Miniature Circuit Breakers and Supplementary Protectors

Miniature Circuit Breakers and Supplementary Protectors

1.1 Industrial Circuit Breakers

QUICKLAG® V4-T1-2
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW V4-T1-5
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPHGFT, QPHGFT, QPGFEP, QPHGFEP V4-T1-8
Bolt-On Types BAB, QBHW, HBAX, HBAW V4-T1-11
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF V4-T1-14
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP V4-T1-16
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW V4-T1-19
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH V4-T1-23
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP V4-T1-27
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP V4-T1-30
Solenoid Operator—Remote-Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers V4-T1-33
International Rated Types HQP, BA, QC, GFMB, GFXBC V4-T1-36
Special Application Breakers, Types HQP, BA, QC V4-T1-39

1.2 UL 489 DIN Rail Miniature Circuit Breakers

FAZ-NA and FAZ-NA-L Circuit Breakers V4-T1-47

1.3 UL 1077 DIN Rail Supplementary Protectors

FAZ Circuit Breakers V4-T1-74

1.4 UL 1053 DIN Rail RCCB

UL 1053 DIN Rail RCCB 480/277 Vac V4-T1-94
UL 1053 DIN Rail RCCB 208Y/120 Vac V4-T1-100

Learn Online

Revision notes

Volume 4—Circuit Protectors, CA08100005E

Tab 1—Miniature Circuit Breakers and Supplementary Protectors

Revision date	Section	Change page(s)	Description
11/05/2018	1.1	V4-T1-9	Content edits
11/05/2018	1.1	V4-T1-17	Content edits

Powering Business Worldwide

Miniature Circuit Breakers and Supplementary Protectors

Contents

Description
Quick Reference

QUICKLAG

Quick Reference

Eaton's QUICKLAG Industrial Circuit Breakers ① Plug-In, Bolt-On, Cable-In/Cable-Out

Circuit Breaker Type	Circuit Breaker Type Code	Continuous Ampere Rating at 40°C	Number of Poles	Vac	Vdc	Federal Spec. W-C-375b	Interrupting Ratings rms Symmetrical Amperes Vac Ratings 120	120/240	240	Vdc Ratings ②③ 24–48	62.5	80	Page Number
HQP	P	10–70	1	120/240	24, 48, 62.5	10a, 11a, 12a	—	10,000	—	5000	④	—	V4-T1-6
HQP	P	10–125	2	120/240	24, 48, 80	10a, 12a	—	10,000	—	5000	5000	5000	V4-T1-6
HQP	P	10–100	2, 3	240	—	10b, 11b, 12b	—	—	10,000	—	—	—	V4-T1-6
QPHW	P	15–70	1	120/240	24, 48, 62.5	14a	—	22,000	—	5000	④	—	V4-T1-6
QPHW	P	15–125	2	120/240	24, 48, 80	14a	—	22,000	—	5000	5000	5000	V4-T1-6
QPHW	P	15–100	2, 3	240	—	14b	—	—	22,000	—	—	—	V4-T1-6
QHPX	P	15–70	1	120/240	24, 48, 62.5	—	—	42,000	—	5000	④	—	V4-T1-7
QHPX	P	15–100	2	120/240	24, 48, 80	—	—	42,000	—	5000	5000	5000	V4-T1-7
QHPX	P	15–100	3	240	—	—	—	—	42,000	—	—	—	V4-T1-7
QHPW	P	15–30	1	120/240	24, 48, 62.5	15a	—	65,000	—	5000	④	—	V4-T1-7
QHPW	P	15–30	2	120/240	24, 48, 80	15a	—	65,000	—	5000	5000	5000	V4-T1-7
QHPW	P	15–20	3	240	—	15b	—	—	65,000	—	—	—	V4-T1-7
QPGFT	P, GF	15–40	1	120	—	10a, 11a, 12a	10,000	—	—	—	—	—	V4-T1-9
QPGFT	P, GF	15–50	2	120/240	—	10a, 11a, 12a	—	10,000	—	—	—	—	V4-T1-9

Notes

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

② Two-pole DC interrupting ratings based on two poles connected in series. Not UL® listed.

③ Breakers at DC ratings are not UL listed.

④ 62.5 Vac interrupting rating is 3800 AIC 10–50A and 2500 AIC 55–100A 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 BABRP solenoid-operated, remote-controlled circuit breakers, see **Pages V4-T1-30** to **V4-T1-35**.

Eaton's QUICKLAG Industrial Circuit Breakers ① Plug-In, Bolt-On, Cable-In/Cable-Out, continued

Circuit Breaker Type	Circuit Breaker Type Code	Continuous Ampere Rating at 40°C	Number of Poles	Vac	Vdc	Federal Spec. W-C-375b	Interrupting Ratings rms Symmetrical Amperes Vac Ratings 120	120/240	240	Vdc Ratings ②③ 24–48	62.5	80	Page Number
QPHGFT	P, GF	15–30	1	120	—	10a, 11a, 12a	22,000	—	—	—	—	—	**V4-T1-9**
QPHGFT	P, GF	15–50	2	120/240	—	10a, 11a, 12a	—	22,000	—	—	—	—	**V4-T1-9**
QPGFEP	P, GFEP	15–40	1	120	—	—	10,000	—	—	—	—	—	**V4-T1-9**
QPGFEP	P, GFEP	15–50	2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-9**
QPHGFEP	P, GFEP	15–30	1	120	—	—	22,000	—	—	—	—	—	**V4-T1-9**
BABRSP	B	15–30	1	120	—	—	10,000	—	—	—	—	—	**V4-T1-12**
BABRSP	B	15–30	2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-12**
BRRP	P	15–30	1	120	—	—	10,000	—	—	—	—	—	**V4-T1-31**
BRRP	P	15–30	2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-31**
CLRP	P	15–30	1	120	—	—	10,000	—	—	—	—	—	**V4-T1-31**
CLRP	P	15–30	2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-31**
BAB	B	10–70	1	120/240	24, 48, 62.5	10a, 11a, 12a	—	10,000	—	5000	④	—	**V4-T1-12**
BAB	B	10–125	2	120/240	24, 48, 80	10a, 12a	—	10,000	—	5000	5000	5000	**V4-T1-12**
BAB	B	10–100	2, 3	240	—	10b, 11b, 12b	—	—	10,000	—	—	—	**V4-T1-12**
BABRP	B	15–30	1	120	—	—	10,000	—	—	—	—	—	**V4-T1-31**
BABRP	B	15–30	2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-31**
QBAF	B, AF	15–20	1, 2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-15**
QBCAF	B, AF, GF	15–20	1, 2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-15**
QBHW	B	15–70	1	120/240	24, 48, 62.5	14a	—	22,000	—	5000	④	—	**V4-T1-12**
QBHW	B	15–125	2	120/240	24, 48, 80	14a	—	22,000	—	5000	5000	5000	**V4-T1-12**
QBHW	B	15–100	2, 3	240	—	14b	—	—	22,000	—	—	—	**V4-T1-12**
HBAX	B	15–70	1	120/240	24, 48, 62.5	—	—	42,000	—	5000	④	—	**V4-T1-13**
HBAX	B	15–100	2	120/240	24, 48, 80	—	—	42,000	—	5000	5000	5000	**V4-T1-13**
HBAX	B	15–100	3	240		—	—	—	42,000	—	—	—	**V4-T1-13**
HBAW	B	15–30	1	120/240	24, 48, 62.5	15a	—	65,000	—	5000	④	—	**V4-T1-13**
HBAW	B	15–30	2	120/240	24, 48, 80	15a	—	65,000	—	5000	5000	5000	**V4-T1-13**
HBAW	B	15–20	3	240	—	15b	—	—	65,000	—	—	—	**V4-T1-13**
QBGFT	B, GF	15–40	1	120	—	10a, 11a, 12a	10,000	—	—	—	—	—	**V4-T1-17**
QBGFT	B, GF	15–50	2	120/240	—	10a, 11a, 12a	—	10,000	—	—	—	—	**V4-T1-17**
QBHGFT	B, GF	15–30	1	120	—	10a, 11a, 12a	22,000	—	—	—	—	—	**V4-T1-17**
QBHGFT	B, GF	15–30	1	120/240	—	10a, 11a, 12a	—	22,000	—	—	—	—	**V4-T1-17**
QBGFEP	B, GFEP	15–40	1	120	—	—	10,000	—	—	—	—	—	**V4-T1-17**
QBGFEP	B, GFEP	15–50	2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-17**
QBHGFEP	B, GFEP	15–30	1	120	—	—	22,000	—	—	—	—	—	**V4-T1-17**
QBHGFEP	B, GFEP	15–30	2	120/240	—	—	22,000	22,000	—	—	—	—	**V4-T1-17**
QC	C	10–70	1	120/240	24, 48, 62.5	10a, 11a, 12a	—	10,000	—	5000	④	—	**V4-T1-40**
QC	C	10–100	2	120/240	24, 48, 80	10a, 12a	—	10,000	—	5000	5000	5000	**V4-T1-40**
QC	C	10–100	2, 3, 4	240	—	10b, 11b, 12b	—	—	10,000	—	—	—	**V4-T1-40**
QCD	C	10–60	1, 2	120/240	24, 48, 62.5	—	10,000	10,000	—	3000	3000	—	**V4-T1-22**
QCD	C	10–100	2, 3	240	24, 48, 62.5	—	—	10,000	—	3000	3000	—	**V4-T1-22**
QCF	C	10–60	1, 2	120/240	24, 48, 62.5	—	10,000	10,000	—	3000	3000	—	**V4-T1-41**

Notes

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

② Two-pole DC interrupting ratings based on two poles connected in series. Not UL listed.

③ Breakers at DC ratings are not UL listed.

④ 62.5 Vac interrupting rating is 3800 AIC 10–50A and 2500 AIC 55–100A 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 BABRP solenoid-operated, remote-controlled circuit breakers, see **Pages V4-T1-30** to **V4-T1-35**.

Eaton's QUICKLAG Industrial Circuit Breakers ① Plug-In, Bolt-On, Cable-In/Cable-Out, continued

Circuit Breaker Type	Circuit Breaker Type Code	Continuous Ampere Rating at 40°C	Number of Poles	Vac	Vdc	Federal Spec. W-C-375b	Interrupting Ratings rms Symmetrical Amperes Vac Ratings 120	120/240	240	Vdc Ratings ② 24–48	62.5	80	Page Number
QCF	C	15–20	1, 2	120/240	24, 48, 62.5	—	22,000	—	—	3000	3000	—	**V4-T1-26**
QCF	C	15–30	2, 3	240	24, 48, 62.5	—	—	10,000	—	3000	3000	—	**V4-T1-26**
QCR	C	10–60	1, 2	120/240	24, 48, 62.5	—	10,000	10,000	—	3000	3000	—	**V4-T1-26**
QCR	C	15–20	1, 2	120/240	24, 48, 62.5	—	22,000	—	—	3000	3000	—	**V4-T1-26**
QCR	C	15–30	2, 3	240	24, 48, 62.5	—	—	10,000	—	3000	3000	—	**V4-T1-26**
QCHW	C	15–70	1	120/240	24, 48, 62.5	14a	—	22,000	—	5000	④	—	**V4-T1-21**
QCHW	C	15–100	2	120/240	24, 48, 80	14a	—	22,000	—	5000	5000	5000	**V4-T1-21**
QCHW	C	15–100	2, 3	240	—	14b	—	—	22,000	—	—	—	**V4-T1-21**
QHCX	C	15–70	1	120/240	24, 48, 62.5	—	—	42,000	—	5000	④	—	**V4-T1-21**
QHCX	C	15–100	2	120/240	24, 48, 80	—	—	42,000	—	5000	5000	5000	**V4-T1-21**
QHCX	C	15–100	3	240	—	—	—	—	42,000	—	—	—	**V4-T1-21**
QHCW	C	15–30	1	120/240	24, 48, 62.5	15a	—	65,000	—	5000	③	—	**V4-T1-21**
QHCW	C	15–30	2	120/240	24, 48, 80	15a	—	65,000	—	5000	5000	5000	**V4-T1-21**
QHCW	C	15–20	3	240	—	15b	—	—	65,000	—	—	—	**V4-T1-21**
QCGFT	C, GF	15–40	1	120	—	—	10,000	—	—	—	—	—	**V4-T1-28**
QCGFT	C, GF	15–50	2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-28**
QCHGFT	C, GF	15–30	1	120	—	—	22,000	—	—	—	—	—	**V4-T1-28**
QCHGFT	C, GF	15–30	2	120/240	—	—	—	22,000	—	—	—	—	**V4-T1-28**
QCGFEP	C, GFEP	15–40	1	120	—	—	10,000	—	—	—	—	—	**V4-T1-28**
QCGFEP	C, GFEP	15–50	2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-28**
QCHGFEP	C, GFEP	15–30	1	120	—	—	22,000	—	—	—	—	—	**V4-T1-28**
QCHGFEP	C, GFEP	15–30	2	120/240	—	—	—	22,000	—	—	—	—	**V4-T1-28**

Notes

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

② Two-pole DC interrupting ratings based on two poles connected in series. Not UL listed.

③ 62.5 Vac interrupting rating is 3800 AIC 10–50A and 2500 AIC 55–100A 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 BABRP solenoid-operated, remote-controlled circuit breakers, see **Pages V4-T1-30** to **V4-T1-35**.

QUICKLAG Type HQP Single-Pole

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	
Product Selection	**V4-T1-6**
Dimensions	**V4-T1-7**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

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

Product Description

- All products 15–100A are HACR rated
- Switching duty rated for 120 Vac fluorescent light applications

Standards and Certifications

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

Listed

1 **Product Selection**

QUICKLAG Type HQP Single-Pole

QUICKLAG Type: HQP 10,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
10	HQP1010	HQP2010	—	HQP3010H ③
15	HQP1015 ①②	HQP2015	HQP2015H	HQP3015H
20	HQP1020 ①②	HQP2020	HQP2020H	HQP3020H
25	HQP1025	HQP2025	HQP2025H	HQP3025H
30	HQP1030	HQP2030	HQP2030H	HQP3030H
35	HQP1035	HQP2035	HQP2035H	HQP3035H
40	HQP1040	HQP2040	HQP2040H	HQP3040H
45	HQP1045	HQP2045	HQP2045H	HQP3045H
50	HQP1050	HQP2050	HQP2050H	HQP3050H
55	HQP1055	HQP2055	HQP2055H	HQP3055H
60	HQP1060	HQP2060	HQP2060H	HQP3060H
70	HQP1070	HQP2070	HQP2070H	HQP3070H
80	—	HQP2080	HQP2080H	HQP3080H
90	—	HQP2090	HQP2090H	HQP3090H
100	HQP1100	HQP2100	HQP2100H	HQP3100H
110	—	HQP2110	—	—
125	—	HQP2125	—	—
150	—	HQP2150	—	—

QUICKLAG Type: HQP Non-Automatic Switches

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
50	HQP1050N	—	HQP2050N	HQP3050N
60	HQP1060N	—	HQP2060N	HQP3060N
100	HQP1100N	—	HQP2100N	HQP3100N

QUICKLAG Type: QPHW 22,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
15	QPHW1015 ①	QPHW2015	QPHW2015H	QPHW3015H
20	QPHW1020 ①	QPHW2020	QPHW2020H	QPHW3020H
25	QPHW1025	QPHW2025	QPHW2025H	QPHW3025H
30	QPHW1030	QPHW2030	QPHW2030H	QPHW3030H
35	QPHW1035	QPHW2035	QPHW2035H	QPHW3035H
40	QPHW1040	QPHW2040	QPHW2040H	QPHW3040H
45	QPHW1045	QPHW2045	QPHW2045H	QPHW3045H
50	QPHW1050	QPHW2050	QPHW2050H	QPHW3050H
55	QPHW1055	QPHW2055	QPHW2055H	QPHW3055H
60	QPHW1060	QPHW2060	QPHW2060H	QPHW3060H
70	QPHW1070	QPHW2070	QPHW2070H	QPHW3070H
80	—	QPHW2080	QPHW2080H	QPHW3080H
90	—	QPHW2090	QPHW2090H	QPHW3090H
100	—	QPHW2100	QPHW2100H	QPHW3100H
110	—	QPHW2110	—	—
125	—	QPHW2125	—	—

Notes

① Switching duty rated for 120 Vac fluorescent light applications.

② For special low-magnetic breaker, order **HQP1015L1** or **HQP1020L1**.

③ Not UL listed.

QUICKLAG Type: QHPX 42,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
15	QHPX1015 ①	QHPX2015	—	QHPX3015H
20	QHPX1020 ①	QHPX2020	—	QHPX3020H
25	QHPX1025	QHPX2025	—	QHPX3025H
30	QHPX1030	QHPX2030	—	QHPX3030H
35	QHPX1035	QHPX2035	—	QHPX3035H
40	QHPX1040	QHPX2040	—	QHPX3040H
45	QHPX1045	QHPX2045	—	QHPX3045H
50	QHPX1050	QHPX2050	—	QHPX3050H
55	QHPX1055	QHPX2055	—	QHPX3055H
60	QHPX1060	QHPX2060	—	QHPX3060H
70	QHPX1070	QHPX2070	—	QHPX3070H
80	—	QHPX2080	—	QHPX3080H
90	—	QHPX2090	—	QHPX3090H
100	—	QHPX2100	—	QHPX3100H

QUICKLAG Type: QHPW 65,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
15	QHPW1015 ①	QHPW2015	—	QHPW3015H
20	QHPW1020 ①	QHPW2020	—	QHPW3020H
25	QHPW1025	QHPW2025	—	—
30	QHPW1030	QHPW2030	—	—

Dimensions

Approximate Dimensions in Inches (mm)

Shipping Data

Number of Poles	Carton Quantity	Approximate Weight Lbs (kg)	Dimensions
1	24	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
2	12	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
3	8	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)

Note

① Switching duty rated for 120 Vac fluorescent light applications.

1

QUICKLAG Type QPGFT Single-Pole Ground Fault Circuit Breaker

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	
Product Selection	**V4-T1-9**
Wiring Diagram	**V4-T1-10**
Dimensions	**V4-T1-10**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP

Product Description

QUICKLAG Ground Fault Circuit Breakers, Class A GFCI

- 5 mA trip sensitivity

QUICKLAG Ground Fault Equipment Protectors

- 30 mA trip sensitivity

Standards and Certifications

- Built and listed to UL 489

QUICKLAG Ground Fault Circuit Breakers, Class A GFCI

- Built and tested to UL 943

QUICKLAG Ground Fault Equipment Protectors

- Built and listed to UL 1053

Listed

Product Selection

QUICKLAG Type QPGFT Single-Pole

Ground Fault Circuit Breakers—5 mA Sensitivity QUICKLAG Type: QPGFT 10,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	QPGFT1015	QPGFT2015
20	QPGFT1020	QPGFT2020
25	QPGFT1025	QPGFT2025
30	QPGFT1030	QPGFT2030
40	QPGFT1040	QPGFT2040
50	—	QPGFT2050

Ground Fault Circuit Breakers—5 mA Sensitivity QUICKLAG Type: QPHGF 22,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	QPHGF1015	QPHGF2015
20	QPHGF1020	QPHGF2020
25	QPHGF1025	QPHGF2025
30	QPHGF1030	QPHGF2030

Ground Fault Equipment Breakers—30 mA Sensitivity QUICKLAG Type: QPGFEP 10,000 Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	QPGFEP1015	QPGFEP2015
20	QPGFEP1020	QPGFEP2020
25	QPGFEP1025	QPGFEP2025
30	QPGFEP1030	QPGFEP2030
40	QPGFEP1040	QPGFEP2040
50	—	QPGFEP2050

Ground Fault Equipment Breakers—30 mA Sensitivity QUICKLAG Type: QPHGFEP 22,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	QPHGFEP1015	QPHGFEP2015
20	QPHGFEP1020	QPHGFEP2020
25	QPHGFEP1025	QPHGFEP2025
30	QPHGFEP1030	QPHGFEP2030

Special Application Ground Fault Circuit Protectors—5 mA Sensitivity QUICKLAG Type: QPGFT 10,000A Interrupting Capacity with Bell Alarm (W1) or Auxiliary Switch (W2)

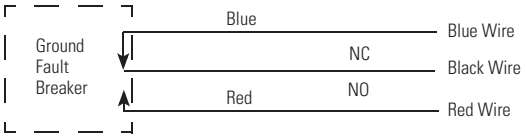
Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	**QPGFT1015W1**	**QPGFT2015W1**
20	**QPGFT1020W1**	**QPGFT2020W1**
25	**QPGFT1025W1**	**QPGFT2025W1**
30	**QPGFT1030W1**	**QPGFT2030W1**
40	—	**QPGFT2040W1**
50	—	**QPGFT2050W1**
15	**QPGFT1015W2**	—
20	**QPGFT1020W2**	—
25	**QPGFT1025W2**	—
30	**QPGFT1030W2**	—

Special Application Ground Fault Circuit Protectors—30 mA Sensitivity QUICKLAG Type: QPGFEP 10,000A Interrupting Capacity with Bell Alarm (W1) or Auxiliary Switch (W2)

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	**QPGFEP1015W1**	**QPGFEP2015W1**
20	**QPGFEP1020W1**	**QPGFEP2020W1**
25	**QPGFEP1025W1**	**QPGFEP2025W1**
30	**QPGFEP1030W1**	**QPGFEP2030W1**
40	—	**QPGFEP2040W1**
50	—	**QPGFEP2050W1**
15	**QPGFEP1015W2**	—
20	**QPGFEP1020W2**	—
25	**QPGFEP1025W2**	—
30	**QPGFEP1030W2**	—

Wiring Diagram

Bell Alarm and Auxiliary Contact Schematic



Single-throw double-pole contacts are UL and CSA listed for 5A at 250 Vac.
Bell Alarm (W1)—contacts change state when breaker trips.
Auxiliary Switch (W2)—contacts change state when breaker is opened (or tripped) or closed.
14-inch (355.6 mm) long 18 AWG pigtail wire leads provided.

Dimensions

Approximate Dimensions in Inches (mm)

Shipping Data

Number of Poles	Carton Quantity	Approximate Weight Lbs (kg)	Dimensions
1	24	11.00 (5.0)	12.50 x 6.50 x 5.00 (317.5 x 165.1 x 127.0)
2	5	5.00 (2.3)	15.50 x 6.00 x 4.50 (393.7 x 152.4 x 114.3)

Note

Shipped individually or in carton quantities.

QUICKLAG Type BAB Single-Pole

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	
Product Selection	**V4-T1-12**
Dimensions	**V4-T1-13**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

Bolt-On Types BAB, QBHW, HBAX, HBAW

Product Description

- All products 15–100A are HACR rated
- Switching duty rated for 120 Vac fluorescent light applications

Standards and Certifications

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

Listed

1 **Product Selection**

QUICKLAG Type BAB Single-Pole

QUICKLAG Type: BA 10,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
10	BAB1010	BAB2010	BAB2010H ③	BAB3010H ③
15	BAB1015 ①②	BAB2015	BAB2015H	BAB3015H
20	BAB1020 ①②	BAB2020	BAB2020H	BAB3020H
25	BAB1025	BAB2025	BAB2025H	BAB3025H
30	BAB1030	BAB2030	BAB2030H	BAB3030H
35	BAB1035	BAB2035	BAB2035H	BAB3035H
40	BAB1040	BAB2040	BAB2040H	BAB3040H
45	BAB1045	BAB2045	BAB2045H	BAB3045H
50	BAB1050	BAB2050	BAB2050H	BAB3050H
55	BAB1055	BAB2055	BAB2055H	BAB3055H
60	BAB1060	BAB2060	BAB2060H	BAB3060H
70	BAB1070	BAB2070	BAB2070H	BAB3070H
80	—	BAB2080	BAB2080H	BAB3080H
90	—	BAB2090	BAB2090H	BAB3090H
100	BAB1100	BAB2100	BAB2100H	BAB3100H
110	—	BAB2110	—	—
125	—	BAB2125	—	—

QUICKLAG Type: BA Non-Automatic Switches

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
50	BAB1050N	—	BAB2050N	BAB3050N
60	BAB1060N	—	BAB2060N	BAB3060N
100	BAB1100N	—	BAB2100N	BAB3100N

QUICKLAG Type: QBHW 22,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
15	QBHW1015 ①	QBHW2015	QBHW2015H	QBHW3015H
20	QBHW1020 ①	QBHW2020	QBHW2020H	QBHW3020H
25	QBHW1025	QBHW2025	QBHW2025H	QBHW3025H
30	QBHW1030	QBHW2030	QBHW2030H	QBHW3030H
35	QBHW1035	QBHW2035	QBHW2035H	QBHW3035H
40	QBHW1040	QBHW2040	QBHW2040H	QBHW3040H
45	QBHW1045	QBHW2045	QBHW2045H	QBHW3045H
50	QBHW1050	QBHW2050	QBHW2050H	QBHW3050H
55	QBHW1055	QBHW2055	QBHW2055H	QBHW3055H
60	QBHW1060	QBHW2060	QBHW2060H	QBHW3060H
70	QBHW1070	QBHW2070	QBHW2070H	QBHW3070H
80	—	QBHW2080	QBHW2080H	QBHW3080H
90	—	QBHW2090	QBHW2090H	QBHW3090H
100	—	QBHW2100	QBHW2100H	QBHW3100H
110	—	QBHW2110	—	—
125	—	QBHW2125	—	—

Notes

① Switching duty rated for 120 Vac fluorescent light applications.

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

③ Not UL listed.

QUICKLAG Type: HBAX 42,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
15	HBAX1015 ①	HBAX2015	—	HBAX3015H
20	HBAX1020 ①	HBAX2020	—	HBAX3020H
25	HBAX1025	HBAX2025	—	HBAX3025H
30	HBAX1030	HBAX2030	—	HBAX3030H
35	HBAX1035	HBAX2035	—	HBAX3035H
40	HBAX1040	HBAX2040	—	HBAX3040H
45	HBAX1045	HBAX2045	—	HBAX3045H
50	HBAX1050	HBAX2050	—	HBAX3050H
55	HBAX1055	HBAX2055	—	HBAX3055H
60	HBAX1060	HBAX2060	—	HBAX3060H
70	HBAX1070	HBAX2070	—	HBAX3070H
80	—	HBAX2080	—	HBAX3080H
80	—	HBAX2080	—	HBAX3080H
90	—	HBAX2090	—	HBAX3090H
100	—	HBAX2100	—	HBAX3100H

QUICKLAG Type: HBAW 65,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
15	HBAW1015 ①	HBAW2015	—	HBAW3015H
20	HBAW1020 ①	HBAW2020	—	HBAW3020H
25	HBAW1025	HBAW2025	—	—
30	HBAW1030	HBAW2030	—	—

Dimensions

Approximate Dimensions in Inches (mm)

Shipping Data

Number of Poles	Carton Quantity	Approximate Weight Lbs (kg)	Dimensions
1	24	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
2	12	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
3	8	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)

Note

① Switching duty rated for 120 Vac fluorescent light applications.

1

Bolt-On Arc Fault Circuit Interrupter QUICKLAG Types QBAF, QBCAF

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	
Product Selection	**V4-T1-15**
Wiring Diagrams	**V4-T1-15**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF

Product Description

- All products HACR rated

Features, Benefits and Functions

- 10 and 22 kAIC rating at 120V and 120/240V
- Single-pole AFCI
- HID ratings for HID (High Intensity Discharge) lighting
- All models are HACR rated

Standards and Certifications

- Built and listed to UL 489
- UL File E7819 for QBAF

UL Listed

Product Selection

QBCAF and QBAF Type AFCIs

Effective immediately, Eaton AFCIs are available for use in Sumter panels with a 22 kAIC rating. This higher rated breaker will allow us to win jobs where AFCIs are specified at higher than 10 kAIC. This breaker provides standard thermal-magnetic protection of branch circuits. This product will have the same form, fit and function of the current bolt-on AFCI (QBCAF and QBAF Type). Product scope is below. These breakers are in Bid Manager™ for Pow-R-Line 1a, Pow-R-Line 1a-LX, Pow-R-Line 3a and Pow-R-Line 4a panelboards. For series rated combinations, continue to use the less expensive 10 kAIC QBCAF and QBAF offerings.

Breakers can also be ordered from Vista.

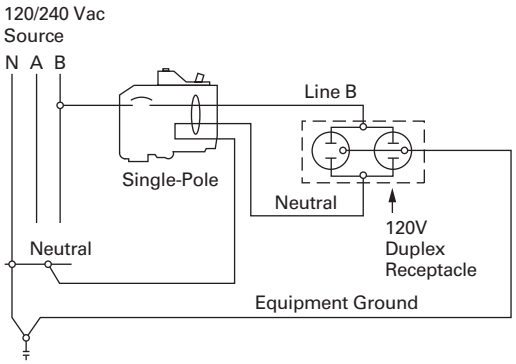
QBHCAF

1-Inch (25.4 mm) Wide Bolt-On Arc Fault Circuit Interrupter

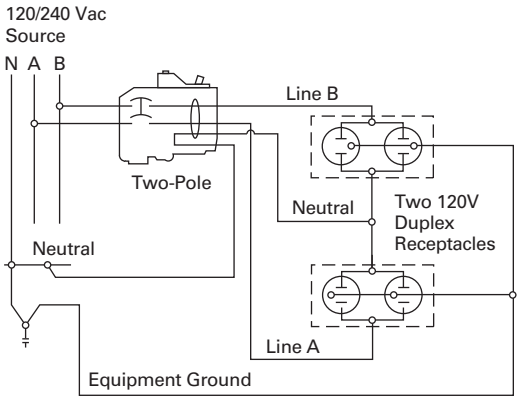
Poles	kAIC Rating	Ampere Rating	Configuration	Catalog Number
Type QBCAF Combination AFCI				
Single-pole	10 kAIC	15	Combination AFCI	**QB1015CAF**
		20	Combination AFCI	**QB1020CAF**
	22 kAIC	15	Combination AFCI	**QBH1015CAF**
		20	Combination AFCI	**QBH1020CAF**

Wiring Diagrams

Single-Pole 120V Load Application Sourced by 120/240 Vac



Single-Pole Shared Neutral with Multi-Duplex Receptacle Application



1

QUICKLAG Type QBGFT Single-Pole Ground Fault Circuit Breaker

Contents

Description	*Page*
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	
Product Selection	**V4-T1-17**
Wiring Diagram	**V4-T1-18**
Dimensions	**V4-T1-18**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP

Product Description

QUICKLAG Ground Fault Circuit Breakers, Class A GFCI

- 5 mA trip sensitivity

QUICKLAG Ground Fault Equipment Protectors

- 30 mA trip sensitivity

Standards and Certifications

- Built and tested to UL 489

QUICKLAG Ground Fault Circuit Breakers, Class A GFCI

- Built and tested to UL 943

QUICKLAG Ground Fault Equipment Protectors

- Built and tested to UL 1053

Listed

Product Selection

QUICKLAG Type QBGFT Single-Pole

Ground Fault Circuit Breakers—5 mA Sensitivity QUICKLAG Type: QBGFT 10,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	QB1015GF	QBGFT2015
20	QB1020GF	QBGFT2020
25	QB1025GF	QBGFT2025
30	QB1030GF	QBGFT2030
40	QB1040GF	QBGFT2040
50	—	QBGFT2050

Ground Fault Circuit Breakers—5 mA Sensitivity QUICKLAG Type: QBHGFT 22,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	QBH1015GF	QBHGF2015
20	QBH1020GF	QBHGF2020
25	QBH1025GF	QBHGF2025
30	QBH1030GF	QBHGF2030

Ground Fault Equipment Breakers—30 mA Sensitivity QUICKLAG Type: QBGFEP 10,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	QB1015EP	QBGFEP2015
20	QB1020EP	QBGFEP2020
25	QB1025EP	QBGFEP2025
30	QB1030EP	QBGFEP2030
40	QB1040EP	QBGFEP2040
50	—	QBGFEP2050

Ground Fault Equipment Breakers—30 mA Sensitivity QUICKLAG Type: QBHGFEP 22,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	QBH1015EP	QBHGFEP2015
20	QBH1020EP	QBHGFEP2020
25	QBH1025EP	QBHGFEP2025
30	QBH1030EP	QBHGFEP2030

1

Special Application Ground Fault Circuit Protectors—5 mA Sensitivity QUICKLAG Type: QBGFT 10,000A Interrupting Capacity with Bell Alarm (W1) or Auxiliary Switch (W2)

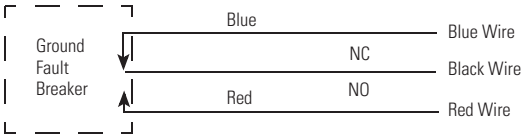
Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	**QBGFT1015W1**	**QBGFT2015W1**
20	**QBGFT1020W1**	**QBGFT2020W1**
25	**QBGFT1025W1**	**QBGFT2025W1**
30	**QBGFT1030W1**	**QBGFT2030W1**
40	—	**QBGFT2040W1**
50	—	**QBGFT2050W1**
15	**QBGFT1015W2**	—
20	**QBGFT1020W2**	—
25	**QBGFT1025W2**	—
30	**QBGFT1030W2**	—

Special Application Ground Fault Circuit Protectors—30 mA Sensitivity QUICKLAG Type: QBGFEP 10,000A Interrupting Capacity with Bell Alarm (W1) or Auxiliary Switch (W2)

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	**QBGFEP1015W1**	**QBGFEP2015W1**
20	**QBGFEP1020W1**	**QBGFEP2020W1**
25	**QBGFEP1025W1**	**QBGFEP2025W1**
30	**QBGFEP1030W1**	**QBGFEP2030W1**
40	—	**QBGFEP2040W1**
50	—	**QBGFEP2050W1**
15	**QBGFEP1015W2**	—
20	**QBGFEP1020W2**	—
25	**QBGFEP1025W2**	—
30	**QBGFEP1030W2**	—

Wiring Diagram

Bell Alarm and Auxiliary Contact Schematic



Single-throw double-pole contacts are UL and CSA listed for 5A at 250 Vac.
Bell Alarm (W1)—contacts change state when breaker trips.
Auxiliary Switch (W2)—contacts change state when breaker is opened (or tripped) or closed.
14-inch (355.6 mm) long 18 AWG pigtail wire leads provided.

Dimensions

Approximate Dimensions in Inches (mm)

Shipping Data

Number of Poles	Approximate Weight Lbs (kg)	Dimensions
1	11.00 (5.0)	12.50 x 6.50 x 5.00 (317.5 x 165.1 x 127.0)
2	5.00 (2.3)	15.50 x 6.00 x 4.50 (393.7 x 152.4 x 114.3)

Note

Shipped individually or in carton quantities.

QUICKLAG Type QC Single-Pole

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	
Product Selection	**V4-T1-20**
Dimensions	**V4-T1-22**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW

Product Description

- All products 10–100A are HACR rated
- Switching duty rated for 120 Vac fluorescent light applications only

Standards and Certifications

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

Listed

1 **Product Selection**

QUICKLAG Type QC Single-Pole

QUICKLAG Type: QC 10,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number	Four-Pole 240 Vac Catalog Number
5	**QC1005** ①	**QC2005** ①	—	—	—
10	**QC1010**	**QC2010**	**QC2010H** ①	**QC3010H** ①	—
15	**QC1015** ②	**QC2015**	**QC2015H**	**QC3015H**	**QC4015H**
20	**QC1020** ②	**QC2020**	**QC2020H**	**QC3020H**	**QC4020H**
25	**QC1025**	**QC2025**	**QC2025H**	**QC3025H**	**QC4025H**
30	**QC1030**	**QC2030**	**QC2030H**	**QC3030H**	**QC4030H**
35	**QC1035**	**QC2035**	**QC2035H**	**QC3035H**	**QC4035H**
40	**QC1040**	**QC2040**	**QC2040H**	**QC3040H**	**QC4040H**
45	**QC1045**	**QC2045**	**QC2045H**	**QC3045H**	**QC4045H**
50	**QC1050**	**QC2050**	**QC2050H**	**QC3050H**	**QC4050H**
55	**QC1055**	**QC2055**	**QC2055H**	**QC3055H**	**QC4055H**
60	**QC1060**	**QC2060**	**QC2060H**	**QC3060H**	**QC4060H**
70	**QC1070**	**QC2070**	**QC2070H**	**QC3070H**	**QC4070H**
70	—	**QC2080**	**QC2080H**	**QC3080H**	**QC4080H**
90	—	**QC2090**	**QC2090H**	**QC3090H**	**QC4090H**
100	**QC1100**	**QC2100**	**QC2100H**	**QC3100H**	**QC4100H**

QUICKLAG Type: QC Non-Automatic Switches

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number	Four-Pole 240 Vac Catalog Number
50	**QC1050N**	—	**QC2050N**	**QC3050N**	—
60	**QC1060N**	—	**QC2060N**	**QC3060N**	—
100	**QC1100N**	—	**QC2100N**	**QC3100N**	—

Notes

① Not UL listed.

② Switching duty rated for 120 Vac fluorescent light applications only.

For special low-magnetic breaker, order **QC1015L1** or **QC1020L1**.Non-automatic switches, see **Page V4-T1-41.**

QUICKLAG Type: QCHW 22,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number	Four-Pole 240 Vac Catalog Number
15	QCHW1015 ①	QCHW2015	QCHW2015H	QCHW3015H	QCHW4015H
20	QCHW1020 ①	QCHW2020	QCHW2020H	QCHW3020H	QCHW4020H
25	QCHW1025	QCHW2025	QCHW2025H	QCHW3025H	QCHW4025H
30	QCHW1030	QCHW2030	QCHW2030H	QCHW3030H	QCHW4030H
35	QCHW1035	QCHW2035	QCHW2035H	QCHW3035H	QCHW4035H
40	QCHW1040	QCHW2040	QCHW2040H	QCHW3040H	QCHW4040H
45	QCHW1045	QCHW2045	QCHW2045H	QCHW3045H	QCHW4045H
50	QCHW1050	QCHW2050	QCHW2050H	QCHW3050H	QCHW4050H
55	QCHW1055	QCHW2055	QCHW2055H	QCHW3055H	QCHW4055H
60	QCHW1060	QCHW2060	QCHW2060H	QCHW3060H	QCHW4060H
70	QCHW1070	QCHW2070	QCHW2070H	QCHW3070H	QCHW4070H
70	—	QCHW2080	QCHW2080H	QCHW3080H	QCHW4080H
90	—	QCHW2090	QCHW2090H	QCHW3090H	QCHW4090H
100	—	QCHW2100	QCHW2100H	QCHW3100H	QCHW4100H

QUICKLAG Type: QHCX 42,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number	Four-Pole 240 Vac Catalog Number
15	QHCX1015 ①	QHCX2015	—	QHCX3015H	—
20	QHCX1020 ①	QHCX2020	—	QHCX3020H	—
25	QHCX1025	QHCX2025	—	QHCX3025H	—
30	QHCX1030	QHCX2030	—	QHCX3030H	—
35	QHCX1035	QHCX2035	—	QHCX3035H	—
40	QHCX1040	QHCX2040	—	QHCX3040H	—
45	QHCX1045	QHCX2045	—	QHCX3045H	—
50	QHCX1050	QHCX2050	—	QHCX3050H	—
55	QHCX1055	QHCX2055	—	QHCX3055H	—
60	QHCX1060	QHCX2060	—	QHCX3060H	—
70	QHCX1070	QHCX2070	—	QHCX3070H	—
70	—	QHCX2080	—	QHCX3080H	—
90	—	QHCX2090	—	QHCX3090H	—
100	—	QHCX2100	—	QHCX3100H	—

QUICKLAG Type: QHCW 65,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number	Four-Pole 240 Vac Catalog Number
15	QHCW1015 ①	QHCW2015	—	QHCW3015H	—
20	QHCW1020 ①	QHCW2020	—	QHCW3020H	—
25	QHCW1025	QHCW2025	—	—	—
30	QHCW1030	QHCW2030	—	—	—

Notes

① Switching duty rated for 120 Vac fluorescent light applications only.

Non-automatic switches, see **Page V4-T1-41.**

1

QUICKLAG Type QCD Miniature Circuit Breakers

QCD breakers are used primarily in HVAC and industrial applications.

- Single-, two- and three-pole options
- Modular construction
- DIN mounted (symmetrical rail 35 x 7.5 DIN/EN 50 022)
- QCD same profile as Type QCR
- Flexible power feed connection: wire size, position
- Same breaker size for entire rating range
- Field mountable accessories: finger shroud proof, quick connect terminals
- Other accessories: jumper unit

QUICKLAG Type QCD Miniature Circuit Breaker

QUICKLAG Type QCD 10,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
10	**QCD1010**	**QCD2010**	—	—
15	**QCD1015**	**QCD2015**	**QCD2015H**	**QCD3015H**
20	**QCD1020**	**QCD2020**	**QCD2020H**	**QCD3020H**
25	**QCD1025**	**QCD2025**	**QCD2025H**	**QCD3025H**
30	**QCD1030**	**QCD2030**	**QCD2030H**	**QCD3030H**
35	**QCD1035**	**QCD2035**	**QCD2035H**	**QCD3035H**
40	**QCD1040**	**QCD2040**	**QCD2040H**	**QCD3040H**
45	**QCD1045**	**QCD2045**	**QCD2045H**	**QCD3045H**
50	**QCD1050**	**QCD2050**	**QCD2050H**	**QCD3050H**
55	**QCD1055**	**QCD2055**	**QCD2055H**	**QCD3055H**
60	**QCD1060**	**QCD2060**	**QCD2060H**	**QCD3060H**
70	—	**QCD2070**	**QCD2070H**	**QCD3070H**
80	—	**QCD2080**	**QCD2080H**	**QCD3080H**
90	—	**QCD2090**	**QCD2090H**	**QCD3090H**
100	—	**QCD2090**	**QCD2090H**	**QCD3100H**
	—	**QCD2100**	**QCD2100H**	—

QUICKLAG Type QCD Non-Automatic Switches

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
60	—	—	**QCD2060NA**	—
100	—	—	—	—

Dimensions

Approximate Dimensions in Inches (mm)

Shipping Data

Number of Poles	Carton Quantity	Approximate Weight Lbs (kg)	Dimensions
1	24	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
2	12	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
3	8	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)

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

Single-Pole *Two-Pole* *Single-Pole* *Two-Pole*

QCR (Rear-Mounted Breakers) ***QCF (Front-Mounted Breakers)***

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	
Product Selection	**V4-T1-24**
QCR and QCF Options and Accessories	**V4-T1-26**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

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

Product Description

Eaton Type QCR circuit breakers 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

Standards and Certifications

- Built and listed to UL 489
- UL File No. E7819
- CSA File No. 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

Listed

1 **Product Selection**

Cable-In/Cable-Out, 1/2-Inch Wide

QCR Breaker Catalog Numbers ①②③④

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac ⑤ Catalog Number	Three-Pole Catalog Number
QCR Breaker 10 kAIC Interrupting Ratings				
10	**QCR1010**	**QCR2010**	—	—
	QCR1010T	**QCR2010T**	—	—
	—	**QCR2010P**	—	—
15	**QCR1015** ⑥	**QCR2015**	**QCR2015H**	**QCR3015H**
	QCR1015T ⑥	**QCR2015T**	**QCR2015HT**	**QCR3015HT**
	—	**QCR2015P**	—	—
20	**QCR1020** ⑥	**QCR2020**	**QCR2020H**	**QCR3020H**
	QCR1020T ⑥	**QCR2020T**	**QCR2020HT**	**QCR3020HT**
	—	**QCR2020P**	—	—
25	**QCR1025**	**QCR2025**	**QCR2025H**	**QCR3025H**
	QCR1025T	**QCR2025T**	**QCR2025HT**	**QCR3025HT**
	—	**QCR2025P**	—	—
30	**QCR1030**	**QCR2030**	**QCR2030H**	**QCR3030H**
	QCR1030T	**QCR2030T**	**QCR2030HT**	**QCR3030HT**
	—	**QCR2030P**	—	—
35	**QCR1035**	**QCR2035**	—	—
	—	**QCR2035P**	—	—
40	**QCR1040**	**QCR2040**	—	—
	—	**QCR2040P**	—	—
45	**QCR1045**	**QCR2045**	—	—
	—	**QCR2045P**	—	—
50	**QCR1050**	**QCR2050**	—	—
	—	**QCR2050P**	—	—
55	**QCR1055**	**QCR2055**	—	—
	—	**QCR2055P**	—	—
60 ⑦	**QCR1060**	**QCR2060**	—	—
	—	**QCR2060P**	—	—
QCR Breaker 22 kAIC Interrupting Ratings				
15	**QCRH1015** ⑥	**QCRH2015**	—	—
	QCRH1015T ⑥	**QCRH2015T**	—	—
20	**QCRH1020** ⑥	**QCRH2020**	—	—
	QCRH1020T ⑥	**QCRH2020T**	—	—

Notes

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 (extra pole required on breaker right-hand side) are available on single-, two- and three-pole. Contact the Customer Support Center at 1-800-356-1243.

⑤ Breakers with **H** Catalog Suffix have 240 Vac construction.

⑥ All 15 and 20A single-pole breakers are SWD (Switching Duty) rated for fluorescent lighting applications.

⑦ 60/75°C Cu/Al wire on all ratings except 60A, which requires Cu only conductor.

Cable-In/Cable-Out, 1/2-Inch Wide

QCF Breaker Catalog Numbers ①②③

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac ④ Catalog Number	Three-Pole Catalog Number
QCF Breaker 10 kAIC Interrupting Ratings				
10	**QCF1010**	**QCF2010**	—	—
	QCF1010T	**QCF2010T**	—	—
15	**QCF1015** ⑤	**QCF2015**	**QCF2015H**	**QCF3015H**
	QCF1015T ⑤	**QCF2015T**	**QCF2015HT**	**QCF3015HT**
20	**QCF1020** ⑤	**QCF2020**	**QCF2020H**	**QCF3020H**
	QCF1020T ⑤	**QCF2020T**	**QCF2020HT**	**QCF3020HT**
25	**QCF1025**	**QCF2025**	**QCF2025H**	**QCF3025H**
	QCF1025T	**QCF2025T**	**QCF2025HT**	**QCF3025HT**
30	**QCF1030**	**QCF2030**	**QCF2030H**	**QCF3030H**
	QCF1030T	**QCF2030T**	**QCF2030HT**	**QCF3030HT**
35	**QCF1035**	**QCF2035**	—	—
40	**QCF1040**	**QCF2040**	—	—
45	**QCF1045**	**QCF2045**	—	—
50	**QCF1050**	**QCF2050**	—	—
55	**QCF1055**	**QCF2055**	—	—
60 ⑥	**QCF1060**	**QCF2060**	—	—
QCF Breaker 22 kAIC Interrupting Ratings				
15	**QCFH1015** ⑤	**QCFH2015**	—	—
	QCFH1015T ⑤	**QCFH2015T**	—	—
20	**QCFH1020** ⑤	**QCFH2020**	—	—
	QCFH1020T ⑤	**QCFH2020T**	—	—

Notes

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 Shunt Trip Attachment (extra pole required on breaker right-hand side) are available. Contact the Customer Support Center.

④ Breakers with **H** Catalog Suffix have 240 Vac construction.

⑤ All 15 and 20A single-pole breakers are SWD (Switching Duty) rated for fluorescent lighting applications.

⑥ 60/75°C Cu/Al wire on all ratings except 60A, which requires Cu only conductor.

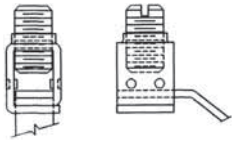
1

QCR and QCF Options and Accessories

QCR and QCF Standard Box Terminals

Factory-installed line and load side breaker terminal to accommodate14 AWG to 4 AWG wire.

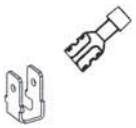
Standard Box Terminals



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.

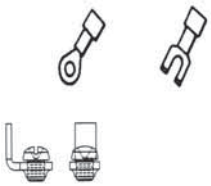
Catalog Suffix "P"



QCR and QCF Ring or Spade Lug Terminals (10 to 30A 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.

Catalog Suffix "T"



Available QCR and QCF Breaker Accessories

Description	Catalog Number
Steel mounting clip mounts QCR breaker if individual mounting is required. Quantity two required for single- and two-pole and four required for three-pole breakers.	**QCRMTGFT**
Removable padlock device for single-pole QCR or QCF breaker.	**QCRFPL1P**
Removable padlock device for multi-pole QCR or QCF breaker.	**QCRFPLMP**
Padlock bracket assembly for QCR or QCF single- or multi-pole breakers (OFF only).	**QCRFLOFF**
Padlock bracket for QCR, lock-off only.	**QCRPLOFF**

Technical Data and Specifications

- Single-, two- and three-pole
- 10 kAIC at 120/240 Vac, 10–60A
- 22 kAIC at 120/240 Vac, 15–20A
- 10 kAIC at 240 Vac, 10–30A
- 3 kAIC at 62.5 Vdc (single-pole)
- 3 kAIC at 130 Vdc (two poles in series)
- Normal operating environment:
  - 0–40°C
  - 5–95% humidity (noncondensing)

QUICKLAG Type QCGFT Single-Pole Ground Fault Circuit Breaker

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	
Product Selection	**V4-T1-28**
Wiring Diagram	**V4-T1-29**
Dimensions	**V4-T1-29**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP

Product Description

QUICKLAG Ground Fault Circuit Breakers, Class A GFCI

- 5 mA trip sensitivity

QUICKLAG Ground Fault Equipment Protectors

- 30 mA trip sensitivity

Standards and Certifications

QUICKLAG Ground Fault Circuit Breakers, Class A GFCI

- Built and tested to UL 943

QUICKLAG Ground Fault Equipment Protectors

- Built and tested to UL 1053

Listed

1 **Product Selection**

QUICKLAG Type QCGFT Single-Pole Ground Fault Circuit Breaker

Breaker Catalog Numbers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
Ground Fault Circuit Breakers—5 mA Sensitivity QUICKLAG Type: QCGFT 10,000A Interrupting Capacity Thermal-Magnetic Breakers		
15	QCGFT1015	QCGFT2015
20	QCGFT1020	QCGFT2020
25	QCGFT1025	QCGFT2025
30	QCGFT1030	QCGFT2030
40	QCGFT1040	QCGFT2040
50	—	QCGFT2050
QUICKLAG Type: QCHGFT 22,000A Interrupting Capacity Thermal-Magnetic Breakers		
15	QCHGFT1015	QCHGFT2015
20	QCHGFT1020	QCHGFT2020
25	QCHGFT1025	QCHGFT2025
30	QCHGFT1030	QCHGFT2030
Ground Fault Equipment Protectors—30 mA Sensitivity QUICKLAG Type: QCGFEP 10,000A Interrupting Capacity Thermal-Magnetic Breakers		
15	QCGFEP1015	QCGFEP2015
20	QCGFEP1020	QCGFEP2020
25	QCGFEP1025	QCGFEP2025
30	QCGFEP1030	QCGFEP2030
40	QCGFEP1040	QCGFEP2040
50	—	QCGFEP2050
QUICKLAG Type: QCHGFEP 22,000A Interrupting Capacity Thermal-Magnetic Breakers		
15	QCHGFEP1015	QCHGFEP2015
20	QCHGFEP1020	QCHGFEP2020
25	QCHGFEP1025	QCHGFEP2025
30	QCHGFEP1030	QCHGFEP2030
Special Application Ground Fault Circuit Protector—5 mA Sensitivity QUICKLAG Type: QCGFT 10,000A Interrupting Capacity with Bell Alarm (W1) or Auxiliary Switch (W2)		
15	QCGFT1015W1	QCGFT2015W1
20	QCGFT1020W1	QCGFT2020W1
25	QCGFT1025W1	QCGFT2025W1
30	QCGFT1030W1	QCGFT2030W1
40	—	QCGFT2040W1
50	—	QCGFT2050W1
15	QCGFT1015W2	—
20	QCGFT1020W2	—
25	QCGFT1025W2	—
30	QCGFT1030W2	—
Special Application Ground Fault Equipment Protectors—30 mA Sensitivity QUICKLAG Type: QCGFEP 10,000A Interrupting Capacity with Bell Alarm (W1) or Auxiliary Switch (W2)		
15	QCGFEP1015W1	QCGFEP2015W1
20	QCGFEP1020W1	QCGFEP2020W1
25	QCGFEP1025W1	QCGFEP2025W1
30	QCGFEP1030W1	QCGFEP2030W1
40	—	QCGFEP2040W1
50	—	QCGFEP2050W1
15	QCGFEP1015W2	—
20	QCGFEP1020W2	—
25	QCGFEP1025W2	—
30	QCGFEP1030W2	—

Wiring Diagram

Bell Alarm and Auxiliary Contact Schematic

Single-throw double-pole contacts are UL and CSA listed for 5A at 250 Vac.
Bell Alarm (W1)—contacts change state when breaker trips.
Auxiliary Switch (W2)—contacts change state when breaker is opened (or tripped) or closed.
14-inch (355.6 mm) long 18 AWG pigtail wire leads provided.

Dimensions

Approximate Dimensions in Inches (mm)

Shipping Data

Number of Poles	Carton Quantity	Approximate Weight Lbs (kg)	Dimensions
1	20	11.00 (5.0)	12.50 x 6.50 x 5.00 (317.5 x 165.1 x 127.0)
2	5	5.00 (2.3)	15.50 x 6.00 x 4.50 (393.7 x 152.4 x 114.3)

1

BABRP and BABRSP Breakers—Single- and Two-Pole

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	
Product Selection	**V4-T1-31**
Technical Data and Specifications	**V4-T1-32**
Wiring Diagrams	**V4-T1-32**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP

Product Description

The BABRP and BABRSP are bolt-on branch circuit breakers designed for use in panelboards. The BRRP is a plug-on branch circuit breaker designed for use in load-centers not manufactured with breakers with a 1-inch wide format and are listed on the "Compatibility list for Classified Applications"—Pub. 26271. 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 Eaton's Pow-R-Command™ lighting control system. These breakers can also be controlled by pushbutton or a PLC unit.

Application Description

Eaton's BABRP, BABRSP, BRRP and CLRP breakers are remotely operated molded case circuit breakers ideally suited for lighting control applications or energy management applications.

Features, Benefits and Functions

- Bolt-on line-side terminal (BABRP, BABRSP—Type BA)
- Plug-on line-side terminal (BRRP—Type BR, CLRP—Type CL)
- Cable connected load-side terminal
- Four-position control terminal
- Bi-metal assembly for thermal overload protection
- Fast-acting short-circuit protection
- Arc-chute assembly for fast-acting arc extinction
- Three-position handle: OFF, TRIP (Center), ON
- Handle permits manual switching when control power is lost
- Mechanical trip indicator
- 15 and 20A breakers SWD (switching duty) rated
- HID ratings for HID (high intensity discharge) lighting
- All models HACR rated
- Status feedback of control circuit (BABRSP)
- Series rated (BABRP, BABRSP only)
  - BRRP series rated same as BR breakers
  - BABRP, BABRSP same as BA breakers

Product Selection

QUICKLAG Type QCGFT Single-Pole Ground Fault Circuit Breaker

BABRP UL 489 and CSA 22.2 Interrupting Ratings

Number of Poles	Ampere Rating ①	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	120/240	277/480	Catalog Number
1	15	10,000	—	—	**BABRP1015**
	20	10,000	—	—	**BABRP1020**
	25	10,000	—	—	**BABRP1025**
	30	10,000	—	—	**BABRP1030**
2	15	—	10,000	—	**BABRP2015**
	20	—	10,000	—	**BABRP2020**
	25	—	10,000	—	**BABRP2025**
	30	—	10,000	—	**BABRP2030**

BABRP and BABRSP Wire Harness

Description	Catalog Number
This 60-inch (1524.0 mm) wire pigtail provides a connection from a single BABRP's control plug to a customer's pushbutton, relay or PLC. Each box contains 12 pigtails. Wires are 22 AWG, 600V. Order in multiples of 12.	**SLBKRPTL1**

BABRSP UL 489 and CSA 22.2 Interrupting Ratings

Number of Poles	Ampere Rating ①	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	120/240	277/480	Catalog Number
1	15	10,000	—	—	**BABRSP1015**
	20	10,000	—	—	**BABRSP1020**
	25	10,000	—	—	**BABRSP1025**
	30	10,000	—	—	**BABRSP1030**
2	15	—	10,000	—	**BABRSP2015**
	20	—	10,000	—	**BABRSP2020**
	25	—	10,000	—	**BABRSP2025**
	30	—	10,000	—	**BABRSP2030**

BRRP UL 489 and CSA 22.2 Interrupting Ratings

Number of Poles	Ampere Rating	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	120/240	Catalog Number
1	15	10,000	—	**BRRP115**
	20	10,000	—	**BRRP120**
	25	10,000	—	**BRRP125**
	30	10,000	—	**BRRP130**
2	15	—	10,000	**BRRP215**
	20	—	10,000	**BRRP220**
	25	—	10,000	**BRRP225**
	30	—	10,000	**BRRP230**

CLRP UL 489 and CSA 22.2 Interrupting Ratings

Number of Poles	Ampere Rating	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	120/240	Catalog Number
1	15	10,000	—	**CLRP115**
	20	10,000	—	**CLRP120**
	25	10,000	—	**CLRP125**
	30	10,000	—	**CLRP130**
2	15	—	10,000	**CLRP215**
	20	—	10,000	**CLRP220**
	25	—	10,000	**CLRP225**
	30	—	10,000	**CLRP230**

Note

① Continuous current rating at 40°C.

1

Technical Data and Specifications

Solenoid Operating Data

- Power requirements: 24 Vac/dc (20.4V minimum–30V maximum)
  - Controlled signal: +AC/DC 8 ms minimum with zero cross, 300 ms maximum
  - AC: 1.3 cycles minimum, 18 cycles or 300 ms maximum
  - DC: 8 ms minimum, 300 ms maximum
  - Maximum duty cycle of 6 OPEN/CLOSE cycles per minute
- Current draw: open 1A, close 3/4A
- Blue wire: power input (see power requirements)
- Black wire: remote opening
- Red wire: remote closing
- Yellow wire: feedback status from power input, maximum 0.50A draw (BABRSP only)

Operation

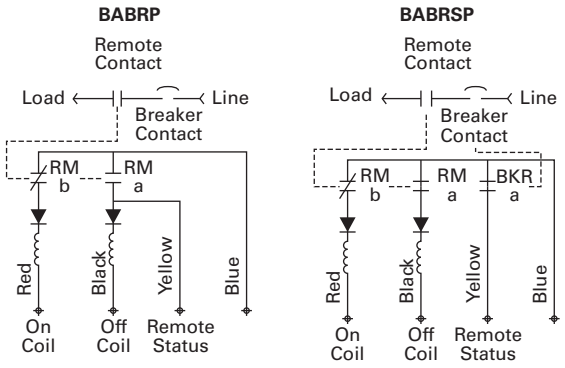
- Tripping system—the BABRP, BABRSP, BRRP and CLRP circuit breakers have a permanent trip unit that contains a factory preset thermal (overload) trip element in each pole
- Operating mechanism—the BABRP, BABRSP, BRRP and CLRP circuit breakers have an over-center toggle mechanism that provides quick-make, quick-break operation. The operating mechanism is trip free. An internal cross-bar provides a common tripping of all multi-pole circuit breakers

Operating/Application Data

- Ambient temperature: 0 to 40°C
- Nominal pulse magnitude: 24 Vac/dc
- Frequency: 50/60 Hz
- Maximum breaker cycling: 6 operations per minute
- Tolerance: +10% to –15% of nominal voltage
- Humidity: 0 to 95% noncondensing

Wiring Diagrams

Control Circuit for the BABRP and BABRSP



GHBS and GHQRSP

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	
Product Selection	**V4-T1-34**
Technical Data and Specifications	**V4-T1-35**
Wiring Diagrams	**V4-T1-35**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

Solenoid Operator—Remote-Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers

Product Description

Eaton's GHBS, GBHS and GHQRSP circuit breakers are bolt-on branch circuit breakers designed for use in 277/480 Vac panelboards. 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 Eaton's Pow-R-Command lighting control system.

Features, Benefits and Functions

- Bolt-on line-side terminal
- Cable-connected load-side terminal
- Status switch—remote status and breaker status available from internal auxiliary switches
- Bi-metal assembly for thermal overload protection
- Fast-acting short-circuit protection
- Arc-runner and arc-chute assembly for fast-acting arc extinction
- Three-position breaker handle: OFF, TRIP (Center), ON
- Visual indication of the remotely operated contact's position (open, closed or trip)
- Remote override handle permits manual switching when control power is lost
- 15 and 20A breakers SWD (switching duty) rated.
- 15 and 20A breakers HID rated for HID (High intensity discharge) lighting
- All models HACR rated
- Series rated with various Eaton main circuit breakers

1 **Product Selection**

GHQ UL 489 Interrupting Ratings

Number of Poles	Ampere Rating ①	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	120/240	277	480Y/277	Catalog Number
1	15	65,000	65,000	14,000	14,000	
1	20	65,000	65,000	14,000	14,000	
1	30	65,000	65,000	14,000	14,000	
2	15	65,000	65,000	14,000	14,000	
2	20	65,000	65,000	14,000	14,000	
2	30	65,000	65,000	14,000	14,000	

GHBS—Single-Pole

GHBS UL 489 Interrupting Ratings

Number of Poles	Ampere Rating ①	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	240	277/480	Catalog Number
1	15	65,000	—	14,000	**GHBS1015D**
	20	65,000	—	14,000	**GHBS1020D**
	30	65,000	—	14,000	**GHBS1030D**
2	15	—	65,000	14,000	**GHBS2015D**
	20	—	65,000	14,000	**GHBS2020D**
	30	—	65,000	14,000	**GHBS2030D**

GBHS CSA 22.2 Interrupting Ratings (Not UL Listed)

Number of Poles	Ampere Rating ①	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 347/600	Catalog Number
1	15	10,000	**GBHS1015D**
	20	10,000	**GBHS1020D**
2	15	10,000	**GBHS2015D**
	20	10,000	**GBHS2020D**

GHQRSP UL 489 and CSA 22.2 Interrupting Ratings

Number of Poles	Ampere Rating ①	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	120/240	277	480Y/277	Catalog Number ②
1	15	65,000	65,000	14,000	14,000	**GHQRSP1015**
	20	65,000	65,000	14,000	14,000	**GHQRSP1020**
	30	65,000	65,000	14,000	14,000	**GHQRSP1030**
2	15	65,000	65,000	14,000	14,000	**GHQRSP2015**
	20	65,000	65,000	14,000	14,000	**GHQRSP2020**
	30	65,000	65,000	14,000	14,000	**GHQRSP2030**

Notes

① Continuous current rating at 40°C.

② All UL listed circuit breakers are HID (high intensity discharge) rated.

Technical Data and Specifications

Solenoid Operating Data

- Power requirements: 24 Vac/dc (20.4V minimum–30V maximum)
  - Controlled signal: +AC/DC 8 ms minimum with zero cross, 300 ms maximum
  - AC: 1.3 cycles minimum, 18 cycles or 300 ms maximum
  - DC: 8 ms minimum, 300 ms maximum
  - Maximum duty cycle of 6 OPEN/CLOSE cycles per minute
- Current draw: open 1A, close 3/4A
- Blue wire: power input (see power requirements)
- Black wire: remote opening
- Red wire: remote closing
- Yellow wire: feedback status from power input, maximum 0.50A draw

Operation

Mechanism manually operated by external handle allowing ON, OFF and RESET operation. Handle assumes a center TRIP position after performing protective response.

Operating/Application Data

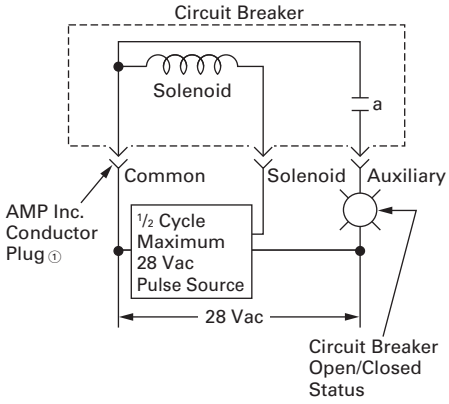
- Ambient temperature: 0–40°C
- Frequency: 48–62 Hz
- Humidity: 0–95% noncondensing

Terminal Type

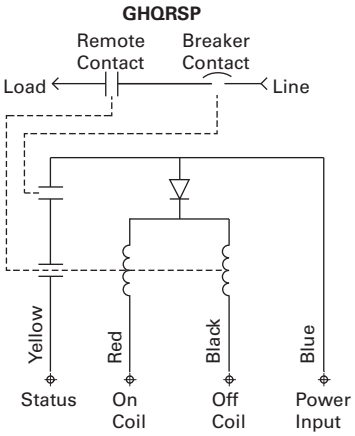
Circuit Breaker Type	Circuit Breaker Amperes	Screw Head Type	Terminal Type	Range
GHQRSP	15–20	Slotted	Clamp	#14–#4 AWG

Wiring Diagrams

Typical Single-Pole Circuit Breaker Schematic Diagram for GHBS and GBHS Breakers



Typical Single-Pole Circuit Breaker Schematic Diagram for GHQRSP Breakers



Dimensions

Approximate Dimensions in Inches (mm)

Dimensions per Pole

Circuit Breaker Type	Width	Height ②	Length ③
GHQRSP	1.00 (25.4)	4.63 (117.6)	2.81 (71.4)

Notes

① Purchase separate AMP Inc. conductor plug #640426-3.
② Excluding line terminal.
③ Excluding handle.

1

International Rated

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	
Product Selection	**V4-T1-37**
Technical Data and Specifications	**V4-T1-38**
Dimensions	**V4-T1-38**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

International Rated Types HQP, BA, QC, GFMB, GFXBC

Product Description

QUICKLAG International Circuit Breakers

- Bolt-on Type BA

QUICKLAG International Ground Fault Circuit Breakers

- Plug-on Type GFMB
- 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

Product Selection

BAB

Breaker Catalog Numbers

Continuous Ampere Rating at 40°C	Single-Pole 240/415 Vac Catalog Number	Two-Pole 240/415 Vac Catalog Number	Three-Pole 240/415 Vac Catalog Number
3000A Interrupting Capacity (M3) Bolt-On Thermal-Magnetic Circuit Breakers			
10	**BAB1010E**	**BAB2010E**	**BAB3010E**
15	**BAB1015E**	**BAB2015E**	**BAB3015E**
16	—	—	—
20	**BAB1020E**	**BAB2020E**	**BAB3020E**
25	**BAB1025E**	**BAB2025E**	**BAB3025E**
30	**BAB1030E**	**BAB2030E**	**BAB3030E**
32	—	—	—
40	**BAB1040E**	**BAB2040E**	**BAB3040E**
50	**BAB1050E**	**BAB2050E**	**BAB3050E**
60	**BAB1060E**	**BAB2060E**	**BAB3060E**
70	**BAB1070E**	**BAB2070E**	**BAB3070E**
90	—	**BAB2090E**	**BAB3090E**
100	—	**BAB2100E**	**BAB3100E**
6000A Interrupting Capacity (M6) Bolt-On Thermal-Magnetic Circuit Breakers			
15	**BAB1015HE**	**BAB2015HE**	**BAB3015HE**
20	**BAB1020HE**	**BAB2020HE**	**BAB3020HE**
25	**BAB1025HE**	**BAB2025HE**	**BAB3025HE**
30	**BAB1030HE**	**BAB2030HE**	**BAB3030HE**
40	**BAB1040HE**	**BAB2040HE**	**BAB3040HE**
50	**BAB1050HE**	**BAB2050HE**	**BAB3050HE**
60	**BAB1060HE**	**BAB2060HE**	**BAB3060HE**
70	**BAB1070HE**	**BAB2070HE**	**BAB3070HE**
90	—	**BAB2090HE**	**BAB3090HE**
100	—	**BAB2100HE**	**BAB3100HE**

Breaker Catalog Numbers—Ground Fault Single-Pole 30 mA Sensitivity

Continuous Ampere Rating at 40°C	240/415 Vac Catalog Number
3000A Interrupting Capacity (M3) Plug-On Thermal-Magnetic Circuit Breakers	
10	**GFMB110B2**
15	**GFMB115B2**
16	**GFMB116B2**
20	**GFMB120B2**
25	**GFMB125B2**
30	**GFMB130B2**
32	**GFMB132B2**
40	**GFMB140B2**

Note

For other 240/415V applications, please contact the Customer Support Center at 1-800-356-1243.

1

Technical Data and Specifications

Interrupting Ratings

Ratings	Suffix E	Suffix HE
International Circuit Breakers		
NEMA® 120/240 Vac	10,000 AIC	10,000 AIC
BS3871 220/380, 240/415 Vac	3000 AIC	6000 AIC
International Ground Fault Circuit Breakers		
BS3871 220/380, 240/415 Vac	3000 AIC	

Dimensions

Approximate Dimensions in Inches (mm)

Shipping Data

Miniature Circuit Breaker	Number of Poles	Standard Carton Quantity	Approximate Carton Weight Lbs (kg)	Approximate Standard Carton
QUICKLAG Type B	1	24	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
	2	12	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
	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)

QUICKLAG Type P Switching Neutral

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	
Product Selection	**V4-T1-40**
Accessories	**V4-T1-42**
Factory Modifications and Installed Terminals	**V4-T1-45**
Technical Data and Specifications	**V4-T1-46**
Dimensions	**V4-T1-46**

Special Application Breakers, Types HQP, BA, QC

Product Description

Breakers

- Plug-on Type HQP: 10–30A, single- and two-pole, 10 kAIC
- Bolt-on Type BA: 10–30A, single- and two-pole, 10 kAIC
- Cable-in Type QC: 10–30A, single- and two-pole, 10 kAIC

Switching neutral QUICKLAG breakers available in single- and two-pole configurations, plus neutral pole for applications in accordance with NEC® 514.5, 240.22 and 380.2. A single-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: 15–60A, single- and two-pole, 10 kAIC
- Bolt-on Type BA: 15–60A, single- and two-pole, 10 kAIC
- Cable-in Type QC: 15–60A, single- and two-pole, 10 kAIC

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, 60,100A, single-, two- and three-pole
- Bolt-on Type BA: 50, 60,100A, single-, two- and three-pole
- Cable-in Type QC: 50, 60,100A, single-, two- and three-pole

Standards and Certifications

- All products UL and CSA listed

Listed

1

Product Selection

QUICKLAG Type P Switching Neutral

Breaker Catalog Numbers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
QUICKLAG Type: HQP Switching Neutral Thermal-Magnetic Breakers				
10	**HQP2010B**	**HQP3010B**	—	—
15	**HQP2015B**	**HQP3015B**	—	—
20	**HQP2020B**	**HQP3020B**	—	—
25	**HQP2025B**	**HQP3025B**	—	—
30	**HQP2030B**	**HQP3030B**	—	—
QUICKLAG Type: BA Switching Neutral Thermal-Magnetic Breakers				
10	**BAB2010C**	**BAB3010C**	—	—
15	**BAB2015C**	**BAB3015C**	—	—
20	**BAB2020C**	**BAB3020C**	—	—
25	**BAB2025C**	**BAB3025C**	—	—
30	**BAB2030C**	**BAB3030C**	—	—
QUICKLAG Type: QC Switching Neutral Thermal-Magnetic Breakers				
10	**QC2010B**	**QC3010B**	—	—
15	**QC2015B**	**QC3015B**	—	—
20	**QC2020B**	**QC3020B**	—	—
25	**QC2025B**	**QC3025B**	—	—
30	**QC2030B**	**QC3030B**	—	—
QUICKLAG Type: HQP HID (High Intensity Discharge) Thermal-Magnetic Breakers				
15	**HQP1015D**	**HQP2015D**	—	—
20	**HQP1020D**	**HQP2020D**	—	—
25	**HQP1025D**	**HQP2025D**	—	—
30	**HQP1030D**	**HQP2030D**	—	—
35	**HQP1035D**	**HQP2035D**	—	—
40	**HQP1040D**	**HQP2040D**	—	—
50	**HQP1050D**	**HQP2050D**	—	—
60	**HQP1060D**	**HQP2060D**	—	—
QUICKLAG Type: BA HID (High Intensity Discharge) Thermal-Magnetic Breakers				
15	**BAB1015D**	**BAB2015D**	—	—
20	**BAB1020D**	**BAB2020D**	—	—
25	**BAB1025D**	**BAB2025D**	—	—
30	**BAB1030D**	**BAB2030D**	—	—
35	**BAB1035D**	**BAB2035D**	—	—
40	**BAB1040D**	**BAB2040D**	—	—
50	**BAB1050D**	**BAB2050D**	—	—
60	**BAB1060D**	**BAB2060D**	—	—
QUICKLAG Type: QC HID (High Intensity Discharge) Thermal-Magnetic Breakers				
15	**QC1015D**	**QC2015D**	—	—
20	**QC1020D**	**QC2020D**	—	—
25	**QC1025D**	**QC2025D**	—	—
30	**QC1030D**	**QC2030D**	—	—
35	**QC1035D**	**QC2035D**	—	—
40	**QC1040D**	**QC2040D**	—	—
50	**QC1050D**	**QC2050D**	—	—
60	**QC1060D**	**QC2060D**	—	—

Breaker Catalog Numbers, continued

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
QUICKLAG Type: HQP Non-Automatic Switches				
50	**HQP1050N**	—	**HQP2050N**	**HQP3050N**
60	**HQP1060N**	—	**HQP2060N**	**HQP3060N**
100	**HQP1100N**	—	**HQP2100N**	**HQP3100N**
QUICKLAG Type: BA Non-Automatic Switches				
50	**BAB1050N**	—	**BAB2050N**	**BAB3050N**
60	**BAB1060N**	—	**BAB2060N**	**BAB3060N**
100	**BAB1100N**	—	**BAB2100N**	**BAB3100N**
QUICKLAG Type: QC Non-Automatic Switches				
50	**QC1050N**	—	**QC2050N**	**QC3050N**
60	**QC1060N**	—	**QC2060N**	**QC3060N**
100	**QC1100N**	—	**QC2100N**	**QC3100N**
QUICKLAG Type: QCD Non-Automatic Switches				
60	—	—	**QCD2060NA**	—
100	—	—	—	—

1

Accessories ①

Handle Locks: Non-Padlockable ②

	Description	Order in Multiples of	Catalog Number
QL1NPL	QUICKLAG Type P, B, C—single-pole	10	**QL1NPL**
QL23NPL	QUICKLAG Type P, B, C—two- and three-pole	10	**QL23NPL**

Handle Locks: Padlockable ②

	Description	Order in Multiples of	Catalog Number
QL1PL	QUICKLAG Type P, B, C—single-pole	10	**QL1PL**
QL123PL	QUICKLAG Type P, B and ground fault—single-, two- and three-pole	10	**QL123PL**
QC123PL	QUICKLAG Type C —single-, two- and three-pole	10	**QC123PL**
	QUICKLAG Type P, B—single-, two- and three-pole (off only)	10	**QL123PLOFF**
	QUICKLAG Type C—single-, two- and three-pole (off only)	10	**QC123PLOFF**

Notes

① See **Page V4-T1-26** for QCR and QCF accessories.

