

Miniature Circuit Breakers & Supplementary Protectors

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Miniature Circuit Breakers and Supplementary Protectors

QUICKLAG®

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Quick Reference

Table 11-1. QUICKLAG Industrial Circuit Breakers ① Plug-In, Bolt-On, Cable-In/Cable-Out

Circuit Breaker Type	Circuit Breaker Type Code	Continuous Ampere Rating @ 40°C	Number of Poles	Volts		Federal Spec. W-C-375b	Interrupting Ratings rms Symmetrical Amperes						Page Number
				AC	DC		AC Ratings Volts			DC ②			
							120	120/240	240	24-48	62.5	80	
HQP	P	10 – 70	1	120/240	24, 48, 62.5	10a, 11a, 12a	—	10,000	—	5,000	③	—	11-4
HQP		10 – 125	2	120/240	24, 48, 80	10a, 12a	—	10,000	—	5,000	5,000	5,000	11-4
HQP		10 – 100	2, 3	240	—	10b, 11b, 12b	—	—	10,000	—	—	—	11-4
QPHW	P	15 – 70	1	120/240	24, 48, 62.5	14a	—	22,000	—	5,000	③	—	11-4
QPHW		15 – 125	2	120/240	24, 48, 80	14a	—	22,000	—	5,000	5,000	5,000	11-4
QPHW		15 – 100	2, 3	240	—	14b	—	—	22,000	—	—	—	11-4
QHPX	P	15 – 70	1	120/240	24, 48, 62.5	—	—	42,000	—	5,000	③	—	11-4
QHPX		15 – 100	2	120/240	24, 48, 80	—	—	42,000	—	5,000	5,000	5,000	11-4
QHPX		15 – 100	3	240	—	—	—	—	42,000	—	—	—	11-4
QHPW	P	15 – 30	1	120/240	24, 48, 62.5	15a	—	65,000	—	5,000	③	—	11-4
QHPW		15 – 30	2	120/240	24, 48, 80	15a	—	65,000	—	5,000	5,000	5,000	11-4
QHPW		15 – 20	3	240	—	15b	—	—	65,000	—	—	—	11-4
QPGF	P, GF	15 – 40	1	120	—	10a, 11a, 12a	10,000	—	—	—	—	—	11-5
QPGF		15 – 50	2	120/240	—	10a, 11a, 12a	—	10,000	—	—	—	—	11-5
QPHGF	P, GF	15 – 30	1	120	—	10a, 11a, 12a	22,000	—	—	—	—	—	11-5
QPHGF		15 – 50	2	120/240	—	10a, 11a, 12a	—	22,000	—	—	—	—	11-5
QPGFEP	P, GFEP	15 – 40	1	120	—	—	10,000	—	—	—	—	—	11-5
QPGFEP		15 – 50	2	120/240	—	—	—	10,000	—	—	—	—	11-5
QPHGFEP	P, GFEP	15 – 30	1	120	—	—	22,000	—	—	—	—	—	11-5
QPHGFEP		15 – 30	2	120/240	—	—	22,000	22,000	—	—	—	—	11-5

① QUICKLAG circuit breakers are suitable for application in relative humidity 0 – 95% non-condensating.

② Two-pole DC interrupting ratings based on 2 poles connected in series.

③ 62.5V AC interrupting rating is 3800 AIC 10 – 50 amperes and 2500 AIC 55 – 100 amperes continuous.

Circuit Breaker Type Codes: **P** Plug-In; **B** Bolt-On; **C** Cable-In/Cable-Out; **GF** Ground Fault, 5 mA; **GFEP** Ground Fault, 30 mA.

For Types GHBS, GBHS and BABR Solenoid-Operated, Remote-Controlled Circuit Breakers, see **Pages 11-14 – 11-15**.

For Types WMS and SPHM Supplementary Protectors, see **Pages 11-23 and 11-34**.

QUICKLAG

Quick Reference

Tables 11-1. QUICKLAG Industrial Circuit Breakers ① Plug-In, Bolt-On, Cable-In/Cable-Out (Continued)

Circuit Breaker Type	Circuit Breaker Type Code	Continuous Ampere Rating @ 40°C	Number of Poles	Volts		Federal Spec. W-C-375b	Interrupting Ratings rms Symmetrical Amperes						Page Number
				AC	DC		AC Ratings Volts			DC ②			
							120	120/240	240	24-48	62.5	80	
BAB BAB BAB	B	10 – 70 10 – 125 10 – 100	1 2 2, 3	120/240 120/240 240	24, 48, 62.5 24, 48, 80 —	10a, 11a, 12a 10a, 12a 10b, 11b, 12b	— — —	10,000 10,000 —	— — 10,000	5,000 5,000 —	③ 5,000 —	— 5,000 —	11-6 11-6 11-6
BABR BABR	B	15 – 30 15 – 30	1 2	120 120/240	— —	— —	10,000 —	— 10,000	— —	— —	— —	— —	11-13 11-13
QBHW QBHW QBHW	B	15 – 70 15 – 125 15 – 100	1 2 2, 3	120/240 120/240 240	24, 48, 62.5 24, 48, 80 —	14a 14a 14b	— — —	22,000 22,000 —	— — 22,000	5,000 5,000 —	③ 5,000 —	— 5,000 —	11-6 11-6 11-6
HBAX HBAX HBAX	B	15 – 70 15 – 100 15 – 100	1 2 3	120/240 120/240 240	24, 48, 62.5 24, 48, 80 —	— — —	— — —	42,000 42,000 —	— — 42,000	5,000 5,000 —	③ 5,000 —	— 5,000 —	11-6 11-6 11-6
HBAW HBAW HBAW	B	15 – 30 15 – 30 15 – 20	1 2 3	120/240 120/240 240	24, 48, 62.5 24, 48, 80 —	15a 15a 15b	— — —	65,000 65,000 —	— — 65,000	5,000 5,000 —	③ 5,000 —	— 5,000 —	11-6 11-6 11-6
QBGf QBGf	B, GF	15 – 40 15 – 50	1 2	120 120/240	— —	10a, 11a, 12a 10a, 11a, 12a	10,000 —	— 10,000	— —	— —	— —	— —	11-7 11-7
QBHGf QBHGf	B, GF	15 – 30 15 – 30	1 2	120 120/240	— —	10a, 11a, 12a 10a, 11a, 12a	22,000 —	— 22,000	— —	— —	— —	— —	11-7 11-7
QBGfEP QBGfEP	B, GFEP	15 – 40 15 – 50	1 2	120 120/240	— —	— —	10,000 —	— 10,000	— —	— —	— —	— —	11-7 11-7
QBHGfEP QBHGfEP	B, GFEP	15 – 30 15 – 30	1 2	120 120/240	— —	— —	22,000 22,000	— 22,000	— —	— —	— —	— —	11-7 11-7
QC QC QC	C	10 – 70 10 – 100 10 – 100	1 2 2, 3, 4	120/240 120/240 240	24, 48, 62.5 24, 48, 80 —	10a, 11a, 12a 10a, 12a 10b, 11b, 12b	— — —	10,000 10,000 —	— — 10,000	5,000 5,000 —	③ 5,000 —	— 5,000 —	11-9 11-9 11-9
QCF QCF QCF QCR QCR QCR	C	10 – 60 15 – 20 15 – 30 10 – 60 15 – 20 15 – 30	1, 2 1, 2 2, 3 1, 2 1, 2 2, 3	120/240 120/240 240 120/240 120/240 240	24, 48, 62.5 24, 48, 62.5 24, 48, 62.5 24, 48, 62.5 24, 48, 62.5 24, 48, 62.5	— — — — — —	10,000 22,000 — 10,000 22,000 —	10,000 — 10,000 10,000 — 10,000	— — — — — —	3,000 3,000 — 3,000 3,000 3,000	③ 3,000 — 2,000 3,000 3,000	— — — — — —	11-10 11-10 11-10 11-10 11-10 11-10
QCHW QCHW QCHW	C	15 – 70 15 – 100 15 – 100	1 2 2, 3	120/240 120/240 240	24, 48, 62.5 24, 48, 80 —	14a 14a 14b	— — —	22,000 22,000 —	— — 22,000	5,000 5,000 —	③ 5,000 —	— 5,000 —	11-9 11-9 11-9
QHcX QHcX QHcX	C	15 – 70 15 – 100 15 – 100	1 2 3	120/240 120/240 240	24, 48, 62.5 24, 48, 80 —	— — —	— — —	42,000 42,000 —	— — 42,000	5,000 5,000 —	③ 5,000 —	— 5,000 —	11-9 11-9 11-9
QHcW QHcW QHcW	C	15 – 30 15 – 30 15 – 20	1 2 3	120/240 120/240 240	24, 48, 62.5 24, 48, 80 —	15a 15a 15b	— — —	65,000 65,000 —	— — 65,000	5,000 5,000 —	③ 5,000 —	— 5,000 —	11-9 11-9 11-9
QCGf QCGf	C, GF	15 – 40 15 – 50	1 2	120 120/240	— —	— —	10,000 —	— 10,000	— —	— —	— —	— —	11-13 11-13
QCHGf QCHGf	C, GF	15 – 30 15 – 30	1 2	120 120/240	— —	— —	22,000 —	— 22,000	— —	— —	— —	— —	11-13 11-13
QCGfEP QCGfEP	C, GFEP	15 – 40 15 – 50	1 2	120 120/240	— —	— —	10,000 —	— 10,000	— —	— —	— —	— —	11-13 11-13
QCHGfEP QCHGfEP	C, GFEP	15 – 30 15 – 30	1 2	120 120/240	— —	— —	22,000 —	— 22,000	— —	— —	— —	— —	11-13 11-13

① QUICKLAG circuit breakers are suitable for application in relative humidity 0 – 95% non-condensating.
 ② Two-pole DC interrupting ratings based on 2 poles connected in series.
 ③ 62.5V AC interrupting rating is 3800 AIC 10 – 50 amperes and 2500 AIC 55 – 100 amperes continuous.

Circuit Breaker Type Codes: **P** Plug-In; **B** Bolt-On; **C** Cable-In/Cable-Out; **GF** Ground Fault, 5 mA; **GFEP** Ground Fault, 30 mA.
 For Types GHBS, GBHS and BABR Solenoid-Operated, Remote-Controlled Circuit Breakers, see **Pages 11-14 – 11-15**.
 For Types WMS and SPHM Supplementary Protectors, see **Pages 11-23 and 11-34**.

QUICKLAG — Plug-On Types

QUICKLAG Plug-On Types
HQP, QPHW, QHPX, QHPW



QUICKLAG Type HQP 1-Pole

Product Description

- Built and listed to UL 489
- All products UL and CSA listed
- All products 15 – 100A are HACR rated
- Switching duty rated for 120V AC fluorescent light applications

Product Selection

Table 11-2. Breaker Catalog Numbers

Contin- uous Ampere Rating @ 40°C	1-Pole		2-Pole				3-Pole	
	120/240V AC		120/240V AC		240V AC		240V AC	
	Catalog Number	Price U.S. \$						

QUICKLAG Type: HQP 10,000 Ampere I.C. Thermal-Magnetic Breakers

10	HQP1010	27.50	HQP2010	60.50	HQP2010H	156.00	HQP3010H	193.00
15	HQP1015 ①②	27.50	HQP2015	60.50	HQP2015H	156.00	HQP3015H	193.00
20	HQP1020 ①②	27.50	HQP2020	60.50	HQP2020H	156.00	HQP3020H	193.00
25	HQP1025	27.50	HQP2025	60.50	HQP2025H	156.00	HQP3025H	193.00
30	HQP1030	27.50	HQP2030	60.50	HQP2030H	156.00	HQP3030H	193.00
35	HQP1035	27.50	HQP2035	60.50	HQP2035H	156.00	HQP3035H	193.00
40	HQP1040	27.50	HQP2040	60.50	HQP2040H	156.00	HQP3040H	193.00
45	HQP1045	27.50	HQP2045	60.50	HQP2045H	156.00	HQP3045H	193.00
50	HQP1050	27.50	HQP2050	60.50	HQP2050H	156.00	HQP3050H	193.00
55	HQP1055	27.50	HQP2055	60.50	HQP2055H	156.00	HQP3055H	193.00
60	HQP1060	27.50	HQP2060	60.50	HQP2060H	156.00	HQP3060H	193.00
70	HQP1070	53.50	HQP2070	115.00	HQP2070H	206.00	HQP3070H	240.00
80	—	—	HQP2080	156.00	HQP2080H	239.00	HQP3080H	274.00
90	—	—	HQP2090	156.00	HQP2090H	239.00	HQP3090H	274.00
100	HQP1100	91.00	HQP2100	156.00	HQP2100H	239.00	HQP3100H	274.00
110	—	—	HQP2110	332.00	—	—	—	—
125	—	—	HQP2125	332.00	—	—	—	—
150	—	—	HQP2150	332.00	—	—	—	—

QUICKLAG Type: QPHW 22,000 Ampere I.C. Thermal-Magnetic Breakers

15	QPHW1015 ①	54.50	QPHW2015	117.00	QPHW2015H	215.00	QPHW3015H	289.00
20	QPHW1020 ①	54.50	QPHW2020	117.00	QPHW2020H	215.00	QPHW3020H	289.00
25	QPHW1025	54.50	QPHW2025	117.00	QPHW2025H	215.00	QPHW3025H	289.00
30	QPHW1030	54.50	QPHW2030	117.00	QPHW2030H	215.00	QPHW3030H	289.00
35	QPHW1035	54.50	QPHW2035	117.00	QPHW2035H	215.00	QPHW3035H	289.00
40	QPHW1040	54.50	QPHW2040	117.00	QPHW2040H	215.00	QPHW3040H	289.00
45	QPHW1045	54.50	QPHW2045	117.00	QPHW2045H	215.00	QPHW3045H	289.00
50	QPHW1050	54.50	QPHW2050	117.00	QPHW2050H	215.00	QPHW3050H	289.00
55	QPHW1055	54.50	QPHW2055	117.00	QPHW2055H	215.00	QPHW3055H	289.00
60	QPHW1060	54.50	QPHW2060	117.00	QPHW2060H	215.00	QPHW3060H	289.00
70	QPHW1070	72.50	QPHW2070	170.00	QPHW2070H	265.00	QPHW3070H	361.00
80	—	—	QPHW2080	253.00	QPHW2080H	323.00	QPHW3080H	418.00
90	—	—	QPHW2090	253.00	QPHW2090H	323.00	QPHW3090H	418.00
100	—	—	QPHW2100	253.00	QPHW2100H	323.00	QPHW3100H	418.00
110	—	—	QPHW2110	740.00	—	—	—	—
125	—	—	QPHW2125	740.00	—	—	—	—

QUICKLAG Type: QHPX 42,000 Ampere I.C. Thermal-Magnetic Breakers

15	QHPX1015 ①	77.00	QHPX2015	131.00	—	—	QHPX3015H	347.00
20	QHPX1020 ①	77.00	QHPX2020	131.00	—	—	QHPX3020H	347.00
25	QHPX1025	77.00	QHPX2025	131.00	—	—	QHPX3025H	347.00
30	QHPX1030	77.00	QHPX2030	139.00	—	—	QHPX3030H	347.00
35	QHPX1035	77.00	QHPX2035	131.00	—	—	QHPX3035H	347.00
40	QHPX1040	77.00	QHPX2040	131.00	—	—	QHPX3040H	347.00
45	QHPX1045	77.00	QHPX2045	131.00	—	—	QHPX3045H	347.00
50	QHPX1050	77.00	QHPX2050	131.00	—	—	QHPX3050H	347.00
55	QHPX1055	77.00	QHPX2055	131.00	—	—	QHPX3055H	347.00
60	QHPX1060	77.00	QHPX2060	131.00	—	—	QHPX3060H	347.00
70	QHPX1070	124.00	QHPX2070	199.00	—	—	QHPX3070H	424.00
80	—	—	QHPX2080	280.00	—	—	QHPX3080H	590.00
90	—	—	QHPX2090	280.00	—	—	QHPX3090H	590.00
100	—	—	QHPX2100	295.00	—	—	QHPX3100H	590.00

QUICKLAG Type: QHPW 65,000 Ampere I.C. Thermal-Magnetic Breakers

15	QHPW1015 ①	87.50	QHPW2015	200.00	—	—	QHPW3015H	350.00
20	QHPW1020 ①	87.50	QHPW2020	200.00	—	—	QHPW3020H	350.00
25	QHPW1025	87.50	QHPW2025	200.00	—	—	—	—
30	QHPW1030	87.50	QHPW2030	200.00	—	—	—	—

① Switching duty rated for 120V AC fluorescent light applications.

② For special low-magnetic breaker order HQP1015L1 or HQP1020L1

Technical Data and Specifications

Table 11-3. Shipping Data

Number of Poles	Carton Qty.	Approx. Weight Lbs.(Kg)	Dimensions Inches (mm)	Time/Current Curves
1	24	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)	FRED 350077
2	12	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)	FRED 350177
3	8	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)	FRED 350277

Note: Dimension Sheets — FRED Index 206

Discount Symbol CB-1

QUICKLAG — Plug-On Ground Fault and Equipment Protectors

QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGF, QPHGF, QPGFEP, QPHGFEP



QUICKLAG Type QPGF 1-Pole Ground Fault Circuit Breaker

Product Description

- Built and listed to UL 489
- QUICKLAG Ground Fault Circuit Breakers, Class A GFCI**
- Built and tested to UL 943
- 5 mA trip sensitivity
- QUICKLAG Ground Fault Equipment Protectors**
- Built and listed to UL 1053
- 30 mA trip sensitivity

Technical Data and Specifications

Shipping Data

Shipped individually or in carton quantities.

