

Description

Single and multipole magnetic circuit breakers with trip-free mechanism and toggle actuation. A choice of fast magnetic only or hydraulically delayed switching characteristics (S-type MO or HM CBE to EN 60934) ensures suitability for a wide range of applications. Industry standard dimensions and panel mounting. Options include auxiliary changeover contacts, or relay trip function. Low temperature sensitivity at rated load. Approved to CBE standard EN 60934 (IEC 60934).

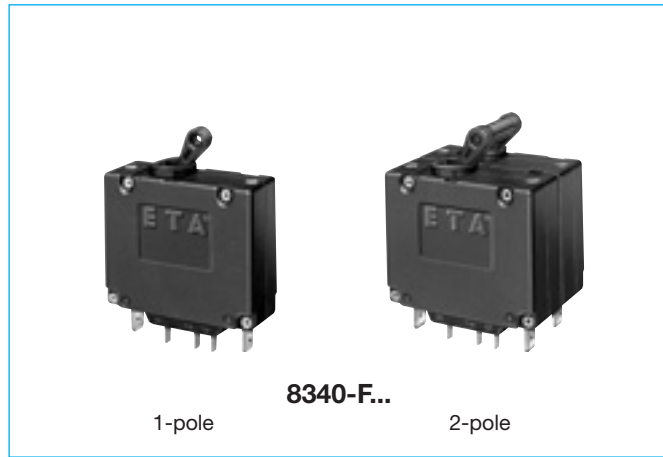
Typical applications

Control equipment, communications systems, transportation, power supplies.

Standard current ratings and typical internal resistance values

Current rating (A)	Curves and internal resistance per pole (Ω)			
	F1	F2	K1, M1, T1	K2, M2, T2
0.02	1493	953	2669	2457
0.05	276	152	452	376
0.1	58	37	100	94
0.25	8.2	6.0	15.5	14.7
0.5	2.3	1.47	3.9	3.2
0.75	0.98	0.63	1.65	1.56
1	0.58	0.35	0.95	0.90
2	0.145	0.096	0.26	0.20
2.5	0.096	0.061	0.15	0.15
3	0.065	0.048	0.10	0.10
5	0.025	< 0.02	0.042	0.040
6	< 0.02	< 0.02	0.029	0.028
8	< 0.02	< 0.02	< 0.02	< 0.02
10	< 0.02	< 0.02	< 0.02	< 0.02
12	< 0.02	< 0.02	< 0.02	< 0.02
15	< 0.02	< 0.02	< 0.02	< 0.02
16	< 0.02	< 0.02	< 0.02	< 0.02
20	< 0.02	< 0.02	< 0.02	< 0.02
25	< 0.02	< 0.02	< 0.02	< 0.02
30	< 0.02	< 0.02	< 0.02	< 0.02
40	≤ 0.01	-	≤ 0.01	-
50	≤ 0.01	-	≤ 0.01	-

Corrosion	96 hours at 5 % salt mist to IEC 60068-2-11, test Ka
Humidity	240 hours at 95 % RH to IEC 60068-2-3, test Ca
Mass	approx. 65 g per pole



Technical data

For further details please see chapter: **Technical Information**

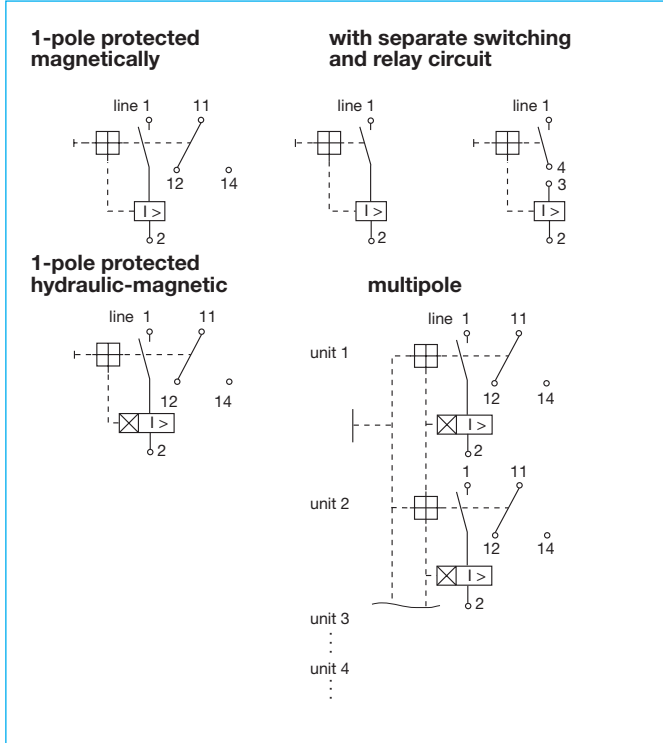
Voltage rating	3 AC 415 V; AC 240 V, 50/60 Hz; DC 80 V (higher DC ratings to special order)	
Current ratings	0.02...50 A 1-pole (40 + 50 A DC only) 0.02...30 A multipole	
Auxiliary circuit	6 A, AC 240 V 3 A, DC 28 V 1 A, DC 65 V 0.5 A, DC 80 V	
Typical life	3 AC 415 V, AC 240 V: 0.02...30 A 6,000 operations at 1 x I _N , inductive 10,000 operations at 1 x I _N , resistive DC 80 V: 0.02...25 A 6,000 operations at 1 x I _N , inductive 0.02...30 A 10,000 operations at 1 x I _N , resistive 40 + 50 A 6,000 operations at 1 x I _N , resistive	
Ambient temperature	-40...+85 °C (-40...+185 °F)	
Insulation co-ordination (IEC 60664 and 60664A)	rated impulse withstand voltage 2.5 kV	pollution degree 2 reinforced insulation in operating area
Dielectric strength (IEC 60664 and 60664A)	test voltage operating area pole to pole (2- and 3-pole) main to auxiliary circuit switching to trip circuit	AC 3,000 V AC 1,500 V AC 3,000 V AC 1,500 V (version -X)
Insulation resistance	> 100 MΩ (DC 500 V)	
Interrupting capacity I _{cn}	1,200 A at AC – 2,000 A at DC	
Interrupting capacity (UL 1077)	I _N	0.02...20 A 25...30 A
	AC:	1-pole AC 250 V/3,500A AC 250 V/3,500A 2-pole AC 250 V/3,500A AC 250 V/5,000A 3-pole 3AC 250V/3,500A 3AC250V/5,000A
	DC:	1-pole 0.02...50 A DC 80 V/3,500 A 2-pole 0.02...30 A DC 80 V/3500 A
Interrupting capacity (UL 489A)	2000 A	
Degree of protection (IEC 60529/DIN 40050)	operating area IP40 terminal area IP00	
Vibration	with toggle down: 10 g (57-2000Hz) ±0.76mm (10-57 Hz) at 0.9 x I _N directions 1, 2, 3, 4, 5: 10 g (57-2000 Hz) at 1 x I _N . with curves F1, F2 in all planes: 10 g (57-2000 Hz) ±0.76mm (10-57 Hz) at 0.8 x I _N , to IEC 60068-2-6, test Fc 10 frequency cycles/axis	
Shock	100 g (11 ms) at 1xI _N , directions 1,2,3,4,5 100 g (11 ms) at 0.8 x I _N , direction 6. with curves F1, F2: 100 g (11 ms) at 0.8 x I _N to IEC 60068-2-27, test Ea	