② Can lock in ON or OFF position.

Mounting Hardware

	Description	Order in Multiples of	Catalog Number
QCFCLIP	QUICKLAG Type C face mounting clip	24	**QCFCLIP**
QC1FP	QUICKLAG Type C face mounting plate—single-pole	10	**QC1FP**
QC2FP	QUICKLAG Type C face mounting plate—two-pole	10	**QC2FP**
QC3FP	QUICKLAG Type C face mounting plate—three-pole	10	**QC3FP**
	QUICKLAG Type C face mounting plate and lock-off (off only)—two-pole ①	10	**QC2FPLOFF**
	QUICKLAG Type C face mounting plate and lock-off (off only)—three-pole	10	**QC3FPLOFF**
QCBCLIP	QUICKLAG Type C base mounting clamp	10	**QCBCLIP**
QC6BP	QUICKLAG Type mounting plate—six poles total	10	**QC6BP**

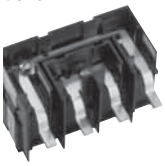
Note

① Suitable for ground fault breakers.

Mounting Hardware, continued

Description	Order in Multiples of	Catalog Number
QUICKLAG Type C base mounting plate—six poles total—heavy-duty screw-secured	10	**QC6BPS**
QUICKLAG Type C (QCD) 2-way jumper unit with cover	10	**QCDJ2**
QUICKLAG Type C (QCD) 4-way jumper unit with cover	10	**QCDJ4**
QUICKLAG Type C (QCD) 6-way jumper unit with cover	10	**QCDJ6**
QUICKLAG Type C (QCD) 2-way jumper unit, no cover	10	**QCDJ2T**
QUICKLAG Type C (QCD) 4-way jumper unit, no cover	10	**QCDJ4T**
QUICKLAG Type C (QCD) 6-way jumper unit, no cover	10	**QCDJ6T**
QUICKLAG Type QCD Finger protection attachment	10	**QCDFP**
QUICKLAG Type QCD 4-prong Quick Connect	10	**QCDQUICK**
QUICKLAG Type C DIN rail adapter	6	**QCDINADAPT**
QUICKLAG Type QCD ring lug attachment	10	**QCDRING**

QCDJ4



QCDINADAPT

QCDRING

Dummy Breakers

Description	Order in Multiples of	Catalog Number
QUICKLAG Type P	1	**HQP1000**
QUICKLAG Type B	1	**BAB1000**
QUICKLAG Type C	1	**QC1000**
QUICKLAG Type C clear choice breaker	4	**QC30SAMPLE**

Miscellaneous

Description	Order in Multiples of	Catalog Number
QUICKLAG Type C Spacer	1	**QCRSPACER**

QCRSPACER

Handle Tie

Description	Order in Multiples of	Catalog Number
QUICKLAG handle tie—single-pole	100	**QL1HT**

QL1HT

Factory Modifications and Installed Terminals

Factory Modifications ①

Type of Modification	Breaker Type	Catalog Suffix
Shunt trip (requires one extra pole space on right side) 120, 208, 240 Vac Draws 2.6A at 120V, draws 11A at 24 Vdc	QUICKLAG Types P, B and C	**S**
Shunt trip (requires one extra pole space on right side) 24, 48 Vac/dc Draws 2.6A at 120V, draws 11A at 24 Vdc	QUICKLAG Types P, B and C	**S1**
Special calibration (50°C) (no UL)	QUICKLAG Types P, B and C	**V**
Shock testing	QUICKLAG Types P, B and C	**L**
Freeze testing	QUICKLAG Types P, B and C	**Y**
Moisture-fungus treatment	QUICKLAG Types P, B, C and ground fault	**F**
Marine duty	QUICKLAG Types P, B, C	**H08**
Naval duty	QUICKLAG Types P, B, C	**H09**
400 Hz calibration	QUICKLAG Types P, B, C	**G**
Specific DC ratings (breaker marked with a max. Vdc rating)	QUICKLAG Types P, B, C	**Q thru Q9** ②

Spare Terminal Hardware Screws (Lugs not Included)

Terminal Type	Description	Order in Multiples of	Catalog Number
1	QUICKLAG terminal screw	10	**QLLDTSA**
2	QUICKLAG terminal screw	10	**QLLDTSB**
3	QUICKLAG terminal screw	10	**QLLDTSC**
5	QUICKLAG binding head terminal screw and clamp	10	**QLBHTSE**
6 and 7	QUICKLAG terminal screw	10	**QLLNTSFG**

Notes

① Contact Eaton for factory modifications available for QCR and QCF breakers.

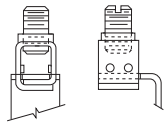
② Q = 32 Vdc; Q1 = 32–40 Vdc; Q2 = 37.5 Vdc; Q3 = 45 Vdc; Q4 = 48 Vdc; Q5 = 50 Vdc; Q6 = 62.5 Vdc; Q7 = 75 Vdc (2P); Q8 = 80 Vdc (2P); Q9 = 125 Vdc (QCR 2P); Q10 = 62.5 Vdc (QCR 1P).

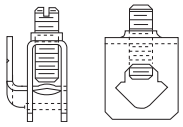
1

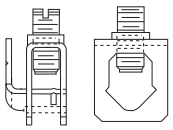
Technical Data and Specifications

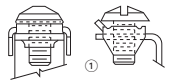
Factory-Installed Breaker Terminals

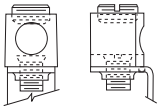
Breaker Type	Continuous Ampere Rating	Standard Line Terminal			Standard Load Terminal			Optional Terminals	
		Terminal Type	Wire Type	Wire Range (AWG)	Terminal Type	Wire Type	Wire Range (AWG)	Line	Load
QUICKLAG Type P HQP, QPHW, QHPX, QHPW	10–30	Plug-on female clips that mate with the bus stabs			1	Cu/Al	14–4	N/A	3
	35–50				2	Cu/Al	14–4	N/A	3
	55–125				3	Cu/Al	8–1/0	N/A	—
QUICKLAG ground fault QPGFT, QPGFEP, QPHGFT, QPHGFEP	10–40	Plug-on female clips that mate with the bus stabs			1 (single-pole)	Cu/Al	14–4	N/A	3
	10–40				1	Cu/Al	—	N/A	3
	10–30				1	Cu	14–8	N/A	—
QUICKLAG Type B BAB, QBHW, HBAX, HBAW	10–40	Extended tangs that bolt directly to the bus			1 (single- and two-pole)	Cu/Al	14–4	N/A	3
	35–50				2 (three-pole)	Cu/Al	14–4	N/A	3
	55–125				3	Cu/Al	8–1/0	N/A	—
QUICKLAG ground fault QBGFT, QBGFEP, QBHGFEP, QBHGFT	10–40	Extended tangs that bolt directly to the bus			1 (single-pole)	Cu/Al	14–4	N/A	N/A
	10–40				1	Cu/Al	14–8	N/A	N/A
	10–30				1	Cu	14–8	N/A	N/A
QUICKLAG Type C QC, QCHW, QHCX, QHCW	10–20	5	Cu/Al	TBD	5	Cu/Al	14–10	6, 7	6, 7, 8
	25–60	6	Cu/Al	TBD	2	Cu/Al	14–4	5, 7	5, 6, 7, 8
	70–100	7	Cu/Al	TBD	3	Cu/Al	8–1/0	5	5, 7, 8
QUICKLAG QCR, QCF	10–55	1	Cu/Al	TBD	1	Cu/Al	14–4	N/A	N/A
	60	1	Cu	TBD	1	Cu	14–4	N/A	N/A
QUICKLAG ground fault QCGFT, QCGFEP, QCHGFT, QCHGFEP	10–20	6	Cu/Al	TBD	14–8	Cu/Al	14–4	6, 7	5
	25–50	6	Cu/Al	TBD	1	Cu/Al	14–4	5, 7	5
	10–30	6	—	—	—	—	—	—	—
QUICKLAG QCD	10–60	9	Cu/Al	14–4	9	Cu/Al	14–4	See Accessories	
	70–100	10	Cu	4–1/0	10	Cu	4–1/0	See Accessories	

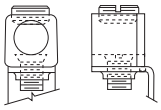
1

Steel Box Lug

2

Steel Box Lug

3

Steel Box Lug

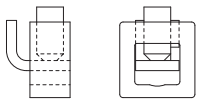
5

Steel Ring Type

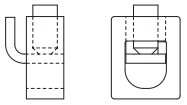
6

Aluminum Box Lug

7

Aluminum Box Lug

8

4-Prong Quick Connect

9

QCD Terminal Assembly 10–60A

10

QCD Terminal Assembly 70–100A

Dimensions

Approximate Dimensions in Inches (mm)

Shipping Data

Miniature Circuit Breaker	Number of Poles	Standard Carton Quantity	Approximate Carton Weight Lbs (kg)	Approximate Standard Carton
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)

Note

① Clamp on line side only.

FAZ-NA and FAZ-NA-L Circuit Breakers

Optimum and Efficient Protection for Every Application

Contents

Description	*Page*
FAZ-NA and FAZ-NA-L Circuit Breakers	
Catalog Number Selection	**V4-T1-48**
Product Selection	**V4-T1-49**
Accessories	**V4-T1-62**
Technical Data and Specifications	**V4-T1-66**
Dimensions	**V4-T1-72**

FAZ-NA and FAZ-NA-L Circuit Breakers

Product Overview

Optimum product quality, tested reliability and safety stand for best protection of personnel, installations and plant. Eaton's FAZ-NA and FAZ-NA-L DIN rail mountable circuit breakers are designed for use in branch service applications.

Powerful Offering for Machine and System Builders

FAZ-NA and FAZ-NA-L are available with B, C and D characteristics in accordance with UL® 489, CSA® C22.2 No.5; UL 1077, CSA C22.2 No.235 and IEC 60947-2. These devices are CE marked.

Application Description

Feeder and branch circuit protection for:

- Convenience receptacle circuits (internal/external)
- Motor control circuits
- Load circuits leaving the equipment (external)
- HACR internal/external equipment (heating, air conditioning, refrigeration)
- PLC I/O points
- Computers
- Power supplies
- Control instrumentation
- Relays
- UPS
- Power conditioners

Features

- Complete range of UL 489 listed DIN rail mounted miniature circuit breakers up to 63A current rating
- Two distinct UL 489 FAZ-NA offerings available to provide the best solution for the application—FAZ-NA at 277/480 Vac and FAZ-NA-L at 240 Vac
- Standard ratings of 10 kAIC available at both 240 Vac and 277/480 Vac
- Select amperages available at 14 kAIC for both the 240 Vac and 277/480 Vac offerings and 10 kAIC up to 125 Vdc per pole
- Current limiting design provides fast short-circuit interruption that reduces the let-through energy, which can damage the circuit
- Suitable for branch circuit device protection
- Thermal-magnetic overcurrent protection
  - Three levels of short-circuit protection, categorized by B, C and D curves
- Trip-free design—breaker can not be defeated by holding the handle in the ON position
- Captive screws cannot be lost
- SWD (switching duty)—suitable for switching fluorescent lighting loads ($I_n \leq 20A$)
- Fulfill UL 489, CSA C22.2 No.5 and also IEC 60947-2 Standard
- For use in applications for which UL 1077 or CSA C22.2 No.235 are also allowed
- Field-installable shunt trip and auxiliary switch subsequent mounting
- Separate version for ring-tongue connection (Type FAZ-RT), terminal screws can be removed (on both sides)
- Module width of only 17.7 mm (per pole)
- Contact Position Indicator (red/green)
- Easy installation on DIN rail
- Possibility for sealing the toggle in ON or OFF position
- Single-, two-, three- and four-pole configurations

Device Printing on Front and Side

Installation options

These branch circuit breakers are available in two terminal configurations: standard box terminals that accept multiple conductors and ring-tongue terminals, ideally suited to demanding requirements of the semi-conductor industry. All breakers mount on standard 35 mm DIN rail. Bus connectors and feeder terminal facilitate mounting and wiring of multiple miniature circuit breaker arrays in control panel assemblies. These circuit breakers can also be reverse feed.

1

Standards and Certifications

FAZ-NA

FAZ-NA complies with the latest national and international standards.

- UL 489
  - Standard for molded case circuit breakers (MCCB) for feeder and branch circuit protection
  - Products meet the requirements of the National Electrical Code® (NEC®)
- CSA C22.2 No.5
  - Standard for molded case circuit breakers (MCCB) for feeder and branch circuit protection (corresponds closely to UL 489 Standard)
  - Products meet the requirements of the Canadian Electrical Code (CEC)
- RoHS compliant
- VDE compliant
- ABS compliant

Listed

FAZ-NA-L

FAZ-NA-L 0.5–63A at 240 Vac comply with the following standards.

- UL 489 listed
- CSA C22.2 No. 5-02
- IEC rated
- RoHS compliant
- CCC compliant
- OVE compliant
- EAC compliant
- ABS compliant
- VDE compliant

Listed

Catalog Number Selection

FAZ - C 6 / 1 - NA - SP

Breaker Family
FAZ = FAZ UL circuit breaker

Trip Characteristics ①
B = 3–5X I_n
C = 5–10X I_n
D = 10–20X I_n

Ampere Rating ②			
0.5	= 0.5A	**13**	= 13A
1	= 1A	**15**	= 15A
1.5	= 1.5A	**16**	= 16A
2	= 2A	**20**	= 20A
3	= 3A	**25**	= 25A
4	= 4A	**30**	= 30A
5	= 5A	**32**	= 32A
6	= 6A	**35**	= 32A
7	= 7A	**40**	= 40A
8	= 8A	**50**	= 50A
10	= 10A	**63**	= 63A

Number of Poles
1 = Single-pole
2 = Two-pole
3 = Three-pole
4 = Four-pole

Terminal	
NA	= UL 489 branch circuit at 277/480 Vac with screw terminals
RT	= UL 489 branch circuit at 277/480 Vac with ring-tongue terminals
DC	= UL 489 branch circuit at 125 Vdc per pole
NA-L	= UL 489 branch circuit at 240 Vac with screw terminals
RT-L	= UL 489 branch circuit at 240 Vac with ring-tongue terminals

Single Package ③
SP = Single package for C and D curve single-pole at 277 Vac only
Blank = Standard packaging

Notes

① I_n = Rated current for instantaneous trip characteristics.

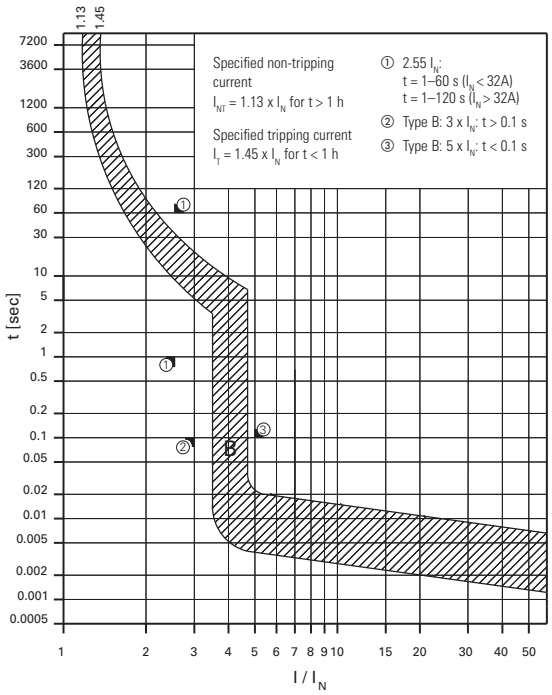
② B curve starts at 1 ampere.

③ Single package only available for 277 Vac offering—not an option for 240 Vac line.

Product Selection

FAZ-NA B Curve 277/480 Vac Rated Offering

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-NA UL 489 Circuit Breakers at 277/480 Vac—10 kAIC, 14 kAIC B Curve (15–25A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
B Curve (3–5X I_n Current Rating)				
1	**FAZ-B1/1-NA**	**FAZ-B1/2-NA**	**FAZ-B1/3-NA**	**FAZ-B1/4-NA**
1.5	**FAZ-B1.5/1-NA**	**FAZ-B1.5/2-NA**	**FAZ-B1.5/3-NA**	**FAZ-B1.5/4-NA**
2	**FAZ-B2/1-NA**	**FAZ-B2/2-NA**	**FAZ-B2/3-NA**	**FAZ-B2/4-NA**
3	**FAZ-B3/1-NA**	**FAZ-B3/2-NA**	**FAZ-B3/3-NA**	**FAZ-B3/4-NA**
4	**FAZ-B4/1-NA**	**FAZ-B4/2-NA**	**FAZ-B4/3-NA**	**FAZ-B4/4-NA**
5	**FAZ-B5/1-NA**	**FAZ-B5/2-NA**	**FAZ-B5/3-NA**	**FAZ-B5/4-NA**
6	**FAZ-B6/1-NA**	**FAZ-B6/2-NA**	**FAZ-B6/3-NA**	**FAZ-B6/4-NA**
7	**FAZ-B7/1-NA**	**FAZ-B7/2-NA**	**FAZ-B7/3-NA**	**FAZ-B7/4-NA**
8	**FAZ-B8/1-NA**	**FAZ-B8/2-NA**	**FAZ-B8/3-NA**	**FAZ-B8/4-NA**
10	**FAZ-B10/1-NA**	**FAZ-B10/2-NA**	**FAZ-B10/3-NA**	**FAZ-B10/4-NA**
13	**FAZ-B13/1-NA**	**FAZ-B13/2-NA**	**FAZ-B13/3-NA**	**FAZ-B13/4-NA**
15	**FAZ-B15/1-NA**	**FAZ-B15/2-NA**	**FAZ-B15/3-NA**	**FAZ-B15/4-NA**
16	**FAZ-B16/1-NA**	**FAZ-B16/2-NA**	**FAZ-B16/3-NA**	**FAZ-B16/4-NA**
20	**FAZ-B20/1-NA**	**FAZ-B20/2-NA**	**FAZ-B20/3-NA**	**FAZ-B20/4-NA**
25	**FAZ-B25/1-NA**	**FAZ-B25/2-NA**	**FAZ-B25/3-NA**	**FAZ-B25/4-NA**
30	**FAZ-B30/1-NA**	**FAZ-B30/2-NA**	**FAZ-B30/3-NA**	**FAZ-B30/4-NA**
32	**FAZ-B32/1-NA**	**FAZ-B32/2-NA**	**FAZ-B32/3-NA**	**FAZ-B32/4-NA**

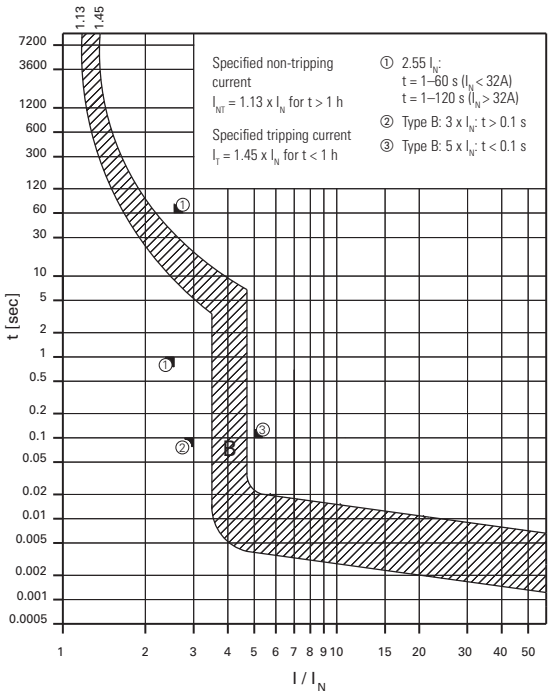
Note

① Two-piece order. Quantities of two per box.

1

FAZ-NA B Curve 277/480 Vac Rated Offering

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-RT UL 489 Circuit Breakers with Ring-Tongue Terminals at 277/480 Vac—10 kAIC, 14 kAIC B Curve (15–25A)

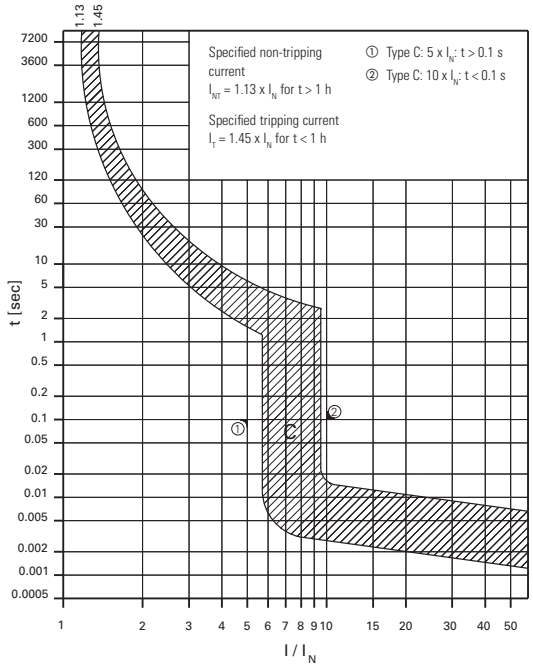
Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
B Curve with Ring-Tongue Terminals (3–5X I_n Current Rating)				
1	**FAZ-B1/1-RT**	**FAZ-B1/2-RT**	**FAZ-B1/3-RT**	**FAZ-B1/4-RT**
1.5	**FAZ-B1.5/1-RT**	**FAZ-B1.5/2-RT**	**FAZ-B1.5/3-RT**	**FAZ-B1.5/4-RT**
2	**FAZ-B2/1-RT**	**FAZ-B2/2-RT**	**FAZ-B2/3-RT**	**FAZ-B2/4-RT**
3	**FAZ-B3/1-RT**	**FAZ-B3/2-RT**	**FAZ-B3/3-RT**	**FAZ-B3/4-RT**
4	**FAZ-B4/1-RT**	**FAZ-B4/2-RT**	**FAZ-B4/3-RT**	**FAZ-B4/4-RT**
5	**FAZ-B5/1-RT**	**FAZ-B5/2-RT**	**FAZ-B5/3-RT**	**FAZ-B5/4-RT**
6	**FAZ-B6/1-RT**	**FAZ-B6/2-RT**	**FAZ-B6/3-RT**	**FAZ-B6/4-RT**
7	**FAZ-B7/1-RT**	**FAZ-B7/2-RT**	**FAZ-B7/3-RT**	**FAZ-B7/4-RT**
8	**FAZ-B8/1-RT**	**FAZ-B8/2-RT**	**FAZ-B8/3-RT**	**FAZ-B8/4-RT**
10	**FAZ-B10/1-RT**	**FAZ-B10/2-RT**	**FAZ-B10/3-RT**	**FAZ-B10/4-RT**
13	**FAZ-B13/1-RT**	**FAZ-B13/2-RT**	**FAZ-B13/3-RT**	**FAZ-B13/4-RT**
15	**FAZ-B15/1-RT**	**FAZ-B15/2-RT**	**FAZ-B15/3-RT**	**FAZ-B15/4-RT**
16	**FAZ-B16/1-RT**	**FAZ-B16/2-RT**	**FAZ-B16/3-RT**	**FAZ-B16/4-RT**
20	**FAZ-B20/1-RT**	**FAZ-B20/2-RT**	**FAZ-B20/3-RT**	**FAZ-B20/4-RT**
25	**FAZ-B25/1-RT**	**FAZ-B25/2-RT**	**FAZ-B25/3-RT**	**FAZ-B25/4-RT**
30	**FAZ-B30/1-RT**	**FAZ-B30/2-RT**	**FAZ-B30/3-RT**	**FAZ-B30/4-RT**
32	**FAZ-B32/1-RT**	**FAZ-B32/2-RT**	**FAZ-B32/3-RT**	**FAZ-B32/4-RT**

Note

① Two-piece order. Quantities of two per box.

FAZ-NA C Curve 277/480 Vac Rated Offering

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-NA UL 489 Circuit Breakers at 277/480 Vac—10 kAIC, 14 kAIC C Curve (15–25A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
C Curve (5–10X I_n Current Rating)				
0.5	**FAZ-C0.5/1-NA-SP**	**FAZ-C0.5/2-NA**	**FAZ-C0.5/3-NA**	**FAZ-C0.5/4-NA**
1	**FAZ-C1/1-NA-SP**	**FAZ-C1/2-NA**	**FAZ-C1/3-NA**	**FAZ-C1/4-NA**
1.5	**FAZ-C1.5/1-NA-SP**	**FAZ-C1.5/2-NA**	**FAZ-C1.5/3-NA**	**FAZ-C1.5/4-NA**
2	**FAZ-C2/1-NA-SP**	**FAZ-C2/2-NA**	**FAZ-C2/3-NA**	**FAZ-C2/4-NA**
3	**FAZ-C3/1-NA-SP**	**FAZ-C3/2-NA**	**FAZ-C3/3-NA**	**FAZ-C3/4-NA**
4	**FAZ-C4/1-NA-SP**	**FAZ-C4/2-NA**	**FAZ-C4/3-NA**	**FAZ-C4/4-NA**
5	**FAZ-C5/1-NA-SP**	**FAZ-C5/2-NA**	**FAZ-C5/3-NA**	**FAZ-C5/4-NA**
6	**FAZ-C6/1-NA-SP**	**FAZ-C6/2-NA**	**FAZ-C6/3-NA**	**FAZ-C6/4-NA**
7	**FAZ-C7/1-NA-SP**	**FAZ-C7/2-NA**	**FAZ-C7/3-NA**	**FAZ-C7/4-NA**
8	**FAZ-C8/1-NA-SP**	**FAZ-C8/2-NA**	**FAZ-C8/3-NA**	**FAZ-C8/4-NA**
10	**FAZ-C10/1-NA-SP**	**FAZ-C10/2-NA**	**FAZ-C10/3-NA**	**FAZ-C10/4-NA**
13	**FAZ-C13/1-NA-SP**	**FAZ-C13/2-NA**	**FAZ-C13/3-NA**	**FAZ-C13/4-NA**
15	**FAZ-C15/1-NA-SP**	**FAZ-C15/2-NA**	**FAZ-C15/3-NA**	**FAZ-C15/4-NA**
16	**FAZ-C16/1-NA-SP**	**FAZ-C16/2-NA**	**FAZ-C16/3-NA**	**FAZ-C16/4-NA**
20	**FAZ-C20/1-NA-SP**	**FAZ-C20/2-NA**	**FAZ-C20/3-NA**	**FAZ-C20/4-NA**
25	**FAZ-C25/1-NA-SP**	**FAZ-C25/2-NA**	**FAZ-C25/3-NA**	**FAZ-C25/4-NA**
30	**FAZ-C30/1-NA-SP**	**FAZ-C30/2-NA**	**FAZ-C30/3-NA**	**FAZ-C30/4-NA**
32	**FAZ-C32/1-NA-SP**	**FAZ-C32/2-NA**	**FAZ-C32/3-NA**	**FAZ-C32/4-NA**

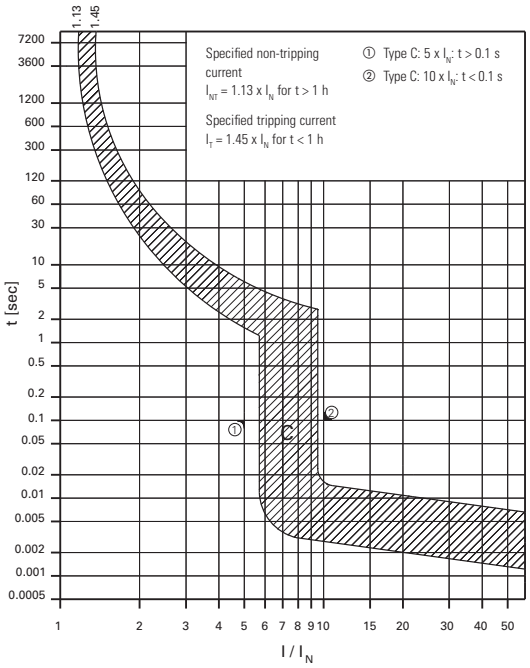
Note

① Option for single packaging on single-pole C and D curves only; add suffix SP when ordering.

1

FAZ-NA C Curve 277/480 Vac Rated Offering

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-RT UL 489 Circuit Breakers with Ring-Tongue Terminals at 277/480 Vac—10 kAIC, 14 kAIC C Curve (15–25A)

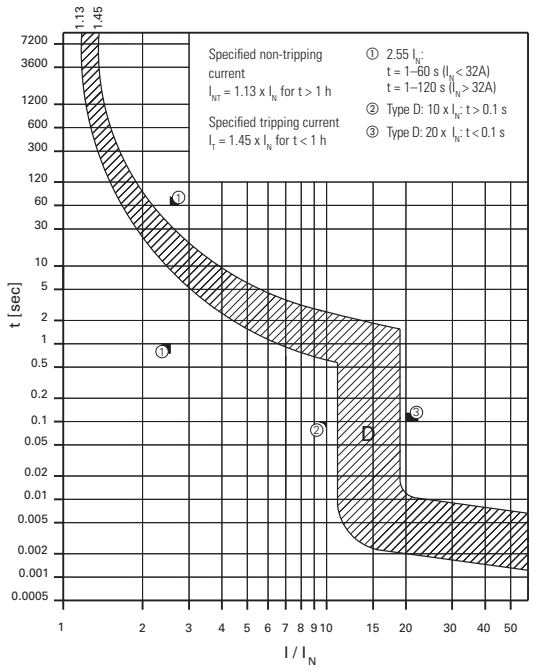
Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
C Curve with Ring-Tongue Terminals (5–10X I_n Current Rating)				
0.5	**FAZ-C0.5/1-RT-SP**	**FAZ-C0.5/2-RT**	**FAZ-C0.5/3-RT**	**FAZ-C0.5/4-RT**
1	**FAZ-C1/1-RT-SP**	**FAZ-C1/2-RT**	**FAZ-C1/3-RT**	**FAZ-C1/4-RT**
1.5	**FAZ-C1.5/1-RT-SP**	**FAZ-C1.5/2-RT**	**FAZ-C1.5/3-RT**	**FAZ-C1.5/4-RT**
2	**FAZ-C2/1-RT-SP**	**FAZ-C2/2-RT**	**FAZ-C2/3-RT**	**FAZ-C2/4-RT**
3	**FAZ-C3/1-RT-SP**	**FAZ-C3/2-RT**	**FAZ-C3/3-RT**	**FAZ-C3/4-RT**
4	**FAZ-C4/1-RT-SP**	**FAZ-C4/2-RT**	**FAZ-C4/3-RT**	**FAZ-C4/4-RT**
5	**FAZ-C5/1-RT-SP**	**FAZ-C5/2-RT**	**FAZ-C5/3-RT**	**FAZ-C5/4-RT**
6	**FAZ-C6/1-RT-SP**	**FAZ-C6/2-RT**	**FAZ-C6/3-RT**	**FAZ-C6/4-RT**
7	**FAZ-C7/1-RT-SP**	**FAZ-C7/2-RT**	**FAZ-C7/3-RT**	**FAZ-C7/4-RT**
8	**FAZ-C8/1-RT-SP**	**FAZ-C8/2-RT**	**FAZ-C8/3-RT**	**FAZ-C8/4-RT**
10	**FAZ-C10/1-RT-SP**	**FAZ-C10/2-RT**	**FAZ-C10/3-RT**	**FAZ-C10/4-RT**
13	**FAZ-C13/1-RT-SP**	**FAZ-C13/2-RT**	**FAZ-C13/3-RT**	**FAZ-C13/4-RT**
15	**FAZ-C15/1-RT-SP**	**FAZ-C15/2-RT**	**FAZ-C15/3-RT**	**FAZ-C15/4-RT**
16	**FAZ-C16/1-RT-SP**	**FAZ-C16/2-RT**	**FAZ-C16/3-RT**	**FAZ-C16/4-RT**
20	**FAZ-C20/1-RT-SP**	**FAZ-C20/2-RT**	**FAZ-C20/3-RT**	**FAZ-C20/4-RT**
25	**FAZ-C25/1-RT-SP**	**FAZ-C25/2-RT**	**FAZ-C25/3-RT**	**FAZ-C25/4-RT**
30	**FAZ-C30/1-RT-SP**	**FAZ-C30/2-RT**	**FAZ-C30/3-RT**	**FAZ-C30/4-RT**
32	**FAZ-C32/1-RT-SP**	**FAZ-C32/2-RT**	**FAZ-C32/3-RT**	**FAZ-C32/4-RT**

Note

① Option for single packaging on single-pole C and D curves only.

FAZ-NA D Curve 277/480 Vac Rated Offering

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-NA UL 489 Circuit Breakers at 277/480 Vac—10 kAIC, 14 kAIC D Curve (13–20A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
D Curve (10–20X I_n Current Rating)				
0.5	**FAZ-D0.5/1-NA-SP**	**FAZ-D0.5/2-NA**	**FAZ-D0.5/3-NA**	**FAZ-D0.5/4-NA**
1	**FAZ-D1/1-NA-SP**	**FAZ-D1/2-NA**	**FAZ-D1/3-NA**	**FAZ-D1/4-NA**
1.5	**FAZ-D1.5/1-NA-SP**	**FAZ-D1.5/2-NA**	**FAZ-D1.5/3-NA**	**FAZ-D1.5/4-NA**
2	**FAZ-D2/1-NA-SP**	**FAZ-D2/2-NA**	**FAZ-D2/3-NA**	**FAZ-D2/4-NA**
3	**FAZ-D3/1-NA-SP**	**FAZ-D3/2-NA**	**FAZ-D3/3-NA**	**FAZ-D3/4-NA**
4	**FAZ-D4/1-NA-SP**	**FAZ-D4/2-NA**	**FAZ-D4/3-NA**	**FAZ-D4/4-NA**
5	**FAZ-D5/1-NA-SP**	**FAZ-D5/2-NA**	**FAZ-D5/3-NA**	**FAZ-D5/4-NA**
6	**FAZ-D6/1-NA-SP**	**FAZ-D6/2-NA**	**FAZ-D6/3-NA**	**FAZ-D6/4-NA**
7	**FAZ-D7/1-NA-SP**	**FAZ-D7/2-NA**	**FAZ-D7/3-NA**	**FAZ-D7/4-NA**
8	**FAZ-D8/1-NA-SP**	**FAZ-D8/2-NA**	**FAZ-D8/3-NA**	**FAZ-D8/4-NA**
10	**FAZ-D10/1-NA-SP**	**FAZ-D10/2-NA**	**FAZ-D10/3-NA**	**FAZ-D10/4-NA**
13	**FAZ-D13/1-NA-SP**	**FAZ-D13/2-NA**	**FAZ-D13/3-NA**	**FAZ-D13/4-NA**
15	**FAZ-D15/1-NA-SP**	**FAZ-D15/2-NA**	**FAZ-D15/3-NA**	**FAZ-D15/4-NA**
16	**FAZ-D16/1-NA-SP**	**FAZ-D16/2-NA**	**FAZ-D16/3-NA**	**FAZ-D16/4-NA**
20	**FAZ-D20/1-NA-SP**	**FAZ-D20/2-NA**	**FAZ-D20/3-NA**	**FAZ-D20/4-NA**
25	**FAZ-D25/1-NA-SP**	**FAZ-D25/2-NA**	**FAZ-D25/3-NA**	**FAZ-D25/4-NA**
30	**FAZ-D30/1-NA-SP**	**FAZ-D30/2-NA**	**FAZ-D30/3-NA**	**FAZ-D30/4-NA**
32	**FAZ-D32/1-NA-SP**	**FAZ-D32/2-NA**	**FAZ-D32/3-NA**	**FAZ-D32/4-NA**

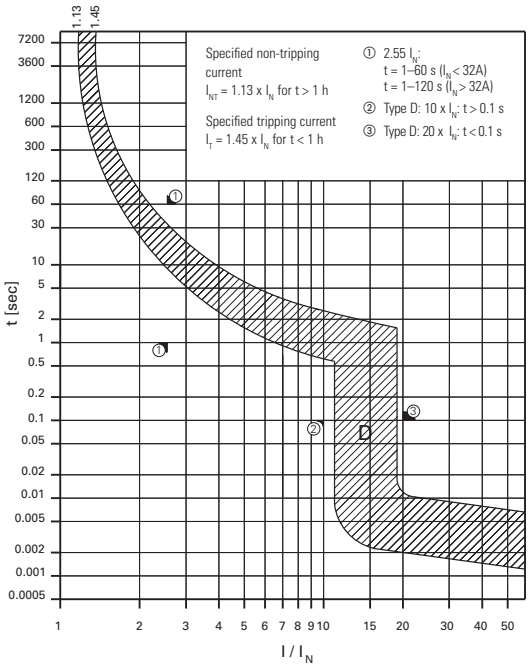
Note

① Option for single packaging on single-pole C and D curves only.

1

FAZ-NA D Curve 277/480 Vac Rated Offering

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-RT UL 489 Circuit Breakers with Ring-Tongue Terminals at 277/480 Vac—10 kAIC, 14 kAIC D Curve (13–20A)

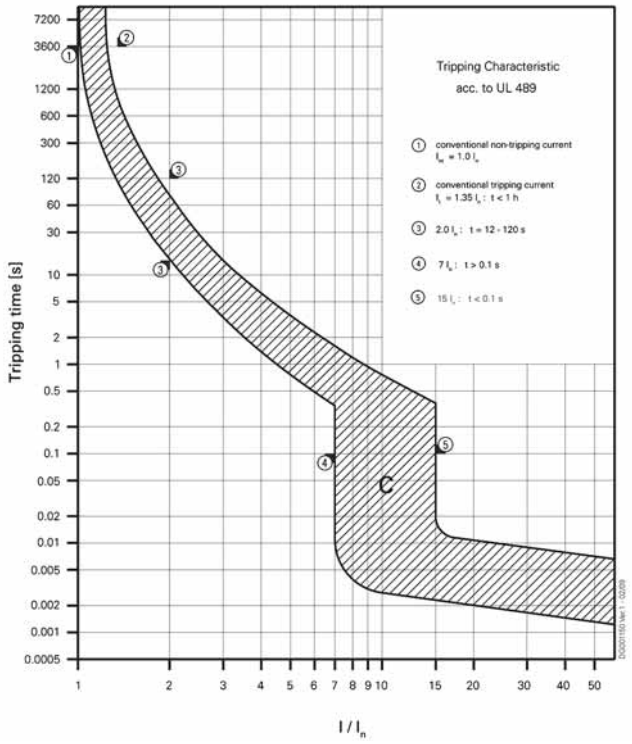
Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
D Curve with Ring-Tongue Terminals (10–20X I_n Current Rating)				
0.5	**FAZ-D0.5/1-RT-SP**	**FAZ-D0.5/2-RT**	**FAZ-D0.5/3-RT**	**FAZ-D0.5/4-RT**
1	**FAZ-D1/1-RT-SP**	**FAZ-D1/2-RT**	**FAZ-D1/3-RT**	**FAZ-D1/4-RT**
1.5	**FAZ-D1.5/1-RT-SP**	**FAZ-D1.5/2-RT**	**FAZ-D1.5/3-RT**	**FAZ-D1.5/4-RT**
2	**FAZ-D2/1-RT-SP**	**FAZ-D2/2-RT**	**FAZ-D2/3-RT**	**FAZ-D2/4-RT**
3	**FAZ-D3/1-RT-SP**	**FAZ-D3/2-RT**	**FAZ-D3/3-RT**	**FAZ-D3/4-RT**
4	**FAZ-D4/1-RT-SP**	**FAZ-D4/2-RT**	**FAZ-D4/3-RT**	**FAZ-D4/4-RT**
5	**FAZ-D5/1-RT-SP**	**FAZ-D5/2-RT**	**FAZ-D5/3-RT**	**FAZ-D5/4-RT**
6	**FAZ-D6/1-RT-SP**	**FAZ-D6/2-RT**	**FAZ-D6/3-RT**	**FAZ-D6/4-RT**
7	**FAZ-D7/1-RT-SP**	**FAZ-D7/2-RT**	**FAZ-D7/3-RT**	**FAZ-D7/4-RT**
8	**FAZ-D8/1-RT-SP**	**FAZ-D8/2-RT**	**FAZ-D8/3-RT**	**FAZ-D8/4-RT**
10	**FAZ-D10/1-RT-SP**	**FAZ-D10/2-RT**	**FAZ-D10/3-RT**	**FAZ-D10/4-RT**
13	**FAZ-D13/1-RT-SP**	**FAZ-D13/2-RT**	**FAZ-D13/3-RT**	**FAZ-D13/4-RT**
15	**FAZ-D15/1-RT-SP**	**FAZ-D15/2-RT**	**FAZ-D15/3-RT**	**FAZ-D15/4-RT**
16	**FAZ-D16/1-RT-SP**	**FAZ-D16/2-RT**	**FAZ-D16/3-RT**	**FAZ-D16/4-RT**
20	**FAZ-D20/1-RT-SP**	**FAZ-D20/2-RT**	**FAZ-D20/3-RT**	**FAZ-D20/4-RT**
25	**FAZ-D25/1-RT-SP**	**FAZ-D25/2-RT**	**FAZ-D25/3-RT**	**FAZ-D25/4-RT**
30	**FAZ-D30/1-RT-SP**	**FAZ-D30/2-RT**	**FAZ-D30/3-RT**	**FAZ-D30/4-RT**
32	**FAZ-D32/1-RT-SP**	**FAZ-D32/2-RT**	**FAZ-D32/3-RT**	**FAZ-D32/4-RT**

Note

① Option for single packaging on single-pole C and D curves only.

FAZ-NA-DC C Curve at 125 Vdc per Pole Offering

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as Branch Circuit Breakers
- Interrupting capacity: 10 kA at 125 Vdc UL/CSA, 10 kA at 250 Vdc
- 125 Vdc for one-pole, 250 Vdc for two-pole in series
- Current limiting device
- Polarity (+/–) sensitive and not for use on photovoltaic string application
- UL file number E235139



Single-Pole

Two-Pole

FAZ-NA-DC UL 489 Circuit Breakers—10 kAIC at 125 Vdc Per Pole

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number
C Curve (5–10X I_n Current Rating)		
2	**FAZ-C2/1-NA-DC-SP**	**FAZ-C2/2-NA-DC**
3	**FAZ-C3/1-NA-DC-SP**	**FAZ-C3/2-NA-DC**
4	**FAZ-C4/1-NA-DC-SP**	**FAZ-C4/2-NA-DC**
5	**FAZ-C5/1-NA-DC-SP**	**FAZ-C5/2-NA-DC**
6	**FAZ-C6/1-NA-DC-SP**	**FAZ-C6/2-NA-DC**
7	**FAZ-C7/1-NA-DC-SP**	**FAZ-C7/2-NA-DC**
8	**FAZ-C8/1-NA-DC-SP**	**FAZ-C8/2-NA-DC**
10	**FAZ-C10/1-NA-DC-SP**	**FAZ-C10/2-NA-DC**
13	**FAZ-C13/1-NA-DC-SP**	**FAZ-C13/2-NA-DC**
15	**FAZ-C15/1-NA-DC-SP**	**FAZ-C15/2-NA-DC**
16	**FAZ-C16/1-NA-DC-SP**	**FAZ-C16/2-NA-DC**
20	**FAZ-C20/1-NA-DC-SP**	**FAZ-C20/2-NA-DC**
25	**FAZ-C25/1-NA-DC-SP**	**FAZ-C25/2-NA-DC**
30	**FAZ-C30/1-NA-DC-SP**	**FAZ-C30/2-NA-DC**
32	**FAZ-C32/1-NA-DC-SP**	**FAZ-C32/2-NA-DC**
35	**FAZ-C35/1-NA-DC-SP**	**FAZ-C35/2-NA-DC**
40	**FAZ-C40/1-NA-DC-SP**	**FAZ-C40/2-NA-DC**

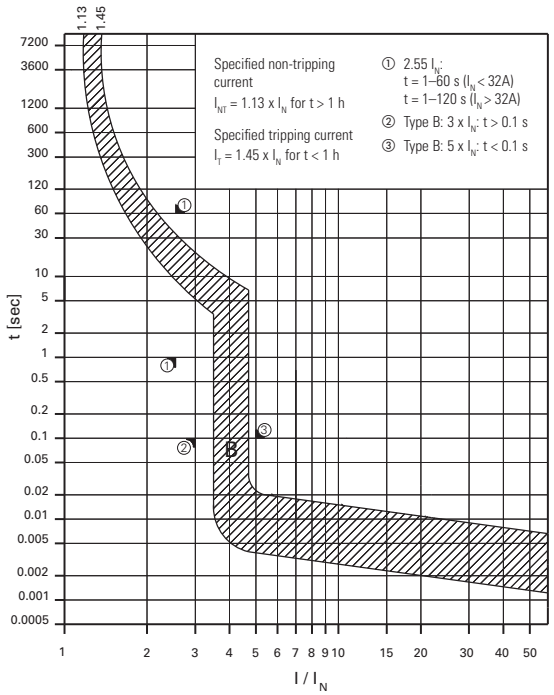
Note

① Option for single packaging on single-pole C curves only; add suffix SP when ordering.

1

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC B Curve

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- 48 Vdc for single-pole
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC, 14 kAIC B Curve (15–25A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
B Curve (3–5X I_n Current Rating)				
1	**FAZ-B1/1-NA-L**	**FAZ-B1/2-NA-L**	**FAZ-B1/3-NA-L**	**FAZ-B1/4-NA-L**
1.5	**FAZ-B1.5/1-NA-L**	**FAZ-B1.5/2-NA-L**	**FAZ-B1.5/3-NA-L**	**FAZ-B1.5/4-NA-L**
2	**FAZ-B2/1-NA-L**	**FAZ-B2/2-NA-L**	**FAZ-B2/3-NA-L**	**FAZ-B2/4-NA-L**
3	**FAZ-B3/1-NA-L**	**FAZ-B3/2-NA-L**	**FAZ-B3/3-NA-L**	**FAZ-B3/4-NA-L**
4	**FAZ-B4/1-NA-L**	**FAZ-B4/2-NA-L**	**FAZ-B4/3-NA-L**	**FAZ-B4/4-NA-L**
5	**FAZ-B5/1-NA-L**	**FAZ-B5/2-NA-L**	**FAZ-B5/3-NA-L**	**FAZ-B5/4-NA-L**
6	**FAZ-B6/1-NA-L**	**FAZ-B6/2-NA-L**	**FAZ-B6/3-NA-L**	**FAZ-B6/4-NA-L**
7	**FAZ-B7/1-NA-L**	**FAZ-B7/2-NA-L**	**FAZ-B7/3-NA-L**	**FAZ-B7/4-NA-L**
8	**FAZ-B8/1-NA-L**	**FAZ-B8/2-NA-L**	**FAZ-B8/3-NA-L**	**FAZ-B8/4-NA-L**
10	**FAZ-B10/1-NA-L**	**FAZ-B10/2-NA-L**	**FAZ-B10/3-NA-L**	**FAZ-B10/4-NA-L**
13	**FAZ-B13/1-NA-L**	**FAZ-B13/2-NA-L**	**FAZ-B13/3-NA-L**	**FAZ-B13/4-NA-L**
15	**FAZ-B15/1-NA-L**	**FAZ-B15/2-NA-L**	**FAZ-B15/3-NA-L**	**FAZ-B15/4-NA-L**
16	**FAZ-B16/1-NA-L**	**FAZ-B16/2-NA-L**	**FAZ-B16/3-NA-L**	**FAZ-B16/4-NA-L**
20	**FAZ-B20/1-NA-L**	**FAZ-B20/2-NA-L**	**FAZ-B20/3-NA-L**	**FAZ-B20/4-NA-L**
25	**FAZ-B25/1-NA-L**	**FAZ-B25/2-NA-L**	**FAZ-B25/3-NA-L**	**FAZ-B25/4-NA-L**
30	**FAZ-B30/1-NA-L**	**FAZ-B30/2-NA-L**	**FAZ-B30/3-NA-L**	**FAZ-B30/4-NA-L**
32	**FAZ-B32/1-NA-L**	**FAZ-B32/2-NA-L**	**FAZ-B32/3-NA-L**	**FAZ-B32/4-NA-L**
35 ②	**FAZ-B35/1-NA**	**FAZ-B35/2-NA**	**FAZ-B35/3-NA**	**FAZ-B35/4-NA**
40 ②	**FAZ-B40/1-NA**	**FAZ-B40/2-NA**	**FAZ-B40/3-NA**	**FAZ-B40/4-NA**
50	**FAZ-B50/1-NA**	**FAZ-B50/2-NA**	**FAZ-B50/3-NA**	**FAZ-B50/4-NA**
63	**FAZ-B63/1-NA**	**FAZ-B63/2-NA**	**FAZ-B63/3-NA**	**FAZ-B63/4-NA**

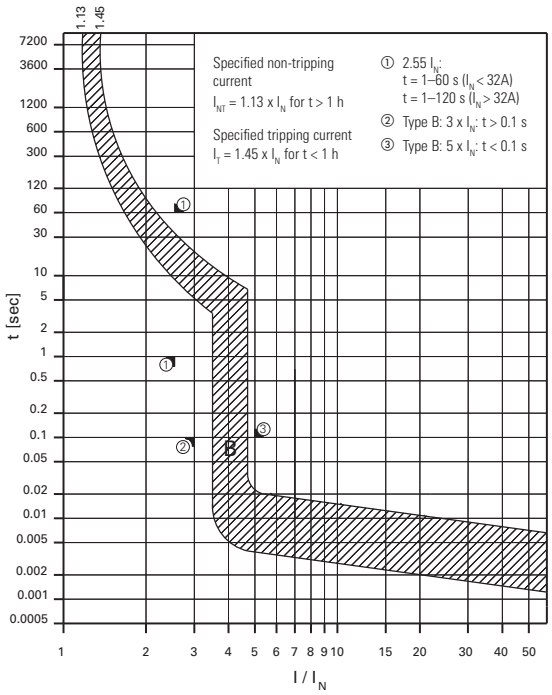
Notes

① Two-piece order. Quantities of two per box.

② 35A and 40A at 240 Vac were available prior to the creation of the FAZ-NA-L offering so the catalog numbers at these amperages exclude the "L" suffix.

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC B Curve

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- 48 Vdc for single-pole
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-RT-L UL 489 Circuit Breakers with Ring-Tongue Terminals at 240 Vac—10 kAIC, 14 kAIC B Curve (15–25A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
B Curve with Ring-Tongue Terminals (3–5X I_n Current Rating)				
1	FAZ-B1/1-RT-L	FAZ-B1/2-RT-L	FAZ-B1/3-RT-L	FAZ-B1/4-RT-L
1.5	FAZ-B1.5/1-RT-L	FAZ-B1.5/2-RT-L	FAZ-B1.5/3-RT-L	FAZ-B1.5/4-RT-L
2	FAZ-B2/1-RT-L	FAZ-B2/2-RT-L	FAZ-B2/3-RT-L	FAZ-B2/4-RT-L
3	FAZ-B3/1-RT-L	FAZ-B3/2-RT-L	FAZ-B3/3-RT-L	FAZ-B3/4-RT-L
4	FAZ-B4/1-RT-L	FAZ-B4/2-RT-L	FAZ-B4/3-RT-L	FAZ-B4/4-RT-L
5	FAZ-B5/1-RT-L	FAZ-B5/2-RT-L	FAZ-B5/3-RT-L	FAZ-B5/4-RT-L
6	FAZ-B6/1-RT-L	FAZ-B6/2-RT-L	FAZ-B6/3-RT-L	FAZ-B6/4-RT-L
7	FAZ-B7/1-RT-L	FAZ-B7/2-RT-L	FAZ-B7/3-RT-L	FAZ-B7/4-RT-L
8	FAZ-B8/1-RT-L	FAZ-B8/2-RT-L	FAZ-B8/3-RT-L	FAZ-B8/4-RT-L
10	FAZ-B10/1-RT-L	FAZ-B10/2-RT-L	FAZ-B10/3-RT-L	FAZ-B10/4-RT-L
13	FAZ-B13/1-RT-L	FAZ-B13/2-RT-L	FAZ-B13/3-RT-L	FAZ-B13/4-RT-L
15	FAZ-B15/1-RT-L	FAZ-B15/2-RT-L	FAZ-B15/3-RT-L	FAZ-B15/4-RT-L
16	FAZ-B16/1-RT-L	FAZ-B16/2-RT-L	FAZ-B16/3-RT-L	FAZ-B16/4-RT-L
20	FAZ-B20/1-RT-L	FAZ-B20/2-RT-L	FAZ-B20/3-RT-L	FAZ-B20/4-RT-L
25	FAZ-B25/1-RT-L	FAZ-B25/2-RT-L	FAZ-B25/3-RT-L	FAZ-B25/4-RT-L
30	FAZ-B30/1-RT-L	FAZ-B30/2-RT-L	FAZ-B30/3-RT-L	FAZ-B30/4-RT-L
32	FAZ-B32/1-RT-L	FAZ-B32/2-RT-L	FAZ-B32/3-RT-L	FAZ-B32/4-RT-L
35 ②	FAZ-B35/1-RT	FAZ-B35/2-RT	FAZ-B35/3-RT	FAZ-B35/4-RT
40 ②	FAZ-B40/1-RT	FAZ-B40/2-RT	FAZ-B40/3-RT	FAZ-B40/4-RT
50	FAZ-B50/1-RT	FAZ-B50/2-RT	FAZ-B50/3-RT	FAZ-B50/4-RT
63	FAZ-B63/1-RT	FAZ-B63/2-RT	FAZ-B63/3-RT	FAZ-B63/4-RT

Notes

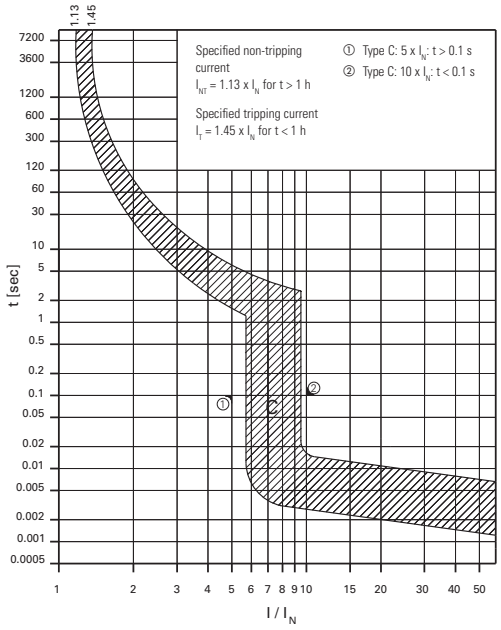
① Two-piece order. Quantities of two per box.

② 35A and 40A at 240 Vac were available prior to the creation of the FAZ-NA-L offering so the catalog numbers at these amperages exclude the "L" suffix.

1

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC C Curve

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- 48 Vdc for single-pole
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC, 14 kAIC C Curve (15–25A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
C Curve (5–10X I_n Current Rating)				
0.5	**FAZ-C0.5/1-NA-L**	**FAZ-C0.5/2-NA-L**	**FAZ-C0.5/3-NA-L**	**FAZ-C0.5/4-NA-L**
1	**FAZ-C1/1-NA-L**	**FAZ-C1/2-NA-L**	**FAZ-C1/3-NA-L**	**FAZ-C1/4-NA-L**
1.5	**FAZ-C1.5/1-NA-L**	**FAZ-C1.5/2-NA-L**	**FAZ-C1.5/3-NA-L**	**FAZ-C1.5/4-NA-L**
2	**FAZ-C2/1-NA-L**	**FAZ-C2/2-NA-L**	**FAZ-C2/3-NA-L**	**FAZ-C2/4-NA-L**
3	**FAZ-C3/1-NA-L**	**FAZ-C3/2-NA-L**	**FAZ-C3/3-NA-L**	**FAZ-C3/4-NA-L**
4	**FAZ-C4/1-NA-L**	**FAZ-C4/2-NA-L**	**FAZ-C4/3-NA-L**	**FAZ-C4/4-NA-L**
5	**FAZ-C5/1-NA-L**	**FAZ-C5/2-NA-L**	**FAZ-C5/3-NA-L**	**FAZ-C5/4-NA-L**
6	**FAZ-C6/1-NA-L**	**FAZ-C6/2-NA-L**	**FAZ-C6/3-NA-L**	**FAZ-C6/4-NA-L**
7	**FAZ-C7/1-NA-L**	**FAZ-C7/2-NA-L**	**FAZ-C7/3-NA-L**	**FAZ-C7/4-NA-L**
8	**FAZ-C8/1-NA-L**	**FAZ-C8/2-NA-L**	**FAZ-C8/3-NA-L**	**FAZ-C8/4-NA-L**
10	**FAZ-C10/1-NA-L**	**FAZ-C10/2-NA-L**	**FAZ-C10/3-NA-L**	**FAZ-C10/4-NA-L**
13	**FAZ-C13/1-NA-L**	**FAZ-C13/2-NA-L**	**FAZ-C13/3-NA-L**	**FAZ-C13/4-NA-L**
15	**FAZ-C15/1-NA-L**	**FAZ-C15/2-NA-L**	**FAZ-C15/3-NA-L**	**FAZ-C15/4-NA-L**
16	**FAZ-C16/1-NA-L**	**FAZ-C16/2-NA-L**	**FAZ-C16/3-NA-L**	**FAZ-C16/4-NA-L**
20	**FAZ-C20/1-NA-L**	**FAZ-C20/2-NA-L**	**FAZ-C20/3-NA-L**	**FAZ-C20/4-NA-L**
25	**FAZ-C25/1-NA-L**	**FAZ-C25/2-NA-L**	**FAZ-C25/3-NA-L**	**FAZ-C25/4-NA-L**
30	**FAZ-C30/1-NA-L**	**FAZ-C30/2-NA-L**	**FAZ-C30/3-NA-L**	**FAZ-C30/4-NA-L**
32	**FAZ-C32/1-NA-L**	**FAZ-C32/2-NA-L**	**FAZ-C32/3-NA-L**	**FAZ-C32/4-NA-L**
35 ②	**FAZ-C35/1-NA-SP**	**FAZ-C35/2-NA**	**FAZ-C35/3-NA**	**FAZ-C35/4-NA**
40 ②	**FAZ-C40/1-NA-SP**	**FAZ-C40/2-NA**	**FAZ-C40/3-NA**	**FAZ-C40/4-NA**
50	**FAZ-C50/1-NA**	**FAZ-C50/2-NA**	**FAZ-C50/3-NA**	**FAZ-C50/4-NA**
63	**FAZ-C63/1-NA**	**FAZ-C63/2-NA**	**FAZ-C63/3-NA**	**FAZ-C63/4-NA**

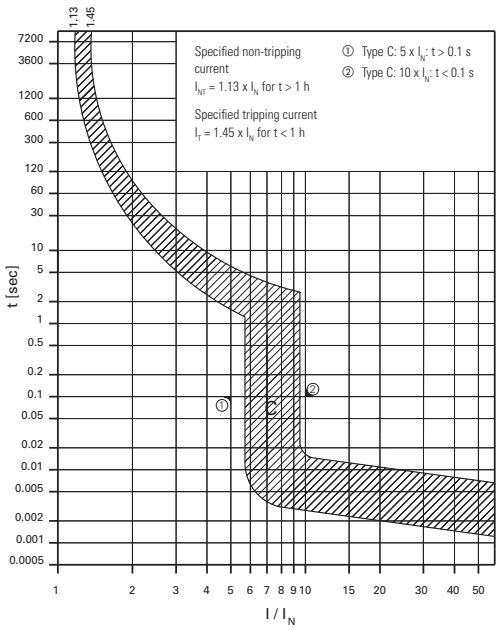
Notes

① Two-piece order. Quantities of two per box.

② 35A and 40A at 240 Vac were available prior to the creation of the FAZ-NA-L offering so the catalog numbers at these amperages exclude the "L" suffix.

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC C Curve

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- 48 Vdc for single-pole
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-RT-L UL 489 Circuit Breakers with Ring-Tongue Terminals at 240 Vac—10 kAIC, 14 kAIC C Curve (15–25A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
C Curve with Ring-Tongue Terminals (5–10X I_n Current Rating)				
0.5	FAZ-C0.5/1-RT-L	FAZ-C0.5/2-RT-L	FAZ-C0.5/3-RT-L	FAZ-C0.5/4-RT-L
1	FAZ-C1/1-RT-L	FAZ-C1/2-RT-L	FAZ-C1/3-RT-L	FAZ-C1/4-RT-L
1.5	FAZ-C1.5/1-RT-L	FAZ-C1.5/2-RT-L	FAZ-C1.5/3-RT-L	FAZ-C1.5/4-RT-L
2	FAZ-C2/1-RT-L	FAZ-C2/2-RT-L	FAZ-C2/3-RT-L	FAZ-C2/4-RT-L
3	FAZ-C3/1-RT-L	FAZ-C3/2-RT-L	FAZ-C3/3-RT-L	FAZ-C3/4-RT-L
4	FAZ-C4/1-RT-L	FAZ-C4/2-RT-L	FAZ-C4/3-RT-L	FAZ-C4/4-RT-L
5	FAZ-C5/1-RT-L	FAZ-C5/2-RT-L	FAZ-C5/3-RT-L	FAZ-C5/4-RT-L
6	FAZ-C6/1-RT-L	FAZ-C6/2-RT-L	FAZ-C6/3-RT-L	FAZ-C6/4-RT-L
7	FAZ-C7/1-RT-L	FAZ-C7/2-RT-L	FAZ-C7/3-RT-L	FAZ-C7/4-RT-L
8	FAZ-C8/1-RT-L	FAZ-C8/2-RT-L	FAZ-C8/3-RT-L	FAZ-C8/4-RT-L
10	FAZ-C10/1-RT-L	FAZ-C10/2-RT-L	FAZ-C10/3-RT-L	FAZ-C10/4-RT-L
13	FAZ-C13/1-RT-L	FAZ-C13/2-RT-L	FAZ-C13/3-RT-L	FAZ-C13/4-RT-L
15	FAZ-C15/1-RT-L	FAZ-C15/2-RT-L	FAZ-C15/3-RT-L	FAZ-C15/4-RT-L
16	FAZ-C16/1-RT-L	FAZ-C16/2-RT-L	FAZ-C16/3-RT-L	FAZ-C16/4-RT-L
20	FAZ-C20/1-RT-L	FAZ-C20/2-RT-L	FAZ-C20/3-RT-L	FAZ-C20/4-RT-L
25	FAZ-C25/1-RT-L	FAZ-C25/2-RT-L	FAZ-C25/3-RT-L	FAZ-C25/4-RT-L
30	FAZ-C30/1-RT-L	FAZ-C30/2-RT-L	FAZ-C30/3-RT-L	FAZ-C30/4-RT-L
32	FAZ-C32/1-RT-L	FAZ-C32/2-RT-L	FAZ-C32/3-RT-L	FAZ-C32/4-RT-L
35 ②	FAZ-C35/1-RT-SP	FAZ-C35/2-RT	FAZ-C35/3-RT	FAZ-C35/4-RT
40 ②	FAZ-C40/1-RT-SP	FAZ-C40/2-RT	FAZ-C40/3-RT	FAZ-C40/4-RT
50	FAZ-C50/1-RT	FAZ-C50/2-RT	FAZ-C50/3-RT	FAZ-C50/4-RT
63	FAZ-C63/1-RT	FAZ-C63/2-RT	FAZ-C63/3-RT	FAZ-C63/4-RT

Notes

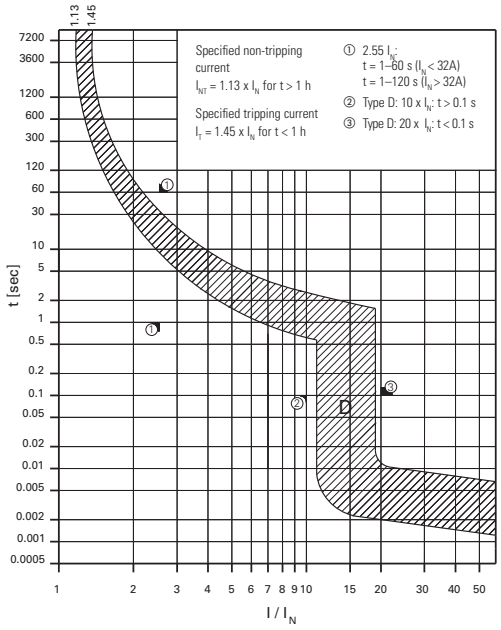
① Two-piece order. Quantities of two per box.

② 35A and 40A at 240 Vac were available prior to the creation of the FAZ-NA-L offering so the catalog numbers at these amperages exclude the "L" suffix.

1

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC D Curve

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- 48 Vdc for single-pole
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC, 14 kAIC D Curve (13–20A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
D Curve (10–20X I_n Current Rating)				
0.5	**FAZ-D0.5/1-NA-L**	**FAZ-D0.5/2-NA-L**	**FAZ-D0.5/3-NA-L**	**FAZ-D0.5/4-NA-L**
1	**FAZ-D1/1-NA-L**	**FAZ-D1/2-NA-L**	**FAZ-D1/3-NA-L**	**FAZ-D1/4-NA-L**
1.5	**FAZ-D1.5/1-NA-L**	**FAZ-D1.5/2-NA-L**	**FAZ-D1.5/3-NA-L**	**FAZ-D1.5/4-NA-L**
2	**FAZ-D2/1-NA-L**	**FAZ-D2/2-NA-L**	**FAZ-D2/3-NA-L**	**FAZ-D2/4-NA-L**
3	**FAZ-D3/1-NA-L**	**FAZ-D3/2-NA-L**	**FAZ-D3/3-NA-L**	**FAZ-D3/4-NA-L**
4	**FAZ-D4/1-NA-L**	**FAZ-D4/2-NA-L**	**FAZ-D4/3-NA-L**	**FAZ-D4/4-NA-L**
5	**FAZ-D5/1-NA-L**	**FAZ-D5/2-NA-L**	**FAZ-D5/3-NA-L**	**FAZ-D5/4-NA-L**
6	**FAZ-D6/1-NA-L**	**FAZ-D6/2-NA-L**	**FAZ-D6/3-NA-L**	**FAZ-D6/4-NA-L**
7	**FAZ-D7/1-NA-L**	**FAZ-D7/2-NA-L**	**FAZ-D7/3-NA-L**	**FAZ-D7/4-NA-L**
8	**FAZ-D8/1-NA-L**	**FAZ-D8/2-NA-L**	**FAZ-D8/3-NA-L**	**FAZ-D8/4-NA-L**
10	**FAZ-D10/1-NA-L**	**FAZ-D10/2-NA-L**	**FAZ-D10/3-NA-L**	**FAZ-D10/4-NA-L**
13	**FAZ-D13/1-NA-L**	**FAZ-D13/2-NA-L**	**FAZ-D13/3-NA-L**	**FAZ-D13/4-NA-L**
15	**FAZ-D15/1-NA-L**	**FAZ-D15/2-NA-L**	**FAZ-D15/3-NA-L**	**FAZ-D15/4-NA-L**
16	**FAZ-D16/1-NA-L**	**FAZ-D16/2-NA-L**	**FAZ-D16/3-NA-L**	**FAZ-D16/4-NA-L**
20	**FAZ-D20/1-NA-L**	**FAZ-D20/2-NA-L**	**FAZ-D20/3-NA-L**	**FAZ-D20/4-NA-L**
25	**FAZ-D25/1-NA-L**	**FAZ-D25/2-NA-L**	**FAZ-D25/3-NA-L**	**FAZ-D25/4-NA-L**
30	**FAZ-D30/1-NA-L**	**FAZ-D30/2-NA-L**	**FAZ-D30/3-NA-L**	**FAZ-D30/4-NA-L**
32	**FAZ-D32/1-NA-L**	**FAZ-D32/2-NA-L**	**FAZ-D32/3-NA-L**	**FAZ-D32/4-NA-L**
35 ②	**FAZ-D35/1-NA-SP**	**FAZ-D35/2-NA**	**FAZ-D35/3-NA**	**FAZ-D35/4-NA**
40 ②	**FAZ-D40/1-NA-SP**	**FAZ-D40/2-NA**	**FAZ-D40/3-NA**	**FAZ-D40/4-NA**

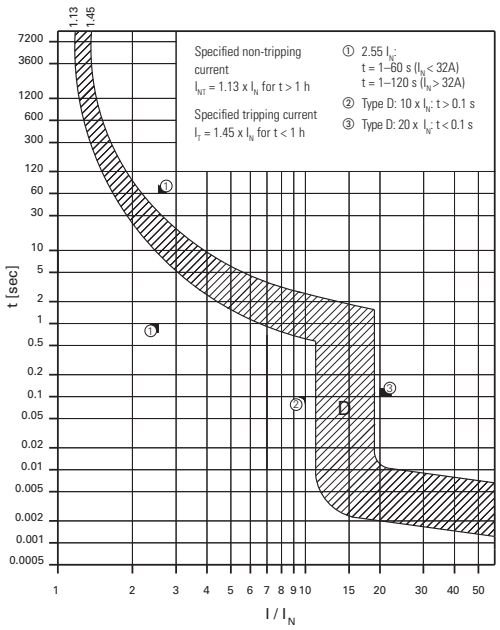
Notes

① Two-piece order. Quantities of two per box.

② 35A and 40A at 240 Vac were available prior to the creation of the FAZ-NA-L offering so the catalog numbers at these amperages exclude the "L" suffix.

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC D Curve

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- 48 Vdc for single-pole
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-RT-L UL 489 Circuit Breakers with Ring-Tongue Terminals at 240 Vac—10 kAIC, 14 kAIC D Curve (13–20A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
D Curve with Ring-Tongue Terminals (10–20X I_n Current Rating)				
0.5	**FAZ-D0.5/1-RT-L**	**FAZ-D0.5/2-RT-L**	**FAZ-D0.5/3-RT-L**	**FAZ-D0.5/4-RT-L**
1	**FAZ-D1/1-RT-L**	**FAZ-D1/2-RT-L**	**FAZ-D1/3-RT-L**	**FAZ-D1/4-RT-L**
1.5	**FAZ-D1.5/1-RT-L**	**FAZ-D1.5/2-RT-L**	**FAZ-D1.5/3-RT-L**	**FAZ-D1.5/4-RT-L**
2	**FAZ-D2/1-RT-L**	**FAZ-D2/2-RT-L**	**FAZ-D2/3-RT-L**	**FAZ-D2/4-RT-L**
3	**FAZ-D3/1-RT-L**	**FAZ-D3/2-RT-L**	**FAZ-D3/3-RT-L**	**FAZ-D3/4-RT-L**
4	**FAZ-D4/1-RT-L**	**FAZ-D4/2-RT-L**	**FAZ-D4/3-RT-L**	**FAZ-D4/4-RT-L**
5	**FAZ-D5/1-RT-L**	**FAZ-D5/2-RT-L**	**FAZ-D5/3-RT-L**	**FAZ-D5/4-RT-L**
6	**FAZ-D6/1-RT-L**	**FAZ-D6/2-RT-L**	**FAZ-D6/3-RT-L**	**FAZ-D6/4-RT-L**
7	**FAZ-D7/1-RT-L**	**FAZ-D7/2-RT-L**	**FAZ-D7/3-RT-L**	**FAZ-D7/4-RT-L**
8	**FAZ-D8/1-RT-L**	**FAZ-D8/2-RT-L**	**FAZ-D8/3-RT-L**	**FAZ-D8/4-RT-L**
10	**FAZ-D10/1-RT-L**	**FAZ-D10/2-RT-L**	**FAZ-D10/3-RT-L**	**FAZ-D10/4-RT-L**
13	**FAZ-D13/1-RT-L**	**FAZ-D13/2-RT-L**	**FAZ-D13/3-RT-L**	**FAZ-D13/4-RT-L**
15	**FAZ-D15/1-RT-L**	**FAZ-D15/2-RT-L**	**FAZ-D15/3-RT-L**	**FAZ-D15/4-RT-L**
16	**FAZ-D16/1-RT-L**	**FAZ-D16/2-RT-L**	**FAZ-D16/3-RT-L**	**FAZ-D16/4-RT-L**
20	**FAZ-D20/1-RT-L**	**FAZ-D20/2-RT-L**	**FAZ-D20/3-RT-L**	**FAZ-D20/4-RT-L**
25	**FAZ-D25/1-RT-L**	**FAZ-D25/2-RT-L**	**FAZ-D25/3-RT-L**	**FAZ-D25/4-RT-L**
30	**FAZ-D30/1-RT-L**	**FAZ-D30/2-RT-L**	**FAZ-D30/3-RT-L**	**FAZ-D30/4-RT-L**
32	**FAZ-D32/1-RT-L**	**FAZ-D32/2-RT-L**	**FAZ-D32/3-RT-L**	**FAZ-D32/4-RT-L**
35 ②	**FAZ-D35/1-RT-SP**	**FAZ-D35/2-RT**	**FAZ-D35/3-RT**	**FAZ-D35/4-RT**
40 ②	**FAZ-D40/1-RT-SP**	**FAZ-D40/2-RT**	**FAZ-D40/3-RT**	**FAZ-D40/4-RT**

Notes

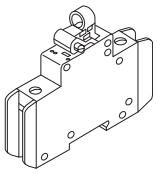
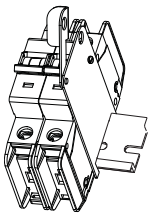
① Two-piece order. Quantities of two per box.