Table 11-4. Shipping Data

Carton Qty.	Approximate Weight Lbs. (Kg)	Dimensions in Inches (mm)
1-Pole		
20	11.00 (5.0)	12.00 x 6.50 x 5.00 (317.5 x 165.1 x 127.0)
2-Pole		
5	5.00 (2.3)	15.50 x 6.00 x 4.50 (393.7 x 152.4 x 114.3)

Instruction Leaflets

- Ground Fault Circuit Breaker and Equipment Protector Installation: FRED 255
- Time/Current Curves**
- 1-Pole: FRED 350077
- 2-Pole: FRED 350177
- 3-Pole: FRED 350277

Dimension Sheets

- FRED Index 206

Wiring Diagram

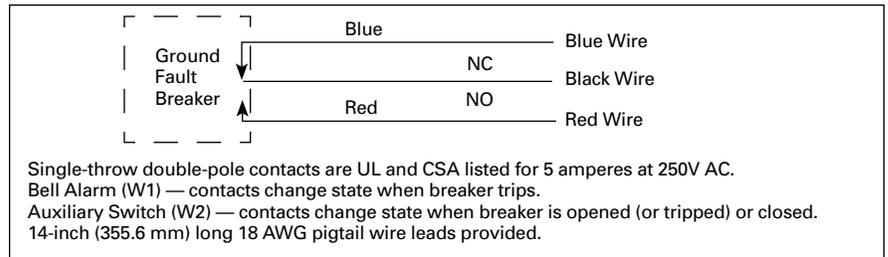


Figure 11-1. Bell Alarm and Auxiliary Contact Schematic

Product Selection

Table 11-5. Breaker Catalog Numbers

Continuous Ampere Rating @ 40°C	1-Pole		2-Pole	
	120V AC		120/240V AC	
	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$

Ground Fault Circuit Breakers — 5 mA Sensitivity

QUICKLAG Type: QPGF 10,000 Ampere I.C. Thermal-Magnetic Breakers

15	QPGF1015	201.	QPGF2015	323.
20	QPGF1020	201.	QPGF2020	323.
25	QPGF1025	201.	QPGF2025	323.
30	QPGF1030	201.	QPGF2030	323.
40	QPGF1040	224.	QPGF2040	350.
50	—	—	QPGF2050	350.

QUICKLAG Type: QPHGF 22,000 Ampere I.C. Thermal-Magnetic Breakers

15	QPHGF1015	350.	QPHGF2015	585.
20	QPHGF1020	350.	QPHGF2020	585.
25	QPHGF1025	350.	QPHGF2025	585.
30	QPHGF1030	350.	QPHGF2030	585.

Ground Fault Equipment Protectors — 30 mA Sensitivity

QUICKLAG Type: QPGFEP 10,000 Ampere I.C. Thermal-Magnetic Breakers

15	QPGFEP1015	327.	QPGFEP2015	444.
20	QPGFEP1020	327.	QPGFEP2020	444.
25	QPGFEP1025	327.	QPGFEP2025	444.
30	QPGFEP1030	327.	QPGFEP2030	444.
40	QPGFEP1040	362.	QPGFEP2040	487.
50	—	—	QPGFEP2050	487.

QUICKLAG Type: QPHGFEP 22,000 Ampere I.C. Thermal-Magnetic Breakers

15	QPHGFEP1015	392.	QPHGFEP2015	805.
20	QPHGFEP1020	392.	QPHGFEP2020	805.
25	QPHGFEP1025	392.	QPHGFEP2025	805.
30	QPHGFEP1030	392.	QPHGFEP2030	805.

Special Application Ground Fault Circuit Protectors — 5 mA Sensitivity

QUICKLAG Type: QPGF 10,000 Ampere I.C. with Bell Alarm (W1) or Auxiliary Switch (W2)

15	QPGF1015W1	263.	QPGF2015W1	368.
20	QPGF1020W1	263.	QPGF2020W1	368.
25	QPGF1025W1	263.	QPGF2025W1	368.
30	QPGF1030W1	263.	QPGF2030W1	368.
40	—	—	QPGF2040W1	368.
50	—	—	QPGF2050W1	368.
15	QPGF1015W2	263.	—	—
20	QPGF1020W2	263.	—	—
25	QPGF1025W2	263.	—	—
30	QPGF1030W2	263.	—	—

Special Application Ground Fault Circuit Protectors — 30 mA Sensitivity

QUICKLAG Type: QPGFEP 10,000 Ampere I.C. with Bell Alarm (W1) or Auxiliary Switch (W2)

15	QPGFEP1015W1	424.	QPGFEP2015W1	510.
20	QPGFEP1020W1	424.	QPGFEP2020W1	510.
25	QPGFEP1025W1	424.	QPGFEP2025W1	510.
30	QPGFEP1030W1	424.	QPGFEP2030W1	510.
40	—	—	QPGFEP2040W1	510.
50	—	—	QPGFEP2050W1	510.
15	QPGFEP1015W2	424.	—	—
20	QPGFEP1020W2	424.	—	—
25	QPGFEP1025W2	424.	—	—
30	QPGFEP1030W2	424.	—	—

Discount Symbol CB-1

QUICKLAG — Bolt-On Ground Fault and Equipment Protectors

Bolt-On Types BAB, QBHW, HBAX, HBAW



QUICKLAG Type BA 1-Pole

Product Description

- Built and listed to UL 489
- All products UL and CSA listed
- All products 15 – 100A are HACR rated
- Switching duty rated for 120V AC fluorescent light applications
- Dimension Sheets — FRED Index 206

Product Selection

Table 11-6. Breaker Catalog Numbers

Contin- uous Ampere Rating @ 40°C	1-Pole		2-Pole				3-Pole	
	120/240V AC		120/240V AC		240V AC		240V AC	
	Catalog Number	Price U.S. \$						

QUICKLAG Type: BA 10,000 Ampere I.C. Thermal-Magnetic Breakers

10	BAB1010	27.50	BAB2010	60.50	BAB2010H	156.00	BAB3010H	193.00
15	BAB1015 ①②	27.50	BAB2015	60.50	BAB2015H	156.00	BAB3015H	193.00
20	BAB1020 ①②	27.50	BAB2020	60.50	BAB2020H	156.00	BAB3020H	193.00
25	BAB1025	27.50	BAB2025	60.50	BAB2025H	156.00	BAB3025H	193.00
30	BAB1030	27.50	BAB2030	60.50	BAB2030H	156.00	BAB3030H	193.00
35	BAB1035	27.50	BAB2035	60.50	BAB2035H	156.00	BAB3035H	193.00
40	BAB1040	27.50	BAB2040	60.50	BAB2040H	156.00	BAB3040H	193.00
45	BAB1045	27.50	BAB2045	60.50	BAB2045H	156.00	BAB3045H	193.00
50	BAB1050	27.50	BAB2050	60.50	BAB2050H	156.00	BAB3050H	193.00
55	BAB1055	27.50	BAB2055	60.50	BAB2055H	156.00	BAB3055H	193.00
60	BAB1060	27.50	BAB2060	60.50	BAB2060H	156.00	BAB3060H	193.00
70	BAB1070	53.50	BAB2070	115.00	BAB2070H	206.00	BAB3070H	240.00
80	—	—	BAB2080	156.00	BAB2080H	239.00	BAB3080H	274.00
90	—	—	BAB2090	156.00	BAB2090H	239.00	BAB3090H	274.00
100	BAB1100	91.00	BAB2100	156.00	BAB2100H	239.00	BAB3100H	274.00
110	—	—	BAB2110	332.00	—	—	—	—
125	—	—	BAB2125	332.00	—	—	—	—

QUICKLAG Type: QBHW 22,000 Ampere I.C. Thermal-Magnetic Breakers

15	QBHW1015 ①	54.50	QBHW2015	117.00	QBHW2015H	215.00	QBHW3015H	289.00
20	QBHW1020 ①	54.50	QBHW2020	117.00	QBHW2020H	215.00	QBHW3020H	289.00
25	QBHW1025	54.50	QBHW2025	117.00	QBHW2025H	215.00	QBHW3025H	289.00
30	QBHW1030	54.50	QBHW2030	117.00	QBHW2030H	215.00	QBHW3030H	289.00
35	QBHW1035	54.50	QBHW2035	111.00	QBHW2035H	215.00	QBHW3035H	289.00
40	QBHW1040	54.50	QBHW2040	117.00	QBHW2040H	215.00	QBHW3040H	289.00
45	QBHW1045	54.50	QBHW2045	117.00	QBHW2045H	215.00	QBHW3045H	289.00
50	QBHW1050	54.50	QBHW2050	117.00	QBHW2050H	215.00	QBHW3050H	289.00
55	QBHW1055	54.50	QBHW2055	117.00	QBHW2055H	215.00	QBHW3055H	289.00
60	QBHW1060	54.50	QBHW2060	117.00	QBHW2060H	215.00	QBHW3060H	289.00
70	QBHW1070	72.50	QBHW2070	170.00	QBHW2070H	257.00	QBHW3070H	418.00
80	—	—	QBHW2080	253.00	QBHW2080H	290.00	QBHW3080H	418.00
90	—	—	QBHW2090	253.00	QBHW2090H	290.00	QBHW3090H	418.00
100	—	—	QBHW2100	253.00	QBHW2100H	290.00	QBHW3100H	448.00
110	—	—	QBHW2110	735.00	—	—	—	—
125	—	—	QBHW2125	735.00	—	—	—	—

QUICKLAG Type: HBAX 42,000 Ampere I.C. Thermal-Magnetic Breakers

15	HBAX1015 ①	77.00	HBAX2015	139.00	—	—	HBAX3015H	347.00
20	HBAX1020 ①	77.00	HBAX2020	139.00	—	—	HBAX3020H	347.00
25	HBAX1025	77.00	HBAX2025	139.00	—	—	HBAX3025H	347.00
30	HBAX1030	77.00	HBAX2030	139.00	—	—	HBAX3030H	347.00
35	HBAX1035	77.00	HBAX2035	139.00	—	—	HBAX3035H	347.00
40	HBAX1040	77.00	HBAX2040	139.00	—	—	HBAX3040H	347.00
45	HBAX1045	77.00	HBAX2045	139.00	—	—	HBAX3045H	347.00
50	HBAX1050	77.00	HBAX2050	139.00	—	—	HBAX3050H	347.00
55	HBAX1055	77.00	HBAX2055	139.00	—	—	HBAX3055H	347.00
60	HBAX1060	77.00	HBAX2060	139.00	—	—	HBAX3060H	347.00
70	HBAX1070	124.00	HBAX2070	211.00	—	—	HBAX3070H	424.00
80	—	—	HBAX2080	295.00	—	—	HBAX3080H	590.00
90	—	—	HBAX2090	295.00	—	—	HBAX3090H	590.00
100	—	—	HBAX2100	295.00	—	—	HBAX3100H	530.00

QUICKLAG Type: HBAW 65,000 Ampere I.C. Thermal-Magnetic Breakers

15	HBAW1015 ①	87.50	HBAW2015	200.00	—	—	HBAW3015H	350.00
20	HBAW1020 ①	87.50	HBAW2020	200.00	—	—	HBAW3020H	350.00
25	HBAW1025	87.50	HBAW2025	200.00	—	—	—	—
30	HBAW1030	87.50	HBAW2030	200.00	—	—	—	—

① Switching duty rated for 120V AC fluorescent light applications.

② For special low-magnetic breaker order BAB1015L1 or BAB1020L1.

Technical Data and Specifications

Table 11-7. Shipping Data

Number of Poles	Carton Quantity	Approximate Weight Lbs. (Kg)	Dimensions in Inches (mm)	Time/Current Curves
1	24	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)	FRED 350077
2	12	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)	FRED 350177
3	8	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)	FRED 350277

Note: Dimension Sheets — FRED Index 206

Discount Symbol CB-1

QUICKLAG — Bolt-On Ground Fault and Equipment Protectors

Bolt-On Ground Fault and Equipment Protectors, Types QBGF, QBHGF, QBGFEP, QBHGFEP



QUICKLAG Type QBGF 1-Pole Ground Fault Circuit Breaker

Product Description

- Built and listed to UL 489

QUICKLAG Ground Fault Circuit Breakers, Class A GFCI

- Built and tested to UL 943
- 5 mA trip sensitivity

QUICKLAG Ground Fault Equipment Protectors

- Built and tested to UL 1053
- 30 mA trip sensitivity

Technical Data and Specifications

Shipping Data

Table 11-8. Shipping Data

Carton Quantity	Approximate Weight Lbs. (Kg)	Dimensions in Inches (mm)
1-Pole		
20	11.00 (5.0)	12.50 x 6.50 x 5.00 (317.5 x 165.1 x 127.0)
2-Pole		
5	5.00 (2.3)	15.50 x 6.00 x 4.50 (393.7 x 152.4 x 114.3)

Instruction Leaflets

- Ground Fault Circuit Breaker and Equipment Protector Installation Instructions: FRED 255

Time/Current Curves

- 1-Pole: FRED 350077
- 2-Pole: FRED 350177
- 3-Pole: FRED 350277

Dimension Sheets

- FRED Index 206

Wiring Diagram

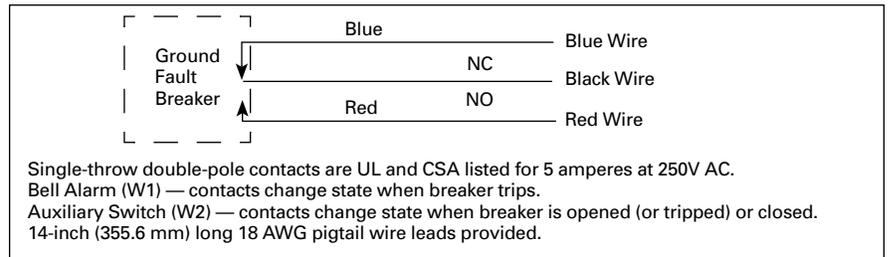


Figure 11-2. Bell Alarm and Auxiliary Contact Schematic

Product Selection

Table 11-9. Breaker Catalog Numbers

Continuous Ampere Rating @ 40°C	1-Pole		2-Pole	
	120V AC		120/240V AC	
	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$

Ground Fault Circuit Breakers — 5 mA Sensitivity

QUICKLAG Type: QBGF 10,000 Ampere I.C. Thermal-Magnetic Breakers

15	QBGF1015	201.	QBGF2015	323.
20	QBGF1020	201.	QBGF2020	323.
25	QBGF1025	201.	QBGF2025	323.
30	QBGF1030	201.	QBGF2030	323.
40	QBGF1040	224.	QBGF2040	350.
50	—	—	QBGF2050	350.

QUICKLAG Type: QBHGF 22,000 Ampere I.C. Thermal-Magnetic Breakers

15	QBHGF1015	370.	QBHGF2015	585.
20	QBHGF1020	370.	QBHGF2020	585.
25	QBHGF1025	370.	QBHGF2025	585.
30	QBHGF1030	370.	QBHGF2030	585.

Ground Fault Equipment Protectors — 30 mA Sensitivity

QUICKLAG Type: QBGFEP 10,000 Ampere I.C. Thermal-Magnetic Breakers

15	QBGFEP1015	327.	QBGFEP2015	444.
20	QBGFEP1020	327.	QBGFEP2020	444.
25	QBGFEP1025	327.	QBGFEP2025	444.
30	QBGFEP1030	327.	QBGFEP2030	444.
40	QBGFEP1040	327.	QBGFEP2040	487.
50	—	—	QBGFEP2050	487.

QUICKLAG Type: QBHGFEP 22,000 Ampere I.C. Thermal-Magnetic Breakers

15	QBHGFEP1015	392.	QBHGFEP2015	805.
20	QBHGFEP1020	392.	QBHGFEP2020	805.
25	QBHGFEP1025	392.	QBHGFEP2025	805.
30	QBHGFEP1030	392.	QBHGFEP2030	805.

Special Application Ground Fault Circuit Protectors — 5 mA Sensitivity

QUICKLAG Type: QBGF 10,000 Ampere I.C. with Bell Alarm (W1) or Auxiliary Switch (W2)

15	QBGF1015W1	263.	QBGF2015W1	257.
20	QBGF1020W1	263.	QBGF2020W1	257.
25	QBGF1025W1	263.	QBGF2025W1	257.
30	QBGF1030W1	263.	QBGF2030W1	257.
40	—	—	QBGF2040W1	257.
50	—	—	QBGF2050W1	257.
15	QBGF1015W2	263.	—	—
20	QBGF1020W2	263.	—	—
25	QBGF1025W2	263.	—	—
30	QBGF1030W2	263.	—	—

Special Application Ground Fault Circuit Protectors — 30 mA Sensitivity

QUICKLAG Type: QBGFEP 10,000 Ampere I.C. with Bell Alarm (W1) or Auxiliary Switch (W2)

15	QBGFEP1015W1	424.	QBGFEP2015W1	580.
20	QBGFEP1020W1	424.	QBGFEP2020W1	580.
25	QBGFEP1025W1	424.	QBGFEP2025W1	580.
30	QBGFEP1030W1	424.	QBGFEP2030W1	580.
40	—	—	QBGFEP2040W1	625.
50	—	—	QBGFEP2050W1	625.
15	QBGFEP1015W2	424.	—	—
20	QBGFEP1020W2	424.	—	—
25	QBGFEP1025W2	424.	—	—
30	QBGFEP1030W2	424.	—	—

Discount Symbol CB-1

QUICKLAG — Cable-In/Cable-Out Types
**Cable-In/Cable-Out Types QC,
QCHW, QHCX, QHCW**

QUICKLAG Type QC 1-Pole
Product Description

- Built and listed to UL 489
- All products UL and CSA listed
- All products 10 – 100A are HACR rated
- Switching duty rated for 120V AC fluorescent light applications only

Technical Data and Specifications
Shipping Data
Table 11-10. Shipping Data

Number of Poles	Carton Quantity	Approximate Weight Lbs. (Kg)	Dimensions in Inches (mm)	Time/Current Curves
1	24	9.0 (4.09)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)	FRED 350077
2	12	9.0 (4.09)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)	FRED 350177
3	8	9.0 (4.09)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)	FRED 350277