Ordering information

Type No.	8340	magnetic circuit breaker with toggle actuator
Mounting	F	flange mounting
Configuration	1	with mounting nuts 6-32 UNC
	4	with mounting nuts M3
	9	snap-in frame
Number of poles	0	single pole, switch only
	1	single pole protected
	2	two pole protected
	3	three pole protected
	4	four pole protected
	5	two pole, protected on one pole only
	6	four pole, protected on poles 1, 2 and 3 only
	7	two pole, switch only
Panel hardware	0	without panel hardware
Terminal design (main contact)	K3	screw terminals with metric thread, M4 (recommended for $I_N \geq 20$ A)
	K4	screw terminals with metric thread, M5 ($I_N = 40$ A)
	P1	blade terminals
	X1	blade terminals with separate switching and relay circuit
Characteristic curves		
Characteristic curve F, instantaneous trip:	F1	DC trip at $1.01-1.5 \times I_N$
	F2	AC 60/50Hz trip at $1.01-1.5 \times I_N$
Characteristic curve K, short delay:	K1	DC trip time at $2 \times I_N$: 0.16-1.2 s
	K2	AC 60/50Hz trip time at $2 \times I_N$: 0.13-1.6 s
Characteristic curve M, medium delay:	M1	DC trip time at $2 \times I_N$: 0.6-7.5 s
	M2	AC 60/50Hz trip time at $2 \times I_N$: 2.2-20 s
Without characteristic curve:	Q0	switch only
Characteristic curve T, long delay:	T1	DC trip time at $2 \times I_N$: 10-70 s
	T2	AC 60/50Hz trip time at $2 \times I_N$: 15-150 s
Relay trip X:	X1	voltage trip at DC, instantaneous trip
	X2	voltage trip at AC, instantaneous trip
Other curves to special order		(e.g. pulse delayed, high inrush currents, capacitive loads)
Actuator colour / design	A	black, long toggle
	B	white, long toggle
	K	black, short toggle
	L	white, short toggle
other colours to special order		
Marking on actuator	0	without marking
	L	I-O; ON-OFF
Auxiliary contacts	H0	without auxiliary contacts
	H1	with auxiliary contacts
	H2	auxiliary contacts on one pole only (multipole)
	H3	auxiliary contacts on poles 1 and 3 (3 and 4-pole)
	G1	as H1, but contacts gold plated
	G2	as H2, but contacts gold plated
	G3	as H3, but contacts gold plated
Auxiliary contact function	4	1 change over contact
Auxiliary contact terminal design	2	blade terminal 2.8-0.5 mm
Current ratings		0.02...50 A

8340 - F	1	1	0 -	P1	M1 -	A	1	H1	4	2 -	30 A	
												Voltage rating
												only curves X1, X2
												DC 5, 8, 12, 24 V
												AC 110, 220, 240 V
												Approval (optional)
												U UL 489 A
8340 - F	1	1	0 -	P1	M1 -	A	1	H1	4	2 -	30A - U	ordering example

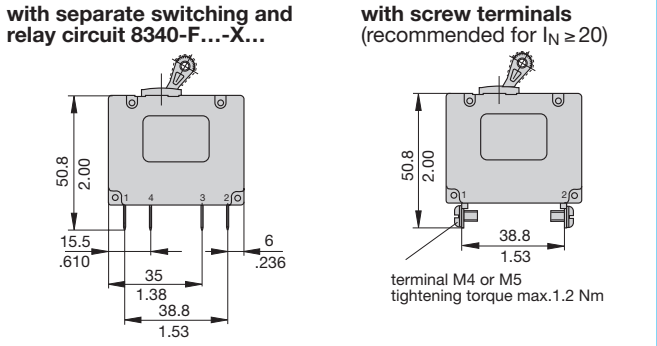
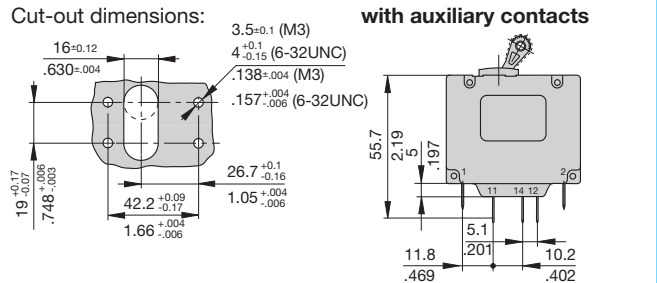
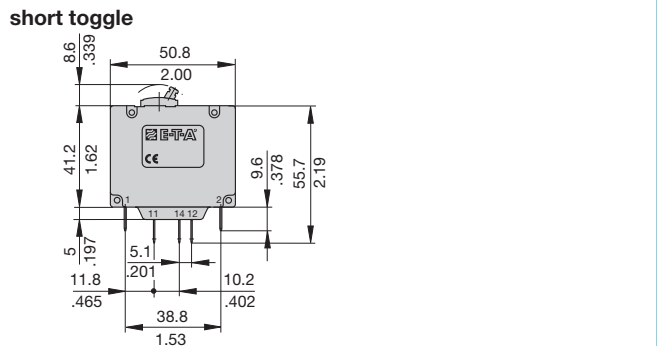
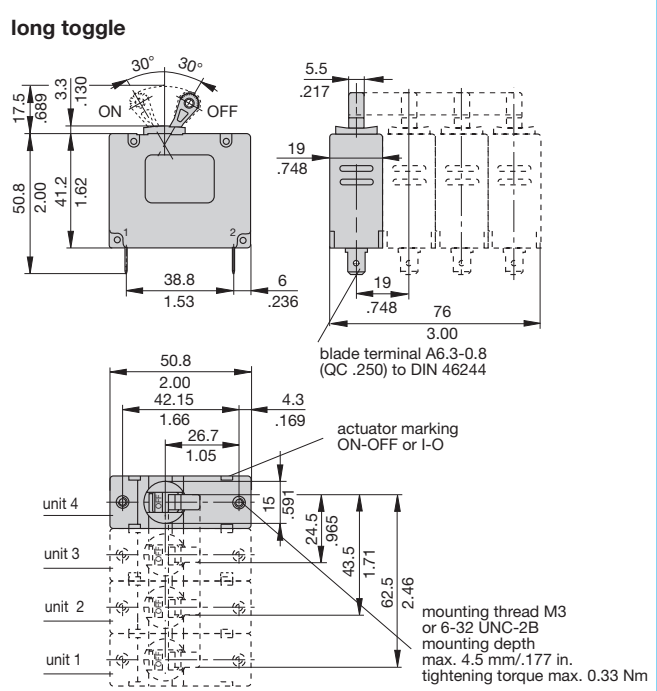
Internal connection diagrams