② 35A and 40A at 240 Vac were available prior to the creation of the FAZ-NA-L offering so the catalog numbers at these amperages exclude the "L" suffix.

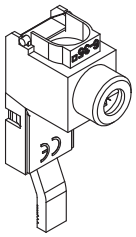
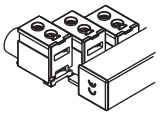
1

Accessories

FAZ-NA and FAZ-NA-L UL 489 Breakers

	Description	Catalog Number
Contact	Two-pole contact or auxiliary contact/trip indicating contact	**Z-NHK** ①
Auxiliary Contact	Auxiliary contact	**Z-IHK-NA**
Shunt Trip	Shunt trip 110–415 Vac	**FAZ-XAA-NA110-415VAC**
	Shunt trip 12–110 Vac	**FAZ-XAA-NA12-110VAC**
Padlock Hasp 	Padlock hasp	**Z-IS/SPE-1TE**
Lockoff Device 	UL lockoff device	**FAZPLOFF**

FAZ-NA and FAZ-NA-L UL 489 Breakers, continued

	Description	Catalog Number
Busbar	Busbar—single-pole, 6 terminals ②③④⑤	**Z-SV/UL-16/1P-1TE/6**
	Busbar—single-pole, 12 terminals ②③④⑤	**Z-SV/UL-16/1P-1TE/12**
	Busbar—single-pole, 18 terminals ②③④⑤	**Z-SV/UL-16/1P-1TE/18**
	Busbar—two-pole, 6 terminals ②③④⑤	**Z-SV/UL-16/2P-2TE/6**
	Busbar—two-pole, 12 terminals ②③④⑤	**Z-SV/UL-16/2P-2TE/12**
	Busbar—two-pole, 18 terminals ②③④⑤	**Z-SV/UL-16/2P-2TE/18**
	Busbar—three-pole, 6 terminals ②③④⑤	**Z-SV/UL-16/3P-3TE/6**
	Busbar—three-pole, 12 terminals ②③④⑤	**Z-SV/UL-16/3P-3TE/12**
	Busbar—three-pole, 18 terminals ②③④⑤	**Z-SV/UL-16/3P-3TE/18**
Busbar Shroud	Three-pole busbar shroud	**ZV-BS-UL**
Extension Terminal 	Extension terminal—35 mm^2 (10–1/0 AWG)	**Z-EK/35/UL**
Bus Connector 	Bus connector—conductors up to 50 mm^2 (~1/0 AWG)	**Z-EB/50/UL**

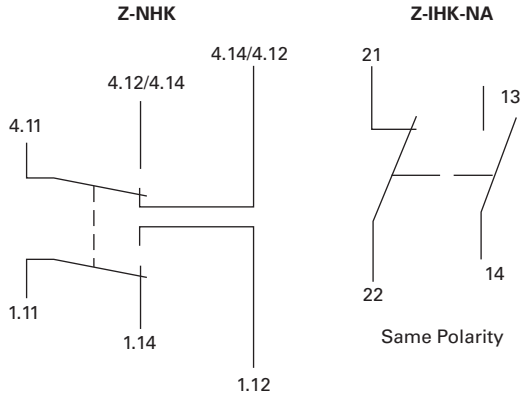
Notes

① Voltage of FAZ-NA circuit breaker is limited to 300V with this auxiliary contact installed.
② Do not cut commoning link.
③ A maximum of three commoning links may be used in conjunction. Each breaker connected to the commoning link must have the same number of poles for proper use.
④ Not for use with ring-tongue circuit breakers.
⑤ Bus may be center fed for high current capacity.

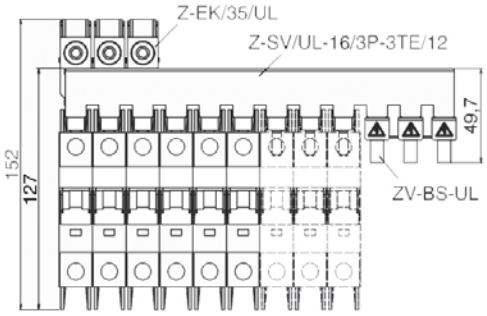
Tripping Signal Switch Z-NHK, Z-IHK-NA

- Design according to IEC/EN 60947-5-1, IEC/EN 62019
- Field installable
- The specified minimum voltages are per contact—take into account particularly in case of series connection
- Self-cleaning contacts
- Contact material and design particularly suitable for extra low voltage
- Z-NHK: the function of one of the two change-over contacts can be switched from “auxiliary switch” to “tripping signal switch”
- Tripping signal contact transmits message of electric tripping, not mechanical switch-off
- Test key for contact function “electrical tripping”
- Z-IHK-NA: will allow for > 480Y/277 Vac rating

Connection Diagram



Busbar Connection Example



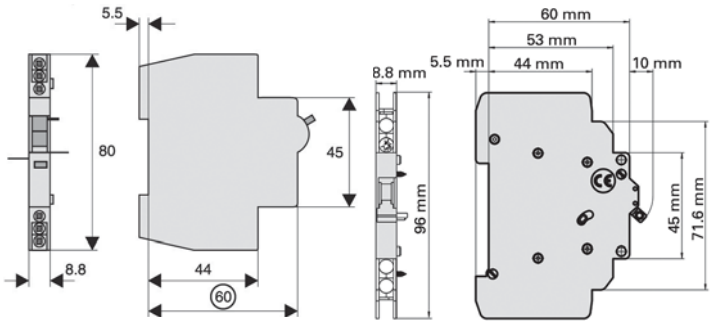
1

Z-NHK

Z-IHK-NA

Contact and Auxiliary Contact

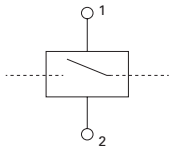
Description	Z-NHK	Z-IHK-NA
Electrical		
Contact function	2CO	1NO + 1NC
Rated voltage	230V	250V
Frequency	50/60 Hz	50/60 Hz
Rated current	2A	6A
Rated thermal current I_{th}	2A	6A
Utilization category AC13 Rated operational current I_e	3A/250 Vac	3A/250 Vac
Utilization category AC15 Rated operational current I_e	2A/250 Vac	2A/250 Vac
Utilization category DC12 Rated operational current I_e	0.5A/110 Vdc	0.5A/110 Vdc 0.25A/220 Vdc
Rated insulation voltage U_i	250 Vac	250 Vac
Minimum operational voltage per contact U_{min}	5 Vdc	5 Vdc
Minimum operational current I_{min}	10 mA DC	10 mA AC/DC
Rated peak withstand voltage U_{imp} (1.2/50µ)	2.5 kV	4 kV
Conditional short-circuit current I_k with backup fuse 6A	1 kA	1 kA
Max. backup fuse, overload and short circuit	6A gL	—
Mechanical		
Tripping indicator "electrical tripping"	Blue/white	—
Frame size	45 mm	45 mm
Device height	80 mm	80 mm
Device width	8.8 mm (0.5MU)	8.8 mm (0.5MU)
Mounting	Onto switching device	—
Degree of protection, built-in	IP40	IP40
Terminal protection	Finger and hand touch safe According to BGV A3, ÖVE-EN 6	Finger and hand touch safe According to BGV A3, ÖVE-EN 6
Terminals	Lift terminals	Lift terminals
Terminal capacity	20–14 AWG	0.5–2.5 mm^2
Terminal screws	M3 (Posidrive Z0)	M3 (Posidrive Z0)
Fastening torque of terminal screws	7 lb-in	Max. 1.2 Nm



Shunt trip release FAZ-XAA-NA

- Remote release for subsequent mounting onto FAZ-NA/RT
- Additional installation of standard auxiliary switch is possible
- Position indicator red–green

Connection Diagram



Shunt Trip Release FAZ-XAA-NA

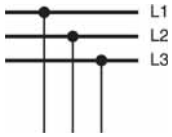
Description	FAZ-XAA-NA12-110VAC	FAZ-XAA-NA110-415VAC
Electrical		
Can be mounted onto	FAZ-NA / FAZ-NA-DC / FAZ-RT	FAZ-NA / FAZ-NA-DC / FAZ-RT
Operational voltage range	12–110 Vac 12–60 Vdc	110–415 Vac 110–230 Vdc
Frequency	50/60 Hz	50/60 Hz
Mechanical		
Frame size	45 mm	45 mm
Device height	105 mm	105 mm
Device width	17.5 mm	17.5 mm
Mounting	Quick fastening with two lock-in positions on EN 50022	
Degree of protection, built-in	IP40	IP40
Terminal protection	Finger and hand touch safe according to BGV A3, ÖVE-EN 6	
Terminals	Open mouthed/lift	Open mouthed/lift
Terminal capacity One and two wires	18–10 AWG	18–10 AWG

Busbar block UL 489 (pin)

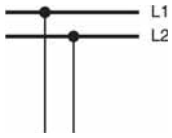
- Tested according to UL 489
- Do not cut
- Extension terminal 35 mm^2 Z-EK/35/UL for copper conductors
- Incoming terminal 50 mm^2 Z-EB/50/UL
- For covering of not used pins, use busbar tag shrouds ZV-BS-UL

Connection Diagrams

Three-Pole Busbar



Two-Pole Busbar



Single-Pole Busbar

Busbar Block UL 489 (Pin)

Description	UL 489	IEC/EN 60947-2
Electrical		
Rated operational voltage	480/277 Vac 96 Vdc	—
Rated frequency	50/60 Hz	—
Rated voltage	480 Vac	690 Vac
Overvoltage category	—	III
Rated impulse withstand voltage U_{imp}	—	9.5 kV
Rated current	80A at 40°C	80A at 30°C
Rated conditional short-circuit current AC with 350A gG	—	15 kA
Short-circuit current	10 kA	—
Mechanical		
Busbar cross section	—	16 mm^2 Cu
Flame class according to UL 94	V0	—
Pollution degree	—	2
Comparative tracking index	—	CTI 600
Minimum clearance (internal/external)	—	> 9.5/25.4 mm
Minimum creepage distance (internal/external)	—	> 12.7/50.8 mm
Resistance to climatic conditions	—	According to DIN/EN 60068

1

Technical Data and Specifications

Trip Curve Chart

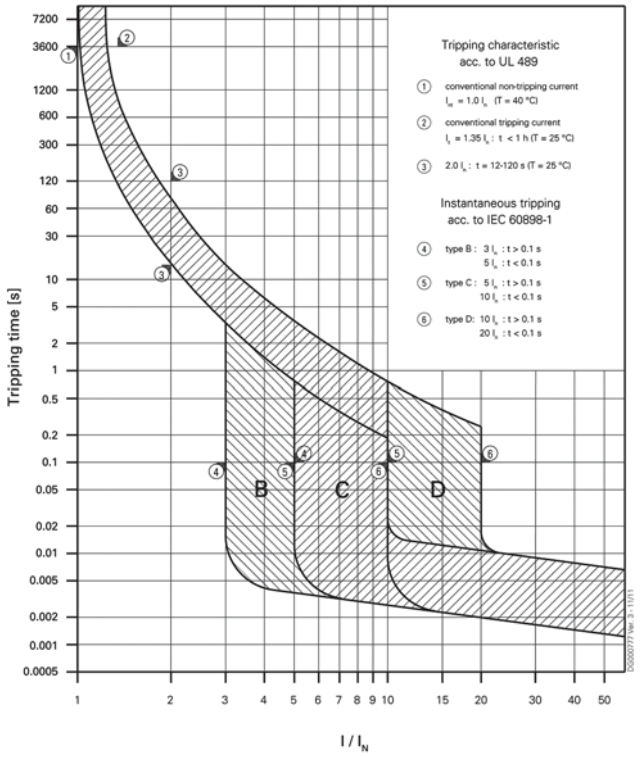
Eaton FAZ-NA and FAZ-NA-L branch circuit breakers are available with "B," "C" and "D" tripping characteristics. B-curve devices are suitable for applications where low levels of inrush current are expected.

C-curve devices are suitable for applications where medium levels of inrush current are expected. Applications include small transformers, lighting, pilot devices, control circuits and coils. C-curve devices provide a medium magnetic trip point.

D-curve devices are suitable for applications where high levels of inrush current are expected. The high magnetic trip point prevents nuisance tripping in high inductive applications such as motors, transformers and power supplies.

Eaton FAZ-NA and FAZ-NA-L devices are current limiting, which means they interrupt fault currents within one half cycle of the fault. Current limiting devices offer superior protection by reducing peak let-through current and energy.

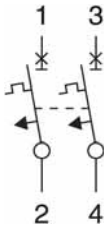
Tripping Characteristics



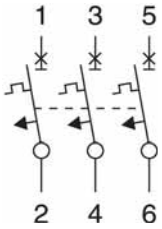
Connection Diagrams

Single-Pole

Two-Pole



Three-Pole



UL 489 Miniature Circuit Breakers Technical Data

Description	FAZ-NA	FAZ-NA-DC	FAZ-NA-L
Electrical			
Design according to	UL 489, CSA C22.2 No.5, IEC 60947-2	UL 489, CSA C22.2 No.5, IEC 60947-2	UL 489, CSA C22.2 No.5, IEC 60947-2
Rated voltage	Single-pole: 277 Vac 2-, 3- or 4-pole: 277/480 Vac	125 Vdc per pole 250 Vdc with 2-poles in connected series	Single-pole: 240 Vac 2-, 3- or 4-pole: 240 Vac
	Single-pole: 48 Vdc per pole 2-pole in series: 96 Vdc	—	Single-pole: 48 Vdc per pole 2-pole in series: 96 Vdc
Rated current	B: 1–32 A C & D: 0.5–32 A	C: 2–40 A	B: 1–63 A C: 0.5–63 A D: 0.5–40 A
Characteristic	B, C, D	C	B, C, D
Current interrupting rating	B curve—10 kA: 1–13 A, 30–32 A C curve—10 kA: 0.5–13 A, 30–32 A B & C curve—14 kA: 15–25 A D curve—10 kA: 0.5–10 A, 25–32 A D curve—14 kA: 13–20 A	10 kA	B curve—10 kA: 1–13 A, 30–32 A C curve—10 kA: 0.5–13 A, 30–32 A B & C curve—14 kA: 15–25 A D curve—10 kA: 0.5–10 A, 25–32 A D curve—14 kA: 13–20 A
Rated frequency	50/60 Hz	50/60 Hz	50/60 Hz
Endurance	≥ 20,000 operations	≥ 20,000 operations	≥ 20,000 operations
Line voltage connection	Suitable for reverse feed	Suitable for reverse feed	Suitable for reverse feed
Mechanical			
Frame size	45 mm	45 mm	45 mm
Device height	105 mm	105 mm	105 mm
Device width	17.7 mm per pole	17.7 mm per pole	17.7 mm per pole
Terminal protection	Finger and hand touch safe according to BGV A3, OVE-EN 6	Finger and hand touch safe according to BGV A3, OVE-EN 6	Finger and hand touch safe according to BGV A3, OVE-EN 6
Mounting	Quick fastening with two lock-in positions on IEC/EN 60715	Quick fastening with two lock-in positions on IEC/EN 60715	Quick fastening with two lock-in positions on IEC/EN 60715
Upper and lower terminals	Open mouth/lift terminals	Open mouth/lift terminals	Open mouth/lift terminals
Terminal capacity	One wire: AWG 18–6 Two wires: AWG 18–10	One wire: AWG 18–6 Two wires: AWG 18–10	One wire: AWG 18–6 Two wires: AWG 18–10
Terminal fastening torque	AWG 18–21: 21 lb-in AWG 10–8: 25 lb-in AWG 6: 36 lb-in	AWG 18–21: 21 lb-in AWG 10–8: 25 lb-in AWG 6: 36 lb-in	AWG 18–21: 21 lb-in AWG 10–8: 25 lb-in AWG 6: 36 lb-in
Mounting	Independent of position	Independent of position	Independent of position
Calibration temperature UL 489, CSA C22.2 No.5	40°C	40°C	40°C
IEC 60947-2	30°C	30°C	30°C

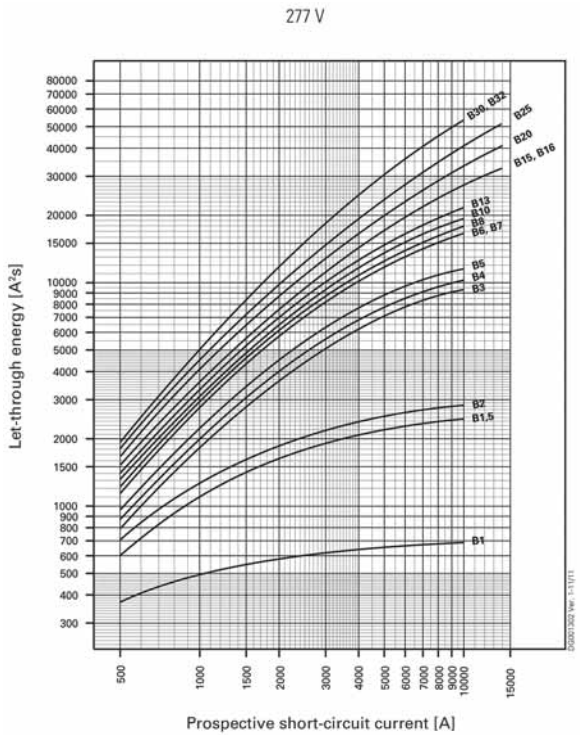
1

Power Loss at I_n

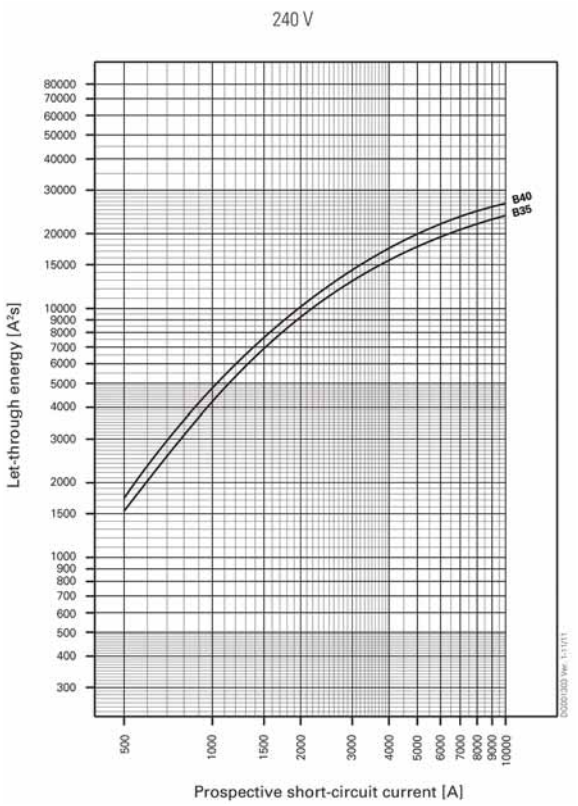
	Characteristic B			Characteristic C			Characteristic D		
	Single-Pole	Two-Pole	Three-Pole	Single-Pole	Two-Pole	Three-Pole	Single-Pole	Two-Pole	Three-Pole
I_n [A]	P [W]	P [W]	P [W]	P [W]	P [W]	P [W]	P [W]	P [W]	P [W]
0.5	—	—	—	1.6	3.2	4.7	1.6	3.2	4.8
1.0	1.1	2.2	3.4	1.1	2.2	3.4	0.8	1.5	2.3
1.5	2.2	4.4	6.6	1.3	2.6	3.9	1.0	2.1	3.1
2.0	1.4	2.8	4.3	1.4	2.8	4.3	1.0	2.1	3.1
3.0	2.1	4.2	6.4	1.2	2.4	3.6	1.2	2.4	3.6
4.0	1.4	2.9	4.3	1.4	2.9	4.3	1.4	2.9	4.3
5.0	1.8	3.7	5.5	1.9	3.7	5.6	1.5	2.9	4.4
6.0	1.7	3.5	5.2	1.2	2.3	3.5	1.2	2.3	3.5
7.0	2.0	4.0	6.0	1.4	2.8	4.3	1.4	2.8	4.3
8.0	2.0	3.9	5.9	1.4	2.8	4.2	1.2	2.4	3.7
10.0	1.8	3.6	5.3	1.8	3.6	5.3	1.5	3.0	4.5
13.0	2.4	4.7	7.1	2.4	4.7	7.1	2.0	4.1	6.1
15.0	1.9	3.8	5.6	1.9	3.8	5.6	1.5	3.1	4.6
16.0	2.1	4.3	6.4	2.1	4.3	6.4	1.7	3.5	5.2
20.0	2.9	5.8	8.7	2.9	5.8	8.7	1.8	3.7	5.5
25.0	3.1	6.2	9.3	3.1	6.2	9.3	2.6	5.1	7.7
30.0	3.0	6.0	9.0	3.0	6.0	9.0	2.7	5.4	8.1
32.0	3.4	6.8	10.2	3.4	6.8	10.2	3.1	6.2	9.3
35.0	4.0	8.1	12.1	3.7	7.4	11.0	3.8	7.6	11.3
40.0	4.0	8.1	12.1	4.0	8.1	12.1	3.9	7.8	11.6

Let-Through Energy

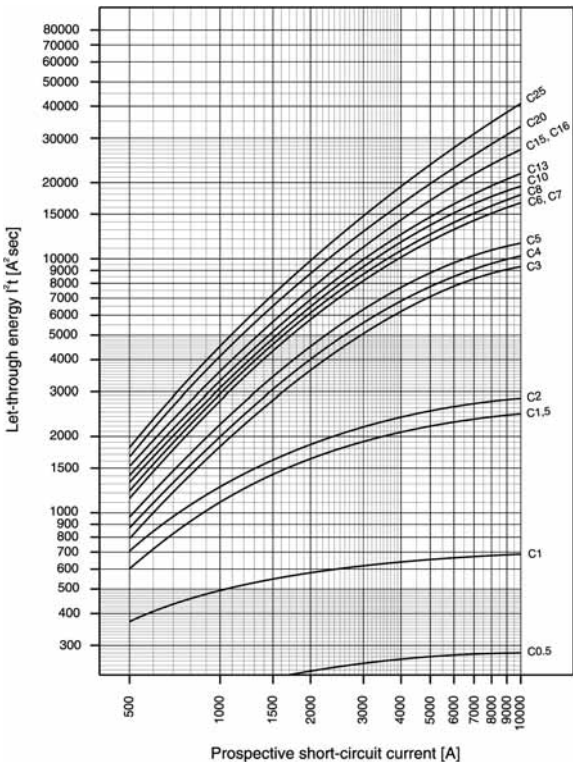
Characteristic B (1–32A), 277V



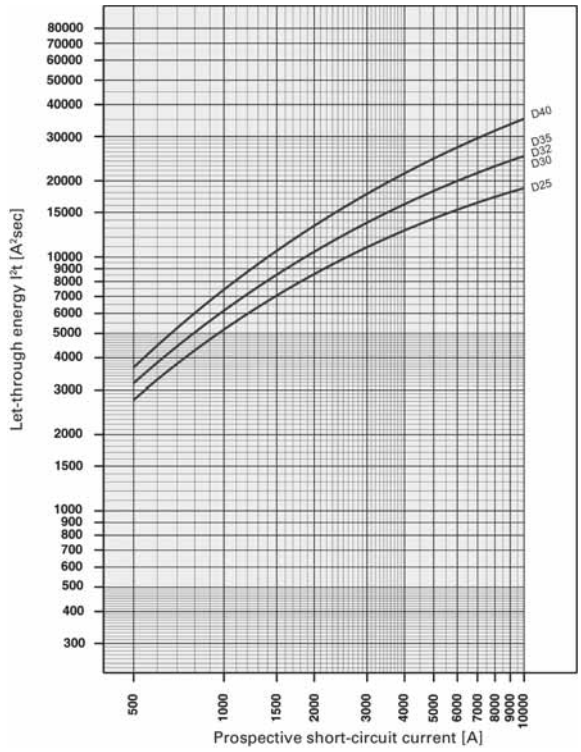
Characteristic B (35–63A), 240V



Characteristic C (0.5–32A), 277V

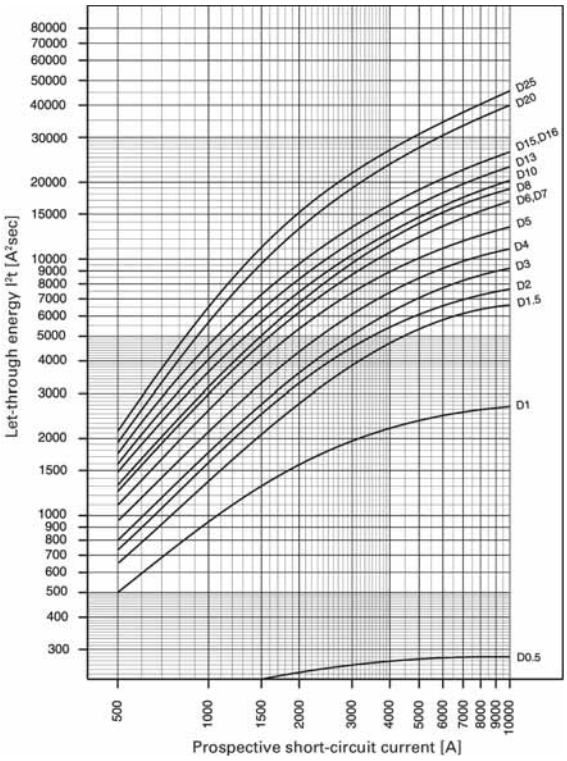


Characteristic C (35–63A), 240V

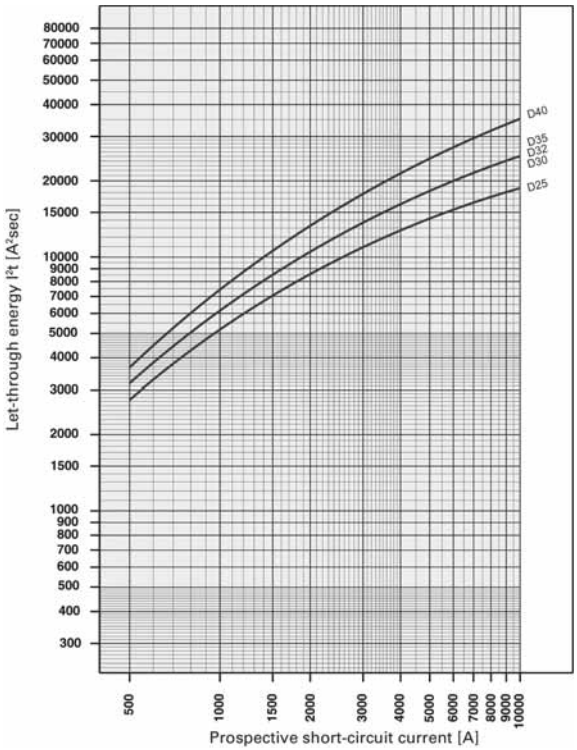


1

Characteristic D (0.5–32A), 277V

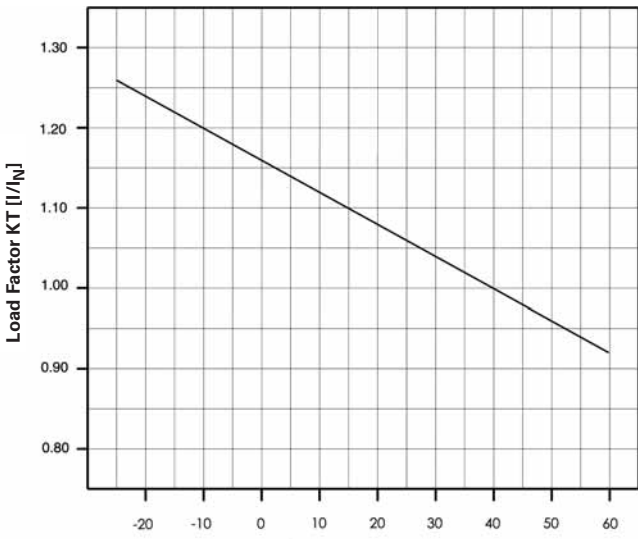


Characteristic D (35–63A), 240V



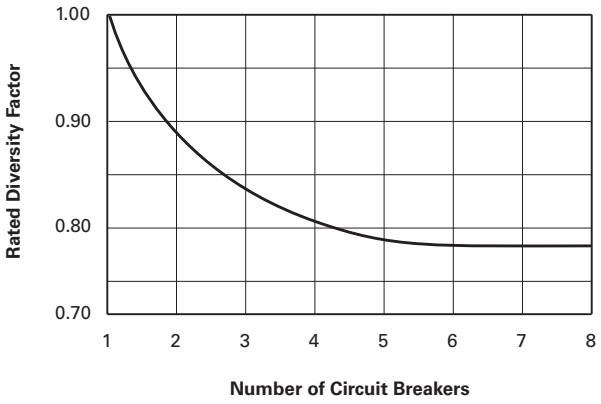
Influence of Ambient Temperature T on Load Carrying Capacity

Device Market Current Rating I_n (A) at 40°C	I_n (A) at Higher Ambient Temperature							
	15°C	20°C	25°C	30°C	40°C	50°C	55°C	60°C
0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1.0	1.1	1.1	1.1	1.0	1.0	1.0	0.9	0.9
1.5	1.7	1.6	1.6	1.6	1.5	1.4	1.4	1.4
2.0	2.2	2.2	2.1	2.1	2.0	1.9	1.9	1.8
3.0	3.3	3.2	3.2	3.1	3.0	2.9	2.9	2.8
4.0	4.4	4.3	4.2	4.2	4.0	3.8	3.8	3.7
5.0	5.5	5.4	5.3	5.2	5.0	4.8	4.7	4.6
6.0	6.6	6.5	6.4	6.2	6.0	5.8	5.6	5.5
7.0	7.7	7.6	7.4	7.3	7.0	6.7	6.6	6.4
8.0	8.8	8.6	8.5	8.3	8.0	7.7	7.5	7.4
10.0	11.0	10.8	10.6	10.4	10.0	9.6	9.4	9.2
13.0	14.3	14.0	13.8	13.5	13.0	12.5	12.5	12.0
15.0	16.5	16.2	15.9	15.6	15.0	14.4	14.1	13.8
16.0	17.6	17.3	17.0	16.6	16.0	15.4	15.0	14.7
20.0	22.0	21.6	21.2	20.8	20.0	19.2	18.8	18.4
25.0	27.5	27.0	26.5	26.0	25.0	24.0	23.3	23.0
30.0	33.0	32.4	31.8	31.2	30.0	28.8	28.2	27.6
32.0	35.2	34.6	33.9	33.3	32.0	30.7	30.1	29.4
40.0	44.0	43.2	42.4	41.6	40.0	38.4	37.6	36.8



Maximum Load I_L at ambient temperature T: $I_L (T) = I_N K_T(T)$

Load Carrying Capacity of Adjoining Miniature Circuit Breakers

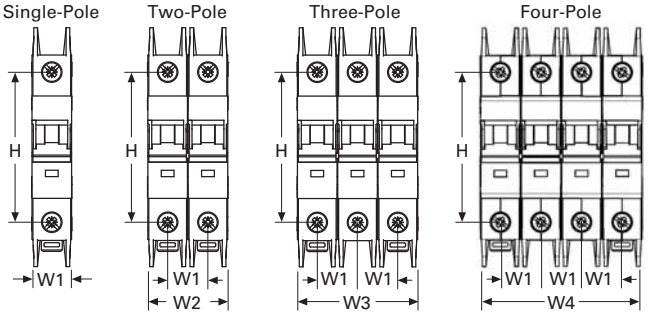


1

Dimensions

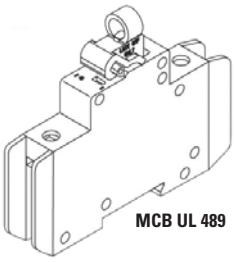
Approximate Dimensions in Inches (mm)

Miniature Circuit Breakers

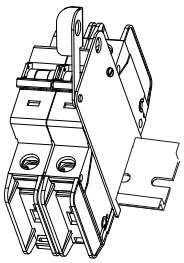


H	W1	W2	W3	W4
4.13 (105.0)	0.70 (17.7)	1.39 (35.3)	2.09 (53.1)	2.79 (70.8)

Lockout Attachment—Z-IS/SPE-1TE

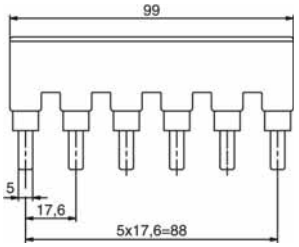


UL Lockoff Device—FAZPLOFF

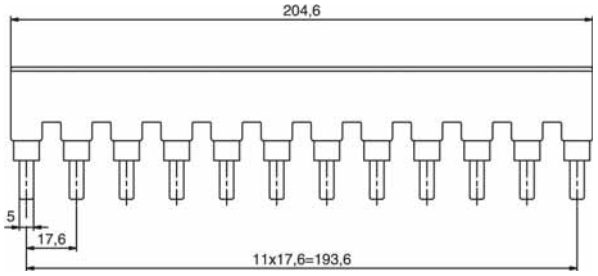


Accessories

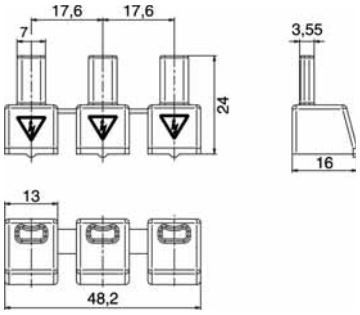
Z-SV/UL-16/6



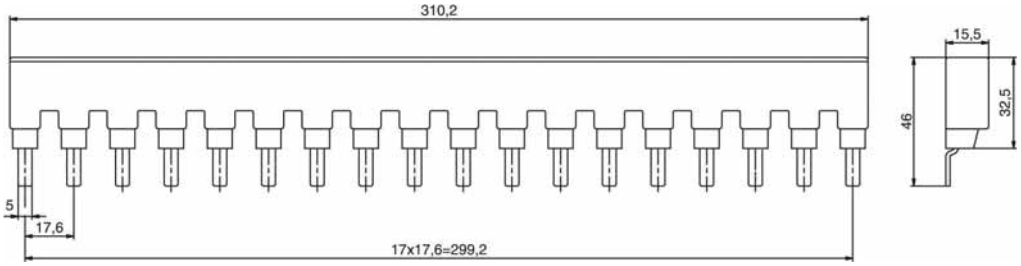
Z-SV/UL-18...12



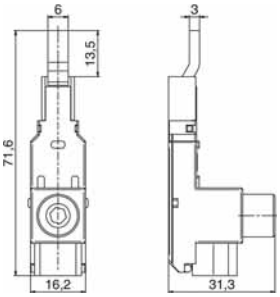
ZV-BS-UL



Z-SV/UL-16.../18



Z-EK/35/UL



Z-EK/35/UL

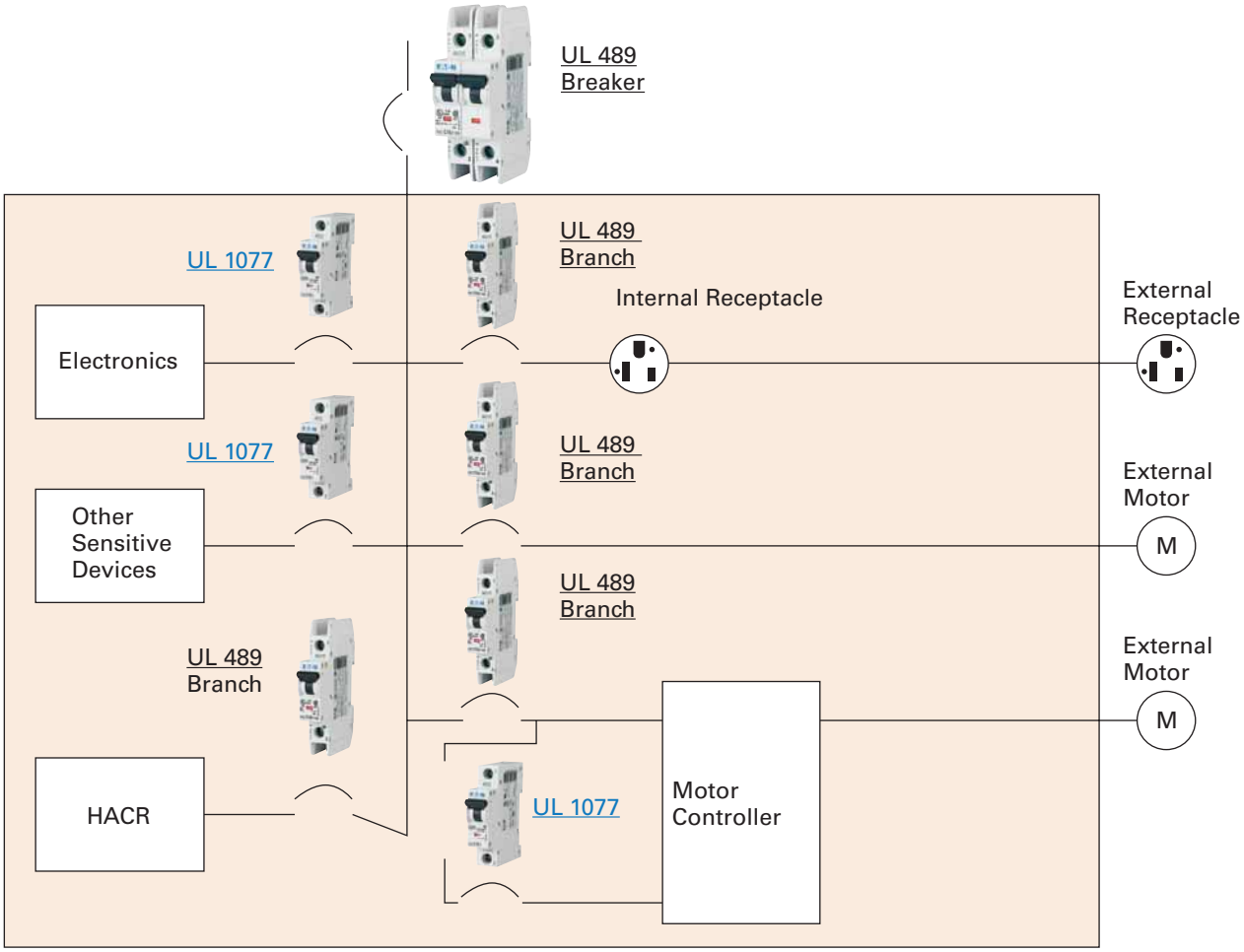
Description	UL 489	IEC/EN 60947-2
U_e	480 Vac/96 Vdc	240/415 Vac
f	50/60 Hz	50/60 Hz
U_{imp}	—	9.5 kV
I_e	80A at 40°C	80A at 30°C
	10–1/0 AWG 60/75°C Cu	2.5–35 mm^2 Cu
	0.56 in	14 mm

Z-EB/50/UL

Description	UL 489	IEC/EN 60947-2
U_e	480 Vac/96 Vdc	240/415 Vac
f	50/60 Hz	50/60 Hz
U_{imp}	—	9.5 kV
I_e	115A at 40°C	160A at 30°C
	#1–14 AWG 60/75°C Cu	1.5–50 mm^2 Cu
	0.56 in	14 mm

Application Guidelines

Example of UL 489 and UL 1077 Application



Example of UL 489 and UL 1077 Application

UL 489 circuit breakers

Used for branch circuit protection, internal/external receptacles, external motors and HACR equipment (heating, air conditioning and refrigeration).

UL 1077 supplementary protectors

Used for overcurrent protection within appliances or electrical equipment, where branch circuit protection is already provided or not required.

Note: UL 489 devices can be used in place of UL 1077; UL 1077 devices cannot be used in place of UL 489.

1

FAZ Circuit Breakers

Optimum and Efficient Protection for Every Application

Contents

Description	*Page*
FAZ Circuit Breakers	**V4-T1-74**
Catalog Number Selection	**V4-T1-75**
Standards and Certifications	**V4-T1-75**
Product Selection	**V4-T1-76**
Accessories	**V4-T1-82**
Technical Data and Specifications	**V4-T1-85**
Dimensions	**V4-T1-92**

FAZ Circuit Breakers

Product Overview

Optimum product quality, tested reliability and safety stand for best protection of personnel, installations and plant. Eaton's FAZ DIN rail mountable circuit breaker is designed for use in control panel applications.

Powerful offering for machine and system builders

The FAZ is available with B, C, D, K, S, and Z characteristics in accordance with UL 1077, CSA C22.2 No.235 and IEC 60947-2. These devices are CE marked.

Application Description

- Supplementary protection
- Control circuits
- Lighting
- Business equipment
- Appliances

Features

- Complete range of UL 1077 recognized DIN rail mounted miniature circuit breakers up to 63A current rating
- Standard ratings of 10 kAIC up to 277/480 Vac
- Current limiting design provides fast short-circuit interruption that reduces the let-through energy, which can damage the circuit
- Suitable for supplementary protection
- Thermal-magnetic overcurrent protection
  - Six levels of short-circuit protection, categorized by B, C, D, K, S, and Z curves
- Trip-free design—breaker can not be defeated by holding the handle in the ON position
- Captive screws cannot be lost
- Fulfill UL 1077, CSA C22.2 No.235 and also IEC 60947-2 Standard
- Field-installable shunt trip and auxiliary switch subsequent mounting
- Module width of only 17.7 mm (per pole)
- Contact position indicator (red/green)
- Easy installation on DIN rail
- Possibility for sealing the toggle in ON or OFF position

Discover These Advanced Features

Breakers install on standard DIN rail

Available in one-, two-, three-, four-pole, 1+N and 3+N models

Color-coded indicator provides breaker status for easy troubleshooting

Captive Posidrive terminal screws with finger and back-of-hand protection (IP20)

Trip-free design; breaker cannot be defeated by holding the handle in the ON position

Breaker information printed on the front of the device for quick identification

Standards and Certifications

FAZ complies with the latest national and international standards.

- UL 1077, CSA C22.2 No. 235
  - Apply to supplementary protectors intended for use as overcurrent, or overvoltage or undervoltage protection within an appliance or other electrical equipment where branch circuit protection is already provided, or is not required
- RoHS compliant
- VDE compliant
  - Devices with B, C, and D curves are VDE compliant
- CCC
  - Devices with B, C, and D curves are CCC compliant
- ABS compliant

Catalog Number Selection

FAZ C 6 / 1 SP

Breaker Family	Trip Characteristics ①	Ampere Rating	Number of Poles	Single Package
FAZ = Supplementary protector	**B** = 3–5X I_n **C** = 5–10X I_n **D** = 10–20X I_n **K** = 8–12X I_n **S** = 13–17X I_n **Z** = 2–3X I_n	**0.5** = 0.5A **1** = 1A **2** = 2A **3** = 3A **4** = 4A **5** = 5A **6** = 6A **7** = 7A **8** = 8A **10** = 10A **13** = 13A **15** = 15A **16** = 16A **20** = 20A **25** = 25A **30** = 30A **32** = 32A **40** = 40A **50** = 50A **63** = 63A	**1** = Single-pole **2** = Two-pole **3** = Three-pole **4** = Four-pole **1N** = Single-pole + neutral **3N** = Three-pole + neutral	**SP** = Single packaging of single-pole curve B, C and D for select amperes only **Blank** = Standard packaging

Note

① I_n = Rated current for instantaneous trip characteristics.

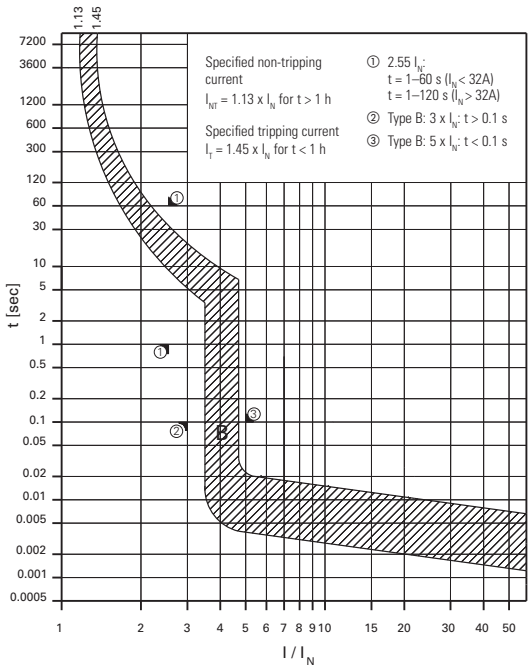
1

Product Selection

FAZ B curve (3–5X I_n current rating)

- Designed for resistive or slightly inductive loads
- Response time of instantaneous trip: 3–5X I_n current rating
- UL recognized and CSA Certified as supplementary protectors
- For international and domestic use (conform to IEC 60947-2)
- UL file number 177451

Suitable for applications where protection against low-level short-circuit faults in control wiring is desired. Instantaneous trip is 3–5X continuous rating of device (I_n). Applications include PLC wiring, business equipment, lighting, appliances and some motors. Low magnetic trip point.



Single-Pole

Two-Pole

Three-Pole

B Curve (3–5X I_n Current Rating)—Designed for Resistive or Slightly Inductive Loads ①

Amperes	Single-Pole ② Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number
1	FAZ-B1/1-SP	FAZ-B1/2	FAZ-B1/3
2	FAZ-B2/1-SP	FAZ-B2/2	FAZ-B2/3
3	FAZ-B3/1-SP	FAZ-B3/2	FAZ-B3/3
4	FAZ-B4/1-SP	FAZ-B4/2	FAZ-B4/3
5	FAZ-B5/1-SP	FAZ-B5/2	FAZ-B5/3
6	FAZ-B6/1-SP	FAZ-B6/2	FAZ-B6/3
7	FAZ-B7/1-SP	FAZ-B7/2	FAZ-B7/3
8	FAZ-B8/1-SP	FAZ-B8/2	FAZ-B8/3
10	FAZ-B10/1-SP	FAZ-B10/2	FAZ-B10/3
12	FAZ-B12/1-SP	FAZ-B12/2	FAZ-B12/3
13	FAZ-B13/1-SP	FAZ-B13/2	FAZ-B13/3
15	FAZ-B15/1-SP	FAZ-B15/2	FAZ-B15/3
16	FAZ-B16/1-SP	FAZ-B16/2	FAZ-B16/3
20	FAZ-B20/1-SP	FAZ-B20/2	FAZ-B20/3
25	FAZ-B25/1-SP	FAZ-B25/2	FAZ-B25/3
30	FAZ-B30/1-SP	FAZ-B30/2	FAZ-B30/3
32	FAZ-B32/1-SP	FAZ-B32/2	FAZ-B32/3
40	FAZ-B40/1-SP	FAZ-B40/2	FAZ-B40/3
50	FAZ-B50/1-SP	FAZ-B50/2	FAZ-B50/3
63	FAZ-B63/1-SP	FAZ-B63/2	FAZ-B63/3

Four-Pole

Single-Pole + Neutral

Three-Pole + Neutral

B Curve (3–5X I_n Current Rating)—Designed for Resistive or Slightly Inductive Loads, continued ①

Amperes	Four-Pole Catalog Number	Single-Pole + Neutral Catalog Number	Three-Pole + Neutral Catalog Number
1	FAZ-B1/4	FAZ-B1/1N	FAZ-B1/3N
2	FAZ-B2/4	FAZ-B2/1N	FAZ-B2/3N
3	FAZ-B3/4	FAZ-B3/1N	FAZ-B3/3N
4	FAZ-B4/4	FAZ-B4/1N	FAZ-B4/3N
5	FAZ-B5/4	FAZ-B5/1N	FAZ-B5/3N
6	FAZ-B6/4	FAZ-B6/1N	FAZ-B6/3N
7	FAZ-B7/4	FAZ-B7/1N	FAZ-B7/3N
8	FAZ-B8/4	FAZ-B8/1N	FAZ-B8/3N
10	FAZ-B10/4	FAZ-B10/1N	FAZ-B10/3N
12	FAZ-B12/4	FAZ-B12/1N	FAZ-B12/3N
13	FAZ-B13/4	FAZ-B13/1N	FAZ-B13/3N
15	FAZ-B15/4	FAZ-B15/1N	FAZ-B15/3N
16	FAZ-B16/4	FAZ-B16/1N	FAZ-B16/3N
20	FAZ-B20/4	FAZ-B20/1N	FAZ-B20/3N
25	FAZ-B25/4	FAZ-B25/1N	FAZ-B25/3N
30	FAZ-B30/4	FAZ-B30/1N	FAZ-B30/3N
32	FAZ-B32/4	FAZ-B32/1N	FAZ-B32/3N
40	FAZ-B40/4	FAZ-B40/1N	FAZ-B40/3N
50	FAZ-B50/4	FAZ-B50/1N	FAZ-B50/3N
63	FAZ-B63/4	FAZ-B63/1N	FAZ-B63/3N

Notes

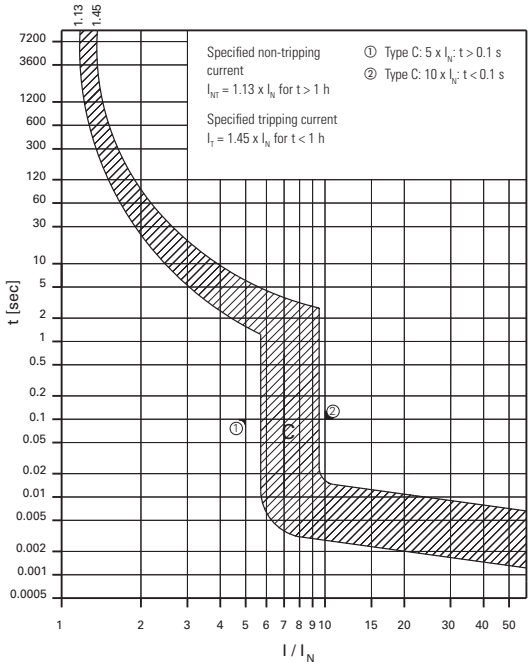
① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

② Option for single packaging on single-pole B, C and D curves only; add suffix SP when ordering.

FAZ C curve (5–10X I_n current rating)

- Designed for inductive loads
- Response time of instantaneous trip: 5–10X I_n current rating
- UL recognized and CSA Certified as supplementary protectors
- For international and domestic use (conform to IEC 60947-2)
- UL file number 177451

Suitable for applications where medium levels of inrush current are expected. Instantaneous trip is 5–10X rating of device (I_n). Applications include small transformers, lighting, pilot devices, control circuits and coils. Medium magnetic trip point.



Single-Pole

Two-Pole

Three-Pole

C Curve (5–10X I_n Current Rating)—Designed Inductive Loads ①

Amperes	Single-Pole ② Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number
0.5	FAZ-C0.5/1-SP	FAZ-C0.5/2	FAZ-C0.5/3
1	FAZ-C1/1-SP	FAZ-C1/2	FAZ-C1/3
1.6	FAZ-C1.6/1-SP	FAZ-C1.6/2	FAZ-C1.6/3
2	FAZ-C2/1-SP	FAZ-C2/2	FAZ-C2/3
3	FAZ-C3/1-SP	FAZ-C3/2	FAZ-C3/3
4	FAZ-C4/1-SP	FAZ-C4/2	FAZ-C4/3
5	FAZ-C5/1-SP	FAZ-C5/2	FAZ-C5/3
6	FAZ-C6/1-SP	FAZ-C6/2	FAZ-C6/3
7	FAZ-C7/1-SP	FAZ-C7/2	FAZ-C7/3
8	FAZ-C8/1-SP	FAZ-C8/2	FAZ-C8/3
10	FAZ-C10/1-SP	FAZ-C10/2	FAZ-C10/3
13	FAZ-C13/1-SP	FAZ-C13/2	FAZ-C13/3
15	FAZ-C15/1-SP	FAZ-C15/2	FAZ-C15/3
16	FAZ-C16/1-SP	FAZ-C16/2	FAZ-C16/3
20	FAZ-C20/1-SP	FAZ-C20/2	FAZ-C20/3
25	FAZ-C25/1-SP	FAZ-C25/2	FAZ-C25/3
30	FAZ-C30/1-SP	FAZ-C30/2	FAZ-C30/3
32	FAZ-C32/1-SP	FAZ-C32/2	FAZ-C32/3
40	FAZ-C40/1-SP	FAZ-C40/2	FAZ-C40/3
50	FAZ-C50/1-SP	FAZ-C50/2	FAZ-C50/3
63	FAZ-C63/1-SP	FAZ-C63/2	FAZ-C63/3

Four-Pole

Single-Pole + Neutral

Three-Pole + Neutral

C Curve (5–10X I_n Current Rating)—Designed Inductive Loads, continued ①

Amperes	Four-Pole Catalog Number	Single-Pole + Neutral Catalog Number	Three-Pole + Neutral Catalog Number
0.5	FAZ-C0.5/4	FAZ-C0.5/1N	FAZ-C0.5/3N
1	FAZ-C1/4	FAZ-C1/1N	FAZ-C1/3N
1.6	FAZ-C1.6/4	FAZ-C1.6/1N	FAZ-C1.6/3N
2	FAZ-C2/4	FAZ-C2/1N	FAZ-C2/3N
3	FAZ-C3/4	FAZ-C3/1N	FAZ-C3/3N
4	FAZ-C4/4	FAZ-C4/1N	FAZ-C4/3N
5	FAZ-C5/4	FAZ-C5/1N	FAZ-C5/3N
6	FAZ-C6/4	FAZ-C6/1N	FAZ-C6/3N
7	FAZ-C7/4	FAZ-C7/1N	FAZ-C7/3N
8	FAZ-C8/4	FAZ-C8/1N	FAZ-C8/3N
10	FAZ-C10/4	FAZ-C10/1N	FAZ-C10/3N
13	FAZ-C13/4	FAZ-C13/1N	FAZ-C13/3N
15	FAZ-C15/4	FAZ-C15/1N	FAZ-C15/3N
16	FAZ-C16/4	FAZ-C16/1N	FAZ-C16/3N
20	FAZ-C20/4	FAZ-C20/1N	FAZ-C20/3N
25	FAZ-C25/4	FAZ-C25/1N	FAZ-C25/3N
32	FAZ-C32/4	FAZ-C32/1N	FAZ-C32/3N
40	FAZ-C40/4	FAZ-C40/1N	FAZ-C40/3N
50	FAZ-C50/4	FAZ-C50/1N	FAZ-C50/3N
63	FAZ-C63/4	FAZ-C63/1N	FAZ-C63/3N

Notes

① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

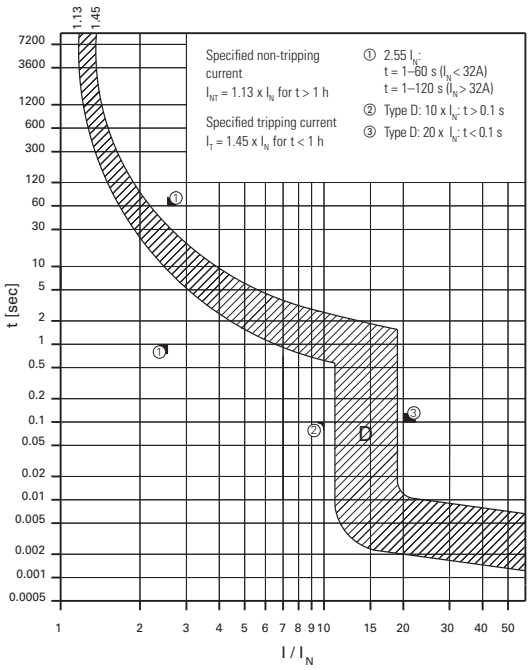
② Option for single packaging on single-pole B, C and D curves only; add suffix SP when ordering.

1

FAZ D curve (10–20X I_n current rating)

- Designed for highly inductive loads
- Response time of instantaneous trip: 10–20X I_n current rating
- UL recognized and CSA Certified as supplementary protectors
- For international and domestic use (conform to IEC 60947-2)
- UL file number 177451

Suitable for applications where high levels of inrush current are expected. Instantaneous trip is 10–20X rating of device (I_n). The high magnetic trip point prevents nuisance tripping in high inductive applications such as motors, transformers and power supplies.



Single-Pole

Two-Pole

Three-Pole

D Curve (10–20X I_n Current Rating)—Designed for Inductive Loads ①

Amperes	Single-Pole ② Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number
0.5	FAZ-D0.5/1-SP	FAZ-D0.5/2	FAZ-D0.5/3
1	FAZ-D1/1-SP	FAZ-D1/2	FAZ-D1/3
2	FAZ-D2/1-SP	FAZ-D2/2	FAZ-D2/3
3	FAZ-D3/1-SP	FAZ-D3/2	FAZ-D3/3
4	FAZ-D4/1-SP	FAZ-D4/2	FAZ-D4/3
5	FAZ-D5/1-SP	FAZ-D5/2	FAZ-D5/3
6	FAZ-D6/1-SP	FAZ-D6/2	FAZ-D6/3
7	FAZ-D7/1-SP	FAZ-D7/2	FAZ-D7/3
8	FAZ-D8/1-SP	FAZ-D8/2	FAZ-D8/3
10	FAZ-D10/1-SP	FAZ-D10/2	FAZ-D10/3
13	FAZ-D13/1-SP	FAZ-D13/2	FAZ-D13/3
15	FAZ-D15/1-SP	FAZ-D15/2	FAZ-D15/3
16	FAZ-D16/1-SP	FAZ-D16/2	FAZ-D16/3
20	FAZ-D20/1-SP	FAZ-D20/2	FAZ-D20/3
25	FAZ-D25/1-SP	FAZ-D25/2	FAZ-D25/3
30	FAZ-D30/1-SP	FAZ-D30/2	FAZ-D30/3
32	FAZ-D32/1-SP	FAZ-D32/2	FAZ-D32/3
40	FAZ-D40/1-SP	FAZ-D40/2	FAZ-D40/3
50 ③	FAZ-D50/1-SP	FAZ-D50/2	FAZ-D50/3
63 ③	FAZ-D63/1-SP	FAZ-D63/2	FAZ-D63/3

Four-Pole

Single-Pole + Neutral

Three-Pole + Neutral

D Curve (10–20X I_n Current Rating)—Designed for Inductive Loads, continued ①

Amperes	Four-Pole Catalog Number	Single-Pole + Neutral Catalog Number	Three-Pole + Neutral Catalog Number
0.5	FAZ-D0.5/4	FAZ-D0.5/1N	FAZ-D0.5/3N
1	FAZ-D1/4	FAZ-D1/1N	FAZ-D1/3N
2	FAZ-D2/4	FAZ-D2/1N	FAZ-D2/3N
3	FAZ-D3/4	FAZ-D3/1N	FAZ-D3/3N
4	FAZ-D4/4	FAZ-D4/1N	FAZ-D4/3N
5	FAZ-D5/4	FAZ-D5/1N	FAZ-D5/3N
6	FAZ-D6/4	FAZ-D6/1N	FAZ-D6/3N
7	FAZ-D7/4	FAZ-D7/1N	FAZ-D7/3N
8	FAZ-D8/4	FAZ-D8/1N	FAZ-D8/3N
10	FAZ-D10/4	FAZ-D10/1N	FAZ-D10/3N
13	FAZ-D13/4	FAZ-D13/1N	FAZ-D13/3N
15	FAZ-D15/4	FAZ-D15/1N	FAZ-D15/3N
16	FAZ-D16/4	FAZ-D16/1N	FAZ-D16/3N
20	FAZ-D20/4	FAZ-D20/1N	FAZ-D20/3N
25	FAZ-D25/4	FAZ-D25/1N	FAZ-D25/3N
30	FAZ-D30/4	FAZ-D30/1N	FAZ-D30/3N
32	FAZ-D32/4	FAZ-D32/1N	FAZ-D32/3N
40	FAZ-D40/4	FAZ-D40/1N	FAZ-D40/3N
50 ③	FAZ-D50/4	FAZ-D50/1N	FAZ-D50/3N
63 ③	FAZ-D63/4	FAZ-D63/1N	FAZ-D63/3N

Notes

① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

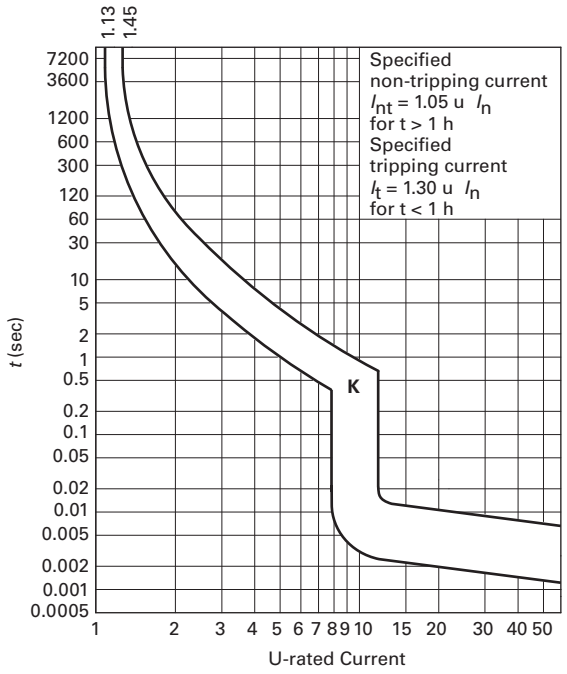
② Option for single packaging on single-pole B, C and D curves only; add suffix SP when ordering.

③ IEC 60947-2 only.

FAZ K curve (8–12X I_n current rating)

- Designed for motors, transformers and upstream electronics
- Response time of instantaneous trip: 8–12X I_n current rating
- UL recognized and CSA Certified as supplementary protectors
- For international and domestic use (conform to IEC 60947-2)
- UL file number 177451

Suitable for applications where medium levels of inrush current are expected. Instantaneous trip is 8–12X rating of device (I_n). Applications include small transformers, lighting, pilot devices, control circuits and coils. Medium magnetic trip point.



Single-Pole

Two-Pole

Three-Pole

K Curve (8–12X I_n Current Rating)—Designed for Inductive Loads ①②

Amperes	Single-Pole ③ Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number
0.5	FAZ-K0.5/1	FAZ-K0.5/2	FAZ-K0.5/3
1	FAZ-K1/1	FAZ-K1/2	FAZ-K1/3
1.6	FAZ-K1.6/1	FAZ-K1.6/2	FAZ-K1.6/3
2	FAZ-K2/1	FAZ-K2/2	FAZ-K2/3
3	FAZ-K3/1	FAZ-K3/2	FAZ-K3/3
4	FAZ-K4/1	FAZ-K4/2	FAZ-K4/3
6	FAZ-K6/1	FAZ-K6/2	FAZ-K6/3
8	FAZ-K8/1	FAZ-K8/2	FAZ-K8/3
10	FAZ-K10/1	FAZ-K10/2	FAZ-K10/3
13	FAZ-K13/1	FAZ-K13/2	FAZ-K13/3
16	FAZ-K16/1	FAZ-K16/2	FAZ-K16/3
20	FAZ-K20/1	FAZ-K20/2	FAZ-K20/3
25	FAZ-K25/1	FAZ-K25/2	FAZ-K25/3
32	FAZ-K32/1	FAZ-K32/2	FAZ-K32/3
40	FAZ-K40/1	FAZ-K40/2	FAZ-K40/3
50	FAZ-K50/1	FAZ-K50/2	FAZ-K50/3
63	FAZ-K63/1	FAZ-K63/2	FAZ-K63/3

Four-Pole

Single-Pole + Neutral

Three-Pole + Neutral

K Curve (8–12X I_n Current Rating)—Designed for Inductive Loads, continued ①②

Amperes	Four-Pole ③ Catalog Number	Single-Pole + Neutral Catalog Number	Three-Pole + Neutral Catalog Number
0.5	FAZ-K0.5/4	FAZ-K0.5/1N	FAZ-K0.5/3N
1	FAZ-K1/4	FAZ-K1/1N	FAZ-K1/3N
1.6	FAZ-K1.6/4	FAZ-K1.6/1N	FAZ-K1.6/3N
2	FAZ-K2/4	FAZ-K2/1N	FAZ-K2/3N
3	FAZ-K3/4	FAZ-K3/1N	FAZ-K3/3N
4	FAZ-K4/4	FAZ-K4/1N	FAZ-K4/3N
6	FAZ-K6/4	FAZ-K6/1N	FAZ-K6/3N
8	FAZ-K8/4	FAZ-K8/1N	FAZ-K8/3N
10	FAZ-K10/4	FAZ-K10/1N	FAZ-K10/3N
13	FAZ-K13/4	FAZ-K13/1N	FAZ-K13/3N
16	FAZ-K16/4	FAZ-K16/1N	FAZ-K16/3N
20	FAZ-K20/4	FAZ-K20/1N	FAZ-K20/3N
25	FAZ-K25/4	FAZ-K25/1N	FAZ-K25/3N
32	FAZ-K32/4	FAZ-K32/1N	FAZ-K32/3N
40	FAZ-K40/4	FAZ-K40/1N	FAZ-K40/3N
50	FAZ-K50/4	FAZ-K50/1N	FAZ-K50/3N
63	FAZ-K63/4	FAZ-K63/1N	FAZ-K63/3N

Notes

① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

② These breakers are available by special order and may result in additional delivery time.

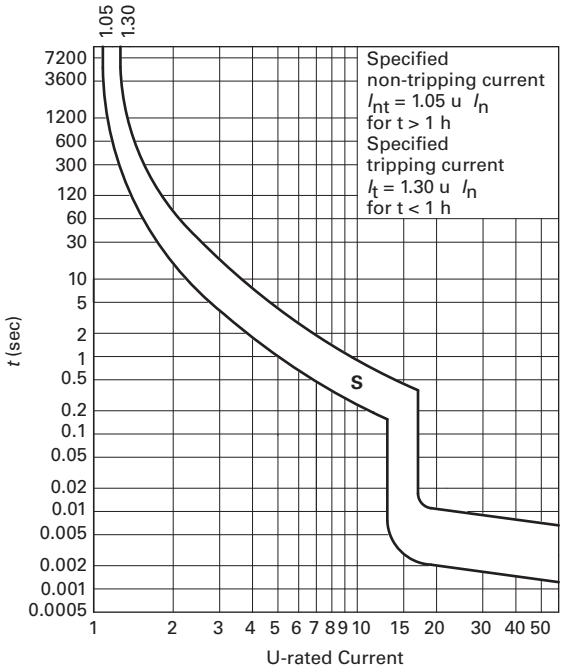
③ Two-piece box order, quantities of 2.

1

FAZ S curve (13–17X I_n current rating)

- Designed for control circuits with high inrush
- Response time of instantaneous trip: 13–17X I_n current rating
- UL recognized and CSA Certified as supplementary protectors
- For international and domestic use (conform to IEC 60947-2)
- UL file number 177451

Suitable for applications where high levels of inrush current are expected. Instantaneous trip is 13–17X rating of device (I_n). The high magnetic trip point prevents nuisance tripping in high inductive applications such as motors, transformers and power supplies.



Single-Pole

Two-Pole

S Curve (13–17X I_n Current Rating)—Designed for Inductive Loads ①②

Amperes	Single-Pole ③ Catalog Number	Two-Pole Catalog Number
1	**FAZ-S1/1**	**FAZ-S1/2**
2	**FAZ-S2/1**	**FAZ-S2/2**
3	**FAZ-S3/1**	**FAZ-S3/2**
4	**FAZ-S4/1**	**FAZ-S4/2**
6	**FAZ-S6/1**	**FAZ-S6/2**
10	**FAZ-S10/1**	**FAZ-S10/2**
16	**FAZ-S16/1**	**FAZ-S16/2**
20	**FAZ-S20/1**	**FAZ-S20/2**
25	**FAZ-S25/1**	**FAZ-S25/2**
32	**FAZ-S32/1**	**FAZ-S32/2**
40	**FAZ-S40/1**	**FAZ-S40/2**

Notes

① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

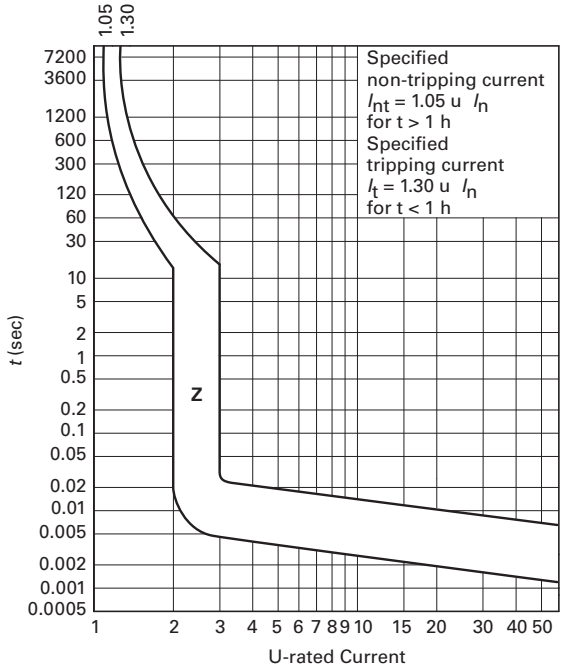
② These breakers are available by special order and may result in additional delivery time.

③ Two-piece box order, quantities of 2.

FAZ Z curve (2–3X I_n current rating)

- Designed for protection of electronic devices
- Response time of instantaneous trip: 2–3X I_n current rating
- UL recognized and CSA Certified as supplementary protectors
- For international and domestic use (conform to IEC 60947-2)

Suitable for applications where low levels of inrush current are expected. Instantaneous trip is 2–3X rating of device (I_n). Applications include small transformers, lighting, pilot devices, control circuits and coils. Medium magnetic trip point.



Single-Pole

Two-Pole

Z Curve (2–3X I_n Current Rating)—Designed for Inductive Loads ①②

Amperes	Single-Pole ③ Catalog Number	Two-Pole Catalog Number
0.5	**FAZ-Z0.5/1**	**FAZ-Z0.5/2**
1	**FAZ-Z1/1**	**FAZ-Z1/2**
1.6	**FAZ-Z1.6/1**	**FAZ-Z1.6/2**
2	**FAZ-Z2/1**	**FAZ-Z2/2**
3	**FAZ-Z3/1**	**FAZ-Z3/2**
4	**FAZ-Z4/1**	**FAZ-Z4/2**
6	**FAZ-Z6/1**	**FAZ-Z6/2**
8	**FAZ-Z8/1**	**FAZ-Z8/2**
10	**FAZ-Z10/1**	**FAZ-Z10/2**
13	**FAZ-Z13/1**	**FAZ-Z13/2**
16	**FAZ-Z16/1**	**FAZ-Z16/2**
20	**FAZ-Z20/1**	**FAZ-Z20/2**
25	**FAZ-Z25/1**	**FAZ-Z25/2**
32	**FAZ-Z32/1**	**FAZ-Z32/2**
40	**FAZ-Z40/1**	**FAZ-Z40/2**
50	**FAZ-Z50/1**	**FAZ-Z50/2**
63	**FAZ-Z63/1**	**FAZ-Z63/2**

Three-Pole

Four-Pole

Z Curve (2–3X I_n Current Rating)—Designed for Inductive Loads, continued ①②

Amperes	Three-Pole Catalog Number	Four-Pole Catalog Number
0.5	**FAZ-Z0.5/3**	**FAZ-Z0.5/4**
1	**FAZ-Z1/3**	**FAZ-Z1/4**
1.6	**FAZ-Z1.6/3**	**FAZ-Z1.6/4**
2	**FAZ-Z2/3**	**FAZ-Z2/4**
3	**FAZ-Z3/3**	**FAZ-Z3/4**
4	**FAZ-Z4/3**	**FAZ-Z4/4**
6	**FAZ-Z6/3**	**FAZ-Z6/4**
8	**FAZ-Z8/3**	**FAZ-Z8/4**
10	**FAZ-Z10/3**	**FAZ-Z10/4**
13	**FAZ-Z13/3**	**FAZ-Z13/4**
16	**FAZ-Z16/3**	**FAZ-Z16/4**
20	**FAZ-Z20/3**	**FAZ-Z20/4**
25	**FAZ-Z25/3**	**FAZ-Z25/4**
32	**FAZ-Z32/3**	**FAZ-Z32/4**
40	**FAZ-Z40/3**	**FAZ-Z40/4**
50	**FAZ-Z50/3**	**FAZ-Z50/4**
63	**FAZ-Z63/3**	**FAZ-Z63/4**

Notes

① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

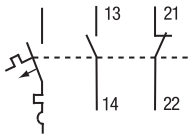
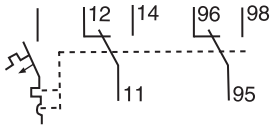
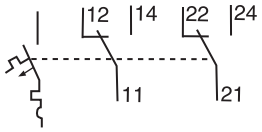
② These breakers are available by special order and may result in additional delivery time.