Note: Dimension Sheets — FRED Index 206

QUICKLAG — Cable-In/Cable-Out Types

Product Selection

Table 11-11. Breaker Catalog Numbers

Continuous Ampere Rating @ 40°C	1-Pole		2-Pole		240V AC		3-Pole		4-Pole	
	120/240V AC		120/240V AC		240V AC		240V AC		240V AC	
	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$
QUICKLAG Type: QC 10,000 Ampere I.C. Thermal-Magnetic Breakers										
5	QC1005 ^③	51.00	QC2005 ^③	107.00	—	—	—	—	—	—
10	QC1010	27.50	QC2010	60.50	QC2010H ^③	156.00	QC3010H ^③	193.00	—	—
15	QC1015 ^{①②}	27.50	QC2015	60.50	QC2015H	156.00	QC3015H	193.00	QC4015H	294.00
20	QC1020 ^{①②}	27.50	QC2020	60.50	QC2020H	156.00	QC3020H	193.00	QC4020H	294.00
25	QC1025	27.50	QC2025	60.50	QC2025H	156.00	QC3025H	193.00	QC4025H	294.00
30	QC1030	27.50	QC2030	60.50	QC2030H	156.00	QC3030H	193.00	QC4030H	294.00
35	QC1035	27.50	QC2035	60.50	QC2035H	156.00	QC3035H	193.00	QC4035H	294.00
40	QC1040	27.50	QC2040	60.50	QC2040H	156.00	QC3040H	193.00	QC4040H	294.00
45	QC1045	27.50	QC2045	60.50	QC2045H	156.00	QC3045H	193.00	QC4045H	294.00
50	QC1050	27.50	QC2050	60.50	QC2050H	156.00	QC3050H	193.00	QC4050H	294.00
55	QC1055	27.50	QC2055	60.50	QC2055H	156.00	QC3055H	193.00	QC4055H	294.00
60	QC1060	27.50	QC2060	60.50	QC2060H	156.00	QC3060H	193.00	QC4060H	294.00
70	QC1070	53.50	QC2070	115.00	QC2070H	206.00	QC3070H	240.00	QC4070H	366.00
80	—	—	QC2080	156.00	QC2080H	239.00	QC3080H	274.00	QC4080H	402.00
90	—	—	QC2090	156.00	QC2090H	239.00	QC3090H	274.00	QC4090H	416.00
100	QC1100	91.00	QC2100	156.00	QC2100H	239.00	QC3100H	274.00	QC4100H	416.00
QUICKLAG Type: QCHW 22,000 Ampere I.C. Thermal-Magnetic Breakers										
15	QCHW1015 ^①	54.50	QCHW2015	117.00	QCHW2015H	215.00	QCHW3015H	289.00	QCHW4015H	402.00
20	QCHW1020 ^①	54.50	QCHW2020	117.00	QCHW2020H	215.00	QCHW3020H	289.00	QCHW4020H	402.00
25	QCHW1025	54.50	QCHW2025	117.00	QCHW2025H	215.00	QCHW3025H	289.00	QCHW4025H	402.00
30	QCHW1030	54.50	QCHW2030	117.00	QCHW2030H	215.00	QCHW3030H	289.00	QCHW4030H	402.00
35	QCHW1035	54.50	QCHW2035	117.00	QCHW2035H	215.00	QCHW3035H	289.00	QCHW4035H	402.00
40	QCHW1040	54.50	QCHW2040	117.00	QCHW2040H	215.00	QCHW3040H	289.00	QCHW4040H	415.00
45	QCHW1045	54.50	QCHW2045	117.00	QCHW2045H	215.00	QCHW3045H	289.00	QCHW4045H	402.00
50	QCHW1050	54.50	QCHW2050	117.00	QCHW2050H	215.00	QCHW3050H	289.00	QCHW4050H	402.00
55	QCHW1055	54.50	QCHW2055	117.00	QCHW2055H	215.00	QCHW3055H	289.00	QCHW4055H	402.00
60	QCHW1060	54.50	QCHW2060	117.00	QCHW2060H	215.00	QCHW3060H	289.00	QCHW4060H	402.00
70	QCHW1070	72.50	QCHW2070	170.00	QCHW2070H	265.00	QCHW3070H	361.00	QCHW4070H	505.00
80	—	—	QCHW2080	253.00	QCHW2080H	323.00	QCHW3080H	418.00	QCHW4080H	580.00
90	—	—	QCHW2090	253.00	QCHW2090H	323.00	QCHW3090H	418.00	QCHW4090H	590.00
100	—	—	QCHW2100	253.00	QCHW2100H	323.00	QCHW3100H	418.00	QCHW4100H	590.00
QUICKLAG Type: QHCX 42,000 Ampere I.C. Thermal-Magnetic Breakers										
15	QHCX1015 ^①	77.00	QHCX2015	139.00	—	—	QHCX3015H	347.00	—	—
20	QHCX1020 ^①	77.00	QHCX2020	139.00	—	—	QHCX3020H	347.00	—	—
25	QHCX1025	77.00	QHCX2025	139.00	—	—	QHCX3025H	347.00	—	—
30	QHCX1030	77.00	QHCX2030	139.00	—	—	QHCX3030H	347.00	—	—
35	QHCX1035	77.00	QHCX2035	139.00	—	—	QHCX3035H	347.00	—	—
40	QHCX1040	77.00	QHCX2040	139.00	—	—	QHCX3040H	347.00	—	—
45	QHCX1045	77.00	QHCX2045	139.00	—	—	QHCX3045H	347.00	—	—
50	QHCX1050	77.00	QHCX2050	139.00	—	—	QHCX3050H	347.00	—	—
55	QHCX1055	77.00	QHCX2055	139.00	—	—	QHCX3055H	347.00	—	—
60	QHCX1060	77.00	QHCX2060	139.00	—	—	QHCX3060H	347.00	—	—
70	QHCX1070	124.00	QHCX2070	295.00	—	—	QHCX3070H	424.00	—	—
80	—	—	QHCX2080	295.00	—	—	QHCX3080H	590.00	—	—
90	—	—	QHCX2090	295.00	—	—	QHCX3090H	590.00	—	—
100	—	—	QHCX2100	295.00	—	—	QHCX3100H	590.00	—	—
QUICKLAG Type: QHCW 65,000 Ampere I.C. Thermal-Magnetic Breakers										
15	QHCW1015 ^①	87.50	QHCW2015	200.00	—	—	QHCW3015H	350.00	—	—
20	QHCW1020 ^①	87.50	QHCW2020	200.00	—	—	QHCW3020H	350.00	—	—
25	QHCW1025	87.50	QHCW2025	200.00	—	—	—	—	—	—
30	QHCW1030	87.50	QHCW2030	200.00	—	—	—	—	—	—

① Switching duty rated for 120V AC fluorescent light applications only.
 ② For special low-magnetic breaker order QC1015L1 or QC1020L1.
 ③ Not UL listed

QUICKLAG — Cable-In/Cable-Out, 1/2 Wide Types

Cable-In/Cable-Out, 1/2 Wide Types QCR, QCF, QCRH, QCFH

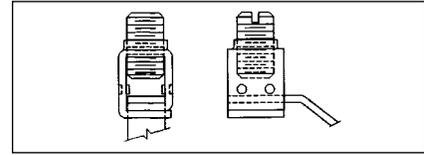
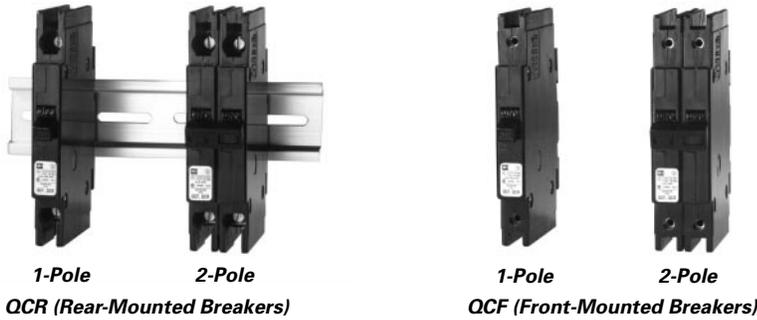


Figure 11-3. Standard Box Terminals

QCR Quick-Connect Terminals

Factory installed two-prong quick-connect terminal on breaker load side suitable for terminating two 10 AWG wire with insulated slip-on terminals as shown. Line side terminal is the standard type.

Product Description

Type QCR have as a standard feature provisions for 35 mm DIN rail rear mounting with a spring-loaded release. Optional clips for individual mounting are available as a separate accessory.

Type QCF have two threaded steel inserts to facilitate front mounting with #6 – 32 steel screws. The clamp type terminals are accessible from the rear of the breaker so that cables can be accessed without removal of the breaker from the front cover.

Application Description

QCR and QCF circuit breakers are only 1/2-inch (12.7 mm) wide per pole and are excellent for general purpose industrial applications where space savings is required.

Features, Benefits and Functions

- 1/2-inch (12.7 mm) wide per pole
- Cable-in/cable-out
- Black cases with black handles
- Three position handle: ON, Tripped (center), OFF
- Thermal-magnetic protection
- One-, two- and three-pole
- 10 kAIC at 120/240V AC, 10 – 60 amperes
- 22 kAIC at 120/240V AC, 15 – 20 amperes
- 10 kAIC at 240V AC, 10 – 30 amperes
- 3 kAIC at 62.5V DC (1-pole)
- 3 kAIC at 130V DC (2 poles in series)
- Normal operating environment:
 - 0 – 40°C
 - 5 – 95% humidity (non-condensating)

Standards and Certifications

- Built and Listed to UL 489
- UL File E7819
- CSA File LR48907
- Type QCR and QCF circuit breakers are UL listed circuit breakers that are suitable for use as branch circuit protectors
- All ratings 15 – 60A are HACR rated

Instruction Leaflets

- Instructions for QCRLOFF Padlock Bracket for Types QCR and QCF Breakers: FRED 6621023

Time/Current Curves

- 1-Pole: FRED 350077
- 2-Pole: FRED 350177
- 3-Pole: FRED 350277

Dimension Sheets

- FRED Index 206

Options and Accessories

QCR and QCF Standard Box Terminals

Factory installed line and load side breaker terminal to accommodate 14 AWG to 4 AWG wire.

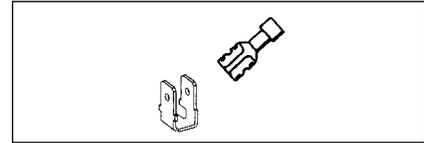


Figure 11-4. Catalog Suffix "P"

QCR and QCF Ring or Spade Lug Terminals (10 to 30 ampere ratings only)

Factory installed line and load side terminals each equipped with a #10 – 32 screw suitable for terminating one 10 AWG wire with insulated ring or spade type terminal as shown.

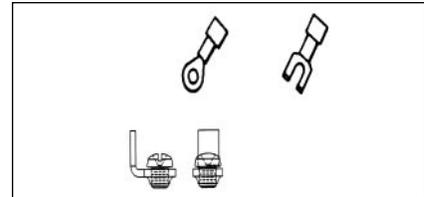


Figure 11-5. Catalog Suffix "T"

Table 11-12. Available QCR and QCF Breaker Accessories

Description	Catalog Number	Price U.S. \$
Steel mounting clip mounts QCR breaker if individual mounting is required. Quantity two required for 1- and 2-pole and four required for 3-pole breakers.	QCRMTGFT	.62
Removable padlock device for single-pole QCR or QCF breaker.	QCRFPL1P	19.80
Removable padlock device for multi-pole QCR or QCF breaker.	QCRFPLMP	19.00
Padlock bracket assembly for QCR or QCF single- or multi-pole breakers (OFF only).	QCRFLOFF	24.50

Discount Symbol CB-1

Product Selection

Table 11-13. QCR Breaker Catalog Numbers ①②③④

Continuous Ampere Rating @ 40°C	120/240V AC		120/240V AC		240V AC ⑤			
	1-Pole		2-Pole		2-Pole		3-Pole	
	Catalog Number	Price U.S. \$						

QCR Breaker 10 kAIC Interruption Ratings

10	QCR1010 QCR1010T —	27.50 33.50 —	QCR2010 QCR2010T QCR2010P	60.50 74.50 73.50	— — —	— — —	— — —	— — —
15	QCR1015 ⑥ QCR1015T ⑥ —	27.50 33.50 —	QCR2015 QCR2015T QCR2015P	60.50 74.50 73.50	QCR2015H QCR2015HT —	156.00 180.00 —	QCR3015H QCR3015HT —	194.00 224.00 —
20	QCR1020 ⑥ QCR1020T ⑥ —	27.50 33.50 —	QCR2020 QCR2020T QCR2020P	60.50 74.50 73.50	QCR2020H QCR2020HT —	156.00 180.00 —	QCR3020H QCR3020HT —	194.00 224.00 —
25	QCR1025 QCR1025T —	27.50 33.50 —	QCR2025 QCR2025T QCR2025P	60.50 74.50 73.50	QCR2025H QCR2025HT —	156.00 180.00 —	QCR3025H QCR3025HT —	184.00 225.00 —
30	QCR1030 QCR1030T —	27.50 33.50 —	QCR2030 QCR2030T QCR2030P	60.50 74.50 73.50	QCR2030H QCR2030HT —	156.00 180.00 —	QCR3030H QCR3030HT —	194.00 224.00 —
35	QCR1035 —	27.50 —	QCR2035 QCR2035P	60.50 73.50	— —	— —	— —	— —
40	QCR1040 —	27.50 —	QCR2040 QCR2040P	60.50 73.50	— —	— —	— —	— —
45	QCR1045 —	27.50 —	QCR2045 QCR2045P	60.50 73.50	— —	— —	— —	— —
50	QCR1050 —	27.50 —	QCR2050 QCR2050P	60.50 73.50	— —	— —	— —	— —
55	QCR1055 —	27.50 —	QCR2055 QCR2055P	60.50 73.50	— —	— —	— —	— —
60 ⑦	QCR1060 —	27.50 —	QCR2060 QCR2060P	60.50 73.50	— —	— —	— —	— —

QCR Breaker 22 kAIC Interruption Ratings

15	QCRH1015 ⑥ QCRH1015T ⑥	60.00 60.00	QCRH2015 QCRH2015T	128.00 128.00	— —	— —	— —	— —
20	QCRH1020 ⑥ QCRH1020T ⑥	60.00 60.00	QCRH2020 QCRH2020T	128.00 128.00	— —	— —	— —	— —

- ① Standard breaker terminals are box type lugs.
- ② Breakers with T Catalog Number Suffix are suitable for line and load side ring terminal connection (#10-32 plus/minus terminal screw provided).
- ③ Breakers with P Catalog Number Suffix are suitable for terminating two 10 AWG Quick-Connect Type Terminals per phase on breaker load side.
- ④ Breakers with Shunt Trip Attachment (extra pole required on breaker right-hand side) are available. Contact the Customer Support Center.
- ⑤ Breakers with H Catalog Suffix have 240V AC construction.
- ⑥ All 15 and 20 ampere single-pole breakers are SWD (Switching Duty) rated for fluorescent lighting applications.
- ⑦ 60/75°C Cu/Al wire on all ratings except 60 amperes which requires Cu only conductor.

QUICKLAG — Cable-In/Cable-Out, 1/2 Wide Types

Table 11-14. QCF Breaker Catalog Numbers ①②③④

Continuous Ampere Rating @ 40°C	120/240V AC		120/240V AC		240V AC ⑤			
	1-Pole		2-Pole		2-Pole		3-Pole	
	Catalog Number	Price U.S. \$						

QCF Breaker 10 kAIC Interruption Ratings

10	QCF1010 QCF1010T	27.50 33.50	QCF2010 QCF2010T	60.50 74.50	— —	— —	— —	— —
15	QCF1015 ⑥ QCF1015T ⑥	27.50 33.50	QCF2015 QCF2015T	60.50 74.50	QCF2015H QCF2015HT	156.00 183.00	QCF3015H QCF3015HT	194.00 224.00
20	QCF1020 ⑥ QCF1020T ⑥	27.50 33.50	QCF2020 QCF2020T	60.50 74.50	QCF2020H QCF2020HT	156.00 189.00	QCF3020H QCF3020HT	194.00 224.00
25	QCF1025 QCF1025T	27.50 33.50	QCF2025 QCF2025T	60.50 74.50	QCF2025H QCF2025HT	156.00 189.00	QCF3025H QCF3025HT	194.00 224.00
30	QCF1030 QCF1030T	27.50 33.50	QCF2030 QCF2030T	60.50 74.50	QCF2030H QCF2030HT	156.00 189.00	QCF3030H QCF3030HT	194.00 224.00
35	QCF1035	27.50	QCF2035	60.50	—	—	—	—
40	QCF1040	27.50	QCF2040	60.50	—	—	—	—
45	QCF1045	27.50	QCF2045	60.50	—	—	—	—
50	QCF1050	27.50	QCF2050	60.50	—	—	—	—
55	QCF1055	27.50	QCF2055	60.50	—	—	—	—
60 ⑦	QCF1060	27.50	QCF2060	60.50	—	—	—	—

QCF Breaker 22 kAIC Interruption Ratings

15	QCFH1015 ⑥ QCFH1015T ⑥	60.00 60.00	QCFH2015 QCFH2015T	128.00 128.00	— —	— —	— —	— —
20	QCFH1020 ⑥ QCFH1020T ⑥	60.00 60.00	QCFH2020 QCFH2020T	128.00 128.00	— —	— —	— —	— —

- ① Standard breaker terminals are box type lugs.
- ② Breakers with T Catalog Number Suffix are suitable for line and load side ring terminal connection (#10-32 plus/minus terminal screw provided).
- ③ Breakers with P Catalog Number Suffix are suitable for terminating two 10 AWG Quick-Connect Type Terminals per phase on breaker load side.
- ④ Breakers with Shunt Trip Attachment (extra pole required on breaker right-hand side) are available. Contact the Customer Support Center.
- ⑤ Breakers with H Catalog Suffix have 240V AC construction.
- ⑥ All 15 and 20 ampere single-pole breakers are SWD (Switching Duty) rated for fluorescent lighting applications.
- ⑦ 60/75°C Cu/Al wire on all ratings except 60 amperes which requires Cu only conductor.

Discount Symbol CB-1

Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGF, QCHGF, QCGFEP, QCHGFEP



QUICKLAG Type QCGF 1-Pole Ground Fault Circuit Breaker

Product Description

- Built and listed to UL 489
- All products UL and CSA listed

QUICKLAG Ground Fault Circuit Breakers, Class A GFCI

- Built and tested to UL 943
- 5 mA trip sensitivity

QUICKLAG Ground Fault Equipment Protectors

- Built and tested to UL 1053
- 30 mA trip sensitivity

Technical Data and Specifications

Table 11-15. Shipping Data

Carton Quantity	Approximate Weight Lbs. (Kg)	Dimensions in Inches (mm)
1-Pole		
20	11.00 (5.0)	12.50 x 6.50 x 5.00 (317.5 x 165.1 x 127.0)
2-Pole		
5	5.00 (2.3)	15.50 x 6.00 x 4.50 (393.7 x 152.4 x 114.3)

Instruction Leaflets

- Ground Fault Circuit Breaker and Equipment Protector Installation: FRED 255

Time/Current Curves

- 1-Pole: FRED 350077
- 2-Pole: FRED 350177
- 3-Pole: FRED 350277

Dimension Sheets

- FRED Index 206

Wiring Diagram

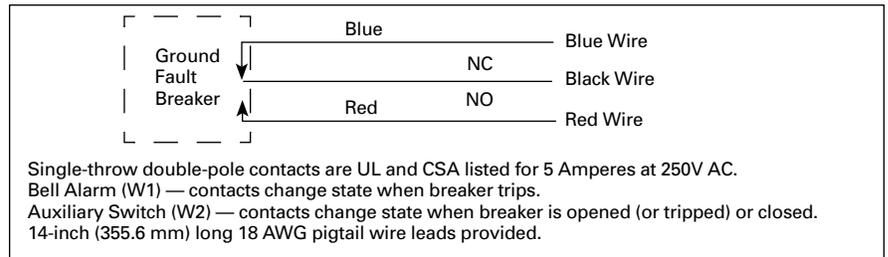


Figure 11-6. Bell Alarm and Auxiliary Contact Schematic

Product Selection

Table 11-16. Breaker Catalog Numbers

Continuous Ampere Rating @ 40°C	1-Pole		2-Pole	
	120V AC		120/240V AC	
	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$

Ground Fault Circuit Breakers — 5 mA Sensitivity

QUICKLAG Type: QCGF 10,000 Ampere I.C. Thermal-Magnetic Breakers

15	QCGF1015	201.	QCGF2015	323.
20	QCGF1020	201.	QCGF2020	323.
25	QCGF1025	201.	QCGF2025	323.
30	QCGF1030	201.	QCGF2030	323.
40	QCGF1040	224.	QCGF2040	350.
50	—	—	QCGF2050	350.