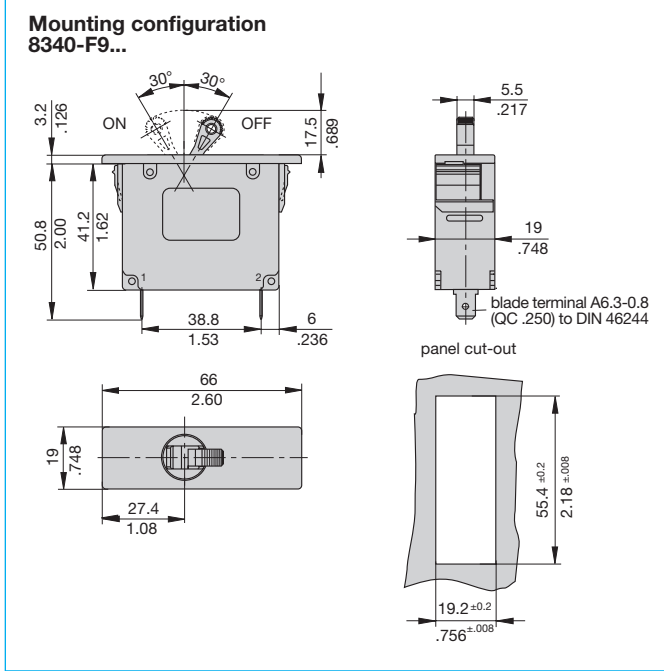
Approvals

Authority	Voltage ratings	Current ratings
VDE (EN 60934)	3 AC 415 V; AC 240 V; DC 80 V DC 80 V	0.02...30 A 1 to 6-pole 0.02...50 A 1-pole
UL 1077, CSA	DC 80 V 3 AC 250 V; AC 250 V	0.02...50 A 1 to 6-pole 0.02...30 A 1 to 6-pole
UL 489 A	DC 80 V	0.05...30 A 1, 2-pole
BV	AC 250 V; DC 65 V	0.1...30 A
QPL (Sweden)	AC 240 V; DC 50 V	1...30 A
CCC	3 AC 415 V; AC 240 V DC 80 V	0.02...30 A 0.02...50 A 1, 2-pole

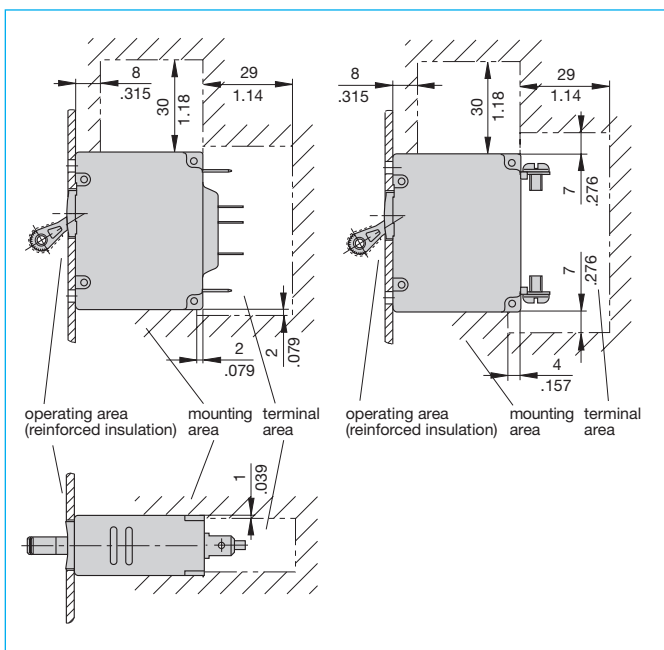
Dimensions



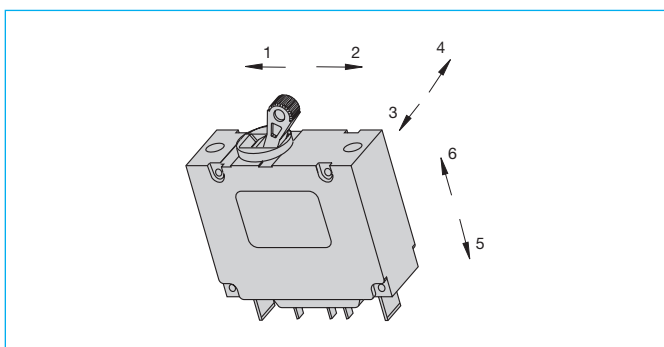
Dimensions



Installation drawing

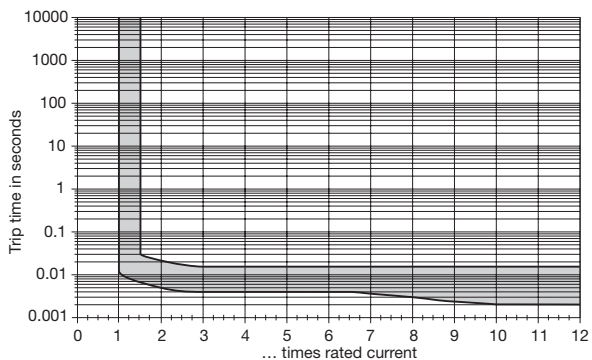


Shock directions / Mounting attitudes

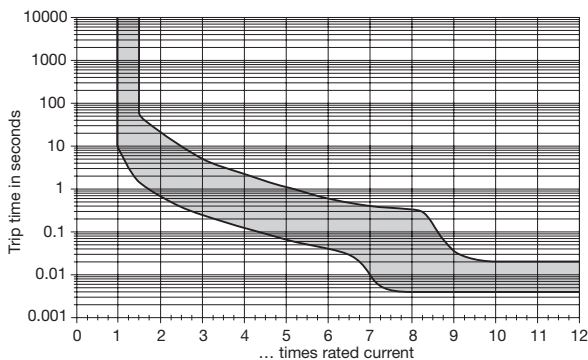


Typical time/current characteristics at 23 °C / +73.4 °F

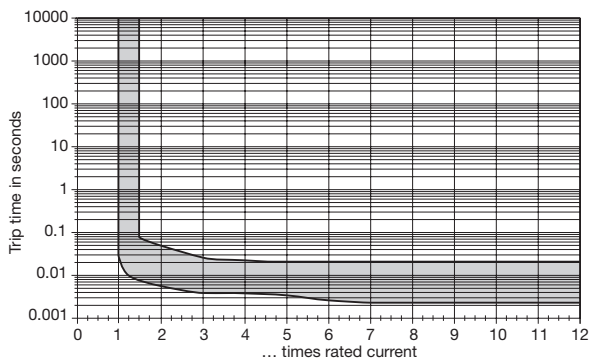
Curve F1 (instantaneous) for DC



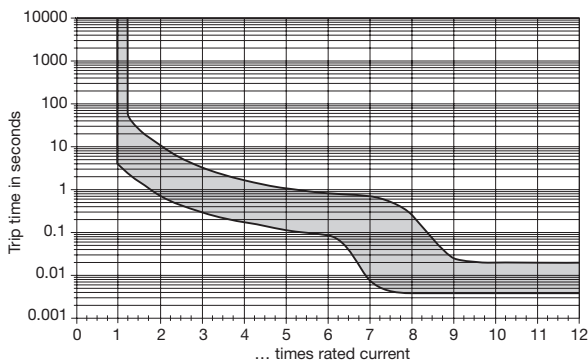
Curve M0 (medium delay) for AC/DC



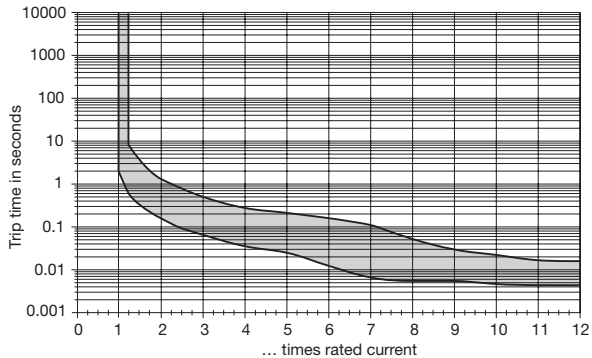
Curve F2 (instantaneous) for AC 50/60 Hz



