



Exclusive red Visi-Trip indicator makes it easy to spot a tripped circuit breaker.

# Section 3

## Square D QO™ Circuit Breakers

### QO™...Premium quality designed for lifetime value

QO™ Circuit Breakers provide the high level of protection you expect from Square D. When it comes to electrical protection, fast response is critical and QO™ Circuit Breakers can trip faster than the blink of an eye.

The exclusive QO™ Visi-Trip™ instantly identifies a tripped circuit breaker with a red indicator window. When a QO™ Visi-Trip™ circuit breaker trips, the handle snaps to a midpoint position between “OFF” and “ON” and a highly visible, red indicator easily identifies the tripped breaker. The Visi-Trip™ reduces the number of call backs, as well as the chance that other circuits will be turned off accidentally.

#### QO™ Circuit Breaker Features:

- Limited lifetime warranty. See page 67.
- Exclusive Visi-Trip™ red indicator.
- Plug-on design, easy to install.
- Quick make - quick break mechanism.
- Trip reaction within 1/60th of a second.
- Single Pole 15 A and 20 A breakers are Switching Duty Rated (SWD). SWD - Suitable for switching 120 Vac fluorescent lighting loads.
- Option for padlocking breaker in “ON” or “OFF” position.
- Slot/Robertson screws for wire termination.
- HACR type for use with air conditioning, heating and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers. (Except for QO2100)

#### FAST FACTS

QO™ stands for Qwik-Open. They are fastest tripping circuit breakers at 1/60th of a second.

# Circuit Breaker Product Selection Guide

## Plug-On Circuit Breakers Selection - 10,000 AIR

Amp Rating	One Pole 120 Vac	Two Pole 240 Vac
10 A	QO110	
15 A	QO115CP <sup>①②</sup>	QO215CP <sup>②③</sup>
20 A	QO120CP <sup>①②</sup>	QO220CP <sup>②③</sup>
25 A	QO125CP <sup>②</sup>	QO225CP <sup>②③</sup>
30 A	QO130CP <sup>②</sup>	QO230CP <sup>②③</sup>
40 A	QO140CP <sup>②</sup>	QO240CP <sup>②③</sup>
50 A		QO250CP <sup>②③</sup>
60 A		QO260CP <sup>②③</sup>
70 A		QO270CP <sup>②③</sup>
100 A		QO2100 <sup>②③</sup>
125 A		QO2125 <sup>②③</sup>

- ①SWD - Suitable for switching 120 Vac fluorescent lighting loads.
- ②HACR type for use with air conditioning, heating and refrigeration.
- ③Double Pole 15 A-30 A breakers have ONE rail clip, 40 A and above have TWO rail clips.



QO One Pole Breaker  
1 Space Required

## High Magnetic Breakers Selection

Amp Rating	One Pole 120 Vac
15 A	QO115HM <sup>①②</sup>
20 A	QO120HM <sup>①②</sup>

High magnetic breakers are recommended for applications where high initial inrush current may occur.



QO Two Pole Breaker  
2 Spaces Required

## Tandem (Space Saver) Circuit Breakers Selection - 10,000 AIR

Amp Rating	One Pole 120 Vac 1 Space Required	Two Pole 120/240 Vac 2 Spaces Required
15 A & 15 A	QO1515CP <sup>②</sup>	Order Two Tandem Circuit Breakers and Handle Tie Catalogue #QOTHT
20 A & 20 A	QO2020CP <sup>②</sup>	
15 A & 30 A	QO1530 <sup>②</sup>	
20 A & 15 A	QO2015 <sup>②</sup>	
15 A & 20 A	QO1520CP <sup>②</sup>	
20 A & 30 A	QO2030 <sup>②</sup>	
30 A & 15 A	QO3015 <sup>②</sup>	
30 A & 20 A	QO3020 <sup>②</sup>	
30 A & 30 A	QO3030 <sup>②</sup>	

- ②HACR type for use with air conditioning, heating and refrigeration

Tandem (Space Save) circuit breakers are ideal for adding additional circuits to an existing panel with limited space.



