

Plug-On Circuit Breakers



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

The Combination Type AFCI is required in the 2005 and 2008 National Electrical Code.

Combination Type Arc Fault Circuit Breakers

A combination type arc fault circuit interrupter is a device that includes all of the protection offered by the branch feeder AFCI (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.

Contents

Description

	<i>Page</i>
Overview	V1-T1-2
CH Specialty Products	V1-T1-14
CH Loadcenter Options and Accessories	V1-T1-22
CH Circuit Breakers	
Features	V1-T1-30
Product Selection	V1-T1-31
Options and Accessories	V1-T1-37
Technical Data and Specifications	V1-T1-39
Wiring Diagrams	V1-T1-39

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-T1-39** 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-T1-39** illustrate typical wiring configurations for 120/240 Vac multiwire circuits.

The diagram on **Page V1-T1-39** 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 Type CHGFI is not affected by the equipment ground.

1.1

Loadcenters and Circuit Breakers

Type CH Loadcenters and Circuit Breakers

1

Features



Plug-On Type CH Breaker

Plug-On Ground Fault Circuit Breakers, Type CH 10 kAIC, 120 Vac and 120/240 Vac

Type CH Single-Pole

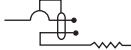



Type CH Ground Fault Circuit Breakers (5 Milliampere) 3/4-Inch (19.1 mm) per Pole 120 Vac or 120/240 Vac, 10 kAIC

Catalog Number—1 per Shelf Carton

Single-Pole 120 Vac Requires One 3/4-Inch (19.1 mm) Space

Two-Pole 120/240 Vac Common Trip Requires Two 3/4-Inch (19.1 mm) Spaces

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C		
15	#14–6 ^①	CH115GF	CH215GF
20	#14–6 ^①	CH120GF	CH220GF
25	#14–6 ^①	CH125GF	CH225GF
30	#14–6 ^①	CH130GF	CH230GF
35	#14–6 ^①	—	CH235GF
40	#14–6 ^①	—	CH240GF
45	#14–6 ^①	—	CH245GF
50	#14–6 ^①	—	CH250GF
60	#14–6 ^①	—	CH260GF

Type CH Two-Pole

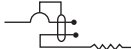



Type CH Ground Fault Equipment Protectors (30 Milliampere) 3/4-Inch (19.1 mm) per Pole 120 Vac or 120/240 Vac, 10 kAIC

Catalog Number—1 per Shelf Carton

Single-Pole 120 Vac Requires One 3/4-Inch (19.1 mm) Space

Two-Pole 120/240 Vac Common Trip Requires Two 3/4-Inch (19.1 mm) Spaces

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C		
15	#14–6 ^①	CH115EPD	CH215EPD
20	#14–6 ^①	CH120EPD	CH220EPD
25	#14–6 ^①	CH125EPD	—
30	#14–6 ^①	CH130EPD	CH230EPD
40	#14–6 ^①	—	CH240EPD
50	#14–6 ^①	—	CH250EPD
60	#14–6 ^①	—	CH260EPD

Type CH Switching Neutral Breakers—10 kAIC, 120 Vac and 120/240 Vac

Used to open the neutral along power line(s) for applications of gas pumps.

CH220SW

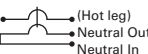
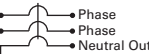


3/4-Inch (19.1 mm) per Pole 120/240 or 240 Vac, 10 kAIC

Catalog Number—1 per Shelf Carton

Two-Pole 120 Vac Common Trip Requires Two 3/4-Inch (19.1 mm) Spaces

Three-Pole 120/240 Vac Common Trip Requires Three 3/4-Inch (19.1 mm) Spaces

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C		
15	#14–8	CH215SW ^②	CH315SW ^③
20	#14–8	CH220SW ^②	CH320SW ^③
30	#14–8	CH230SW ^②	CH330SW ^③
40	#14–8	CH240SW ^②	CH340SW ^③
50	#14–8	CH250SW ^②	CH350SW ^③

Notes

- ① 60A breaker listed for 75°C Cu wire only.
- ② For circuit breakers with shunt trip, add ST suffix. Shunt trip requires one additional pole space.
- ③ Switching duty rated.

Plug-On Circuit Breakers



Contents

<i>Description</i>	<i>Page</i>
Overview	V1-T1-2
CH Specialty Products	V1-T1-14
CH Loadcenter Options and Accessories	V1-T1-22
CH Circuit Breakers	
Features	V1-T1-30
Product Selection	V1-T1-31
Options and Accessories	V1-T1-37
Technical Data and Specifications	V1-T1-39
Wiring Diagrams	V1-T1-39

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

The Combination Type AFCI is required in the 2005 and 2008 National Electrical Code.