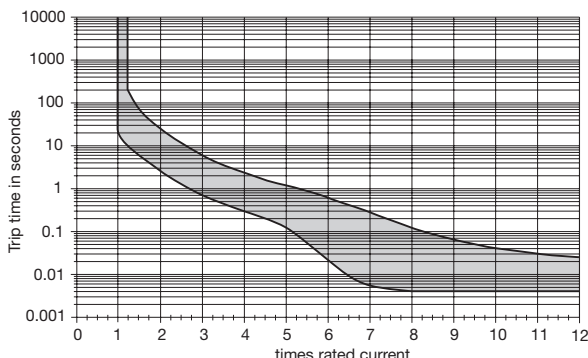
Curve M1 (medium delay) for DC



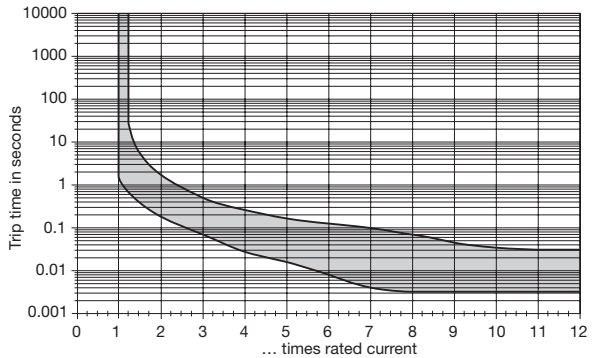
Curve K1 (short delay) for DC



Curve M2 (medium delay) for AC 50/60 Hz



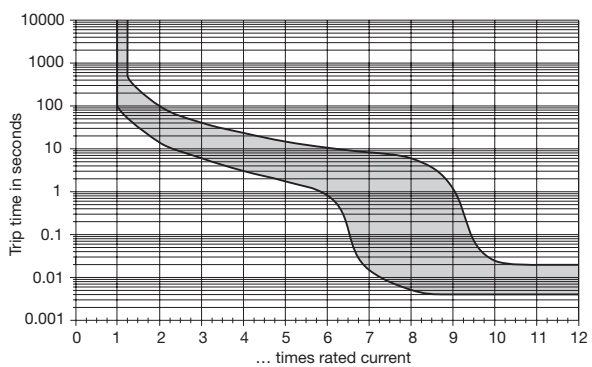
Curve K2 (short delay) for AC 50/60 Hz



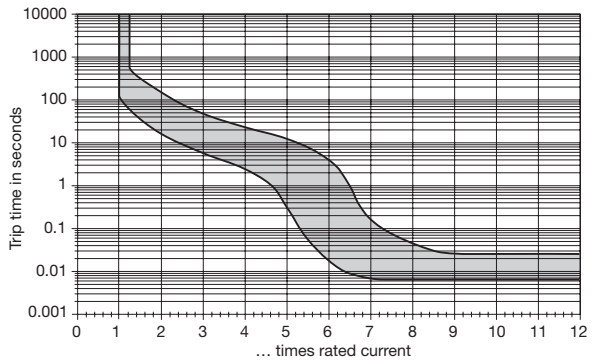
N.B. All curves will only be maintained if the escutcheon is mounted on a vertical surface.
Other characteristic curves to special order (e. g. with impulse delay for inrush peaks).

Typical time/current characteristics at 23 °C / +73.4 °F

Curve T1 (long delay) for DC



Curve T2 (long delay) for AC 50/60 Hz

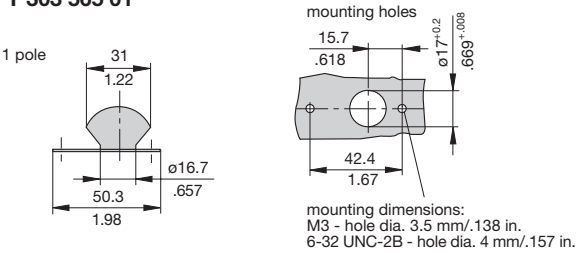


N.B. All curves will only be maintained if the escutcheon is mounted on a vertical surface.

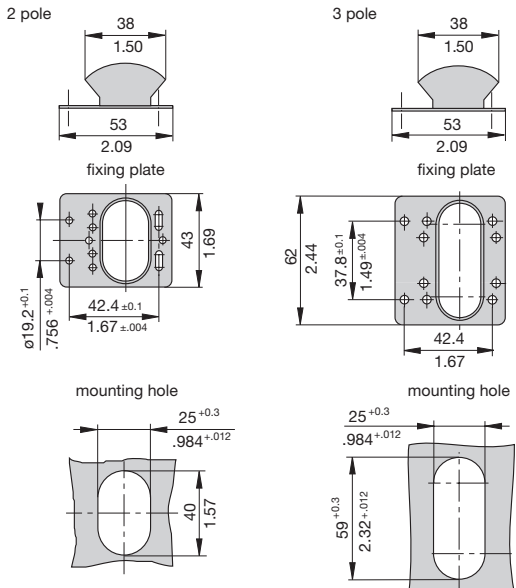
Other characteristic curves to special order (e. g. with impulse delay for inrush peaks).

Accessories

**Splash covers transparent (IP54)
Y 303 565 01**

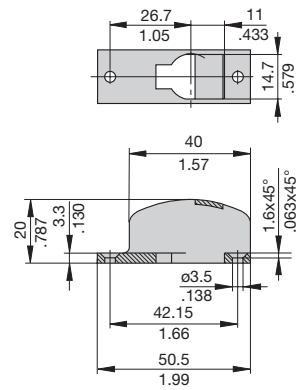


**For 2-pole and 3-pole with fixing plate and screws (IP54)
X 211 118 01 X 211 119 01**



Fixing plate for 2 and 3 pole only.

**Toggle guard
Y 307 250 01**



This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.

Description

Single, two and three pole magnetic circuit breakers with trip-free mechanism and push/pull on/off manual actuation. A choice of fast magnetic only or hydraulically delayed switching characteristics (S- type MO or HM CBE to EN 60934) ensures suitability for a wide range of applications. Convenient threadneck panel or plug-in mounting, and with a white push button indicator band showing clearly the tripped/off position. Available with auxiliary contacts (1 x N/O, 1 x N/C) for status signalling and fitted with an unprotected shunt tap terminal as standard. Approved to CBE standard EN 60934 (IEC 60934).

Typical application

Control equipment, communications systems, power semiconductors.

