

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	X [9]	X	X	X	—	—	—	—	—
Undervoltage Trip	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Auxiliary Switches [8]	X	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	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	X	X
Trip System Type																		
Thermal-magnetic	X	X	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/QOB Ring Terminal

Table 7.2: QO/QOB Ring Terminal—Factory-installed only

Ampere Rating	Poles	Suffix
10–30 A	1, 2, 3	5237
35–60 A	1, 2	5238
35–50 A	3	
70–110 A	2	
60–100 A	3	5273

Wire Sizes for QO/QOB Circuit Breakers

Table 7.3: Wire Sizes

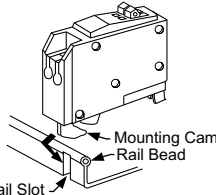
Circuit Breaker Type	Ampere Rating [11]	Wire Size (AWG/kcmil)
QO 1P	10–30 A	14–8 Al/Cu
	10–30 A	(2) 14–10 Cu
	35–70 A	8–2 Al/Cu
QO 2P	10–30 A	14–8 Al/Cu
	10–30 A	(2) 14–10 Cu
	35–70 A	8–2 Al/Cu
	80–125 A	4–2/0 Al/Cu
QO 3P	150–200 A	4–300 Al/Cu
	10–30 A	14–8 Al/Cu, (2) 14–10 Cu
	35–70 A	8–2 Al/Cu
QOB-VH	80–125 A	4–2/0 Al/Cu
	110–150 A	4–300 Al/Cu
QOT	15–20 A	12–8 Al 14–8 Cu
QO-AFI, QO-GFI or QO-EPD	15–30 A	12–8 Al 14–8 Cu
	40, 50, 60 A	12–4 Al 14–6 Cu
QO-PL	10–60 A	12–2 Al 14–2 Cu

QOT Tandem Circuit Breakers

Circuit limiting QOT tandem circuit breakers have a mounting cam as shown. Installation into a QO load center can only be made in those positions having a mounting pan rail slot. Meets Paragraph 408.54 of the NEC®. UL Listed as Class CTL



QOT 1P Tandem
1 Space Required



Pan Rail Slot

Table 7.4: QOT Tandem Circuit Breakers

Ampere Rating [12]	Cat. No. [13]
1P—120/240 Vac	
15 A and 15 A	QOT1515
15 A and 20 A	QOT1520
20 A and 20 A	QOT2020

2P—120/240 Vac Common Trip

Order two QOT1515 or QOT2020 circuit breakers and handle tie QOTHT for common switching of center two poles.

Replacement Tandem Circuit Breakers Includes two circuit breakers (one QO2030 and one QO3020) and handle tie QOTHT.

Table 7.5: Replacement Tandem Circuit Breakers

Ampere Rating [12]	Cat. No. [13]
1P—120/240 Vac—1 Space Required	
15 A and 15 A	QO1515
15 A and 20 A	QO1520
20 A and 20 A	QO2020
20 A and 30 A	QO2030
30 A and 20 A	QO3020
Two 1P Individual Trip—120/240 Vac—2 Spaces Required	
15 A and 15 A	Order Two QO1515 or QO2020 circuit breakers and handle tie QOTHT
15 A and 20 A	
20 A and 20 A	—
20 A and 30 A	QO20303020 [14]
30 A and 20 A	—

[11] 10–30 A circuit breakers are suitable for use with 60°C or 75°C conductors. 35–125 A circuit breakers are suitable for use with 75°C conductors.

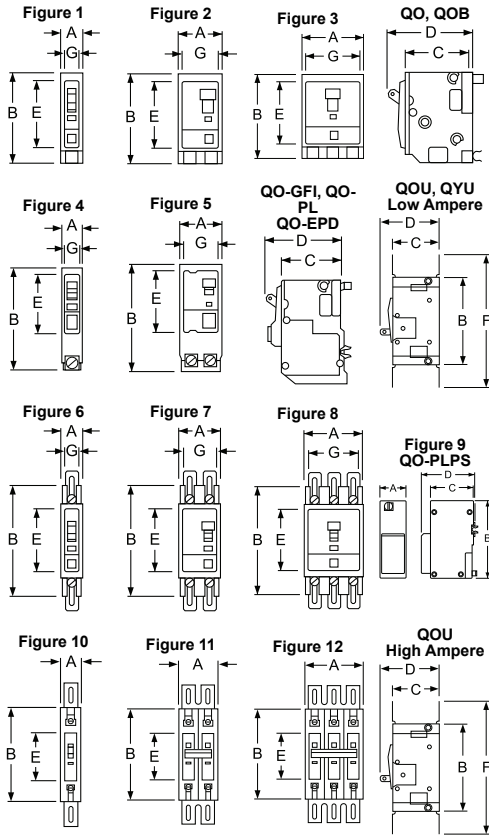
[12] 10–30 A circuit breakers are suitable for use with 60°C or 75°C conductors. 35–125 A circuit breakers are suitable for use with 75°C conductors.

[13] 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.

[14] Includes two circuit breakers (one QO2030 and one QO3020) and handle tie QOTHT.

Miniature and Molded Case Circuit Breaker Dimensions

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



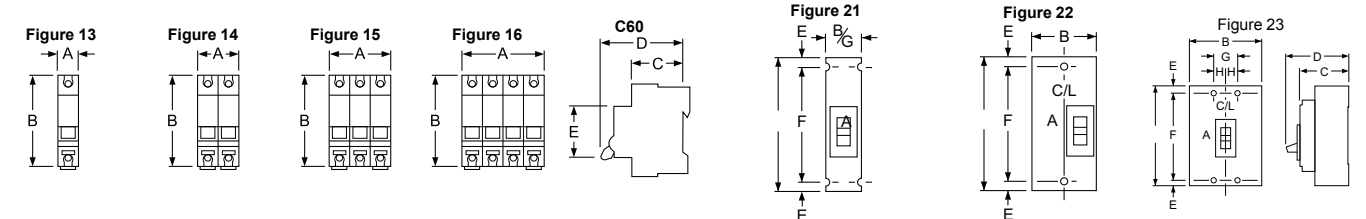
Circuit Breaker Cat. No. Prefix	Poles	Fig. No.	Dimensions—Inches						
			A	B	C	D	E	F	G
QO, QOB	1	1	0.75	3.00 ^[1]	2.31	2.91	2.25	—	0.59
	2	2	1.50	3.00 ^[1]	2.31	2.91	2.25	—	1.34
	3	3	2.25	3.00 ^[1]	2.31	2.91	2.25	—	2.09
QOB-VH 150 A QOB-VH 110–150 A	2	2	3.0	5.72	2.53	4.90	3.78	—	2.85
	3	3	4.50	5.72	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 ^[4]	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.