QO Tandem Breaker  
1 Space Required

# QO™ Ground Fault Circuit Breakers

QO™ Ground Fault Circuit Interrupters (GFCIs) combine the same level of overcurrent circuit protection as standard QO™ Circuit Breakers, with ground fault protection for personal protection against electrical shock.

GFCI protection is required in wet or damp areas such as bathrooms, kitchens, garages, spas, pools and outdoor receptacles. Do not connect to more than 250 feet of load conductor for the total one-way run to prevent nuisance tripping.

## QO™ Ground Fault Circuit Breaker Features:

- Provides overload and short circuit protection combined with Class A ground fault protection.
- Class A denotes a ground fault that will trip when a fault current to ground is 5 milliamperes or more for people protection.
- Exclusive Visi-Trip™ red indicator.
- Yellow push to test button.
- Provides option for padlock in “ON” or “OFF” position.



QO One Pole GFI Breaker  
1 Space Required

## Plug-On Ground Fault Circuit Breakers Selection

Amp Rating	One Pole 120 Vac		Two Pole Common Trip 240 Vac
	10,000 AIR	22,000 AIR	10,000 AIR
15 A	<b>QO115GFICP</b>	<b>QO115VHGFI</b>	<b>QO215GFICP</b>
20 A	<b>QO120GFICP</b>	<b>QO120VHGFI</b>	<b>QO220GFICP</b>
25 A	<b>QO125GFI</b>	<b>QO125VHGFI</b>	<b>QO225GFI</b>
30 A	<b>QO130GFI</b>	<b>QO130VHGFI</b>	<b>QO230GFICP</b>
40 A			<b>QO240GFICP</b>
50 A			<b>QO250GFICP</b>



QO Two Pole GFI Breaker  
2 Spaces Required

## Plug-On EPD with 30 mA Sensitivity GFCI Breakers Selection

Amp Rating	One Pole 120 Vac	Two Pole Common Trip 240 Vac
	10,000 AIR	10,000 AIR
15 A	<b>QO115EPD</b>	<b>QO215EPD</b>
20 A	<b>QO120EPD</b>	<b>QO220EPD</b>
30 A		<b>QO230EPD</b>
40 A		<b>QO240EPD</b>
50 A		<b>QO250EPD</b>

Designed to protect equipment such as heat trace from damage (Class B per ICES-003), the ground-fault protection level is 30 mA.

The CEC allows the use of an EPD for heat trace, to prevent freezing of pipes, rain gutters, etc. Other applications include protection of equipment such as well pumps and other electrical equipment in the home or garage.

### FAST FACTS

Square D warrants its circuit breakers for the lifetime of the Square D loadcentre in which it is installed.

# QO™ Combination Arc Fault Circuit Breakers

Beginning in 2015, the Canadian Electrical code will require the use of Combination Arc Fault Circuit Interrupters (CAFCIs) in each branch circuit supplying 125V receptacles rated 20A or less (except in the kitchen, bathrooms, sump pump). Square D CAFI breakers are available in both pigtail and plug-on (pigtail less) formats, 1 pole/2 pole, and 15A/20A versions.

## Square D Combination Arc Fault Circuit Breaker Features:

- Detects unintended arc faults, overloads and short circuits.
- White push to test button.
- Exclusive Visi-Trip™ red indicator.
- Plug-on CAFCI version helps minimize installation time by reducing the number of runs and wires. Results in cleaner and faster wiring. Ideal for inspection.
- The Plug-on CAFCI breaker can only be installed in Square D Plug-on neutral ready loadcentre.
- Saves time - equipped with TIME SAVER diagnostics feature that assists in identifying the type of fault in a circuit.