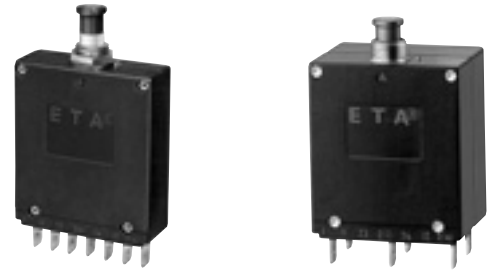
Standard current ratings and typical internal resistance values

Current rating (A)	Internal resistance (Ω) per pole		
	curve -F4/F5	curves -E1/H1/R1	curves -E2/H2/R2
0.02	583	2441	2449
0.05	94	376	365
0.08	35.8	148	144
0.1	23	94	84
0.15	9.9	39	38
0.2	5	23	22.4
0.3	2.44	9.9	9.7
0.5	0.79	3.16	3.1
0.75	0.39	1.55	1.51
1	0.25	0.79	0.77
1.25	0.15	0.58	0.56
1.5	0.10	0.37	0.36
1.75	0.083	0.30	0.29
2	0.059	0.20	0.24
2.5	0.044	0.146	0.138
3	0.028	0.10	0.099
4	< 0.02	0.059	0.057
5	< 0.02	0.040	0.038
6	< 0.02	0.026	0.026
8	< 0.02	< 0.02	< 0.02
10	< 0.02	< 0.02	< 0.02
12	< 0.02	< 0.02	< 0.02
15	< 0.02	< 0.02	< 0.02
16	< 0.02	< 0.02	< 0.02
20	< 0.02	< 0.02	< 0.02
25	< 0.02*	< 0.02	< 0.02
30	< 0.02*	< 0.02	< 0.02
40		< 0.02	
50		< 0.02	

* 50 % ON duty / 60 min.

Approvals

Authority	Voltage ratings	Current ratings
VDE (EN 60934)	3 AC 415 V; AC 240 V; DC 80 V	0.02...30 A 0.02...50 A 1-pole
UL 1077, CSA	DC 80 V 3 AC 250 V; AC 250 V	0.02...50 A 1, 2-pole 0.02...30 A 1,2,3-pole
UL 489 A	DC 80 V	0.05...30 A 1, 2-pole
BV	AC 250 V; DC 65 V	0.1...30 A
CCC	3 AC 415 V; AC 240 V; DC 80 V	0.02...30 A 0.02...50 A 1, 2-pole



1-pole

8340-G2...

2-pole

Technical data

For further details please see chapter: Technical Information

Voltage rating	3 AC 415 V; AC 240 V, 50/60 Hz; DC 80 V
Current ratings	0.02...50 A single pole (40+50 A DC only) 0.02...30 A multipole
Auxiliary circuit	1 A, AC 240 V/DC 65 V 0.5 A, DC 80 V

Typical life	3 AC 415 V, AC 240 V:	0.02...30 A 6,000 operations at 1 x I _N , inductive 10,000 operations at 1 x I _N , resistive
DC 80 V:	0.02...25 A 6,000 operations at 1 x I _N , inductive 0.02...30 A 10,000 operations at 1 x I _N , resistive 40 + 50 A 5,000 operations at 1 x I _N , resistive	

Ambient temperature	-40...+85 °C (-40...+185 °F)	
Insulation co-ordination (IEC 60664 and 60664A)	rated impulse withstand voltage 2.5 kV	pollution degree 2
	reinforced insulation in operating area	

Dielectric strength (IEC 60664 and 60664A)	test voltage	
operating area	AC 3,000 V	
pole to pole (2 + 3-pole)	AC 1,500 V	
main to auxiliary circuit	AC 1,500 V	
aux. circuit 11-12/23-24	AC 1,000 V	
switching to trip circuit (-X)	AC 1,500 V	

Insulation resistance	> 100 MΩ (DC 500 V)
Interrupting capacity I _{cn}	1,200 A at AC; 2,000 A at DC

Interrupting capacity (UL 1077)	AC:	I _N	0.02...20 A	25...30 A
		1-pole	AC 250 V/3,500A	AC 250 V/3,500A
		2-pole	AC 250 V/3,500A	AC 250 V/5,000A
	3-pole	3AC 250V/3,500A	3AC250V/5,000A	
DC:	1-pole	0.02...50 A	DC 80 V/3,500 A	
	2-pole	0.02...30 A	DC 80 V/3500 A	

Interrupting capacity (UL 489A)	2000 A
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Degree of protection (IEC 60529/DIN 40050)	operating area IP40 terminal area IP00
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Vibration	with button down: 10 g (57-2000 Hz), ±0.76 mm (10-57 Hz) at 0.9 x I _N
	other mounting planes: 10 g (57-2000 Hz) at I _N to IEC 60068-2-6, test Fc 10 frequency cycles/axis

Shock	100 g (11 ms) at 1xI _N , directions 1,2,3,4,5 100 g (11 ms) at 0.8 x I _N , direction 6 to IEC 60068-2-27, test Ea
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Corrosion	96 hours at 5 % salt mist, to IEC 60068-2-11, test Ka
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Humidity	240 hours at 95 % RH to IEC 60068-2-3, test Ca
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Mass	approx. 70 g per pole
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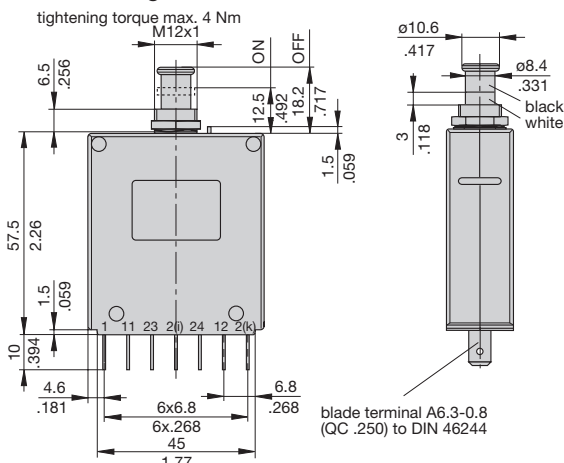
Ordering information

Type No.	
8340	Magnetic push/pull circuit breaker
Mounting	
G	threadneck panel mounting
Threadneck design	
2	M12x1
Number of poles (main current paths)	
0	single pole, switch only
1	single pole, protected
2	two pole, protected
3	three pole, protected
5	two pole, protected on one pole only
Panel hardware	
0	without panel hardware
1	with hex nut M12x1 and washer 12/15
Terminal design	
P1	blade terminals A6.3-0.8mm (QC.250)
N1	blade terminals A6.3-0.8mm (QC.250) with -A3 terminal (blade terminal) A6.3-0.8mm (QC.250)
G3	screw terminals M4* with -A3 terminal (blade terminal) A6.3-0.8mm (QC.250)
G4	screw terminals M5* terminals A6.3-0.8mm (QC.250)
K3	screw terminals M4*
K4	screw terminals M5*
R1	round connectors ø6
X1	blade terminals A6.3-0.8mm (QC.250), separate switching and trip circuit
Characteristic curve	
F4	instantaneous trip: magn. 1.5-2.2xI _N DC (I _N ≤ 30 A)
F5	magn. 1.2-1.7xI _N AC 50/60 Hz (I _N ≤ 30A)
E1	short delay: magn.-hydr. 1.01-1.4 I _N , DC
E2	short delay: magn.-hydr. 1.01-1.4 I _N , AC 50/60 Hz
H1	medium delay: magn.-hydr. 1.01-1.4 I _N , DC
H2	medium delay: magn.-hydr. 1.01-1.4 I _N , AC 50/60Hz
R1	long delay: magn.-hydr. 1.01-1.5 I _N , DC
R2	long delay: magn.-hydr. 1.01-1.5 I _N , AC50/60Hz
Actuator colour	
A	black with white trip indicator band
Actuator marking	
0	without marking
4	rated current (legible with location pin above) standard
7	rated current (legible with location pin below)
Auxiliary contacts	
H0	without auxiliary contacts
H1	with auxiliary contacts
H2	with auxiliary contacts on pole 1 only (2 and 3-pole types)
H3	with auxiliary contacts on poles 1 and 3 (3-pole type)
Auxiliary contact function	
1	one each N/O and N/C
2	1 pair N/O (23/24)
3	1 pair N/C (11/12)
Auxiliary contact terminal design	
1	blade terminals A6.3-0.8 mm
Current ratings (optional)	
0.02...50 A	
Approval (optional)	
U UL 489 A	
8340 - G	2 1 1 - N1 F4 - A 4 H1 1 1 - 8 A - U
ordering example	