③ Two-piece box order, quantities of 2.

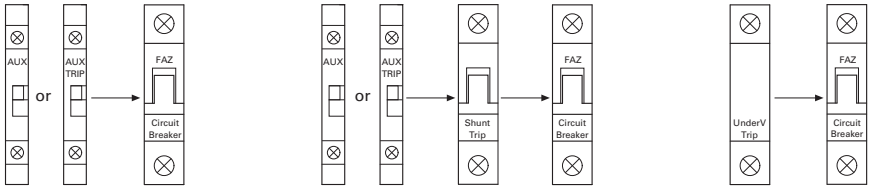
1

Accessories

FAZ Auxiliary Contacts and Voltage Trips

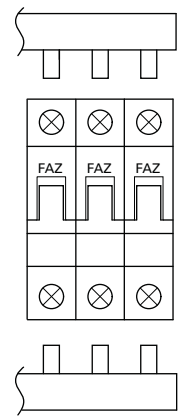
	Circuit Diagram	Description	Rated Operational Voltage	Catalog Number
Standard Auxiliary Contacts				
		■ 1NO/1NC ■ Installs on left side of FAZ or shunt trip ■ Max. one per FAZ (1077) device ■ Switches when FAZ is tripped electrically or manually	230 Vac	**FAZ-XHIN11**
		■ 1 changeover contact ■ Installs on left side of FAZ or shunt trip ■ Max. one per FAZ (1077) device ■ Switches when FAZ is tripped electrically or manually	230 Vac	**FAZ-XHINW1**
Auxiliary/Trip Indicating Contact				
	 Two-pole auxiliary mode  Trip indicating mode	■ Small selector screw changes mode ■ Two Form C (changeover) contacts ■ Installs on left side of FAZ or shunt trip ■ Auxiliary contacts switch when FAZ is tripped electrically or manually ■ Trip indicating contact switches only when FAZ is tripped electrically	230 Vac	**FAZ-XAM002**
Undervoltage Trip				
		■ Prevents FAZ from operating unless voltage is present ■ Installs on left side of FAZ ■ Includes test button	115 Vac 230 Vac 400 Vac	**FAZ-XUA(115VAC)** **FAZ-XUA(230VAC)** **FAZ-XUA(400VAC)**
Shunt Trip				
		■ Allows remote trip of FAZ ■ Installs on left side of FAZ	12–110 Vac 12–60 Vdc 110–415 Vac 110–230 Vdc	**FAZ-XAA-C-12-110VAC** **FAZ-XAA-C-110-415VAC**

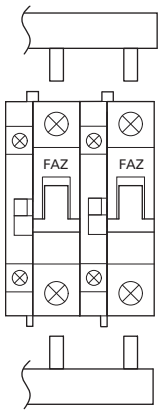
Allowable Combinations of Accessories



Busbar System

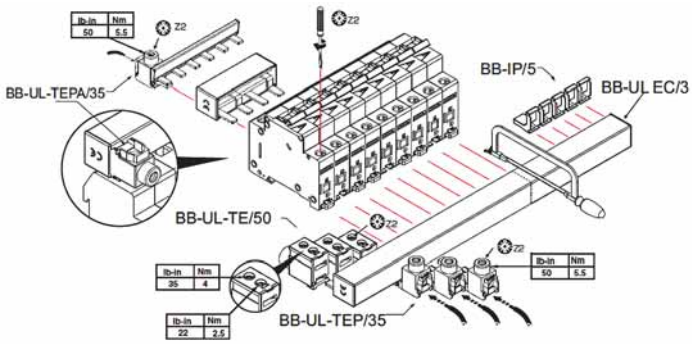
Description	Rated Operational Current	Number of Poles per Device	Number of Terminals	Catalog Number ①
Without Auxiliary Contacts				
For connecting FAZ supplementary protectors without auxiliary contacts. May be fed from line or load side.	80A	1	57	**BB-UL-18/1P-1M/57**
		2	56	**BB-UL-18/2P-2M/56**
		3	57	**BB-UL-18/3P-3M/57**
	100A	1	57	**BB-UL-25/1P-1M/57**
		2	56	**BB-UL-25/2P-2M/56**
		3	57	**BB-UL-25/3P-3M/57**
Auxiliary/Trip Indicating Contacts				
For connecting FAZ supplementary protectors with auxiliary contacts. May be fed from line or load side.	80A	1	37	**BB-UL-18/1P-1,5M/37**
		2	46	**BB-UL-18/2P+AS-2,5M/46**
		3	48	**BB-UL-18/3P+AS-3,5M/48**
	100A	1	37	**BB-UL-25/1P-1,5M/37**
		2	46	**BB-UL-25/2P+AS-2,5M/46**
		3	48	**BB-UL-25/3P+AS-3,5M/48**



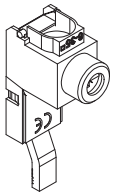


Note

① Bus may be center fed for high current capacity.



Incoming Terminal



Pin Type Incoming Supply Terminals

Description	Catalog Number
■ Accommodates conductors from 6–35 mm²/#10–2 AWG ■ 4–5.5 Nm/35–50 lb-in ■ Two- and three-pole	**BB-UL-TEP/35**

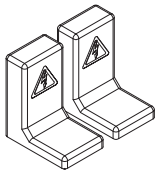
Incoming Terminal

Pin Type Incoming Supply Terminals—Single-Phase Only

Description	Catalog Number
■ Accommodates conductors from 6–35 mm²/#10–2 AWG ■ 4–5.5 Nm/35–50 lb-in	**BB-UL-TEPA/35**

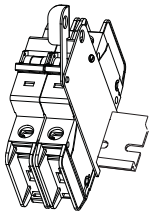
Protective Accessories

Busbar Terminal Cover



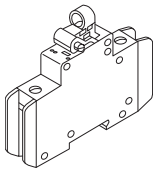
Description	Catalog Number
For covering unused terminals	**BB-IP/5**

Lockoff Device



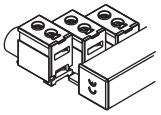
UL lockoff device	**FAZPLOFF**

Padlock Hasp



■ Prevents reactivation of the device during maintenance ■ Holds one padlock	**Z-IS/SPE-1TE**

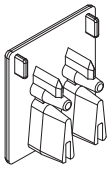
Incoming Terminal

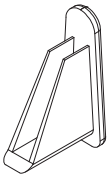


Bus Incoming Supply Terminals

Description	Catalog Number
■ 50 mm² ■ #14–1 AWG ■ 75 Deg wire ■ 115 A/Y, 480V UL ■ 160 A/Y 690V IEC	**BB-UL-TE/50**

Fork Connector





Busbar End Cap

Description	Poles	Catalog Number
■ Install after cutting busbar ■ Protects end of busbar	2 and 3	**BB-EV-EC/3**
	1	**BB-UL-EC/1**

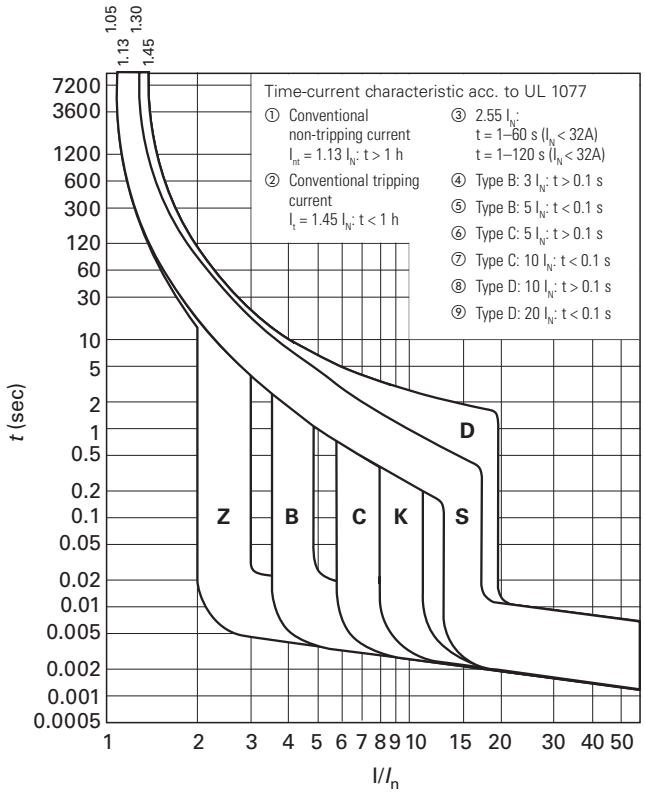
Technical Data and Specifications

Trip Curves Chart

Eaton FAZ supplementary protectors are available with six different tripping characteristics, including Type B, C, D, K, S and Z. Definitions for each trip curve are contained on the ordering pages and can be used to determine the optimal characteristic for your application. For example, low-level short-circuit faults in control wiring, such as PLCs, are best protected by devices with Type B trip characteristics (3–5X continuous rating of the device (I_n).

Even though not required by NEC or CEC for supplementary protectors, Eaton's FAZ devices are current limiting, which means that they interrupt fault currents within one half cycle. Current limiting devices offer superior protection by reducing peak let-through current and energy.

Tripping Characteristics



1

FAZ Miniature Circuit Breakers Technical Data

Description	B Curve	C Curve	D Curve
Electrical			
Approvals	UR (UL 1077), CSA (CSA 22.2 No. 235), CE		
Standards	IEC/EN 60947-2		
Short-circuit trip response	3–5 I_n	5–10 I_n	10–20 I_n
Supplementary Protectors—UL/CSA			
Current range	1–63A	0.5–63A	0.5–40A
Maximum voltage ratings—UL/CSA			
Single-pole, single-pole + neutral	277 Vac 48 Vdc	277 Vac 48 Vdc	277 Vac 48 Vdc
Two-, three-pole, four-pole and three-pole + neutral	480Y/277 Vac	480Y/277 Vac	480Y/277 Vac
Two poles in series	96 Vdc	96 Vdc	96 Vdc
Thermal tripping characteristics			
Single-pole	1.35 x I_n @ 40°C	1.35 x I_n @ 40°C	1.35 x I_n @ 40°C
Multi-pole	1.45 x I_n @ 40°C	1.45 x I_n @ 40°C	1.45 x I_n @ 40°C
Short-circuit ratings (at max. voltage)			
Single-pole	10 kA (5 kA for 40–63A device)	10 kA (5 kA for 40–63A device)	5 kA
Two-, three-pole	10 kA (5 kA for 40–63A device)	10 kA (5 kA for 40–63A device)	5 kA
Single-pole	10 kA @ 48 Vdc	10 kA @ 48 Vdc	10 kA @ 48 Vdc
Two poles in series	10 kA @ 96 Vdc	10 kA @ 96 Vdc	10 kA @ 96 Vdc
Miniature Circuit Breaker—IEC			
Current range	1–63A	0.5–63A	0.5–63A
Maximum voltage ratings—IEC 68898-1			
Single-pole	230 Vac	230 Vac	230 Vac
Two-, three-pole	230/400 Vac	230/400 Vac	230/400 Vac
Maximum voltage ratings—IEC 60947-2			
Single-pole	240 Vac 48 Vdc	240 Vac 48 Vdc	240 Vac 48 Vdc
Two-, three-pole	240/415 Vac	240/415 Vac	240/415 Vac
Two poles in series	96 Vdc	96 Vdc	96 Vdc
Thermal tripping characteristics			
Single-pole	> 1 hour @ 1.05 x I_n	> 1 hour @ 1.05 x I_n	> 1 hour @ 1.05 x I_n
Multi-pole	< 1 hour @ 1.3 x I_n	< 1 hour @ 1.3 x I_n	< 1 hour @ 1.3 x I_n
Interrupt ratings (at max. voltage)			
IEC 60947-2	15 kA	15 kA	15 kA (10 kA for 50 and 63A)
IEC 60898	10 kA	10 kA	10 kA (50 and 63A not available)
Operational switching capacity	7.5 kA	7.5 kA	7.5 kA
Max. backup fuse [gL/gG]	125A	125A	125A
Rated impulse withstand—U_{imp}	4000 Vac	4000 Vac	4000 Vac
Rated insulation voltage—U_i	440 Vac	440 Vac	440 Vac
Environmental/General			
Selectivity class	3	3	3
Lifespan (operations)	> 10,000 (1 operation = ON/OFF)	> 10,000 (1 operation = ON/OFF)	> 10,000 (1 operation = ON/OFF)
Shock (IEC 68-2-22)	10g–120 ms	10g–120 ms	10g–120 ms
Operating temperature range	–40 to +167°F (–40 to +75°C)	–40 to +167°F (–40 to +75°C)	–40 to +167°F (–40 to +75°C)
Shipment and short-term storage	–40 to +185°F (–40 to +85°C)	–40 to +185°F (–40 to +85°C)	–40 to +185°F (–40 to +85°C)
Housing material	Nylon	Nylon	Nylon
Mechanical			
Standard front dimension			
Device height	80 mm	80 mm	80 mm
Terminal protection	Finger and back-of-hand proof to IEC 536	Finger and back-of-hand proof to IEC 536	Finger and back-of-hand proof to IEC 536
Mounting width per pole	17.5 mm	17.5 mm	17.5 mm
Mounting	IEC/EN 60715 top-hat rail	IEC/EN 60715 top-hat rail	IEC/EN 60715 top-hat rail
Degree of protection	IP20	IP20	IP20
Terminals top and bottom	Twin-purpose terminals	Twin-purpose terminals	Twin-purpose terminals
Supply connection	Line or load side	Line or load side	Line or load side
Terminal capacity [mm^2]	1 x 25 (AWG 4–18)/2 x 10 (AWG 8–18)	1 x 25 (AWG 4–18)/2 x 10 (AWG 8–18)	1 x 25 (AWG 4–18)/2 x 10 (AWG 8–18)
Torque	2.4 Nm	2.4 Nm	2.4 Nm
Imperial torque	21 lb-in (AWG 18–12), 25 lb-in (AWG 10–8), 36 lb-in (AWG 6–4)	21 lb-in (AWG 18–12), 25 lb-in (AWG 10–8), 36 lb-in (AWG 6–4)	21 lb-in (AWG 18–12), 25 lb-in (AWG 10–8), 36 lb-in (AWG 6–4)
Thickness of busbar material	0.8–2 mm	0.8–2 mm	0.8–2 mm
Mounting position	As required	As required	As required

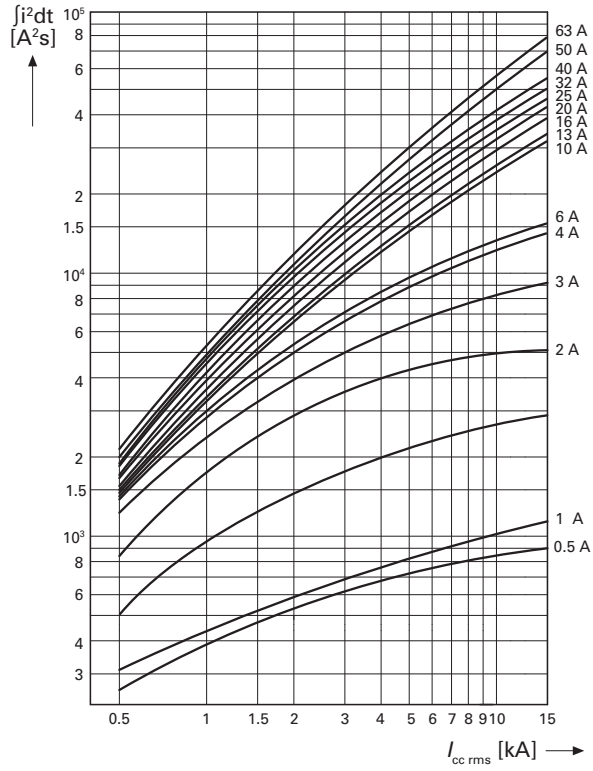
FAZ Miniature Circuit Breakers Technical Data, continued

Description	K Curve	S Curve	Z Curve
Electrical			
Approvals	UR (UL 1077), CSA (CSA 22.2 No. 235), CE		
Standards	IEC/EN 60947-2, E177451, 204453		
Short-circuit trip response	8–12 I_n	13–17 I_n	2–3 I_n
Supplementary Protectors—UL/CSA			
Current range	0.5–63A	0.5–40A	1–63A
Maximum voltage ratings—UL/CSA			
Single-pole, single-pole + neutral	277 Vac 48 Vdc	277 Vac 48 Vdc	277 Vac 48 Vdc
Two-, three-, four-pole and three-pole + neutral	480Y/277 Vac	480Y/277 Vac	480Y/277 Vac
Two poles in series	96 Vdc	96 Vdc	96 Vdc
Thermal tripping characteristics			
Single-pole	1.35 x I_n @ 40°C	1.35 x I_n @ 40°C	1.35 x I_n @ 40°C
Multi-pole	1.45 x I_n @ 40°C	1.45 x I_n @ 40°C	1.45 x I_n @ 40°C
Short-circuit ratings (at max. voltage)			
Single-pole	5 kA @ 277 Vac	5 kA @ 277 Vac	5 kA @ 277 Vac
Single-pole + neutral	5 kA @ 277 Vac	5 kA @ 277 Vac	5 kA @ 277 Vac
Two-, three-, four-pole	5 kA @ 480Y/277 Vac	5 kA @ 480Y/277 Vac	5 kA @ 480Y/277 Vac
Two poles in series	—	—	—
Miniature Circuit Breaker—IEC			
Current range	0.5–63A	0.5–40A	1–63A
Maximum voltage ratings—IEC 60947-2			
Single-pole, single-pole + neutral	240 Vac	240 Vac	240 Vac
Two-, three-, four-pole, three-pole + neutral	240/415 Vac	240/415 Vac	240/415 Vac
Thermal tripping characteristics			
Single-pole	> 1 Hour @ 1.05 x I_n	> 1 Hour @ 1.05 x I_n	> 1 Hour @ 1.05 x I_n
Multi-pole	< 1 Hour @ 1.3 x I_n	< 1 Hour @ 1.3 x I_n	< 1 Hour @ 1.3 x I_n
Interrupt ratings (at max. voltage)			
IEC 60947-2	15 kA	10 kA	10 kA
Operational switching capacity	7.5 kA	7.5 kA	7.5 kA
Max. backup fuse [gL/gG]	125A	125A	125A
Rated impulse withstand—U_{imp}	4000 Vac	4000 Vac	4000 Vac
Rated insulation voltage—U_i	440 Vac	440 Vac	440 Vac
Environmental/General			
Selectivity class	3	3	3
Lifespan (operations)	> 10,000 (1 operation = ON/OFF)	> 10,000 (1 operation = ON/OFF)	> 10,000 (1 operation = ON/OFF)
Shock (IEC 68-2-22)	10g–120 ms	10g–120 ms	10g–120 ms
Operating temperature range	–40 to +167°F (–40 to +75°C)	–40 to +167°F (–40 to +75°C)	–40 to +167°F (–40 to +75°C)
Shipment and short-term storage	–40 to +185°F (–40 to +85°C)	–40 to +185°F (–40 to +85°C)	–40 to +185°F (–40 to +85°C)
Housing material	Nylon	Nylon	Nylon
Mechanical			
Standard front dimension			
Device height	80 mm	80 mm	80 mm
Terminal protection	Finger and back-of-hand proof to IEC 536	Finger and back-of-hand proof to IEC 536	Finger and back-of-hand proof to IEC 536
Mounting width per pole	17.7 mm	17.7 mm	17.7 mm
Mounting	IEC/EN 60715 top-hat rail	IEC/EN 60715 top-hat rail	IEC/EN 60715 top-hat rail
Degree of protection	IP20	IP20	IP20
Terminals top and bottom	Twin-purpose terminals	Twin-purpose terminals	Twin-purpose terminals
Supply connection	Line or load side	Line or load side	Line or load side
Terminal capacity [mm^2]	1 x 25 (AWG 4–18) / 2 x 10 (AWG 8–18)	1 x 25 (AWG 4–18) / 2 x 10 (AWG 8–18)	1 x 25 (AWG 4–18) / 2 x 10 (AWG 8–18)
Torque	2.4 Nm	2.4 Nm	2.4 Nm
Imperial torque	21 lb-in (AWG 18–12), 25 lb-in (AWG 10–8), 36 lb-in (AWG 6–4)	21 lb-in (AWG 18–12), 25 lb-in (AWG 10–8), 36 lb-in (AWG 6–4)	21 lb-in (AWG 18–12), 25 lb-in (AWG 10–8), 36 lb-in (AWG 6–4)
Thickness of busbar material	0.8–2 mm	0.8–2 mm	0.8–2 mm
Mounting position	As required	As required	As required

1

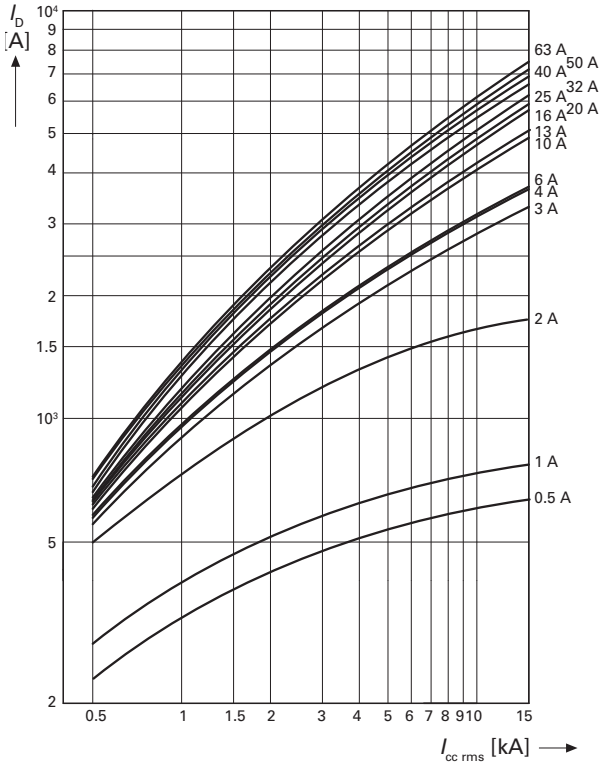
Let-Through Energy I^2t

Characteristic B and C

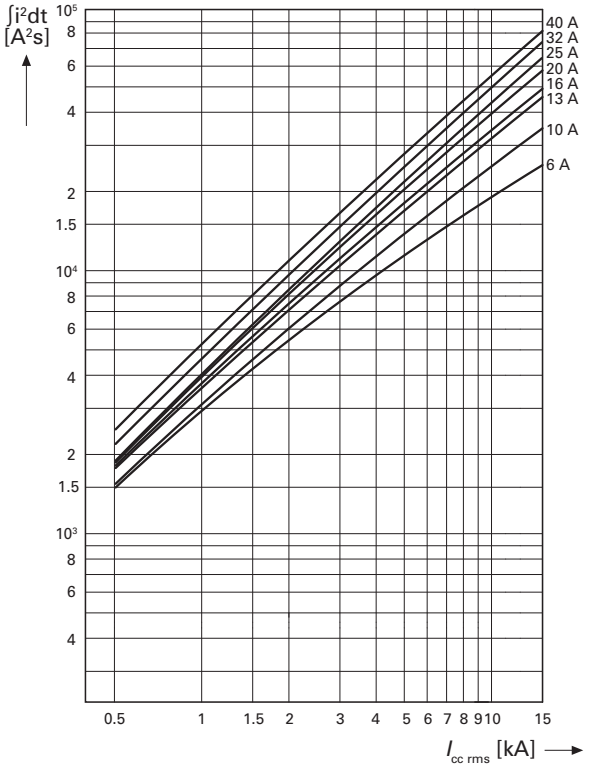


Let-Through Energy I_D

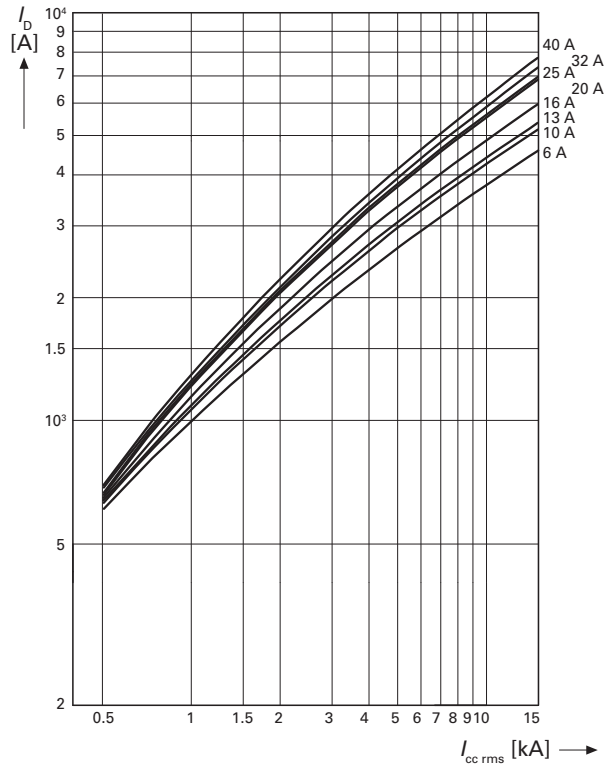
Characteristic B and C



Characteristic D

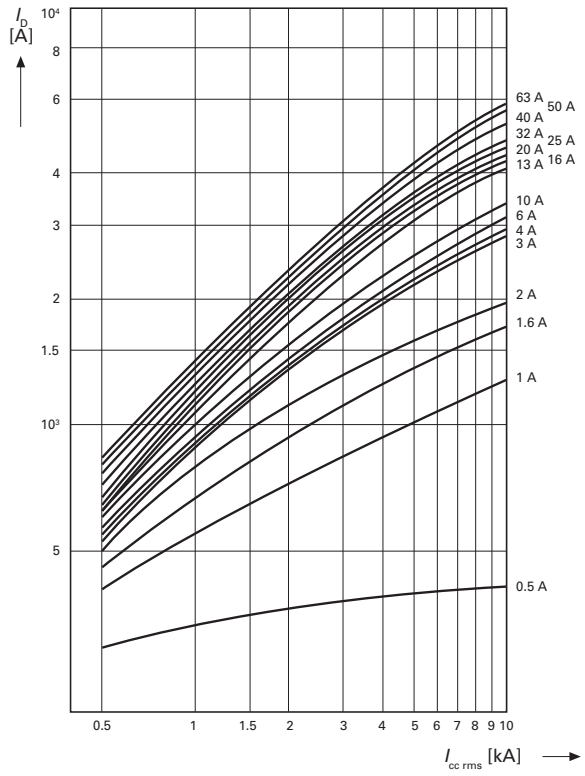


Characteristic D

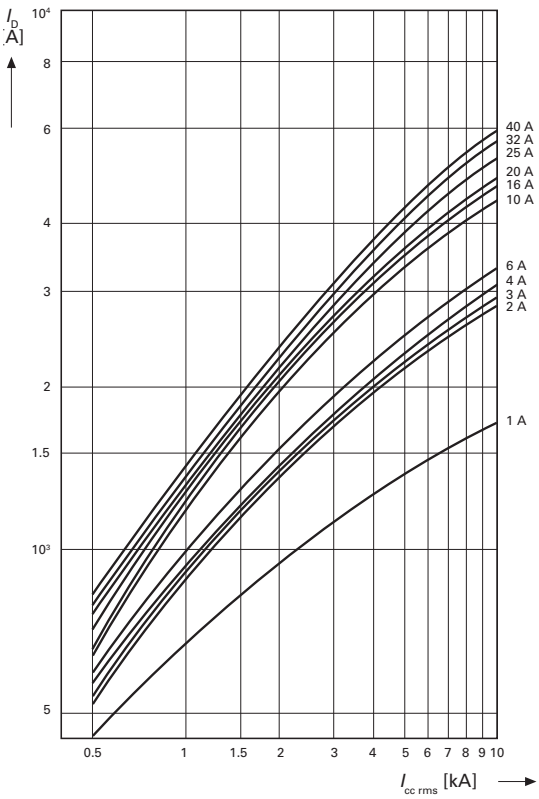


Let-Through Energy I^2t

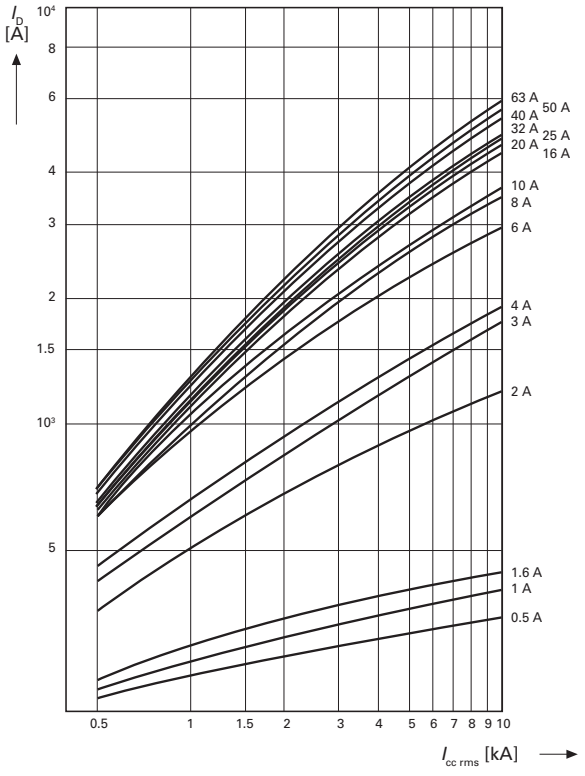
Characteristic K



Characteristic S



Characteristic Z



1

Influence of the Ambient Temperature on the Thermal Tripping Behavior

Corrected values of the rated current dependent on the ambient temperature

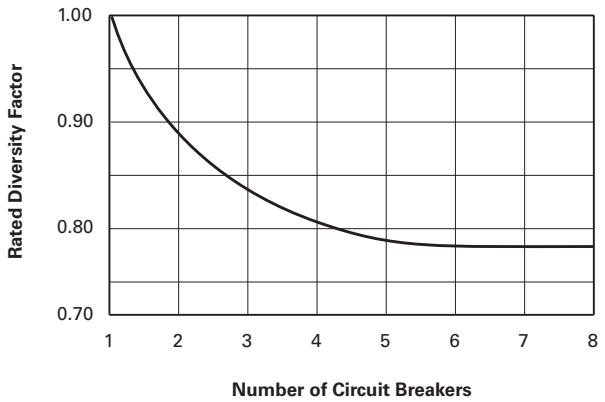
	Ambient Temperature T																
I_n (A)	–40°C	–30°C	–20°C	–10°C	0°C	10°C	20°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C	65°C	70°C	75°C
0.16	0.20	0.20	0.19	0.19	0.18	0.17	0.17	0.16	0.16	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.13
0.25	0.32	0.31	0.30	0.29	0.28	0.27	0.26	0.25	0.25	0.24	0.24	0.23	0.23	0.22	0.22	0.21	0.21
0.50	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.48	0.47	0.46	0.45	0.44	0.43	0.42	0.41
0.75	0.96	0.93	0.90	0.87	0.84	0.81	0.78	0.75	0.74	0.73	0.71	0.69	0.68	0.66	0.65	0.64	0.62
1.00	1.30	1.20	1.20	1.20	1.10	1.10	1.00	1.00	0.99	0.97	0.95	0.93	0.90	0.89	0.87	0.85	0.83
1.50	1.90	1.90	1.80	1.70	1.70	1.60	1.60	1.50	1.50	1.50	1.40	1.40	1.40	1.30	1.30	1.30	1.20
1.60	2.00	2.00	1.90	1.90	1.80	1.70	1.70	1.60	1.60	1.50	1.50	1.50	1.40	1.40	1.40	1.40	1.30
2.00	2.60	2.50	2.40	2.30	2.20	2.20	2.10	2.00	2.00	1.90	1.90	1.90	1.80	1.80	1.70	1.70	1.70
2.50	3.20	3.10	3.00	2.90	2.80	2.70	2.60	2.50	2.50	2.40	2.40	2.30	2.30	2.20	2.20	2.10	2.10
3.00	3.80	3.70	3.60	3.50	3.40	3.30	3.10	3.00	3.00	2.90	2.80	2.80	2.70	2.70	2.60	2.50	2.50
3.50	4.50	4.40	4.20	4.10	3.90	3.80	3.70	3.50	3.40	3.40	3.30	3.20	3.20	3.10	3.00	3.00	2.90
4.00	5.10	5.00	4.80	4.70	4.50	4.30	4.20	4.00	3.90	3.90	3.80	3.70	3.60	3.50	3.50	3.40	3.30
5.00	6.40	6.20	6.00	5.80	5.60	5.40	5.20	5.00	4.90	4.80	4.70	4.60	4.50	4.40	4.30	4.20	4.10
6.00	7.70	7.50	7.20	7.00	6.70	6.50	6.30	6.00	5.90	5.80	5.70	5.60	5.40	5.30	5.20	5.10	5.00
7.00	9.00	8.70	8.40	8.20	7.80	7.60	7.40	7.00	6.90	6.80	6.70	6.50	6.30	6.20	6.10	6.00	5.80
8.00	10.20	9.90	9.60	9.30	9.00	8.70	8.40	8.00	7.90	7.70	7.60	7.40	7.20	7.10	6.90	6.80	6.60
10.00	13.00	12.00	12.00	12.00	11.00	11.00	10.00	10.00	9.90	9.70	9.50	9.30	9.00	8.90	8.70	8.50	8.30
12.00	15.00	15.00	14.00	14.00	13.00	13.00	13.00	12.00	12.00	12.00	11.00	11.00	11.00	11.00	10.00	10.00	10.00
13.00	17.00	16.00	16.00	15.00	15.00	14.00	14.00	13.00	13.00	13.00	12.00	12.00	12.00	12.00	11.00	11.00	11.00
15.00	19.00	19.00	18.00	17.00	17.00	16.00	16.00	15.00	15.00	15.00	14.00	14.00	14.00	13.00	13.00	13.00	12.00
16.00	20.00	20.00	19.00	19.00	18.00	17.00	17.00	16.00	16.00	15.00	15.00	15.00	14.00	14.00	14.00	14.00	13.00
20.00	26.00	25.00	24.00	23.00	22.00	22.00	21.00	20.00	20.00	19.00	19.00	19.00	18.00	18.00	17.00	17.00	17.00
25.00	32.00	31.00	30.00	29.00	28.00	27.00	26.00	25.00	25.00	24.00	24.00	23.00	23.00	22.00	22.00	21.00	21.00
32.00	41.00	40.00	38.00	37.00	36.00	35.00	33.00	32.00	32.00	31.00	30.00	30.00	29.00	28.00	28.00	27.00	26.00
35.00	45.00	43.00	41.00	41.00	38.00	38.00	36.00	35.00	35.00	34.00	33.00	32.00	32.00	32.00	30.00	29.00	29.00
40.00	51.00	50.00	48.00	47.00	45.00	43.00	42.00	40.00	39.00	39.00	38.00	37.00	36.00	35.00	35.00	34.00	33.00
50.00	64.00	62.00	60.00	58.00	56.00	54.00	52.00	50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00
63.00	81.00	78.00	76.00	73.00	71.00	68.00	66.00	63.00	62.00	61.00	60.00	58.00	57.00	56.00	55.00	53.00	52.00

Influence of the Mains Frequency

Influence of the mains frequency on the tripping behavior I_{MA} of the instantaneous release

	Mains Frequency f [Hz]						
	16 2/3	50	60	100	200	300	400
$I_{MA}(f)/I_{MA}$ (50 Hz) [%]	91	100	101	106	115	134	141

Load Carrying Capacity of Adjoining Miniature Circuit Breakers



Accessories Technical Data

Description	FAZ-XHIN FAZ-XAM002	FAZ-XAA-C	FAZ-XUA
Electrical			
Contact function	1A + 1B 2 C/O	— —	— —
Rated operational voltage U_n	250 Vac	—	115 Vac 230 Vac 400 Vac
Voltage range	—	12–110 Vac 12–60 Vdc	—
Voltage range	—	110–415 Vac 110–230 Vdc	—
Closing threshold [x U_n]	—	—	0.8
Tripping threshold [x U_n]	—	—	0.5
Rated frequency f	50/60 Hz	50/60 Hz	50/60 Hz
General use (UL/CSA) AC—230/240 Vac DC—110/120 Vdc	 2/2A 0.5/0.5A	 — —	 — —
Pilot duty	A600/Q600	—	—
Conventional free air thermal current I_{th}	4A	—	—
Rated operational current AC-13 I_e AC-15 I_e DC-13 I_e	 3A (250 Vac) 2A (250 Vac) 0.5A (110 Vdc)	 — — —	 — — —
Rated insulation voltage U_i	250 Vac	—	—
Minimum operating voltage per contract U_{min}	5 Vdc	—	—
Rated impulse withstand voltage (1.2/50µ) U_{imp}	2.5 kV	—	—
Rated conditional short-circuit current with 6A backup fuse I_{SC}	1 kA	—	—
Max. admissible backup fuse	4A gL	—	—
Mechanical			
Standard front dimension	45 mm	45 mm	45 mm
Device height	80 mm	80 mm	80 mm
Mounting width	8.8 mm	17.6 mm	17.8 mm
Mounting	On MCB	IEC/EN 60715 top-hat rail	IEC/EN 60715 top-hat rail
Degree of protection enclosed	IP40	IP40	IP40
Terminal protection	Protection against electric shock to IEC 536	Protection against electric shock to IEC 536	Protection against electric shock to IEC 536
Terminals	Lift terminals	Twin-purpose terminals	Twin-purpose terminals
Terminal capacity Solid Flexible	 0.5–2.5 mm^2 0.5–2.5 mm^2	 1–2.5 mm^2 1–2.5 mm^2	 2 x (1–2.5) mm^2 2 x (1–2.5) mm^2
Tightening torque of terminal screws	0.8–1.0 Nm (7–9 lb-in)	2.4 Nm (21 lb-in)	0.8 Nm (7 lb-in)

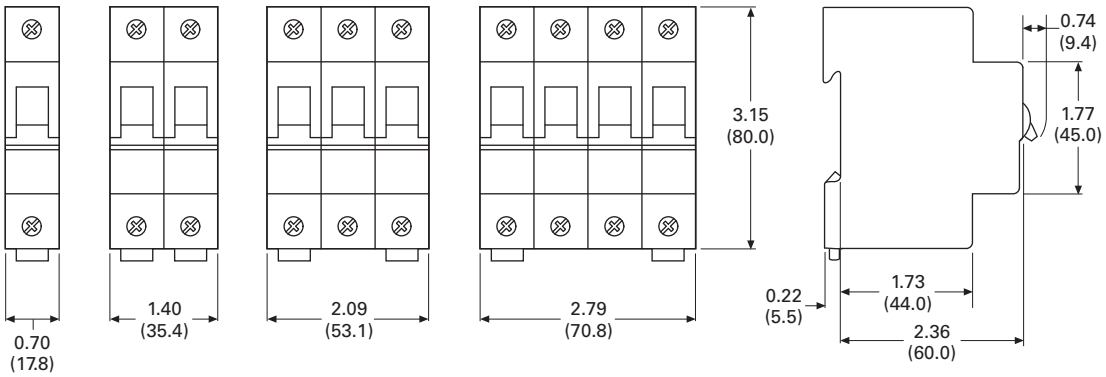
1

Dimensions

Approximate Dimensions in Inches (mm)

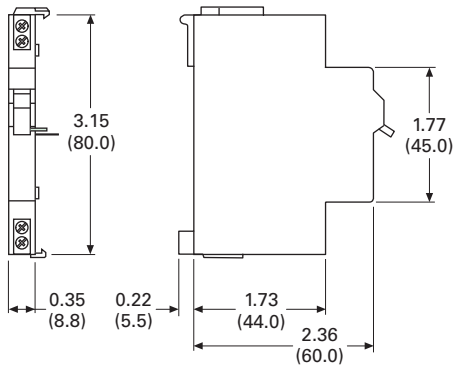
Miniature Circuit Breakers

FAZ

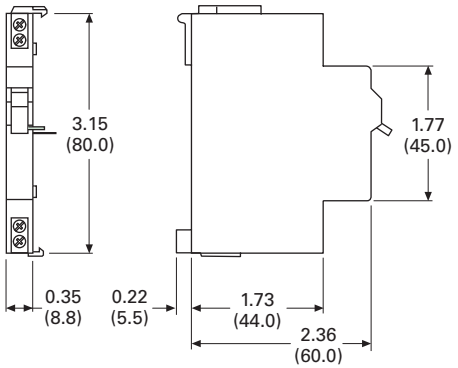


Auxiliary Contacts

FAZ-XHI11 and FAZ-XH1NW1

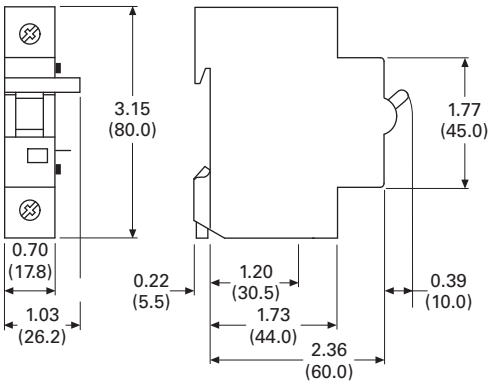


FAZ-XAM002



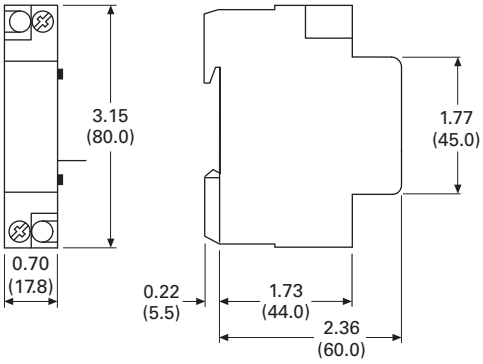
Shunt Releases

FAZ-XAA



Undervoltage Releases

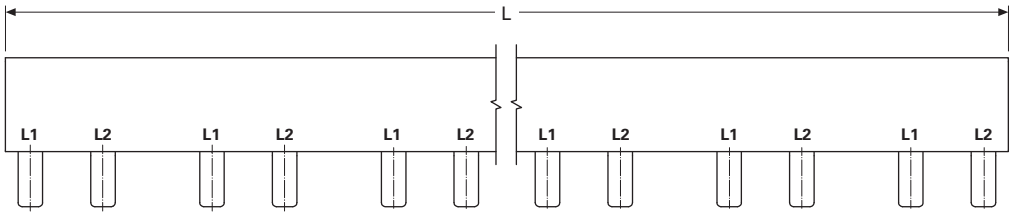
FAZ-XUA

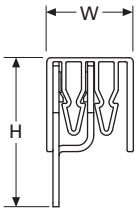


Approximate Dimensions in Inches (mm)

Busbar and Accessory Weights and Dimensions

Unit Weight (kg)	Length	Width	Height	Catalog Number
0.29	39.72 (1009.0)	0.59 (15.0)	0.59 (15.0)	**BB-UL-18/1P-1M/57**
0.64	39.02 (991.0)	0.87 (22.0)	1.46 (37.0)	**BB-UL-18/2P-2M/56**
0.83	39.72 (1009.0)	0.87 (22.0)	1.46 (37.0)	**BB-UL-18/3P-3M/57**
0.26	38.78 (985.0)	0.59 (15.0)	0.59 (15.0)	**BB-UL-18/1P-1.5M/37**
0.63	39.72 (1009.0)	0.87 (22.0)	1.46 (37.0)	**BB-UL-18/2P+AS-2.5M/46**
0.79	38.66 (982.0)	0.87 (22.0)	1.46 (37.0)	**BB-UL-18/3P+AS-3.5M/48**
0.36	39.72 (1009.0)	0.59 (15.0)	0.59 (15.0)	**BB-UL-25/1P-1M/57**
0.79	39.02 (991.0)	0.87 (22.0)	1.46 (37.0)	**BB-UL-25/2P-2M/56**
1.04	39.72 (1009.0)	0.87 (22.0)	1.46 (37.0)	**BB-UL-25/3P-3M/57**
0.31	38.78 (985.0)	0.59 (15.0)	0.59 (15.0)	**BB-UL-25/1P-1.5M/37**
0.73	39.72 (1009.0)	0.87 (22.0)	1.46 (37.0)	**BB-UL-25/2P+AS-2.5M/46**
0.97	38.66 (982.0)	0.87 (22.0)	1.46 (37.0)	**BB-UL-25/3P+AS-3.5M/48**
0.03	2.36 (60.0)	0.67 (17.0)	1.14 (29.0)	**BB-UL-TEP/35**
0.03	1.42 (36.0)	0.67 (17.0)	1.14 (29.0)	**BB-UL-TEPA/35**
0.03	1.57 (40.0)	0.71 (18.0)	1.18 (30.0)	**BB-UL-TE/50**
0.003	3.35 (85.0)	0.47 (12.0)	0.94 (24.0)	**BB-IP/5**
0.001	0.55 (14.0)	0.20 (5.0)	0.39 (10.0)	**BB-EV-EC/3**
0.001	0.94 (24.0)	0.87 (22.0)	0.39 (10.0)	**BB-UL-EC/1**





1

UL 1053 DIN Rail RCCB

Contents

Description	*Page*
UL 1053 DIN Rail RCCB 480/277 Vac	
Product Selection	**V4-T1-95**
Accessories	**V4-T1-96**
Technical Data and Specifications	**V4-T1-97**
Dimensions	**V4-T1-98**
UL 1053 DIN Rail RCCB 208Y/120 Vac	**V4-T1-100**

UL 1053 DIN Rail RCCB 480/277 Vac

Product Overview

Optimum product quality, tested reliability and safety stand for best protection of installations and plant. Eaton's UL 1053 Residual Current Circuit Breaker (RCCB) is designed for use in residual current applications.

Application Description

- Motor control circuits
- HVAC internal/external equipment
- PLCs
- HMIs
- Equipment protection
- European housing

Features

- Wide range of compact RCCB types serving as fault-current and additional protection according to UL 1053 and IEC/EN 61008 standards, suitable for worldwide use
- Type A or Type G/A (with delay) protection available
- Comprehensive range of accessories
- Real contact position indicator
- Fault current tripping indicator
- Transparent designation plate
- Trip-free design—RCCB can not be defeated by holding the handle in the ON position
- Captive screws cannot be lost

Standards and Certifications

- UL 1053
- IEC/EN 61008
- CSA
- ÖVE
- CE Marked

Listed

Product Selection

UL 1053 RCCB 480Y/277V Type A

Two-Pole

Conditionally Surge Current–Proof 250A, Sensitive to Residual Pulsating DC, Type A

Two-Pole

Amperes	GF Sensitivity (mA)	Catalog Number ①	Designation
25	30	**167113**	FRCmM-25/2/003-A-NA
	300	**167116**	FRCmM-25/2/03-A-NA
40	30	**167114**	FRCmM-40/2/003-A-NA
	300	**167117**	FRCmM-40/2/03-A-NA
63	30	**167115**	FRCmM-63/2/003-A-NA
	300	**167118**	FRCmM-63/2/03-A-NA

Four-Pole

Conditionally Surge Current–Proof 250A, Sensitive to Residual Pulsating DC, Type A

Four-Pole

Amperes	GF Sensitivity (mA)	Catalog Number ①	Designation
25	30	**167125**	FRCmM-25/4/003-A-NA
	300	**167104**	FRCmM-25/4/03-A-NA
40	30	**167102**	FRCmM-40/4/003-A-NA
	300	**167105**	FRCmM-40/4/03-A-NA
63	30	**167103**	FRCmM-63/4/003-A-NA
	300	**167106**	FRCmM-63/4/03-A-NA

UL 1053 RCCB 480Y/277V Type G/A

Type G/A has a 10 ms delay.

Two-Pole

Surge Current–Proof 3 kA, Sensitive to Residual Pulsating DC, Type G/A (ÖVE E 8601)

Two-Pole

Amperes	GF Sensitivity (mA)	Catalog Number ①	Designation
25	30	**167119**	FRCmM-25/2/003-G/A-NA
	300	**167122**	FRCmM-25/2/03-G/A-NA
40	30	**167120**	FRCmM-40/2/003-G/A-NA
	300	**167123**	FRCmM-40/2/03-G/A-NA
63	30	**167121**	FRCmM-63/2/003-G/A-NA
	300	**167124**	FRCmM-63/2/03-G/A-NA

Four-Pole

Surge Current–Proof 3 kA, Sensitive to Residual Pulsating DC, Type G/A (ÖVE E 8601)

Four-Pole

Amperes	GF Sensitivity (mA)	Catalog Number ①	Designation
25	30	**167107**	FRCmM-25/4/003-G/A-NA
	300	**167110**	FRCmM-25/4/03-G/A-NA
40	30	**167108**	FRCmM-40/4/003-G/A-NA
	300	**167111**	FRCmM-40/4/03-G/A-NA
63	30	**167109**	FRCmM-63/4/003-G/A-NA
	300	**167112**	FRCmM-63/4/03-G/A-NA

Note

① Has no thermal element; must be paired with FAZ-NA or FAZ per application.

1

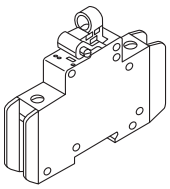
Accessories

UL 1053 DIN Rail RCCB 480/277 Vac

Contact

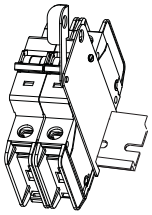
Description	Catalog Number
Two-pole contact or auxiliary contact / trip indicating contact	**Z-NHK** ①

Padlock Hasp



Description	Catalog Number
Padlock hasp	**Z-IS/SPE-1TE**

Lockoff Device



Description	Catalog Number
UL lockoff device	**FAZPLOFF**

Note

① Voltage of FAZ-NA circuit breaker is limited to 300V with this auxiliary contact installed.

Technical Data and Specifications

- Residual current devices
- Has no thermal protection; must be paired with FAZ-NA or FAZ per application
- Captive screw terminals
- Universal tripping signal switch, also suitable for Z-A; can be mounted subsequently
- Auxiliary switch Z-HK can be mounted subsequently
- Red-green contact position indicator
- White-blue tripping indicator
- Delayed types recommended for use with standard fluorescent tubes with or without electronical ballast (30mA-RCD: 30 units per phase conductor, 100mA-RCD: 90 units per phase conductor)
- The device functions irrespective of the position of installation
- Tripping is line voltage-independent. Consequently, the RCD is suitable for "fault current/residual current protection" and "additional protection" within the meaning of the applicable installation rules
- Reverse-feed permitted
- The four-pole device can also be used for two-pole connection. For this purpose, use terminals 5-6 and N-N
- The test key "T" must be pressed every month. The system operator must be informed of this obligation and responsibility in a way that can be proven (self-adhesive RCD-label enclosed)
- Pressing the test key "T" serves the only purpose of function testing the residual current device (RCD). This test does not make earthing resistance measurement (RE) or proper checking of the earth conductor condition redundant, which must be performed separately
- **Type -A:** Protects against special forms of residual pulsating DC that have not been smoothed
- **Type -G/A:** Additionally protects against special forms of residual pulsating DC that have not been smoothed

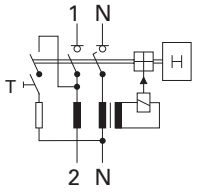
UL 1053 DIN Rail RCCB Technical Data

Description	Specification	
Electrical According to IEC/EN 61008		
Design according to	IEC/EN 61008	
	ÖVE E 8601	
Current test marks as printed onto the device		
Tripping Type G	10 ms delay	
Rated voltage U_n	230/400V, 50 Hz	
Rated tripping current $I_{\Delta n}$	30, 300 mA	
Sensitivity	AC and pulsating DC	
Rated insulation voltage U_i	440V	
Rated impulse withstand voltage U_{imp}	4 kV	
Rated short-circuit capacity I_{nc}	10 kA	
Maximum backup fuse	Overload protection	Short-circuit protection
I_n = 25–40A	25A gG/gL	63A gG/gL
I_n = 63A	40A gG/gL	63A gG/gL
Rated breaking capacity I_m bzw. Rated fault breaking capacity $I_{\Delta m}$		
I_n = 25–40A	500A	
I_n = 63A	630A	
Voltage range of test button	Two-pole	184–250V~
	Four-pole	184–440V~
Endurance	Electrical	>4000 operating cycles
	Mechanical	>20,000 operating cycles
Overvoltage category	III	

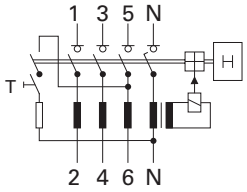
UL 1053 DIN Rail RCCB Technical Data, continued

Description	Specification	
Electrical According to UL 1053		
Design according to	UL 1053	
Current test marks as printed onto the device		
Tripping Type G	8 ms delay	
Rated voltage U_n	480Y/277V, 60 Hz	
Pickup current	22, 200 mA	
Sensitivity	AC and pulsating DC	
Overvoltage tested	530V	
Rated impulse withstand voltage U_{imp}	4 kV	
Rated short-circuit capacity I_{nc}	5 kA according to CSA	
Maximum backup fuse	Overload protection	Short-circuit protection
I_n = 25–40A	25A gG/gL	63A gG/gL
I_n = 63A	40A gG/gL	63A gG/gL
Rated breaking capacity I_m or Rated fault breaking capacity $I_{\Delta m}$		
I_n = 25–40A	500A	
I_n = 63A	630A	
Voltage range of test button	Two-pole	184–305V~
	Four-pole	184–528V~
Endurance	Electrical	>4000 operating cycles
	Mechanical	>20,000 operating cycles
Mechanical		
Frame size	45.0 mm	
Device height	80.0 mm	
Device width	35 mm (2TE), 70 mm (4TE)	
Device width	Quick fastening with two lock-in positions on DIN rail IEC/EN 60715	
Degree of protection, built-in	IP40	
Degree of protection in moisture-proof enclosure	IP54	
Upper and lower terminals	Lift terminals	
Terminal protection	Finger and hand touch safe BGV A3, ÖVE-EN 6	
Terminal capacity	1.5–35 mm^2 single-wire	
	2 x 16 mm^2 multi-wire	
Busbar material thickness	0.8–2 mm	
Tripping temperature	–25°C to +60°C	
Resistance to climatic conditions	According to IEC 61008	
Humidity	5–95%	

Connection Diagram



Two-Pole



Four-Pole

Impact of Ambient Temperature on the Maximum Permanent Current Allowed (A)

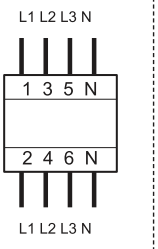
Tripping Temperature	16A Two-Pole	16A Four-Pole	25A Two-Pole	25A Four-Pole	40A Two-Pole	40A Four-Pole	63A Two-Pole	63A Four-Pole
40°C	16	16	25	25	40	40	63	63
45°C	14	14	21	22	37	37	59	59
50°C	11	11	18	19	33	34	55	55
55°C	9	9	14	16	30	31	50	50
60°C	①	—	—	—	26	27	45	45

Notes

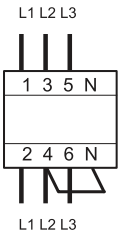
① Do not use.

Please make sure that these values are not exceeded and that any upstream overload protection switches off in time.

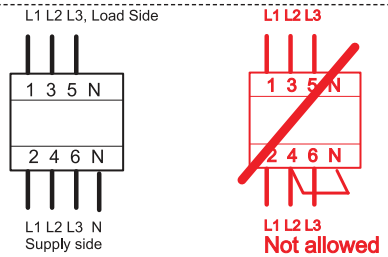
Correct Connection



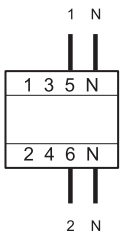
3+N
(230/400V) IEC
(277/480V) UL



Three-phase load without N
(184–254 Vac Phase-Phase) IEC
(184–277 Vac Phase-Phase) UL



Three-phase load without N
(400 Vac Phase-Phase) IEC
(480 Vac Phase-Phase) UL

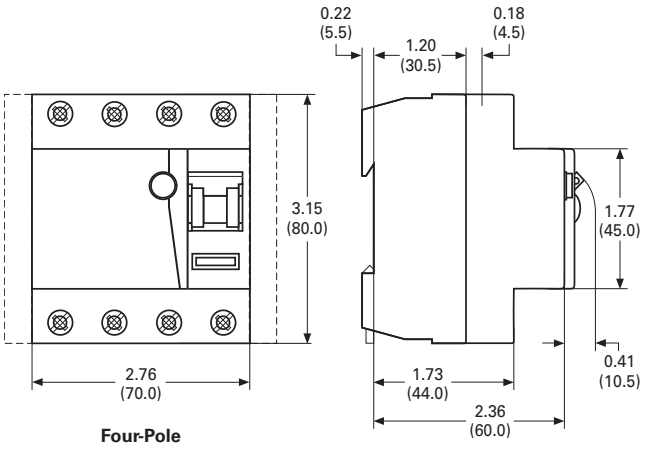


1+N
(230V) IEC
(277V) UL

Dimensions

Approximate Dimensions in Inches (mm)

UL 1053 DIN Rail RCCB



Four-Pole

Accessories Technical Data

Description	Z-NHK
Electrical	
Contact function	2CO
Rated voltage	230V
Frequency	50/60 Hz
Rated current	2A
Rated thermal current I_{th}	2A
Utilization category AC13 Rated operational current I_e	 3A/250 Vac
Utilization category AC15 Rated operational current I_e	 2A/250 Vac
Utilization category DC12 Rated operational current I_e	 0.5A/110 Vdc
Rated insulation voltage U_i	250 Vac
Minimum operational voltage per contact U_{min}	5 Vdc
Minimum operational current I_{min}	10 mA DC
Rated peak withstand voltage U_{imp} (1.2/50µ)	2.5 kV
Conditional short-circuit current I_k with backup fuse 6A	1 kA
Maximum backup fuse, overload and short circuit	6A gL
Mechanical	
Tripping indicator "electrical tripping"	Blue/white
Frame size	45 mm
Device height	80 mm
Device width	8.8 mm (0.5MU)
Mounting	Onto switching device
Degree of protection, built-in	IP40
Terminal protection	Finger and hand touch safe According to BGV A3, ÖVE-EN 6
Terminals	Lift terminals
Terminal capacity	20–14 AWG
Terminal screws	M3 (Posidrive Z0)
Fastening torque of terminal screws	7 lb-in maximum

UL 1053 DIN Rail RCCB

Contents

Description	*Page*
UL 1053 DIN Rail RCCB 480/277 Vac	**V4-T1-94**
UL 1053 DIN Rail RCCB 208Y/120 Vac	
Product Selection	**V4-T1-101**
Accessories	**V4-T1-102**
Technical Data and Specifications	**V4-T1-103**
Dimensions	**V4-T1-104**

UL 1053 DIN Rail RCCB 208Y/120 Vac

Product Overview

Optimum product quality, tested reliability and safety stand for best protection of installations and plant. Eaton's UL 1053 Residual Current Circuit Breaker (RCCB) is designed for use in residual current applications.

Application Description

- Motor control circuits
- HVAC internal/external equipment
- PLCs
- HMIs
- Equipment protection

Features

- Wide range of compact RCD type serving as fault-current and additional protection according to UL 1053 and IEC/EN 61008 standards, suitable for worldwide use in the 110V range of applications
- Type A or Type G/A (with delay) protection available
- Comprehensive range of accessories
- Real contact position indicator
- Fault current tripping indicator
- Transparent designation plate
- Trip-free design—RCCB can not be defeated by holding the handle in the ON position
- Captive screws cannot be lost

Standards and Certifications

- UL 1053
- IEC/EN 61008

Listed

Product Selection

UL 1053 RCCB 208Y/120 Vac Type A

Four-Pole

Conditionally Surge Current–Proof 250A, Sensitive to Residual Pulsating DC, Type A

Four-Pole

Amperes	GF Sensitivity (mA)	Catalog Number ①	Designation
25	30	**167699**	FRCmM-25/4/003-A-NA-110
	300	**167702**	FRCmM-25/4/03-A-NA-110
40	30	**167700**	FRCmM-40/4/003-A-NA-110
	300	**167703**	FRCmM-40/4/03-A-NA-110
63	30	**167701**	FRCmM-63/4/003-A-NA-110
	300	**167704**	FRCmM-63/4/03-A-NA-110

UL 1053 RCCB 208Y/120 Vac Type G/A

Type G/A has a 10 ms delay.

Two-Pole

Surge Current–Proof 3 kA, Sensitive to Residual Pulsating DC, Type G/A (ÖVE E 8601)

Two-Pole

Amperes	GF Sensitivity (mA)	Catalog Number ①	Designation
25	30	**167693**	FRCmM-25/2/003-G/A-NA-110
	300	**167696**	FRCmM-25/2/03-G/A-NA-110
40	30	**167694**	FRCmM-40/2/003-G/A-NA-110
	300	**167697**	FRCmM-40/2/03-G/A-NA-110
63	30	**167695**	FRCmM-63/2/003-G/A-NA-110
	300	**167698**	FRCmM-63/2/03-G/A-NA-110

Four-Pole

Surge Current–Proof 3 kA, Sensitive to Residual Pulsating DC, Type G/A (ÖVE E 8601)

Four-Pole

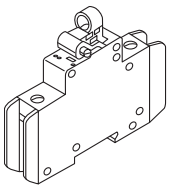
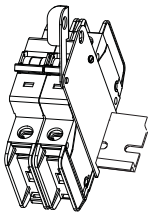
Amperes	GF Sensitivity (mA)	Catalog Number ①	Designation
25	30	**167705**	FRCmM-25/4/003-G/A-NA-110
	300	**167708**	FRCmM-25/4/03-G/A-NA-110
40	30	**167706**	FRCmM-40/4/003-G/A-NA-110
	300	**167709**	FRCmM-40/4/03-G/A-NA-110
63	30	**167707**	FRCmM-63/4/003-G/A-NA-110
	300	**167710**	FRCmM-63/4/03-G/A-NA-110

Note

① Has no thermal element; must be paired with FAZ-NA or FAZ per application.

Accessories

UL 1053 DIN Rail RCCB 208Y/120 Vac

	Description	Catalog Number
Contact	Two-pole contact or auxiliary contact / trip indicating contact	**Z-NHK** ①
Padlock Hasp 	Padlock hasp	**Z-IS/SPE-1TE**
Lockoff Device 	UL lockoff device	**FAZPLOFF**

Note

① Voltage of FAZ-NA circuit breaker is limited to 300V with this auxiliary contact installed.

Technical Data and Specifications

- Residual current devices
- Has no thermal protection; must be paired with FAZ-NA or FAZ per application
- Captive screw terminals
- Universal tripping signal switch, also suitable for Z-A; can be mounted subsequently
- Auxiliary switch Z-HK can be mounted subsequently
- Red-green contact position indicator
- White-blue tripping indicator
- Delayed types recommended for use with standard fluorescent tubes with or without electronical ballast (30mA-RCD: 30 units per phase conductor, 100mA-RCD: 90 units per phase conductor)
- The device functions irrespective of the position of installation
- Tripping is line voltage-independent. Consequently, the RCD is suitable for "fault current/residual current protection" and "additional protection" within the meaning of the applicable installation rules
- Reverse-feed permitted
- The four-pole device can also be used for two-pole connection. For this purpose, use terminals 5-6 and N-N
- The test key "T" must be pressed every month. The system operator must be informed of this obligation and responsibility in a way that can be proven (self-adhesive RCD-label enclosed)
- Pressing the test key "T" serves the only purpose of function testing the residual current device (RCD). This test does not make earthing resistance measurement (RE) or proper checking of the earth conductor condition redundant, which must be performed separately
- **Type -A:** Protects against special forms of residual pulsating DC that have not been smoothed
- **Type -G/A:** Additionally protects against special forms of residual pulsating DC that have not been smoothed

UL 1053 DIN Rail RCCB Technical Data

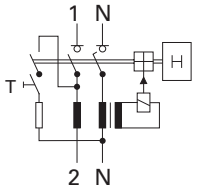
Description	Specification	
Electrical According to IEC/EN 61008		
Design according to	IEC/EN 61008	
	ÖVE E 8601	
Current test marks as printed onto the device		
Tripping Type G	10 ms delay	
Rated voltage U_n	230/400V, 50 Hz	
Rated tripping current $I_{\Delta n}$	30, 300 mA	
Sensitivity	AC and pulsating DC	
Rated insulation voltage U_i	440V	
Rated impulse withstand voltage U_{imp}	4 kV	
Rated short-circuit capacity I_{nc}	10 kA	
Maximum backup fuse	Overload protection	Short-circuit protection
I_n = 25–40A	25A gG/gL	63A gG/gL
I_n = 63A	40A gG/gL	63A gG/gL
Rated breaking capacity I_m bzw. Rated fault breaking capacity $I_{\Delta m}$		
I_n = 25–40A	500A	
I_n = 63A	630A	
Voltage range of test button	Two-pole	100–132V~
	Four-pole	100–230V~
Endurance	Electrical	>4000 operating cycles
	Mechanical	>20,000 operating cycles
Overvoltage category	III	

UL 1053 DIN Rail RCCB Technical Data, continued

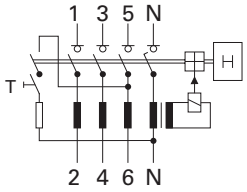
Description	Specification	
Electrical According to UL1053		
Design according to	UL 1053	
Current test marks as printed onto the device		
Tripping Type G	8 ms delay	
Rated voltage U_n	208Y/120V, 60 Hz	
Pickup current	22, 200 mA	
Sensitivity	AC and pulsating DC	
Overvoltage tested	530V	
Rated impulse withstand voltage U_{imp}	4 kV	
Rated short-circuit capacity I_{nc}	5 kA according to CSA	
Maximum backup fuse	Overload protection	Short-circuit protection
I_n = 25–40A	25A gG/gL	63A gG/gL
I_n = 63A	40A gG/gL	63A gG/gL
Rated breaking capacity I_m or Rated fault breaking capacity $I_{\Delta m}$		
I_n = 25–40A	500A	
I_n = 63A	630A	
Voltage range of test button	Two-pole	100–121V~
	Four-pole	100–210V~
Endurance	Electrical	>4000 operating cycles
	Mechanical	>20,000 operating cycles
Mechanical		
Frame size	45.0 mm	
Device height	80.0 mm	
Device width	35 mm (2TE), 70 mm (4TE)	
Device width	Quick fastening with two lock-in positions on DIN rail IEC/EN 60715	
Degree of protection, built-in	IP40	
Degree of protection in moisture-proof enclosure	IP54	
Upper and lower terminals	Lift terminals	
Terminal protection	Finger and hand touch safe BGV A3, ÖVE-EN 6	
Terminal capacity	1.5–35 mm^2 single-wire	
	2 x 16 mm^2 multi-wire	
Busbar material thickness	0.8–2 mm	
Tripping temperature	–25°C to +60°C	
Resistance to climatic conditions	According to IEC 61008	
Humidity	5–95%	

1

Connection Diagram



Two-Pole



Four-Pole

Impact of Ambient Temperature on the Maximum Permanent Current Allowed (A)

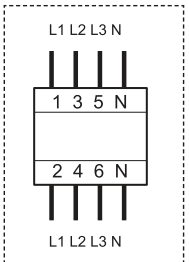
Tripping Temperature	16A Two-Pole	16A Four-Pole	25A Two-Pole	25A Four-Pole	40A Two-Pole	40A Four-Pole	63A Two-Pole	63A Four-Pole
40°C	16	16	25	25	40	40	63	63
45°C	14	14	21	22	37	37	59	59
50°C	11	11	18	19	33	34	55	55
55°C	9	9	14	16	30	31	50	50
60°C	①	—	—	—	26	27	45	45

Notes

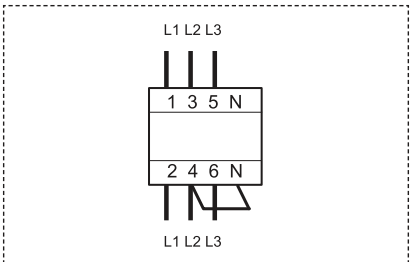
① Do not use.

Please make sure that these values are not exceeded and that any upstream overload protection switches off in time.

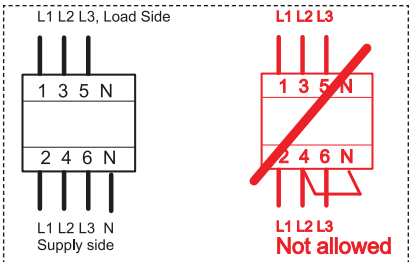
Correct Connection



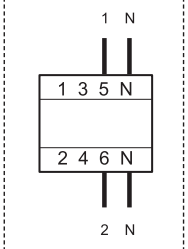
3+N
(230/400V) IEC
(277/480V) UL



Three-phase load without N
(184–254 Vac Phase-Phase) IEC
(184–277 Vac Phase-Phase) UL



Three-phase load without N
(400 Vac Phase-Phase) IEC
(480 Vac Phase-Phase) UL

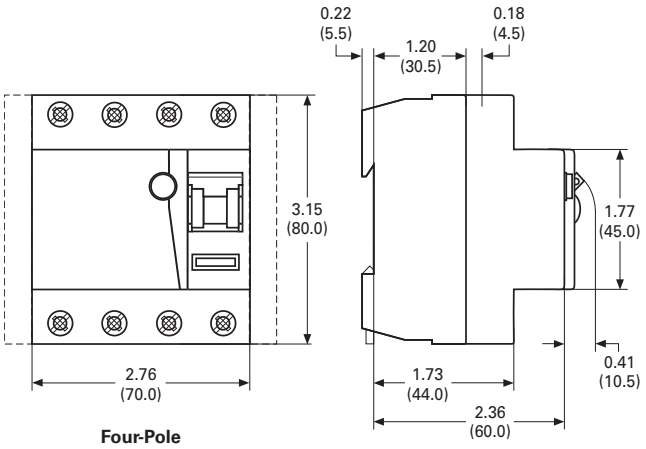


1+N
(230V) IEC
(277V) UL

Dimensions

Approximate Dimensions in Inches (mm)

UL 1053 DIN Rail RCCB



Four-Pole

Accessories Technical Data

Description	Z-NHK	Z-IHK-NA
Electrical		
Contact function	2CO	1NO + 1NC
Rated voltage	230V	250V
Frequency	50/60 Hz	50/60 Hz
Rated current	2A	6A
Rated thermal current I_{th}	2A	6A
Utilization category AC13 Rated operational current I_e	3A/250 Vac	3A/250 Vac
Utilization category AC15 Rated operational current I_e	2A/250 Vac	2A/250 Vac
Utilization category DC12 Rated operational current I_e	0.5A/110 Vdc	0.5A/110 Vdc 0.25A/220 Vdc
Rated insulation voltage U_i	250 Vac	250 Vac
Minimum operational voltage per contact U_{min}	5 Vdc	5 Vdc
Minimum operational current I_{min}	10 mA DC	10 mA AC/DC
Rated peak withstand voltage U_{imp} (1.2/50µ)	2.5 kV	4 kV
Conditional short-circuit current I_k with backup fuse 6A	1 kA	1 kA
Maximum backup fuse, overload and short circuit	6A gL	—
Mechanical		
Tripping indicator "electrical tripping"	Blue/white	—
Frame size	45 mm	45 mm
Device height	80 mm	80 mm
Device width	8.8 mm (0.5MU)	8.8 mm (0.5MU)
Mounting	Onto switching device	—
Degree of protection, built-in	IP40	IP40
Terminal protection	Finger and hand touch safe According to BGV A3, ÖVE-EN 6	Finger and hand touch safe According to BGV A3, ÖVE-EN 6
Terminals	Lift terminals	Lift terminals
Terminal capacity	20–14 AWG	0.5–2.5 mm^2
Terminal screws	M3 (Posidrive Z0)	M3 (Posidrive Z0)
Fastening torque of terminal screws	7 lb-in maximum	1.2 Nm

Miniature Circuit Breakers and Supplementary Protectors

Miniature Circuit Breakers and Supplementary Protectors

1.1 Industrial Circuit Breakers

QUICKLAG® V4-T1-2
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW V4-T1-5
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPHGFT, QPHGFT, QPGFEP, QPHGFEP V4-T1-8
Bolt-On Types BAB, QBHW, HBAX, HBAW V4-T1-11
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF V4-T1-14
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP V4-T1-16
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW V4-T1-19
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH V4-T1-23
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP V4-T1-27
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP V4-T1-30
Solenoid Operator—Remote-Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers V4-T1-33
International Rated Types HQP, BA, QC, GFMB, GFXBC V4-T1-36
Special Application Breakers, Types HQP, BA, QC V4-T1-39

1.2 UL 489 DIN Rail Miniature Circuit Breakers

FAZ-NA and FAZ-NA-L Circuit Breakers V4-T1-47

1.3 UL 1077 DIN Rail Supplementary Protectors

FAZ Circuit Breakers V4-T1-74

1.4 UL 1053 DIN Rail RCCB

UL 1053 DIN Rail RCCB 480/277 Vac V4-T1-94
UL 1053 DIN Rail RCCB 208Y/120 Vac V4-T1-100

Learn Online

Revision notes

Volume 4—Circuit Protectors, CA08100005E

Tab 1—Miniature Circuit Breakers and Supplementary Protectors

Revision date	Section	Change page(s)	Description
11/05/2018	1.1	V4-T1-9	Content edits
11/05/2018	1.1	V4-T1-17	Content edits

Powering Business Worldwide

Miniature Circuit Breakers and Supplementary Protectors

Contents

Description
Quick Reference

QUICKLAG

Quick Reference

Eaton's QUICKLAG Industrial Circuit Breakers ① Plug-In, Bolt-On, Cable-In/Cable-Out

Circuit Breaker Type	Circuit Breaker Type Code	Continuous Ampere Rating at 40°C	Number of Poles	Vac	Vdc	Federal Spec. W-C-375b	Interrupting Ratings rms Symmetrical Amperes Vac Ratings 120	120/240	240	Vdc Ratings ②③ 24–48	62.5	80	Page Number
HQP	P	10–70	1	120/240	24, 48, 62.5	10a, 11a, 12a	—	10,000	—	5000	④	—	V4-T1-6
HQP	P	10–125	2	120/240	24, 48, 80	10a, 12a	—	10,000	—	5000	5000	5000	V4-T1-6
HQP	P	10–100	2, 3	240	—	10b, 11b, 12b	—	—	10,000	—	—	—	V4-T1-6
QPHW	P	15–70	1	120/240	24, 48, 62.5	14a	—	22,000	—	5000	④	—	V4-T1-6
QPHW	P	15–125	2	120/240	24, 48, 80	14a	—	22,000	—	5000	5000	5000	V4-T1-6
QPHW	P	15–100	2, 3	240	—	14b	—	—	22,000	—	—	—	V4-T1-6
QHPX	P	15–70	1	120/240	24, 48, 62.5	—	—	42,000	—	5000	④	—	V4-T1-7
QHPX	P	15–100	2	120/240	24, 48, 80	—	—	42,000	—	5000	5000	5000	V4-T1-7
QHPX	P	15–100	3	240	—	—	—	—	42,000	—	—	—	V4-T1-7
QHPW	P	15–30	1	120/240	24, 48, 62.5	15a	—	65,000	—	5000	④	—	V4-T1-7
QHPW	P	15–30	2	120/240	24, 48, 80	15a	—	65,000	—	5000	5000	5000	V4-T1-7
QHPW	P	15–20	3	240	—	15b	—	—	65,000	—	—	—	V4-T1-7
QPGFT	P, GF	15–40	1	120	—	10a, 11a, 12a	10,000	—	—	—	—	—	V4-T1-9
QPGFT	P, GF	15–50	2	120/240	—	10a, 11a, 12a	—	10,000	—	—	—	—	V4-T1-9

Notes

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

② Two-pole DC interrupting ratings based on two poles connected in series. Not UL® listed.