Combination Type Arc Fault Circuit Breakers

A combination type arc fault circuit interrupter is a device that includes all of the protection offered by the branch feeder AFCI (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-T1-39** 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-T1-39** illustrate typical wiring configurations for 120/240 Vac multiwire circuits.

The diagram on **Page V1-T1-39** 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 Type CHGFI is not affected by the equipment ground.

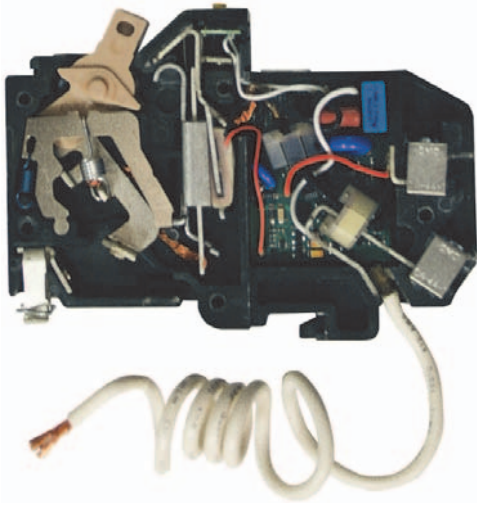
1.1

Loadcenters and Circuit Breakers

Type CH Loadcenters and Circuit Breakers

1

Features



Plug-On Type CH Breaker

Plug-On Ground Fault Circuit Breakers, Type CH 10 kAIC, 120 Vac and 120/240 Vac

Type CH Single-Pole

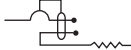



Type CH Ground Fault Circuit Breakers (5 Milliampere) 3/4-Inch (19.1 mm) per Pole 120 Vac or 120/240 Vac, 10 kAIC

Catalog Number—1 per Shelf Carton

Single-Pole 120 Vac Requires One 3/4-Inch (19.1 mm) Space

Two-Pole 120/240 Vac Common Trip Requires Two 3/4-Inch (19.1 mm) Spaces

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C		
15	#14–6 ^①	CH115GF	CH215GF
20	#14–6 ^①	CH120GF	CH220GF
25	#14–6 ^①	CH125GF	CH225GF
30	#14–6 ^①	CH130GF	CH230GF
35	#14–6 ^①	—	CH235GF
40	#14–6 ^①	—	CH240GF
45	#14–6 ^①	—	CH245GF
50	#14–6 ^①	—	CH250GF
60	#14–6 ^①	—	CH260GF

Type CH Two-Pole

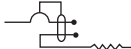



Type CH Ground Fault Equipment Protectors (30 Milliampere) 3/4-Inch (19.1 mm) per Pole 120 Vac or 120/240 Vac, 10 kAIC

Catalog Number—1 per Shelf Carton

Single-Pole 120 Vac Requires One 3/4-Inch (19.1 mm) Space

Two-Pole 120/240 Vac Common Trip Requires Two 3/4-Inch (19.1 mm) Spaces

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C		
15	#14–6 ^①	CH115EPD	CH215EPD
20	#14–6 ^①	CH120EPD	CH220EPD
25	#14–6 ^①	CH125EPD	—
30	#14–6 ^①	CH130EPD	CH230EPD
40	#14–6 ^①	—	CH240EPD
50	#14–6 ^①	—	CH250EPD
60	#14–6 ^①	—	CH260EPD

Type CH Switching Neutral Breakers—10 kAIC, 120 Vac and 120/240 Vac

Used to open the neutral along power line(s) for applications of gas pumps.

CH220SW

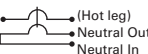
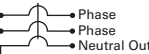


3/4-Inch (19.1 mm) per Pole 120/240 or 240 Vac, 10 kAIC

Catalog Number—1 per Shelf Carton

Two-Pole 120 Vac Common Trip Requires Two 3/4-Inch (19.1 mm) Spaces

Three-Pole 120/240 Vac Common Trip Requires Three 3/4-Inch (19.1 mm) Spaces

Ampere Rating	Wire Size Range Cu/Al 60°C or 75°C		
15	#14–8	CH215SW ^②	CH315SW ^③
20	#14–8	CH220SW ^②	CH320SW ^③
30	#14–8	CH230SW ^②	CH330SW ^③
40	#14–8	CH240SW ^②	CH340SW ^③
50	#14–8	CH250SW ^②	CH350SW ^③

Notes

- ① 60A breaker listed for 75°C Cu wire only.
- ② For circuit breakers with shunt trip, add ST suffix. Shunt trip requires one additional pole space.
- ③ Switching duty rated.