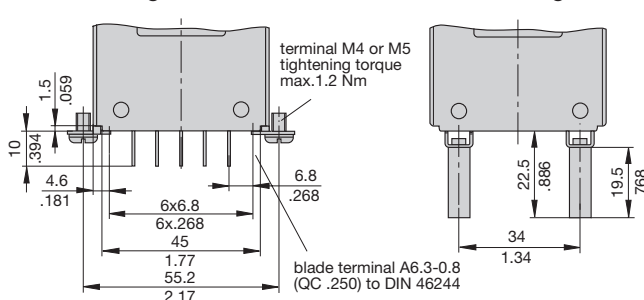
*M4 thread recommended for I_N > 20 A
M5 thread for I_N > 40 A

Dimensions (1-pole)

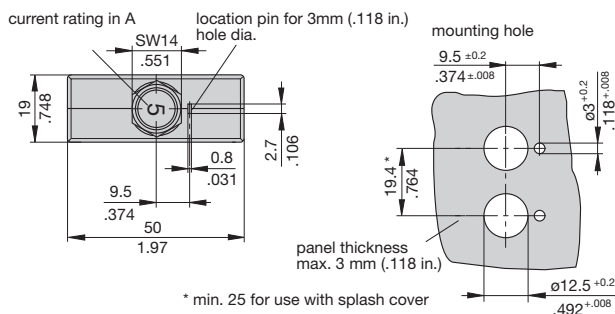
Terminal design -N



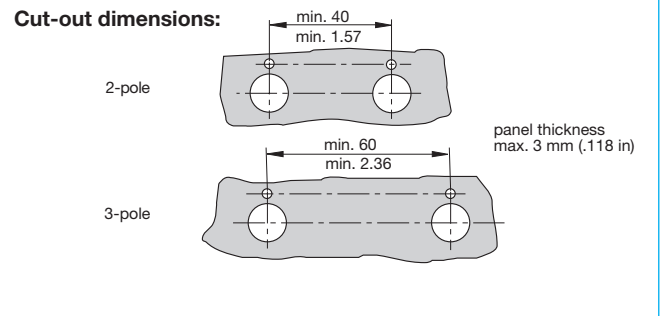
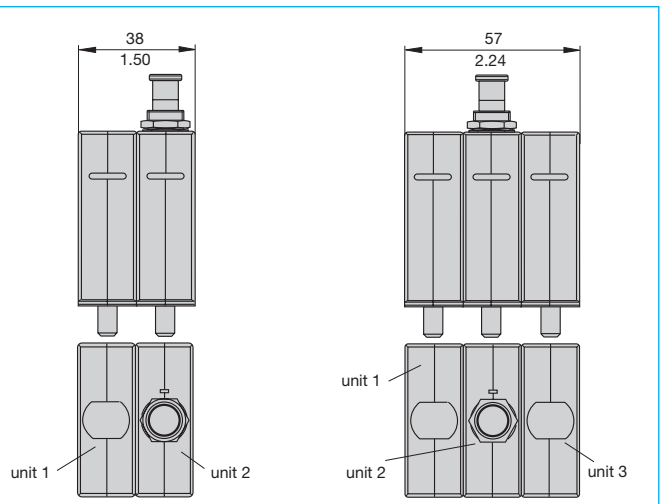
Terminal design -G/-K



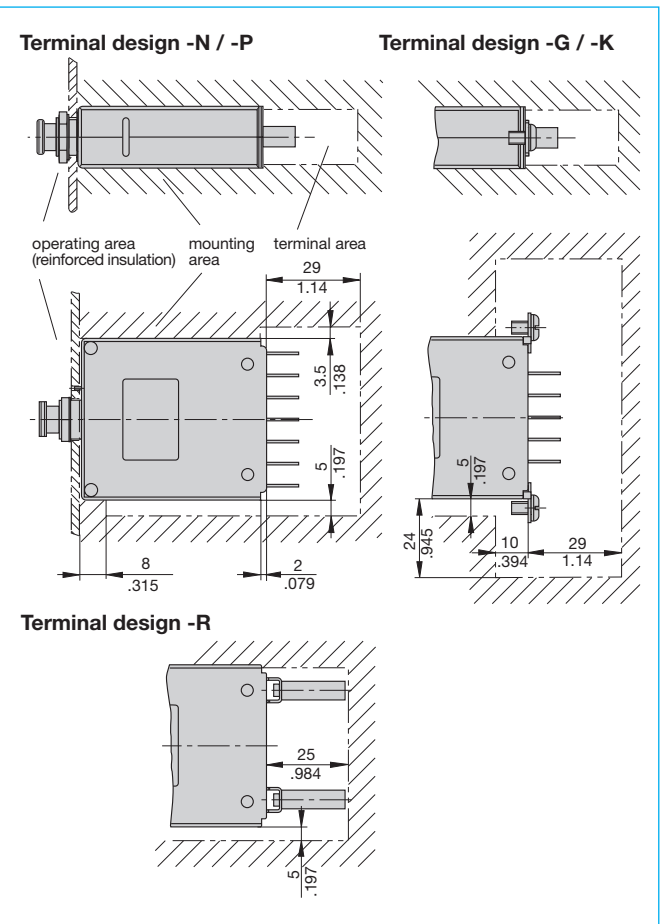
Terminal design -R



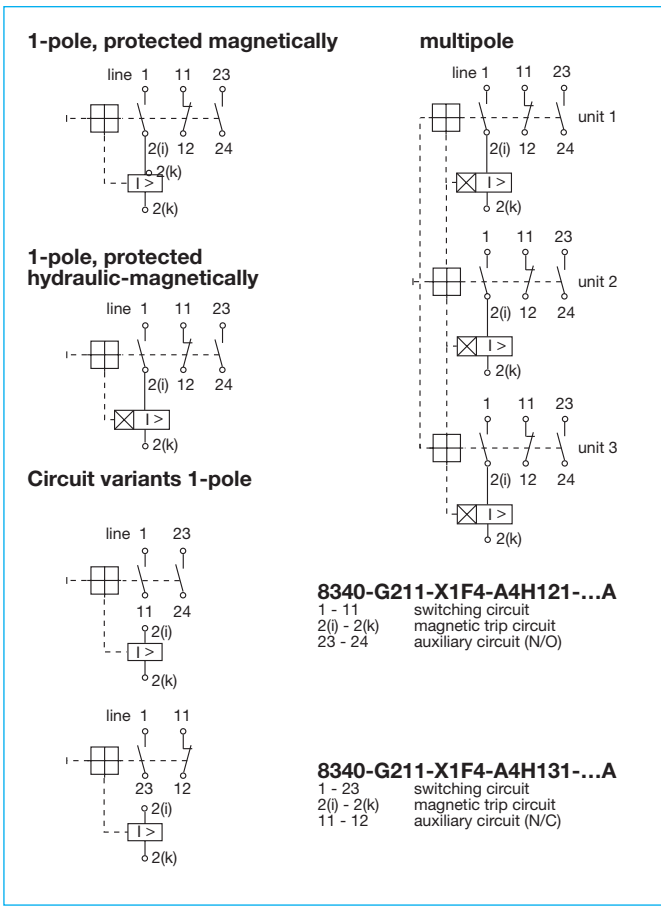
Dimensions (2-pole) Dimensions (3-pole)