## Pigtail Neutral CAFI Selection

Ampere Rating	One Pole 120 Vac	Two Pole Common Trip 240 Vac	One Pole 120 Vac	Two Pole Common Trip 240 Vac
	10,000 AIR	10,000 AIR	22,000 AIR	22,000 AIR
15 A	QO115CAFI	QO215CAFI	QO115VHCAFI	QO215VHCAFI
20 A	QO120CAFI	QO220CAFI	QO120VHCAFI	QO220VHCAFI

## Plug-on Neutral CAFI Selection

Ampere Rating	One Pole 120 Vac	Two Pole Common Trip 240 Vac	One Pole 120 Vac	Two Pole Common Trip 240 Vac
	10,000 AIR	10,000 AIR	22,000 AIR	22,000 AIR
15 A	QO115PCAFI		QO115VHPCAFI	
20 A	QO120PCAFI		QO120VHPCAFI	



## TIME SAVER Diagnostics

All Square D QO™ combination arc fault circuit breakers come with a TIME SAVER diagnostics feature that assists in identifying the type of fault that has occurred when the breaker has tripped.

- Requires no tools - easy to use.
- Saves money and time.
- How to use: turn off the circuit breaker, HOLD DOWN the Push-to-test button, and then turn the circuit breaker back on. Use the chart below to determine fault

<b>Trips Instantly (Less than 1 Second)</b>	<b>Fault to Ground</b> - Arcing to Ground - Grounded neutral - Shared neutral - Ground Fault
<b>Trips at 2 Seconds</b>	<b>Arc Fault</b> - Parallel Arc Fault - Series Arc Fault
<b>Trips at 5 Seconds</b>	<b>Procedure Complete</b> - No Fault - Thermal Overload - Short Circuit



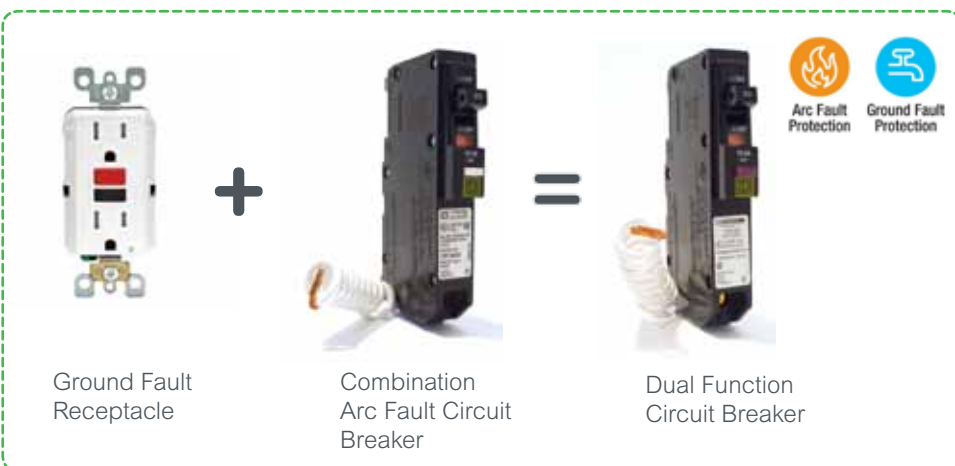
# QO™ Dual Function Circuit Breakers

Square D Dual Function circuit breakers combine combination arc fault and ground fault protection in a single device. The dual function circuit breaker meets the 2015 Canadian Electrical code requirements for combination arc fault protection in the home, while also offering (Class A - people protection) ground fault protection.

This unique combination saves space in the panel and installation time for the homeowner or contractor, replacing the arc fault breaker and a ground fault receptacle combination. Ideal for the bedroom and bathroom, where one dual function breaker can arc fault protect the bedroom and ground fault the en suite bathroom. Another application is an outdoor receptacle where the dual function breaker can provide arc fault and ground fault protection inside the home instead of exposed to the outdoor weather. With the built in TIME SAVER diagnostics feature, trouble shooting a fault is easier and faster.

## Square D™ Dual Function Circuit Breaker Features:

- Detects unintended arc faults, ground faults, overloads and short circuits.
- Purple push to test button.
- Exclusive Visi-Trip™ red indicator.
- Offered in both pigtail and non pigtail versions.
- Plug-on version helps minimize installation time by reducing the number of runs and wires, ideal for inspection.
- Saves time - equipped with TIME SAVER diagnostics feature that assists in identifying the type of fault in a circuit. See page 27 on how to use this function.



