

QO Miniature Circuit Breakers

QO™ Circuit Breakers



Circuit Breaker Type	Plug-on	QO			QO-H	QO-VH						QH	QOT	QO-CAFI	QO-VHCAFI	QO-DF	QOVH-DF
	Bolt-on	QOB			QOB-H	—	—	—	QOB-VH			QHB	—	QOB-CAFI	QOB-VHCAFI	QOB-DF	QOB-VHDF
	Unit Mount	—			—	—	—	—	—	—	—	—	—	—	—	—	—
Number of Poles		1	2	3	2	1	2	3	1	2, 3 [1]	1, 2	3	1	1, 2	1, 2	1	1
Current Range (A)		10–70	10–200 [2]	10–100	15–100	15–70	15–125	15–100	15–70	15–150	15–30	15–30	15–30	15–20	15–20	15–20	15–20
Interrupting Ratings																	
UL/CSA Rating (kA) (50/60 Hz)	120 Vac	10	10	10	10	22	22	22	22	22	65	65	10	10	22	10	22
	120/240 Vac	10	10	10	10	22	22	22	22	22	65	65	10	10	22	—	—
	208Y/120	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	240 Vac [3]	—	—	10	10	—	—	22	—	22 [4]	—	65	—	—	—	—	—
	277 Vac	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	480Y/277 Vac	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
DC Ratings	48 Vdc	5 [5]	5 [5]	5 [5]	—	—	—	—	—	—	—	—	—	—	—	—	—
	60 Vdc	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	65 Vdc	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	125 Vdc	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	250 Vdc	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	500 Vdc	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
IEC 60947-2 (50/60 Hz) [6]	IEC (Icu)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Special Ratings																	
CCC		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fed. Specs W-C-375B/GEN		X	—	—	—	X	—	—	—	—	X	—	X	X	—	X	X
Other Standard		HACR [7] NOM			HACR [7]						—	—	—	HACR [7]	—	HACR [7]	HACR [7]
Accessories and Modifications																	
Shunt Trip [8]		X	X	X	X	X	X	X	X	X [9]	X	X	X	—	—	—	—
Undervoltage Trip		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Auxiliary Switches [8]		X	X	X	X	X	X	X	X	X [9]	X	X	X	—	X	—	—
Alarm Switch [8]		X	X	X	X	X	X	X	X	X [9]	X	X	X	—	X	—	—
Handle Operators		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Handle Padlock Attachment		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Trip System Type																	
Thermal-magnetic		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Molded Case Switch		X	X	X	—	—	—	—	—	—	—	—	—	—	—	—	—
Dimensions (1P Unit Mount)																	
Dimensions (1P Unit Mount) in. (mm)	Height	3.5 (89) [1]											4.75 (121)				
	Width	0.75 (19) [1]															
	Depth	2.92 (74) [1]															
Pages		page 7-11															

[1] For dimensions for QOB2150VH, QOB3110VH, QOB3125VH and QOB3150VH, see page 7-73

[2] 2P 150–200 A requires 4P width.

[3] See the Supplemental Digest, Section 3 for 3Ø corner grounded systems.

[4] 22 kA @ 240 Vac for 3P only.

[5] 1P and 2P, 10–70 A and 3P 10–60 A only.

[6] See the Supplemental Digest Section 10 for circuit breakers with IEC ratings.

[7] HACR on QO, QOB 1P 10–70 A, 2P 15–100 A, 3P 10–100 A; QOB-VH 1P 15–70 A, 2P 15–125 A, 3P 15–100 A.

[8] Factory-installed option only.

[9] Factory-installed accessories are not available on QOB-VH 2P150 A and 3P 110–150 A.

QO Arc-Fault Circuit Breaker

QO arc-fault circuit breakers provide protection for Series and Parallel Type Arcing as required by the NEC and local code adoption, and comply with UL 1699.



1P
QO-CAFI
Plug-On Neutral



1P
QO-CAFI
Pigtail



1P QO-DF
Plug-On Neutral



1P QO-DF
Pigtail



1P
QO-GFI



2P
QO-GFI



QO 1P
With Shunt Trip

Table 7.6: QO Arc Fault Circuit Breakers (One-Pole)

Circuit Breaker Type [15]	Ampere Rating	One-Pole 120 Vac		Two-Pole 120/240 Vac	
		10 k AIR 1 Space Required	22 k AIR 1 Space Required	10 k AIR 2 Space Required	22 k AIR 2 Space Required
Combination Arc-fault Interrupter (Pigtail Neutral)	15 20	QO115CAFI QO120CAFI	QO115VHCAFI QO120VHCAFI	QO215CAFI [16] QO220CAFI [16]	QO215VHCAFI [16] QO220VHCAFI [16]
Plug-On Neutral Combination Arc-fault Interrupter	15 20	QO115PCAFI QO120PCAFI	QO115VHPCAFI QO120VHPCAFI		

QO-Dual Function Circuit Breaker

QO Combination Arc Fault and Ground Fault Circuit Interrupters (Dual Function) provide overload and short circuit protection, plus arc fault and ground fault protection in accordance with the NEC, UL 1699 and UL943.