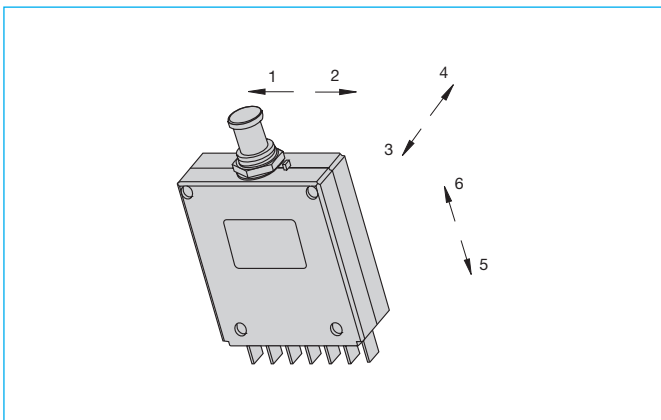
Installation drawings



Internal connection diagrams



Shock directions / Mounting attitudes

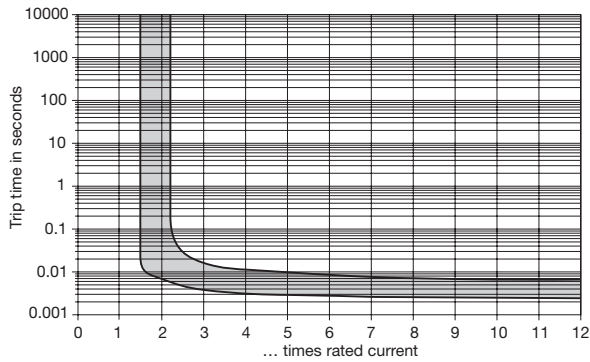


This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

Typical time/current characteristics

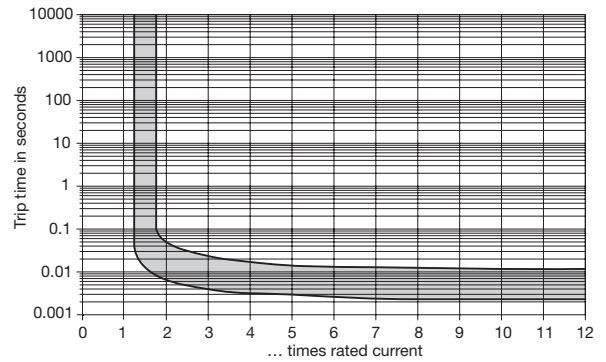
Curve F4 for DC, magnetic (undelayed)

($I_N > 20$ A, 50% ON period, 60 min.) at +23 °C / +73.4 °F

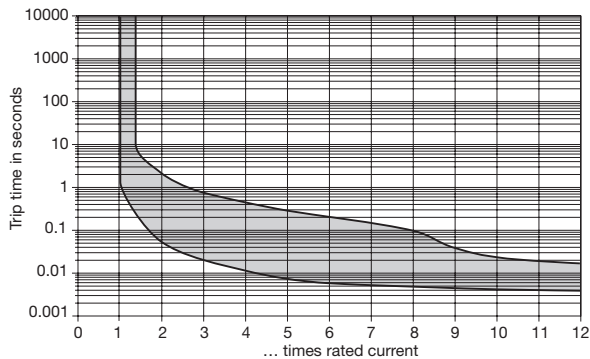


Curve F5 for AC 50/60 Hz, magnetic (undelayed)

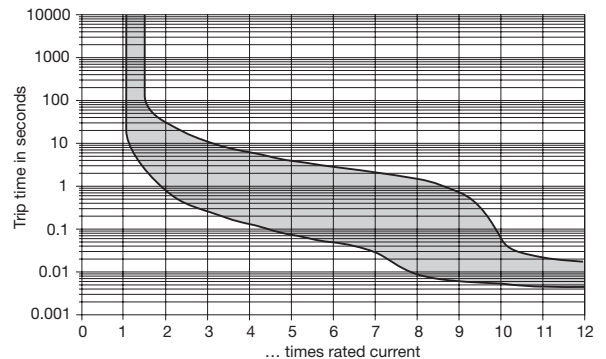
($I_N > 20$ A, 50% ON period, 60 min.) at +23 °C / +73.4 °F



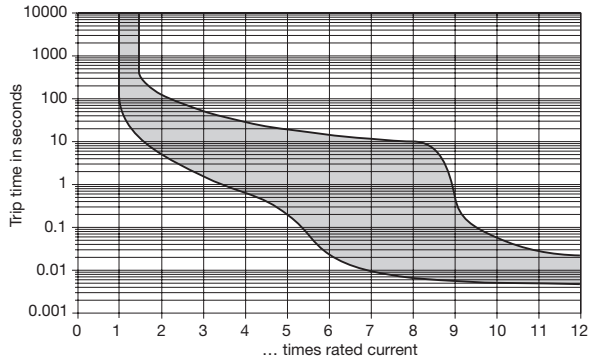
Short delay curves E1 for DC and E2 for AC 50/60 Hz, hydraulic-magnetic