③ Breakers at DC ratings are not UL listed.

④ 62.5 Vac interrupting rating is 3800 AIC 10–50A and 2500 AIC 55–100A 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 BABRP solenoid-operated, remote-controlled circuit breakers, see **Pages V4-T1-30** to **V4-T1-35**.

Eaton's QUICKLAG Industrial Circuit Breakers ① Plug-In, Bolt-On, Cable-In/Cable-Out, continued

Circuit Breaker Type	Circuit Breaker Type Code	Continuous Ampere Rating at 40°C	Number of Poles	Vac	Vdc	Federal Spec. W-C-375b	Interrupting Ratings rms Symmetrical Amperes Vac Ratings 120	120/240	240	Vdc Ratings ②③ 24–48	62.5	80	Page Number
QPHGFT	P, GF	15–30	1	120	—	10a, 11a, 12a	22,000	—	—	—	—	—	**V4-T1-9**
QPHGFT	P, GF	15–50	2	120/240	—	10a, 11a, 12a	—	22,000	—	—	—	—	**V4-T1-9**
QPGFEP	P, GFEP	15–40	1	120	—	—	10,000	—	—	—	—	—	**V4-T1-9**
QPGFEP	P, GFEP	15–50	2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-9**
QPHGFEP	P, GFEP	15–30	1	120	—	—	22,000	—	—	—	—	—	**V4-T1-9**
BABRSP	B	15–30	1	120	—	—	10,000	—	—	—	—	—	**V4-T1-12**
BABRSP	B	15–30	2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-12**
BRRP	P	15–30	1	120	—	—	10,000	—	—	—	—	—	**V4-T1-31**
BRRP	P	15–30	2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-31**
CLRP	P	15–30	1	120	—	—	10,000	—	—	—	—	—	**V4-T1-31**
CLRP	P	15–30	2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-31**
BAB	B	10–70	1	120/240	24, 48, 62.5	10a, 11a, 12a	—	10,000	—	5000	④	—	**V4-T1-12**
BAB	B	10–125	2	120/240	24, 48, 80	10a, 12a	—	10,000	—	5000	5000	5000	**V4-T1-12**
BAB	B	10–100	2, 3	240	—	10b, 11b, 12b	—	—	10,000	—	—	—	**V4-T1-12**
BABRP	B	15–30	1	120	—	—	10,000	—	—	—	—	—	**V4-T1-31**
BABRP	B	15–30	2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-31**
QBAF	B, AF	15–20	1, 2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-15**
QBCAF	B, AF, GF	15–20	1, 2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-15**
QBHW	B	15–70	1	120/240	24, 48, 62.5	14a	—	22,000	—	5000	④	—	**V4-T1-12**
QBHW	B	15–125	2	120/240	24, 48, 80	14a	—	22,000	—	5000	5000	5000	**V4-T1-12**
QBHW	B	15–100	2, 3	240	—	14b	—	—	22,000	—	—	—	**V4-T1-12**
HBAX	B	15–70	1	120/240	24, 48, 62.5	—	—	42,000	—	5000	④	—	**V4-T1-13**
HBAX	B	15–100	2	120/240	24, 48, 80	—	—	42,000	—	5000	5000	5000	**V4-T1-13**
HBAX	B	15–100	3	240		—	—	—	42,000	—	—	—	**V4-T1-13**
HBAW	B	15–30	1	120/240	24, 48, 62.5	15a	—	65,000	—	5000	④	—	**V4-T1-13**
HBAW	B	15–30	2	120/240	24, 48, 80	15a	—	65,000	—	5000	5000	5000	**V4-T1-13**
HBAW	B	15–20	3	240	—	15b	—	—	65,000	—	—	—	**V4-T1-13**
QBGFT	B, GF	15–40	1	120	—	10a, 11a, 12a	10,000	—	—	—	—	—	**V4-T1-17**
QBGFT	B, GF	15–50	2	120/240	—	10a, 11a, 12a	—	10,000	—	—	—	—	**V4-T1-17**
QBHGFT	B, GF	15–30	1	120	—	10a, 11a, 12a	22,000	—	—	—	—	—	**V4-T1-17**
QBHGFT	B, GF	15–30	1	120/240	—	10a, 11a, 12a	—	22,000	—	—	—	—	**V4-T1-17**
QBGFEP	B, GFEP	15–40	1	120	—	—	10,000	—	—	—	—	—	**V4-T1-17**
QBGFEP	B, GFEP	15–50	2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-17**
QBHGFEP	B, GFEP	15–30	1	120	—	—	22,000	—	—	—	—	—	**V4-T1-17**
QBHGFEP	B, GFEP	15–30	2	120/240	—	—	22,000	22,000	—	—	—	—	**V4-T1-17**
QC	C	10–70	1	120/240	24, 48, 62.5	10a, 11a, 12a	—	10,000	—	5000	④	—	**V4-T1-40**
QC	C	10–100	2	120/240	24, 48, 80	10a, 12a	—	10,000	—	5000	5000	5000	**V4-T1-40**
QC	C	10–100	2, 3, 4	240	—	10b, 11b, 12b	—	—	10,000	—	—	—	**V4-T1-40**
QCD	C	10–60	1, 2	120/240	24, 48, 62.5	—	10,000	10,000	—	3000	3000	—	**V4-T1-22**
QCD	C	10–100	2, 3	240	24, 48, 62.5	—	—	10,000	—	3000	3000	—	**V4-T1-22**
QCF	C	10–60	1, 2	120/240	24, 48, 62.5	—	10,000	10,000	—	3000	3000	—	**V4-T1-41**

Notes

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

② Two-pole DC interrupting ratings based on two poles connected in series. Not UL listed.

③ Breakers at DC ratings are not UL listed.

④ 62.5 Vac interrupting rating is 3800 AIC 10–50A and 2500 AIC 55–100A 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 BABRP solenoid-operated, remote-controlled circuit breakers, see **Pages V4-T1-30** to **V4-T1-35**.

Eaton's QUICKLAG Industrial Circuit Breakers ① Plug-In, Bolt-On, Cable-In/Cable-Out, continued

Circuit Breaker Type	Circuit Breaker Type Code	Continuous Ampere Rating at 40°C	Number of Poles	Vac	Vdc	Federal Spec. W-C-375b	Interrupting Ratings rms Symmetrical Amperes Vac Ratings 120	120/240	240	Vdc Ratings ② 24–48	62.5	80	Page Number
QCF	C	15–20	1, 2	120/240	24, 48, 62.5	—	22,000	—	—	3000	3000	—	**V4-T1-26**
QCF	C	15–30	2, 3	240	24, 48, 62.5	—	—	10,000	—	3000	3000	—	**V4-T1-26**
QCR	C	10–60	1, 2	120/240	24, 48, 62.5	—	10,000	10,000	—	3000	3000	—	**V4-T1-26**
QCR	C	15–20	1, 2	120/240	24, 48, 62.5	—	22,000	—	—	3000	3000	—	**V4-T1-26**
QCR	C	15–30	2, 3	240	24, 48, 62.5	—	—	10,000	—	3000	3000	—	**V4-T1-26**
QCHW	C	15–70	1	120/240	24, 48, 62.5	14a	—	22,000	—	5000	④	—	**V4-T1-21**
QCHW	C	15–100	2	120/240	24, 48, 80	14a	—	22,000	—	5000	5000	5000	**V4-T1-21**
QCHW	C	15–100	2, 3	240	—	14b	—	—	22,000	—	—	—	**V4-T1-21**
QHCX	C	15–70	1	120/240	24, 48, 62.5	—	—	42,000	—	5000	④	—	**V4-T1-21**
QHCX	C	15–100	2	120/240	24, 48, 80	—	—	42,000	—	5000	5000	5000	**V4-T1-21**
QHCX	C	15–100	3	240	—	—	—	—	42,000	—	—	—	**V4-T1-21**
QHCW	C	15–30	1	120/240	24, 48, 62.5	15a	—	65,000	—	5000	③	—	**V4-T1-21**
QHCW	C	15–30	2	120/240	24, 48, 80	15a	—	65,000	—	5000	5000	5000	**V4-T1-21**
QHCW	C	15–20	3	240	—	15b	—	—	65,000	—	—	—	**V4-T1-21**
QCGFT	C, GF	15–40	1	120	—	—	10,000	—	—	—	—	—	**V4-T1-28**
QCGFT	C, GF	15–50	2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-28**
QCHGFT	C, GF	15–30	1	120	—	—	22,000	—	—	—	—	—	**V4-T1-28**
QCHGFT	C, GF	15–30	2	120/240	—	—	—	22,000	—	—	—	—	**V4-T1-28**
QCGFEP	C, GFEP	15–40	1	120	—	—	10,000	—	—	—	—	—	**V4-T1-28**
QCGFEP	C, GFEP	15–50	2	120/240	—	—	—	10,000	—	—	—	—	**V4-T1-28**
QCHGFEP	C, GFEP	15–30	1	120	—	—	22,000	—	—	—	—	—	**V4-T1-28**
QCHGFEP	C, GFEP	15–30	2	120/240	—	—	—	22,000	—	—	—	—	**V4-T1-28**

Notes

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

② Two-pole DC interrupting ratings based on two poles connected in series. Not UL listed.

③ 62.5 Vac interrupting rating is 3800 AIC 10–50A and 2500 AIC 55–100A 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 BABRP solenoid-operated, remote-controlled circuit breakers, see **Pages V4-T1-30** to **V4-T1-35**.

QUICKLAG Type HQP Single-Pole

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	
Product Selection	**V4-T1-6**
Dimensions	**V4-T1-7**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

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

Product Description

- All products 15–100A are HACR rated
- Switching duty rated for 120 Vac fluorescent light applications

Standards and Certifications

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

Listed

1 **Product Selection**

QUICKLAG Type HQP Single-Pole

QUICKLAG Type: HQP 10,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
10	HQP1010	HQP2010	—	HQP3010H ③
15	HQP1015 ①②	HQP2015	HQP2015H	HQP3015H
20	HQP1020 ①②	HQP2020	HQP2020H	HQP3020H
25	HQP1025	HQP2025	HQP2025H	HQP3025H
30	HQP1030	HQP2030	HQP2030H	HQP3030H
35	HQP1035	HQP2035	HQP2035H	HQP3035H
40	HQP1040	HQP2040	HQP2040H	HQP3040H
45	HQP1045	HQP2045	HQP2045H	HQP3045H
50	HQP1050	HQP2050	HQP2050H	HQP3050H
55	HQP1055	HQP2055	HQP2055H	HQP3055H
60	HQP1060	HQP2060	HQP2060H	HQP3060H
70	HQP1070	HQP2070	HQP2070H	HQP3070H
80	—	HQP2080	HQP2080H	HQP3080H
90	—	HQP2090	HQP2090H	HQP3090H
100	HQP1100	HQP2100	HQP2100H	HQP3100H
110	—	HQP2110	—	—
125	—	HQP2125	—	—
150	—	HQP2150	—	—

QUICKLAG Type: HQP Non-Automatic Switches

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
50	HQP1050N	—	HQP2050N	HQP3050N
60	HQP1060N	—	HQP2060N	HQP3060N
100	HQP1100N	—	HQP2100N	HQP3100N

QUICKLAG Type: QPHW 22,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
15	QPHW1015 ①	QPHW2015	QPHW2015H	QPHW3015H
20	QPHW1020 ①	QPHW2020	QPHW2020H	QPHW3020H
25	QPHW1025	QPHW2025	QPHW2025H	QPHW3025H
30	QPHW1030	QPHW2030	QPHW2030H	QPHW3030H
35	QPHW1035	QPHW2035	QPHW2035H	QPHW3035H
40	QPHW1040	QPHW2040	QPHW2040H	QPHW3040H
45	QPHW1045	QPHW2045	QPHW2045H	QPHW3045H
50	QPHW1050	QPHW2050	QPHW2050H	QPHW3050H
55	QPHW1055	QPHW2055	QPHW2055H	QPHW3055H
60	QPHW1060	QPHW2060	QPHW2060H	QPHW3060H
70	QPHW1070	QPHW2070	QPHW2070H	QPHW3070H
80	—	QPHW2080	QPHW2080H	QPHW3080H
90	—	QPHW2090	QPHW2090H	QPHW3090H
100	—	QPHW2100	QPHW2100H	QPHW3100H
110	—	QPHW2110	—	—
125	—	QPHW2125	—	—

Notes

① Switching duty rated for 120 Vac fluorescent light applications.

② For special low-magnetic breaker, order **HQP1015L1** or **HQP1020L1**.

③ Not UL listed.

QUICKLAG Type: QHPX 42,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
15	QHPX1015 ①	QHPX2015	—	QHPX3015H
20	QHPX1020 ①	QHPX2020	—	QHPX3020H
25	QHPX1025	QHPX2025	—	QHPX3025H
30	QHPX1030	QHPX2030	—	QHPX3030H
35	QHPX1035	QHPX2035	—	QHPX3035H
40	QHPX1040	QHPX2040	—	QHPX3040H
45	QHPX1045	QHPX2045	—	QHPX3045H
50	QHPX1050	QHPX2050	—	QHPX3050H
55	QHPX1055	QHPX2055	—	QHPX3055H
60	QHPX1060	QHPX2060	—	QHPX3060H
70	QHPX1070	QHPX2070	—	QHPX3070H
80	—	QHPX2080	—	QHPX3080H
90	—	QHPX2090	—	QHPX3090H
100	—	QHPX2100	—	QHPX3100H

QUICKLAG Type: QHPW 65,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
15	QHPW1015 ①	QHPW2015	—	QHPW3015H
20	QHPW1020 ①	QHPW2020	—	QHPW3020H
25	QHPW1025	QHPW2025	—	—
30	QHPW1030	QHPW2030	—	—

Dimensions

Approximate Dimensions in Inches (mm)

Shipping Data

Number of Poles	Carton Quantity	Approximate Weight Lbs (kg)	Dimensions
1	24	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
2	12	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
3	8	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)

Note

① Switching duty rated for 120 Vac fluorescent light applications.

1

QUICKLAG Type QPGFT Single-Pole Ground Fault Circuit Breaker

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	
Product Selection	**V4-T1-9**
Wiring Diagram	**V4-T1-10**
Dimensions	**V4-T1-10**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP

Product Description

QUICKLAG Ground Fault Circuit Breakers, Class A GFCI

- 5 mA trip sensitivity

QUICKLAG Ground Fault Equipment Protectors

- 30 mA trip sensitivity

Standards and Certifications

- Built and listed to UL 489

QUICKLAG Ground Fault Circuit Breakers, Class A GFCI

- Built and tested to UL 943

QUICKLAG Ground Fault Equipment Protectors

- Built and listed to UL 1053

Listed

Product Selection

QUICKLAG Type QPGFT Single-Pole

Ground Fault Circuit Breakers—5 mA Sensitivity QUICKLAG Type: QPGFT 10,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	QPGFT1015	QPGFT2015
20	QPGFT1020	QPGFT2020
25	QPGFT1025	QPGFT2025
30	QPGFT1030	QPGFT2030
40	QPGFT1040	QPGFT2040
50	—	QPGFT2050

Ground Fault Circuit Breakers—5 mA Sensitivity QUICKLAG Type: QPHGF 22,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	QPHGF1015	QPHGF2015
20	QPHGF1020	QPHGF2020
25	QPHGF1025	QPHGF2025
30	QPHGF1030	QPHGF2030

Ground Fault Equipment Breakers—30 mA Sensitivity QUICKLAG Type: QPGFEP 10,000 Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	QPGFEP1015	QPGFEP2015
20	QPGFEP1020	QPGFEP2020
25	QPGFEP1025	QPGFEP2025
30	QPGFEP1030	QPGFEP2030
40	QPGFEP1040	QPGFEP2040
50	—	QPGFEP2050

Ground Fault Equipment Breakers—30 mA Sensitivity QUICKLAG Type: QPHGFEP 22,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	QPHGFEP1015	QPHGFEP2015
20	QPHGFEP1020	QPHGFEP2020
25	QPHGFEP1025	QPHGFEP2025
30	QPHGFEP1030	QPHGFEP2030

Special Application Ground Fault Circuit Protectors—5 mA Sensitivity QUICKLAG Type: QPGFT 10,000A Interrupting Capacity with Bell Alarm (W1) or Auxiliary Switch (W2)

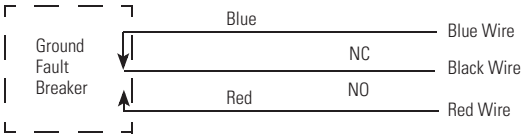
Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	**QPGFT1015W1**	**QPGFT2015W1**
20	**QPGFT1020W1**	**QPGFT2020W1**
25	**QPGFT1025W1**	**QPGFT2025W1**
30	**QPGFT1030W1**	**QPGFT2030W1**
40	—	**QPGFT2040W1**
50	—	**QPGFT2050W1**
15	**QPGFT1015W2**	—
20	**QPGFT1020W2**	—
25	**QPGFT1025W2**	—
30	**QPGFT1030W2**	—

Special Application Ground Fault Circuit Protectors—30 mA Sensitivity QUICKLAG Type: QPGFEP 10,000A Interrupting Capacity with Bell Alarm (W1) or Auxiliary Switch (W2)

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	**QPGFEP1015W1**	**QPGFEP2015W1**
20	**QPGFEP1020W1**	**QPGFEP2020W1**
25	**QPGFEP1025W1**	**QPGFEP2025W1**
30	**QPGFEP1030W1**	**QPGFEP2030W1**
40	—	**QPGFEP2040W1**
50	—	**QPGFEP2050W1**
15	**QPGFEP1015W2**	—
20	**QPGFEP1020W2**	—
25	**QPGFEP1025W2**	—
30	**QPGFEP1030W2**	—

Wiring Diagram

Bell Alarm and Auxiliary Contact Schematic



Single-throw double-pole contacts are UL and CSA listed for 5A at 250 Vac.
Bell Alarm (W1)—contacts change state when breaker trips.
Auxiliary Switch (W2)—contacts change state when breaker is opened (or tripped) or closed.
14-inch (355.6 mm) long 18 AWG pigtail wire leads provided.

Dimensions

Approximate Dimensions in Inches (mm)

Shipping Data

Number of Poles	Carton Quantity	Approximate Weight Lbs (kg)	Dimensions
1	24	11.00 (5.0)	12.50 x 6.50 x 5.00 (317.5 x 165.1 x 127.0)
2	5	5.00 (2.3)	15.50 x 6.00 x 4.50 (393.7 x 152.4 x 114.3)

Note

Shipped individually or in carton quantities.

QUICKLAG Type BAB Single-Pole

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	
Product Selection	**V4-T1-12**
Dimensions	**V4-T1-13**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

Bolt-On Types BAB, QBHW, HBAX, HBAW

Product Description

- All products 15–100A are HACR rated
- Switching duty rated for 120 Vac fluorescent light applications

Standards and Certifications

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

Listed

1 **Product Selection**

QUICKLAG Type BAB Single-Pole

QUICKLAG Type: BA 10,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
10	BAB1010	BAB2010	BAB2010H ③	BAB3010H ③
15	BAB1015 ①②	BAB2015	BAB2015H	BAB3015H
20	BAB1020 ①②	BAB2020	BAB2020H	BAB3020H
25	BAB1025	BAB2025	BAB2025H	BAB3025H
30	BAB1030	BAB2030	BAB2030H	BAB3030H
35	BAB1035	BAB2035	BAB2035H	BAB3035H
40	BAB1040	BAB2040	BAB2040H	BAB3040H
45	BAB1045	BAB2045	BAB2045H	BAB3045H
50	BAB1050	BAB2050	BAB2050H	BAB3050H
55	BAB1055	BAB2055	BAB2055H	BAB3055H
60	BAB1060	BAB2060	BAB2060H	BAB3060H
70	BAB1070	BAB2070	BAB2070H	BAB3070H
80	—	BAB2080	BAB2080H	BAB3080H
90	—	BAB2090	BAB2090H	BAB3090H
100	BAB1100	BAB2100	BAB2100H	BAB3100H
110	—	BAB2110	—	—
125	—	BAB2125	—	—

QUICKLAG Type: BA Non-Automatic Switches

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
50	BAB1050N	—	BAB2050N	BAB3050N
60	BAB1060N	—	BAB2060N	BAB3060N
100	BAB1100N	—	BAB2100N	BAB3100N

QUICKLAG Type: QBHW 22,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
15	QBHW1015 ①	QBHW2015	QBHW2015H	QBHW3015H
20	QBHW1020 ①	QBHW2020	QBHW2020H	QBHW3020H
25	QBHW1025	QBHW2025	QBHW2025H	QBHW3025H
30	QBHW1030	QBHW2030	QBHW2030H	QBHW3030H
35	QBHW1035	QBHW2035	QBHW2035H	QBHW3035H
40	QBHW1040	QBHW2040	QBHW2040H	QBHW3040H
45	QBHW1045	QBHW2045	QBHW2045H	QBHW3045H
50	QBHW1050	QBHW2050	QBHW2050H	QBHW3050H
55	QBHW1055	QBHW2055	QBHW2055H	QBHW3055H
60	QBHW1060	QBHW2060	QBHW2060H	QBHW3060H
70	QBHW1070	QBHW2070	QBHW2070H	QBHW3070H
80	—	QBHW2080	QBHW2080H	QBHW3080H
90	—	QBHW2090	QBHW2090H	QBHW3090H
100	—	QBHW2100	QBHW2100H	QBHW3100H
110	—	QBHW2110	—	—
125	—	QBHW2125	—	—

Notes

① Switching duty rated for 120 Vac fluorescent light applications.

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

③ Not UL listed.

QUICKLAG Type: HBAX 42,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
15	HBAX1015 ①	HBAX2015	—	HBAX3015H
20	HBAX1020 ①	HBAX2020	—	HBAX3020H
25	HBAX1025	HBAX2025	—	HBAX3025H
30	HBAX1030	HBAX2030	—	HBAX3030H
35	HBAX1035	HBAX2035	—	HBAX3035H
40	HBAX1040	HBAX2040	—	HBAX3040H
45	HBAX1045	HBAX2045	—	HBAX3045H
50	HBAX1050	HBAX2050	—	HBAX3050H
55	HBAX1055	HBAX2055	—	HBAX3055H
60	HBAX1060	HBAX2060	—	HBAX3060H
70	HBAX1070	HBAX2070	—	HBAX3070H
80	—	HBAX2080	—	HBAX3080H
80	—	HBAX2080	—	HBAX3080H
90	—	HBAX2090	—	HBAX3090H
100	—	HBAX2100	—	HBAX3100H

QUICKLAG Type: HBAW 65,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
15	HBAW1015 ①	HBAW2015	—	HBAW3015H
20	HBAW1020 ①	HBAW2020	—	HBAW3020H
25	HBAW1025	HBAW2025	—	—
30	HBAW1030	HBAW2030	—	—

Dimensions

Approximate Dimensions in Inches (mm)

Shipping Data

Number of Poles	Carton Quantity	Approximate Weight Lbs (kg)	Dimensions
1	24	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
2	12	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
3	8	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)

Note

① Switching duty rated for 120 Vac fluorescent light applications.

1

Bolt-On Arc Fault Circuit Interrupter QUICKLAG Types QBAF, QBCAF

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	
Product Selection	**V4-T1-15**
Wiring Diagrams	**V4-T1-15**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF

Product Description

- All products HACR rated

Features, Benefits and Functions

- 10 and 22 kAIC rating at 120V and 120/240V
- Single-pole AFCI
- HID ratings for HID (High Intensity Discharge) lighting
- All models are HACR rated

Standards and Certifications

- Built and listed to UL 489
- UL File E7819 for QBAF

UL Listed

Product Selection

QBCAF and QBAF Type AFCIs

Effective immediately, Eaton AFCIs are available for use in Sumter panels with a 22 kAIC rating. This higher rated breaker will allow us to win jobs where AFCIs are specified at higher than 10 kAIC. This breaker provides standard thermal-magnetic protection of branch circuits. This product will have the same form, fit and function of the current bolt-on AFCI (QBCAF and QBAF Type). Product scope is below. These breakers are in Bid Manager™ for Pow-R-Line 1a, Pow-R-Line 1a-LX, Pow-R-Line 3a and Pow-R-Line 4a panelboards. For series rated combinations, continue to use the less expensive 10 kAIC QBCAF and QBAF offerings.

Breakers can also be ordered from Vista.

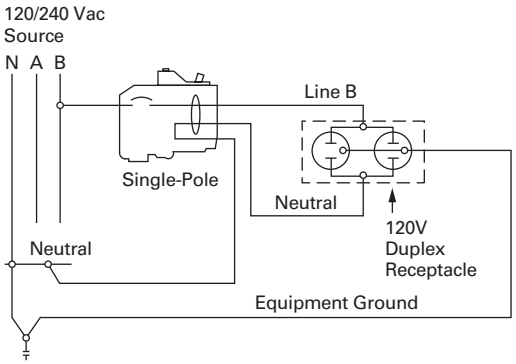
QBHCAF

1-Inch (25.4 mm) Wide Bolt-On Arc Fault Circuit Interrupter

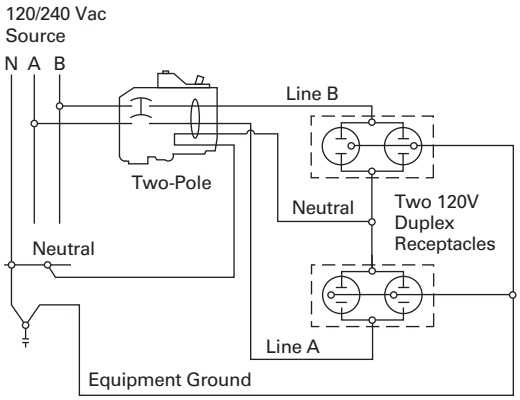
Poles	kAIC Rating	Ampere Rating	Configuration	Catalog Number
Type QBCAF Combination AFCI				
Single-pole	10 kAIC	15	Combination AFCI	**QB1015CAF**
		20	Combination AFCI	**QB1020CAF**
	22 kAIC	15	Combination AFCI	**QBH1015CAF**
		20	Combination AFCI	**QBH1020CAF**

Wiring Diagrams

Single-Pole 120V Load Application Sourced by 120/240 Vac



Single-Pole Shared Neutral with Multi-Duplex Receptacle Application



1

QUICKLAG Type QBGFT Single-Pole Ground Fault Circuit Breaker

Contents

Description	*Page*
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	
Product Selection	**V4-T1-17**
Wiring Diagram	**V4-T1-18**
Dimensions	**V4-T1-18**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP

Product Description

QUICKLAG Ground Fault Circuit Breakers, Class A GFCI

- 5 mA trip sensitivity

QUICKLAG Ground Fault Equipment Protectors

- 30 mA trip sensitivity

Standards and Certifications

- Built and tested to UL 489

QUICKLAG Ground Fault Circuit Breakers, Class A GFCI

- Built and tested to UL 943

QUICKLAG Ground Fault Equipment Protectors

- Built and tested to UL 1053

Listed

Product Selection

QUICKLAG Type QBGFT Single-Pole

Ground Fault Circuit Breakers—5 mA Sensitivity QUICKLAG Type: QBGFT 10,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	QB1015GF	QBGFT2015
20	QB1020GF	QBGFT2020
25	QB1025GF	QBGFT2025
30	QB1030GF	QBGFT2030
40	QB1040GF	QBGFT2040
50	—	QBGFT2050

Ground Fault Circuit Breakers—5 mA Sensitivity QUICKLAG Type: QBHGFT 22,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	QBH1015GF	QBHGF2015
20	QBH1020GF	QBHGF2020
25	QBH1025GF	QBHGF2025
30	QBH1030GF	QBHGF2030

Ground Fault Equipment Breakers—30 mA Sensitivity QUICKLAG Type: QBGFEP 10,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	QB1015EP	QBGFEP2015
20	QB1020EP	QBGFEP2020
25	QB1025EP	QBGFEP2025
30	QB1030EP	QBGFEP2030
40	QB1040EP	QBGFEP2040
50	—	QBGFEP2050

Ground Fault Equipment Breakers—30 mA Sensitivity QUICKLAG Type: QBHGFEP 22,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	QBH1015EP	QBHGFEP2015
20	QBH1020EP	QBHGFEP2020
25	QBH1025EP	QBHGFEP2025
30	QBH1030EP	QBHGFEP2030

1

Special Application Ground Fault Circuit Protectors—5 mA Sensitivity QUICKLAG Type: QBGFT 10,000A Interrupting Capacity with Bell Alarm (W1) or Auxiliary Switch (W2)

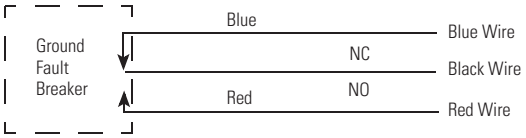
Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	**QBGFT1015W1**	**QBGFT2015W1**
20	**QBGFT1020W1**	**QBGFT2020W1**
25	**QBGFT1025W1**	**QBGFT2025W1**
30	**QBGFT1030W1**	**QBGFT2030W1**
40	—	**QBGFT2040W1**
50	—	**QBGFT2050W1**
15	**QBGFT1015W2**	—
20	**QBGFT1020W2**	—
25	**QBGFT1025W2**	—
30	**QBGFT1030W2**	—

Special Application Ground Fault Circuit Protectors—30 mA Sensitivity QUICKLAG Type: QBGFEP 10,000A Interrupting Capacity with Bell Alarm (W1) or Auxiliary Switch (W2)

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
15	**QBGFEP1015W1**	**QBGFEP2015W1**
20	**QBGFEP1020W1**	**QBGFEP2020W1**
25	**QBGFEP1025W1**	**QBGFEP2025W1**
30	**QBGFEP1030W1**	**QBGFEP2030W1**
40	—	**QBGFEP2040W1**
50	—	**QBGFEP2050W1**
15	**QBGFEP1015W2**	—
20	**QBGFEP1020W2**	—
25	**QBGFEP1025W2**	—
30	**QBGFEP1030W2**	—

Wiring Diagram

Bell Alarm and Auxiliary Contact Schematic



Single-throw double-pole contacts are UL and CSA listed for 5A at 250 Vac.
Bell Alarm (W1)—contacts change state when breaker trips.
Auxiliary Switch (W2)—contacts change state when breaker is opened (or tripped) or closed.
14-inch (355.6 mm) long 18 AWG pigtail wire leads provided.

Dimensions

Approximate Dimensions in Inches (mm)

Shipping Data

Number of Poles	Approximate Weight Lbs (kg)	Dimensions
1	11.00 (5.0)	12.50 x 6.50 x 5.00 (317.5 x 165.1 x 127.0)
2	5.00 (2.3)	15.50 x 6.00 x 4.50 (393.7 x 152.4 x 114.3)

Note

Shipped individually or in carton quantities.

QUICKLAG Type QC Single-Pole

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	
Product Selection	**V4-T1-20**
Dimensions	**V4-T1-22**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW

Product Description

- All products 10–100A are HACR rated
- Switching duty rated for 120 Vac fluorescent light applications only

Standards and Certifications

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

Listed

1 **Product Selection**

QUICKLAG Type QC Single-Pole

QUICKLAG Type: QC 10,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number	Four-Pole 240 Vac Catalog Number
5	**QC1005** ①	**QC2005** ①	—	—	—
10	**QC1010**	**QC2010**	**QC2010H** ①	**QC3010H** ①	—
15	**QC1015** ②	**QC2015**	**QC2015H**	**QC3015H**	**QC4015H**
20	**QC1020** ②	**QC2020**	**QC2020H**	**QC3020H**	**QC4020H**
25	**QC1025**	**QC2025**	**QC2025H**	**QC3025H**	**QC4025H**
30	**QC1030**	**QC2030**	**QC2030H**	**QC3030H**	**QC4030H**
35	**QC1035**	**QC2035**	**QC2035H**	**QC3035H**	**QC4035H**
40	**QC1040**	**QC2040**	**QC2040H**	**QC3040H**	**QC4040H**
45	**QC1045**	**QC2045**	**QC2045H**	**QC3045H**	**QC4045H**
50	**QC1050**	**QC2050**	**QC2050H**	**QC3050H**	**QC4050H**
55	**QC1055**	**QC2055**	**QC2055H**	**QC3055H**	**QC4055H**
60	**QC1060**	**QC2060**	**QC2060H**	**QC3060H**	**QC4060H**
70	**QC1070**	**QC2070**	**QC2070H**	**QC3070H**	**QC4070H**
70	—	**QC2080**	**QC2080H**	**QC3080H**	**QC4080H**
90	—	**QC2090**	**QC2090H**	**QC3090H**	**QC4090H**
100	**QC1100**	**QC2100**	**QC2100H**	**QC3100H**	**QC4100H**

QUICKLAG Type: QC Non-Automatic Switches

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number	Four-Pole 240 Vac Catalog Number
50	**QC1050N**	—	**QC2050N**	**QC3050N**	—
60	**QC1060N**	—	**QC2060N**	**QC3060N**	—
100	**QC1100N**	—	**QC2100N**	**QC3100N**	—

Notes

① Not UL listed.

② Switching duty rated for 120 Vac fluorescent light applications only.

For special low-magnetic breaker, order **QC1015L1** or **QC1020L1**.Non-automatic switches, see **Page V4-T1-41.**

QUICKLAG Type: QCHW 22,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number	Four-Pole 240 Vac Catalog Number
15	QCHW1015 ①	QCHW2015	QCHW2015H	QCHW3015H	QCHW4015H
20	QCHW1020 ①	QCHW2020	QCHW2020H	QCHW3020H	QCHW4020H
25	QCHW1025	QCHW2025	QCHW2025H	QCHW3025H	QCHW4025H
30	QCHW1030	QCHW2030	QCHW2030H	QCHW3030H	QCHW4030H
35	QCHW1035	QCHW2035	QCHW2035H	QCHW3035H	QCHW4035H
40	QCHW1040	QCHW2040	QCHW2040H	QCHW3040H	QCHW4040H
45	QCHW1045	QCHW2045	QCHW2045H	QCHW3045H	QCHW4045H
50	QCHW1050	QCHW2050	QCHW2050H	QCHW3050H	QCHW4050H
55	QCHW1055	QCHW2055	QCHW2055H	QCHW3055H	QCHW4055H
60	QCHW1060	QCHW2060	QCHW2060H	QCHW3060H	QCHW4060H
70	QCHW1070	QCHW2070	QCHW2070H	QCHW3070H	QCHW4070H
70	—	QCHW2080	QCHW2080H	QCHW3080H	QCHW4080H
90	—	QCHW2090	QCHW2090H	QCHW3090H	QCHW4090H
100	—	QCHW2100	QCHW2100H	QCHW3100H	QCHW4100H

QUICKLAG Type: QHCX 42,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number	Four-Pole 240 Vac Catalog Number
15	QHCX1015 ①	QHCX2015	—	QHCX3015H	—
20	QHCX1020 ①	QHCX2020	—	QHCX3020H	—
25	QHCX1025	QHCX2025	—	QHCX3025H	—
30	QHCX1030	QHCX2030	—	QHCX3030H	—
35	QHCX1035	QHCX2035	—	QHCX3035H	—
40	QHCX1040	QHCX2040	—	QHCX3040H	—
45	QHCX1045	QHCX2045	—	QHCX3045H	—
50	QHCX1050	QHCX2050	—	QHCX3050H	—
55	QHCX1055	QHCX2055	—	QHCX3055H	—
60	QHCX1060	QHCX2060	—	QHCX3060H	—
70	QHCX1070	QHCX2070	—	QHCX3070H	—
70	—	QHCX2080	—	QHCX3080H	—
90	—	QHCX2090	—	QHCX3090H	—
100	—	QHCX2100	—	QHCX3100H	—

QUICKLAG Type: QHCW 65,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number	Four-Pole 240 Vac Catalog Number
15	QHCW1015 ①	QHCW2015	—	QHCW3015H	—
20	QHCW1020 ①	QHCW2020	—	QHCW3020H	—
25	QHCW1025	QHCW2025	—	—	—
30	QHCW1030	QHCW2030	—	—	—

Notes

① Switching duty rated for 120 Vac fluorescent light applications only.

Non-automatic switches, see **Page V4-T1-41.**

1

QUICKLAG Type QCD Miniature Circuit Breakers

QCD breakers are used primarily in HVAC and industrial applications.

- Single-, two- and three-pole options
- Modular construction
- DIN mounted (symmetrical rail 35 x 7.5 DIN/EN 50 022)
- QCD same profile as Type QCR
- Flexible power feed connection: wire size, position
- Same breaker size for entire rating range
- Field mountable accessories: finger shroud proof, quick connect terminals
- Other accessories: jumper unit

QUICKLAG Type QCD Miniature Circuit Breaker

QUICKLAG Type QCD 10,000A Interrupting Capacity Thermal-Magnetic Breakers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
10	**QCD1010**	**QCD2010**	—	—
15	**QCD1015**	**QCD2015**	**QCD2015H**	**QCD3015H**
20	**QCD1020**	**QCD2020**	**QCD2020H**	**QCD3020H**
25	**QCD1025**	**QCD2025**	**QCD2025H**	**QCD3025H**
30	**QCD1030**	**QCD2030**	**QCD2030H**	**QCD3030H**
35	**QCD1035**	**QCD2035**	**QCD2035H**	**QCD3035H**
40	**QCD1040**	**QCD2040**	**QCD2040H**	**QCD3040H**
45	**QCD1045**	**QCD2045**	**QCD2045H**	**QCD3045H**
50	**QCD1050**	**QCD2050**	**QCD2050H**	**QCD3050H**
55	**QCD1055**	**QCD2055**	**QCD2055H**	**QCD3055H**
60	**QCD1060**	**QCD2060**	**QCD2060H**	**QCD3060H**
70	—	**QCD2070**	**QCD2070H**	**QCD3070H**
80	—	**QCD2080**	**QCD2080H**	**QCD3080H**
90	—	**QCD2090**	**QCD2090H**	**QCD3090H**
100	—	**QCD2090**	**QCD2090H**	**QCD3100H**
	—	**QCD2100**	**QCD2100H**	—

QUICKLAG Type QCD Non-Automatic Switches

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
60	—	—	**QCD2060NA**	—
100	—	—	—	—

Dimensions

Approximate Dimensions in Inches (mm)

Shipping Data

Number of Poles	Carton Quantity	Approximate Weight Lbs (kg)	Dimensions
1	24	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
2	12	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
3	8	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)

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

Single-Pole *Two-Pole* *Single-Pole* *Two-Pole*

QCR (Rear-Mounted Breakers) ***QCF (Front-Mounted Breakers)***

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	
Product Selection	**V4-T1-24**
QCR and QCF Options and Accessories	**V4-T1-26**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

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

Product Description

Eaton Type QCR circuit breakers 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

Standards and Certifications

- Built and listed to UL 489
- UL File No. E7819
- CSA File No. 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

Listed

1 **Product Selection**

Cable-In/Cable-Out, 1/2-Inch Wide

QCR Breaker Catalog Numbers ①②③④

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac ⑤ Catalog Number	Three-Pole Catalog Number
QCR Breaker 10 kAIC Interrupting Ratings				
10	**QCR1010**	**QCR2010**	—	—
	QCR1010T	**QCR2010T**	—	—
	—	**QCR2010P**	—	—
15	**QCR1015** ⑥	**QCR2015**	**QCR2015H**	**QCR3015H**
	QCR1015T ⑥	**QCR2015T**	**QCR2015HT**	**QCR3015HT**
	—	**QCR2015P**	—	—
20	**QCR1020** ⑥	**QCR2020**	**QCR2020H**	**QCR3020H**
	QCR1020T ⑥	**QCR2020T**	**QCR2020HT**	**QCR3020HT**
	—	**QCR2020P**	—	—
25	**QCR1025**	**QCR2025**	**QCR2025H**	**QCR3025H**
	QCR1025T	**QCR2025T**	**QCR2025HT**	**QCR3025HT**
	—	**QCR2025P**	—	—
30	**QCR1030**	**QCR2030**	**QCR2030H**	**QCR3030H**
	QCR1030T	**QCR2030T**	**QCR2030HT**	**QCR3030HT**
	—	**QCR2030P**	—	—
35	**QCR1035**	**QCR2035**	—	—
	—	**QCR2035P**	—	—
40	**QCR1040**	**QCR2040**	—	—
	—	**QCR2040P**	—	—
45	**QCR1045**	**QCR2045**	—	—
	—	**QCR2045P**	—	—
50	**QCR1050**	**QCR2050**	—	—
	—	**QCR2050P**	—	—
55	**QCR1055**	**QCR2055**	—	—
	—	**QCR2055P**	—	—
60 ⑦	**QCR1060**	**QCR2060**	—	—
	—	**QCR2060P**	—	—
QCR Breaker 22 kAIC Interrupting Ratings				
15	**QCRH1015** ⑥	**QCRH2015**	—	—
	QCRH1015T ⑥	**QCRH2015T**	—	—
20	**QCRH1020** ⑥	**QCRH2020**	—	—
	QCRH1020T ⑥	**QCRH2020T**	—	—

Notes

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 (extra pole required on breaker right-hand side) are available on single-, two- and three-pole. Contact the Customer Support Center at 1-800-356-1243.

⑤ Breakers with **H** Catalog Suffix have 240 Vac construction.

⑥ All 15 and 20A single-pole breakers are SWD (Switching Duty) rated for fluorescent lighting applications.

⑦ 60/75°C Cu/Al wire on all ratings except 60A, which requires Cu only conductor.

Cable-In/Cable-Out, 1/2-Inch Wide

QCF Breaker Catalog Numbers ①②③

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac ④ Catalog Number	Three-Pole Catalog Number
QCF Breaker 10 kAIC Interrupting Ratings				
10	**QCF1010**	**QCF2010**	—	—
	QCF1010T	**QCF2010T**	—	—
15	**QCF1015** ⑤	**QCF2015**	**QCF2015H**	**QCF3015H**
	QCF1015T ⑤	**QCF2015T**	**QCF2015HT**	**QCF3015HT**
20	**QCF1020** ⑤	**QCF2020**	**QCF2020H**	**QCF3020H**
	QCF1020T ⑤	**QCF2020T**	**QCF2020HT**	**QCF3020HT**
25	**QCF1025**	**QCF2025**	**QCF2025H**	**QCF3025H**
	QCF1025T	**QCF2025T**	**QCF2025HT**	**QCF3025HT**
30	**QCF1030**	**QCF2030**	**QCF2030H**	**QCF3030H**
	QCF1030T	**QCF2030T**	**QCF2030HT**	**QCF3030HT**
35	**QCF1035**	**QCF2035**	—	—
40	**QCF1040**	**QCF2040**	—	—
45	**QCF1045**	**QCF2045**	—	—
50	**QCF1050**	**QCF2050**	—	—
55	**QCF1055**	**QCF2055**	—	—
60 ⑥	**QCF1060**	**QCF2060**	—	—
QCF Breaker 22 kAIC Interrupting Ratings				
15	**QCFH1015** ⑤	**QCFH2015**	—	—
	QCFH1015T ⑤	**QCFH2015T**	—	—
20	**QCFH1020** ⑤	**QCFH2020**	—	—
	QCFH1020T ⑤	**QCFH2020T**	—	—

Notes

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 Shunt Trip Attachment (extra pole required on breaker right-hand side) are available. Contact the Customer Support Center.

④ Breakers with **H** Catalog Suffix have 240 Vac construction.

⑤ All 15 and 20A single-pole breakers are SWD (Switching Duty) rated for fluorescent lighting applications.

⑥ 60/75°C Cu/Al wire on all ratings except 60A, which requires Cu only conductor.

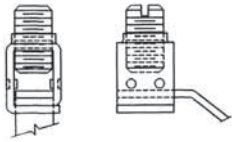
1

QCR and QCF Options and Accessories

QCR and QCF Standard Box Terminals

Factory-installed line and load side breaker terminal to accommodate14 AWG to 4 AWG wire.

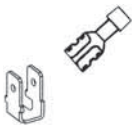
Standard Box Terminals



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.

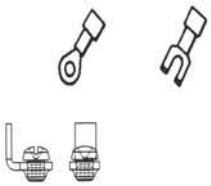
Catalog Suffix "P"



QCR and QCF Ring or Spade Lug Terminals (10 to 30A 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.

Catalog Suffix "T"



Available QCR and QCF Breaker Accessories

Description	Catalog Number
Steel mounting clip mounts QCR breaker if individual mounting is required. Quantity two required for single- and two-pole and four required for three-pole breakers.	**QCRMTGFT**
Removable padlock device for single-pole QCR or QCF breaker.	**QCRFPL1P**
Removable padlock device for multi-pole QCR or QCF breaker.	**QCRFPLMP**
Padlock bracket assembly for QCR or QCF single- or multi-pole breakers (OFF only).	**QCRFLOFF**
Padlock bracket for QCR, lock-off only.	**QCRPLOFF**

Technical Data and Specifications

- Single-, two- and three-pole
- 10 kAIC at 120/240 Vac, 10–60A
- 22 kAIC at 120/240 Vac, 15–20A
- 10 kAIC at 240 Vac, 10–30A
- 3 kAIC at 62.5 Vdc (single-pole)
- 3 kAIC at 130 Vdc (two poles in series)
- Normal operating environment:
  - 0–40°C
  - 5–95% humidity (noncondensing)

QUICKLAG Type QCGFT Single-Pole Ground Fault Circuit Breaker

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	
Product Selection	**V4-T1-28**
Wiring Diagram	**V4-T1-29**
Dimensions	**V4-T1-29**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP

Product Description

QUICKLAG Ground Fault Circuit Breakers, Class A GFCI

- 5 mA trip sensitivity

QUICKLAG Ground Fault Equipment Protectors

- 30 mA trip sensitivity

Standards and Certifications

QUICKLAG Ground Fault Circuit Breakers, Class A GFCI

- Built and tested to UL 943

QUICKLAG Ground Fault Equipment Protectors

- Built and tested to UL 1053

Listed

1 **Product Selection**

QUICKLAG Type QCGFT Single-Pole Ground Fault Circuit Breaker

Breaker Catalog Numbers

Continuous Ampere Rating at 40°C	Single-Pole 120 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number
Ground Fault Circuit Breakers—5 mA Sensitivity QUICKLAG Type: QCGFT 10,000A Interrupting Capacity Thermal-Magnetic Breakers		
15	QCGFT1015	QCGFT2015
20	QCGFT1020	QCGFT2020
25	QCGFT1025	QCGFT2025
30	QCGFT1030	QCGFT2030
40	QCGFT1040	QCGFT2040
50	—	QCGFT2050
QUICKLAG Type: QCHGFT 22,000A Interrupting Capacity Thermal-Magnetic Breakers		
15	QCHGFT1015	QCHGFT2015
20	QCHGFT1020	QCHGFT2020
25	QCHGFT1025	QCHGFT2025
30	QCHGFT1030	QCHGFT2030
Ground Fault Equipment Protectors—30 mA Sensitivity QUICKLAG Type: QCGFEP 10,000A Interrupting Capacity Thermal-Magnetic Breakers		
15	QCGFEP1015	QCGFEP2015
20	QCGFEP1020	QCGFEP2020
25	QCGFEP1025	QCGFEP2025
30	QCGFEP1030	QCGFEP2030
40	QCGFEP1040	QCGFEP2040
50	—	QCGFEP2050
QUICKLAG Type: QCHGFEP 22,000A Interrupting Capacity Thermal-Magnetic Breakers		
15	QCHGFEP1015	QCHGFEP2015
20	QCHGFEP1020	QCHGFEP2020
25	QCHGFEP1025	QCHGFEP2025
30	QCHGFEP1030	QCHGFEP2030
Special Application Ground Fault Circuit Protector—5 mA Sensitivity QUICKLAG Type: QCGFT 10,000A Interrupting Capacity with Bell Alarm (W1) or Auxiliary Switch (W2)		
15	QCGFT1015W1	QCGFT2015W1
20	QCGFT1020W1	QCGFT2020W1
25	QCGFT1025W1	QCGFT2025W1
30	QCGFT1030W1	QCGFT2030W1
40	—	QCGFT2040W1
50	—	QCGFT2050W1
15	QCGFT1015W2	—
20	QCGFT1020W2	—
25	QCGFT1025W2	—
30	QCGFT1030W2	—
Special Application Ground Fault Equipment Protectors—30 mA Sensitivity QUICKLAG Type: QCGFEP 10,000A Interrupting Capacity with Bell Alarm (W1) or Auxiliary Switch (W2)		
15	QCGFEP1015W1	QCGFEP2015W1
20	QCGFEP1020W1	QCGFEP2020W1
25	QCGFEP1025W1	QCGFEP2025W1
30	QCGFEP1030W1	QCGFEP2030W1
40	—	QCGFEP2040W1
50	—	QCGFEP2050W1
15	QCGFEP1015W2	—
20	QCGFEP1020W2	—
25	QCGFEP1025W2	—
30	QCGFEP1030W2	—

Wiring Diagram

Bell Alarm and Auxiliary Contact Schematic

Single-throw double-pole contacts are UL and CSA listed for 5A at 250 Vac.
Bell Alarm (W1)—contacts change state when breaker trips.
Auxiliary Switch (W2)—contacts change state when breaker is opened (or tripped) or closed.
14-inch (355.6 mm) long 18 AWG pigtail wire leads provided.

Dimensions

Approximate Dimensions in Inches (mm)

Shipping Data

Number of Poles	Carton Quantity	Approximate Weight Lbs (kg)	Dimensions
1	20	11.00 (5.0)	12.50 x 6.50 x 5.00 (317.5 x 165.1 x 127.0)
2	5	5.00 (2.3)	15.50 x 6.00 x 4.50 (393.7 x 152.4 x 114.3)

1

BABRP and BABRSP Breakers—Single- and Two-Pole

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	
Product Selection	**V4-T1-31**
Technical Data and Specifications	**V4-T1-32**
Wiring Diagrams	**V4-T1-32**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP

Product Description

The BABRP and BABRSP are bolt-on branch circuit breakers designed for use in panelboards. The BRRP is a plug-on branch circuit breaker designed for use in load-centers not manufactured with breakers with a 1-inch wide format and are listed on the "Compatibility list for Classified Applications"—Pub. 26271. 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 Eaton's Pow-R-Command™ lighting control system. These breakers can also be controlled by pushbutton or a PLC unit.

Application Description

Eaton's BABRP, BABRSP, BRRP and CLRP breakers are remotely operated molded case circuit breakers ideally suited for lighting control applications or energy management applications.

Features, Benefits and Functions

- Bolt-on line-side terminal (BABRP, BABRSP—Type BA)
- Plug-on line-side terminal (BRRP—Type BR, CLRP—Type CL)
- Cable connected load-side terminal
- Four-position control terminal
- Bi-metal assembly for thermal overload protection
- Fast-acting short-circuit protection
- Arc-chute assembly for fast-acting arc extinction
- Three-position handle: OFF, TRIP (Center), ON
- Handle permits manual switching when control power is lost
- Mechanical trip indicator
- 15 and 20A breakers SWD (switching duty) rated
- HID ratings for HID (high intensity discharge) lighting
- All models HACR rated
- Status feedback of control circuit (BABRSP)
- Series rated (BABRP, BABRSP only)
  - BRRP series rated same as BR breakers
  - BABRP, BABRSP same as BA breakers

Product Selection

QUICKLAG Type QCGFT Single-Pole Ground Fault Circuit Breaker

BABRP UL 489 and CSA 22.2 Interrupting Ratings

Number of Poles	Ampere Rating ①	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	120/240	277/480	Catalog Number
1	15	10,000	—	—	**BABRP1015**
	20	10,000	—	—	**BABRP1020**
	25	10,000	—	—	**BABRP1025**
	30	10,000	—	—	**BABRP1030**
2	15	—	10,000	—	**BABRP2015**
	20	—	10,000	—	**BABRP2020**
	25	—	10,000	—	**BABRP2025**
	30	—	10,000	—	**BABRP2030**

BABRP and BABRSP Wire Harness

Description	Catalog Number
This 60-inch (1524.0 mm) wire pigtail provides a connection from a single BABRP's control plug to a customer's pushbutton, relay or PLC. Each box contains 12 pigtails. Wires are 22 AWG, 600V. Order in multiples of 12.	**SLBKRPTL1**

BABRSP UL 489 and CSA 22.2 Interrupting Ratings

Number of Poles	Ampere Rating ①	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	120/240	277/480	Catalog Number
1	15	10,000	—	—	**BABRSP1015**
	20	10,000	—	—	**BABRSP1020**
	25	10,000	—	—	**BABRSP1025**
	30	10,000	—	—	**BABRSP1030**
2	15	—	10,000	—	**BABRSP2015**
	20	—	10,000	—	**BABRSP2020**
	25	—	10,000	—	**BABRSP2025**
	30	—	10,000	—	**BABRSP2030**

BRRP UL 489 and CSA 22.2 Interrupting Ratings

Number of Poles	Ampere Rating	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	120/240	Catalog Number
1	15	10,000	—	**BRRP115**
	20	10,000	—	**BRRP120**
	25	10,000	—	**BRRP125**
	30	10,000	—	**BRRP130**
2	15	—	10,000	**BRRP215**
	20	—	10,000	**BRRP220**
	25	—	10,000	**BRRP225**
	30	—	10,000	**BRRP230**

CLRP UL 489 and CSA 22.2 Interrupting Ratings

Number of Poles	Ampere Rating	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	120/240	Catalog Number
1	15	10,000	—	**CLRP115**
	20	10,000	—	**CLRP120**
	25	10,000	—	**CLRP125**
	30	10,000	—	**CLRP130**
2	15	—	10,000	**CLRP215**
	20	—	10,000	**CLRP220**
	25	—	10,000	**CLRP225**
	30	—	10,000	**CLRP230**

Note

① Continuous current rating at 40°C.

1

Technical Data and Specifications

Solenoid Operating Data

- Power requirements: 24 Vac/dc (20.4V minimum–30V maximum)
  - Controlled signal: +AC/DC 8 ms minimum with zero cross, 300 ms maximum
  - AC: 1.3 cycles minimum, 18 cycles or 300 ms maximum
  - DC: 8 ms minimum, 300 ms maximum
  - Maximum duty cycle of 6 OPEN/CLOSE cycles per minute
- Current draw: open 1A, close 3/4A
- Blue wire: power input (see power requirements)
- Black wire: remote opening
- Red wire: remote closing
- Yellow wire: feedback status from power input, maximum 0.50A draw (BABRSP only)

Operation

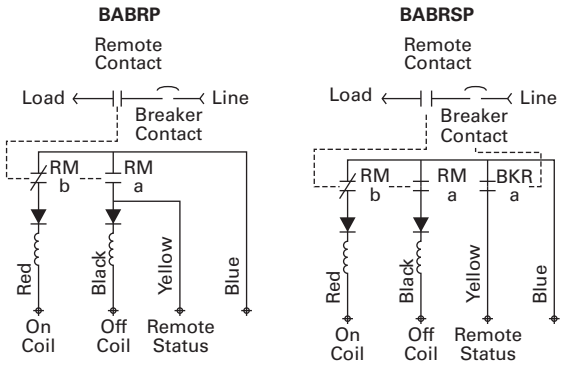
- Tripping system—the BABRP, BABRSP, BRRP and CLRP circuit breakers have a permanent trip unit that contains a factory preset thermal (overload) trip element in each pole
- Operating mechanism—the BABRP, BABRSP, BRRP and CLRP circuit breakers have an over-center toggle mechanism that provides quick-make, quick-break operation. The operating mechanism is trip free. An internal cross-bar provides a common tripping of all multi-pole circuit breakers

Operating/Application Data

- Ambient temperature: 0 to 40°C
- Nominal pulse magnitude: 24 Vac/dc
- Frequency: 50/60 Hz
- Maximum breaker cycling: 6 operations per minute
- Tolerance: +10% to –15% of nominal voltage
- Humidity: 0 to 95% noncondensing

Wiring Diagrams

Control Circuit for the BABRP and BABRSP



GHBS and GHQRSP

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	
Product Selection	**V4-T1-34**
Technical Data and Specifications	**V4-T1-35**
Wiring Diagrams	**V4-T1-35**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

Solenoid Operator—Remote-Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers

Product Description

Eaton's GHBS, GBHS and GHQRSP circuit breakers are bolt-on branch circuit breakers designed for use in 277/480 Vac panelboards. 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 Eaton's Pow-R-Command lighting control system.

Features, Benefits and Functions

- Bolt-on line-side terminal
- Cable-connected load-side terminal
- Status switch—remote status and breaker status available from internal auxiliary switches
- Bi-metal assembly for thermal overload protection
- Fast-acting short-circuit protection
- Arc-runner and arc-chute assembly for fast-acting arc extinction
- Three-position breaker handle: OFF, TRIP (Center), ON
- Visual indication of the remotely operated contact's position (open, closed or trip)
- Remote override handle permits manual switching when control power is lost
- 15 and 20A breakers SWD (switching duty) rated.
- 15 and 20A breakers HID rated for HID (High intensity discharge) lighting
- All models HACR rated
- Series rated with various Eaton main circuit breakers

1 **Product Selection**

GHQ UL 489 Interrupting Ratings

Number of Poles	Ampere Rating ①	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	120/240	277	480Y/277	Catalog Number
1	15	65,000	65,000	14,000	14,000	
1	20	65,000	65,000	14,000	14,000	
1	30	65,000	65,000	14,000	14,000	
2	15	65,000	65,000	14,000	14,000	
2	20	65,000	65,000	14,000	14,000	
2	30	65,000	65,000	14,000	14,000	

GHBS—Single-Pole

GHBS UL 489 Interrupting Ratings

Number of Poles	Ampere Rating ①	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	240	277/480	Catalog Number
1	15	65,000	—	14,000	**GHBS1015D**
	20	65,000	—	14,000	**GHBS1020D**
	30	65,000	—	14,000	**GHBS1030D**
2	15	—	65,000	14,000	**GHBS2015D**
	20	—	65,000	14,000	**GHBS2020D**
	30	—	65,000	14,000	**GHBS2030D**

GBHS CSA 22.2 Interrupting Ratings (Not UL Listed)

Number of Poles	Ampere Rating ①	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 347/600	Catalog Number
1	15	10,000	**GBHS1015D**
	20	10,000	**GBHS1020D**
2	15	10,000	**GBHS2015D**
	20	10,000	**GBHS2020D**

GHQRSP UL 489 and CSA 22.2 Interrupting Ratings

Number of Poles	Ampere Rating ①	Interrupting Capacity (Symmetrical Amperes) Vac (50/60 Hz) 120	120/240	277	480Y/277	Catalog Number ②
1	15	65,000	65,000	14,000	14,000	**GHQRSP1015**
	20	65,000	65,000	14,000	14,000	**GHQRSP1020**
	30	65,000	65,000	14,000	14,000	**GHQRSP1030**
2	15	65,000	65,000	14,000	14,000	**GHQRSP2015**
	20	65,000	65,000	14,000	14,000	**GHQRSP2020**
	30	65,000	65,000	14,000	14,000	**GHQRSP2030**

Notes

① Continuous current rating at 40°C.

② All UL listed circuit breakers are HID (high intensity discharge) rated.

Technical Data and Specifications

Solenoid Operating Data

- Power requirements: 24 Vac/dc (20.4V minimum–30V maximum)
  - Controlled signal: +AC/DC 8 ms minimum with zero cross, 300 ms maximum
  - AC: 1.3 cycles minimum, 18 cycles or 300 ms maximum
  - DC: 8 ms minimum, 300 ms maximum
  - Maximum duty cycle of 6 OPEN/CLOSE cycles per minute
- Current draw: open 1A, close 3/4A
- Blue wire: power input (see power requirements)
- Black wire: remote opening
- Red wire: remote closing
- Yellow wire: feedback status from power input, maximum 0.50A draw

Operation

Mechanism manually operated by external handle allowing ON, OFF and RESET operation. Handle assumes a center TRIP position after performing protective response.

Operating/Application Data

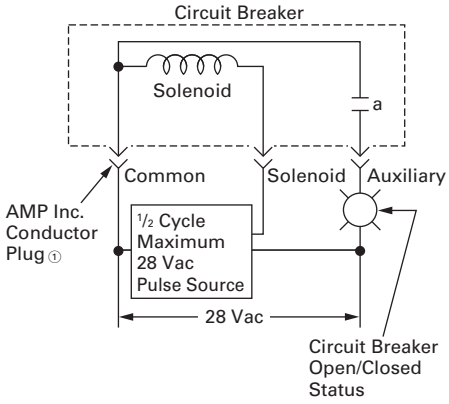
- Ambient temperature: 0–40°C
- Frequency: 48–62 Hz
- Humidity: 0–95% noncondensing

Terminal Type

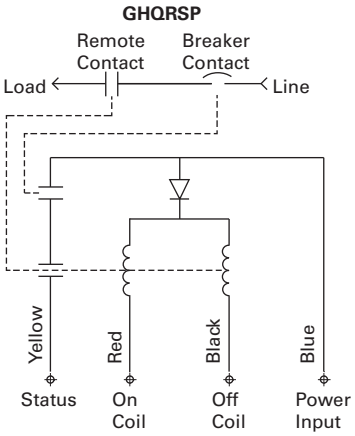
Circuit Breaker Type	Circuit Breaker Amperes	Screw Head Type	Terminal Type	Range
GHQRSP	15–20	Slotted	Clamp	#14–#4 AWG

Wiring Diagrams

Typical Single-Pole Circuit Breaker Schematic Diagram for GHBS and GBHS Breakers



Typical Single-Pole Circuit Breaker Schematic Diagram for GHQRSP Breakers



Dimensions

Approximate Dimensions in Inches (mm)

Dimensions per Pole

Circuit Breaker Type	Width	Height ②	Length ③
GHQRSP	1.00 (25.4)	4.63 (117.6)	2.81 (71.4)

Notes

① Purchase separate AMP Inc. conductor plug #640426-3.
② Excluding line terminal.
③ Excluding handle.

1

International Rated

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	
Product Selection	**V4-T1-37**
Technical Data and Specifications	**V4-T1-38**
Dimensions	**V4-T1-38**
Special Application Breakers, Types HQP, BA, QC	**V4-T1-39**

International Rated Types HQP, BA, QC, GFMB, GFXBC

Product Description

QUICKLAG International Circuit Breakers

- Bolt-on Type BA

QUICKLAG International Ground Fault Circuit Breakers

- Plug-on Type GFMB
- 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

Product Selection

BAB

Breaker Catalog Numbers

Continuous Ampere Rating at 40°C	Single-Pole 240/415 Vac Catalog Number	Two-Pole 240/415 Vac Catalog Number	Three-Pole 240/415 Vac Catalog Number
3000A Interrupting Capacity (M3) Bolt-On Thermal-Magnetic Circuit Breakers			
10	**BAB1010E**	**BAB2010E**	**BAB3010E**
15	**BAB1015E**	**BAB2015E**	**BAB3015E**
16	—	—	—
20	**BAB1020E**	**BAB2020E**	**BAB3020E**
25	**BAB1025E**	**BAB2025E**	**BAB3025E**
30	**BAB1030E**	**BAB2030E**	**BAB3030E**
32	—	—	—
40	**BAB1040E**	**BAB2040E**	**BAB3040E**
50	**BAB1050E**	**BAB2050E**	**BAB3050E**
60	**BAB1060E**	**BAB2060E**	**BAB3060E**
70	**BAB1070E**	**BAB2070E**	**BAB3070E**
90	—	**BAB2090E**	**BAB3090E**
100	—	**BAB2100E**	**BAB3100E**
6000A Interrupting Capacity (M6) Bolt-On Thermal-Magnetic Circuit Breakers			
15	**BAB1015HE**	**BAB2015HE**	**BAB3015HE**
20	**BAB1020HE**	**BAB2020HE**	**BAB3020HE**
25	**BAB1025HE**	**BAB2025HE**	**BAB3025HE**
30	**BAB1030HE**	**BAB2030HE**	**BAB3030HE**
40	**BAB1040HE**	**BAB2040HE**	**BAB3040HE**
50	**BAB1050HE**	**BAB2050HE**	**BAB3050HE**
60	**BAB1060HE**	**BAB2060HE**	**BAB3060HE**
70	**BAB1070HE**	**BAB2070HE**	**BAB3070HE**
90	—	**BAB2090HE**	**BAB3090HE**
100	—	**BAB2100HE**	**BAB3100HE**

Breaker Catalog Numbers—Ground Fault Single-Pole 30 mA Sensitivity

Continuous Ampere Rating at 40°C	240/415 Vac Catalog Number
3000A Interrupting Capacity (M3) Plug-On Thermal-Magnetic Circuit Breakers	
10	**GFMB110B2**
15	**GFMB115B2**
16	**GFMB116B2**
20	**GFMB120B2**
25	**GFMB125B2**
30	**GFMB130B2**
32	**GFMB132B2**
40	**GFMB140B2**

Note

For other 240/415V applications, please contact the Customer Support Center at 1-800-356-1243.

1

Technical Data and Specifications

Interrupting Ratings

Ratings	Suffix E	Suffix HE
International Circuit Breakers		
NEMA® 120/240 Vac	10,000 AIC	10,000 AIC
BS3871 220/380, 240/415 Vac	3000 AIC	6000 AIC
International Ground Fault Circuit Breakers		
BS3871 220/380, 240/415 Vac	3000 AIC	

Dimensions

Approximate Dimensions in Inches (mm)

Shipping Data

Miniature Circuit Breaker	Number of Poles	Standard Carton Quantity	Approximate Carton Weight Lbs (kg)	Approximate Standard Carton
QUICKLAG Type B	1	24	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
	2	12	9.00 (4.1)	12.50 x 7.50 x 5.00 (317.5 x 190.5 x 127.0)
	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)

QUICKLAG Type P Switching Neutral

Contents

Description	*Page*
Quick Reference	**V4-T1-2**
QUICKLAG Plug-On Types HQP, QPHW, QHPX, QHPW	**V4-T1-5**
QUICKLAG Plug-On Ground Fault and Equipment Protectors, Types QPGFT, QPHGFT, QPGFEP, QPHGFEP	**V4-T1-8**
Bolt-On Types BAB, QBHW, HBAX, HBAW	**V4-T1-11**
Bolt-On Arc Fault Circuit Interrupter Types QBAF, QBCAF	**V4-T1-14**
Bolt-On Ground Fault and Equipment Protectors, Types QBGFT, QBHGFT, QBGFEP, QBHGFEP	**V4-T1-16**
Cable-In/Cable-Out Types QC, QCD, QCHW, QHCX, QHCW	**V4-T1-19**
Cable-In/Cable-Out, 1/2-Inch Wide, Types QCR, QCF, QCRH, QCFH	**V4-T1-23**
Cable-In/Cable-Out Ground Fault and Equipment Protectors, Types QCGFT, QCHGFT, QCGFEP, QCHGFEP	**V4-T1-27**
Solenoid-Operated, Remote-Controlled Latching Types BABRP, BABRSP, BRRP and CLRP	**V4-T1-30**
Solenoid Operator—Remote Controlled Latching for Type GHBS, GBHS and GHQRSP Breakers	**V4-T1-33**
International Rated Types HQP, BA, QC, GFMB, GFXBC	**V4-T1-36**
Special Application Breakers, Types HQP, BA, QC	
Product Selection	**V4-T1-40**
Accessories	**V4-T1-42**
Factory Modifications and Installed Terminals	**V4-T1-45**
Technical Data and Specifications	**V4-T1-46**
Dimensions	**V4-T1-46**

Special Application Breakers, Types HQP, BA, QC

Product Description

Breakers

- Plug-on Type HQP: 10–30A, single- and two-pole, 10 kAIC
- Bolt-on Type BA: 10–30A, single- and two-pole, 10 kAIC
- Cable-in Type QC: 10–30A, single- and two-pole, 10 kAIC

Switching neutral QUICKLAG breakers available in single- and two-pole configurations, plus neutral pole for applications in accordance with NEC® 514.5, 240.22 and 380.2. A single-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: 15–60A, single- and two-pole, 10 kAIC
- Bolt-on Type BA: 15–60A, single- and two-pole, 10 kAIC
- Cable-in Type QC: 15–60A, single- and two-pole, 10 kAIC

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, 60,100A, single-, two- and three-pole
- Bolt-on Type BA: 50, 60,100A, single-, two- and three-pole
- Cable-in Type QC: 50, 60,100A, single-, two- and three-pole

Standards and Certifications

- All products UL and CSA listed

Listed

1

Product Selection

QUICKLAG Type P Switching Neutral

Breaker Catalog Numbers

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
QUICKLAG Type: HQP Switching Neutral Thermal-Magnetic Breakers				
10	**HQP2010B**	**HQP3010B**	—	—
15	**HQP2015B**	**HQP3015B**	—	—
20	**HQP2020B**	**HQP3020B**	—	—
25	**HQP2025B**	**HQP3025B**	—	—
30	**HQP2030B**	**HQP3030B**	—	—
QUICKLAG Type: BA Switching Neutral Thermal-Magnetic Breakers				
10	**BAB2010C**	**BAB3010C**	—	—
15	**BAB2015C**	**BAB3015C**	—	—
20	**BAB2020C**	**BAB3020C**	—	—
25	**BAB2025C**	**BAB3025C**	—	—
30	**BAB2030C**	**BAB3030C**	—	—
QUICKLAG Type: QC Switching Neutral Thermal-Magnetic Breakers				
10	**QC2010B**	**QC3010B**	—	—
15	**QC2015B**	**QC3015B**	—	—
20	**QC2020B**	**QC3020B**	—	—
25	**QC2025B**	**QC3025B**	—	—
30	**QC2030B**	**QC3030B**	—	—
QUICKLAG Type: HQP HID (High Intensity Discharge) Thermal-Magnetic Breakers				
15	**HQP1015D**	**HQP2015D**	—	—
20	**HQP1020D**	**HQP2020D**	—	—
25	**HQP1025D**	**HQP2025D**	—	—
30	**HQP1030D**	**HQP2030D**	—	—
35	**HQP1035D**	**HQP2035D**	—	—
40	**HQP1040D**	**HQP2040D**	—	—
50	**HQP1050D**	**HQP2050D**	—	—
60	**HQP1060D**	**HQP2060D**	—	—
QUICKLAG Type: BA HID (High Intensity Discharge) Thermal-Magnetic Breakers				
15	**BAB1015D**	**BAB2015D**	—	—
20	**BAB1020D**	**BAB2020D**	—	—
25	**BAB1025D**	**BAB2025D**	—	—
30	**BAB1030D**	**BAB2030D**	—	—
35	**BAB1035D**	**BAB2035D**	—	—
40	**BAB1040D**	**BAB2040D**	—	—
50	**BAB1050D**	**BAB2050D**	—	—
60	**BAB1060D**	**BAB2060D**	—	—
QUICKLAG Type: QC HID (High Intensity Discharge) Thermal-Magnetic Breakers				
15	**QC1015D**	**QC2015D**	—	—
20	**QC1020D**	**QC2020D**	—	—
25	**QC1025D**	**QC2025D**	—	—
30	**QC1030D**	**QC2030D**	—	—
35	**QC1035D**	**QC2035D**	—	—
40	**QC1040D**	**QC2040D**	—	—
50	**QC1050D**	**QC2050D**	—	—
60	**QC1060D**	**QC2060D**	—	—

Breaker Catalog Numbers, continued

Continuous Ampere Rating at 40°C	Single-Pole 120/240 Vac Catalog Number	Two-Pole 120/240 Vac Catalog Number	Two-Pole 240 Vac Catalog Number	Three-Pole 240 Vac Catalog Number
QUICKLAG Type: HQP Non-Automatic Switches				
50	**HQP1050N**	—	**HQP2050N**	**HQP3050N**
60	**HQP1060N**	—	**HQP2060N**	**HQP3060N**
100	**HQP1100N**	—	**HQP2100N**	**HQP3100N**
QUICKLAG Type: BA Non-Automatic Switches				
50	**BAB1050N**	—	**BAB2050N**	**BAB3050N**
60	**BAB1060N**	—	**BAB2060N**	**BAB3060N**
100	**BAB1100N**	—	**BAB2100N**	**BAB3100N**
QUICKLAG Type: QC Non-Automatic Switches				
50	**QC1050N**	—	**QC2050N**	**QC3050N**
60	**QC1060N**	—	**QC2060N**	**QC3060N**
100	**QC1100N**	—	**QC2100N**	**QC3100N**
QUICKLAG Type: QCD Non-Automatic Switches				
60	—	—	**QCD2060NA**	—
100	—	—	—	—

1

Accessories ①

Handle Locks: Non-Padlockable ②

	Description	Order in Multiples of	Catalog Number
QL1NPL	QUICKLAG Type P, B, C—single-pole	10	**QL1NPL**
QL23NPL	QUICKLAG Type P, B, C—two- and three-pole	10	**QL23NPL**

Handle Locks: Padlockable ②

	Description	Order in Multiples of	Catalog Number
QL1PL	QUICKLAG Type P, B, C—single-pole	10	**QL1PL**
QL123PL	QUICKLAG Type P, B and ground fault—single-, two- and three-pole	10	**QL123PL**
QC123PL	QUICKLAG Type C —single-, two- and three-pole	10	**QC123PL**
	QUICKLAG Type P, B—single-, two- and three-pole (off only)	10	**QL123PLOFF**
	QUICKLAG Type C—single-, two- and three-pole (off only)	10	**QC123PLOFF**

Notes

① See **Page V4-T1-26** for QCR and QCF accessories.