### Pigtail Neutral Selection

Ampere Rating	One Pole 120 Vac	One Pole 120 Vac
	10,000 AIR	22,000 AIR
15 A	QO115DF	QO115VHDF
20 A	QO120DF	QO120VHDF

### Plug-on Neutral Selection

Ampere Rating	One Pole 120 Vac	One Pole 120 Vac
	10,000 AIR	22,000 AIR
15 A	QO115PDF	QO115VHPDF
20 A	QO120PDF	QO120VHPDF

# QO™ Main Circuit Breakers

QO™ Main breakers are bolt-on for all residential service entrance loadcentres. Standard 22,000/10,000 ampere series short circuit current rating on main breaker panels provides increased application capability.

## QO™ Main Breaker Features:

- Provides option for padlock in “OFF” position.
- Bolt-on main breaker for Square D service entrance panels.

## Bolt on Main Breaker Selection

Ampere Rating	Part Number	kAIC	Lug Range	Frame Size
30 A	QOM30L	10	#12-2/0	QOM1
40 A	QOM40L	10	#12-2/0	QOM1
50 A	QOM50VHL	22	#12-2/0	QOM1
60 A	QOM60VHL	22	#12-2/0	QOM1
70 A	QOM70VHL	22	#12-2/0	QOM1
80 A	QOM80VHL	22	#12-2/0	QOM1
100 A	QOM100VHL	22	#12-2/0	QOM1
125 A	QOM125VHL	22	#12-2/0	QOM1
100 A	QOM2100VHL	22	#4-300mcm	QOM2
125 A	QOM2125VHL	22	#4-300mcm	QOM2
150 A	QOM2150VHL	22	#4-300mcm	QOM2
200 A	QOM2200VHL	22	#4-300mcm	QOM2
225 A	QOM2225VHL	22	#4-300mcm	QOM2

Main Breakers include factory installed handle padlock attachment (padlock QOM main circuit breaker in the ‘off’ position).



QO 100A Bolt On Main Breaker (QOM1 Frame Size)



QO 200A Bolt On Main Breaker (QOM2 Frame Size)

## Circuit Breaker Wire Sizes

Breaker Type	Ampere Rating	Wire Size (AWG)	
		Aluminum	Copper
QO	10-30	#14-8	(1) #14-8 OR (2)#14-10
	35-70	#8-2	#8-2
	80-125	#12-2/0	#12-2/0
QO Tandem	15-20	#12-8	#14-8
QO-GFI	15-30	#12-8	#14-8
	40,50,60	#12-4	#14-6



# QO™ Circuit Breaker Accessories

## Accessory Selection

Accessory	Description	Catalogue Number
Handle Tie	Converts any two adjacent 120/240Vac single pole QO breakers to independent trip two pole.	QO1HTCP
	Converts any two adjacent 120/240Vac single pole side-by-side Tandem breakers to independent trip two pole.	QOTHT
Handle Lock-Off	Clamp for holding QO single pole handle in "ON" or "OFF" position.	QO1LO
	Clamp for holding QO, either 1,2,or 3 pole breaker handles in "ON" or "OFF" position.	HLO-1CP
Handle Padlock Attachment	For padlocking single pole QO breaker in "ON" or "OFF" position.	
	Loose Attachment	QOHPL
	Fixed Attachment	QO1PA
	For padlocking single pole side-by-side QO Tandem breaker in "ON" or "OFF" position.	QOTHPA
	For 2 and 3-pole QO breakers which require padlocking in either "ON" or "OFF" position.	
	Loose Attachment	QO1HPL
	Fixed Attachment.	QO1PL
	For padlocking QOM main circuit breakers in "OFF" 50-125A.	QOM1PA



QO1HTCP



QOTHT



QO1LO



HLO-1CP



QOHPL



QO1HPL



QO1PL