Table 7.7: QO-Dual Function Arc Fault Circuit Breakers

Circuit Breaker Type [17]	Ampere Rating	1P 120 Vac 10 k AIR 1 Space Required	1P 120 Vac 22 k AIR 1 Space Required
Combination Arc-fault and Ground Fault Circuit Interrupter (Pigtail Neutral)	15 20	QO115DF QO120DF	QO115VHDF QO120VHDF
Plug-On Neutral Combination Arc-fault and Ground Fault Circuit Interrupter	15 20	QO115PDF QO120PDF	QO115VHPDF QO120VHPDF

QO-GFI

Qwik-Gard™ circuit breakers provide overload and short circuit protection, combined with Class A ground fault protection. Class A denotes a ground fault circuit interrupter that will trip when a fault current to ground is 6 mA or more, for people protection. Do not connect to more than 250 feet of load conductor for the total one-way run to prevent nuisance tripping.

Table 7.8: QO-GFI Circuit Breakers

Ampere Rating [18]	Qwik-Gard Circuit Breakers With Ground Fault Circuit Interrupter			
	1P 120 Vac		2P Common Trip 120/240 Vac	3P Common Trip 208Y/120 Vac
	10 k AIR 1 Space Required	22 k AIR 1 Space Required	10 k AIR 2 Spaces Required	10 k AIR 3 Spaces Required
15	QO115GFI	QO115VHGFI	QO215GFI	QO315GFI
20	QO120GFI	QO120VHGFI	QO220GFI	QO320GFI
25	QO125GFI	QO125VHGFI	QO225GFI	—
30	QO130GFI	QO130VHGFI	QO230GFI	QO330GFI
40	—	—	QO240GFI	QO340GFI
50	—	—	QO250GFI	QO350GFI
60	—	—	QO260GFI [19]	—

QO-EPD/EPE

QO-EPD/EPE circuit breakers provide overload and short circuit protection combined with Class B ground fault protection. They are designed to provide ground fault protection of equipment at a 30 mA level (EPD) or 100 mA level (EPE). They are not designed to protect people from electrical shock.

Table 7.9: QO-EPD Circuit Breakers

Ampere Rating [20]	1P 120 Vac 10 k AIR 1 Space Required	2P Common Trip 120/240 Vac 10 k AIR 2 Spaces Required	3P Common Trip 240 Vac 10 k AIR 3 Spaces Required
15	QO115EPD	QO215EPD	QO315EPD [21] QO320EPD [21]
20	QO120EPD	QO220EPD	—
25	QO125EPD	QO225EPD	—
30	QO130EPD	QO230EPD	QO330EPD [21] QO340EPD [21]
40	—	QO240EPD	QO340EPE [21] QO350EPE [21]
50	—	QO250EPD	—
60	—	QO260EPD [22]	—

[15] UL Listed as HACR type for use with air conditioning, heating and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers.

[16] For 120/240 V only, not for 208Y/120 V.

[17] UL Listed as HACR type for use with air conditioning, heating and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers.

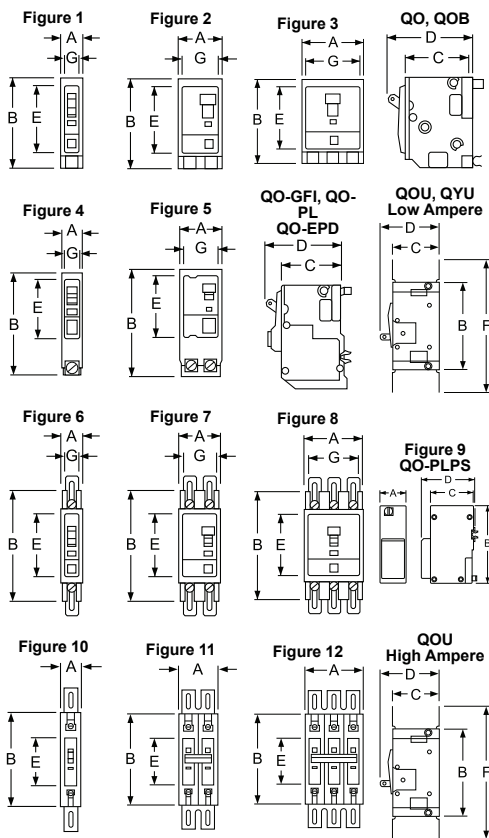
[18] 10–30 A circuit breakers are suitable for use with 60°C or 75°C conductors. 35–60 A circuit breakers are suitable for use with 75°C conductors.

[19] Suitable only for feeding 240 Vac and 208 Vac two-wire loads. Does not contain load neutral connection.