QUICKLAG Type: QCHGF 22,000 Ampere I.C. Thermal-Magnetic Breakers

15	QCHGF1015	368.	QCHGF2015	585.
20	QCHGF1020	368.	QCHGF2020	585.
25	QCHGF1025	368.	QCHGF2025	585.
30	QCHGF1030	368.	QCHGF2030	585.

Ground Fault Equipment Protectors — 30 mA Sensitivity

QUICKLAG Type: QCGFEP 10,000 Ampere I.C. Thermal-Magnetic Breakers

15	QCGFEP1015	327.	QCGFEP2015	444.
20	QCGFEP1020	327.	QCGFEP2020	444.
25	QCGFEP1025	327.	QCGFEP2025	444.
30	QCGFEP1030	327.	QCGFEP2030	444.
40	QCGFEP1040	362.	QCGFEP2040	487.
50	—	—	QCGFEP2050	487.

QUICKLAG Type: QCHGFEP 22,000 Ampere I.C. Thermal-Magnetic Breakers

15	QCHGFEP1015	392.	QCHGFEP2015	710.
20	QCHGFEP1020	392.	QCHGFEP2020	710.
25	QCHGFEP1025	392.	QCHGFEP2025	710.
30	QCHGFEP1030	392.	QCHGFEP2030	710.

Special Application Ground Fault Circuit Protector — 5 mA Sensitivity

QUICKLAG Type: QCGF 10,000 Ampere I.C. with Bell Alarm (W1) or Auxiliary Switch (W2)

15	QCGF1015W1	263.	QCGF2015W1	456.
20	QCGF1020W1	263.	QCGF2020W1	456.
25	QCGF1025W1	263.	QCGF2025W1	484.
30	QCGF1030W1	263.	QCGF2030W1	484.
40	—	—	QCGF2040W1	580.
50	—	—	QCGF2050W1	580.
15	QCGF1015W2	263.	—	—
20	QCGF1020W2	263.	—	—
25	QCGF1025W2	263.	—	—
30	QCGF1030W2	263.	—	—

Special Application Ground Fault Equipment Protectors — 30 mA Sensitivity

QUICKLAG Type: QCGFEP 10,000 Ampere I.C. with Bell Alarm (W1) or Auxiliary Switch (W2)

15	QCGFEP1015W1	424.	QCGFEP2015W1	580.
20	QCGFEP1020W1	424.	QCGFEP2020W1	580.
25	QCGFEP1025W1	424.	QCGFEP2025W1	580.
30	QCGFEP1030W1	424.	QCGFEP2030W1	580.
40	—	—	QCGFEP2040W1	625.
50	—	—	QCGFEP2050W1	580.
15	QCGFEP1015W2	424.	—	—
20	QCGFEP1020W2	424.	—	—
25	QCGFEP1025W2	424.	—	—
30	QCGFEP1030W2	424.	—	—

Discount Symbol CB-1

QUICKLAG — Solenoid-Operated, Remote-Controlled Types

Solenoid-Operated, Remote-Controlled Types GHBS, GBHS and BABR



GHBS — 1-Pole

Features, Benefits and Functions

- Bolt-on line-side terminal
- Cable connected load-side terminal
- 3- or 4-prong control terminal for GHBS or BABR respectively
- Bi-metal assembly for thermal over-load protection
- Fast acting short circuit protection
- Arc-runner and arc-chute assembly for fast acting arc extinction
- Three-position handle: OFF, TRIP (Center), ON
- Manual switching is permitted when control power is lost
- Mechanical trip indicator
- 15 and 20 ampere breakers SWD (Switching Duty) rated
- HID ratings for HID (High Intensity Discharge) lighting
- All models are HACR rated
- Status feedback of control circuit

Operation

The remote-control capability of the breaker is "armed" when the breaker handle is manually switched to the ON position. Once armed, the breaker can be pulsed ON and OFF by a controller device which provides an AC pulse of specified magnitude and duration to the solenoid-operated mechanism. Control connections to the GHBS breaker are provided through a male conductor plug (purchased separately) which snaps into the female connector provided with the breaker.

Product Description

GHBS, GBHS and BABR circuit breakers are bolt-on branch circuit breakers designed for use in panelboards and are ideally suited for lighting control applications. In addition to providing conventional branch circuit protection, they include a unique solenoid-operated mechanism that provides for efficient breaker pulse-on and pulse-off operation when used with a suitable controller like the Cutler-Hammer Pow-R-Command lighting control system. The BABR can also be controlled by pushbutton or a PLC unit.



BABR Breakers — 1- & 2-Pole

Operating Data

- Ambient temperature: 0 – 40° C
- Nominal pulse magnitude:
GHBS – 28V AC, BABR – 24V AC
- Tolerance: +10% to -15% of nominal voltage
- Maximum breaker cycling:
6 operations per minute
- Humidity: 0 – 95% non-condensing
- See FRED 49439 for further information.

Terminal Type

For load-side. Terminals are UL listed as suitable for wire type and size given below.

Table 11-17. Terminal Type

Item	Circuit Breaker Amps	Term. Type	Screw Head Type	Wire Type	AWG Wire Range
GHBS	15 – 20	Clamp	Slotted	Cu/Al	14 – 10
GBHS	15 – 20	Clamp	Slotted	Cu/Al	14 – 10
GHBS	30	Box	Slotted	Cu/Al	14 – 2
GBHS	30	Box	Slotted	Cu/Al	14 – 2
BABR	15 – 30	Box	Slotted	Cu/Al	14 – 6

Technical Data and Specifications

Dimensions

Table 11-18. Dimensions per Pole, Inches (mm)

Item	Width	Height	Depth
GHBS	1.00 (25.4)	4.12 (104.8)	2.81 (71.4)
GBHS	1.00 (25.4)	4.12 (104.8)	2.81 (71.4)
BABR	1.00 (25.4)	4.08 (103.6)	2.91 (74.0)

Wiring Diagrams

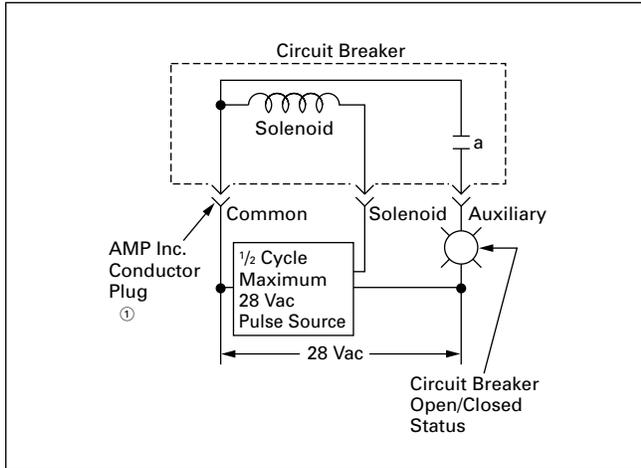


Figure 11-7. Typical Single-Pole Circuit Breaker Schematic Diagram for GHBS and GBHS Breakers

① Purchase separate AMP Inc. conductor plug #640426-3.

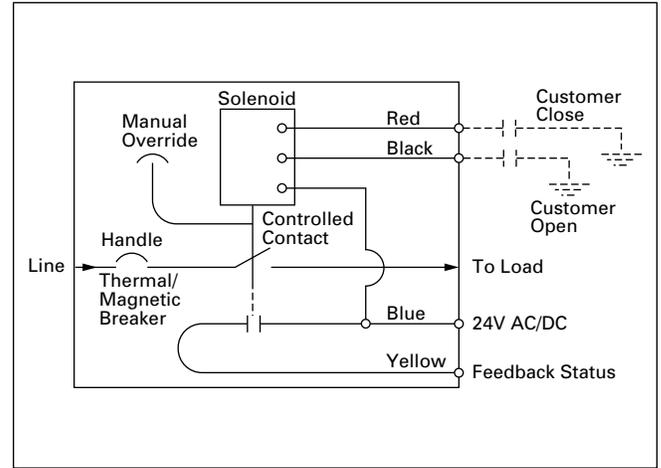


Figure 11-8. Circuit Breaker Schematic Diagram for the BABR Breaker

Product Selection

Table 11-19. GHBS UL 489 Interrupting Ratings and Catalog Numbers

Number of Poles	Interrupting Capacity (Symmetrical Amperes)	Rating Amps ②			Catalog Number	Price U.S. \$
		120	240	277/480		
1	15	65,000	—	14,000	GHBS1015D	253.
1	20	65,000	—	14,000	GHBS1020D	253.
1	30	65,000	—	14,000	GHBS1030D	352.
2	15	—	65,000	14,000	GHBS2015D	760.
2	20	—	65,000	14,000	GHBS2020D	760.
2	30	—	65,000	14,000	GHBS2030D	1,065.

② Continuous current rating at 40°C.

Note: Instruction Leaflet/FRED Number 15546

Table 11-20. GBHS CSA 22.2 Interrupting Ratings and Catalog Numbers

Number of Poles	Rating Amps ③	Interrupting Capacity (Symmetrical Amperes)		Catalog Number	Price U.S. \$
		Volts AC (50/60 Hz)			
1	15	347/600		GBHS1015D	236.
1	20	347/600		GBHS1020D	253.
2	15	347/600		GBHS2015D	760.
2	20	347/600		GBHS2020D	760.

③ Continuous current rating at 40°C.

Note: Not UL listed.

Table 11-21. BABR UL 489 and CSA 22.2 Interrupting Ratings and Catalog Numbers

Number of Poles	Rating Amps ④	Interrupting Capacity (Symmetrical Amperes)			Catalog Number	Price U.S. \$
		120	240	277/480		
1	15	10,000	—	—	BABR1015	180.
1	20	10,000	—	—	BABR1020	190.
1	25	10,000	—	—	BABR1025	205.
1	30	10,000	—	—	BABR1030	220.
2	15	—	10,000	—	BABR2015	300.
2	20	—	10,000	—	BABR2020	325.
2	25	—	10,000	—	BABR2025	350.
2	30	—	10,000	—	BABR2030	375.

④ Continuous current rating at 40°C.

Note: Instruction Leaflet/FRED Number 49439

Table 11-22. BABR Wire Harness

Description	Catalog Number	Price U.S. \$
This 48 inch wire pigtail provides a connection from a single BABR's control plug to a customer's pushbutton, relay or PLC. A loose plug is also included if connection to a PC board is required. Each box contains twelve pigtails. Wires are 22 AWG, 600V.	SLBKRPTL1	908.

QUICKLAG — International Rated Types

International Rated Types
HQP, BA, QC, GFXB, GFXBB,
GFXBC

Product Description

QUICKLAG International Circuit Breakers

- Plug-On Type HQP
- Bolt-On Type BA
- Cable-In/Cable-Out Type QC

QUICKLAG International Ground Fault
Circuit Breakers

- Plug-On Type GFXB
- Bolt-On Type GFXBB
- Cable-In/Cable-Out Type GFXBC

Standards and Certifications

QUICKLAG International Circuit Breakers

- Built and test certified to BS3871, Pt. 1
- 50/60 Hz, 40°C

QUICKLAG International Ground Fault
Circuit Breakers

- Built and test certified to BS3871, Pt. 1; BS3871, Section 31-C; BS4293
- 50/60 Hz, 40°C; 30 mA sensitivity

Interrupting Ratings

Table 11-23. Interrupting Ratings

Ratings	Suffix E	Suffix HE
International Circuit Breakers		
NEMA 120/240V AC	10,000 AIC	10,000 AIC
BS3871 220/380, 240/415V AC	3,000 AIC	6,000 AIC
International Ground Fault Circuit Breakers		
BS3871 220/380, 240/415V AC	3,000 AIC	

Technical Data and Specifications

Shipping Data

Table 11-24. Shipping Data

Miniature Circuit Breaker	Number of Poles	Standard Carton Quantity	Approximate Carton Weight Lbs. (Kg)	Approximate Standard Carton Dimensions in Inches (mm)
QUICKLAG Types B, P, C — All	1	24	9.000 (4.09)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
QUICKLAG Types B, P, C — All	2	12	9.000 (4.09)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
QUICKLAG Types B, P, C — All	3	8	9.000 (4.09)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
QUICKLAG Ground Fault				
Type P — All	1	20	11.000 (4.99)	12.50 x 6.50 x 5.00 (317.5 x 165.1 x 127.0)
Types B and C — All	1	20	11.000 (4.99)	12.50 x 7.00 x 5.50 (317.5 x 177.8 x 139.7)
Types P and B — All	2	5	5.000 (2.27)	12.50 x 6.00 x 4.50 (317.5 x 152.4 x 114.3)

Time/Current Curves

- 1-Pole: FRED 350077
- 2-Pole: FRED 350177
- 3-Pole: FRED 350277

Dimension Sheets

- FRED Index 206

Product Selection

Table 11-25. Breaker Catalog Numbers

Continuous Ampere Rating @ 40°C	1-Pole		2-Pole		3-Pole		Ground Fault 1-Pole 30 mA Sensitivity	
	240/415V AC		240/415V AC		240/415V AC		240/415V AC	
	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$

3,000 Amperes I.C. (M3) Plug-On Thermal-Magnetic Circuit Breakers

10	HQP1010E	29.50	HQP2010E	73.50	HQP3010E	230.00	GFXB110B2	327.00
15	HQP1015E	32.75	HQP2015E	73.50	HQP3015E	230.00	GFXB115B2	327.00
16	—	—	—	—	—	—	GFXB116B2	327.00
20	HQP1020E	32.75	HQP2020E	73.50	HQP3020E	230.00	GFXB120B2	327.00
25	HQP1025E	32.75	HQP2025E	73.50	HQP3025E	230.00	GFXB125B2	327.00
30	HQP1030E	32.75	HQP2030E	73.50	HQP3030E	230.00	GFXB130B2	327.00
32	—	—	—	—	—	—	GFXB132B2	327.00
40	HQP1040E	32.75	HQP2040E	73.50	HQP3040E	230.00	GFXB140B2	362.00
50	HQP1050E	32.75	HQP2050E	73.50	HQP3050E	230.00	—	—
60	HQP1060E	32.75	HQP2060E	73.50	HQP3060E	230.00	—	—
70	HQP1070E	64.00	HQP2070E	132.00	HQP3070E	287.00	—	—
90	—	—	HQP2090E	189.00	HQP3090E	327.00	—	—
100	—	—	HQP2100E	189.00	HQP3100E	327.00	—	—

6,000 Ampere I.C. (M6) Plug-On Thermal-Magnetic Circuit Breakers

15	HQP1015HE	39.00	HQP2015HE	189.00	HQP3015HE	278.00	—	—
20	HQP1020HE	39.00	HQP2020HE	189.00	HQP3020HE	278.00	—	—
25	HQP1025HE	39.00	HQP2025HE	189.00	HQP3025HE	278.00	—	—
30	HQP1030HE	39.00	HQP2030HE	189.00	HQP3030HE	278.00	—	—
40	HQP1040HE	39.00	HQP2040HE	189.00	HQP3040HE	278.00	—	—
50	HQP1050HE	39.00	HQP2050HE	189.00	HQP3050HE	278.00	—	—
60	HQP1060HE	39.00	HQP2060HE	189.00	HQP3060HE	278.00	—	—
70	HQP1070HE	77.00	HQP2070HE	250.00	HQP3070HE	343.00	—	—
90	—	—	HQP2090HE	286.00	HQP3090HE	393.00	—	—
100	—	—	HQP2100HE	286.00	HQP3100HE	393.00	—	—

Discount Symbol CB-1

QUICKLAG — International Rated Types

Table 11-25. Breaker Catalog Numbers (Continued)

