

Plug-on Circuit Breakers**Contents****Description**

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CH Circuit Breakers**Product Description**

Quick-make, quick-break switch mechanism combined with inverse time element tripping operation and trip-free handle design. Type CH circuit breakers trip to the OFF position, eliminating nuisance callbacks. The CHF family also includes a trip flag to differentiate between a trip and the breaker being turned off. The thermal-magnetic trip curve avoids nuisance tripping on mild overloads while reacting almost instantaneously to severe short-circuit conditions. Multipole breakers have internal common trip connection to operate all poles simultaneously. Handles are marked with ON-OFF indication and ampere rating of the breaker.

Special Application Plug-on Circuit Breakers—Type CH 10 kAIC 120 Vac and 120/240 Vac**Branch Feeder Type Arc Fault Circuit Breakers**

A branch feeder type arc fault circuit interrupter is a device intended to mitigate high current arcing faults in the complete circuit, including connected cords. High current arcing faults can occur from line to neutral or line to ground. These arcing faults are in parallel with the load and produce the most energy of all arcing faults. The current level of low current arcing faults is limited by the load.

The branch feeder type AFCI is required in the 1999 and 2002 National Electrical Code.

The Combination Type AFCI is required in all subsequent editions of the National Electrical Code.

Combination Type Arc Fault Circuit Breakers

A combination type arc fault circuit interrupter is a device that 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. High current arcing faults can occur from line to neutral or line to ground. These arcing faults are in parallel with the load and produce the most energy of all arcing faults. The current level of low current arcing faults is limited by the load.

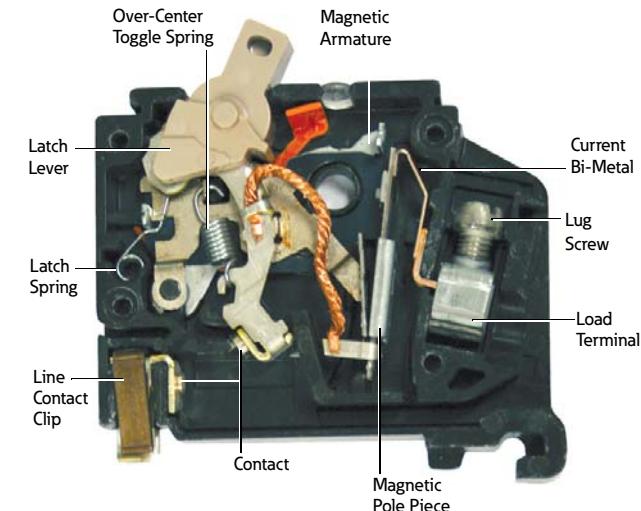
Ground Fault Circuit Breakers—Ground Fault Application Notes

Single-pole Type CHGFIs are designed for use in two-wire, 120 Vac circuits. The diagram on **Page V1-T1-43** shows a typical wiring configuration.

Two-pole Type CHGFIs are designed for use in three-wire, 120/240 Vac circuits, 120 Vac multiwire circuits employing common, neutral and two-wire, 240 Vac circuits obtained from a 120/240 Vac source.

Diagrams on **Page V1-T1-43** illustrate typical wiring configurations for 120/240 Vac multiwire circuits.

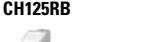
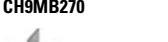
The diagram on **Page V1-T1-43** depicts a 240 Vac, two-wire circuit. Note the "panel neutral" conductor connects to the neutral bar,

Features

even though the neutral is not included in the load circuit. This connection is necessary to supply a 120 Vac power source to the ground fault sensing circuit.

The figures are shown with a 120/240 Vac, single-phase, three-wire power source, but are also applicable to a 120/208 Vac, three-phase, four-wire power supply. For all figures, the electrical operation of the Type CHGFI is not affected by the equipment ground.