[20] 10–30 A circuit breakers are suitable for use with 60°C or 75°C conductors. 35–60 A circuit breakers are suitable for use with 75°C conductors.

[21] See note in Instruction Bulletin when using in an enclosure with a QO403 or QON prefix.

[22] Suitable only for feeding 240 Vac and 208 Vac two-wire loads. Does not contain load neutral connection.



Miniature and Molded Case Circuit Breaker Dimensions

Table 7.148: QO™, QOU, Multi 9™ Circuit Breakers

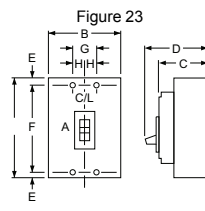
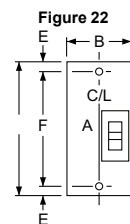
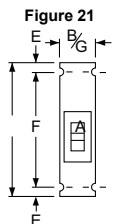
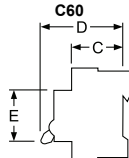
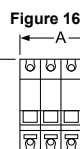
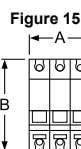
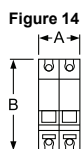
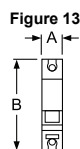
Circuit Breaker Cat. No. Prefix	Poles	Fig. No.	Dimensions—Inches						
			A	B	C	D	E	F	G
QO, QOB	1	1	0.75	3.00 ^[1]	2.31	2.91	2.25	—	0.59
	2	2	1.50	3.00 ^[1]	2.31	2.91	2.25	—	1.34
	3	3	2.25	3.00 ^[1]	2.31	2.91	2.25	—	2.09
QOB-VH 150 A QOB-VH 110–150 A	2	2	3.0	5.72	2.53	4.90	3.78	—	2.85
	3	3	4.50	5.72	2.53	4.90	3.78	—	4.35
QO-PL QO-GFI QO-EPD	1	4	0.75	4.12 ^[2]	2.31	2.91	2.25	—	0.59
	2	5	1.50	4.12 ^[2]	2.31	2.91	2.25	—	1.34
	3	5	2.25	4.12 ^[2]	2.31	2.91	2.25	—	2.09
QOU QYU Low Ampere	1	6	0.75	4.05 ^[3]	2.38	2.98	2.25	5.00 ^[4]	0.62
	2	7	1.50	4.05 ^[3]	2.38	2.98	2.25	5.00 ^[4]	1.37
	3	8	2.25	4.05 ^[3]	2.38	2.98	2.25	5.00 ^[5]	2.12
QOU High Ampere	1	10	0.75	4.45	2.37	2.96	2.25	6.78	—
	2	11	1.50	4.45	2.37	2.96	2.25	6.78	—
	3	12	2.25	4.45	2.37	2.96	2.25	6.78	—
Multi 9™ C60	1	13	0.71	3.19	1.73	2.76	1.77	—	—
	2	14	1.42	3.19	1.73	2.76	1.77	—	—
	3	15	2.13	3.19	1.73	2.76	1.77	—	—
	4	16	2.84	3.19	1.73	2.76	1.77	—	—
QO-PLPS Power Supply	2	9	1.45	4.35	2.42	3.11	—	—	—

Table 7.149: QB, QD, QG, QJ, Q4, FA, LA, Circuit Breakers

Circuit Breaker Cat. No. Prefix	Poles	Fig. No.	Dimensions—Inches							
			A	B	C	D	E	F	G	H
QB, QD, QG, QJ	2	22	6.47	3.00	3.02	3.93	6 ^[6]	4.25	—	—
	3	23	6.47	4.50	3.02	3.93	6 ^[6]	4.25	1.50	0.75
FAL, FHL	1	21	6.00	1.50	3.16	4.13	0.44	5.13	1.50	—
	2	22	6.00	3.00	3.16	4.13	0.44	5.13	—	—
	3	23	6.00	4.50	3.16	4.13	0.44	5.13	1.50	0.75
Q4L, LAL, LHL	2 & 3	23	11.00	6.00	4.06	5.84	0.88	9.25	2.00	1.00

Table 7.150: Shipping Weights^[7]

Frame Size	Approx. Shipping Weight (Lbs.)	Frame Size	Approx. Shipping Weight (Lbs.)
FAL, FHL 1P	2	QB, QD, QG, QJ	4
FAL, FHL 2P	3	LAL, LHL	15
FAL, FHL 3P	5	Q4L	15



[1] 35–70 A is 3.12 in; 80–100 A 2P and 70–100 A 3P are 3.50 in.
 [2] QO-PL is 4.55 in.
 [3] 80–100 A 1P and 80–125 A 2P are 4.45 in.
 [4] 80–100 A 1P and 80–125 A 2P are 6.78 in.
 [5] 70–100 A is 6.78 in.
 [6] Dimensions E are 1.59 in at ON end and 0.63 in at OFF end.
 [7] All weights are for 3P circuit breakers unless otherwise noted.