Continuous Ampere Rating @ 40°C	1-Pole		2-Pole		3-Pole		Ground Fault 1-Pole 30 mA Sensitivity	
	240/415V AC		240/415V AC		240/415V AC		240/415V AC	
	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$
3,000 Ampere I.C. (M3) Bolt-On Thermal-Magnetic Circuit Breakers								
10	BAB1010E	29.50	BAB2010E	65.50	BAB3010E	209.00	GFXBB110B2	338.00
15	BAB1015E	29.50	BAB2015E	65.50	BAB3015E	209.00	GFXBB115B2	327.00
16	—	—	—	—	—	—	GFXBB116B2	327.00
20	BAB1020E	29.50	BAB2020E	65.50	BAB3020E	209.00	GFXBB120B2	327.00
25	BAB1025E	29.50	BAB2025E	65.50	BAB3025E	209.00	GFXBB125B2	327.00
30	BAB1030E	29.50	BAB2030E	65.50	BAB3030E	209.00	GFXBB130B2	327.00
32	—	29.50	—	—	—	—	GFXBB132B2	327.00
40	BAB1040E	29.50	BAB2040E	65.50	BAB3040E	209.00	GFXBB140B2	362.00
50	BAB1050E	29.50	BAB2050E	65.50	BAB3050E	209.00	—	—
60	BAB1060E	29.50	BAB2060E	65.50	BAB3060E	209.00	—	—
70	BAB1070E	58.50	BAB2070E	120.00	BAB3070E	260.00	—	—
90	—	—	BAB2090E	169.00	BAB3090E	295.00	—	—
100	—	—	BAB2100E	169.00	BAB3100E	295.00	—	—
6,000 Ampere I.C. (M6) Bolt-On Thermal-Magnetic Circuit Breakers								
15	BAB1015HE	35.25	BAB2015HE	169.00	BAB3015HE	252.00	—	—
20	BAB1020HE	35.25	BAB2020HE	169.00	BAB3020HE	252.00	—	—
25	BAB1025HE	35.25	BAB2025HE	169.00	BAB3025HE	252.00	—	—
30	BAB1030HE	35.25	BAB2030HE	169.00	BAB3030HE	252.00	—	—
40	BAB1040HE	35.25	BAB2040HE	169.00	BAB3040HE	252.00	—	—
50	BAB1050HE	35.25	BAB2050HE	169.00	BAB3050HE	252.00	—	—
60	BAB1060HE	35.25	BAB2060HE	169.00	BAB3060HE	252.00	—	—
70	BAB1070HE	69.50	BAB2070HE	224.00	BAB3070HE	309.00	—	—
90	—	—	BAB2090HE	259.00	BAB3090HE	353.00	—	—
100	—	—	BAB2100HE	259.00	BAB3100HE	353.00	—	—
3,000 Ampere I.C. (M3) Cable-In/Cable-Out Thermal-Magnetic Circuit Breakers								
10	QC1010E	32.75	QC2010E	73.50	QC3010E	230.00	GFXBC110B2	327.00
15	QC1015E	32.75	QC2015E	73.50	QC3015E	230.00	GFXBC115B2	327.00
16	—	—	—	—	—	—	GFXBC116B2	327.00
20	QC1020E	32.75	QC2020E	73.50	QC3020E	230.00	GFXBC120B2	327.00
25	QC1025E	29.50	QC2025E	73.50	QC3025E	230.00	GFXBC125B2	327.00
30	QC1030E	32.75	QC2030E	73.50	QC3030E	230.00	GFXBC130B2	327.00
32	—	—	—	—	—	—	GFXBC132B2	327.00
40	QC1040E	32.75	QC2040E	73.50	QC3040E	230.00	GFXBC140B2	362.00
50	QC1050E	32.75	QC2050E	73.50	QC3050E	230.00	—	—
60	QC1060E	32.75	QC2060E	73.50	QC3060E	230.00	—	—
70	QC1070E	63.50	QC2070E	132.00	QC3070E	287.00	—	—
90	—	—	QC2090E	189.00	QC3090E	327.00	—	—
100	—	—	QC2100E	189.00	QC3100E	327.00	—	—
6,000 Ampere I.C. (M6) Cable-In/Cable-Out Thermal-Magnetic Circuit Breakers								
15	QC1015HE	39.00	QC2015HE	189.00	QC3015HE	278.00	—	—
20	QC1020HE	39.00	QC2020HE	189.00	QC3020HE	278.00	—	—
25	QC1025HE	39.00	QC2025HE	189.00	QC3025HE	278.00	—	—
30	QC1030HE	39.00	QC2030HE	189.00	QC3030HE	278.00	—	—
40	QC1040HE	39.00	QC2040HE	189.00	QC3040HE	278.00	—	—
50	QC1050HE	39.00	QC2050HE	189.00	QC3050HE	278.00	—	—
60	QC1060HE	39.00	QC2060HE	189.00	QC3060HE	278.00	—	—
70	QC1070HE	77.00	QC2070HE	250.00	QC3070HE	343.00	—	—
90	—	—	QC2090HE	286.00	QC3090HE	393.00	—	—
100	—	—	QC2100HE	286.00	QC3100HE	393.00	—	—

Discount Symbol CB-1

QUICKLAG — Special Application Breakers

**Special Application Breakers,
Types HQP, BA, QC**



QUICKLAG Type P Switching Neutral

Product Description

QUICKLAG Switching Neutral Circuit Breakers

- Plug-on type HQP: 10 – 30 amperes, 1 and 2 poles, 10,000 AIC
- Bolt-on type BA: 10 – 30 amperes, 1 and 2 poles, 10,000 AIC
- Cable-in type QC: 10 – 30 amperes, 1 and 2 poles, 10,000 AIC

Switching Neutral QUICKLAG Breakers available in one- and two-pole configurations, plus neutral pole for applications in accordance with NEC 514-5, 240-22 and 380-2. A one-pole device takes two pole spaces, and a two-pole device takes three pole spaces.

QUICKLAG HID (High Intensity Discharge) Breakers

- Plug-on type HQP: 15 – 60 amperes, 1 and 2 poles, 10,000 AIC
- Bolt-on type BA: 15 – 60 amperes, 1 and 2 poles, 10,000 AIC
- Cable-in type QC: 15 – 60 amperes, 1 and 2 poles, 10,000 AIC

Breakers designed specifically for use with high intensity discharge (HID) lighting applications. (UL listed as standard lighting breakers.)

Molded Case Switches — Non-automatic QUICKLAG Molded Case Switch

- Plug-on type HQP: 50, 60,100 amperes, 1, 2 and 3 poles
- Bolt-on type BA: 50, 60,100 amperes, 1, 2 and 3 poles
- Cable-in type QC: 50, 60,100 amperes, 1, 2 and 3 poles

Standards and Certifications

- All products UL and CSA listed.

Technical Data and Specifications

Shipping Data

Table 11-26. Shipping Data

Miniature Circuit Breaker	Number of Poles	Standard Carton Quantity	Approximate Carton Weight Lbs. (Kg)	Approximate Standard Carton Dimensions in Inches (mm)
QUICKLAG Types B, P, C – All	1	24	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
QUICKLAG Types B, P, C – All	2	12	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
QUICKLAG Types B, P, C – All	3	8	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
QUICKLAG Ground Fault Type P – All	1	20	11.00 (5.0)	12.50 x 6.50 x 5.00 (317.5 x 165.1 x 127.0)
Types B and C – All	1	20	11.00 (5.0)	12.50 x 7.00 x 5.50 (317.5 x 177.8 x 139.7)
Types P and B – All	2	5	5.00 (2.3)	12.50 x 6.00 x 4.50 (317.5 x 152.4 x 114.3)

Time/Current Curves

- 1-Pole: FRED 350077
- 2-Pole: FRED 350177
- 3-Pole: FRED 350277

Dimension Sheets

- FRED Index 206

Product Selection

Table 11-27. Breaker Catalog Numbers

Continuous Ampere Rating @ 40°C	1-Pole		2-Pole				3-Pole	
	120/240V AC		120/240V AC		240V AC		240V AC	
	Catalog Number	Price U.S. \$						

QUICKLAG Type: HQP Switching Neutral Thermal-Magnetic Breakers

10	HQP2010B	60.50	HQP3010B	119.00	—	—	—	—
15	HQP2015B	78.00	HQP3015B	119.00	—	—	—	—
20	HQP2020B	78.00	HQP3020B	119.00	—	—	—	—
25	HQP2025B	78.00	HQP3025B	119.00	—	—	—	—
30	HQP2030B	78.00	HQP3030B	119.00	—	—	—	—

QUICKLAG Type: BA Switching Neutral Thermal-Magnetic Breakers

10	BAB2010C	78.00	BAB3010C	119.00	—	—	—	—
15	BAB2015C	78.00	BAB3015C	119.00	—	—	—	—
20	BAB2020C	78.00	BAB3020C	119.00	—	—	—	—
25	BAB2025C	78.00	BAB3025C	119.00	—	—	—	—
30	BAB2030C	78.00	BAB3030C	119.00	—	—	—	—

QUICKLAG Type: QC Switching Neutral Thermal-Magnetic Breakers

10	QC2010B	78.00	QC3010B	119.00	—	—	—	—
15	QC2015B	78.00	QC3015B	119.00	—	—	—	—
20	QC2020B	78.00	QC3020B	119.00	—	—	—	—
25	QC2025B	78.00	QC3025B	119.00	—	—	—	—
30	QC2030B	78.00	QC3030B	119.00	—	—	—	—

QUICKLAG — Special Application Breakers

Table 11-27. Breaker Catalog Numbers (Continued)

Continuous Ampere Rating @ 40°C	1-Pole		2-Pole				3-Pole	
	120/240V AC		120/240V AC		240V AC		240V AC	
	Catalog Number	Price U.S. \$						
QUICKLAG Type: HQP HID (High Intensity Discharge) Thermal-Magnetic Breakers								
15	HQP1015D	34.50	HQP2015D	73.50	—	—	—	—
20	HQP1020D	34.50	HQP2020D	73.50	—	—	—	—
25	HQP1025D	34.50	HQP2025D	73.50	—	—	—	—
30	HQP1030D	33.50	HQP2030D	73.50	—	—	—	—
35	HQP1035D	34.50	HQP2035D	73.50	—	—	—	—
40	HQP1040D	34.50	HQP2040D	73.50	—	—	—	—
50	HQP1050D	34.50	HQP2050D	73.50	—	—	—	—
60	HQP1060D	34.50	HQP2060D	73.50	—	—	—	—
QUICKLAG Type: BA HID (High Intensity Discharge) Thermal-Magnetic Breakers								
15	BAB1015D	34.50	BAB2015D	73.50	—	—	—	—
20	BAB1020D	34.50	BAB2020D	73.50	—	—	—	—
25	BAB1025D	34.50	BAB2025D	73.50	—	—	—	—
30	BAB1030D	34.50	BAB2030D	73.50	—	—	—	—
35	BAB1035D	34.50	BAB2035D	73.50	—	—	—	—
40	BAB1040D	34.50	BAB2040D	73.50	—	—	—	—
50	BAB1050D	34.50	BAB2050D	73.50	—	—	—	—
60	BAB1060D	34.50	BAB2060D	73.50	—	—	—	—
QUICKLAG Type: QC HID (High Intensity Discharge) Thermal-Magnetic Breakers								
15	QC1015D	34.50	QC2015D	73.50	—	—	—	—
20	QC1020D	34.50	QC2020D	73.50	—	—	—	—
25	QC1025D	34.50	QC2025D	73.50	—	—	—	—
30	QC1030D	34.50	QC2030D	73.50	—	—	—	—
35	QC1035D	34.50	QC2035D	73.50	—	—	—	—
40	QC1040D	34.50	QC2040D	73.50	—	—	—	—
50	QC1050D	34.50	QC2050D	73.50	—	—	—	—
60	QC1060D	34.50	QC2060D	73.50	—	—	—	—
QUICKLAG Type: HQP Non-Auto Molded Case Switches								
50	HQP1050N	29.50	—	—	HQP2050N	64.00	HQP3050N	205.00
60	HQP1060N	29.50	—	—	HQP2060N	64.00	HQP3060N	205.00
100	HQP1100N	41.00	—	—	HQP2100N	163.00	HQP3100N	261.00
QUICKLAG Type: BA Non-Auto Molded Case Switches								
50	BAB1050N	29.50	—	—	BAB2050N	64.00	BAB3050N	205.00
60	BAB1060N	29.50	—	—	BAB2060N	64.00	BAB3060N	205.00
100	BAB1100N	41.00	—	—	BAB2100N	163.00	BAB3100N	261.00
QUICKLAG Type: QC Non-Auto Molded Case Switches								
50	QC1050N	29.50	—	—	QC2050N	64.00	QC3050N	205.00
60	QC1060N	29.50	—	—	QC2060N	64.00	QC3060N	205.00
100	QC1100N	41.00	—	—	QC2100N	163.00	QC3100N	261.00

Discount Symbol CB-1

QUICKLAG — Accessories

Options and Accessories

Table 11-28. Accessories

Accessory Type ①	Description	Order in Multiples of	Catalog Number	Price U.S. \$
Handle Locks: Non-padlockable ③	QUICKLAG Type P, B, C — 1 Pole	10	QL1NPL	8.25
	QUICKLAG Type P, B, C — 2, 3 Poles	10	QL23NPL	8.25
Handle Locks: Padlockable	QUICKLAG Type P, B, C — 1 Pole	10	QL1PL	3.55
	QUICKLAG Type P, B and Ground Fault — 1, 2, 3 Poles	10	QL123PL	8.35
	QUICKLAG Type C — 1, 2, 3 Poles	10	QC123PL	16.40
	QUICKLAG Type P, B — 1, 2, 3 Poles (Off Only)	10	QL123PLOFF	16.40
	QUICKLAG Type C — 1, 2, 3 Poles (Off Only)	10	QC123PLOFF	16.40
Handle Tie	QUICKLAG Handle Tie — 1 Pole	100	QL1HT	2.60
Mounting Hardware	QUICKLAG Type C Face Mounting Clip	24	QCFCLIP	1.80
	QUICKLAG Type C Face Mounting Plate — 1 Pole	10	QC1FP	11.90
	QUICKLAG Type C Face Mounting Plate — 2 Poles	10	QC2FP	14.90
	QUICKLAG Type C Face Mounting Plate — 3 Poles	10	QC3FP	16.50
	QUICKLAG Type C Face Mounting Plate and Lock-off (Off Only) — 1 Pole ②	10	QC1FPLOFF	29.25
	QUICKLAG Type C Face Mounting Plate and Lock-off (Off Only) — 2 Pole ②	10	QC2FPLOFF	29.00
	QUICKLAG Type C Face Mounting Plate and Lock-off (Off Only) — 3 Pole	10	QC3FPLOFF	37.25
	QUICKLAG Type C Base Mounting Clamp	100	QCBCLIP	.62
	QUICKLAG Base Mounting Plate — 6 Poles Total	10	QC6BP	42.50
	QUICKLAG Type C Base Mounting Plate — 6 Poles Total — Heavy-Duty Screw-Secured	10	QC6BPS	47.50
	QUICKLAG Type C Single Point Connector	10	QC4CONB	36.75
	QUICKLAG Type C DIN Rail Adapter	6	QCDINADAPT	3.20
Dummy Breakers	QUICKLAG Type P	1	HQP1000	11.80
	QUICKLAG Type B	1	BAB1000	11.80
	QUICKLAG Type C	1	QC1000	11.80
	QUICKLAG Type C Clear Choice Breaker	4	QC30SAMPLE	24.60

① See Page 11-10 for QCR and QCF accessories.

② Suitable for ground fault breakers.

③ Can lock in ON or OFF position.

Handle Locks



QL1NPL



QL23NPL



QL1PL



QLPB123PL



QC123PL

Handle Tie



QL1HT

Discount Symbol **CB-1**

Mounting Hardware



QCFLIP



QC1FP



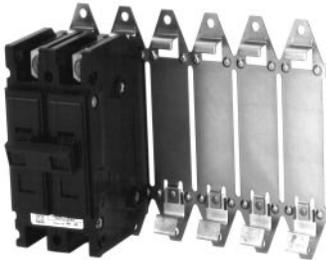
QC2FP



QC3FP



QCBCLIP



QC6BP



QC4CONB



QCDINADAPT

Instruction Leaflets

- Instruction for Assembly of QC1FPLOFF, QC2FPLOFF and QC3FPLOFF Face Mounting Plate/Lock-Off for Type QC and QCGF Circuit Breakers: FRED Number 7804284
- Instructions for QC1FP, QC2FP and QC3FP QC Breaker Face Mounting Plate: FRED Number 15172
- Instruction for Assembly of QC1FP, QC2FP, QC3FP Face Mounting Plate for QC Breaker: FRED Number 5651251

QUICKLAG — Factory Modifications and Installed Terminals

Factory Modifications and Installed Terminals

Table 11-29. Factory Modifications ①

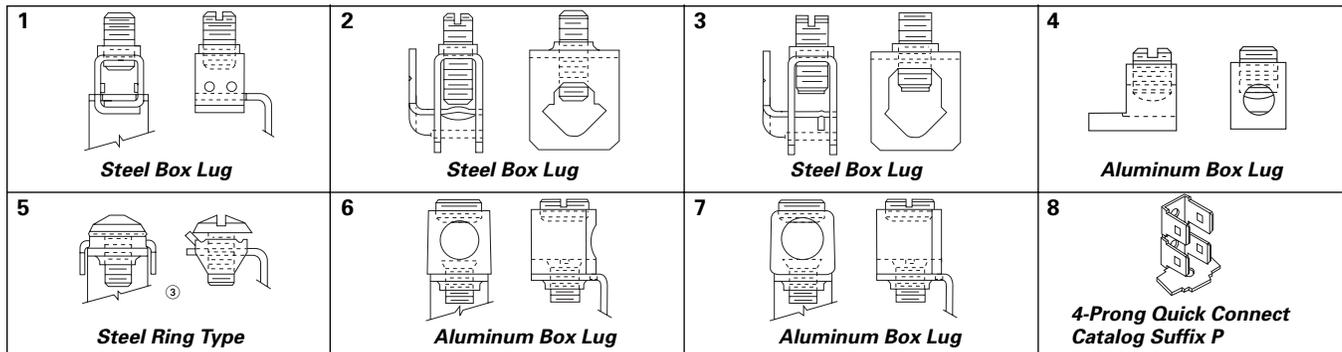
Type of Modification	Breaker Types	Catalog Suffix	Adder U.S. \$
Shunt Trip (Requires 1 extra pole space on right side) 120, 208, 240V AC 12, 24, 48V AC/DC Draws 2.6A at 120V Draws 11A at 24V DC	QUICKLAG Types P, B and C QUICKLAG Types P, B and C	S S1	138.00
Special Calibration (50°C) Shock Testing Freeze Testing	QUICKLAG Types P, B and C QUICKLAG Types P, B and C QUICKLAG Types P, B and C	V L Y	20% 30% 30%
Moisture-Fungus Treatment Marine Duty Naval Duty 400 Hz Calibration Specific DC Ratings (Breaker marked with a Max VDC rating)	QUICKLAG Types P, B, C and Ground Fault QUICKLAG Types P, B, C QUICKLAG Types P, B, C QUICKLAG Types P, B, C QUICKLAG Types P, B, C	F H08 H09 G Q thru Q9 ②	15.00 10% 10% 20% 20%

① Contact Cutler-Hammer for factory modifications available for QCR and QCF breakers.