② Can lock in ON or OFF position.

Mounting Hardware

	Description	Order in Multiples of	Catalog Number
QCFCLIP	QUICKLAG Type C face mounting clip	24	**QCFCLIP**
QC1FP	QUICKLAG Type C face mounting plate—single-pole	10	**QC1FP**
QC2FP	QUICKLAG Type C face mounting plate—two-pole	10	**QC2FP**
QC3FP	QUICKLAG Type C face mounting plate—three-pole	10	**QC3FP**
	QUICKLAG Type C face mounting plate and lock-off (off only)—two-pole ①	10	**QC2FPLOFF**
	QUICKLAG Type C face mounting plate and lock-off (off only)—three-pole	10	**QC3FPLOFF**
QCBCLIP	QUICKLAG Type C base mounting clamp	10	**QCBCLIP**
QC6BP	QUICKLAG Type mounting plate—six poles total	10	**QC6BP**

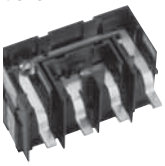
Note

① Suitable for ground fault breakers.

Mounting Hardware, continued

Description	Order in Multiples of	Catalog Number
QUICKLAG Type C base mounting plate—six poles total—heavy-duty screw-secured	10	**QC6BPS**
QUICKLAG Type C (QCD) 2-way jumper unit with cover	10	**QCDJ2**
QUICKLAG Type C (QCD) 4-way jumper unit with cover	10	**QCDJ4**
QUICKLAG Type C (QCD) 6-way jumper unit with cover	10	**QCDJ6**
QUICKLAG Type C (QCD) 2-way jumper unit, no cover	10	**QCDJ2T**
QUICKLAG Type C (QCD) 4-way jumper unit, no cover	10	**QCDJ4T**
QUICKLAG Type C (QCD) 6-way jumper unit, no cover	10	**QCDJ6T**
QUICKLAG Type QCD Finger protection attachment	10	**QCDFP**
QUICKLAG Type QCD 4-prong Quick Connect	10	**QCDQUICK**
QUICKLAG Type C DIN rail adapter	6	**QCDINADAPT**
QUICKLAG Type QCD ring lug attachment	10	**QCDRING**

QCDJ4



QCDINADAPT

QCDRING

Dummy Breakers

Description	Order in Multiples of	Catalog Number
QUICKLAG Type P	1	**HQP1000**
QUICKLAG Type B	1	**BAB1000**
QUICKLAG Type C	1	**QC1000**
QUICKLAG Type C clear choice breaker	4	**QC30SAMPLE**

Miscellaneous

Description	Order in Multiples of	Catalog Number
QUICKLAG Type C Spacer	1	**QCRSPACER**

QCRSPACER

Handle Tie

Description	Order in Multiples of	Catalog Number
QUICKLAG handle tie—single-pole	100	**QL1HT**

QL1HT

Factory Modifications and Installed Terminals

Factory Modifications ①

Type of Modification	Breaker Type	Catalog Suffix
Shunt trip (requires one extra pole space on right side) 120, 208, 240 Vac Draws 2.6A at 120V, draws 11A at 24 Vdc	QUICKLAG Types P, B and C	**S**
Shunt trip (requires one extra pole space on right side) 24, 48 Vac/dc Draws 2.6A at 120V, draws 11A at 24 Vdc	QUICKLAG Types P, B and C	**S1**
Special calibration (50°C) (no UL)	QUICKLAG Types P, B and C	**V**
Shock testing	QUICKLAG Types P, B and C	**L**
Freeze testing	QUICKLAG Types P, B and C	**Y**
Moisture-fungus treatment	QUICKLAG Types P, B, C and ground fault	**F**
Marine duty	QUICKLAG Types P, B, C	**H08**
Naval duty	QUICKLAG Types P, B, C	**H09**
400 Hz calibration	QUICKLAG Types P, B, C	**G**
Specific DC ratings (breaker marked with a max. Vdc rating)	QUICKLAG Types P, B, C	**Q thru Q9** ②

Spare Terminal Hardware Screws (Lugs not Included)

Terminal Type	Description	Order in Multiples of	Catalog Number
1	QUICKLAG terminal screw	10	**QLLDTSA**
2	QUICKLAG terminal screw	10	**QLLDTSB**
3	QUICKLAG terminal screw	10	**QLLDTSC**
5	QUICKLAG binding head terminal screw and clamp	10	**QLBHTSE**
6 and 7	QUICKLAG terminal screw	10	**QLLNTSFG**

Notes

① Contact Eaton for factory modifications available for QCR and QCF breakers.

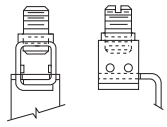
② Q = 32 Vdc; Q1 = 32–40 Vdc; Q2 = 37.5 Vdc; Q3 = 45 Vdc; Q4 = 48 Vdc; Q5 = 50 Vdc; Q6 = 62.5 Vdc; Q7 = 75 Vdc (2P); Q8 = 80 Vdc (2P); Q9 = 125 Vdc (QCR 2P); Q10 = 62.5 Vdc (QCR 1P).

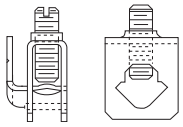
1

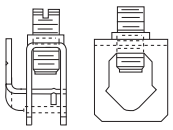
Technical Data and Specifications

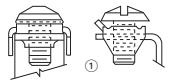
Factory-Installed Breaker Terminals

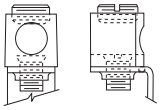
Breaker Type	Continuous Ampere Rating	Standard Line Terminal			Standard Load Terminal			Optional Terminals	
		Terminal Type	Wire Type	Wire Range (AWG)	Terminal Type	Wire Type	Wire Range (AWG)	Line	Load
QUICKLAG Type P HQP, QPHW, QHPX, QHPW	10–30	Plug-on female clips that mate with the bus stabs			1	Cu/Al	14–4	N/A	3
	35–50				2	Cu/Al	14–4	N/A	3
	55–125				3	Cu/Al	8–1/0	N/A	—
QUICKLAG ground fault QPGFT, QPGFEP, QPHGFT, QPHGFEP	10–40	Plug-on female clips that mate with the bus stabs			1 (single-pole)	Cu/Al	14–4	N/A	3
	10–40				1	Cu/Al	—	N/A	3
	10–30				1	Cu	14–8	N/A	—
QUICKLAG Type B BAB, QBHW, HBAX, HBAW	10–40	Extended tangs that bolt directly to the bus			1 (single- and two-pole)	Cu/Al	14–4	N/A	3
	35–50				2 (three-pole)	Cu/Al	14–4	N/A	3
	55–125				3	Cu/Al	8–1/0	N/A	—
QUICKLAG ground fault QBGFT, QBGFEP, QBHGFEP, QBHGFT	10–40	Extended tangs that bolt directly to the bus			1 (single-pole)	Cu/Al	14–4	N/A	N/A
	10–40				1	Cu/Al	14–8	N/A	N/A
	10–30				1	Cu	14–8	N/A	N/A
QUICKLAG Type C QC, QCHW, QHCX, QHCW	10–20	5	Cu/Al	TBD	5	Cu/Al	14–10	6, 7	6, 7, 8
	25–60	6	Cu/Al	TBD	2	Cu/Al	14–4	5, 7	5, 6, 7, 8
	70–100	7	Cu/Al	TBD	3	Cu/Al	8–1/0	5	5, 7, 8
QUICKLAG QCR, QCF	10–55	1	Cu/Al	TBD	1	Cu/Al	14–4	N/A	N/A
	60	1	Cu	TBD	1	Cu	14–4	N/A	N/A
QUICKLAG ground fault QCGFT, QCGFEP, QCHGFT, QCHGFEP	10–20	6	Cu/Al	TBD	14–8	Cu/Al	14–4	6, 7	5
	25–50	6	Cu/Al	TBD	1	Cu/Al	14–4	5, 7	5
	10–30	6	—	—	—	—	—	—	—
QUICKLAG QCD	10–60	9	Cu/Al	14–4	9	Cu/Al	14–4	See Accessories	
	70–100	10	Cu	4–1/0	10	Cu	4–1/0	See Accessories	

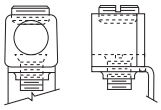
1

Steel Box Lug

2

Steel Box Lug

3

Steel Box Lug

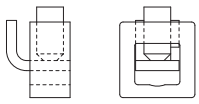
5

Steel Ring Type

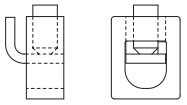
6

Aluminum Box Lug

7

Aluminum Box Lug

8

4-Prong Quick Connect

9

QCD Terminal Assembly 10–60A

10

QCD Terminal Assembly 70–100A

Dimensions

Approximate Dimensions in Inches (mm)

Shipping Data

Miniature Circuit Breaker	Number of Poles	Standard Carton Quantity	Approximate Carton Weight Lbs (kg)	Approximate Standard Carton
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)

Note

① Clamp on line side only.

FAZ-NA and FAZ-NA-L Circuit Breakers

Optimum and Efficient Protection for Every Application

Contents

Description	*Page*
FAZ-NA and FAZ-NA-L Circuit Breakers	
Catalog Number Selection	**V4-T1-48**
Product Selection	**V4-T1-49**
Accessories	**V4-T1-62**
Technical Data and Specifications	**V4-T1-66**
Dimensions	**V4-T1-72**

FAZ-NA and FAZ-NA-L Circuit Breakers

Product Overview

Optimum product quality, tested reliability and safety stand for best protection of personnel, installations and plant. Eaton's FAZ-NA and FAZ-NA-L DIN rail mountable circuit breakers are designed for use in branch service applications.

Powerful Offering for Machine and System Builders

FAZ-NA and FAZ-NA-L are available with B, C and D characteristics in accordance with UL® 489, CSA® C22.2 No.5; UL 1077, CSA C22.2 No.235 and IEC 60947-2. These devices are CE marked.

Application Description

Feeder and branch circuit protection for:

- Convenience receptacle circuits (internal/external)
- Motor control circuits
- Load circuits leaving the equipment (external)
- HACR internal/external equipment (heating, air conditioning, refrigeration)
- PLC I/O points
- Computers
- Power supplies
- Control instrumentation
- Relays
- UPS
- Power conditioners

Features

- Complete range of UL 489 listed DIN rail mounted miniature circuit breakers up to 63A current rating
- Two distinct UL 489 FAZ-NA offerings available to provide the best solution for the application—FAZ-NA at 277/480 Vac and FAZ-NA-L at 240 Vac
- Standard ratings of 10 kAIC available at both 240 Vac and 277/480 Vac
- Select amperages available at 14 kAIC for both the 240 Vac and 277/480 Vac offerings and 10 kAIC up to 125 Vdc per pole
- Current limiting design provides fast short-circuit interruption that reduces the let-through energy, which can damage the circuit
- Suitable for branch circuit device protection
- Thermal-magnetic overcurrent protection
  - Three levels of short-circuit protection, categorized by B, C and D curves
- Trip-free design—breaker can not be defeated by holding the handle in the ON position
- Captive screws cannot be lost
- SWD (switching duty)—suitable for switching fluorescent lighting loads ($I_n \leq 20A$)
- Fulfill UL 489, CSA C22.2 No.5 and also IEC 60947-2 Standard
- For use in applications for which UL 1077 or CSA C22.2 No.235 are also allowed
- Field-installable shunt trip and auxiliary switch subsequent mounting
- Separate version for ring-tongue connection (Type FAZ-RT), terminal screws can be removed (on both sides)
- Module width of only 17.7 mm (per pole)
- Contact Position Indicator (red/green)
- Easy installation on DIN rail
- Possibility for sealing the toggle in ON or OFF position
- Single-, two-, three- and four-pole configurations

Device Printing on Front and Side

Installation options

These branch circuit breakers are available in two terminal configurations: standard box terminals that accept multiple conductors and ring-tongue terminals, ideally suited to demanding requirements of the semi-conductor industry. All breakers mount on standard 35 mm DIN rail. Bus connectors and feeder terminal facilitate mounting and wiring of multiple miniature circuit breaker arrays in control panel assemblies. These circuit breakers can also be reverse feed.

1

Standards and Certifications

FAZ-NA

FAZ-NA complies with the latest national and international standards.

- UL 489
  - Standard for molded case circuit breakers (MCCB) for feeder and branch circuit protection
  - Products meet the requirements of the National Electrical Code® (NEC®)
- CSA C22.2 No.5
  - Standard for molded case circuit breakers (MCCB) for feeder and branch circuit protection (corresponds closely to UL 489 Standard)
  - Products meet the requirements of the Canadian Electrical Code (CEC)
- RoHS compliant
- VDE compliant
- ABS compliant

Listed

FAZ-NA-L

FAZ-NA-L 0.5–63A at 240 Vac comply with the following standards.

- UL 489 listed
- CSA C22.2 No. 5-02
- IEC rated
- RoHS compliant
- CCC compliant
- OVE compliant
- EAC compliant
- ABS compliant
- VDE compliant

Listed

Catalog Number Selection

FAZ - C 6 / 1 - NA - SP

Breaker Family
FAZ = FAZ UL circuit breaker

Trip Characteristics ①
B = 3–5X I_n
C = 5–10X I_n
D = 10–20X I_n

Ampere Rating ②			
0.5	= 0.5A	**13**	= 13A
1	= 1A	**15**	= 15A
1.5	= 1.5A	**16**	= 16A
2	= 2A	**20**	= 20A
3	= 3A	**25**	= 25A
4	= 4A	**30**	= 30A
5	= 5A	**32**	= 32A
6	= 6A	**35**	= 32A
7	= 7A	**40**	= 40A
8	= 8A	**50**	= 50A
10	= 10A	**63**	= 63A

Number of Poles
1 = Single-pole
2 = Two-pole
3 = Three-pole
4 = Four-pole

Terminal	
NA	= UL 489 branch circuit at 277/480 Vac with screw terminals
RT	= UL 489 branch circuit at 277/480 Vac with ring-tongue terminals
DC	= UL 489 branch circuit at 125 Vdc per pole
NA-L	= UL 489 branch circuit at 240 Vac with screw terminals
RT-L	= UL 489 branch circuit at 240 Vac with ring-tongue terminals

Single Package ③
SP = Single package for C and D curve single-pole at 277 Vac only
Blank = Standard packaging

Notes

① I_n = Rated current for instantaneous trip characteristics.

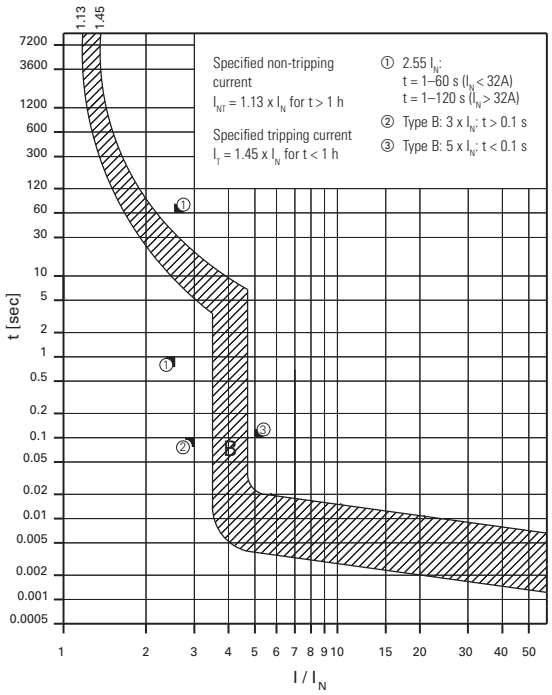
② B curve starts at 1 ampere.

③ Single package only available for 277 Vac offering—not an option for 240 Vac line.

Product Selection

FAZ-NA B Curve 277/480 Vac Rated Offering

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-NA UL 489 Circuit Breakers at 277/480 Vac—10 kAIC, 14 kAIC B Curve (15–25A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
B Curve (3–5X I_n Current Rating)				
1	**FAZ-B1/1-NA**	**FAZ-B1/2-NA**	**FAZ-B1/3-NA**	**FAZ-B1/4-NA**
1.5	**FAZ-B1.5/1-NA**	**FAZ-B1.5/2-NA**	**FAZ-B1.5/3-NA**	**FAZ-B1.5/4-NA**
2	**FAZ-B2/1-NA**	**FAZ-B2/2-NA**	**FAZ-B2/3-NA**	**FAZ-B2/4-NA**
3	**FAZ-B3/1-NA**	**FAZ-B3/2-NA**	**FAZ-B3/3-NA**	**FAZ-B3/4-NA**
4	**FAZ-B4/1-NA**	**FAZ-B4/2-NA**	**FAZ-B4/3-NA**	**FAZ-B4/4-NA**
5	**FAZ-B5/1-NA**	**FAZ-B5/2-NA**	**FAZ-B5/3-NA**	**FAZ-B5/4-NA**
6	**FAZ-B6/1-NA**	**FAZ-B6/2-NA**	**FAZ-B6/3-NA**	**FAZ-B6/4-NA**
7	**FAZ-B7/1-NA**	**FAZ-B7/2-NA**	**FAZ-B7/3-NA**	**FAZ-B7/4-NA**
8	**FAZ-B8/1-NA**	**FAZ-B8/2-NA**	**FAZ-B8/3-NA**	**FAZ-B8/4-NA**
10	**FAZ-B10/1-NA**	**FAZ-B10/2-NA**	**FAZ-B10/3-NA**	**FAZ-B10/4-NA**
13	**FAZ-B13/1-NA**	**FAZ-B13/2-NA**	**FAZ-B13/3-NA**	**FAZ-B13/4-NA**
15	**FAZ-B15/1-NA**	**FAZ-B15/2-NA**	**FAZ-B15/3-NA**	**FAZ-B15/4-NA**
16	**FAZ-B16/1-NA**	**FAZ-B16/2-NA**	**FAZ-B16/3-NA**	**FAZ-B16/4-NA**
20	**FAZ-B20/1-NA**	**FAZ-B20/2-NA**	**FAZ-B20/3-NA**	**FAZ-B20/4-NA**
25	**FAZ-B25/1-NA**	**FAZ-B25/2-NA**	**FAZ-B25/3-NA**	**FAZ-B25/4-NA**
30	**FAZ-B30/1-NA**	**FAZ-B30/2-NA**	**FAZ-B30/3-NA**	**FAZ-B30/4-NA**
32	**FAZ-B32/1-NA**	**FAZ-B32/2-NA**	**FAZ-B32/3-NA**	**FAZ-B32/4-NA**

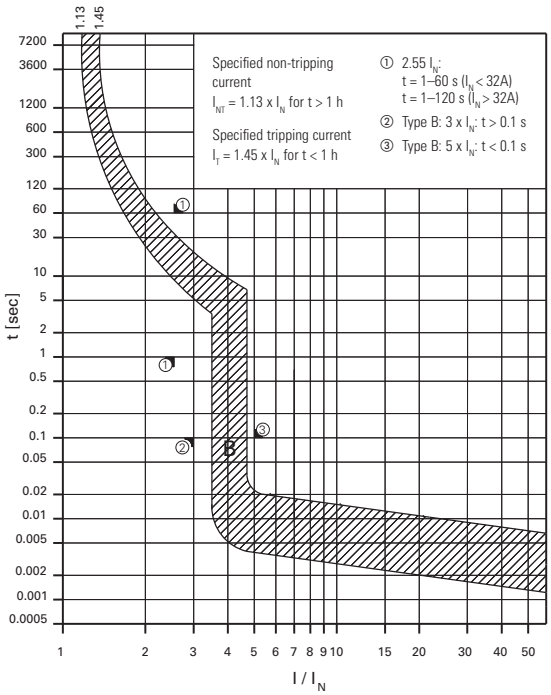
Note

① Two-piece order. Quantities of two per box.

1

FAZ-NA B Curve 277/480 Vac Rated Offering

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-RT UL 489 Circuit Breakers with Ring-Tongue Terminals at 277/480 Vac—10 kAIC, 14 kAIC B Curve (15–25A)

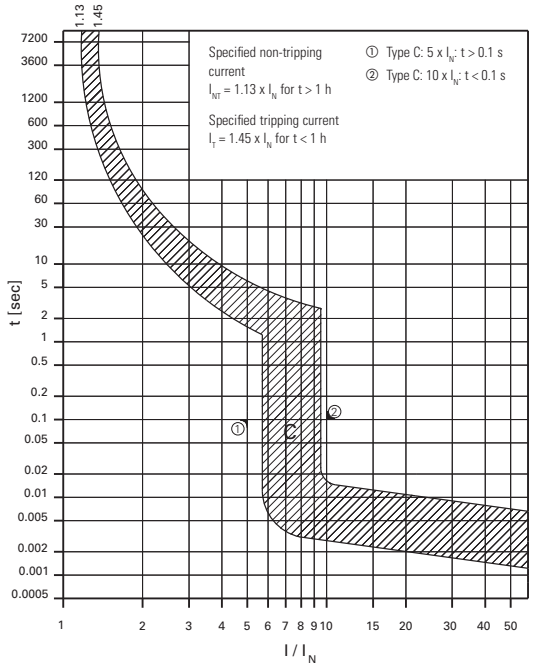
Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
B Curve with Ring-Tongue Terminals (3–5X I_n Current Rating)				
1	**FAZ-B1/1-RT**	**FAZ-B1/2-RT**	**FAZ-B1/3-RT**	**FAZ-B1/4-RT**
1.5	**FAZ-B1.5/1-RT**	**FAZ-B1.5/2-RT**	**FAZ-B1.5/3-RT**	**FAZ-B1.5/4-RT**
2	**FAZ-B2/1-RT**	**FAZ-B2/2-RT**	**FAZ-B2/3-RT**	**FAZ-B2/4-RT**
3	**FAZ-B3/1-RT**	**FAZ-B3/2-RT**	**FAZ-B3/3-RT**	**FAZ-B3/4-RT**
4	**FAZ-B4/1-RT**	**FAZ-B4/2-RT**	**FAZ-B4/3-RT**	**FAZ-B4/4-RT**
5	**FAZ-B5/1-RT**	**FAZ-B5/2-RT**	**FAZ-B5/3-RT**	**FAZ-B5/4-RT**
6	**FAZ-B6/1-RT**	**FAZ-B6/2-RT**	**FAZ-B6/3-RT**	**FAZ-B6/4-RT**
7	**FAZ-B7/1-RT**	**FAZ-B7/2-RT**	**FAZ-B7/3-RT**	**FAZ-B7/4-RT**
8	**FAZ-B8/1-RT**	**FAZ-B8/2-RT**	**FAZ-B8/3-RT**	**FAZ-B8/4-RT**
10	**FAZ-B10/1-RT**	**FAZ-B10/2-RT**	**FAZ-B10/3-RT**	**FAZ-B10/4-RT**
13	**FAZ-B13/1-RT**	**FAZ-B13/2-RT**	**FAZ-B13/3-RT**	**FAZ-B13/4-RT**
15	**FAZ-B15/1-RT**	**FAZ-B15/2-RT**	**FAZ-B15/3-RT**	**FAZ-B15/4-RT**
16	**FAZ-B16/1-RT**	**FAZ-B16/2-RT**	**FAZ-B16/3-RT**	**FAZ-B16/4-RT**
20	**FAZ-B20/1-RT**	**FAZ-B20/2-RT**	**FAZ-B20/3-RT**	**FAZ-B20/4-RT**
25	**FAZ-B25/1-RT**	**FAZ-B25/2-RT**	**FAZ-B25/3-RT**	**FAZ-B25/4-RT**
30	**FAZ-B30/1-RT**	**FAZ-B30/2-RT**	**FAZ-B30/3-RT**	**FAZ-B30/4-RT**
32	**FAZ-B32/1-RT**	**FAZ-B32/2-RT**	**FAZ-B32/3-RT**	**FAZ-B32/4-RT**

Note

① Two-piece order. Quantities of two per box.

FAZ-NA C Curve 277/480 Vac Rated Offering

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-NA UL 489 Circuit Breakers at 277/480 Vac—10 kAIC, 14 kAIC C Curve (15–25A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
C Curve (5–10X I_n Current Rating)				
0.5	**FAZ-C0.5/1-NA-SP**	**FAZ-C0.5/2-NA**	**FAZ-C0.5/3-NA**	**FAZ-C0.5/4-NA**
1	**FAZ-C1/1-NA-SP**	**FAZ-C1/2-NA**	**FAZ-C1/3-NA**	**FAZ-C1/4-NA**
1.5	**FAZ-C1.5/1-NA-SP**	**FAZ-C1.5/2-NA**	**FAZ-C1.5/3-NA**	**FAZ-C1.5/4-NA**
2	**FAZ-C2/1-NA-SP**	**FAZ-C2/2-NA**	**FAZ-C2/3-NA**	**FAZ-C2/4-NA**
3	**FAZ-C3/1-NA-SP**	**FAZ-C3/2-NA**	**FAZ-C3/3-NA**	**FAZ-C3/4-NA**
4	**FAZ-C4/1-NA-SP**	**FAZ-C4/2-NA**	**FAZ-C4/3-NA**	**FAZ-C4/4-NA**
5	**FAZ-C5/1-NA-SP**	**FAZ-C5/2-NA**	**FAZ-C5/3-NA**	**FAZ-C5/4-NA**
6	**FAZ-C6/1-NA-SP**	**FAZ-C6/2-NA**	**FAZ-C6/3-NA**	**FAZ-C6/4-NA**
7	**FAZ-C7/1-NA-SP**	**FAZ-C7/2-NA**	**FAZ-C7/3-NA**	**FAZ-C7/4-NA**
8	**FAZ-C8/1-NA-SP**	**FAZ-C8/2-NA**	**FAZ-C8/3-NA**	**FAZ-C8/4-NA**
10	**FAZ-C10/1-NA-SP**	**FAZ-C10/2-NA**	**FAZ-C10/3-NA**	**FAZ-C10/4-NA**
13	**FAZ-C13/1-NA-SP**	**FAZ-C13/2-NA**	**FAZ-C13/3-NA**	**FAZ-C13/4-NA**
15	**FAZ-C15/1-NA-SP**	**FAZ-C15/2-NA**	**FAZ-C15/3-NA**	**FAZ-C15/4-NA**
16	**FAZ-C16/1-NA-SP**	**FAZ-C16/2-NA**	**FAZ-C16/3-NA**	**FAZ-C16/4-NA**
20	**FAZ-C20/1-NA-SP**	**FAZ-C20/2-NA**	**FAZ-C20/3-NA**	**FAZ-C20/4-NA**
25	**FAZ-C25/1-NA-SP**	**FAZ-C25/2-NA**	**FAZ-C25/3-NA**	**FAZ-C25/4-NA**
30	**FAZ-C30/1-NA-SP**	**FAZ-C30/2-NA**	**FAZ-C30/3-NA**	**FAZ-C30/4-NA**
32	**FAZ-C32/1-NA-SP**	**FAZ-C32/2-NA**	**FAZ-C32/3-NA**	**FAZ-C32/4-NA**

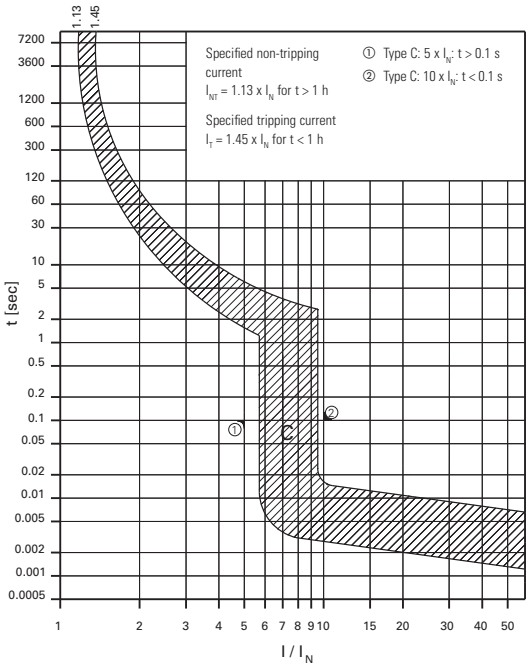
Note

① Option for single packaging on single-pole C and D curves only; add suffix SP when ordering.

1

FAZ-NA C Curve 277/480 Vac Rated Offering

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-RT UL 489 Circuit Breakers with Ring-Tongue Terminals at 277/480 Vac—10 kAIC, 14 kAIC C Curve (15–25A)

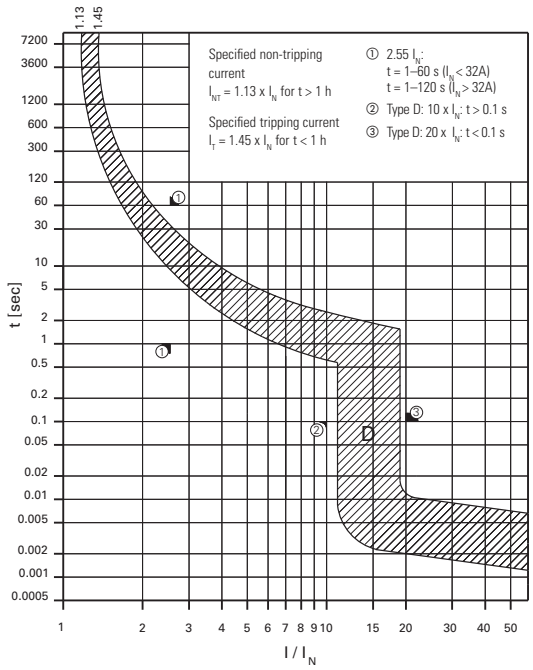
Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
C Curve with Ring-Tongue Terminals (5–10X I_n Current Rating)				
0.5	**FAZ-C0.5/1-RT-SP**	**FAZ-C0.5/2-RT**	**FAZ-C0.5/3-RT**	**FAZ-C0.5/4-RT**
1	**FAZ-C1/1-RT-SP**	**FAZ-C1/2-RT**	**FAZ-C1/3-RT**	**FAZ-C1/4-RT**
1.5	**FAZ-C1.5/1-RT-SP**	**FAZ-C1.5/2-RT**	**FAZ-C1.5/3-RT**	**FAZ-C1.5/4-RT**
2	**FAZ-C2/1-RT-SP**	**FAZ-C2/2-RT**	**FAZ-C2/3-RT**	**FAZ-C2/4-RT**
3	**FAZ-C3/1-RT-SP**	**FAZ-C3/2-RT**	**FAZ-C3/3-RT**	**FAZ-C3/4-RT**
4	**FAZ-C4/1-RT-SP**	**FAZ-C4/2-RT**	**FAZ-C4/3-RT**	**FAZ-C4/4-RT**
5	**FAZ-C5/1-RT-SP**	**FAZ-C5/2-RT**	**FAZ-C5/3-RT**	**FAZ-C5/4-RT**
6	**FAZ-C6/1-RT-SP**	**FAZ-C6/2-RT**	**FAZ-C6/3-RT**	**FAZ-C6/4-RT**
7	**FAZ-C7/1-RT-SP**	**FAZ-C7/2-RT**	**FAZ-C7/3-RT**	**FAZ-C7/4-RT**
8	**FAZ-C8/1-RT-SP**	**FAZ-C8/2-RT**	**FAZ-C8/3-RT**	**FAZ-C8/4-RT**
10	**FAZ-C10/1-RT-SP**	**FAZ-C10/2-RT**	**FAZ-C10/3-RT**	**FAZ-C10/4-RT**
13	**FAZ-C13/1-RT-SP**	**FAZ-C13/2-RT**	**FAZ-C13/3-RT**	**FAZ-C13/4-RT**
15	**FAZ-C15/1-RT-SP**	**FAZ-C15/2-RT**	**FAZ-C15/3-RT**	**FAZ-C15/4-RT**
16	**FAZ-C16/1-RT-SP**	**FAZ-C16/2-RT**	**FAZ-C16/3-RT**	**FAZ-C16/4-RT**
20	**FAZ-C20/1-RT-SP**	**FAZ-C20/2-RT**	**FAZ-C20/3-RT**	**FAZ-C20/4-RT**
25	**FAZ-C25/1-RT-SP**	**FAZ-C25/2-RT**	**FAZ-C25/3-RT**	**FAZ-C25/4-RT**
30	**FAZ-C30/1-RT-SP**	**FAZ-C30/2-RT**	**FAZ-C30/3-RT**	**FAZ-C30/4-RT**
32	**FAZ-C32/1-RT-SP**	**FAZ-C32/2-RT**	**FAZ-C32/3-RT**	**FAZ-C32/4-RT**

Note

① Option for single packaging on single-pole C and D curves only.

FAZ-NA D Curve 277/480 Vac Rated Offering

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-NA UL 489 Circuit Breakers at 277/480 Vac—10 kAIC, 14 kAIC D Curve (13–20A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
D Curve (10–20X I_n Current Rating)				
0.5	**FAZ-D0.5/1-NA-SP**	**FAZ-D0.5/2-NA**	**FAZ-D0.5/3-NA**	**FAZ-D0.5/4-NA**
1	**FAZ-D1/1-NA-SP**	**FAZ-D1/2-NA**	**FAZ-D1/3-NA**	**FAZ-D1/4-NA**
1.5	**FAZ-D1.5/1-NA-SP**	**FAZ-D1.5/2-NA**	**FAZ-D1.5/3-NA**	**FAZ-D1.5/4-NA**
2	**FAZ-D2/1-NA-SP**	**FAZ-D2/2-NA**	**FAZ-D2/3-NA**	**FAZ-D2/4-NA**
3	**FAZ-D3/1-NA-SP**	**FAZ-D3/2-NA**	**FAZ-D3/3-NA**	**FAZ-D3/4-NA**
4	**FAZ-D4/1-NA-SP**	**FAZ-D4/2-NA**	**FAZ-D4/3-NA**	**FAZ-D4/4-NA**
5	**FAZ-D5/1-NA-SP**	**FAZ-D5/2-NA**	**FAZ-D5/3-NA**	**FAZ-D5/4-NA**
6	**FAZ-D6/1-NA-SP**	**FAZ-D6/2-NA**	**FAZ-D6/3-NA**	**FAZ-D6/4-NA**
7	**FAZ-D7/1-NA-SP**	**FAZ-D7/2-NA**	**FAZ-D7/3-NA**	**FAZ-D7/4-NA**
8	**FAZ-D8/1-NA-SP**	**FAZ-D8/2-NA**	**FAZ-D8/3-NA**	**FAZ-D8/4-NA**
10	**FAZ-D10/1-NA-SP**	**FAZ-D10/2-NA**	**FAZ-D10/3-NA**	**FAZ-D10/4-NA**
13	**FAZ-D13/1-NA-SP**	**FAZ-D13/2-NA**	**FAZ-D13/3-NA**	**FAZ-D13/4-NA**
15	**FAZ-D15/1-NA-SP**	**FAZ-D15/2-NA**	**FAZ-D15/3-NA**	**FAZ-D15/4-NA**
16	**FAZ-D16/1-NA-SP**	**FAZ-D16/2-NA**	**FAZ-D16/3-NA**	**FAZ-D16/4-NA**
20	**FAZ-D20/1-NA-SP**	**FAZ-D20/2-NA**	**FAZ-D20/3-NA**	**FAZ-D20/4-NA**
25	**FAZ-D25/1-NA-SP**	**FAZ-D25/2-NA**	**FAZ-D25/3-NA**	**FAZ-D25/4-NA**
30	**FAZ-D30/1-NA-SP**	**FAZ-D30/2-NA**	**FAZ-D30/3-NA**	**FAZ-D30/4-NA**
32	**FAZ-D32/1-NA-SP**	**FAZ-D32/2-NA**	**FAZ-D32/3-NA**	**FAZ-D32/4-NA**

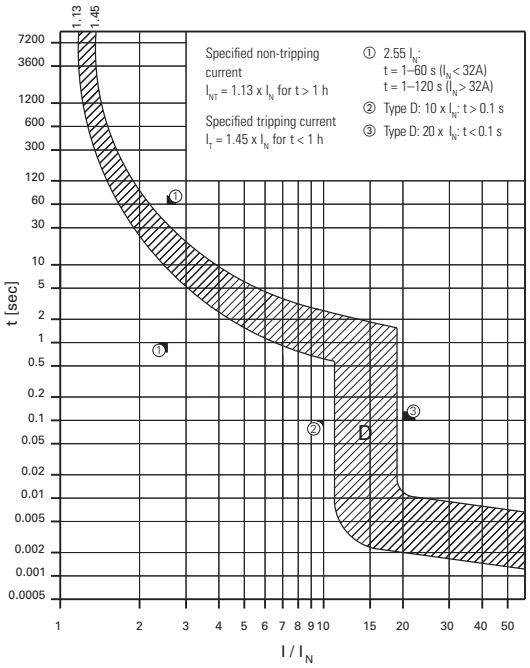
Note

① Option for single packaging on single-pole C and D curves only.

1

FAZ-NA D Curve 277/480 Vac Rated Offering

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-RT UL 489 Circuit Breakers with Ring-Tongue Terminals at 277/480 Vac—10 kAIC, 14 kAIC D Curve (13–20A)

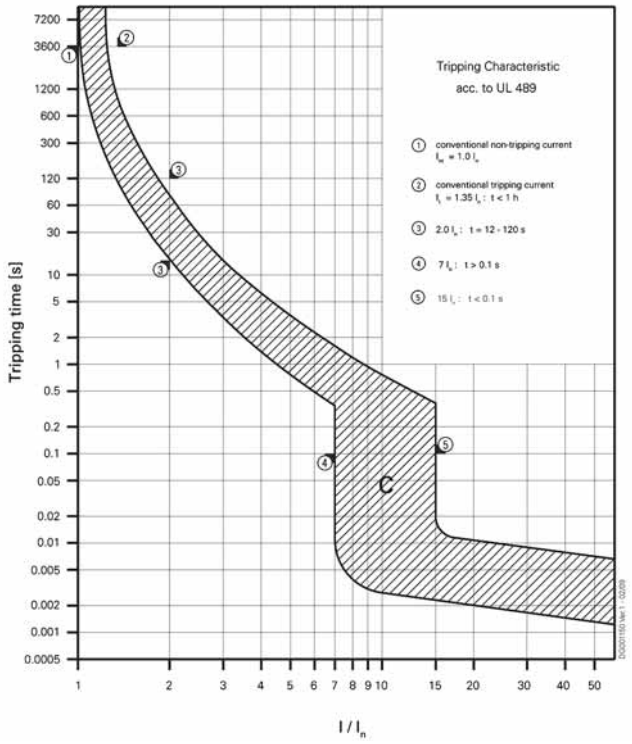
Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
D Curve with Ring-Tongue Terminals (10–20X I_n Current Rating)				
0.5	**FAZ-D0.5/1-RT-SP**	**FAZ-D0.5/2-RT**	**FAZ-D0.5/3-RT**	**FAZ-D0.5/4-RT**
1	**FAZ-D1/1-RT-SP**	**FAZ-D1/2-RT**	**FAZ-D1/3-RT**	**FAZ-D1/4-RT**
1.5	**FAZ-D1.5/1-RT-SP**	**FAZ-D1.5/2-RT**	**FAZ-D1.5/3-RT**	**FAZ-D1.5/4-RT**
2	**FAZ-D2/1-RT-SP**	**FAZ-D2/2-RT**	**FAZ-D2/3-RT**	**FAZ-D2/4-RT**
3	**FAZ-D3/1-RT-SP**	**FAZ-D3/2-RT**	**FAZ-D3/3-RT**	**FAZ-D3/4-RT**
4	**FAZ-D4/1-RT-SP**	**FAZ-D4/2-RT**	**FAZ-D4/3-RT**	**FAZ-D4/4-RT**
5	**FAZ-D5/1-RT-SP**	**FAZ-D5/2-RT**	**FAZ-D5/3-RT**	**FAZ-D5/4-RT**
6	**FAZ-D6/1-RT-SP**	**FAZ-D6/2-RT**	**FAZ-D6/3-RT**	**FAZ-D6/4-RT**
7	**FAZ-D7/1-RT-SP**	**FAZ-D7/2-RT**	**FAZ-D7/3-RT**	**FAZ-D7/4-RT**
8	**FAZ-D8/1-RT-SP**	**FAZ-D8/2-RT**	**FAZ-D8/3-RT**	**FAZ-D8/4-RT**
10	**FAZ-D10/1-RT-SP**	**FAZ-D10/2-RT**	**FAZ-D10/3-RT**	**FAZ-D10/4-RT**
13	**FAZ-D13/1-RT-SP**	**FAZ-D13/2-RT**	**FAZ-D13/3-RT**	**FAZ-D13/4-RT**
15	**FAZ-D15/1-RT-SP**	**FAZ-D15/2-RT**	**FAZ-D15/3-RT**	**FAZ-D15/4-RT**
16	**FAZ-D16/1-RT-SP**	**FAZ-D16/2-RT**	**FAZ-D16/3-RT**	**FAZ-D16/4-RT**
20	**FAZ-D20/1-RT-SP**	**FAZ-D20/2-RT**	**FAZ-D20/3-RT**	**FAZ-D20/4-RT**
25	**FAZ-D25/1-RT-SP**	**FAZ-D25/2-RT**	**FAZ-D25/3-RT**	**FAZ-D25/4-RT**
30	**FAZ-D30/1-RT-SP**	**FAZ-D30/2-RT**	**FAZ-D30/3-RT**	**FAZ-D30/4-RT**
32	**FAZ-D32/1-RT-SP**	**FAZ-D32/2-RT**	**FAZ-D32/3-RT**	**FAZ-D32/4-RT**

Note

① Option for single packaging on single-pole C and D curves only.

FAZ-NA-DC C Curve at 125 Vdc per Pole Offering

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as Branch Circuit Breakers
- Interrupting capacity: 10 kA at 125 Vdc UL/CSA, 10 kA at 250 Vdc
- 125 Vdc for one-pole, 250 Vdc for two-pole in series
- Current limiting device
- Polarity (+/–) sensitive and not for use on photovoltaic string application
- UL file number E235139



Single-Pole

Two-Pole

FAZ-NA-DC UL 489 Circuit Breakers—10 kAIC at 125 Vdc Per Pole

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number
C Curve (5–10X I_n Current Rating)		
2	**FAZ-C2/1-NA-DC-SP**	**FAZ-C2/2-NA-DC**
3	**FAZ-C3/1-NA-DC-SP**	**FAZ-C3/2-NA-DC**
4	**FAZ-C4/1-NA-DC-SP**	**FAZ-C4/2-NA-DC**
5	**FAZ-C5/1-NA-DC-SP**	**FAZ-C5/2-NA-DC**
6	**FAZ-C6/1-NA-DC-SP**	**FAZ-C6/2-NA-DC**
7	**FAZ-C7/1-NA-DC-SP**	**FAZ-C7/2-NA-DC**
8	**FAZ-C8/1-NA-DC-SP**	**FAZ-C8/2-NA-DC**
10	**FAZ-C10/1-NA-DC-SP**	**FAZ-C10/2-NA-DC**
13	**FAZ-C13/1-NA-DC-SP**	**FAZ-C13/2-NA-DC**
15	**FAZ-C15/1-NA-DC-SP**	**FAZ-C15/2-NA-DC**
16	**FAZ-C16/1-NA-DC-SP**	**FAZ-C16/2-NA-DC**
20	**FAZ-C20/1-NA-DC-SP**	**FAZ-C20/2-NA-DC**
25	**FAZ-C25/1-NA-DC-SP**	**FAZ-C25/2-NA-DC**
30	**FAZ-C30/1-NA-DC-SP**	**FAZ-C30/2-NA-DC**
32	**FAZ-C32/1-NA-DC-SP**	**FAZ-C32/2-NA-DC**
35	**FAZ-C35/1-NA-DC-SP**	**FAZ-C35/2-NA-DC**
40	**FAZ-C40/1-NA-DC-SP**	**FAZ-C40/2-NA-DC**

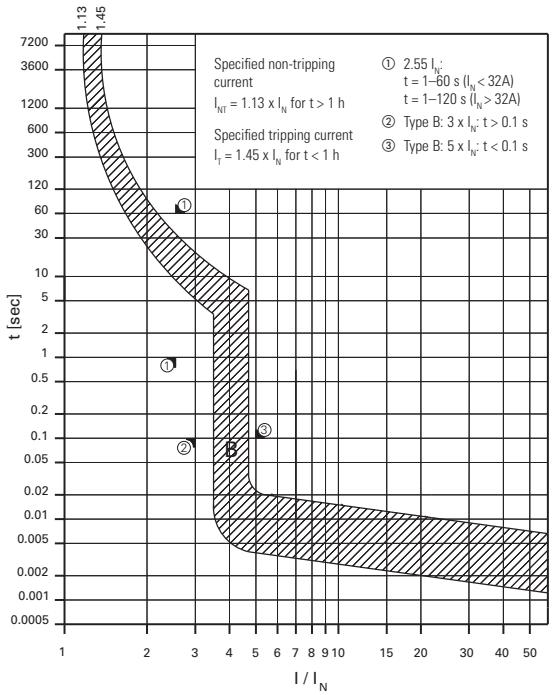
Note

① Option for single packaging on single-pole C curves only; add suffix SP when ordering.

1

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC B Curve

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- 48 Vdc for single-pole
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC, 14 kAIC B Curve (15–25A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
B Curve (3–5X I_n Current Rating)				
1	**FAZ-B1/1-NA-L**	**FAZ-B1/2-NA-L**	**FAZ-B1/3-NA-L**	**FAZ-B1/4-NA-L**
1.5	**FAZ-B1.5/1-NA-L**	**FAZ-B1.5/2-NA-L**	**FAZ-B1.5/3-NA-L**	**FAZ-B1.5/4-NA-L**
2	**FAZ-B2/1-NA-L**	**FAZ-B2/2-NA-L**	**FAZ-B2/3-NA-L**	**FAZ-B2/4-NA-L**
3	**FAZ-B3/1-NA-L**	**FAZ-B3/2-NA-L**	**FAZ-B3/3-NA-L**	**FAZ-B3/4-NA-L**
4	**FAZ-B4/1-NA-L**	**FAZ-B4/2-NA-L**	**FAZ-B4/3-NA-L**	**FAZ-B4/4-NA-L**
5	**FAZ-B5/1-NA-L**	**FAZ-B5/2-NA-L**	**FAZ-B5/3-NA-L**	**FAZ-B5/4-NA-L**
6	**FAZ-B6/1-NA-L**	**FAZ-B6/2-NA-L**	**FAZ-B6/3-NA-L**	**FAZ-B6/4-NA-L**
7	**FAZ-B7/1-NA-L**	**FAZ-B7/2-NA-L**	**FAZ-B7/3-NA-L**	**FAZ-B7/4-NA-L**
8	**FAZ-B8/1-NA-L**	**FAZ-B8/2-NA-L**	**FAZ-B8/3-NA-L**	**FAZ-B8/4-NA-L**
10	**FAZ-B10/1-NA-L**	**FAZ-B10/2-NA-L**	**FAZ-B10/3-NA-L**	**FAZ-B10/4-NA-L**
13	**FAZ-B13/1-NA-L**	**FAZ-B13/2-NA-L**	**FAZ-B13/3-NA-L**	**FAZ-B13/4-NA-L**
15	**FAZ-B15/1-NA-L**	**FAZ-B15/2-NA-L**	**FAZ-B15/3-NA-L**	**FAZ-B15/4-NA-L**
16	**FAZ-B16/1-NA-L**	**FAZ-B16/2-NA-L**	**FAZ-B16/3-NA-L**	**FAZ-B16/4-NA-L**
20	**FAZ-B20/1-NA-L**	**FAZ-B20/2-NA-L**	**FAZ-B20/3-NA-L**	**FAZ-B20/4-NA-L**
25	**FAZ-B25/1-NA-L**	**FAZ-B25/2-NA-L**	**FAZ-B25/3-NA-L**	**FAZ-B25/4-NA-L**
30	**FAZ-B30/1-NA-L**	**FAZ-B30/2-NA-L**	**FAZ-B30/3-NA-L**	**FAZ-B30/4-NA-L**
32	**FAZ-B32/1-NA-L**	**FAZ-B32/2-NA-L**	**FAZ-B32/3-NA-L**	**FAZ-B32/4-NA-L**
35 ②	**FAZ-B35/1-NA**	**FAZ-B35/2-NA**	**FAZ-B35/3-NA**	**FAZ-B35/4-NA**
40 ②	**FAZ-B40/1-NA**	**FAZ-B40/2-NA**	**FAZ-B40/3-NA**	**FAZ-B40/4-NA**
50	**FAZ-B50/1-NA**	**FAZ-B50/2-NA**	**FAZ-B50/3-NA**	**FAZ-B50/4-NA**
63	**FAZ-B63/1-NA**	**FAZ-B63/2-NA**	**FAZ-B63/3-NA**	**FAZ-B63/4-NA**

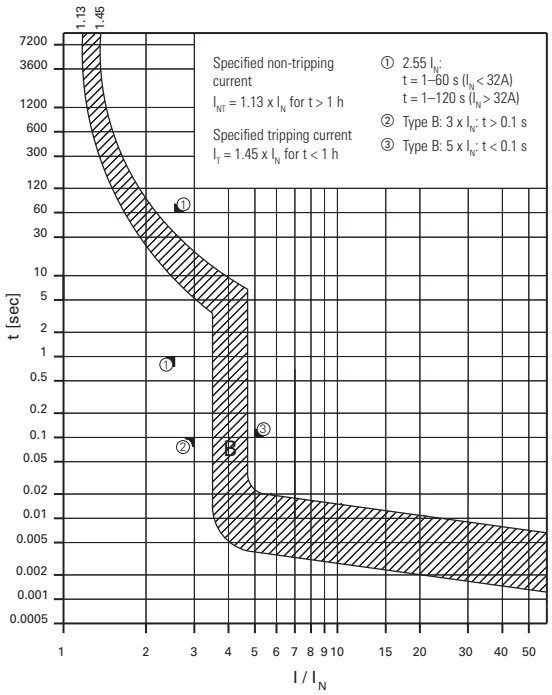
Notes

① Two-piece order. Quantities of two per box.

② 35A and 40A at 240 Vac were available prior to the creation of the FAZ-NA-L offering so the catalog numbers at these amperages exclude the "L" suffix.

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC B Curve

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- 48 Vdc for single-pole
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-RT-L UL 489 Circuit Breakers with Ring-Tongue Terminals at 240 Vac—10 kAIC, 14 kAIC B Curve (15–25A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
B Curve with Ring-Tongue Terminals (3–5X I_n Current Rating)				
1	FAZ-B1/1-RT-L	FAZ-B1/2-RT-L	FAZ-B1/3-RT-L	FAZ-B1/4-RT-L
1.5	FAZ-B1.5/1-RT-L	FAZ-B1.5/2-RT-L	FAZ-B1.5/3-RT-L	FAZ-B1.5/4-RT-L
2	FAZ-B2/1-RT-L	FAZ-B2/2-RT-L	FAZ-B2/3-RT-L	FAZ-B2/4-RT-L
3	FAZ-B3/1-RT-L	FAZ-B3/2-RT-L	FAZ-B3/3-RT-L	FAZ-B3/4-RT-L
4	FAZ-B4/1-RT-L	FAZ-B4/2-RT-L	FAZ-B4/3-RT-L	FAZ-B4/4-RT-L
5	FAZ-B5/1-RT-L	FAZ-B5/2-RT-L	FAZ-B5/3-RT-L	FAZ-B5/4-RT-L
6	FAZ-B6/1-RT-L	FAZ-B6/2-RT-L	FAZ-B6/3-RT-L	FAZ-B6/4-RT-L
7	FAZ-B7/1-RT-L	FAZ-B7/2-RT-L	FAZ-B7/3-RT-L	FAZ-B7/4-RT-L
8	FAZ-B8/1-RT-L	FAZ-B8/2-RT-L	FAZ-B8/3-RT-L	FAZ-B8/4-RT-L
10	FAZ-B10/1-RT-L	FAZ-B10/2-RT-L	FAZ-B10/3-RT-L	FAZ-B10/4-RT-L
13	FAZ-B13/1-RT-L	FAZ-B13/2-RT-L	FAZ-B13/3-RT-L	FAZ-B13/4-RT-L
15	FAZ-B15/1-RT-L	FAZ-B15/2-RT-L	FAZ-B15/3-RT-L	FAZ-B15/4-RT-L
16	FAZ-B16/1-RT-L	FAZ-B16/2-RT-L	FAZ-B16/3-RT-L	FAZ-B16/4-RT-L
20	FAZ-B20/1-RT-L	FAZ-B20/2-RT-L	FAZ-B20/3-RT-L	FAZ-B20/4-RT-L
25	FAZ-B25/1-RT-L	FAZ-B25/2-RT-L	FAZ-B25/3-RT-L	FAZ-B25/4-RT-L
30	FAZ-B30/1-RT-L	FAZ-B30/2-RT-L	FAZ-B30/3-RT-L	FAZ-B30/4-RT-L
32	FAZ-B32/1-RT-L	FAZ-B32/2-RT-L	FAZ-B32/3-RT-L	FAZ-B32/4-RT-L
35 ②	FAZ-B35/1-RT	FAZ-B35/2-RT	FAZ-B35/3-RT	FAZ-B35/4-RT
40 ②	FAZ-B40/1-RT	FAZ-B40/2-RT	FAZ-B40/3-RT	FAZ-B40/4-RT
50	FAZ-B50/1-RT	FAZ-B50/2-RT	FAZ-B50/3-RT	FAZ-B50/4-RT
63	FAZ-B63/1-RT	FAZ-B63/2-RT	FAZ-B63/3-RT	FAZ-B63/4-RT

Notes

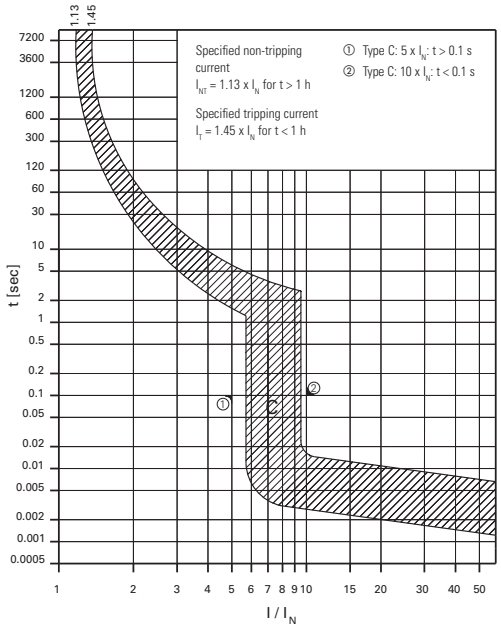
① Two-piece order. Quantities of two per box.

② 35A and 40A at 240 Vac were available prior to the creation of the FAZ-NA-L offering so the catalog numbers at these amperages exclude the "L" suffix.

1

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC C Curve

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- 48 Vdc for single-pole
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC, 14 kAIC C Curve (15–25A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
C Curve (5–10X I_n Current Rating)				
0.5	**FAZ-C0.5/1-NA-L**	**FAZ-C0.5/2-NA-L**	**FAZ-C0.5/3-NA-L**	**FAZ-C0.5/4-NA-L**
1	**FAZ-C1/1-NA-L**	**FAZ-C1/2-NA-L**	**FAZ-C1/3-NA-L**	**FAZ-C1/4-NA-L**
1.5	**FAZ-C1.5/1-NA-L**	**FAZ-C1.5/2-NA-L**	**FAZ-C1.5/3-NA-L**	**FAZ-C1.5/4-NA-L**
2	**FAZ-C2/1-NA-L**	**FAZ-C2/2-NA-L**	**FAZ-C2/3-NA-L**	**FAZ-C2/4-NA-L**
3	**FAZ-C3/1-NA-L**	**FAZ-C3/2-NA-L**	**FAZ-C3/3-NA-L**	**FAZ-C3/4-NA-L**
4	**FAZ-C4/1-NA-L**	**FAZ-C4/2-NA-L**	**FAZ-C4/3-NA-L**	**FAZ-C4/4-NA-L**
5	**FAZ-C5/1-NA-L**	**FAZ-C5/2-NA-L**	**FAZ-C5/3-NA-L**	**FAZ-C5/4-NA-L**
6	**FAZ-C6/1-NA-L**	**FAZ-C6/2-NA-L**	**FAZ-C6/3-NA-L**	**FAZ-C6/4-NA-L**
7	**FAZ-C7/1-NA-L**	**FAZ-C7/2-NA-L**	**FAZ-C7/3-NA-L**	**FAZ-C7/4-NA-L**
8	**FAZ-C8/1-NA-L**	**FAZ-C8/2-NA-L**	**FAZ-C8/3-NA-L**	**FAZ-C8/4-NA-L**
10	**FAZ-C10/1-NA-L**	**FAZ-C10/2-NA-L**	**FAZ-C10/3-NA-L**	**FAZ-C10/4-NA-L**
13	**FAZ-C13/1-NA-L**	**FAZ-C13/2-NA-L**	**FAZ-C13/3-NA-L**	**FAZ-C13/4-NA-L**
15	**FAZ-C15/1-NA-L**	**FAZ-C15/2-NA-L**	**FAZ-C15/3-NA-L**	**FAZ-C15/4-NA-L**
16	**FAZ-C16/1-NA-L**	**FAZ-C16/2-NA-L**	**FAZ-C16/3-NA-L**	**FAZ-C16/4-NA-L**
20	**FAZ-C20/1-NA-L**	**FAZ-C20/2-NA-L**	**FAZ-C20/3-NA-L**	**FAZ-C20/4-NA-L**
25	**FAZ-C25/1-NA-L**	**FAZ-C25/2-NA-L**	**FAZ-C25/3-NA-L**	**FAZ-C25/4-NA-L**
30	**FAZ-C30/1-NA-L**	**FAZ-C30/2-NA-L**	**FAZ-C30/3-NA-L**	**FAZ-C30/4-NA-L**
32	**FAZ-C32/1-NA-L**	**FAZ-C32/2-NA-L**	**FAZ-C32/3-NA-L**	**FAZ-C32/4-NA-L**
35 ②	**FAZ-C35/1-NA-SP**	**FAZ-C35/2-NA**	**FAZ-C35/3-NA**	**FAZ-C35/4-NA**
40 ②	**FAZ-C40/1-NA-SP**	**FAZ-C40/2-NA**	**FAZ-C40/3-NA**	**FAZ-C40/4-NA**
50	**FAZ-C50/1-NA**	**FAZ-C50/2-NA**	**FAZ-C50/3-NA**	**FAZ-C50/4-NA**
63	**FAZ-C63/1-NA**	**FAZ-C63/2-NA**	**FAZ-C63/3-NA**	**FAZ-C63/4-NA**

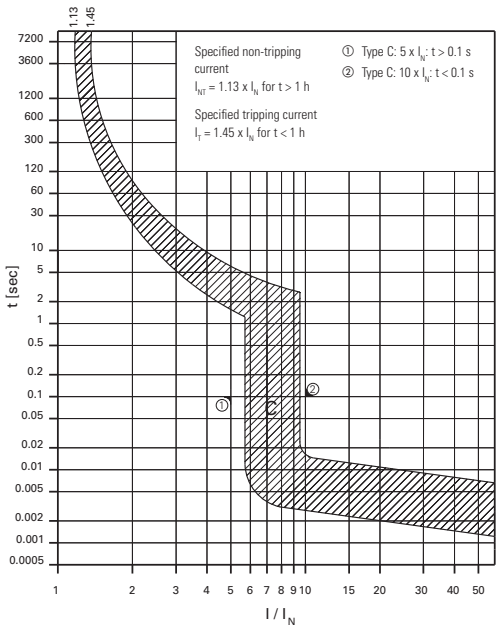
Notes

① Two-piece order. Quantities of two per box.

② 35A and 40A at 240 Vac were available prior to the creation of the FAZ-NA-L offering so the catalog numbers at these amperages exclude the "L" suffix.

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC C Curve

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- 48 Vdc for single-pole
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-RT-L UL 489 Circuit Breakers with Ring-Tongue Terminals at 240 Vac—10 kAIC, 14 kAIC C Curve (15–25A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
C Curve with Ring-Tongue Terminals (5–10X I_n Current Rating)				
0.5	FAZ-C0.5/1-RT-L	FAZ-C0.5/2-RT-L	FAZ-C0.5/3-RT-L	FAZ-C0.5/4-RT-L
1	FAZ-C1/1-RT-L	FAZ-C1/2-RT-L	FAZ-C1/3-RT-L	FAZ-C1/4-RT-L
1.5	FAZ-C1.5/1-RT-L	FAZ-C1.5/2-RT-L	FAZ-C1.5/3-RT-L	FAZ-C1.5/4-RT-L
2	FAZ-C2/1-RT-L	FAZ-C2/2-RT-L	FAZ-C2/3-RT-L	FAZ-C2/4-RT-L
3	FAZ-C3/1-RT-L	FAZ-C3/2-RT-L	FAZ-C3/3-RT-L	FAZ-C3/4-RT-L
4	FAZ-C4/1-RT-L	FAZ-C4/2-RT-L	FAZ-C4/3-RT-L	FAZ-C4/4-RT-L
5	FAZ-C5/1-RT-L	FAZ-C5/2-RT-L	FAZ-C5/3-RT-L	FAZ-C5/4-RT-L
6	FAZ-C6/1-RT-L	FAZ-C6/2-RT-L	FAZ-C6/3-RT-L	FAZ-C6/4-RT-L
7	FAZ-C7/1-RT-L	FAZ-C7/2-RT-L	FAZ-C7/3-RT-L	FAZ-C7/4-RT-L
8	FAZ-C8/1-RT-L	FAZ-C8/2-RT-L	FAZ-C8/3-RT-L	FAZ-C8/4-RT-L
10	FAZ-C10/1-RT-L	FAZ-C10/2-RT-L	FAZ-C10/3-RT-L	FAZ-C10/4-RT-L
13	FAZ-C13/1-RT-L	FAZ-C13/2-RT-L	FAZ-C13/3-RT-L	FAZ-C13/4-RT-L
15	FAZ-C15/1-RT-L	FAZ-C15/2-RT-L	FAZ-C15/3-RT-L	FAZ-C15/4-RT-L
16	FAZ-C16/1-RT-L	FAZ-C16/2-RT-L	FAZ-C16/3-RT-L	FAZ-C16/4-RT-L
20	FAZ-C20/1-RT-L	FAZ-C20/2-RT-L	FAZ-C20/3-RT-L	FAZ-C20/4-RT-L
25	FAZ-C25/1-RT-L	FAZ-C25/2-RT-L	FAZ-C25/3-RT-L	FAZ-C25/4-RT-L
30	FAZ-C30/1-RT-L	FAZ-C30/2-RT-L	FAZ-C30/3-RT-L	FAZ-C30/4-RT-L
32	FAZ-C32/1-RT-L	FAZ-C32/2-RT-L	FAZ-C32/3-RT-L	FAZ-C32/4-RT-L
35 ②	FAZ-C35/1-RT-SP	FAZ-C35/2-RT	FAZ-C35/3-RT	FAZ-C35/4-RT
40 ②	FAZ-C40/1-RT-SP	FAZ-C40/2-RT	FAZ-C40/3-RT	FAZ-C40/4-RT
50	FAZ-C50/1-RT	FAZ-C50/2-RT	FAZ-C50/3-RT	FAZ-C50/4-RT
63	FAZ-C63/1-RT	FAZ-C63/2-RT	FAZ-C63/3-RT	FAZ-C63/4-RT

Notes

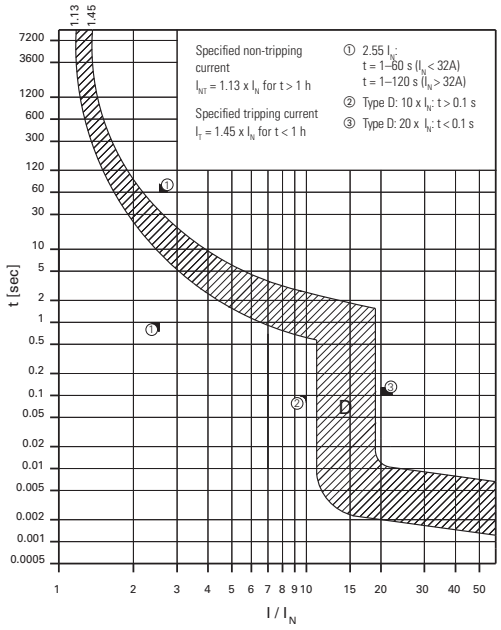
① Two-piece order. Quantities of two per box.

② 35A and 40A at 240 Vac were available prior to the creation of the FAZ-NA-L offering so the catalog numbers at these amperages exclude the "L" suffix.

1

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC D Curve

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- 48 Vdc for single-pole
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC, 14 kAIC D Curve (13–20A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
D Curve (10–20X I_n Current Rating)				
0.5	**FAZ-D0.5/1-NA-L**	**FAZ-D0.5/2-NA-L**	**FAZ-D0.5/3-NA-L**	**FAZ-D0.5/4-NA-L**
1	**FAZ-D1/1-NA-L**	**FAZ-D1/2-NA-L**	**FAZ-D1/3-NA-L**	**FAZ-D1/4-NA-L**
1.5	**FAZ-D1.5/1-NA-L**	**FAZ-D1.5/2-NA-L**	**FAZ-D1.5/3-NA-L**	**FAZ-D1.5/4-NA-L**
2	**FAZ-D2/1-NA-L**	**FAZ-D2/2-NA-L**	**FAZ-D2/3-NA-L**	**FAZ-D2/4-NA-L**
3	**FAZ-D3/1-NA-L**	**FAZ-D3/2-NA-L**	**FAZ-D3/3-NA-L**	**FAZ-D3/4-NA-L**
4	**FAZ-D4/1-NA-L**	**FAZ-D4/2-NA-L**	**FAZ-D4/3-NA-L**	**FAZ-D4/4-NA-L**
5	**FAZ-D5/1-NA-L**	**FAZ-D5/2-NA-L**	**FAZ-D5/3-NA-L**	**FAZ-D5/4-NA-L**
6	**FAZ-D6/1-NA-L**	**FAZ-D6/2-NA-L**	**FAZ-D6/3-NA-L**	**FAZ-D6/4-NA-L**
7	**FAZ-D7/1-NA-L**	**FAZ-D7/2-NA-L**	**FAZ-D7/3-NA-L**	**FAZ-D7/4-NA-L**
8	**FAZ-D8/1-NA-L**	**FAZ-D8/2-NA-L**	**FAZ-D8/3-NA-L**	**FAZ-D8/4-NA-L**
10	**FAZ-D10/1-NA-L**	**FAZ-D10/2-NA-L**	**FAZ-D10/3-NA-L**	**FAZ-D10/4-NA-L**
13	**FAZ-D13/1-NA-L**	**FAZ-D13/2-NA-L**	**FAZ-D13/3-NA-L**	**FAZ-D13/4-NA-L**
15	**FAZ-D15/1-NA-L**	**FAZ-D15/2-NA-L**	**FAZ-D15/3-NA-L**	**FAZ-D15/4-NA-L**
16	**FAZ-D16/1-NA-L**	**FAZ-D16/2-NA-L**	**FAZ-D16/3-NA-L**	**FAZ-D16/4-NA-L**
20	**FAZ-D20/1-NA-L**	**FAZ-D20/2-NA-L**	**FAZ-D20/3-NA-L**	**FAZ-D20/4-NA-L**
25	**FAZ-D25/1-NA-L**	**FAZ-D25/2-NA-L**	**FAZ-D25/3-NA-L**	**FAZ-D25/4-NA-L**
30	**FAZ-D30/1-NA-L**	**FAZ-D30/2-NA-L**	**FAZ-D30/3-NA-L**	**FAZ-D30/4-NA-L**
32	**FAZ-D32/1-NA-L**	**FAZ-D32/2-NA-L**	**FAZ-D32/3-NA-L**	**FAZ-D32/4-NA-L**
35 ②	**FAZ-D35/1-NA-SP**	**FAZ-D35/2-NA**	**FAZ-D35/3-NA**	**FAZ-D35/4-NA**
40 ②	**FAZ-D40/1-NA-SP**	**FAZ-D40/2-NA**	**FAZ-D40/3-NA**	**FAZ-D40/4-NA**

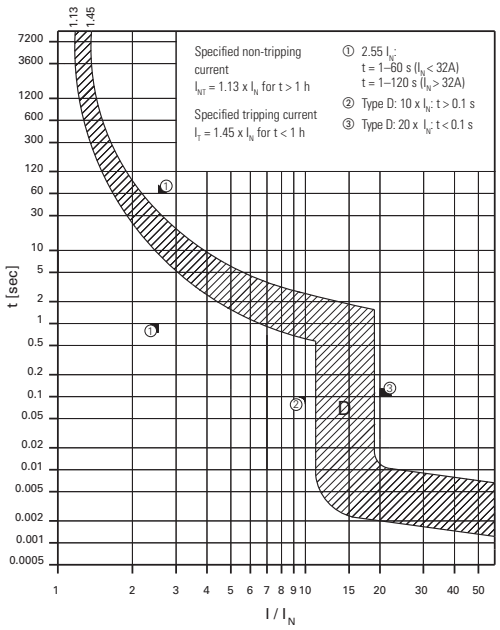
Notes

① Two-piece order. Quantities of two per box.

② 35A and 40A at 240 Vac were available prior to the creation of the FAZ-NA-L offering so the catalog numbers at these amperages exclude the "L" suffix.

