

Circuit Breakers for CAEN-MLO

- > Eaton® Type CH circuit breakers
- > Choice of thermal magnetic, combination arc fault, and ground fault types
- > Quick-make, quick-break switch mechanism
- > Inverse time element tripping operation
- > Two position, trip to "OFF" handle with trip flag
- > Plug-on neutral (AFCI and GFCI models)
- > Avoids nuisance tripping under dimmed loads up to 2000 Watts (AFCI model)
- > Built-in diagnostics with LED indicator (AFCI model)

To ensure premium electrical circuit protection for our CAEN-MLO automation enclosures, Crestron® has selected Eaton® Type CH circuit breakers. These breakers are available directly from Crestron in a choice of thermal magnetic, ground fault, and combination arc fault breaker types.

Eaton CH circuit breakers feature a quick-make, quick-break switch mechanism combined with inverse time element tripping operation and trip-free handle design. The thermal-magnetic trip curve avoids nuisance tripping on mild overloads while reacting almost instantaneously to severe short-circuit conditions. These breakers trip to the OFF position, clearly identifying which breaker has tripped and allowing for simple one-step reset. Each breaker also includes a trip flag to differentiate between a trip and the breaker being turned off.

Plug-on Neutral

Combination arc fault and ground fault models feature an innovative plug-on neutral design that eliminates the need for individual pigtailed wires to a separate bus bar. This feature saves time during installation, eliminates nuisance tripping due to loose pigtail connections, and allows for a cleaner, more serviceable assembly.

Combination Arc Fault Breakers

Arcing faults are a common cause of many home electrical fires, which can occur when insulation around cords, wires, or cables is damaged or deteriorated. A combination type arc fault circuit interrupter (AFCI) offers mitigation of high current arcing faults in the complete circuit, including connected cords. In addition, it provides direct detection of persistent low current arcing faults down to 5 amps with associated mitigation of fire hazards in the cords connected to the outlets. Beginning in 2008, the National Electrical Code® requires all circuits feeding dwelling areas in residential structures to be protected by combination type arc fault circuit interrupters.

Eaton combination arc fault breakers are rigorously tested and proven to work reliably with Crestron dimmers, exhibiting excellent immunity to nuisance tripping under dimmed loads up to 2000 Watts. Built-in diagnostics ensure reliable protection, with visual trip indication provided via a diagnostic LED. Diagnostic trip codes are displayed by the LED using blinking patterns as follows:



Thermal Magnetic,
Model CLB-120-20A



Combination Arc Fault,
Model CLB-120-20A-AFCI



Ground Fault,
Model CLB-120-20A-GFCI

| Blink Pattern | Description |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0 | Mechanical Disconnect - The breaker has detected an overload, short circuit, or was manually turned off. |
| 1 | Low Current Arc - A low current "series" arc has been detected within one of the current pathways. These arcs are typically found in worn or degraded appliance and extension cords, poor connections in appliances or fixtures, or in contacts within equipment. |
| 2 | High current Arc - A high current "parallel" arc has been detected between two conductors. These arcs are usually found in installed wiring where the wire has been compromised by a nail or screw, an over tightened staple, or damaged insulation. |
| 3 | Short Delay - Short delay is an electronic backup to the short circuit mechanism. |
| 4 | Overvoltage - A voltage of 160V RMS or greater has been detected. After resetting the breaker, press the "TEST" button to verify the breaker is working properly. |
| 5 | Ground Fault - The breaker has detected that current has found an alternate path to ground. |
| 6 | Self Test Failure - The breaker continually tests its internal electronics and software to ensure the arc fault detection technology is working properly. The breaker will trip in the event of a self test failure. |

CLB-120 Circuit Breakers for CAEN-MLO

Ground Fault Breakers

A ground fault current interrupter (GFCI) provides superior safety for electrical outlets in areas where electricity may come into contact with water. A GFCI immediately breaks the circuit when electrical current leakage is detected, reducing the risk of shock and electrocution. A GFCI is required in any application where outlets are located near water such as kitchen countertops, bathrooms, swimming pools, hot tubs, and outdoor receptacles.

SPECIFICATIONS

Available Models & Ratings:

| Type | Ampere Rating | Voltage | Eaton Model # | Crestron Model # |
|---------------------------------------------------------|---------------|---------|---------------|------------------|
| Thermal Magnetic, Single-Pole, 10 kAIC | 20 A | 120 VAC | CHF120 | CLB-120-20A |
| Combination Arc Fault Interrupter, Single-Pole, 10 kAIC | 20 A | 120 VAC | CHFCAF120PN | CLB-120-20A-AFCI |
| Ground Fault Interrupter, Single-Pole, 10 kAIC | 20 A | 120 VAC | CHFGF120PN | CLB-120-20A-GFCI |

Additional Ratings – AFCI:

Voltage: $70 \leq V \leq 160$

Frequency: 60 ± 2 Hz

Power Consumption: 0.75 W

Surge: In accordance with IEC 61000-4-5

Ground Fault Protection: 30mA (Does not meet the requirements of UL 1053 for ground fault sensing & relaying equipment)

Dimming Load: Up to 2000 Watts

Environmental:

Temperature: 32° to 151°F (0° to 66°C)

Humidity: 10% to 93% RH (non-condensing)

Standards – AFCI:

UL® 489, UL 1699, UL 1998; UL File Number E-7819; CSA® Recognized

Standards – GFCI:

UL 943, UL 489; CSA Recognized

MODELS & ACCESSORIES

Available Models

CLB-120-20A: Thermal Magnetic Breaker for CAEN-MLO, 120V, 20A

CLB-120-20A-AFCI: Combination Arc Fault Breaker for CAEN-MLO, 120V, 20A

CLB-120-20A-GFCI: Ground Fault Breaker for CAEN-MLO, 120V, 20A

Notes:

This product may be purchased from an authorized Crestron dealer. To find a dealer, please contact the Crestron sales representative for your area. A list of sales representatives is available online at www.crestron.com/salesreps or by calling 800-237-2041.

The specific patents that cover Crestron products are listed online at: patents.crestron.com.

Crestron and the Crestron logo are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. Eaton is either a trademark or registered trademark of Eaton Corporation in the United States and/or other countries. CSA is either a trademark or registered trademark of Canadian Standards Association in the United States and/or other countries. National Electrical Code is either a trademark or registered trademark of National Fire Protection Association, Inc. in the United States and/or other countries. UL is either a trademark or registered trademark of UL LLC in the United States and/or other countries. Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims any proprietary interest in the marks and names of others. Crestron is not responsible for errors in typography or photography. Specifications are subject to change without notice.
©2013 Crestron Electronics, Inc.