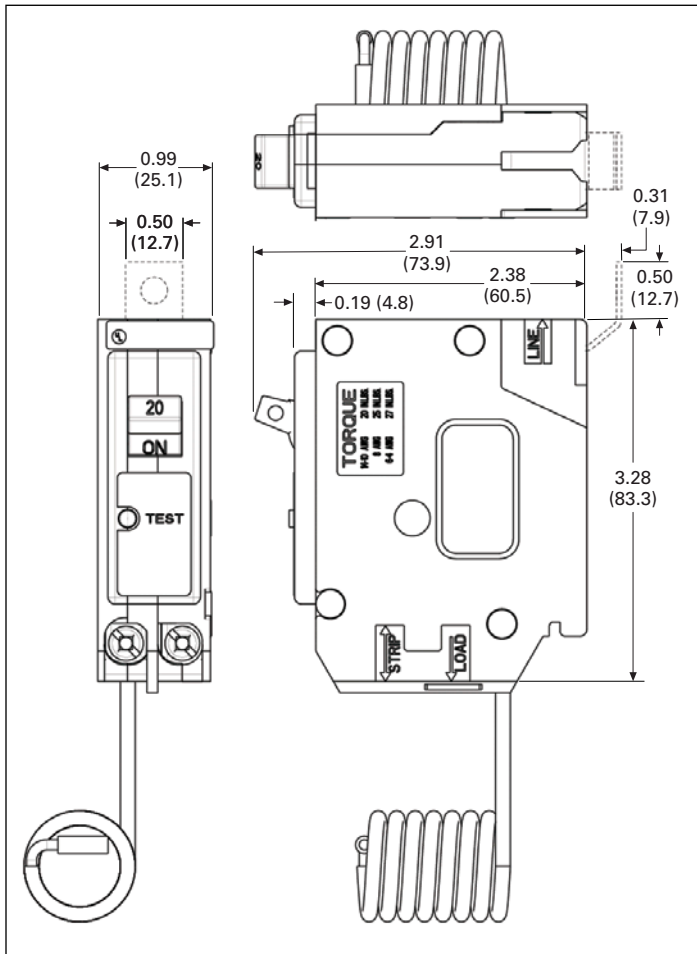


Figure 3. BRAFGF and QBAFGF

Note: The dotted line indicates the QB configuration.

Troubleshooting

Visit www.eaton.com/troubleshooting for detailed troubleshooting instructions.

Contact the Eaton Technical Resource Center at
1-800-326-9513 for further assistance.

Scan QR code for
product information,
documents, and more



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