② Q = 32V DC; Q1 = 32 – 40V DC; Q2 = 37.5V DC; Q3 = 45V DC; Q4 = 48V DC; Q5 = 50V DC; Q6 = 62V DC; Q7 = 75V DC (2P); Q8 = 80V DC (2P); Q9 = 125V DC (QCR 2P)

Table 11-30. Factory Installed Breaker Terminals

Breaker Type	Continuous Ampere Rating	Standard Line Terminal			Standard Load Terminal			Optional Terminals (20% List Price Adder)	
		Term Type	Wire Type	Wire Range (AWG)	Term Type	Wire Type	Wire Range (AWG)	Line	Load
QUICKLAG Type P HQP, QPHW, QHPX, QHPW	10 to 30 35 to 50 55 to 125	Plug-on female clips which mate with the bus stabs			1 2 3	Cu/Al Cu/Al Cu/Al	14 – 4 14 – 4 8 – 1/0	N/A	3 3 —
QUICKLAG Ground Fault QPGF, QPHGF, QPGFEP, QPHGFEP	10 to 30 40	Plug-on female clips which mate with the bus stabs			1 (1-pole) 4 (2-pole) 4	Cu/Al Cu/Al Cu	14 – 4 14 – 8 14 – 8	N/A	3 3 —
QUICKLAG Type B BAB, QBHW, HBAX, HBAW	10 to 30 35 to 50 55 to 125	Extended tangs which bolt directly to the bus			1 (1- and 2-pole) 2 (3-pole) 3	Cu/Al Cu/Al Cu/Al	14 – 4 14 – 4 8 – 1/0	N/A	3 3 —
QUICKLAG Ground Fault QBGF, QBHGF, QBGFEP, QBHGFEP	10 to 30 40	Extended tangs which bolt directly to the bus			1 (1-pole) 4 (2-pole) 4	Cu/Al Cu/Al Cu	14 – 4 14 – 8 14 – 8	N/A	N/A
QUICKLAG Type C QC, QCHW, QHCX, QHCW	10 to 20 25 to 60 70 to 100	5 6 7	Cu/Al Cu/Al Cu/Al	14 – 10 14 – 10 14 – 10	5 2 3	Cu/Al Cu/Al Cu/Al	14 – 10 14 – 4 8 – 1/0	6, 7 5, 7 5	6, 7, 8 5, 6, 7, 8 5, 7, 8
QUICKLAG QCR, QCF	10 to 55 60	1 1	Cu/Al Cu	14 – 4 14 – 4	1 1	Cu/Al Cu	14 – 4 14 – 4	N/A	N/A
QUICKLAG Ground Fault QCGF, QCHGF, QCGFEP, QCHGFEP	10 to 20 25 to 50	5 6	Cu/Al Cu/Al	14 – 10 14 – 10	1 1	Cu/Al Cu/Al	14 – 4 14 – 4	6, 7 5, 7	5 5



③ Clamp on line side only.

Table 11-31. Spare Terminal Hardware Screws (Lugs not Included)

Terminal Type	Description	Order in Multiples of	Catalog Number	Price U.S. \$
1	QUICKLAG Terminal Screw	10	QLLDTSA	.21
2	QUICKLAG Terminal Screw	10	QLLDTSB	.21
3	QUICKLAG Terminal Screw	10	QLLDTSC	2.80
5	QUICKLAG Binding Head Terminal Screw and Clamp	10	QLBHTSE	2.80
6 and 7	QUICKLAG Terminal Screw	10	QLLNTSFG	2.80

Discount Symbol **CB-1**

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Single-Pole



Double-Pole



Triple-Pole

WMS — Supplementary Protector

Product Description

- Dual standard breaker
 - Recognized by UL and CSA under UL1077 and CSA 22.2
 - Third party approved by KEMA according to IEC 898
- CE marked in accordance with Low Voltage Directive (LVD) (73/23/EEC)
- Used to provide overcurrent protection where branch protection (for example UL489 MCCB) is already provided or not required
- Installed as a component within or part of an appliance or a piece of electrical equipment
- Ideal replacement for fuses that are applied as a supplementary protector, i.e. in addition to branch protection (if required)
- 35 mm DIN rail mountable, utilizing metallic "extra strength" spring clip
- Light gray case with gray handle, that is marked "O" for OFF and "I" for ON
- UL File Number E162396

Application Description

Supplementary Protectors are ideal for providing protection in a multitude of applications, including:

- Motor Control Circuits
- Control Power Transformers
- Relays
- Contactor Coils
- PLC I/O points
- Lighting Circuits

Features, Benefits and Functions

- Current Limiting design provides fast short circuit interruption that reduces the let-through energy which can damage the circuit
- Thermal Magnetic Overcurrent Protection
 - Three levels, categorized by B, C and D curves
 - In direct relation to continuous rating of device
 - **B Curve — 3 to 5 X**
Suited for applications where maximum protection is required for control circuits from Low Level short circuit faults that could damage the wiring
 - **Type C — 5 to 10 X**
Is positioned for medium inrush startup currents, to provide protection for small transformers, pilot devices, etc.
 - **Type D — 10 to 20 X**
Provides a magnetic range to allow for higher inrush levels during startup, that are usually seen with motors, transformers and other high inductive systems
- Color Coded status indicator window — Red = ON or Green = OFF
- IP20 Finger Protection
- Provision for Dual Connection — line and load
 - Fork or pin bus bars
 - Cable direct into terminal
 - Cable utilizing Ring Tung connector
- Field Mountable Accessories
 - Quick 3 step process
 - No tools required
 - Auxiliary Switch
 - Combined Auxiliary Switch and Bell Alarm
 - Shunt Trip
 - Undervoltage Release
- 35 mm DIN Rail Mountable, utilizing "extra strength" spring clip

Standards and Certifications

- UL recognized under UL 1077
- CSA 22.2
- IEC 898
- IEC 60947-2

WMS

Technical Data

Table 11-32. IEC Ratings

Rating (A)	Curve	Voltage	Short Circuit Capacity (A)	
			IEC 898, I _{cn}	IEC 947-2, I _{cu}
0.5 to 5	C, D	240/415V	10,000	10,000
6 to 40	B, C, D	240/415V AC	10,000	10,000
50 to 60	B, C	240/415V AC	10,000	10,000

Table 11-33. UL/CSA Ratings

Rating (A)	Poles	Curve	Voltage	Short Circuit Capacity (A)	
				UL 1077, I _{cn}	CSA 235, I _{cu}
6 to 60	1	B	120	10,000	10,000
0.5 to 60	1	C, D	120	10,000	10,000
6 to 60	2, 3, 4	B	240	10,000	10,000
0.5 to 60	2, 3, 4	C, D	240	10,000	10,000
6 to 60	1	B	277	6,000	6,000
0.5 to 60	1	C, D	277	6,000	6,000
6 to 60	2, 3, 4	B	480	5,000	5,000
0.5 to 60	2, 3, 4	C, D	480	5,000	5,000

Table 11-34. DC Ratings

Rating (A)	Poles	Curve	Voltage	Short Circuit Capacity (A)	
				UL 1077, I _{cn}	CSA 235, I _{cu}
0.5 to 63	1	B, C, D	65V DC	10,000	10,000
0.5 to 63	2	B, C, D	130V DC	10,000	10,000

Table 11-35. Cable Size and Torque Setting — WMS

Rating	Cable Size		Tightening Torque	
	mm ²	AWG	Nm	lb-in
0.5 to 60A	1 to 25	14 to 6	2.8	24.8

Options and Accessories

Table 11-36. Shunt Trip

Voltage	Module Width	Catalog Number	Price U.S. \$
110/220V AC	1	WST220A	90.00
240/415V AC	1	WST415A	90.00
12/48V DC	1	WST48D	90.00

Table 11-37. Auxiliary Switch

No. Contacts	Module Width	Catalog Number	Price U.S. \$
1A/1B	1/2	WAX1A1B	60.00

Table 11-38. Padlock Accessories

Description	Catalog Number	Price U.S. \$
Padlocking Attachment	WPLK	17.70
Padlock Key	WPKEY	37.75

Table 11-39. Undervoltage Release

Voltage	Module Width	Catalog Number	Price U.S. \$
240V AC	1	WUVR240A	90.00
48V DC	1	WUVR48D	90.00

Table 11-40. Alarm Switch

No. Contacts	Module Width	Catalog Number	Price U.S. \$
1A/1B	1/2	WAL1A1B	60.00

Table 11-41. ID Labels

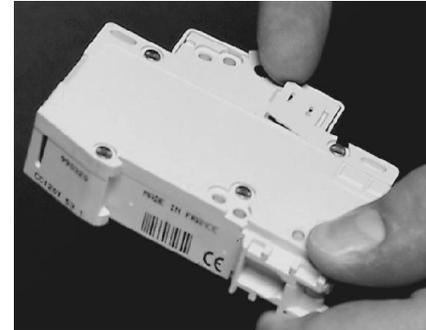
Description	Catalog Number	Price U.S. \$
Identification Labels	WIDL	40.00

Accessory “Quick 3 Step” Field Mounting

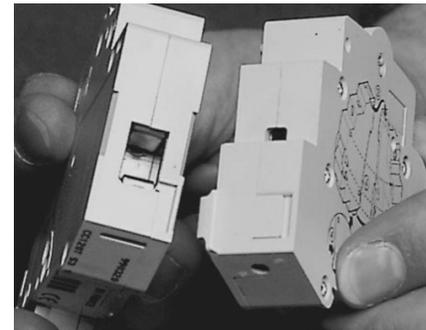
Three Steps to fitting any of the side mounted accessories. No tools required.

Before you do this, you should make sure the device is in the OFF position — check the handle position and flag indicator.

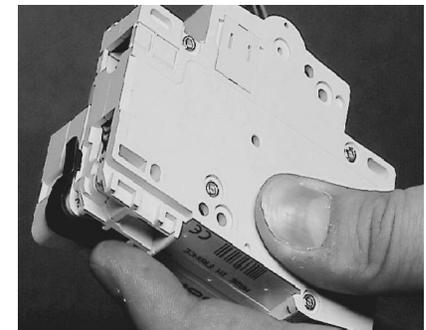
Step One — Remove left hand “Accessory window”



Step Two — Place the accessory’s clip into the device’s positioning groove



Step Three — Push the blue pivot clip up, and snap into place



Discount Symbol SP-1

Table 11-42. Accessory Specification

Catalog Number	Auxiliary Switch	Auxiliary Alarm Switch	Shunt Trip	UVR	Electrical Characteristics	Cable Size		Tightening Torque	
						mm ²	AWG	Nm	lb-in
WAL1A1B	No	Yes	No	No	1 Changeover Contact 240V ~ 6A	0.5 to 4	18 to 12	0.8	7.1
WAX1A1B	Yes	No	No	No	2 Changeover Contact 240V ~ 6A	0.5 to 4	18 to 12	0.8	7.1
WST415A	No	No	Yes	No	230 – 415V~/110 – 130V ---	0.5 to 4	18 to 12	0.8	7.1
WST48D	No	No	Yes	No	9 – 48V ---/48V~	0.5 to 4	18 to 12	0.8	7.1
WST220A	No	No	Yes	No	110V ---/220V~	0.5 to 4	18 to 12	0.8	7.1
WUVR240A	No	No	No	Yes	240V~/110 – 130V ---	0.5 to 4	18 to 12	0.8	7.1
WUVR48D	No	No	No	Yes	48V ---/24 – 48V~	0.5 to 4	18 to 12	0.8	7.1

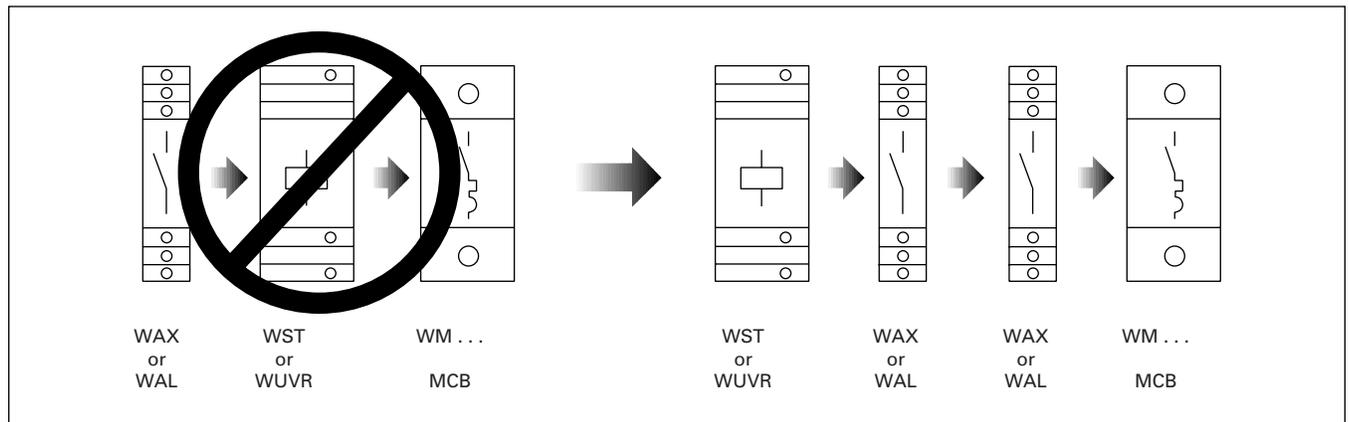


Figure 11-9. Grouping of Accessories

Product Specification

The WMS Supplementary Protector is a dual rated product for both AC and DC supplies, in accordance with UL 1077, CSA 22.2 and IEC 898 standards and is marked with CE in accordance with the Low Voltage Directive. With this dual standard product, the customer can include it within their design, knowing that, in the vast majority of cases wherever their equipment is used, the product is in line with the local UL, CSA or IEC (European) requirements. This is very important as the different areas of the world market draw closer together and the need for breakers that meet different standards is a common, everyday occurrence.

It is to be applied in conjunction with a branch protector (if branch protection is required) and can be a replacement for similarly applied fuses. Its advantage over fuses is that it is resettable and the device's status is easily and clearly identified by the position of the handle and the flag indicator.

In addition to this, the user is able to select a device that provides maximum reliability and accuracy to fit their various applications (of which there are many) due to the availability of a wide range of current ratings from 0.5 to 60 Amps and three different overcurrent characteristic curves, B, C and D. With easy mounting of the

device on a 35 mm DIN rail and also the "Quick 3 Step" field mountable accessories, it is now easier for the customer to select and apply this modular range. Due to the smaller modular width of the device and accessories, it enables them to save space in their panel or equipment — which directly leads to cost savings!