Options and Accessories

Field Installation Kits and Parts		Ordering Quantity ^①	Catalog Number
CHHT	 CHPL	Description	
CHPLGF	 CHPLGF	Handle Ties ^② Handle tie bar for physically joining the handles of two adjacent single-pole Type CH circuit breakers (molded plastic handle cover)	25 CHHT
MCBPL	 MCBPL	Padlockable device for locking the handle of CH AFGF, CAF and GFT breakers into the ON or OFF position.	CHFAGFLOFF
CHLO	 CHLO	Handle Lockoffs ^{③④} Padlockable device for locking the handle of single-, two- or three-pole Type CH circuit breakers (escutcheon mounted) ^⑤	1 CHPL
CH125RB	 CH125RB	Padlockable device for locking the handle of a single-pole Type CHGF circuit breaker (escutcheon mounted) ^⑥	1 CHPLGF
CH9MB270	 CH9MB270	Padlockable bracket for locking the handle of two-, three- and four-pole Type CH circuit breakers	10 CHPLOFF
CHML	 CHML	Padlockable device for locking the handle of main circuit breaker Types CC and CCH into the ON or OFF position. (screw mounted) ^⑥	1 CCPL
CH125RB	 CH125RB	Padlockable device for locking the handle of main breaker Types BW and CSR into the ON or OFF position (escutcheon mounted) ^⑥	1 MCBPL
CH9MB270	 CH9MB270	Handle Lockdogs ^{④⑦} Device used to secure handle in ON or OFF position for single-pole Type CH circuit breakers (handle mounted) ^⑧	10 CHLO
CHML	 CHML	Hold-Down Kits ^⑨ Hold-down retainer kit for single-, two-, three-pole Type CH circuit breakers. For 6–24 circuit 125 A single- and three-phase, 12–42 circuit single-phase 225 A and 24–42 circuit three-phase 225 A MLO Type CH loadcenters	1 CH125RB
CHML	 CHML	Hold-down retainer kit for single-, two-, three-pole Type CH circuit breakers for 2–4 circuit MLO CH loadcenters.	1 CH125RB24
Mounting Bases			
Mounting base for two-pole Type CH circuit breaker—70 A maximum		1	CH9MB270
Main Breaker Lug Kits			
Types CC and CCH main breaker lug kit (2) 300 kcmil		1	CCL300
Type CSR main breaker lug kit (2) 300 kcmil		1	MCBL300
Mechanical Interlock			
Type CH for two-, three- and four-pole breakers		10	CHML^⑩

Shunt Trip Options

Description	Type	Volts	Catalog Number Suffix Adder ^⑪
CSR		12 DC	SR12
CSR		24 DC	SR24
CSR		120 AC	SR01
CH		120 AC	ST^④
CC		12 DC	SR12
CC		24 DC	SR24
CC		120 AC	SR01
CC		208 AC	SR08
CC		240 AC	SR02

Notes

- ① Must be purchased in multiples of ordering quantities indicated.
- ② Handle ties: typically used to join two similar independent single-pole breakers to form a two-pole noncommon trip breaker.
- ③ Handle lockoffs: devices that use a padlock to lock the circuit breaker's handle in the ON or OFF position.
- ④ Requires one additional pole space.
- ⑤ Escutcheon mounted: device mounted semipermanently to the face of the circuit breaker and secured by the loadcenter deadfront.
- ⑥ Screw mounted: device permanently mounted to the face of the circuit breaker by the use of a non-removable screw.
- ⑦ Handle lockdogs: devices that are used to secure a circuit breaker's handle in the ON or OFF position. Handle lockdogs are not padlockable devices.
- ⑧ Handle mounted: device mounted above or below handle using spring pressure.
- ⑨ Hold-down kits: devices used to secure the circuit breaker to the loadcenter for back-feed main application. See NEC Article 408.36(D).
- ⑩ CHML not suitable to transfer emergency power.
- ⑪ Add suffix indicated to end of breaker catalog number.

Handle Position Changeability Chart

Handle Lockoff and Lockdog Types	Remove Padlock	Remove Device	Remove Loadcenter Deadfront
Lockoff escutcheon mounted	Remove	—	—
Lockoff screw mounted	Remove	—	—
Lockdog handle mounted	N/A	Remove	—

Accessories**CHQ Breaker Accessories**

Description	Catalog Number
Breaker handle lock	CHLO

Technical Data**Arc Fault Application Notes**

An arc fault circuit interrupter is a device intended to provide protection from the effects of arc faults by recognizing characteristics unique to arcing and by functioning to de-energize the circuit when the arc fault is detected. As of January 1, 2002, the National Electrical Code (NEC) requires all branch circuits that supply 125 V, single-phase, 15 and 20 A receptacle outlets installed in dwelling unit bedrooms shall be protected by an arc fault circuit interrupter(s). This includes ceiling lighting (recessed, ceiling fans, etc.) as well as smoke detectors and all other bedroom outlets. The 2005 NEC introduced the application of the Combination Type AFCI for bedroom circuits required as of January 1, 2008. The 2008 NEC expands this application to other living areas.

Ground Fault**Application Notes**

Single-pole GFTCBs are designed for use in two-wire, 120 Vac circuits. Drawing on **Page V1-T1-105** shows a typical wiring configuration.

Two-pole GFTCBs are designed for use in three-wire, 120/240 Vac circuits, 120 Vac multiwire circuits employing common, neutral and two-wire, 240 Vac circuits obtained from a 120/240 Vac source.

Drawings on **Page V1-T1-105** illustrate typical wiring configurations for 120/240 Vac multiwire circuits.

Drawing on **Page V1-T1-105** depicts a 240 Vac, two-wire circuit. Note the "panel neutral" conductor connects to the neutral bar, even though the neutral is not included in the load circuit. This connection is necessary to supply a 120 Vac power source to the ground fault sensing circuit.

The figures are shown with a 120/240 Vac, single-phase, three-wire power source, but are also applicable to a 120/208 Vac, three-phase, four-wire power supply. For all figures, the electrical operation of the GFTCB is not affected by the equipment ground.