FAZ-NA-L UL 489 Circuit Breakers at 240 Vac—10 kAIC D Curve

- UL approved (UL 489) and CSA Certified (CSA C22.2 No.5-02) as branch circuit breakers
- Interrupting capacity: 10 kA UL/CSA; 15 kA IEC 60947-2
- 48 Vdc for single-pole
- Current limiting device
- UL file number E235139



Single-Pole

Two-Pole

Three-Pole

Four-Pole

FAZ-RT-L UL 489 Circuit Breakers with Ring-Tongue Terminals at 240 Vac—10 kAIC, 14 kAIC D Curve (13–20A)

Amps	Single-Pole ① Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
D Curve with Ring-Tongue Terminals (10–20X I_n Current Rating)				
0.5	**FAZ-D0.5/1-RT-L**	**FAZ-D0.5/2-RT-L**	**FAZ-D0.5/3-RT-L**	**FAZ-D0.5/4-RT-L**
1	**FAZ-D1/1-RT-L**	**FAZ-D1/2-RT-L**	**FAZ-D1/3-RT-L**	**FAZ-D1/4-RT-L**
1.5	**FAZ-D1.5/1-RT-L**	**FAZ-D1.5/2-RT-L**	**FAZ-D1.5/3-RT-L**	**FAZ-D1.5/4-RT-L**
2	**FAZ-D2/1-RT-L**	**FAZ-D2/2-RT-L**	**FAZ-D2/3-RT-L**	**FAZ-D2/4-RT-L**
3	**FAZ-D3/1-RT-L**	**FAZ-D3/2-RT-L**	**FAZ-D3/3-RT-L**	**FAZ-D3/4-RT-L**
4	**FAZ-D4/1-RT-L**	**FAZ-D4/2-RT-L**	**FAZ-D4/3-RT-L**	**FAZ-D4/4-RT-L**
5	**FAZ-D5/1-RT-L**	**FAZ-D5/2-RT-L**	**FAZ-D5/3-RT-L**	**FAZ-D5/4-RT-L**
6	**FAZ-D6/1-RT-L**	**FAZ-D6/2-RT-L**	**FAZ-D6/3-RT-L**	**FAZ-D6/4-RT-L**
7	**FAZ-D7/1-RT-L**	**FAZ-D7/2-RT-L**	**FAZ-D7/3-RT-L**	**FAZ-D7/4-RT-L**
8	**FAZ-D8/1-RT-L**	**FAZ-D8/2-RT-L**	**FAZ-D8/3-RT-L**	**FAZ-D8/4-RT-L**
10	**FAZ-D10/1-RT-L**	**FAZ-D10/2-RT-L**	**FAZ-D10/3-RT-L**	**FAZ-D10/4-RT-L**
13	**FAZ-D13/1-RT-L**	**FAZ-D13/2-RT-L**	**FAZ-D13/3-RT-L**	**FAZ-D13/4-RT-L**
15	**FAZ-D15/1-RT-L**	**FAZ-D15/2-RT-L**	**FAZ-D15/3-RT-L**	**FAZ-D15/4-RT-L**
16	**FAZ-D16/1-RT-L**	**FAZ-D16/2-RT-L**	**FAZ-D16/3-RT-L**	**FAZ-D16/4-RT-L**
20	**FAZ-D20/1-RT-L**	**FAZ-D20/2-RT-L**	**FAZ-D20/3-RT-L**	**FAZ-D20/4-RT-L**
25	**FAZ-D25/1-RT-L**	**FAZ-D25/2-RT-L**	**FAZ-D25/3-RT-L**	**FAZ-D25/4-RT-L**
30	**FAZ-D30/1-RT-L**	**FAZ-D30/2-RT-L**	**FAZ-D30/3-RT-L**	**FAZ-D30/4-RT-L**
32	**FAZ-D32/1-RT-L**	**FAZ-D32/2-RT-L**	**FAZ-D32/3-RT-L**	**FAZ-D32/4-RT-L**
35 ②	**FAZ-D35/1-RT-SP**	**FAZ-D35/2-RT**	**FAZ-D35/3-RT**	**FAZ-D35/4-RT**
40 ②	**FAZ-D40/1-RT-SP**	**FAZ-D40/2-RT**	**FAZ-D40/3-RT**	**FAZ-D40/4-RT**

Notes

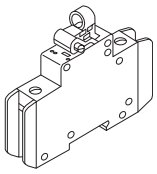
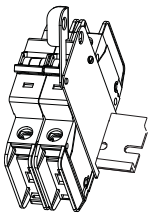
① Two-piece order. Quantities of two per box.

② 35A and 40A at 240 Vac were available prior to the creation of the FAZ-NA-L offering so the catalog numbers at these amperages exclude the "L" suffix.

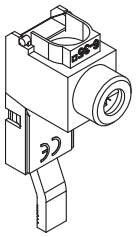
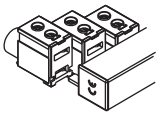
1

Accessories

FAZ-NA and FAZ-NA-L UL 489 Breakers

	Description	Catalog Number
Contact	Two-pole contact or auxiliary contact/trip indicating contact	**Z-NHK** ①
Auxiliary Contact	Auxiliary contact	**Z-IHK-NA**
Shunt Trip	Shunt trip 110–415 Vac	**FAZ-XAA-NA110-415VAC**
	Shunt trip 12–110 Vac	**FAZ-XAA-NA12-110VAC**
Padlock Hasp 	Padlock hasp	**Z-IS/SPE-1TE**
Lockoff Device 	UL lockoff device	**FAZPLOFF**

FAZ-NA and FAZ-NA-L UL 489 Breakers, continued

	Description	Catalog Number
Busbar	Busbar—single-pole, 6 terminals ②③④⑤	**Z-SV/UL-16/1P-1TE/6**
	Busbar—single-pole, 12 terminals ②③④⑤	**Z-SV/UL-16/1P-1TE/12**
	Busbar—single-pole, 18 terminals ②③④⑤	**Z-SV/UL-16/1P-1TE/18**
	Busbar—two-pole, 6 terminals ②③④⑤	**Z-SV/UL-16/2P-2TE/6**
	Busbar—two-pole, 12 terminals ②③④⑤	**Z-SV/UL-16/2P-2TE/12**
	Busbar—two-pole, 18 terminals ②③④⑤	**Z-SV/UL-16/2P-2TE/18**
	Busbar—three-pole, 6 terminals ②③④⑤	**Z-SV/UL-16/3P-3TE/6**
	Busbar—three-pole, 12 terminals ②③④⑤	**Z-SV/UL-16/3P-3TE/12**
	Busbar—three-pole, 18 terminals ②③④⑤	**Z-SV/UL-16/3P-3TE/18**
Busbar Shroud	Three-pole busbar shroud	**ZV-BS-UL**
Extension Terminal 	Extension terminal—35 mm^2 (10–1/0 AWG)	**Z-EK/35/UL**
Bus Connector 	Bus connector—conductors up to 50 mm^2 (~1/0 AWG)	**Z-EB/50/UL**

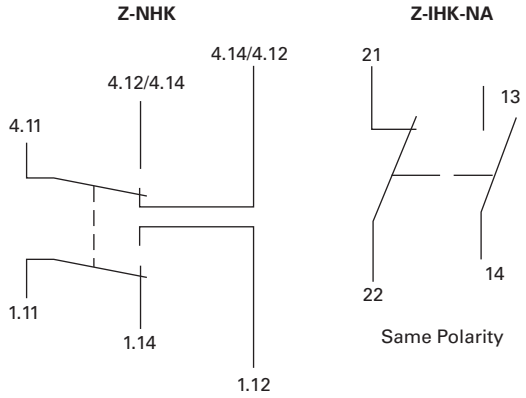
Notes

① Voltage of FAZ-NA circuit breaker is limited to 300V with this auxiliary contact installed.
② Do not cut commoning link.
③ A maximum of three commoning links may be used in conjunction. Each breaker connected to the commoning link must have the same number of poles for proper use.
④ Not for use with ring-tongue circuit breakers.
⑤ Bus may be center fed for high current capacity.

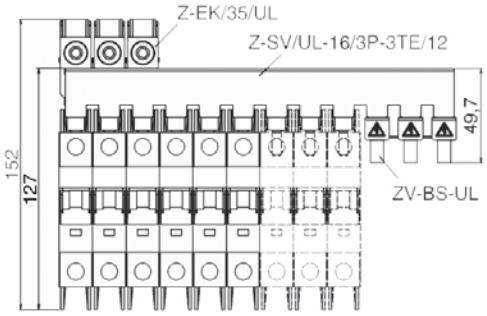
Tripping Signal Switch Z-NHK, Z-IHK-NA

- Design according to IEC/EN 60947-5-1, IEC/EN 62019
- Field installable
- The specified minimum voltages are per contact—take into account particularly in case of series connection
- Self-cleaning contacts
- Contact material and design particularly suitable for extra low voltage
- Z-NHK: the function of one of the two change-over contacts can be switched from “auxiliary switch” to “tripping signal switch”
- Tripping signal contact transmits message of electric tripping, not mechanical switch-off
- Test key for contact function “electrical tripping”
- Z-IHK-NA: will allow for > 480Y/277 Vac rating

Connection Diagram



Busbar Connection Example



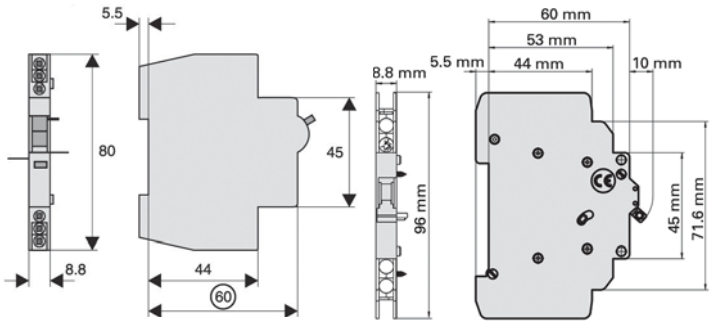
1

Z-NHK

Z-IHK-NA

Contact and Auxiliary Contact

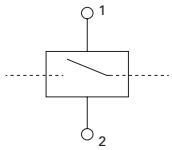
Description	Z-NHK	Z-IHK-NA
Electrical		
Contact function	2CO	1NO + 1NC
Rated voltage	230V	250V
Frequency	50/60 Hz	50/60 Hz
Rated current	2A	6A
Rated thermal current I_{th}	2A	6A
Utilization category AC13 Rated operational current I_e	3A/250 Vac	3A/250 Vac
Utilization category AC15 Rated operational current I_e	2A/250 Vac	2A/250 Vac
Utilization category DC12 Rated operational current I_e	0.5A/110 Vdc	0.5A/110 Vdc 0.25A/220 Vdc
Rated insulation voltage U_i	250 Vac	250 Vac
Minimum operational voltage per contact U_{min}	5 Vdc	5 Vdc
Minimum operational current I_{min}	10 mA DC	10 mA AC/DC
Rated peak withstand voltage U_{imp} (1.2/50µ)	2.5 kV	4 kV
Conditional short-circuit current I_k with backup fuse 6A	1 kA	1 kA
Max. backup fuse, overload and short circuit	6A gL	—
Mechanical		
Tripping indicator "electrical tripping"	Blue/white	—
Frame size	45 mm	45 mm
Device height	80 mm	80 mm
Device width	8.8 mm (0.5MU)	8.8 mm (0.5MU)
Mounting	Onto switching device	—
Degree of protection, built-in	IP40	IP40
Terminal protection	Finger and hand touch safe According to BGV A3, ÖVE-EN 6	Finger and hand touch safe According to BGV A3, ÖVE-EN 6
Terminals	Lift terminals	Lift terminals
Terminal capacity	20–14 AWG	0.5–2.5 mm^2
Terminal screws	M3 (Posidrive Z0)	M3 (Posidrive Z0)
Fastening torque of terminal screws	7 lb-in	Max. 1.2 Nm



Shunt trip release FAZ-XAA-NA

- Remote release for subsequent mounting onto FAZ-NA/RT
- Additional installation of standard auxiliary switch is possible
- Position indicator red–green

Connection Diagram



Shunt Trip Release FAZ-XAA-NA

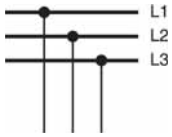
Description	FAZ-XAA-NA12-110VAC	FAZ-XAA-NA110-415VAC
Electrical		
Can be mounted onto	FAZ-NA / FAZ-NA-DC / FAZ-RT	FAZ-NA / FAZ-NA-DC / FAZ-RT
Operational voltage range	12–110 Vac 12–60 Vdc	110–415 Vac 110–230 Vdc
Frequency	50/60 Hz	50/60 Hz
Mechanical		
Frame size	45 mm	45 mm
Device height	105 mm	105 mm
Device width	17.5 mm	17.5 mm
Mounting	Quick fastening with two lock-in positions on EN 50022	
Degree of protection, built-in	IP40	IP40
Terminal protection	Finger and hand touch safe according to BGV A3, ÖVE-EN 6	
Terminals	Open mouthed/lift	Open mouthed/lift
Terminal capacity One and two wires	18–10 AWG	18–10 AWG

Busbar block UL 489 (pin)

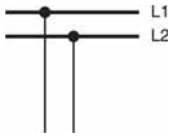
- Tested according to UL 489
- Do not cut
- Extension terminal 35 mm^2 Z-EK/35/UL for copper conductors
- Incoming terminal 50 mm^2 Z-EB/50/UL
- For covering of not used pins, use busbar tag shrouds ZV-BS-UL

Connection Diagrams

Three-Pole Busbar



Two-Pole Busbar



Single-Pole Busbar

Busbar Block UL 489 (Pin)

Description	UL 489	IEC/EN 60947-2
Electrical		
Rated operational voltage	480/277 Vac 96 Vdc	—
Rated frequency	50/60 Hz	—
Rated voltage	480 Vac	690 Vac
Overvoltage category	—	III
Rated impulse withstand voltage U_{imp}	—	9.5 kV
Rated current	80A at 40°C	80A at 30°C
Rated conditional short-circuit current AC with 350A gG	—	15 kA
Short-circuit current	10 kA	—
Mechanical		
Busbar cross section	—	16 mm^2 Cu
Flame class according to UL 94	V0	—
Pollution degree	—	2
Comparative tracking index	—	CTI 600
Minimum clearance (internal/external)	—	> 9.5/25.4 mm
Minimum creepage distance (internal/external)	—	> 12.7/50.8 mm
Resistance to climatic conditions	—	According to DIN/EN 60068

1

Technical Data and Specifications

Trip Curve Chart

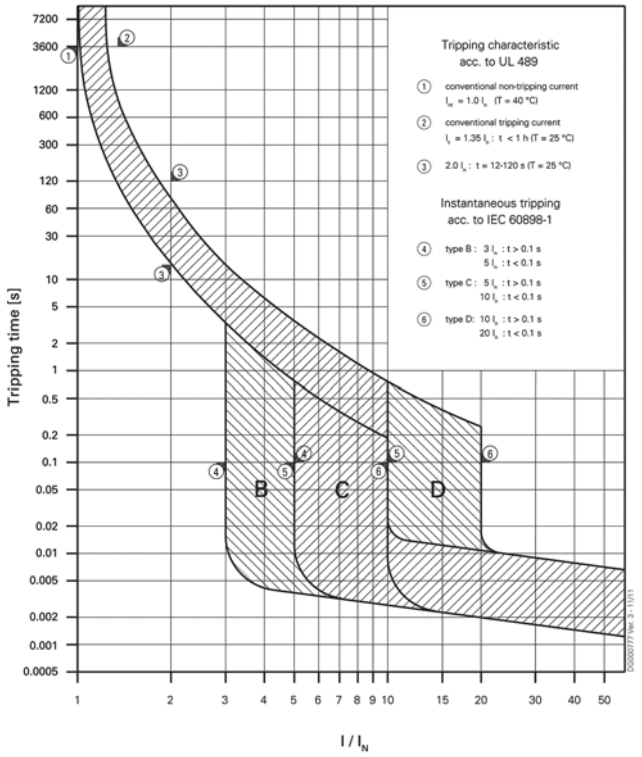
Eaton FAZ-NA and FAZ-NA-L branch circuit breakers are available with "B," "C" and "D" tripping characteristics. B-curve devices are suitable for applications where low levels of inrush current are expected.

C-curve devices are suitable for applications where medium levels of inrush current are expected. Applications include small transformers, lighting, pilot devices, control circuits and coils. C-curve devices provide a medium magnetic trip point.

D-curve devices are suitable for applications where high levels of inrush current are expected. The high magnetic trip point prevents nuisance tripping in high inductive applications such as motors, transformers and power supplies.

Eaton FAZ-NA and FAZ-NA-L devices are current limiting, which means they interrupt fault currents within one half cycle of the fault. Current limiting devices offer superior protection by reducing peak let-through current and energy.

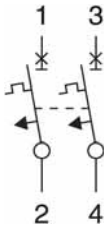
Tripping Characteristics



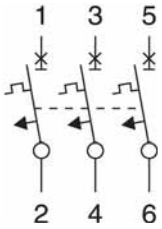
Connection Diagrams

Single-Pole

Two-Pole



Three-Pole



UL 489 Miniature Circuit Breakers Technical Data

Description	FAZ-NA	FAZ-NA-DC	FAZ-NA-L
Electrical			
Design according to	UL 489, CSA C22.2 No.5, IEC 60947-2	UL 489, CSA C22.2 No.5, IEC 60947-2	UL 489, CSA C22.2 No.5, IEC 60947-2
Rated voltage	Single-pole: 277 Vac 2-, 3- or 4-pole: 277/480 Vac	125 Vdc per pole 250 Vdc with 2-poles in connected series	Single-pole: 240 Vac 2-, 3- or 4-pole: 240 Vac
	Single-pole: 48 Vdc per pole 2-pole in series: 96 Vdc	—	Single-pole: 48 Vdc per pole 2-pole in series: 96 Vdc
Rated current	B: 1–32 A C & D: 0.5–32 A	C: 2–40 A	B: 1–63 A C: 0.5–63 A D: 0.5–40 A
Characteristic	B, C, D	C	B, C, D
Current interrupting rating	B curve—10 kA: 1–13 A, 30–32 A C curve—10 kA: 0.5–13 A, 30–32 A B & C curve—14 kA: 15–25 A D curve—10 kA: 0.5–10 A, 25–32 A D curve—14 kA: 13–20 A	10 kA	B curve—10 kA: 1–13 A, 30–32 A C curve—10 kA: 0.5–13 A, 30–32 A B & C curve—14 kA: 15–25 A D curve—10 kA: 0.5–10 A, 25–32 A D curve—14 kA: 13–20 A
Rated frequency	50/60 Hz	50/60 Hz	50/60 Hz
Endurance	≥ 20,000 operations	≥ 20,000 operations	≥ 20,000 operations
Line voltage connection	Suitable for reverse feed	Suitable for reverse feed	Suitable for reverse feed
Mechanical			
Frame size	45 mm	45 mm	45 mm
Device height	105 mm	105 mm	105 mm
Device width	17.7 mm per pole	17.7 mm per pole	17.7 mm per pole
Terminal protection	Finger and hand touch safe according to BGV A3, OVE-EN 6	Finger and hand touch safe according to BGV A3, OVE-EN 6	Finger and hand touch safe according to BGV A3, OVE-EN 6
Mounting	Quick fastening with two lock-in positions on IEC/EN 60715	Quick fastening with two lock-in positions on IEC/EN 60715	Quick fastening with two lock-in positions on IEC/EN 60715
Upper and lower terminals	Open mouth/lift terminals	Open mouth/lift terminals	Open mouth/lift terminals
Terminal capacity	One wire: AWG 18–6 Two wires: AWG 18–10	One wire: AWG 18–6 Two wires: AWG 18–10	One wire: AWG 18–6 Two wires: AWG 18–10
Terminal fastening torque	AWG 18–21: 21 lb-in AWG 10–8: 25 lb-in AWG 6: 36 lb-in	AWG 18–21: 21 lb-in AWG 10–8: 25 lb-in AWG 6: 36 lb-in	AWG 18–21: 21 lb-in AWG 10–8: 25 lb-in AWG 6: 36 lb-in
Mounting	Independent of position	Independent of position	Independent of position
Calibration temperature UL 489, CSA C22.2 No.5	40°C	40°C	40°C
IEC 60947-2	30°C	30°C	30°C

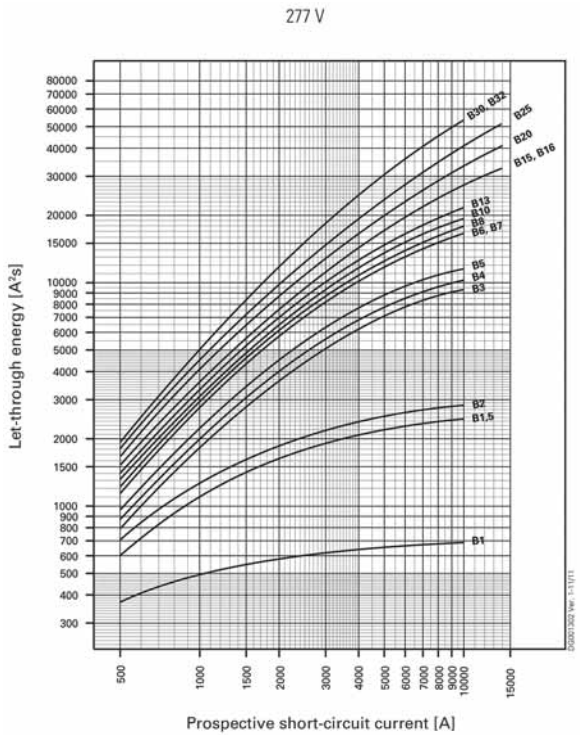
1

Power Loss at I_n

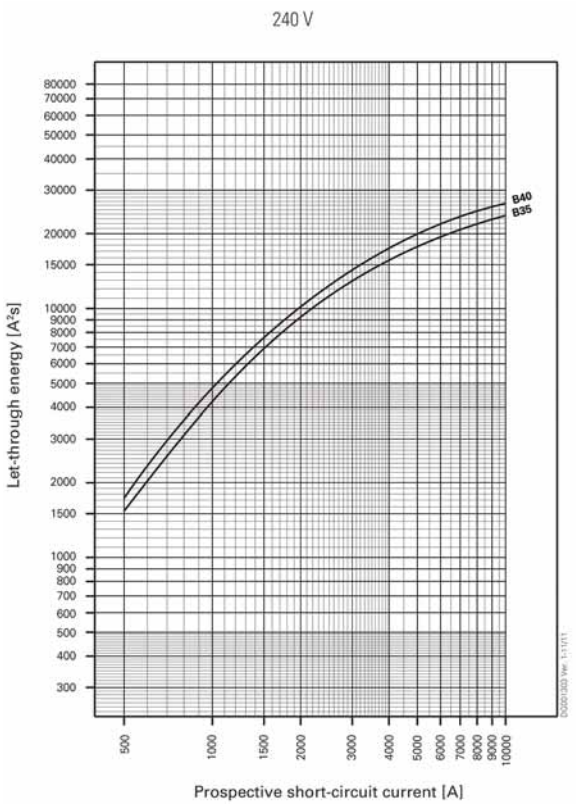
	Characteristic B			Characteristic C			Characteristic D		
	Single-Pole	Two-Pole	Three-Pole	Single-Pole	Two-Pole	Three-Pole	Single-Pole	Two-Pole	Three-Pole
I_n [A]	P [W]	P [W]	P [W]	P [W]	P [W]	P [W]	P [W]	P [W]	P [W]
0.5	—	—	—	1.6	3.2	4.7	1.6	3.2	4.8
1.0	1.1	2.2	3.4	1.1	2.2	3.4	0.8	1.5	2.3
1.5	2.2	4.4	6.6	1.3	2.6	3.9	1.0	2.1	3.1
2.0	1.4	2.8	4.3	1.4	2.8	4.3	1.0	2.1	3.1
3.0	2.1	4.2	6.4	1.2	2.4	3.6	1.2	2.4	3.6
4.0	1.4	2.9	4.3	1.4	2.9	4.3	1.4	2.9	4.3
5.0	1.8	3.7	5.5	1.9	3.7	5.6	1.5	2.9	4.4
6.0	1.7	3.5	5.2	1.2	2.3	3.5	1.2	2.3	3.5
7.0	2.0	4.0	6.0	1.4	2.8	4.3	1.4	2.8	4.3
8.0	2.0	3.9	5.9	1.4	2.8	4.2	1.2	2.4	3.7
10.0	1.8	3.6	5.3	1.8	3.6	5.3	1.5	3.0	4.5
13.0	2.4	4.7	7.1	2.4	4.7	7.1	2.0	4.1	6.1
15.0	1.9	3.8	5.6	1.9	3.8	5.6	1.5	3.1	4.6
16.0	2.1	4.3	6.4	2.1	4.3	6.4	1.7	3.5	5.2
20.0	2.9	5.8	8.7	2.9	5.8	8.7	1.8	3.7	5.5
25.0	3.1	6.2	9.3	3.1	6.2	9.3	2.6	5.1	7.7
30.0	3.0	6.0	9.0	3.0	6.0	9.0	2.7	5.4	8.1
32.0	3.4	6.8	10.2	3.4	6.8	10.2	3.1	6.2	9.3
35.0	4.0	8.1	12.1	3.7	7.4	11.0	3.8	7.6	11.3
40.0	4.0	8.1	12.1	4.0	8.1	12.1	3.9	7.8	11.6

Let-Through Energy

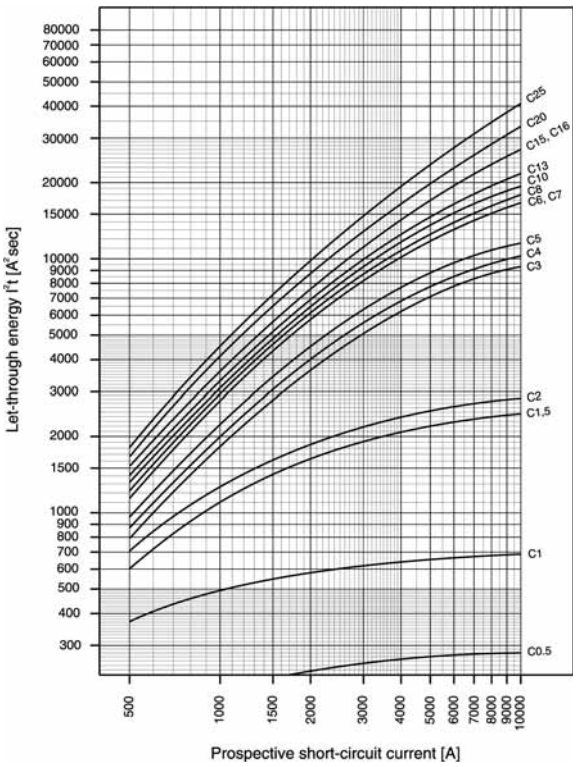
Characteristic B (1–32A), 277V



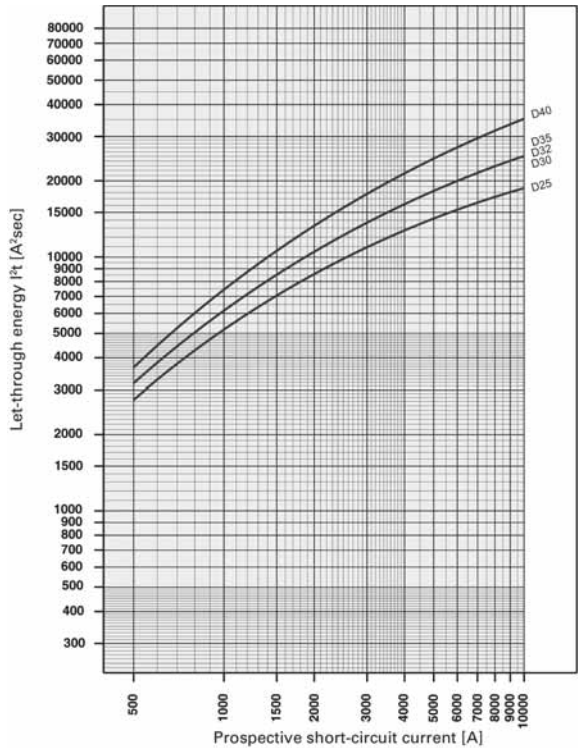
Characteristic B (35–63A), 240V



Characteristic C (0.5–32A), 277V

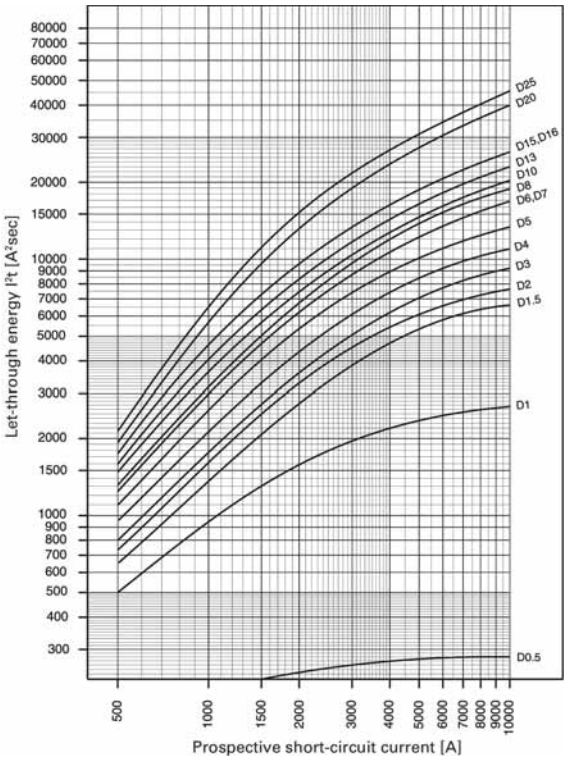


Characteristic C (35–63A), 240V

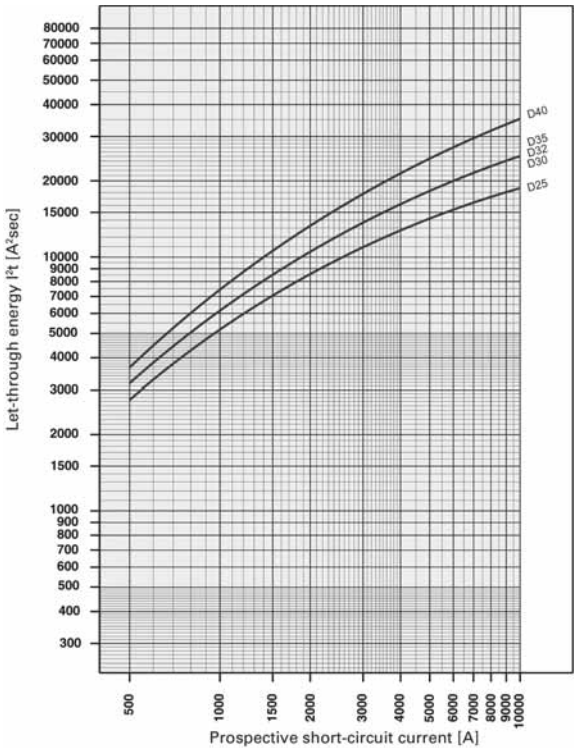


1

Characteristic D (0.5–32A), 277V

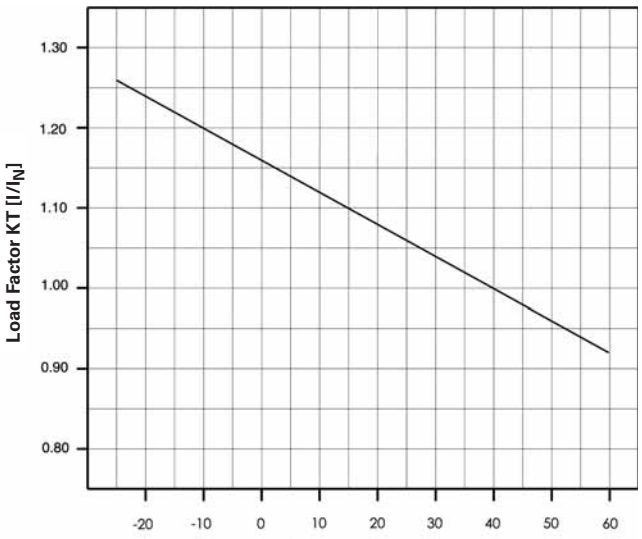


Characteristic D (35–63A), 240V



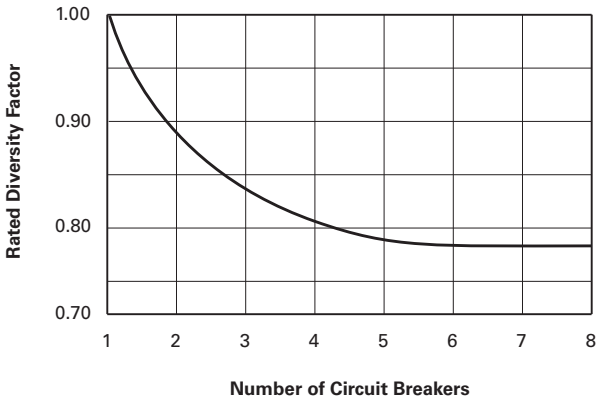
Influence of Ambient Temperature T on Load Carrying Capacity

Device Market Current Rating I_n (A) at 40°C	I_n (A) at Higher Ambient Temperature							
	15°C	20°C	25°C	30°C	40°C	50°C	55°C	60°C
0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1.0	1.1	1.1	1.1	1.0	1.0	1.0	0.9	0.9
1.5	1.7	1.6	1.6	1.6	1.5	1.4	1.4	1.4
2.0	2.2	2.2	2.1	2.1	2.0	1.9	1.9	1.8
3.0	3.3	3.2	3.2	3.1	3.0	2.9	2.9	2.8
4.0	4.4	4.3	4.2	4.2	4.0	3.8	3.8	3.7
5.0	5.5	5.4	5.3	5.2	5.0	4.8	4.7	4.6
6.0	6.6	6.5	6.4	6.2	6.0	5.8	5.6	5.5
7.0	7.7	7.6	7.4	7.3	7.0	6.7	6.6	6.4
8.0	8.8	8.6	8.5	8.3	8.0	7.7	7.5	7.4
10.0	11.0	10.8	10.6	10.4	10.0	9.6	9.4	9.2
13.0	14.3	14.0	13.8	13.5	13.0	12.5	12.5	12.0
15.0	16.5	16.2	15.9	15.6	15.0	14.4	14.1	13.8
16.0	17.6	17.3	17.0	16.6	16.0	15.4	15.0	14.7
20.0	22.0	21.6	21.2	20.8	20.0	19.2	18.8	18.4
25.0	27.5	27.0	26.5	26.0	25.0	24.0	23.3	23.0
30.0	33.0	32.4	31.8	31.2	30.0	28.8	28.2	27.6
32.0	35.2	34.6	33.9	33.3	32.0	30.7	30.1	29.4
40.0	44.0	43.2	42.4	41.6	40.0	38.4	37.6	36.8



Maximum Load I_L at ambient temperature T: $I_L (T) = I_N K_T(T)$

Load Carrying Capacity of Adjoining Miniature Circuit Breakers

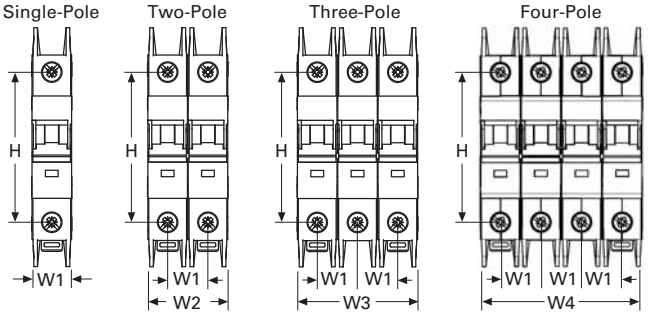


1

Dimensions

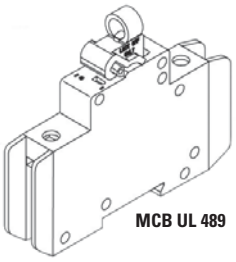
Approximate Dimensions in Inches (mm)

Miniature Circuit Breakers

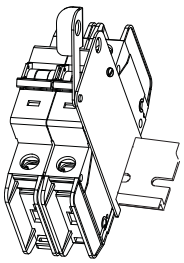


H	W1	W2	W3	W4
4.13 (105.0)	0.70 (17.7)	1.39 (35.3)	2.09 (53.1)	2.79 (70.8)

Lockout Attachment—Z-IS/SPE-1TE

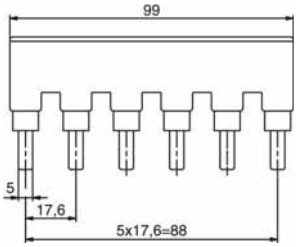


UL Lockoff Device—FAZPLOFF

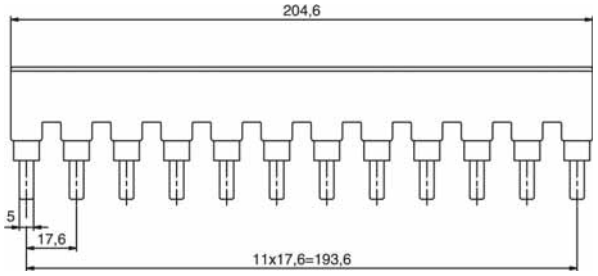


Accessories

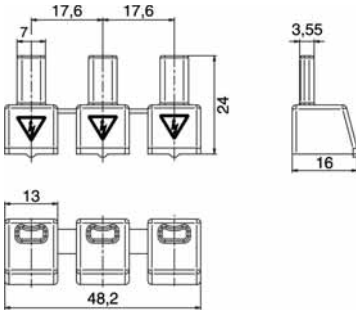
Z-SV/UL-16/6



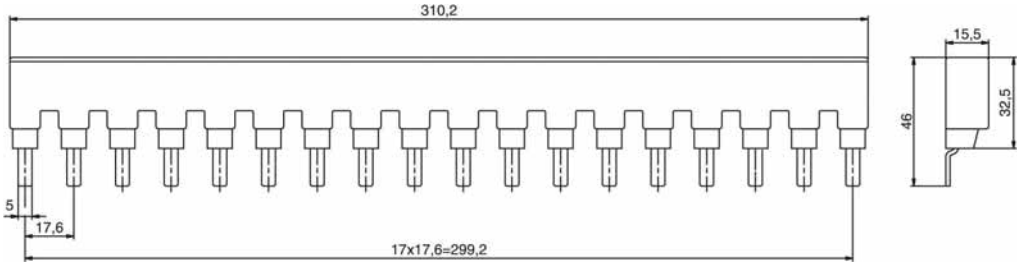
Z-SV/UL-18...12



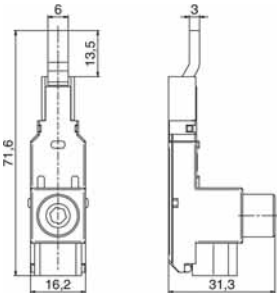
ZV-BS-UL



Z-SV/UL-16.../18



Z-EK/35/UL



Z-EK/35/UL

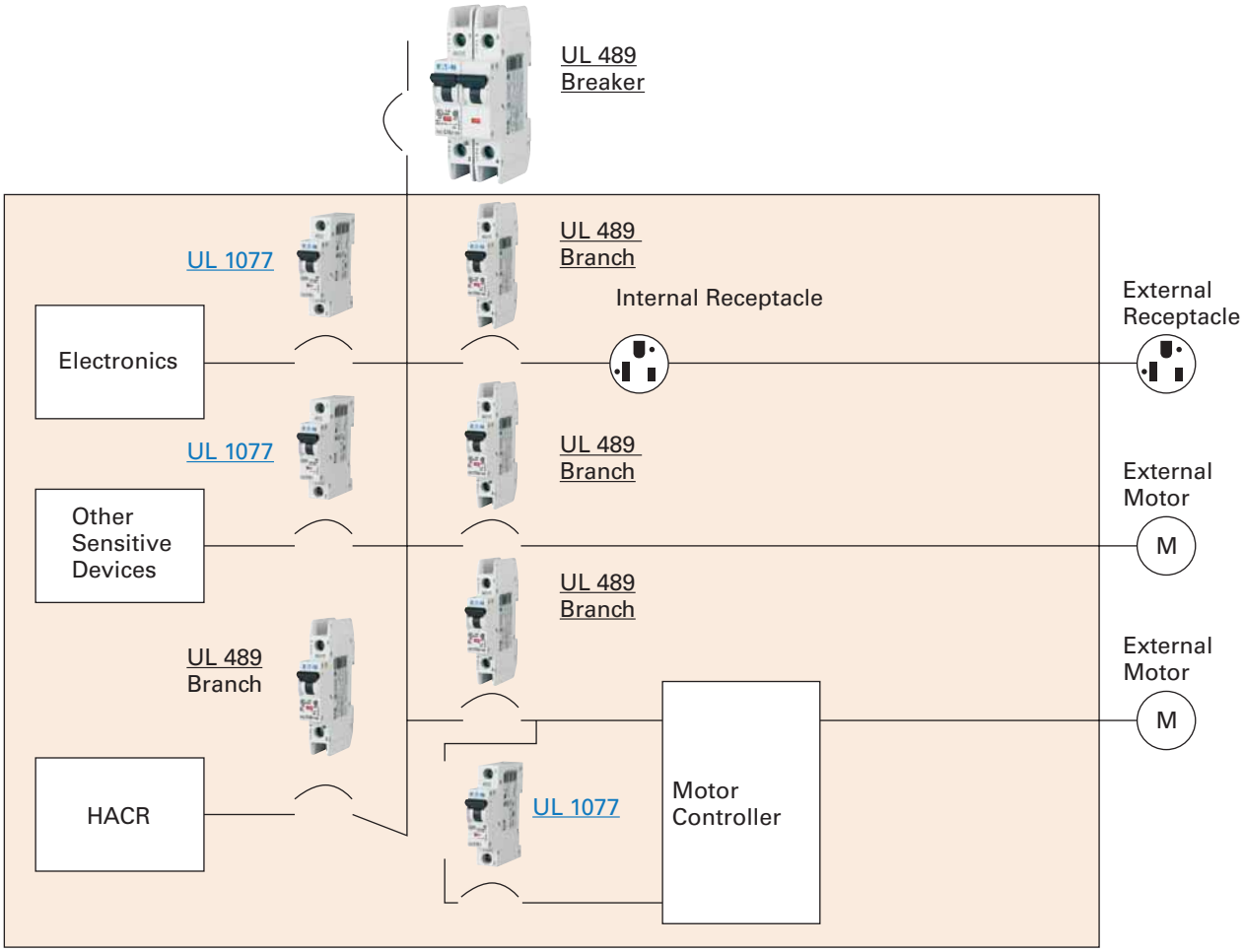
Description	UL 489	IEC/EN 60947-2
U_e	480 Vac/96 Vdc	240/415 Vac
f	50/60 Hz	50/60 Hz
U_{imp}	—	9.5 kV
I_e	80A at 40°C	80A at 30°C
	10–1/0 AWG 60/75°C Cu	2.5–35 mm^2 Cu
	0.56 in	14 mm

Z-EB/50/UL

Description	UL 489	IEC/EN 60947-2
U_e	480 Vac/96 Vdc	240/415 Vac
f	50/60 Hz	50/60 Hz
U_{imp}	—	9.5 kV
I_e	115A at 40°C	160A at 30°C
	#1–14 AWG 60/75°C Cu	1.5–50 mm^2 Cu
	0.56 in	14 mm

Application Guidelines

Example of UL 489 and UL 1077 Application



Example of UL 489 and UL 1077 Application

UL 489 circuit breakers

Used for branch circuit protection, internal/external receptacles, external motors and HACR equipment (heating, air conditioning and refrigeration).

UL 1077 supplementary protectors

Used for overcurrent protection within appliances or electrical equipment, where branch circuit protection is already provided or not required.

Note: UL 489 devices can be used in place of UL 1077; UL 1077 devices cannot be used in place of UL 489.

1

FAZ Circuit Breakers

Optimum and Efficient Protection for Every Application

Contents

Description	*Page*
FAZ Circuit Breakers	**V4-T1-74**
Catalog Number Selection	**V4-T1-75**
Standards and Certifications	**V4-T1-75**
Product Selection	**V4-T1-76**
Accessories	**V4-T1-82**
Technical Data and Specifications	**V4-T1-85**
Dimensions	**V4-T1-92**

FAZ Circuit Breakers

Product Overview

Optimum product quality, tested reliability and safety stand for best protection of personnel, installations and plant. Eaton's FAZ DIN rail mountable circuit breaker is designed for use in control panel applications.

Powerful offering for machine and system builders

The FAZ is available with B, C, D, K, S, and Z characteristics in accordance with UL 1077, CSA C22.2 No.235 and IEC 60947-2. These devices are CE marked.

Application Description

- Supplementary protection
- Control circuits
- Lighting
- Business equipment
- Appliances

Features

- Complete range of UL 1077 recognized DIN rail mounted miniature circuit breakers up to 63A current rating
- Standard ratings of 10 kAIC up to 277/480 Vac
- Current limiting design provides fast short-circuit interruption that reduces the let-through energy, which can damage the circuit
- Suitable for supplementary protection
- Thermal-magnetic overcurrent protection
  - Six levels of short-circuit protection, categorized by B, C, D, K, S, and Z curves
- Trip-free design—breaker can not be defeated by holding the handle in the ON position
- Captive screws cannot be lost
- Fulfill UL 1077, CSA C22.2 No.235 and also IEC 60947-2 Standard
- Field-installable shunt trip and auxiliary switch subsequent mounting
- Module width of only 17.7 mm (per pole)
- Contact position indicator (red/green)
- Easy installation on DIN rail
- Possibility for sealing the toggle in ON or OFF position

Discover These Advanced Features

Breakers install on standard DIN rail

Available in one-, two-, three-, four-pole, 1+N and 3+N models

Color-coded indicator provides breaker status for easy troubleshooting

Captive Posidrive terminal screws with finger and back-of-hand protection (IP20)

Trip-free design; breaker cannot be defeated by holding the handle in the ON position

Breaker information printed on the front of the device for quick identification

Standards and Certifications

FAZ complies with the latest national and international standards.

- UL 1077, CSA C22.2 No. 235
  - Apply to supplementary protectors intended for use as overcurrent, or overvoltage or undervoltage protection within an appliance or other electrical equipment where branch circuit protection is already provided, or is not required
- RoHS compliant
- VDE compliant
  - Devices with B, C, and D curves are VDE compliant
- CCC
  - Devices with B, C, and D curves are CCC compliant
- ABS compliant

Catalog Number Selection

FAZ C 6 / 1 SP

Breaker Family	Trip Characteristics ①	Ampere Rating	Number of Poles	Single Package
FAZ = Supplementary protector	**B** = 3–5X I_n **C** = 5–10X I_n **D** = 10–20X I_n **K** = 8–12X I_n **S** = 13–17X I_n **Z** = 2–3X I_n	**0.5** = 0.5A **1** = 1A **2** = 2A **3** = 3A **4** = 4A **5** = 5A **6** = 6A **7** = 7A **8** = 8A **10** = 10A **13** = 13A **15** = 15A **16** = 16A **20** = 20A **25** = 25A **30** = 30A **32** = 32A **40** = 40A **50** = 50A **63** = 63A	**1** = Single-pole **2** = Two-pole **3** = Three-pole **4** = Four-pole **1N** = Single-pole + neutral **3N** = Three-pole + neutral	**SP** = Single packaging of single-pole curve B, C and D for select amperes only **Blank** = Standard packaging

Note

① I_n = Rated current for instantaneous trip characteristics.

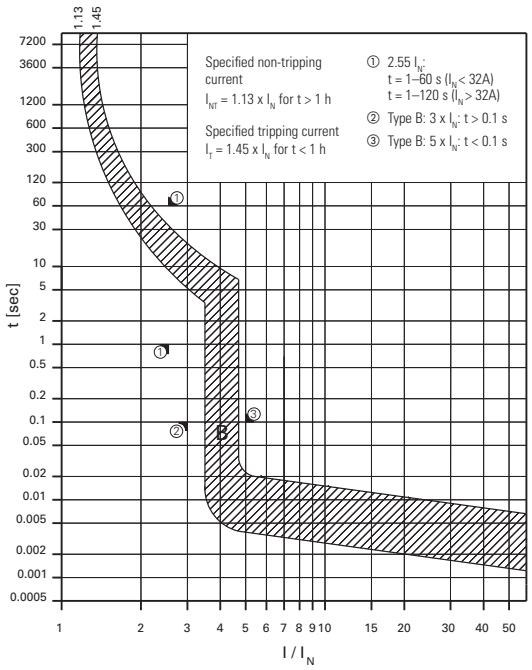
1

Product Selection

FAZ B curve (3–5X I_n current rating)

- Designed for resistive or slightly inductive loads
- Response time of instantaneous trip: 3–5X I_n current rating
- UL recognized and CSA Certified as supplementary protectors
- For international and domestic use (conform to IEC 60947-2)
- UL file number 177451

Suitable for applications where protection against low-level short-circuit faults in control wiring is desired. Instantaneous trip is 3–5X continuous rating of device (I_n). Applications include PLC wiring, business equipment, lighting, appliances and some motors. Low magnetic trip point.



Single-Pole

Two-Pole

Three-Pole

B Curve (3–5X I_n Current Rating)—Designed for Resistive or Slightly Inductive Loads ①

Amperes	Single-Pole ② Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number
1	FAZ-B1/1-SP	FAZ-B1/2	FAZ-B1/3
2	FAZ-B2/1-SP	FAZ-B2/2	FAZ-B2/3
3	FAZ-B3/1-SP	FAZ-B3/2	FAZ-B3/3
4	FAZ-B4/1-SP	FAZ-B4/2	FAZ-B4/3
5	FAZ-B5/1-SP	FAZ-B5/2	FAZ-B5/3
6	FAZ-B6/1-SP	FAZ-B6/2	FAZ-B6/3
7	FAZ-B7/1-SP	FAZ-B7/2	FAZ-B7/3
8	FAZ-B8/1-SP	FAZ-B8/2	FAZ-B8/3
10	FAZ-B10/1-SP	FAZ-B10/2	FAZ-B10/3
12	FAZ-B12/1-SP	FAZ-B12/2	FAZ-B12/3
13	FAZ-B13/1-SP	FAZ-B13/2	FAZ-B13/3
15	FAZ-B15/1-SP	FAZ-B15/2	FAZ-B15/3
16	FAZ-B16/1-SP	FAZ-B16/2	FAZ-B16/3
20	FAZ-B20/1-SP	FAZ-B20/2	FAZ-B20/3
25	FAZ-B25/1-SP	FAZ-B25/2	FAZ-B25/3
30	FAZ-B30/1-SP	FAZ-B30/2	FAZ-B30/3
32	FAZ-B32/1-SP	FAZ-B32/2	FAZ-B32/3
40	FAZ-B40/1-SP	FAZ-B40/2	FAZ-B40/3
50	FAZ-B50/1-SP	FAZ-B50/2	FAZ-B50/3
63	FAZ-B63/1-SP	FAZ-B63/2	FAZ-B63/3

Four-Pole

Single-Pole + Neutral

Three-Pole + Neutral

B Curve (3–5X I_n Current Rating)—Designed for Resistive or Slightly Inductive Loads, continued ①

Amperes	Four-Pole Catalog Number	Single-Pole + Neutral Catalog Number	Three-Pole + Neutral Catalog Number
1	FAZ-B1/4	FAZ-B1/1N	FAZ-B1/3N
2	FAZ-B2/4	FAZ-B2/1N	FAZ-B2/3N
3	FAZ-B3/4	FAZ-B3/1N	FAZ-B3/3N
4	FAZ-B4/4	FAZ-B4/1N	FAZ-B4/3N
5	FAZ-B5/4	FAZ-B5/1N	FAZ-B5/3N
6	FAZ-B6/4	FAZ-B6/1N	FAZ-B6/3N
7	FAZ-B7/4	FAZ-B7/1N	FAZ-B7/3N
8	FAZ-B8/4	FAZ-B8/1N	FAZ-B8/3N
10	FAZ-B10/4	FAZ-B10/1N	FAZ-B10/3N
12	FAZ-B12/4	FAZ-B12/1N	FAZ-B12/3N
13	FAZ-B13/4	FAZ-B13/1N	FAZ-B13/3N
15	FAZ-B15/4	FAZ-B15/1N	FAZ-B15/3N
16	FAZ-B16/4	FAZ-B16/1N	FAZ-B16/3N
20	FAZ-B20/4	FAZ-B20/1N	FAZ-B20/3N
25	FAZ-B25/4	FAZ-B25/1N	FAZ-B25/3N
30	FAZ-B30/4	FAZ-B30/1N	FAZ-B30/3N
32	FAZ-B32/4	FAZ-B32/1N	FAZ-B32/3N
40	FAZ-B40/4	FAZ-B40/1N	FAZ-B40/3N
50	FAZ-B50/4	FAZ-B50/1N	FAZ-B50/3N
63	FAZ-B63/4	FAZ-B63/1N	FAZ-B63/3N

Notes

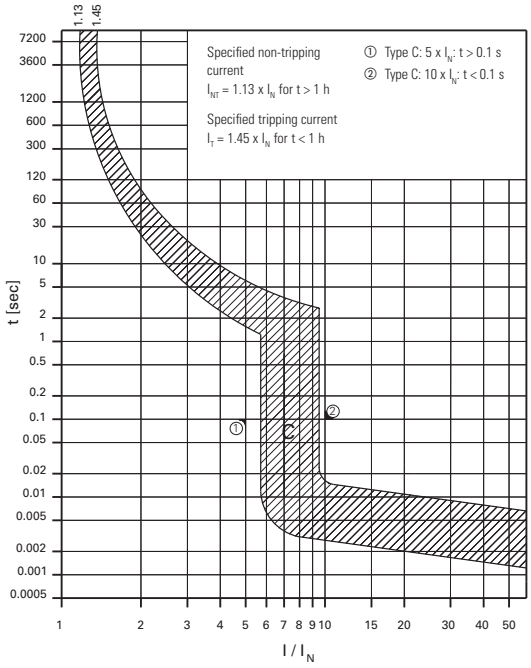
① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

② Option for single packaging on single-pole B, C and D curves only; add suffix SP when ordering.

FAZ C curve (5–10X I_n current rating)

- Designed for inductive loads
- Response time of instantaneous trip: 5–10X I_n current rating
- UL recognized and CSA Certified as supplementary protectors
- For international and domestic use (conform to IEC 60947-2)
- UL file number 177451

Suitable for applications where medium levels of inrush current are expected. Instantaneous trip is 5–10X rating of device (I_n). Applications include small transformers, lighting, pilot devices, control circuits and coils. Medium magnetic trip point.



Single-Pole

Two-Pole

Three-Pole

C Curve (5–10X I_n Current Rating)—Designed Inductive Loads ①

Amperes	Single-Pole ② Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number
0.5	FAZ-C0.5/1-SP	FAZ-C0.5/2	FAZ-C0.5/3
1	FAZ-C1/1-SP	FAZ-C1/2	FAZ-C1/3
1.6	FAZ-C1.6/1-SP	FAZ-C1.6/2	FAZ-C1.6/3
2	FAZ-C2/1-SP	FAZ-C2/2	FAZ-C2/3
3	FAZ-C3/1-SP	FAZ-C3/2	FAZ-C3/3
4	FAZ-C4/1-SP	FAZ-C4/2	FAZ-C4/3
5	FAZ-C5/1-SP	FAZ-C5/2	FAZ-C5/3
6	FAZ-C6/1-SP	FAZ-C6/2	FAZ-C6/3
7	FAZ-C7/1-SP	FAZ-C7/2	FAZ-C7/3
8	FAZ-C8/1-SP	FAZ-C8/2	FAZ-C8/3
10	FAZ-C10/1-SP	FAZ-C10/2	FAZ-C10/3
13	FAZ-C13/1-SP	FAZ-C13/2	FAZ-C13/3
15	FAZ-C15/1-SP	FAZ-C15/2	FAZ-C15/3
16	FAZ-C16/1-SP	FAZ-C16/2	FAZ-C16/3
20	FAZ-C20/1-SP	FAZ-C20/2	FAZ-C20/3
25	FAZ-C25/1-SP	FAZ-C25/2	FAZ-C25/3
30	FAZ-C30/1-SP	FAZ-C30/2	FAZ-C30/3
32	FAZ-C32/1-SP	FAZ-C32/2	FAZ-C32/3
40	FAZ-C40/1-SP	FAZ-C40/2	FAZ-C40/3
50	FAZ-C50/1-SP	FAZ-C50/2	FAZ-C50/3
63	FAZ-C63/1-SP	FAZ-C63/2	FAZ-C63/3

Four-Pole

Single-Pole + Neutral

Three-Pole + Neutral

C Curve (5–10X I_n Current Rating)—Designed Inductive Loads, continued ①

Amperes	Four-Pole Catalog Number	Single-Pole + Neutral Catalog Number	Three-Pole + Neutral Catalog Number
0.5	FAZ-C0.5/4	FAZ-C0.5/1N	FAZ-C0.5/3N
1	FAZ-C1/4	FAZ-C1/1N	FAZ-C1/3N
1.6	FAZ-C1.6/4	FAZ-C1.6/1N	FAZ-C1.6/3N
2	FAZ-C2/4	FAZ-C2/1N	FAZ-C2/3N
3	FAZ-C3/4	FAZ-C3/1N	FAZ-C3/3N
4	FAZ-C4/4	FAZ-C4/1N	FAZ-C4/3N
5	FAZ-C5/4	FAZ-C5/1N	FAZ-C5/3N
6	FAZ-C6/4	FAZ-C6/1N	FAZ-C6/3N
7	FAZ-C7/4	FAZ-C7/1N	FAZ-C7/3N
8	FAZ-C8/4	FAZ-C8/1N	FAZ-C8/3N
10	FAZ-C10/4	FAZ-C10/1N	FAZ-C10/3N
13	FAZ-C13/4	FAZ-C13/1N	FAZ-C13/3N
15	FAZ-C15/4	FAZ-C15/1N	FAZ-C15/3N
16	FAZ-C16/4	FAZ-C16/1N	FAZ-C16/3N
20	FAZ-C20/4	FAZ-C20/1N	FAZ-C20/3N
25	FAZ-C25/4	FAZ-C25/1N	FAZ-C25/3N
32	FAZ-C32/4	FAZ-C32/1N	FAZ-C32/3N
40	FAZ-C40/4	FAZ-C40/1N	FAZ-C40/3N
50	FAZ-C50/4	FAZ-C50/1N	FAZ-C50/3N
63	FAZ-C63/4	FAZ-C63/1N	FAZ-C63/3N

Notes

① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

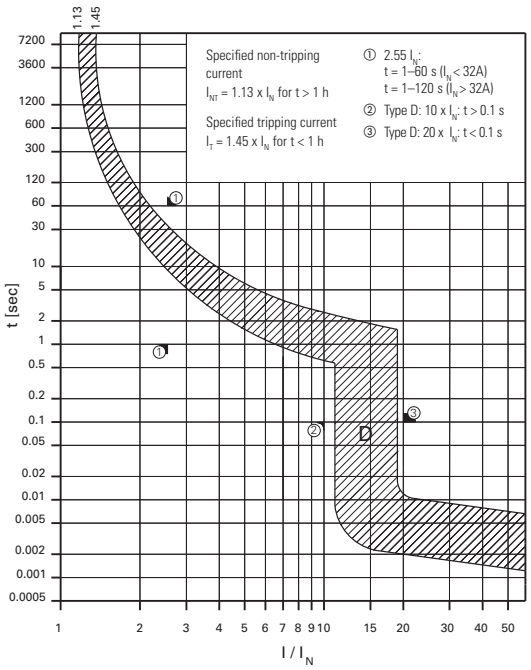
② Option for single packaging on single-pole B, C and D curves only; add suffix SP when ordering.

1

FAZ D curve (10–20X I_n current rating)

- Designed for highly inductive loads
- Response time of instantaneous trip: 10–20X I_n current rating
- UL recognized and CSA Certified as supplementary protectors
- For international and domestic use (conform to IEC 60947-2)
- UL file number 177451

Suitable for applications where high levels of inrush current are expected. Instantaneous trip is 10–20X rating of device (I_n). The high magnetic trip point prevents nuisance tripping in high inductive applications such as motors, transformers and power supplies.



Single-Pole

Two-Pole

Three-Pole

D Curve (10–20X I_n Current Rating)—Designed for Inductive Loads ①

Amperes	Single-Pole ② Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number
0.5	FAZ-D0.5/1-SP	FAZ-D0.5/2	FAZ-D0.5/3
1	FAZ-D1/1-SP	FAZ-D1/2	FAZ-D1/3
2	FAZ-D2/1-SP	FAZ-D2/2	FAZ-D2/3
3	FAZ-D3/1-SP	FAZ-D3/2	FAZ-D3/3
4	FAZ-D4/1-SP	FAZ-D4/2	FAZ-D4/3
5	FAZ-D5/1-SP	FAZ-D5/2	FAZ-D5/3
6	FAZ-D6/1-SP	FAZ-D6/2	FAZ-D6/3
7	FAZ-D7/1-SP	FAZ-D7/2	FAZ-D7/3
8	FAZ-D8/1-SP	FAZ-D8/2	FAZ-D8/3
10	FAZ-D10/1-SP	FAZ-D10/2	FAZ-D10/3
13	FAZ-D13/1-SP	FAZ-D13/2	FAZ-D13/3
15	FAZ-D15/1-SP	FAZ-D15/2	FAZ-D15/3
16	FAZ-D16/1-SP	FAZ-D16/2	FAZ-D16/3
20	FAZ-D20/1-SP	FAZ-D20/2	FAZ-D20/3
25	FAZ-D25/1-SP	FAZ-D25/2	FAZ-D25/3
30	FAZ-D30/1-SP	FAZ-D30/2	FAZ-D30/3
32	FAZ-D32/1-SP	FAZ-D32/2	FAZ-D32/3
40	FAZ-D40/1-SP	FAZ-D40/2	FAZ-D40/3
50 ③	FAZ-D50/1-SP	FAZ-D50/2	FAZ-D50/3
63 ③	FAZ-D63/1-SP	FAZ-D63/2	FAZ-D63/3

Four-Pole

Single-Pole + Neutral

Three-Pole + Neutral

D Curve (10–20X I_n Current Rating)—Designed for Inductive Loads, continued ①

Amperes	Four-Pole Catalog Number	Single-Pole + Neutral Catalog Number	Three-Pole + Neutral Catalog Number
0.5	FAZ-D0.5/4	FAZ-D0.5/1N	FAZ-D0.5/3N
1	FAZ-D1/4	FAZ-D1/1N	FAZ-D1/3N
2	FAZ-D2/4	FAZ-D2/1N	FAZ-D2/3N
3	FAZ-D3/4	FAZ-D3/1N	FAZ-D3/3N
4	FAZ-D4/4	FAZ-D4/1N	FAZ-D4/3N
5	FAZ-D5/4	FAZ-D5/1N	FAZ-D5/3N
6	FAZ-D6/4	FAZ-D6/1N	FAZ-D6/3N
7	FAZ-D7/4	FAZ-D7/1N	FAZ-D7/3N
8	FAZ-D8/4	FAZ-D8/1N	FAZ-D8/3N
10	FAZ-D10/4	FAZ-D10/1N	FAZ-D10/3N
13	FAZ-D13/4	FAZ-D13/1N	FAZ-D13/3N
15	FAZ-D15/4	FAZ-D15/1N	FAZ-D15/3N
16	FAZ-D16/4	FAZ-D16/1N	FAZ-D16/3N
20	FAZ-D20/4	FAZ-D20/1N	FAZ-D20/3N
25	FAZ-D25/4	FAZ-D25/1N	FAZ-D25/3N
30	FAZ-D30/4	FAZ-D30/1N	FAZ-D30/3N
32	FAZ-D32/4	FAZ-D32/1N	FAZ-D32/3N
40	FAZ-D40/4	FAZ-D40/1N	FAZ-D40/3N
50 ③	FAZ-D50/4	FAZ-D50/1N	FAZ-D50/3N
63 ③	FAZ-D63/4	FAZ-D63/1N	FAZ-D63/3N

Notes

① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

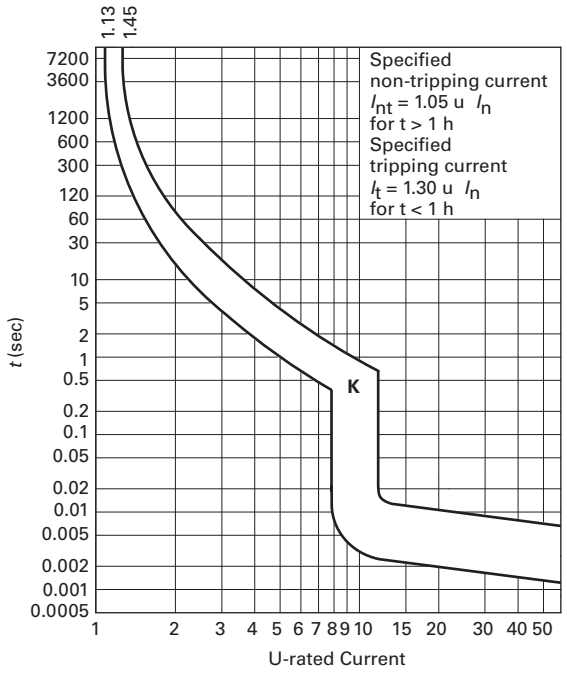
② Option for single packaging on single-pole B, C and D curves only; add suffix SP when ordering.

③ IEC 60947-2 only.

FAZ K curve (8–12X I_n current rating)

- Designed for motors, transformers and upstream electronics
- Response time of instantaneous trip: 8–12X I_n current rating
- UL recognized and CSA Certified as supplementary protectors
- For international and domestic use (conform to IEC 60947-2)
- UL file number 177451

Suitable for applications where medium levels of inrush current are expected. Instantaneous trip is 8–12X rating of device (I_n). Applications include small transformers, lighting, pilot devices, control circuits and coils. Medium magnetic trip point.



Single-Pole

Two-Pole

Three-Pole

K Curve (8–12X I_n Current Rating)—Designed for Inductive Loads ①②

Amperes	Single-Pole ③ Catalog Number	Two-Pole Catalog Number	Three-Pole Catalog Number
0.5	FAZ-K0.5/1	FAZ-K0.5/2	FAZ-K0.5/3
1	FAZ-K1/1	FAZ-K1/2	FAZ-K1/3
1.6	FAZ-K1.6/1	FAZ-K1.6/2	FAZ-K1.6/3
2	FAZ-K2/1	FAZ-K2/2	FAZ-K2/3
3	FAZ-K3/1	FAZ-K3/2	FAZ-K3/3
4	FAZ-K4/1	FAZ-K4/2	FAZ-K4/3
6	FAZ-K6/1	FAZ-K6/2	FAZ-K6/3
8	FAZ-K8/1	FAZ-K8/2	FAZ-K8/3
10	FAZ-K10/1	FAZ-K10/2	FAZ-K10/3
13	FAZ-K13/1	FAZ-K13/2	FAZ-K13/3
16	FAZ-K16/1	FAZ-K16/2	FAZ-K16/3
20	FAZ-K20/1	FAZ-K20/2	FAZ-K20/3
25	FAZ-K25/1	FAZ-K25/2	FAZ-K25/3
32	FAZ-K32/1	FAZ-K32/2	FAZ-K32/3
40	FAZ-K40/1	FAZ-K40/2	FAZ-K40/3
50	FAZ-K50/1	FAZ-K50/2	FAZ-K50/3
63	FAZ-K63/1	FAZ-K63/2	FAZ-K63/3

Four-Pole

Single-Pole + Neutral

Three-Pole + Neutral

K Curve (8–12X I_n Current Rating)—Designed for Inductive Loads, continued ①②

Amperes	Four-Pole ③ Catalog Number	Single-Pole + Neutral Catalog Number	Three-Pole + Neutral Catalog Number
0.5	FAZ-K0.5/4	FAZ-K0.5/1N	FAZ-K0.5/3N
1	FAZ-K1/4	FAZ-K1/1N	FAZ-K1/3N
1.6	FAZ-K1.6/4	FAZ-K1.6/1N	FAZ-K1.6/3N
2	FAZ-K2/4	FAZ-K2/1N	FAZ-K2/3N
3	FAZ-K3/4	FAZ-K3/1N	FAZ-K3/3N
4	FAZ-K4/4	FAZ-K4/1N	FAZ-K4/3N
6	FAZ-K6/4	FAZ-K6/1N	FAZ-K6/3N
8	FAZ-K8/4	FAZ-K8/1N	FAZ-K8/3N
10	FAZ-K10/4	FAZ-K10/1N	FAZ-K10/3N
13	FAZ-K13/4	FAZ-K13/1N	FAZ-K13/3N
16	FAZ-K16/4	FAZ-K16/1N	FAZ-K16/3N
20	FAZ-K20/4	FAZ-K20/1N	FAZ-K20/3N
25	FAZ-K25/4	FAZ-K25/1N	FAZ-K25/3N
32	FAZ-K32/4	FAZ-K32/1N	FAZ-K32/3N
40	FAZ-K40/4	FAZ-K40/1N	FAZ-K40/3N
50	FAZ-K50/4	FAZ-K50/1N	FAZ-K50/3N
63	FAZ-K63/4	FAZ-K63/1N	FAZ-K63/3N

Notes

① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

② These breakers are available by special order and may result in additional delivery time.

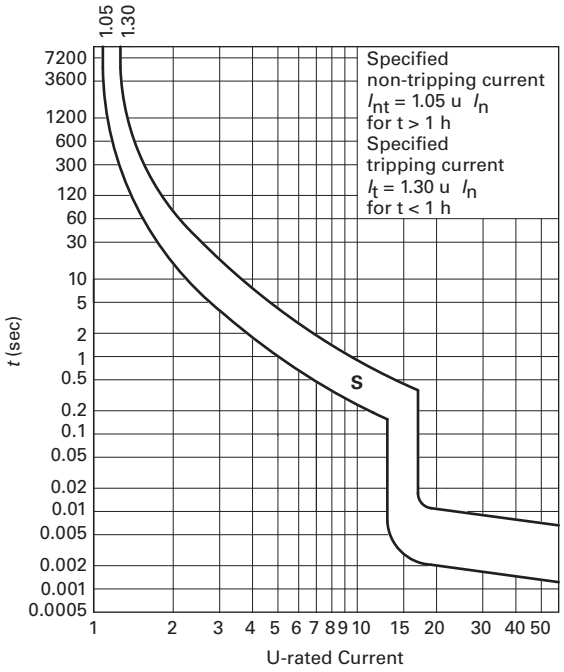
③ Two-piece box order, quantities of 2.

1

FAZ S curve (13–17X I_n current rating)

- Designed for control circuits with high inrush
- Response time of instantaneous trip: 13–17X I_n current rating
- UL recognized and CSA Certified as supplementary protectors
- For international and domestic use (conform to IEC 60947-2)
- UL file number 177451

Suitable for applications where high levels of inrush current are expected. Instantaneous trip is 13–17X rating of device (I_n). The high magnetic trip point prevents nuisance tripping in high inductive applications such as motors, transformers and power supplies.



Single-Pole

Two-Pole

S Curve (13–17X I_n Current Rating)—Designed for Inductive Loads ①②

Amperes	Single-Pole ③ Catalog Number	Two-Pole Catalog Number
1	**FAZ-S1/1**	**FAZ-S1/2**
2	**FAZ-S2/1**	**FAZ-S2/2**
3	**FAZ-S3/1**	**FAZ-S3/2**
4	**FAZ-S4/1**	**FAZ-S4/2**
6	**FAZ-S6/1**	**FAZ-S6/2**
10	**FAZ-S10/1**	**FAZ-S10/2**
16	**FAZ-S16/1**	**FAZ-S16/2**
20	**FAZ-S20/1**	**FAZ-S20/2**
25	**FAZ-S25/1**	**FAZ-S25/2**
32	**FAZ-S32/1**	**FAZ-S32/2**
40	**FAZ-S40/1**	**FAZ-S40/2**

Notes

① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

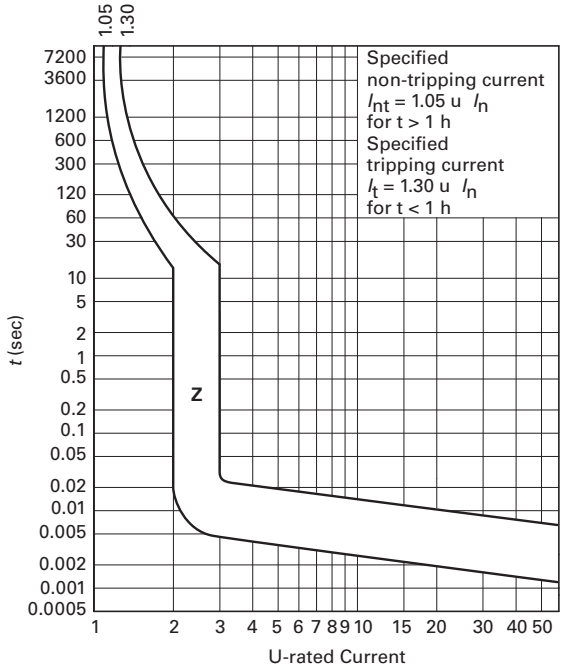
② These breakers are available by special order and may result in additional delivery time.

③ Two-piece box order, quantities of 2.

FAZ Z curve (2–3X I_n current rating)

- Designed for protection of electronic devices
- Response time of instantaneous trip: 2–3X I_n current rating
- UL recognized and CSA Certified as supplementary protectors
- For international and domestic use (conform to IEC 60947-2)

Suitable for applications where low levels of inrush current are expected. Instantaneous trip is 2–3X rating of device (I_n). Applications include small transformers, lighting, pilot devices, control circuits and coils. Medium magnetic trip point.



Single-Pole

Two-Pole

Z Curve (2–3X I_n Current Rating)—Designed for Inductive Loads ①②

Amperes	Single-Pole ③ Catalog Number	Two-Pole Catalog Number
0.5	**FAZ-Z0.5/1**	**FAZ-Z0.5/2**
1	**FAZ-Z1/1**	**FAZ-Z1/2**
1.6	**FAZ-Z1.6/1**	**FAZ-Z1.6/2**
2	**FAZ-Z2/1**	**FAZ-Z2/2**
3	**FAZ-Z3/1**	**FAZ-Z3/2**
4	**FAZ-Z4/1**	**FAZ-Z4/2**
6	**FAZ-Z6/1**	**FAZ-Z6/2**
8	**FAZ-Z8/1**	**FAZ-Z8/2**
10	**FAZ-Z10/1**	**FAZ-Z10/2**
13	**FAZ-Z13/1**	**FAZ-Z13/2**
16	**FAZ-Z16/1**	**FAZ-Z16/2**
20	**FAZ-Z20/1**	**FAZ-Z20/2**
25	**FAZ-Z25/1**	**FAZ-Z25/2**
32	**FAZ-Z32/1**	**FAZ-Z32/2**
40	**FAZ-Z40/1**	**FAZ-Z40/2**
50	**FAZ-Z50/1**	**FAZ-Z50/2**
63	**FAZ-Z63/1**	**FAZ-Z63/2**

Three-Pole

Four-Pole

Z Curve (2–3X I_n Current Rating)—Designed for Inductive Loads, continued ①②

Amperes	Three-Pole Catalog Number	Four-Pole Catalog Number
0.5	**FAZ-Z0.5/3**	**FAZ-Z0.5/4**
1	**FAZ-Z1/3**	**FAZ-Z1/4**
1.6	**FAZ-Z1.6/3**	**FAZ-Z1.6/4**
2	**FAZ-Z2/3**	**FAZ-Z2/4**
3	**FAZ-Z3/3**	**FAZ-Z3/4**
4	**FAZ-Z4/3**	**FAZ-Z4/4**
6	**FAZ-Z6/3**	**FAZ-Z6/4**
8	**FAZ-Z8/3**	**FAZ-Z8/4**
10	**FAZ-Z10/3**	**FAZ-Z10/4**
13	**FAZ-Z13/3**	**FAZ-Z13/4**
16	**FAZ-Z16/3**	**FAZ-Z16/4**
20	**FAZ-Z20/3**	**FAZ-Z20/4**
25	**FAZ-Z25/3**	**FAZ-Z25/4**
32	**FAZ-Z32/3**	**FAZ-Z32/4**
40	**FAZ-Z40/3**	**FAZ-Z40/4**
50	**FAZ-Z50/3**	**FAZ-Z50/4**
63	**FAZ-Z63/3**	**FAZ-Z63/4**

Notes

① In North America, these switches are UL recognized and CSA Certified as supplementary protection devices. Per the intent of NEC (National Electrical Code), Article 240, and CEC (Canadian Electrical Code), Part 1 C22.1, supplementary breakers cannot be used as a substitute for the branch circuit protective device. They can be used to provide overcurrent protection within an appliance or other electrical equipment where branch circuit overcurrent protection is already provided, or is not required.