Technical Data and Specifications

Trip Curves

11

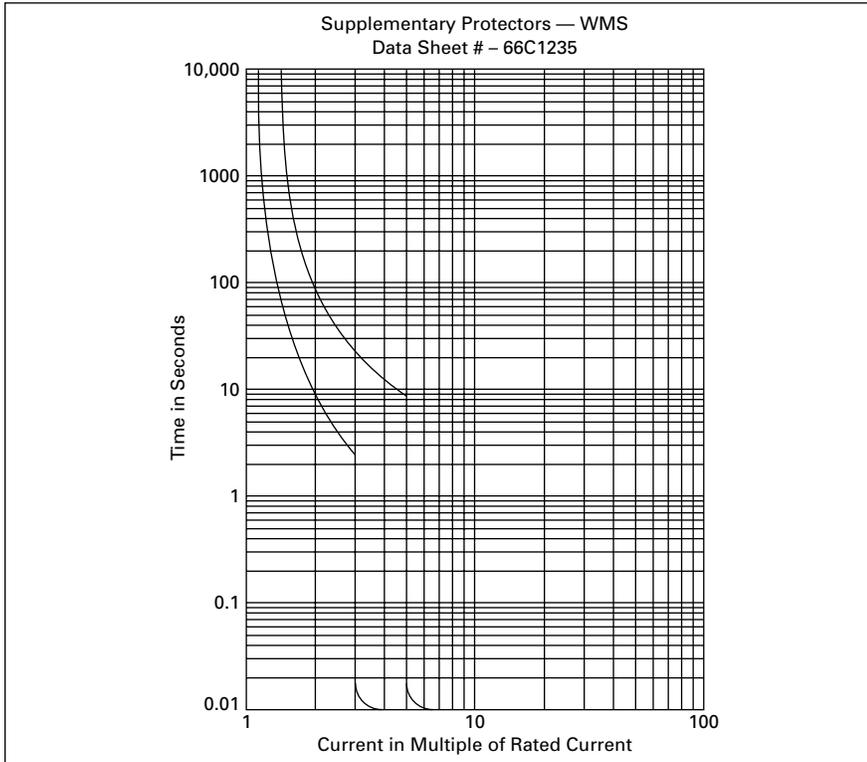


Figure 11-10. MCB Curve B Time/Current Characteristic

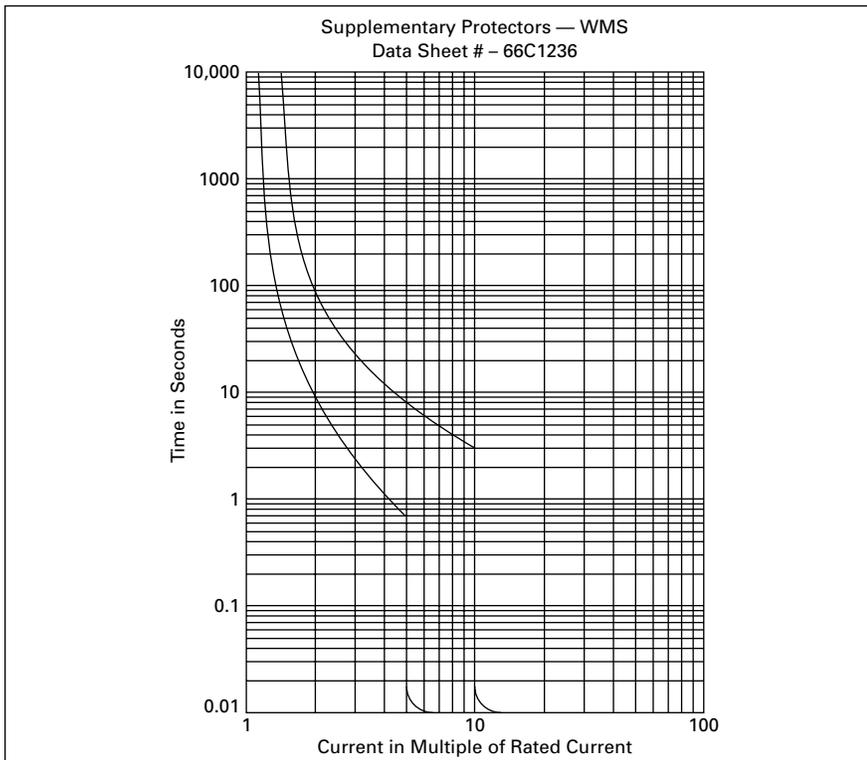


Figure 11-11. MCB Curve C Time/Current Characteristic

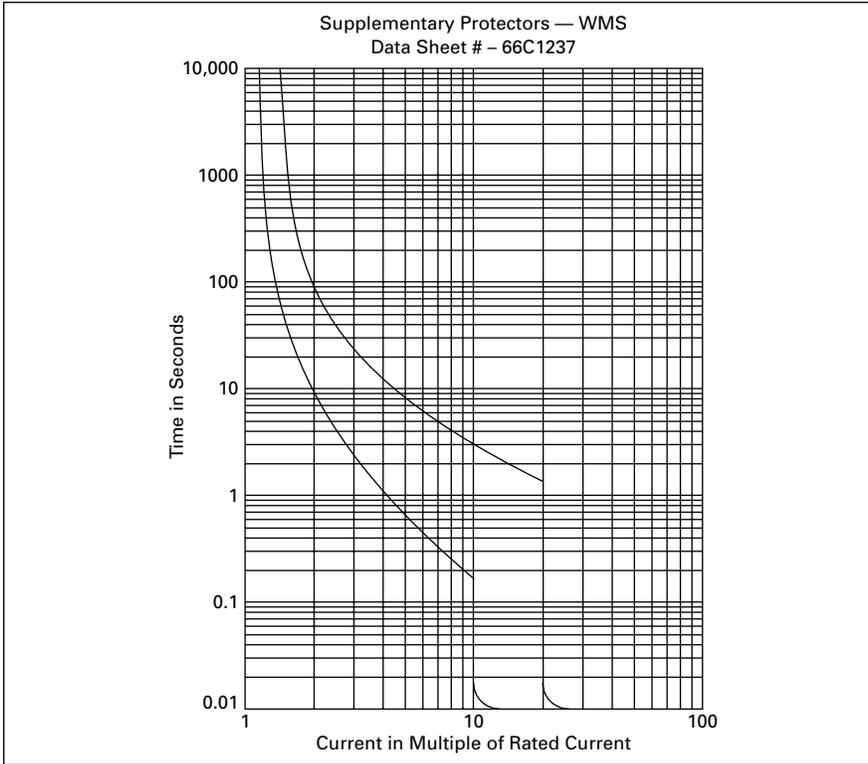


Figure 11-12. MCB Curve D Time/Current Characteristic

Approximate Dimensions

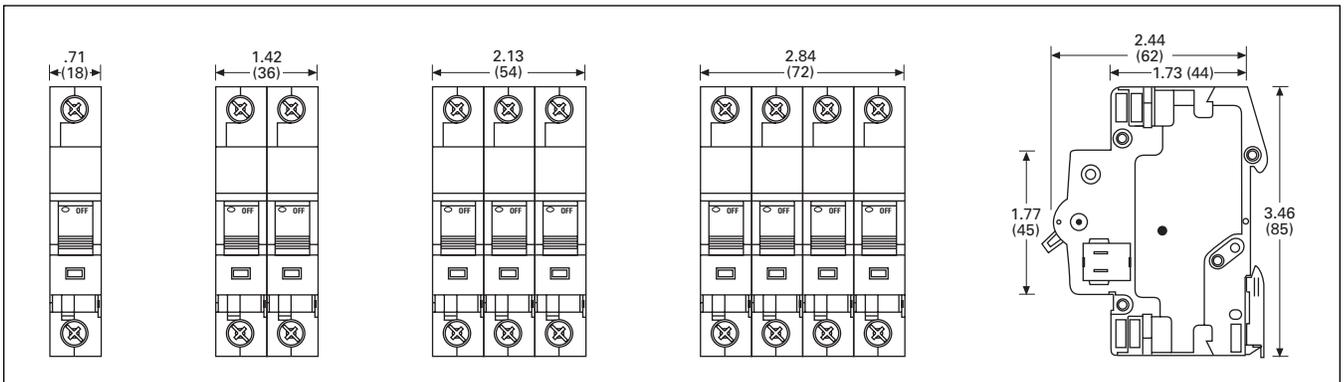


Figure 11-13. Approximate Dimensions in Inches (mm)

Not for construction purposes

Table 11-43. WMS — Shipping Data

Pole Configuration	Pack Quantity	Pack Dimensions in Inches (mm)	Pack Weight Lbs oz. (Kg)
1	12	9.06 (230) x 3.19 (81) x 3.78 (96)	3 lbs. 3 oz. (1.43)
2	6	9.06 (230) x 3.19 (81) x 3.78 (96)	3 lbs. 4 oz. (1.46)
3	4	9.06 (230) x 3.19 (81) x 3.78 (96)	3 lbs. 5 oz. (1.48)
4	3	9.06 (230) x 3.19 (81) x 3.78 (96)	3 lbs. 7 oz. (1.54)

WMS

Product Selection

Table 11-44. Product Selection — Single-Pole

Rating (A)	B Curve 3 to 5 I _n Catalog Number	Price U.S. \$	C Curve 5 to 10 I _n Catalog Number	Price U.S. \$	D Curve 10 to 20 I _n Catalog Number	Price U.S. \$
0.5	—	—	WMS1C00	72.00	WMS1D00	72.00
1	—	—	WMS1C01	72.00	WMS1D01	72.00
2	—	—	WMS1C02	72.00	WMS1D02	72.00
3	—	—	WMS1C03	72.00	WMS1D03	72.00
4	—	—	WMS1C04	72.00	WMS1D04	72.00
5	—	—	WMS1C05	72.00	WMS1D05	72.00
6	WMS1B06	60.00	WMS1C06	60.00	WMS1D06	60.00
7	WMS1B07	60.00	WMS1C07	60.00	WMS1D07	60.00
8	WMS1B08	60.00	WMS1C08	60.00	WMS1D08	60.00
10	WMS1B10	60.00	WMS1C10	60.00	WMS1D10	60.00
13	WMS1B13	60.00	WMS1C13	60.00	WMS1D13	60.00
15	WMS1B15	60.00	WMS1C15	60.00	WMS1D15	60.00
16	WMS1B16	60.00	WMS1C16	60.00	WMS1D16	60.00
20	WMS1B20	60.00	WMS1C20	60.00	WMS1D20	60.00
25	WMS1B25	60.00	WMS1C25	60.00	WMS1D25	60.00
30	WMS1B30	60.00	WMS1C30	60.00	WMS1D30	60.00
32	WMS1B32	60.00	WMS1C32	60.00	WMS1D32	60.00
40	WMS1B40	65.00	WMS1C40	65.00	WMS1D40	65.00
50	WMS1B50	72.00	WMS1C50	72.00	—	—
60	WMS1B60	88.50	WMS1C60	88.50	—	—

Table 11-45. Product Selection — Double-Pole

Rating (A)	B Curve 3 to 5 I _n Catalog Number	Price U.S. \$	C Curve 5 to 10 I _n Catalog Number	Price U.S. \$	D Curve 10 to 20 I _n Catalog Number	Price U.S. \$
0.5	—	—	WMS2C00	144.00	WMS2D00	144.00
1	—	—	WMS2C01	144.00	WMS2D01	144.00
2	—	—	WMS2C02	144.00	WMS2D02	144.00
3	—	—	WMS2C03	144.00	WMS2D03	144.00
4	—	—	WMS2C04	144.00	WMS2D04	144.00
5	—	—	WMS2C05	144.00	WMS2D05	144.00
6	WMS2B06	130.00	WMS2C06	130.00	WMS2D06	130.00
7	WMS2B07	130.00	WMS2C07	130.00	WMS2D07	130.00
8	WMS2B08	130.00	WMS2C08	130.00	WMS2D08	130.00
10	WMS2B10	130.00	WMS2C10	130.00	WMS2D10	130.00
13	WMS2B13	130.00	WMS2C13	130.00	WMS2D13	130.00
15	WMS2B15	130.00	WMS2C15	130.00	WMS2D15	130.00
16	WMS2B16	130.00	WMS2C16	130.00	WMS2D16	130.00
20	WMS2B20	130.00	WMS2C20	130.00	WMS2D20	130.00
25	WMS2B25	130.00	WMS2C25	130.00	WMS2D25	130.00
30	WMS2B30	130.00	WMS2C30	130.00	WMS2D30	130.00
32	WMS2B32	130.00	WMS2C32	130.00	WMS2D32	130.00
40	WMS2B40	149.00	WMS2C40	149.00	WMS2D40	149.00
50	WMS2B50	154.00	WMS2C50	154.00	—	—
60	WMS2B60	166.00	WMS2C60	166.00	—	—

Table 11-46. Product Selection — Triple-Pole

Rating (A)	B Curve 3 to 5 I _n Catalog Number	Price U.S. \$	C Curve 5 to 10 I _n Catalog Number	Price U.S. \$	D Curve 10 to 20 I _n Catalog Number	Price U.S. \$
0.5	—	—	WMS3C00	213.00	WMS3D00	213.00
1	—	—	WMS3C01	213.00	WMS3D01	213.00
2	—	—	WMS3C02	213.00	WMS3D02	213.00
3	—	—	WMS3C03	213.00	WMS3D03	213.00
4	—	—	WMS3C04	213.00	WMS3D04	213.00
5	—	—	WMS3C05	213.00	WMS3D05	200.00
6	WMS3B06	200.00	WMS3C06	200.00	WMS3D06	200.00
7	WMS3B07	200.00	WMS3C07	200.00	WMS3D07	200.00
8	WMS3B08	200.00	WMS3C08	200.00	WMS3D08	200.00
10	WMS3B10	200.00	WMS3C10	200.00	WMS3D10	200.00
13	WMS3B13	200.00	WMS3C13	200.00	WMS3D13	200.00
15	WMS3B15	200.00	WMS3C15	200.00	WMS3D15	200.00
16	WMS3B16	200.00	WMS3C16	200.00	WMS3D16	200.00
20	WMS3B20	200.00	WMS3C20	200.00	WMS3D20	200.00
25	WMS3B25	200.00	WMS3C25	200.00	WMS3D25	200.00
30	WMS3B30	200.00	WMS3C30	200.00	WMS3D30	200.00
32	WMS3B32	200.00	WMS3C32	200.00	WMS3D32	200.00
40	WMS3B40	213.00	WMS3C40	200.00	WMS3D40	213.00
50	WMS3B50	224.00	WMS3C50	213.00	—	—
60	WMS3B60	224.00	WMS3C60	224.00	—	—

Discount Symbol SP-1

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SPHM — Supplementary Protector

Product Description

- IEC breaker recognized by UL under UL1077
- Used to provide overcurrent protection where branch protection (for example UL489 MCCB) is already provided or not required
- Installed as a component within or part of an appliance or a piece of electrical equipment
- Ideal replacement for fuses that are applied as a supplementary protector i.e., in addition to branch protection (if required)
- 35 mm DIN rail mountable, utilizing the molded spring clip
- Light Gray case with Off White handle, that is marked "O" for OFF and "I" for ON
- UL File Number E69553

Application Description

Supplementary Protectors are ideal for providing protection in a multitude of applications, including:

- Motor Control Circuits
- Control Power Transformers
- Relays
- Contactor Coils
- PLC I/O points
- Lighting Circuits

Features, Benefits and Functions

- **Environmental, Vibration and Shock Resistant**
Mil-spec qualification for fungus resistance, humidity, salt spray resistance and shock vibration resistance
- **Heat Induced Nuisance Tripping Eliminated**
The protector is designed to "hold in" @ 100% continuous rated current, regardless of ambient temperatures from -40 to +85 degrees C
- **Immediate Reset After Trip**
The protector can be reset (closed) immediately after an overcurrent trip without a "cooling off" period
- **1/2 Cycle High Inrush Tolerance — 8x (standard), 18x and 25x**
The protector is available with different levels of tolerance to 1/2 cycle current spikes — standard tolerance is 8x the continuous current rating; in addition 18x and 25x are also available
- **Overcurrent Curves, Long, Medium or Short Delay**
Time characteristic curves are available as Short, Medium and Long Delay
- **Integral Auxiliary Switch (optional selection)**
One auxiliary switch (a or b) can be factory installed per pole — a separate pole for auxiliary is NOT required. Contact Cutler-Hammer for price adder.
- **Precise Overcurrent Calibration**
The protector can be precisely calibrated to a wide variety of current ratings, from 0.1 to 50 continuous amperes
- **DIN Rail Mountable**
The protector can be easily mounted, utilizing its quick release spring clip to attach it to a 35 mm DIN rail



Single-Pole



Double-Pole



Triple-Pole

Standards and Certifications

- UL recognized under UL 1077
- CSA 22.2
- VDE 0660
- IEC 60947-2

SPHM

Product Specification

The SPHM Supplementary Protector is a dual rated product for both AC and DC supplies, in accordance with UL 1077, CSA 22.2, VDE 0660 and IEC 60947-2 standards.

It is to be applied in conjunction with a branch protector (if branch protection is required) and can be a replacement for similarly applied fuses. Its advantages over fuses are that it is resettable and the device's status is easily and clearly identified by the position of the handle. In addition to this, the user is able to select a device that precisely fits the application (of which there are many) due to the availability of a wide range of current ratings, three levels of inrush tolerance (8x, 18x or 25x) and flexible time characteristic curves (Short, Medium and Long Delay). In addition to this, the

SPHM's protection performance is *not* adversely affected and is resistant to abnormal or changing ambient temperatures or even excessive environmental factors. The design allows it to be utilized in environments that can expose it to fungus, shock or unordinary vibration.

Technical Data and Specifications

Table 11-47. Short Circuit Capacity

Standards and Approvals	Rating (A)	Volts AC 50/60 Hz	Volts DC	Interruption Cap Capacity (I _{cu} =I _{cs})
UL 1077 CSA 22.2	0.1 to 30 50	277/480 250	— 80	3,000 5,000
VDE 0660 IEC-60947-2	0.1 to 50 0.1 to 50	230/400 —	— 80	1,500 3,000

Trip Curves

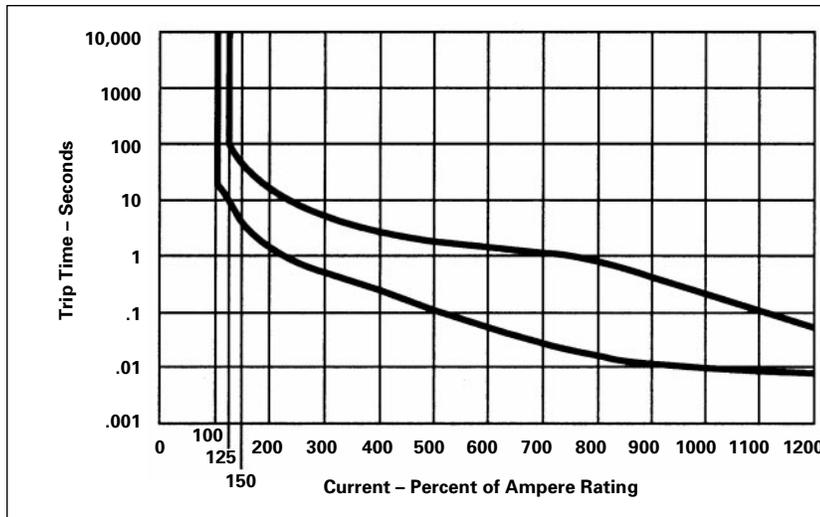


Table 11-48. Percent of Rated Current vs. Trip Delay at 25° C; Breakers Not Preloaded

Percent Overload	Delay Maximum (Seconds)	Delay Minimum (Seconds)
100	No Trip	No Trip
101-125	May Trip	May Trip
125	110	10
150	50	4.5
200	18	1.7
300	6	.55
400	2.8	.25
500	1.9	1.1
600	1.5	.05
700	1.2	.025
800	.8	.015
900	.41	.011
1000	.2	.01
1100	.1	.009
1200	.05	.008

Figure 11-14. 8x Continuous Current — Curve 2 — Medium Delay — Option M

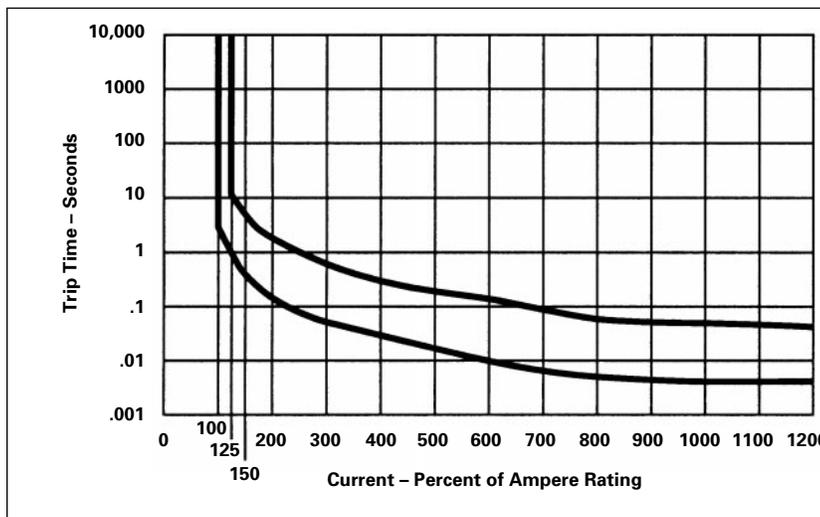


Table 11-49. Percent of Rated Current vs. Trip Delay at 25° C; Breakers Not Preloaded

Percent Overload	Delay Maximum (Seconds)	Delay Minimum (Seconds)
100	No Trip	No Trip
101-125	May Trip	May Trip
125	12	1
150	5	.4
200	1.9	.15
300	.64	.054
400	.3	.03
500	.2	.017
600	.14	.01
700	.09	.007
800	.06	.005
900	.052	.0044
1000	.05	.004
1100	.046	.004
1200	.04	.004

Figure 11-15. 8x Continuous Current — Curve 3, Short Delay, Option S

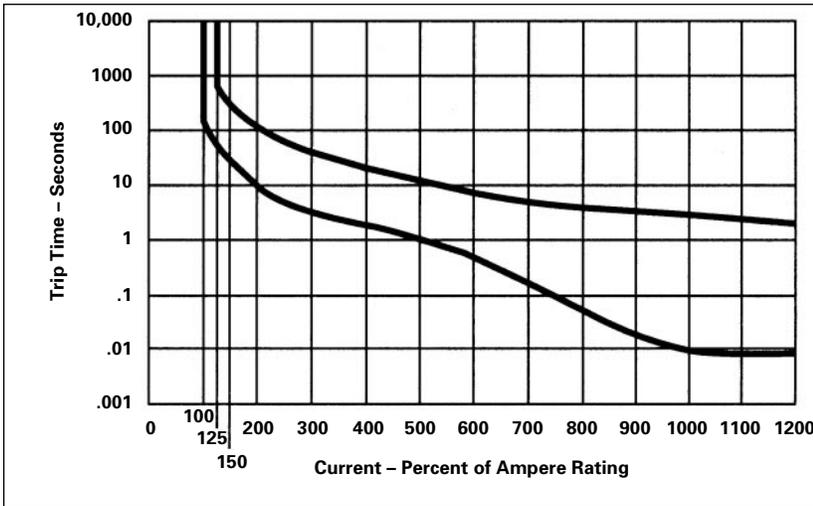


Table 11-50. Percent of Rated Current vs. Trip Delay at 25° C; Breakers Not Preloaded

Percent Overload	Delay Maximum (Seconds)	Delay Minimum (Seconds)
100	No Trip	No Trip
101-125	May Trip	May Trip
125	700	60
150	350	30
200	120	10
300	42	3.4
400	22	2
500	12.5	1.1
600	8	.5
700	5.2	.17
800	4	.05
900	3.4	.02
1000	3	.01
1100	2.5	.0084
1200	2	.008

Figure 11-16. 18x Continuous Current — Curve 10, Long Delay, Option L

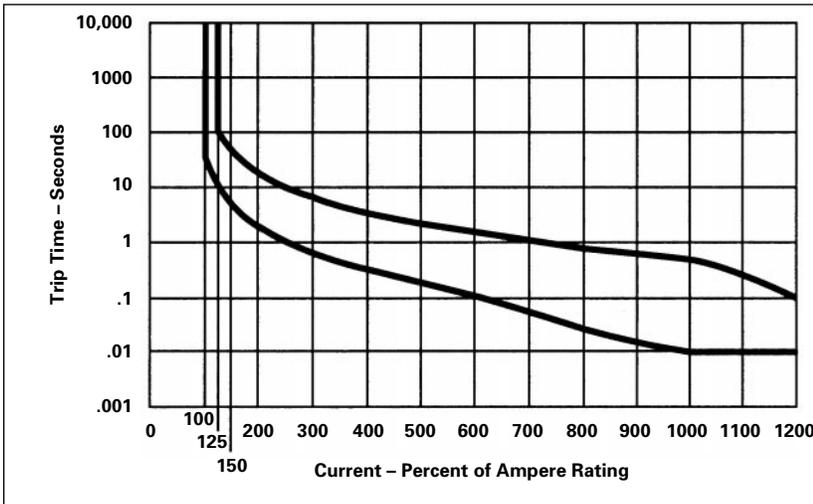


Table 11-51. Percent of Rated Current vs. Trip Delay at 25° C; Breakers Not Preloaded

Percent Overload	Delay Maximum (Seconds)	Delay Minimum (Seconds)
100	No Trip	No Trip
101-125	May Trip	May Trip
125	110	10
150	50	4.5
200	18	1.7
300	6.9	.54
400	4	.3
500	2.75	.18
600	2	.1
700	1.4	.04
800	1	.02
900	.75	.013
1000	.5	.01
1100	.25	.01
1200	.1	.01

Figure 11-17. 18x Continuous Current — Curve 20, Medium Delay, Option M

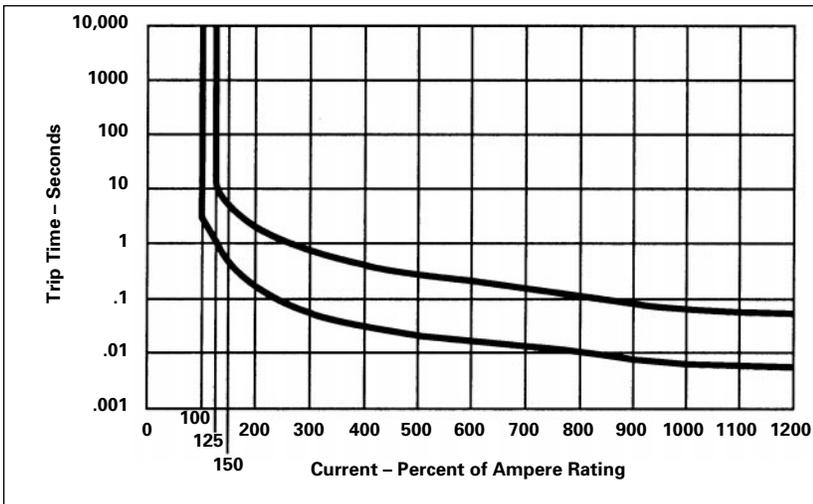


Table 11-52. Percent of Rated Current vs. Trip Delay at 25° C; Breakers Not Preloaded

Percent Overload	Delay Maximum (Seconds)	Delay Minimum (Seconds)
100	No Trip	No Trip
101-125	May Trip	May Trip
125	12	1
150	5	.4
200	1.9	.15
300	.73	.052
400	4	.03
500	.27	.02
600	.2	.015
700	.14	.012
800	.1	.01
900	.074	.0076
1000	.06	.006
1100	.053	.0053
1200	.05	.005

Figure 11-18. 18x Continuous Current — Curve 30, Short Delay, Option S

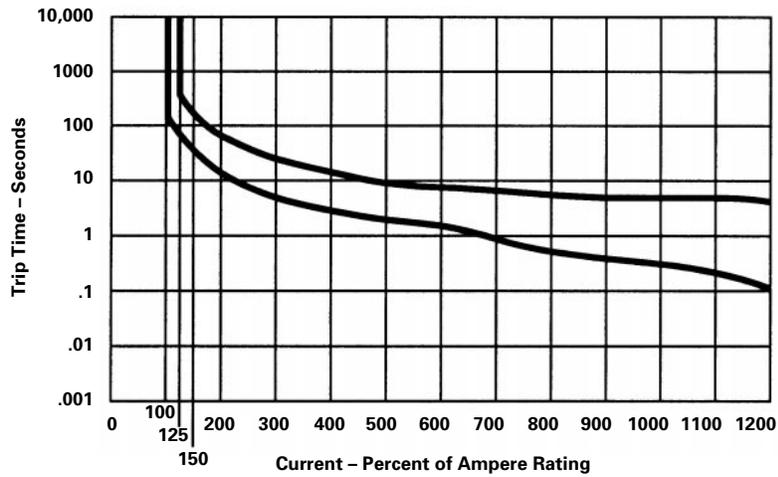


Figure 11-19. 25x Continuous Current — Curve 251, Long Delay, Option L

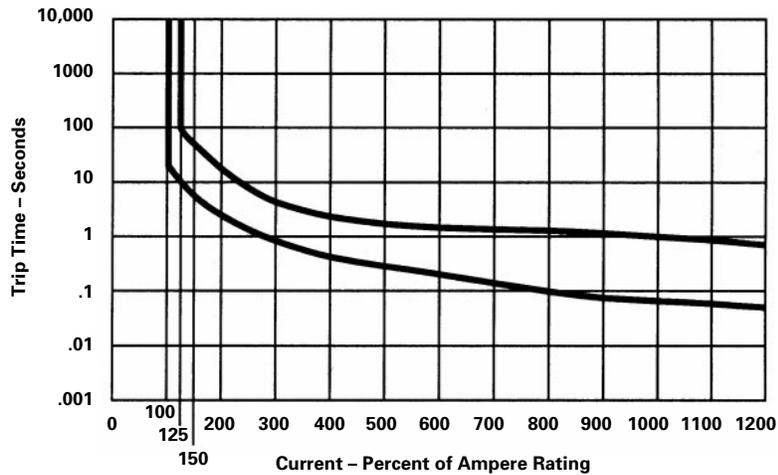


Figure 11-20. 25x Continuous Current — Curve 252, Medium Delay, Option M

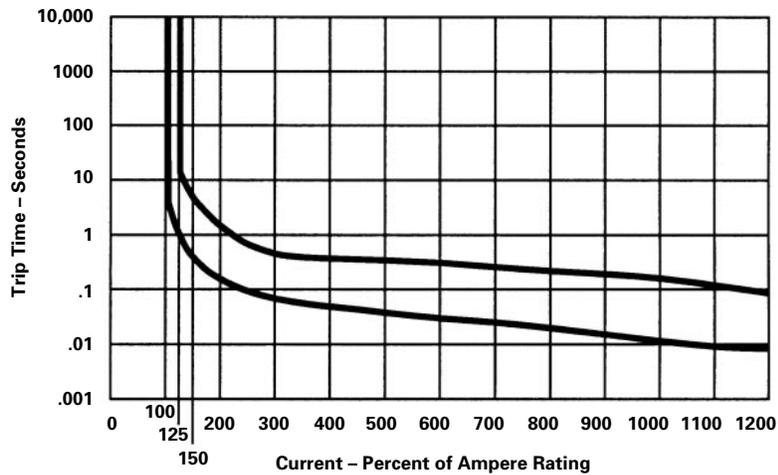


Figure 11-21. 25x Continuous Current — Curve 253, Short Delay, Option S

SPHM

Approximate Dimensions

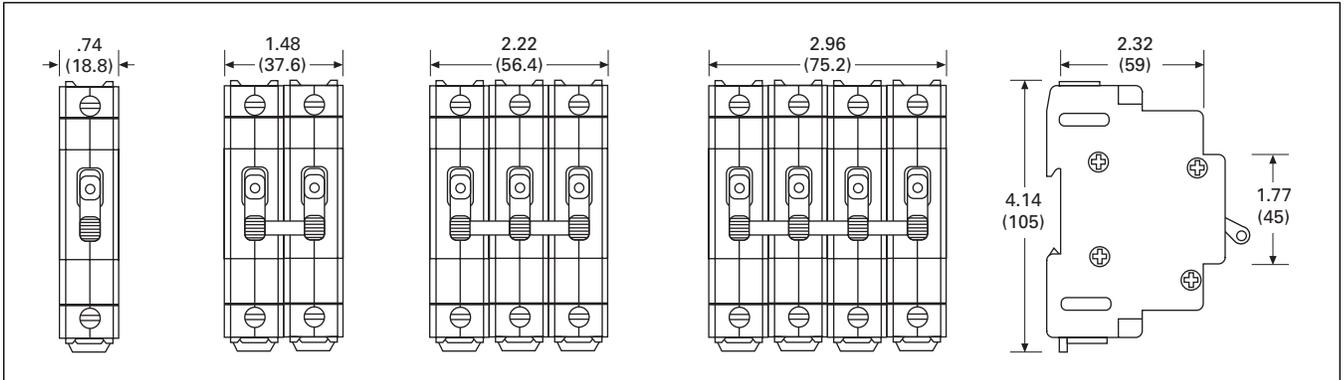


Figure 11-22. Approximate Dimensions in Inches (mm)
Not for construction purposes

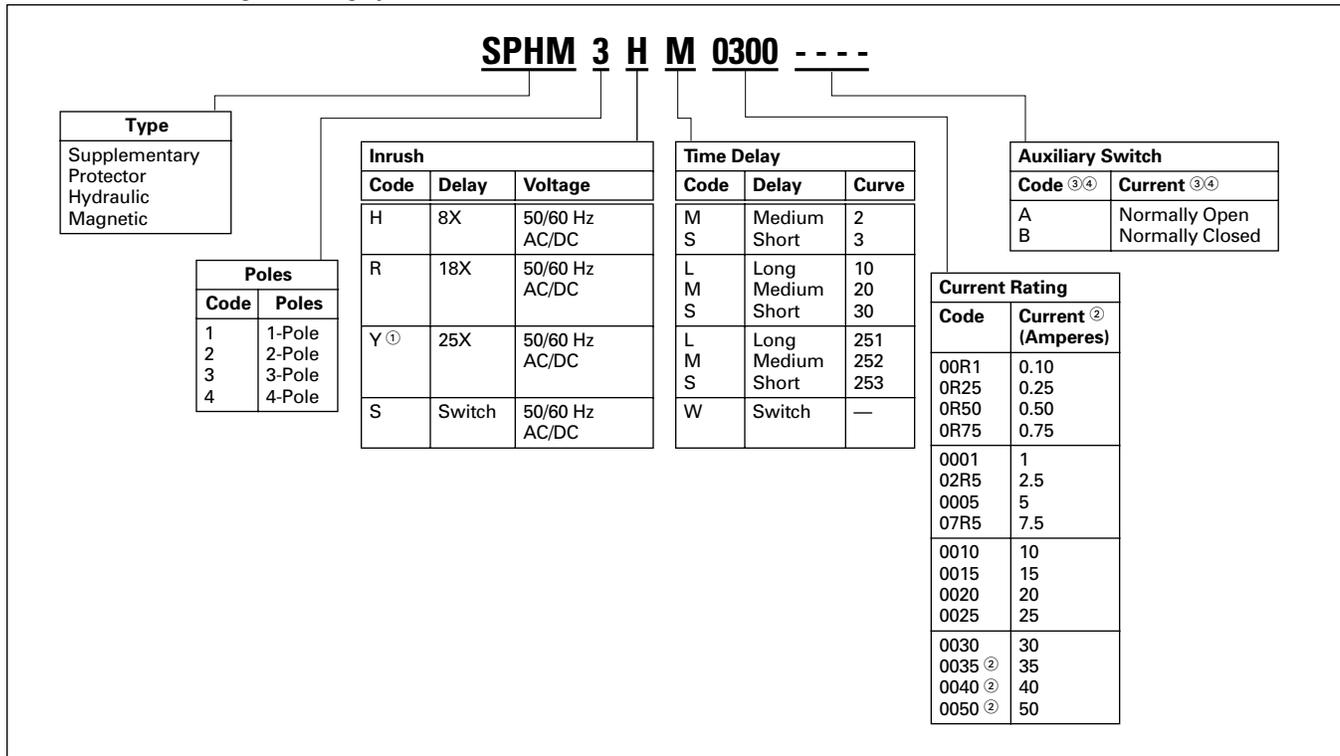
Table 11-53. SPHM — Shipping Data

Pole Configuration	Pack Quantity	Pack Dimensions in Inches (mm)	Pack Weight Lbs oz. (Kg)
1	1	2.05 (52) x 3.94 (100) x 5.12 (130)	7 oz. (0.20)
2	1	2.05 (52) x 3.94 (100) x 5.12 (130)	12 oz. (0.34)
3	1	3.54 (90) x 3.94 (100) x 5.12 (130)	1 lb. 2 oz. (0.50)
4	1	3.54 (90) x 3.94 (100) x 5.12 (130)	1 lb. 7 oz. (0.64)

SPHM

Product Selection

Table 11-54. SPHM Catalog Numbering System



- ① Maximum of 40 amperes available at 25x inrush.
- ② UL recognized to 250V AC, 5 kA above 30 amperes.
- ③ One A or B contact maximum per pole. Contacts will be arranged left to right (e.g. BAB suffix on 3-pole breaker).
- ④ Contact Cutler-Hammer for availability and price.

Product Selection

Table 11-55. SPHM Product Selection ⑤

Continuous Current Ampere Rating	8X (Standard Inrush Tolerance) Medium Delay Curve 2							
	1-Pole 277V AC Catalog Number	Price U.S. \$	2-Pole 277/480V AC Catalog Number	Price U.S. \$	3-Pole 277/480V AC Catalog Number	Price U.S. \$	4-Pole 277/480V AC Catalog Number	Price U.S. \$
0.1	SPHM1RM00R1 ⑥	88.50	SPHM2RM00R1 ⑥	190.00	SPHM3RM00R1 ⑥	289.00	SPHM4RM00R1	407.00
0.25	SPHM1RM0R25 ⑥	88.50	SPHM2RM0R25 ⑥	190.00	SPHM3RM0R25 ⑥	289.00	SPHM4RM0R25	407.00
0.50	SPHM1RM0R50 ⑥	88.50	SPHM2RM0R50 ⑥	190.00	SPHM3RM0R50 ⑥	289.00	SPHM4RM0R50	407.00
0.75	SPHM1RM0R75 ⑥	88.50	SPHM2RM0R75 ⑥	190.00	SPHM3RM0R75 ⑥	289.00	SPHM4RM0R75	407.00
1	SPHM1RM0001 ⑥	83.00	SPHM2RM0001 ⑥	166.00	SPHM3RM0001 ⑥	271.00	SPHM4RM0001	384.00
2.5	SPHM1RM02R5 ⑥	80.50	SPHM2RM02R5 ⑥	166.00	SPHM3RM02R5 ⑥	271.00	SPHM4RM02R5	384.00
5.0	SPHM1RM0005 ⑥	80.50	SPHM2RM0005 ⑥	166.00	SPHM3RM0005 ⑥	263.00	SPHM4RM0005	384.00
7.5	SPHM1RM07R5 ⑥	72.00	SPHM2RM07R5 ⑥	190.00	SPHM3RM07R5 ⑥	260.00	SPHM4RM07R5	361.00
10	SPHM1RM0010 ⑥	72.00	SPHM2RM0010 ⑥	154.00	SPHM3RM0010 ⑥	260.00	SPHM4RM0010	361.00
15	SPHM1RM0015 ⑥	72.00	SPHM2RM0015 ⑥	154.00	SPHM3RM0015 ⑥	260.00	SPHM4RM0015	361.00
20	SPHM1RM0020 ⑥	72.00	SPHM2RM0020 ⑥	154.00	SPHM3RM0020 ⑥	260.00	SPHM4RM0020	361.00
25	SPHM1RM0025 ⑥	72.00	SPHM2RM0025 ⑥	154.00	SPHM3RM0025 ⑥	260.00	SPHM4RM0025	361.00
30	SPHM1RM0030 ⑥	72.00	SPHM2RM0030 ⑥	154.00	SPHM3RM0030 ⑥	260.00	SPHM4RM0030	361.00
	1-Pole 250V AC Catalog Number	Price U.S. \$	2-Pole 250V AC Catalog Number	Price U.S. \$	3-Pole 250V AC Catalog Number	Price U.S. \$	4-Pole 250V AC Catalog Number	Price U.S. \$
35	SPHM1RM0035 ⑥	88.50	SPHM2RM0035 ⑥	190.00	SPHM3RM0035 ⑥	283.00	SPHM4RM0035	384.00
40	SPHM1RM0040 ⑥	88.50	SPHM2RM0040 ⑥	190.00	SPHM3RM0040 ⑥	283.00	SPHM4RM0040	384.00
50	SPHM1RM0050 ⑥	88.50	SPHM2RM0050 ⑥	190.00	SPHM3RM0050 ⑥	283.00	SPHM4RM0050	384.00

- ⑤ For stocking information: please contact Cutler-Hammer for current stocking situation.
- ⑥ To identify catalog number for other Inrush and Delay categories, replace underlined letters from Catalog Number Selection above. Contact Cutler-Hammer for availability and price.

Discount Symbol SP-1