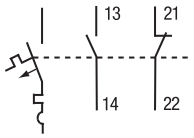
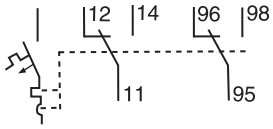
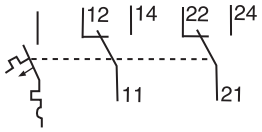
② These breakers are available by special order and may result in additional delivery time.

③ Two-piece box order, quantities of 2.

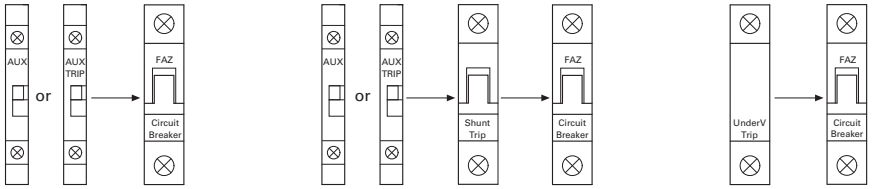
1

Accessories

FAZ Auxiliary Contacts and Voltage Trips

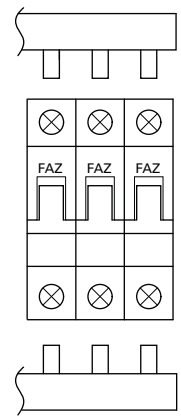
	Circuit Diagram	Description	Rated Operational Voltage	Catalog Number
Standard Auxiliary Contacts				
		■ 1NO/1NC ■ Installs on left side of FAZ or shunt trip ■ Max. one per FAZ (1077) device ■ Switches when FAZ is tripped electrically or manually	230 Vac	**FAZ-XHIN11**
		■ 1 changeover contact ■ Installs on left side of FAZ or shunt trip ■ Max. one per FAZ (1077) device ■ Switches when FAZ is tripped electrically or manually	230 Vac	**FAZ-XHINW1**
Auxiliary/Trip Indicating Contact				
	 Two-pole auxiliary mode  Trip indicating mode	■ Small selector screw changes mode ■ Two Form C (changeover) contacts ■ Installs on left side of FAZ or shunt trip ■ Auxiliary contacts switch when FAZ is tripped electrically or manually ■ Trip indicating contact switches only when FAZ is tripped electrically	230 Vac	**FAZ-XAM002**
Undervoltage Trip				
		■ Prevents FAZ from operating unless voltage is present ■ Installs on left side of FAZ ■ Includes test button	115 Vac 230 Vac 400 Vac	**FAZ-XUA(115VAC)** **FAZ-XUA(230VAC)** **FAZ-XUA(400VAC)**
Shunt Trip				
		■ Allows remote trip of FAZ ■ Installs on left side of FAZ	12–110 Vac 12–60 Vdc 110–415 Vac 110–230 Vdc	**FAZ-XAA-C-12-110VAC** **FAZ-XAA-C-110-415VAC**

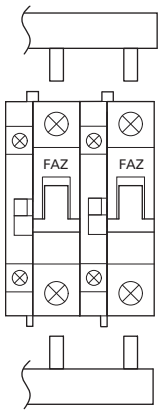
Allowable Combinations of Accessories



Busbar System

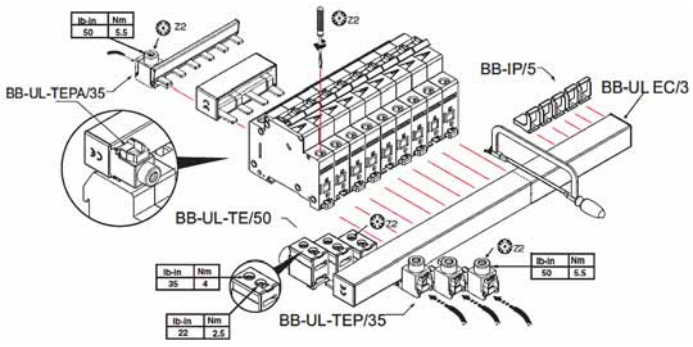
Description	Rated Operational Current	Number of Poles per Device	Number of Terminals	Catalog Number ①
Without Auxiliary Contacts				
For connecting FAZ supplementary protectors without auxiliary contacts. May be fed from line or load side.	80A	1	57	**BB-UL-18/1P-1M/57**
		2	56	**BB-UL-18/2P-2M/56**
		3	57	**BB-UL-18/3P-3M/57**
	100A	1	57	**BB-UL-25/1P-1M/57**
		2	56	**BB-UL-25/2P-2M/56**
		3	57	**BB-UL-25/3P-3M/57**
Auxiliary/Trip Indicating Contacts				
For connecting FAZ supplementary protectors with auxiliary contacts. May be fed from line or load side.	80A	1	37	**BB-UL-18/1P-1,5M/37**
		2	46	**BB-UL-18/2P+AS-2,5M/46**
		3	48	**BB-UL-18/3P+AS-3,5M/48**
	100A	1	37	**BB-UL-25/1P-1,5M/37**
		2	46	**BB-UL-25/2P+AS-2,5M/46**
		3	48	**BB-UL-25/3P+AS-3,5M/48**



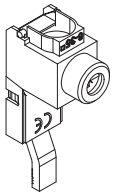


Note

① Bus may be center fed for high current capacity.



Incoming Terminal



Pin Type Incoming Supply Terminals

Description	Catalog Number
■ Accommodates conductors from 6–35 mm²/#10–2 AWG ■ 4–5.5 Nm/35–50 lb-in ■ Two- and three-pole	**BB-UL-TEP/35**

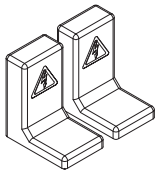
Incoming Terminal

Pin Type Incoming Supply Terminals—Single-Phase Only

Description	Catalog Number
■ Accommodates conductors from 6–35 mm²/#10–2 AWG ■ 4–5.5 Nm/35–50 lb-in	**BB-UL-TEPA/35**

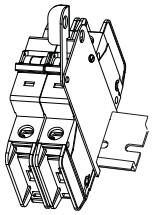
Protective Accessories

Busbar Terminal Cover



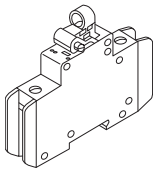
Description	Catalog Number
For covering unused terminals	**BB-IP/5**

Lockoff Device



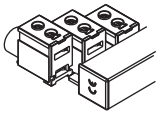
UL lockoff device	**FAZPLOFF**

Padlock Hasp



■ Prevents reactivation of the device during maintenance ■ Holds one padlock	**Z-IS/SPE-1TE**

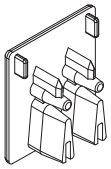
Incoming Terminal

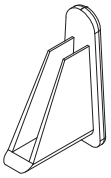


Bus Incoming Supply Terminals

Description	Catalog Number
■ 50 mm² ■ #14–1 AWG ■ 75 Deg wire ■ 115 A/Y, 480V UL ■ 160 A/Y 690V IEC	**BB-UL-TE/50**

Fork Connector





Busbar End Cap

Description	Poles	Catalog Number
■ Install after cutting busbar ■ Protects end of busbar	2 and 3	**BB-EV-EC/3**
	1	**BB-UL-EC/1**

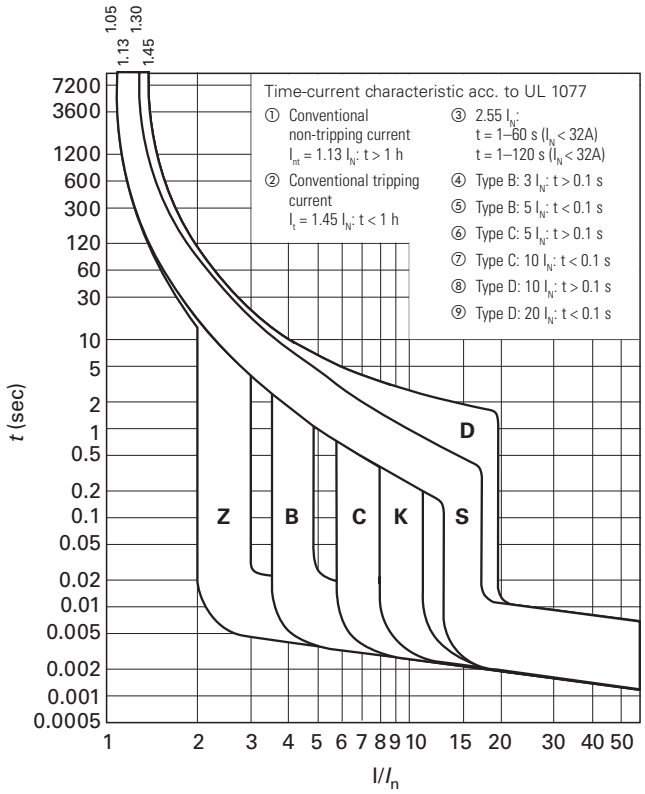
Technical Data and Specifications

Trip Curves Chart

Eaton FAZ supplementary protectors are available with six different tripping characteristics, including Type B, C, D, K, S and Z. Definitions for each trip curve are contained on the ordering pages and can be used to determine the optimal characteristic for your application. For example, low-level short-circuit faults in control wiring, such as PLCs, are best protected by devices with Type B trip characteristics (3–5X continuous rating of the device (I_n).

Even though not required by NEC or CEC for supplementary protectors, Eaton's FAZ devices are current limiting, which means that they interrupt fault currents within one half cycle. Current limiting devices offer superior protection by reducing peak let-through current and energy.

Tripping Characteristics



1

FAZ Miniature Circuit Breakers Technical Data

Description	B Curve	C Curve	D Curve
Electrical			
Approvals	UR (UL 1077), CSA (CSA 22.2 No. 235), CE		
Standards	IEC/EN 60947-2		
Short-circuit trip response	3–5 I_n	5–10 I_n	10–20 I_n
Supplementary Protectors—UL/CSA			
Current range	1–63A	0.5–63A	0.5–40A
Maximum voltage ratings—UL/CSA			
Single-pole, single-pole + neutral	277 Vac 48 Vdc	277 Vac 48 Vdc	277 Vac 48 Vdc
Two-, three-pole, four-pole and three-pole + neutral	480Y/277 Vac	480Y/277 Vac	480Y/277 Vac
Two poles in series	96 Vdc	96 Vdc	96 Vdc
Thermal tripping characteristics			
Single-pole	1.35 x I_n @ 40°C	1.35 x I_n @ 40°C	1.35 x I_n @ 40°C
Multi-pole	1.45 x I_n @ 40°C	1.45 x I_n @ 40°C	1.45 x I_n @ 40°C
Short-circuit ratings (at max. voltage)			
Single-pole	10 kA (5 kA for 40–63A device)	10 kA (5 kA for 40–63A device)	5 kA
Two-, three-pole	10 kA (5 kA for 40–63A device)	10 kA (5 kA for 40–63A device)	5 kA
Single-pole	10 kA @ 48 Vdc	10 kA @ 48 Vdc	10 kA @ 48 Vdc
Two poles in series	10 kA @ 96 Vdc	10 kA @ 96 Vdc	10 kA @ 96 Vdc
Miniature Circuit Breaker—IEC			
Current range	1–63A	0.5–63A	0.5–63A
Maximum voltage ratings—IEC 68898-1			
Single-pole	230 Vac	230 Vac	230 Vac
Two-, three-pole	230/400 Vac	230/400 Vac	230/400 Vac
Maximum voltage ratings—IEC 60947-2			
Single-pole	240 Vac 48 Vdc	240 Vac 48 Vdc	240 Vac 48 Vdc
Two-, three-pole	240/415 Vac	240/415 Vac	240/415 Vac
Two poles in series	96 Vdc	96 Vdc	96 Vdc
Thermal tripping characteristics			
Single-pole	> 1 hour @ 1.05 x I_n	> 1 hour @ 1.05 x I_n	> 1 hour @ 1.05 x I_n
Multi-pole	< 1 hour @ 1.3 x I_n	< 1 hour @ 1.3 x I_n	< 1 hour @ 1.3 x I_n
Interrupt ratings (at max. voltage)			
IEC 60947-2	15 kA	15 kA	15 kA (10 kA for 50 and 63A)
IEC 60898	10 kA	10 kA	10 kA (50 and 63A not available)
Operational switching capacity	7.5 kA	7.5 kA	7.5 kA
Max. backup fuse [gL/gG]	125A	125A	125A
Rated impulse withstand—U_{imp}	4000 Vac	4000 Vac	4000 Vac
Rated insulation voltage—U_i	440 Vac	440 Vac	440 Vac
Environmental/General			
Selectivity class	3	3	3
Lifespan (operations)	> 10,000 (1 operation = ON/OFF)	> 10,000 (1 operation = ON/OFF)	> 10,000 (1 operation = ON/OFF)
Shock (IEC 68-2-22)	10g–120 ms	10g–120 ms	10g–120 ms
Operating temperature range	–40 to +167°F (–40 to +75°C)	–40 to +167°F (–40 to +75°C)	–40 to +167°F (–40 to +75°C)
Shipment and short-term storage	–40 to +185°F (–40 to +85°C)	–40 to +185°F (–40 to +85°C)	–40 to +185°F (–40 to +85°C)
Housing material	Nylon	Nylon	Nylon
Mechanical			
Standard front dimension			
Device height	80 mm	80 mm	80 mm
Terminal protection	Finger and back-of-hand proof to IEC 536	Finger and back-of-hand proof to IEC 536	Finger and back-of-hand proof to IEC 536
Mounting width per pole	17.5 mm	17.5 mm	17.5 mm
Mounting	IEC/EN 60715 top-hat rail	IEC/EN 60715 top-hat rail	IEC/EN 60715 top-hat rail
Degree of protection	IP20	IP20	IP20
Terminals top and bottom	Twin-purpose terminals	Twin-purpose terminals	Twin-purpose terminals
Supply connection	Line or load side	Line or load side	Line or load side
Terminal capacity [mm^2]	1 x 25 (AWG 4–18)/2 x 10 (AWG 8–18)	1 x 25 (AWG 4–18)/2 x 10 (AWG 8–18)	1 x 25 (AWG 4–18)/2 x 10 (AWG 8–18)
Torque	2.4 Nm	2.4 Nm	2.4 Nm
Imperial torque	21 lb-in (AWG 18–12), 25 lb-in (AWG 10–8), 36 lb-in (AWG 6–4)	21 lb-in (AWG 18–12), 25 lb-in (AWG 10–8), 36 lb-in (AWG 6–4)	21 lb-in (AWG 18–12), 25 lb-in (AWG 10–8), 36 lb-in (AWG 6–4)
Thickness of busbar material	0.8–2 mm	0.8–2 mm	0.8–2 mm
Mounting position	As required	As required	As required

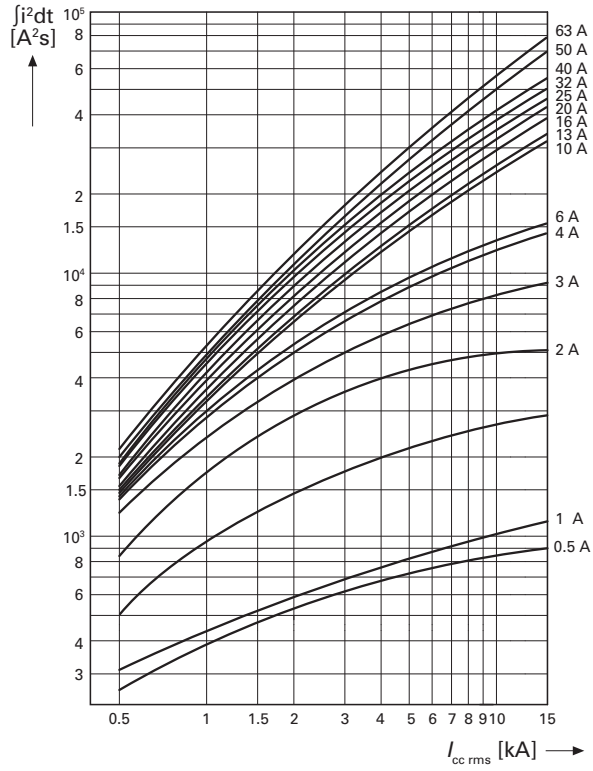
FAZ Miniature Circuit Breakers Technical Data, continued

Description	K Curve	S Curve	Z Curve
Electrical			
Approvals	UR (UL 1077), CSA (CSA 22.2 No. 235), CE		
Standards	IEC/EN 60947-2, E177451, 204453		
Short-circuit trip response	8–12 I_n	13–17 I_n	2–3 I_n
Supplementary Protectors—UL/CSA			
Current range	0.5–63A	0.5–40A	1–63A
Maximum voltage ratings—UL/CSA			
Single-pole, single-pole + neutral	277 Vac 48 Vdc	277 Vac 48 Vdc	277 Vac 48 Vdc
Two-, three-, four-pole and three-pole + neutral	480Y/277 Vac	480Y/277 Vac	480Y/277 Vac
Two poles in series	96 Vdc	96 Vdc	96 Vdc
Thermal tripping characteristics			
Single-pole	1.35 x I_n @ 40°C	1.35 x I_n @ 40°C	1.35 x I_n @ 40°C
Multi-pole	1.45 x I_n @ 40°C	1.45 x I_n @ 40°C	1.45 x I_n @ 40°C
Short-circuit ratings (at max. voltage)			
Single-pole	5 kA @ 277 Vac	5 kA @ 277 Vac	5 kA @ 277 Vac
Single-pole + neutral	5 kA @ 277 Vac	5 kA @ 277 Vac	5 kA @ 277 Vac
Two-, three-, four-pole	5 kA @ 480Y/277 Vac	5 kA @ 480Y/277 Vac	5 kA @ 480Y/277 Vac
Two poles in series	—	—	—
Miniature Circuit Breaker—IEC			
Current range	0.5–63A	0.5–40A	1–63A
Maximum voltage ratings—IEC 60947-2			
Single-pole, single-pole + neutral	240 Vac	240 Vac	240 Vac
Two-, three-, four-pole, three-pole + neutral	240/415 Vac	240/415 Vac	240/415 Vac
Thermal tripping characteristics			
Single-pole	> 1 Hour @ 1.05 x I_n	> 1 Hour @ 1.05 x I_n	> 1 Hour @ 1.05 x I_n
Multi-pole	< 1 Hour @ 1.3 x I_n	< 1 Hour @ 1.3 x I_n	< 1 Hour @ 1.3 x I_n
Interrupt ratings (at max. voltage)			
IEC 60947-2	15 kA	10 kA	10 kA
Operational switching capacity	7.5 kA	7.5 kA	7.5 kA
Max. backup fuse [gL/gG]	125A	125A	125A
Rated impulse withstand—U_{imp}	4000 Vac	4000 Vac	4000 Vac
Rated insulation voltage—U_i	440 Vac	440 Vac	440 Vac
Environmental/General			
Selectivity class	3	3	3
Lifespan (operations)	> 10,000 (1 operation = ON/OFF)	> 10,000 (1 operation = ON/OFF)	> 10,000 (1 operation = ON/OFF)
Shock (IEC 68-2-22)	10g–120 ms	10g–120 ms	10g–120 ms
Operating temperature range	–40 to +167°F (–40 to +75°C)	–40 to +167°F (–40 to +75°C)	–40 to +167°F (–40 to +75°C)
Shipment and short-term storage	–40 to +185°F (–40 to +85°C)	–40 to +185°F (–40 to +85°C)	–40 to +185°F (–40 to +85°C)
Housing material	Nylon	Nylon	Nylon
Mechanical			
Standard front dimension			
Device height	80 mm	80 mm	80 mm
Terminal protection	Finger and back-of-hand proof to IEC 536	Finger and back-of-hand proof to IEC 536	Finger and back-of-hand proof to IEC 536
Mounting width per pole	17.7 mm	17.7 mm	17.7 mm
Mounting	IEC/EN 60715 top-hat rail	IEC/EN 60715 top-hat rail	IEC/EN 60715 top-hat rail
Degree of protection	IP20	IP20	IP20
Terminals top and bottom	Twin-purpose terminals	Twin-purpose terminals	Twin-purpose terminals
Supply connection	Line or load side	Line or load side	Line or load side
Terminal capacity [mm^2]	1 x 25 (AWG 4–18) / 2 x 10 (AWG 8–18)	1 x 25 (AWG 4–18) / 2 x 10 (AWG 8–18)	1 x 25 (AWG 4–18) / 2 x 10 (AWG 8–18)
Torque	2.4 Nm	2.4 Nm	2.4 Nm
Imperial torque	21 lb-in (AWG 18–12), 25 lb-in (AWG 10–8), 36 lb-in (AWG 6–4)	21 lb-in (AWG 18–12), 25 lb-in (AWG 10–8), 36 lb-in (AWG 6–4)	21 lb-in (AWG 18–12), 25 lb-in (AWG 10–8), 36 lb-in (AWG 6–4)
Thickness of busbar material	0.8–2 mm	0.8–2 mm	0.8–2 mm
Mounting position	As required	As required	As required

1

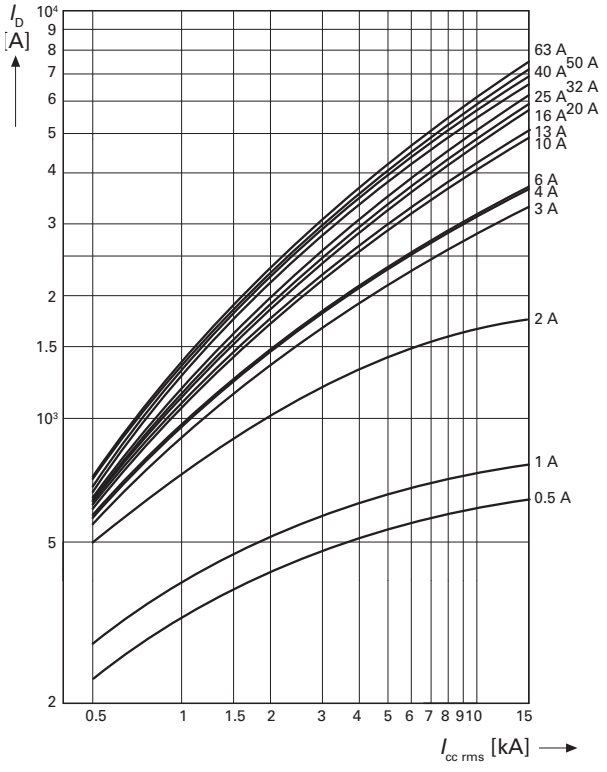
Let-Through Energy I^2t

Characteristic B and C

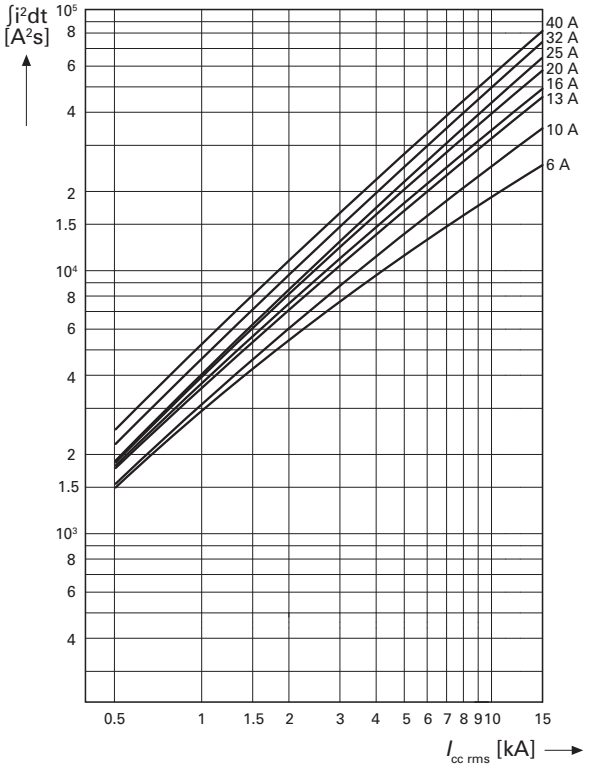


Let-Through Energy I_D

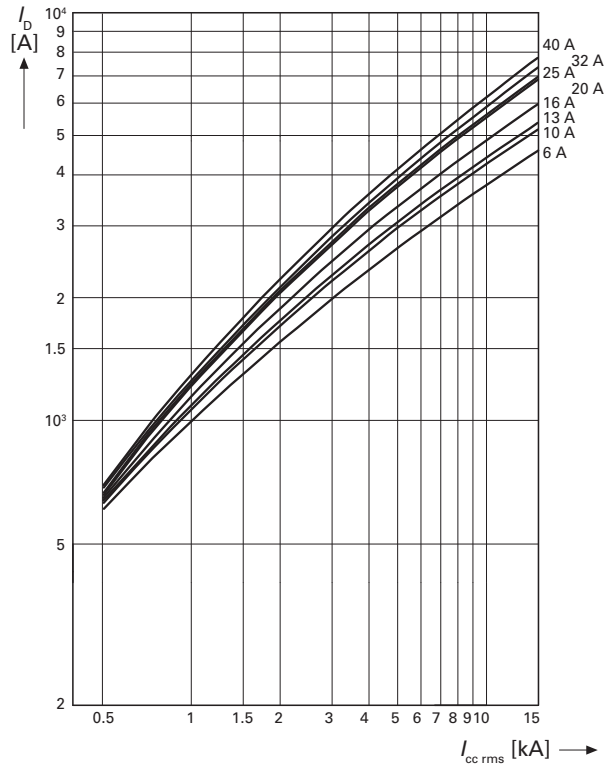
Characteristic B and C



Characteristic D

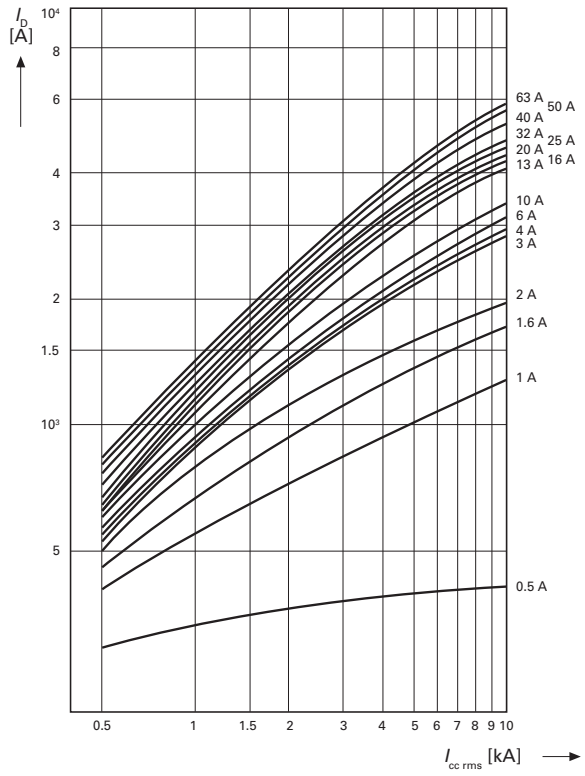


Characteristic D

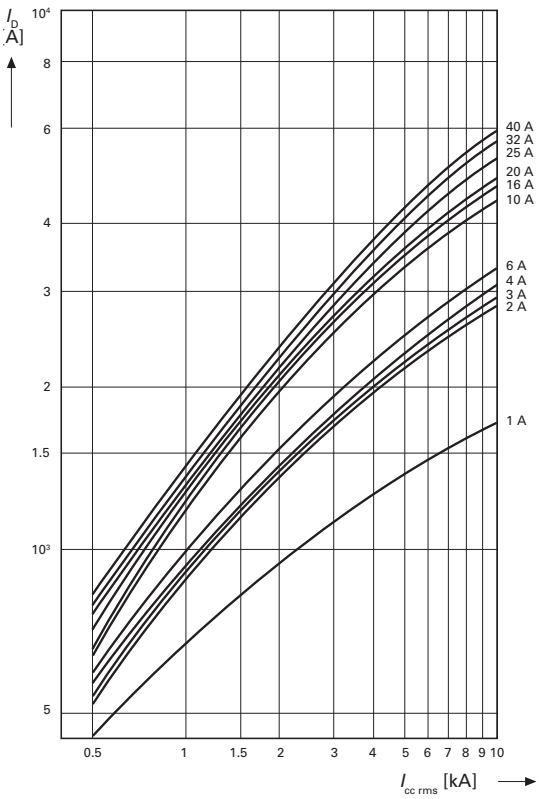


Let-Through Energy I^2t

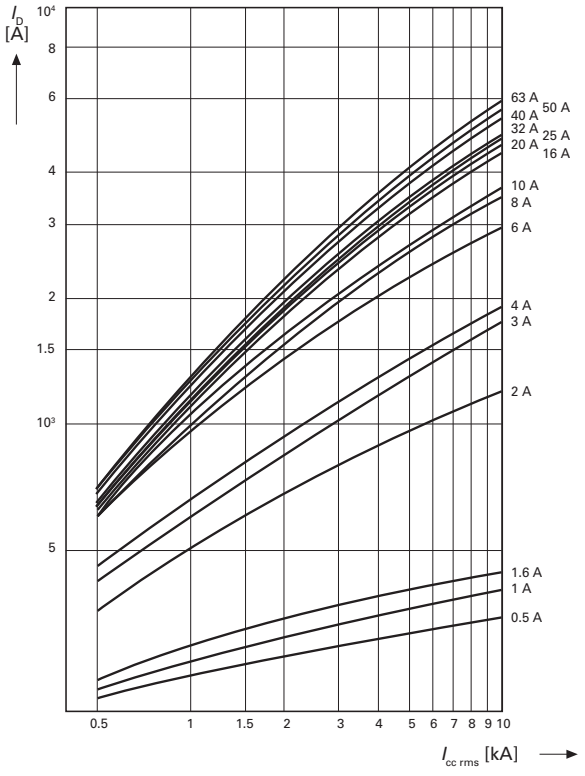
Characteristic K



Characteristic S



Characteristic Z



1

Influence of the Ambient Temperature on the Thermal Tripping Behavior

Corrected values of the rated current dependent on the ambient temperature

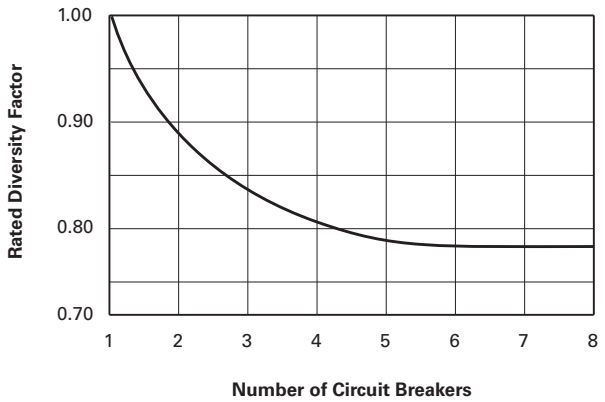
	Ambient Temperature T																
I_n (A)	–40°C	–30°C	–20°C	–10°C	0°C	10°C	20°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C	65°C	70°C	75°C
0.16	0.20	0.20	0.19	0.19	0.18	0.17	0.17	0.16	0.16	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.13
0.25	0.32	0.31	0.30	0.29	0.28	0.27	0.26	0.25	0.25	0.24	0.24	0.23	0.23	0.22	0.22	0.21	0.21
0.50	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.48	0.47	0.46	0.45	0.44	0.43	0.42	0.41
0.75	0.96	0.93	0.90	0.87	0.84	0.81	0.78	0.75	0.74	0.73	0.71	0.69	0.68	0.66	0.65	0.64	0.62
1.00	1.30	1.20	1.20	1.20	1.10	1.10	1.00	1.00	0.99	0.97	0.95	0.93	0.90	0.89	0.87	0.85	0.83
1.50	1.90	1.90	1.80	1.70	1.70	1.60	1.60	1.50	1.50	1.50	1.40	1.40	1.40	1.30	1.30	1.30	1.20
1.60	2.00	2.00	1.90	1.90	1.80	1.70	1.70	1.60	1.60	1.50	1.50	1.50	1.40	1.40	1.40	1.40	1.30
2.00	2.60	2.50	2.40	2.30	2.20	2.20	2.10	2.00	2.00	1.90	1.90	1.90	1.80	1.80	1.70	1.70	1.70
2.50	3.20	3.10	3.00	2.90	2.80	2.70	2.60	2.50	2.50	2.40	2.40	2.30	2.30	2.20	2.20	2.10	2.10
3.00	3.80	3.70	3.60	3.50	3.40	3.30	3.10	3.00	3.00	2.90	2.80	2.80	2.70	2.70	2.60	2.50	2.50
3.50	4.50	4.40	4.20	4.10	3.90	3.80	3.70	3.50	3.40	3.40	3.30	3.20	3.20	3.10	3.00	3.00	2.90
4.00	5.10	5.00	4.80	4.70	4.50	4.30	4.20	4.00	3.90	3.90	3.80	3.70	3.60	3.50	3.50	3.40	3.30
5.00	6.40	6.20	6.00	5.80	5.60	5.40	5.20	5.00	4.90	4.80	4.70	4.60	4.50	4.40	4.30	4.20	4.10
6.00	7.70	7.50	7.20	7.00	6.70	6.50	6.30	6.00	5.90	5.80	5.70	5.60	5.40	5.30	5.20	5.10	5.00
7.00	9.00	8.70	8.40	8.20	7.80	7.60	7.40	7.00	6.90	6.80	6.70	6.50	6.30	6.20	6.10	6.00	5.80
8.00	10.20	9.90	9.60	9.30	9.00	8.70	8.40	8.00	7.90	7.70	7.60	7.40	7.20	7.10	6.90	6.80	6.60
10.00	13.00	12.00	12.00	12.00	11.00	11.00	10.00	10.00	9.90	9.70	9.50	9.30	9.00	8.90	8.70	8.50	8.30
12.00	15.00	15.00	14.00	14.00	13.00	13.00	13.00	12.00	12.00	12.00	11.00	11.00	11.00	11.00	10.00	10.00	10.00
13.00	17.00	16.00	16.00	15.00	15.00	14.00	14.00	13.00	13.00	13.00	12.00	12.00	12.00	12.00	11.00	11.00	11.00
15.00	19.00	19.00	18.00	17.00	17.00	16.00	16.00	15.00	15.00	15.00	14.00	14.00	14.00	13.00	13.00	13.00	12.00
16.00	20.00	20.00	19.00	19.00	18.00	17.00	17.00	16.00	16.00	15.00	15.00	15.00	14.00	14.00	14.00	14.00	13.00
20.00	26.00	25.00	24.00	23.00	22.00	22.00	21.00	20.00	20.00	19.00	19.00	19.00	18.00	18.00	17.00	17.00	17.00
25.00	32.00	31.00	30.00	29.00	28.00	27.00	26.00	25.00	25.00	24.00	24.00	23.00	23.00	22.00	22.00	21.00	21.00
32.00	41.00	40.00	38.00	37.00	36.00	35.00	33.00	32.00	32.00	31.00	30.00	30.00	29.00	28.00	28.00	27.00	26.00
35.00	45.00	43.00	41.00	41.00	38.00	38.00	36.00	35.00	35.00	34.00	33.00	32.00	32.00	32.00	30.00	29.00	29.00
40.00	51.00	50.00	48.00	47.00	45.00	43.00	42.00	40.00	39.00	39.00	38.00	37.00	36.00	35.00	35.00	34.00	33.00
50.00	64.00	62.00	60.00	58.00	56.00	54.00	52.00	50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00
63.00	81.00	78.00	76.00	73.00	71.00	68.00	66.00	63.00	62.00	61.00	60.00	58.00	57.00	56.00	55.00	53.00	52.00

Influence of the Mains Frequency

Influence of the mains frequency on the tripping behavior I_{MA} of the instantaneous release

	Mains Frequency f [Hz]						
	16 2/3	50	60	100	200	300	400
$I_{MA}(f)/I_{MA}$ (50 Hz) [%]	91	100	101	106	115	134	141

Load Carrying Capacity of Adjoining Miniature Circuit Breakers



Accessories Technical Data

Description	FAZ-XHIN FAZ-XAM002	FAZ-XAA-C	FAZ-XUA
Electrical			
Contact function	1A + 1B 2 C/O	— —	— —
Rated operational voltage U_n	250 Vac	—	115 Vac 230 Vac 400 Vac
Voltage range	—	12–110 Vac 12–60 Vdc	—
Voltage range	—	110–415 Vac 110–230 Vdc	—
Closing threshold [x U_n]	—	—	0.8
Tripping threshold [x U_n]	—	—	0.5
Rated frequency f	50/60 Hz	50/60 Hz	50/60 Hz
General use (UL/CSA) AC—230/240 Vac DC—110/120 Vdc	 2/2A 0.5/0.5A	 — —	 — —
Pilot duty	A600/Q600	—	—
Conventional free air thermal current I_{th}	4A	—	—
Rated operational current AC-13 I_e AC-15 I_e DC-13 I_e	 3A (250 Vac) 2A (250 Vac) 0.5A (110 Vdc)	 — — —	 — — —
Rated insulation voltage U_i	250 Vac	—	—
Minimum operating voltage per contract U_{min}	5 Vdc	—	—
Rated impulse withstand voltage (1.2/50µ) U_{imp}	2.5 kV	—	—
Rated conditional short-circuit current with 6A backup fuse I_{SC}	1 kA	—	—
Max. admissible backup fuse	4A gL	—	—
Mechanical			
Standard front dimension	45 mm	45 mm	45 mm
Device height	80 mm	80 mm	80 mm
Mounting width	8.8 mm	17.6 mm	17.8 mm
Mounting	On MCB	IEC/EN 60715 top-hat rail	IEC/EN 60715 top-hat rail
Degree of protection enclosed	IP40	IP40	IP40
Terminal protection	Protection against electric shock to IEC 536	Protection against electric shock to IEC 536	Protection against electric shock to IEC 536
Terminals	Lift terminals	Twin-purpose terminals	Twin-purpose terminals
Terminal capacity Solid Flexible	 0.5–2.5 mm^2 0.5–2.5 mm^2	 1–2.5 mm^2 1–2.5 mm^2	 2 x (1–2.5) mm^2 2 x (1–2.5) mm^2
Tightening torque of terminal screws	0.8–1.0 Nm (7–9 lb-in)	2.4 Nm (21 lb-in)	0.8 Nm (7 lb-in)

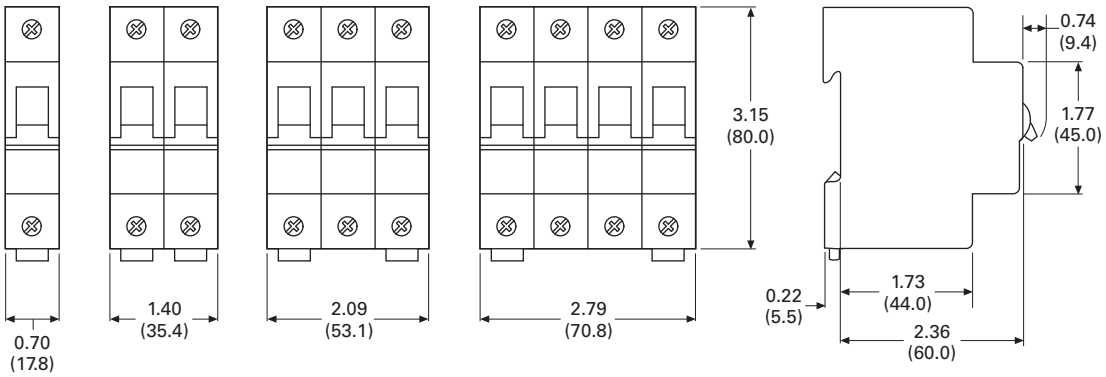
1

Dimensions

Approximate Dimensions in Inches (mm)

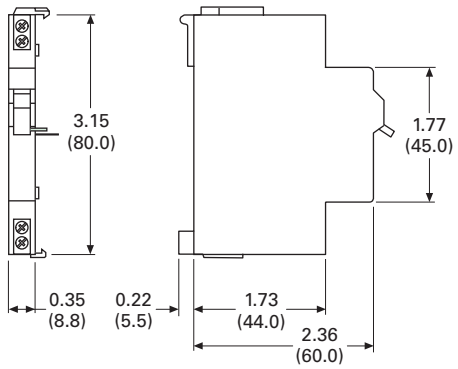
Miniature Circuit Breakers

FAZ

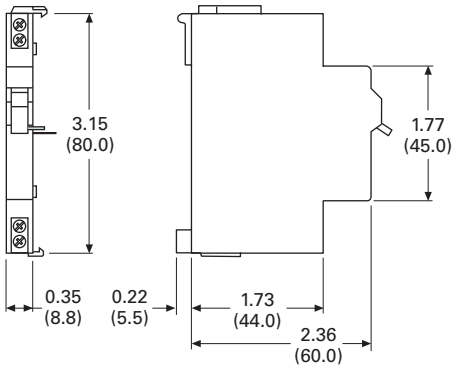


Auxiliary Contacts

FAZ-XHI11 and FAZ-XH1NW1

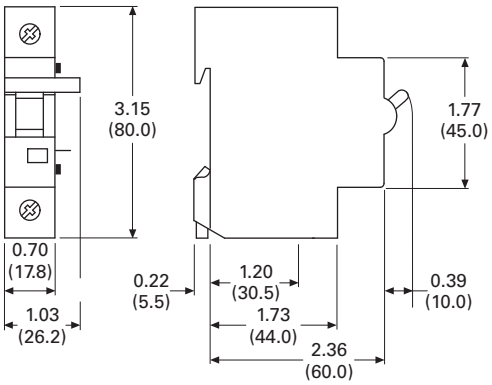


FAZ-XAM002



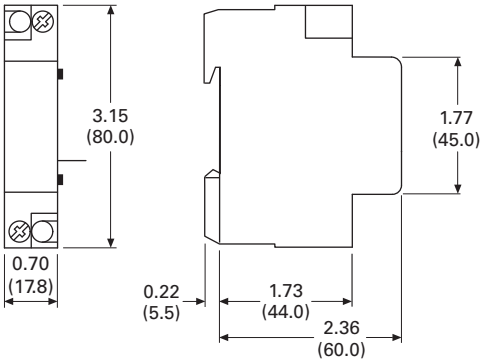
Shunt Releases

FAZ-XAA



Undervoltage Releases

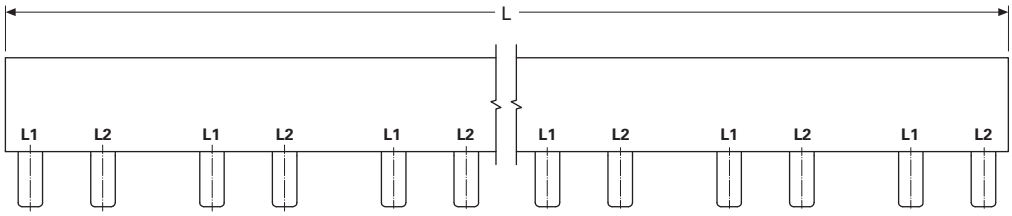
FAZ-XUA

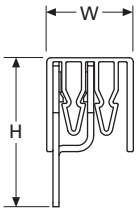


Approximate Dimensions in Inches (mm)

Busbar and Accessory Weights and Dimensions

Unit Weight (kg)	Length	Width	Height	Catalog Number
0.29	39.72 (1009.0)	0.59 (15.0)	0.59 (15.0)	**BB-UL-18/1P-1M/57**
0.64	39.02 (991.0)	0.87 (22.0)	1.46 (37.0)	**BB-UL-18/2P-2M/56**
0.83	39.72 (1009.0)	0.87 (22.0)	1.46 (37.0)	**BB-UL-18/3P-3M/57**
0.26	38.78 (985.0)	0.59 (15.0)	0.59 (15.0)	**BB-UL-18/1P-1.5M/37**
0.63	39.72 (1009.0)	0.87 (22.0)	1.46 (37.0)	**BB-UL-18/2P+AS-2.5M/46**
0.79	38.66 (982.0)	0.87 (22.0)	1.46 (37.0)	**BB-UL-18/3P+AS-3.5M/48**
0.36	39.72 (1009.0)	0.59 (15.0)	0.59 (15.0)	**BB-UL-25/1P-1M/57**
0.79	39.02 (991.0)	0.87 (22.0)	1.46 (37.0)	**BB-UL-25/2P-2M/56**
1.04	39.72 (1009.0)	0.87 (22.0)	1.46 (37.0)	**BB-UL-25/3P-3M/57**
0.31	38.78 (985.0)	0.59 (15.0)	0.59 (15.0)	**BB-UL-25/1P-1.5M/37**
0.73	39.72 (1009.0)	0.87 (22.0)	1.46 (37.0)	**BB-UL-25/2P+AS-2.5M/46**
0.97	38.66 (982.0)	0.87 (22.0)	1.46 (37.0)	**BB-UL-25/3P+AS-3.5M/48**
0.03	2.36 (60.0)	0.67 (17.0)	1.14 (29.0)	**BB-UL-TEP/35**
0.03	1.42 (36.0)	0.67 (17.0)	1.14 (29.0)	**BB-UL-TEPA/35**
0.03	1.57 (40.0)	0.71 (18.0)	1.18 (30.0)	**BB-UL-TE/50**
0.003	3.35 (85.0)	0.47 (12.0)	0.94 (24.0)	**BB-IP/5**
0.001	0.55 (14.0)	0.20 (5.0)	0.39 (10.0)	**BB-EV-EC/3**
0.001	0.94 (24.0)	0.87 (22.0)	0.39 (10.0)	**BB-UL-EC/1**





1

UL 1053 DIN Rail RCCB

Contents

Description	*Page*
UL 1053 DIN Rail RCCB 480/277 Vac	
Product Selection	**V4-T1-95**
Accessories	**V4-T1-96**
Technical Data and Specifications	**V4-T1-97**
Dimensions	**V4-T1-98**
UL 1053 DIN Rail RCCB 208Y/120 Vac	**V4-T1-100**

UL 1053 DIN Rail RCCB 480/277 Vac

Product Overview

Optimum product quality, tested reliability and safety stand for best protection of installations and plant. Eaton's UL 1053 Residual Current Circuit Breaker (RCCB) is designed for use in residual current applications.

Application Description

- Motor control circuits
- HVAC internal/external equipment
- PLCs
- HMIs
- Equipment protection
- European housing

Features

- Wide range of compact RCCB types serving as fault-current and additional protection according to UL 1053 and IEC/EN 61008 standards, suitable for worldwide use
- Type A or Type G/A (with delay) protection available
- Comprehensive range of accessories
- Real contact position indicator
- Fault current tripping indicator
- Transparent designation plate
- Trip-free design—RCCB can not be defeated by holding the handle in the ON position
- Captive screws cannot be lost

Standards and Certifications

- UL 1053
- IEC/EN 61008
- CSA
- ÖVE
- CE Marked

Listed

Product Selection

UL 1053 RCCB 480Y/277V Type A

Two-Pole

Conditionally Surge Current–Proof 250A, Sensitive to Residual Pulsating DC, Type A

Two-Pole

Amperes	GF Sensitivity (mA)	Catalog Number ①	Designation
25	30	**167113**	FRCmM-25/2/003-A-NA
	300	**167116**	FRCmM-25/2/03-A-NA
40	30	**167114**	FRCmM-40/2/003-A-NA
	300	**167117**	FRCmM-40/2/03-A-NA
63	30	**167115**	FRCmM-63/2/003-A-NA
	300	**167118**	FRCmM-63/2/03-A-NA

Four-Pole

Conditionally Surge Current–Proof 250A, Sensitive to Residual Pulsating DC, Type A

Four-Pole

Amperes	GF Sensitivity (mA)	Catalog Number ①	Designation
25	30	**167125**	FRCmM-25/4/003-A-NA
	300	**167104**	FRCmM-25/4/03-A-NA
40	30	**167102**	FRCmM-40/4/003-A-NA
	300	**167105**	FRCmM-40/4/03-A-NA
63	30	**167103**	FRCmM-63/4/003-A-NA
	300	**167106**	FRCmM-63/4/03-A-NA

UL 1053 RCCB 480Y/277V Type G/A

Type G/A has a 10 ms delay.

Two-Pole

Surge Current–Proof 3 kA, Sensitive to Residual Pulsating DC, Type G/A (ÖVE E 8601)

Two-Pole

Amperes	GF Sensitivity (mA)	Catalog Number ①	Designation
25	30	**167119**	FRCmM-25/2/003-G/A-NA
	300	**167122**	FRCmM-25/2/03-G/A-NA
40	30	**167120**	FRCmM-40/2/003-G/A-NA
	300	**167123**	FRCmM-40/2/03-G/A-NA
63	30	**167121**	FRCmM-63/2/003-G/A-NA
	300	**167124**	FRCmM-63/2/03-G/A-NA

Four-Pole

Surge Current–Proof 3 kA, Sensitive to Residual Pulsating DC, Type G/A (ÖVE E 8601)

Four-Pole

Amperes	GF Sensitivity (mA)	Catalog Number ①	Designation
25	30	**167107**	FRCmM-25/4/003-G/A-NA
	300	**167110**	FRCmM-25/4/03-G/A-NA
40	30	**167108**	FRCmM-40/4/003-G/A-NA
	300	**167111**	FRCmM-40/4/03-G/A-NA
63	30	**167109**	FRCmM-63/4/003-G/A-NA
	300	**167112**	FRCmM-63/4/03-G/A-NA

Note

① Has no thermal element; must be paired with FAZ-NA or FAZ per application.

1

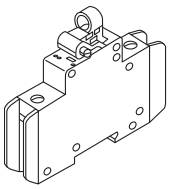
Accessories

UL 1053 DIN Rail RCCB 480/277 Vac

Contact

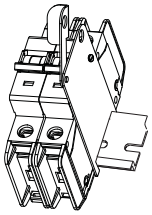
Description	Catalog Number
Two-pole contact or auxiliary contact / trip indicating contact	**Z-NHK** ①

Padlock Hasp



Description	Catalog Number
Padlock hasp	**Z-IS/SPE-1TE**

Lockoff Device



Description	Catalog Number
UL lockoff device	**FAZPLOFF**

Note

① Voltage of FAZ-NA circuit breaker is limited to 300V with this auxiliary contact installed.

Technical Data and Specifications

- Residual current devices
- Has no thermal protection; must be paired with FAZ-NA or FAZ per application
- Captive screw terminals
- Universal tripping signal switch, also suitable for Z-A; can be mounted subsequently
- Auxiliary switch Z-HK can be mounted subsequently
- Red-green contact position indicator
- White-blue tripping indicator
- Delayed types recommended for use with standard fluorescent tubes with or without electronical ballast (30mA-RCD: 30 units per phase conductor, 100mA-RCD: 90 units per phase conductor)
- The device functions irrespective of the position of installation
- Tripping is line voltage-independent. Consequently, the RCD is suitable for "fault current/residual current protection" and "additional protection" within the meaning of the applicable installation rules
- Reverse-feed permitted
- The four-pole device can also be used for two-pole connection. For this purpose, use terminals 5-6 and N-N
- The test key "T" must be pressed every month. The system operator must be informed of this obligation and responsibility in a way that can be proven (self-adhesive RCD-label enclosed)
- Pressing the test key "T" serves the only purpose of function testing the residual current device (RCD). This test does not make earthing resistance measurement (RE) or proper checking of the earth conductor condition redundant, which must be performed separately
- **Type -A:** Protects against special forms of residual pulsating DC that have not been smoothed
- **Type -G/A:** Additionally protects against special forms of residual pulsating DC that have not been smoothed

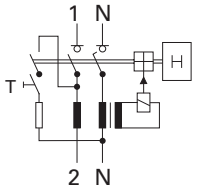
UL 1053 DIN Rail RCCB Technical Data

Description	Specification	
Electrical According to IEC/EN 61008		
Design according to	IEC/EN 61008	
	ÖVE E 8601	
Current test marks as printed onto the device		
Tripping Type G	10 ms delay	
Rated voltage U_n	230/400V, 50 Hz	
Rated tripping current $I_{\Delta n}$	30, 300 mA	
Sensitivity	AC and pulsating DC	
Rated insulation voltage U_i	440V	
Rated impulse withstand voltage U_{imp}	4 kV	
Rated short-circuit capacity I_{nc}	10 kA	
Maximum backup fuse	Overload protection	Short-circuit protection
I_n = 25–40A	25A gG/gL	63A gG/gL
I_n = 63A	40A gG/gL	63A gG/gL
Rated breaking capacity I_m bzw. Rated fault breaking capacity $I_{\Delta m}$		
I_n = 25–40A	500A	
I_n = 63A	630A	
Voltage range of test button	Two-pole	184–250V~
	Four-pole	184–440V~
Endurance	Electrical	>4000 operating cycles
	Mechanical	>20,000 operating cycles
Overvoltage category	III	

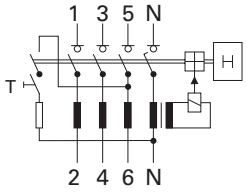
UL 1053 DIN Rail RCCB Technical Data, continued

Description	Specification	
Electrical According to UL 1053		
Design according to	UL 1053	
Current test marks as printed onto the device		
Tripping Type G	8 ms delay	
Rated voltage U_n	480Y/277V, 60 Hz	
Pickup current	22, 200 mA	
Sensitivity	AC and pulsating DC	
Overvoltage tested	530V	
Rated impulse withstand voltage U_{imp}	4 kV	
Rated short-circuit capacity I_{nc}	5 kA according to CSA	
Maximum backup fuse	Overload protection	Short-circuit protection
I_n = 25–40A	25A gG/gL	63A gG/gL
I_n = 63A	40A gG/gL	63A gG/gL
Rated breaking capacity I_m or Rated fault breaking capacity $I_{\Delta m}$		
I_n = 25–40A	500A	
I_n = 63A	630A	
Voltage range of test button	Two-pole	184–305V~
	Four-pole	184–528V~
Endurance	Electrical	>4000 operating cycles
	Mechanical	>20,000 operating cycles
Mechanical		
Frame size	45.0 mm	
Device height	80.0 mm	
Device width	35 mm (2TE), 70 mm (4TE)	
Device width	Quick fastening with two lock-in positions on DIN rail IEC/EN 60715	
Degree of protection, built-in	IP40	
Degree of protection in moisture-proof enclosure	IP54	
Upper and lower terminals	Lift terminals	
Terminal protection	Finger and hand touch safe BGV A3, ÖVE-EN 6	
Terminal capacity	1.5–35 mm^2 single-wire	
	2 x 16 mm^2 multi-wire	
Busbar material thickness	0.8–2 mm	
Tripping temperature	–25°C to +60°C	
Resistance to climatic conditions	According to IEC 61008	
Humidity	5–95%	

Connection Diagram



Two-Pole



Four-Pole

Impact of Ambient Temperature on the Maximum Permanent Current Allowed (A)

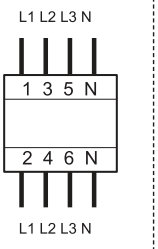
Tripping Temperature	16A Two-Pole	16A Four-Pole	25A Two-Pole	25A Four-Pole	40A Two-Pole	40A Four-Pole	63A Two-Pole	63A Four-Pole
40°C	16	16	25	25	40	40	63	63
45°C	14	14	21	22	37	37	59	59
50°C	11	11	18	19	33	34	55	55
55°C	9	9	14	16	30	31	50	50
60°C	①	—	—	—	26	27	45	45

Notes

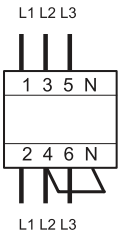
① Do not use.

Please make sure that these values are not exceeded and that any upstream overload protection switches off in time.

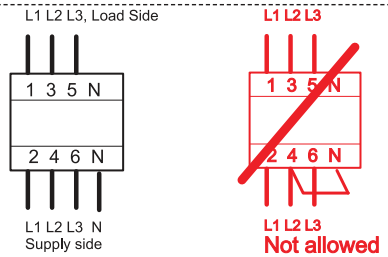
Correct Connection



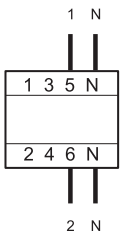
3+N
(230/400V) IEC
(277/480V) UL



Three-phase load without N
(184–254 Vac Phase-Phase) IEC
(184–277 Vac Phase-Phase) UL



Three-phase load without N
(400 Vac Phase-Phase) IEC
(480 Vac Phase-Phase) UL

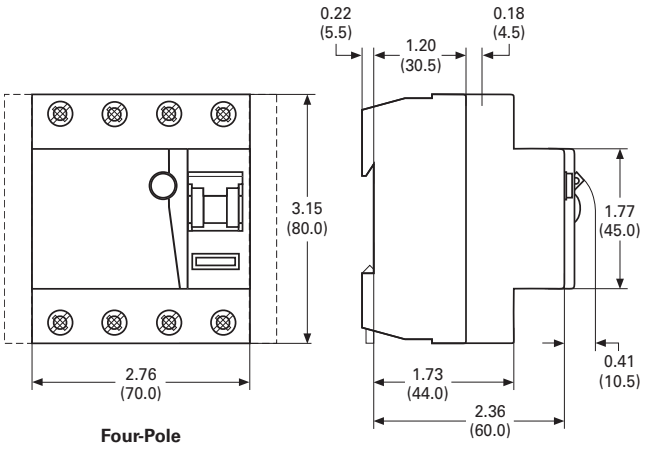


1+N
(230V) IEC
(277V) UL

Dimensions

Approximate Dimensions in Inches (mm)

UL 1053 DIN Rail RCCB



Four-Pole

Accessories Technical Data

Description	Z-NHK
Electrical	
Contact function	2CO
Rated voltage	230V
Frequency	50/60 Hz
Rated current	2A
Rated thermal current I_{th}	2A
Utilization category AC13 Rated operational current I_e	 3A/250 Vac
Utilization category AC15 Rated operational current I_e	 2A/250 Vac
Utilization category DC12 Rated operational current I_e	 0.5A/110 Vdc
Rated insulation voltage U_i	250 Vac
Minimum operational voltage per contact U_{min}	5 Vdc
Minimum operational current I_{min}	10 mA DC
Rated peak withstand voltage U_{imp} (1.2/50µ)	2.5 kV
Conditional short-circuit current I_k with backup fuse 6A	1 kA
Maximum backup fuse, overload and short circuit	6A gL
Mechanical	
Tripping indicator "electrical tripping"	Blue/white
Frame size	45 mm
Device height	80 mm
Device width	8.8 mm (0.5MU)
Mounting	Onto switching device
Degree of protection, built-in	IP40
Terminal protection	Finger and hand touch safe According to BGV A3, ÖVE-EN 6
Terminals	Lift terminals
Terminal capacity	20–14 AWG
Terminal screws	M3 (Posidrive Z0)
Fastening torque of terminal screws	7 lb-in maximum

UL 1053 DIN Rail RCCB

Contents

Description	*Page*
UL 1053 DIN Rail RCCB 480/277 Vac	**V4-T1-94**
UL 1053 DIN Rail RCCB 208Y/120 Vac	
Product Selection	**V4-T1-101**
Accessories	**V4-T1-102**
Technical Data and Specifications	**V4-T1-103**
Dimensions	**V4-T1-104**

UL 1053 DIN Rail RCCB 208Y/120 Vac

Product Overview

Optimum product quality, tested reliability and safety stand for best protection of installations and plant. Eaton's UL 1053 Residual Current Circuit Breaker (RCCB) is designed for use in residual current applications.

Application Description

- Motor control circuits
- HVAC internal/external equipment
- PLCs
- HMIs
- Equipment protection

Features

- Wide range of compact RCD type serving as fault-current and additional protection according to UL 1053 and IEC/EN 61008 standards, suitable for worldwide use in the 110V range of applications
- Type A or Type G/A (with delay) protection available
- Comprehensive range of accessories
- Real contact position indicator
- Fault current tripping indicator
- Transparent designation plate
- Trip-free design—RCCB can not be defeated by holding the handle in the ON position
- Captive screws cannot be lost

Standards and Certifications

- UL 1053
- IEC/EN 61008

Listed

Product Selection

UL 1053 RCCB 208Y/120 Vac Type A

Four-Pole

Conditionally Surge Current–Proof 250A, Sensitive to Residual Pulsating DC, Type A

Four-Pole

Amperes	GF Sensitivity (mA)	Catalog Number ①	Designation
25	30	**167699**	FRCmM-25/4/003-A-NA-110
	300	**167702**	FRCmM-25/4/03-A-NA-110
40	30	**167700**	FRCmM-40/4/003-A-NA-110
	300	**167703**	FRCmM-40/4/03-A-NA-110
63	30	**167701**	FRCmM-63/4/003-A-NA-110
	300	**167704**	FRCmM-63/4/03-A-NA-110

UL 1053 RCCB 208Y/120 Vac Type G/A

Type G/A has a 10 ms delay.

Two-Pole

Surge Current–Proof 3 kA, Sensitive to Residual Pulsating DC, Type G/A (ÖVE E 8601)

Two-Pole

Amperes	GF Sensitivity (mA)	Catalog Number ①	Designation
25	30	**167693**	FRCmM-25/2/003-G/A-NA-110
	300	**167696**	FRCmM-25/2/03-G/A-NA-110
40	30	**167694**	FRCmM-40/2/003-G/A-NA-110
	300	**167697**	FRCmM-40/2/03-G/A-NA-110
63	30	**167695**	FRCmM-63/2/003-G/A-NA-110
	300	**167698**	FRCmM-63/2/03-G/A-NA-110

Four-Pole

Surge Current–Proof 3 kA, Sensitive to Residual Pulsating DC, Type G/A (ÖVE E 8601)

Four-Pole

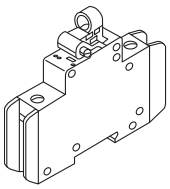
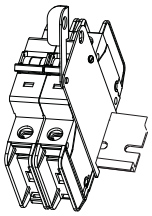
Amperes	GF Sensitivity (mA)	Catalog Number ①	Designation
25	30	**167705**	FRCmM-25/4/003-G/A-NA-110
	300	**167708**	FRCmM-25/4/03-G/A-NA-110
40	30	**167706**	FRCmM-40/4/003-G/A-NA-110
	300	**167709**	FRCmM-40/4/03-G/A-NA-110
63	30	**167707**	FRCmM-63/4/003-G/A-NA-110
	300	**167710**	FRCmM-63/4/03-G/A-NA-110

Note

① Has no thermal element; must be paired with FAZ-NA or FAZ per application.

Accessories

UL 1053 DIN Rail RCCB 208Y/120 Vac

	Description	Catalog Number
Contact	Two-pole contact or auxiliary contact / trip indicating contact	**Z-NHK** ①
Padlock Hasp 	Padlock hasp	**Z-IS/SPE-1TE**
Lockoff Device 	UL lockoff device	**FAZPLOFF**

Note

① Voltage of FAZ-NA circuit breaker is limited to 300V with this auxiliary contact installed.

Technical Data and Specifications

- Residual current devices
- Has no thermal protection; must be paired with FAZ-NA or FAZ per application
- Captive screw terminals
- Universal tripping signal switch, also suitable for Z-A; can be mounted subsequently
- Auxiliary switch Z-HK can be mounted subsequently
- Red-green contact position indicator
- White-blue tripping indicator
- Delayed types recommended for use with standard fluorescent tubes with or without electronical ballast (30mA-RCD: 30 units per phase conductor, 100mA-RCD: 90 units per phase conductor)
- The device functions irrespective of the position of installation
- Tripping is line voltage-independent. Consequently, the RCD is suitable for "fault current/residual current protection" and "additional protection" within the meaning of the applicable installation rules
- Reverse-feed permitted
- The four-pole device can also be used for two-pole connection. For this purpose, use terminals 5-6 and N-N
- The test key "T" must be pressed every month. The system operator must be informed of this obligation and responsibility in a way that can be proven (self-adhesive RCD-label enclosed)
- Pressing the test key "T" serves the only purpose of function testing the residual current device (RCD). This test does not make earthing resistance measurement (RE) or proper checking of the earth conductor condition redundant, which must be performed separately
- **Type -A:** Protects against special forms of residual pulsating DC that have not been smoothed
- **Type -G/A:** Additionally protects against special forms of residual pulsating DC that have not been smoothed

UL 1053 DIN Rail RCCB Technical Data

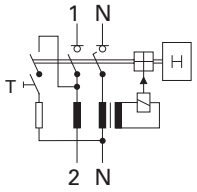
Description	Specification	
Electrical According to IEC/EN 61008		
Design according to	IEC/EN 61008	
	ÖVE E 8601	
Current test marks as printed onto the device		
Tripping Type G	10 ms delay	
Rated voltage U_n	230/400V, 50 Hz	
Rated tripping current $I_{\Delta n}$	30, 300 mA	
Sensitivity	AC and pulsating DC	
Rated insulation voltage U_i	440V	
Rated impulse withstand voltage U_{imp}	4 kV	
Rated short-circuit capacity I_{nc}	10 kA	
Maximum backup fuse	Overload protection	Short-circuit protection
I_n = 25–40A	25A gG/gL	63A gG/gL
I_n = 63A	40A gG/gL	63A gG/gL
Rated breaking capacity I_m bzw. Rated fault breaking capacity $I_{\Delta m}$		
I_n = 25–40A	500A	
I_n = 63A	630A	
Voltage range of test button	Two-pole	100–132V~
	Four-pole	100–230V~
Endurance	Electrical	>4000 operating cycles
	Mechanical	>20,000 operating cycles
Overvoltage category	III	

UL 1053 DIN Rail RCCB Technical Data, continued

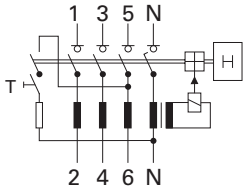
Description	Specification	
Electrical According to UL1053		
Design according to	UL 1053	
Current test marks as printed onto the device		
Tripping Type G	8 ms delay	
Rated voltage U_n	208Y/120V, 60 Hz	
Pickup current	22, 200 mA	
Sensitivity	AC and pulsating DC	
Overvoltage tested	530V	
Rated impulse withstand voltage U_{imp}	4 kV	
Rated short-circuit capacity I_{nc}	5 kA according to CSA	
Maximum backup fuse	Overload protection	Short-circuit protection
I_n = 25–40A	25A gG/gL	63A gG/gL
I_n = 63A	40A gG/gL	63A gG/gL
Rated breaking capacity I_m or Rated fault breaking capacity $I_{\Delta m}$		
I_n = 25–40A	500A	
I_n = 63A	630A	
Voltage range of test button	Two-pole	100–121V~
	Four-pole	100–210V~
Endurance	Electrical	>4000 operating cycles
	Mechanical	>20,000 operating cycles
Mechanical		
Frame size	45.0 mm	
Device height	80.0 mm	
Device width	35 mm (2TE), 70 mm (4TE)	
Device width	Quick fastening with two lock-in positions on DIN rail IEC/EN 60715	
Degree of protection, built-in	IP40	
Degree of protection in moisture-proof enclosure	IP54	
Upper and lower terminals	Lift terminals	
Terminal protection	Finger and hand touch safe BGV A3, ÖVE-EN 6	
Terminal capacity	1.5–35 mm^2 single-wire	
	2 x 16 mm^2 multi-wire	
Busbar material thickness	0.8–2 mm	
Tripping temperature	–25°C to +60°C	
Resistance to climatic conditions	According to IEC 61008	
Humidity	5–95%	

1

Connection Diagram



Two-Pole



Four-Pole

Impact of Ambient Temperature on the Maximum Permanent Current Allowed (A)

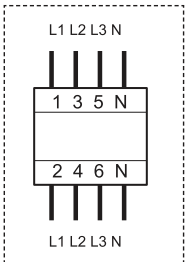
Tripping Temperature	16A Two-Pole	16A Four-Pole	25A Two-Pole	25A Four-Pole	40A Two-Pole	40A Four-Pole	63A Two-Pole	63A Four-Pole
40°C	16	16	25	25	40	40	63	63
45°C	14	14	21	22	37	37	59	59
50°C	11	11	18	19	33	34	55	55
55°C	9	9	14	16	30	31	50	50
60°C	①	—	—	—	26	27	45	45

Notes

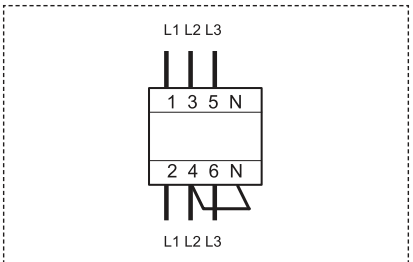
① Do not use.

Please make sure that these values are not exceeded and that any upstream overload protection switches off in time.

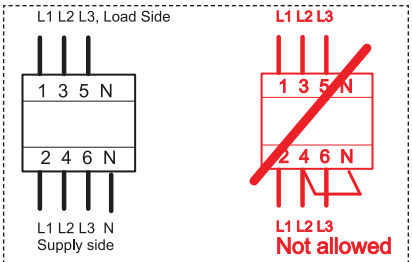
Correct Connection



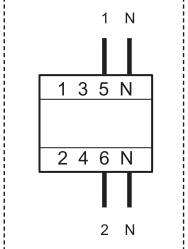
3+N
(230/400V) IEC
(277/480V) UL



Three-phase load without N
(184–254 Vac Phase-Phase) IEC
(184–277 Vac Phase-Phase) UL



Three-phase load without N
(400 Vac Phase-Phase) IEC
(480 Vac Phase-Phase) UL

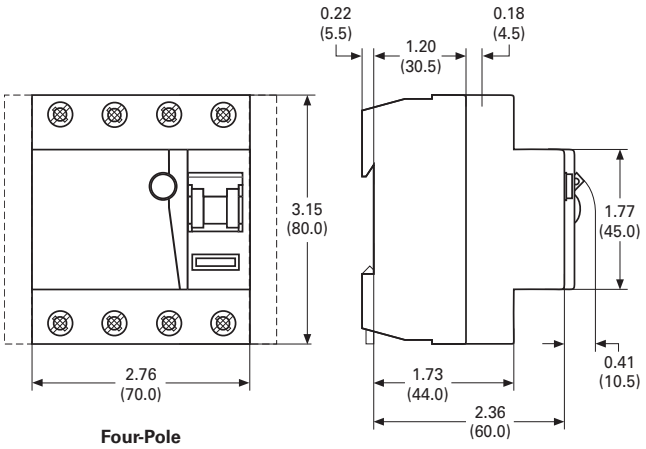


1+N
(230V) IEC
(277V) UL

Dimensions

Approximate Dimensions in Inches (mm)

UL 1053 DIN Rail RCCB



Four-Pole

Accessories Technical Data

Description	Z-NHK	Z-IHK-NA
Electrical		
Contact function	2CO	1NO + 1NC
Rated voltage	230V	250V
Frequency	50/60 Hz	50/60 Hz
Rated current	2A	6A
Rated thermal current I_{th}	2A	6A
Utilization category AC13 Rated operational current I_e	3A/250 Vac	3A/250 Vac
Utilization category AC15 Rated operational current I_e	2A/250 Vac	2A/250 Vac
Utilization category DC12 Rated operational current I_e	0.5A/110 Vdc	0.5A/110 Vdc 0.25A/220 Vdc
Rated insulation voltage U_i	250 Vac	250 Vac
Minimum operational voltage per contact U_{min}	5 Vdc	5 Vdc
Minimum operational current I_{min}	10 mA DC	10 mA AC/DC
Rated peak withstand voltage U_{imp} (1.2/50µ)	2.5 kV	4 kV
Conditional short-circuit current I_k with backup fuse 6A	1 kA	1 kA
Maximum backup fuse, overload and short circuit	6A gL	—
Mechanical		
Tripping indicator "electrical tripping"	Blue/white	—
Frame size	45 mm	45 mm
Device height	80 mm	80 mm
Device width	8.8 mm (0.5MU)	8.8 mm (0.5MU)
Mounting	Onto switching device	—
Degree of protection, built-in	IP40	IP40
Terminal protection	Finger and hand touch safe According to BGV A3, ÖVE-EN 6	Finger and hand touch safe According to BGV A3, ÖVE-EN 6
Terminals	Lift terminals	Lift terminals
Terminal capacity	20–14 AWG	0.5–2.5 mm^2
Terminal screws	M3 (Posidrive Z0)	M3 (Posidrive Z0)
Fastening torque of terminal screws	7 lb-in maximum	1.2 Nm