Medium delay curves H1 for DC and H2 for AC 50/60 Hz, hydraulic-magnetic



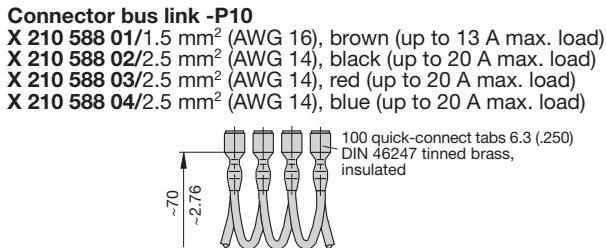
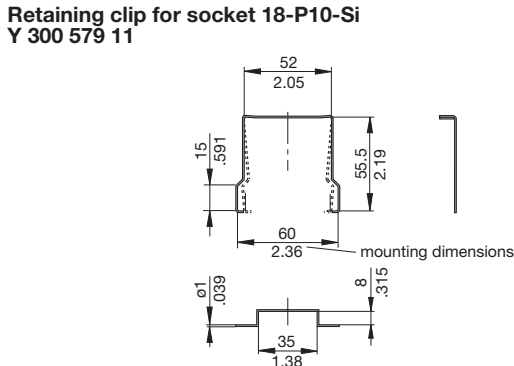
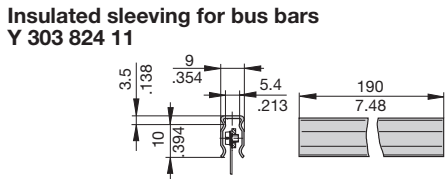
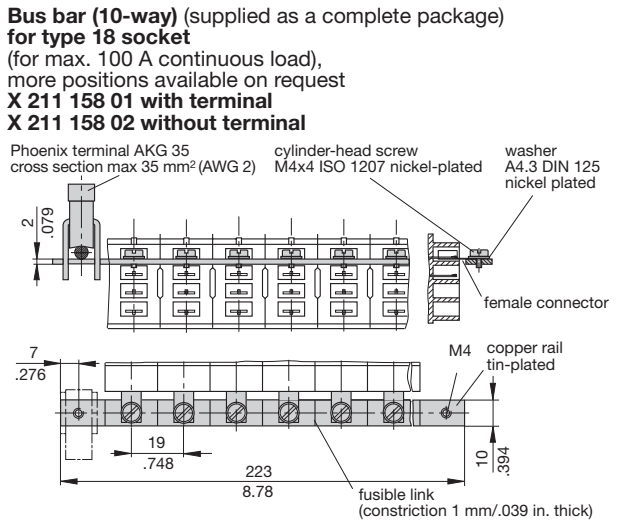
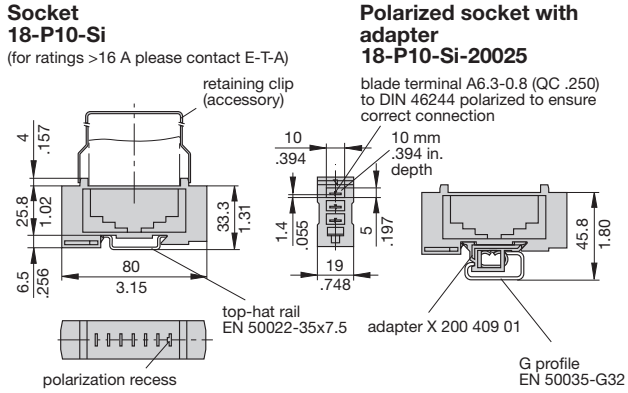
Long delay curves R1 for DC and R2 for AC 50/60 Hz, hydraulic-magnetic



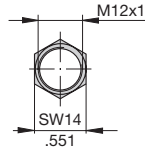
N.B. Curves E1, E2, H1, H2, R1 and R2 will only be maintained if the escutcheon is mounted on a vertical surface.

Other curves upon request (e. g. impulse delay).

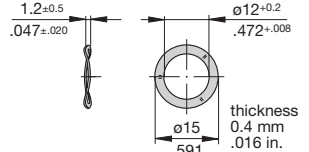
Accessories



Hex nut Y 300 116 02

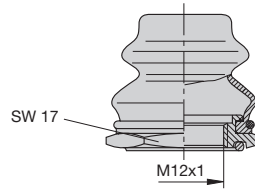


Spring washer Y 300 118 03

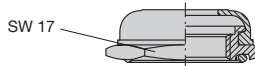


Accessories for push button

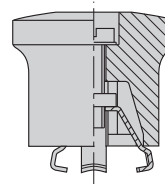
Splash cover with hex nut and O ring (IP66) X 200 801 08 (nickel plated hex nut M12x1, splash cover transparent)
X 200 801 03 (black finish hex nut M12x1, splash cover black)



Splash seal, black, hex nut and O ring (IP54) X 200 802 01 (nickel plated hex nut M12x1, splash seal black)



Actuator extension X 200 803 01 (black button)



This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.

Description

Single and two pole magnetic circuit breakers with trip-free mechanism and push/pull on/off manual actuation. A choice of fast magnetic only or hydraulically delayed switching characteristics (S-type MO or HM CBE to EN 60934) ensures suitability for a wide range of applications. Convenient threadneck panel or plug-in mounting, and with a white push button indicator band showing clearly the tripped/off position. Available with auxiliary contacts (1 x N/O, 1 x N/C) for status signalling and fitted with an unprotected shunt tap terminal as standard. Reliable tripping with even the smallest overcurrents. Approved to CBE standard EN 60934 (IEC 60934).

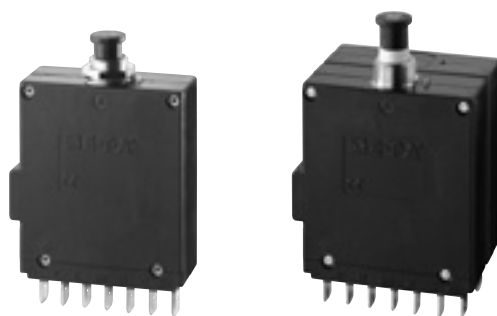
Typical application

Railway vehicles, telecommunications, process control.

Standard current ratings and typical internal resistance values

Current rating (A)	Internal resistance (Ω) per pole	
	curve -F4	curves -E1/H1/R1
0.02	583	2441
0.05	94	376
0.08	34	148
0.1	23	94
0.15	25.1	39
0.2	14.6	23
0.3	6.32	9.9
0.5	0.79	3.16
0.75	0.39	1.55
1	0.25	0.79
1.5	0.27	0.37
2	0.059	0.20
2.5	0.044	0.146
3	0.028	0.10
4	0.04	0.059
5	< 0.02	0.040
6	< 0.02	0.026
8	< 0.02	< 0.02
10	< 0.02	< 0.02
12	< 0.02	< 0.02
15	< 0.02	< 0.02
16	< 0.02	< 0.02
20	< 0.02	< 0.02
25	< 0.02*	< 0.02
30	< 0.02*	< 0.02
40		< 0.02
50		< 0.02

* 50 % ON duty / 60 min.



8340-G2... 110 V DC

1-pole

2-pole

Technical data

For further details please see chapter: Technical Information

Voltage rating	DC 110 V \pm 25 %	
Current ratings	0.02...50 A single pole 0.02...30 A 2-pole	
Auxiliary circuit	AC 240 V/DC 65 V 1 A DC 110 V \pm 25 % 0,3 A	
Typical life	DC 110 V: 0.02...35 A 10,000 operations at 1 x I_N 40 + 50 A 3,000 operations at 1 x I_N 0.02...30 A 5,000 operations at 2 x I_N	
Ambient temperature	-40...+85 °C (-40...+185 °F)	
Insulation co-ordination (IEC 60664 and 60664A)	rated impulse withstand voltage 2.5 kV	pollution degree 2 reinforced insulation in operating area
Dielectric strength (IEC 60664 and 60664A)	test voltage	
operating area	AC 3,000 V	
pole to pole (2-pole)	AC 1,500 V	
main to auxiliary circuit	AC 1,500 V	
aux. circuit 11-12/23-24	AC 1,000 V	
switching to trip circuit (-X)	AC 1,500 V	
Insulation resistance	> 100 M Ω (DC 500 V)	
Interrupting capacity I_{cn}	1,000 A	
Degree of protection (IEC 60529/DIN 40050)	operating area IP40 terminal area IP00	
Vibration	with button down: 10 g (57-2000 Hz), \pm 0.76 mm (10-57 Hz) at 0.9 x I_N other mounting planes: 10 g (57-2000 Hz) at I_N to IEC 60068-2-6, test Fc 10 frequency cycles/axis	
Shock	100 g (11 ms) at 1x I_N , directions 1,2,3,4,5 100 g (11 ms) at 0.8 x I_N , direction 6 to IEC 60068-2-27, test Ea	
Corrosion	96 hours at 5 % salt mist, to IEC 60068-2-11, test Ka	
Humidity	240 hours at 95 % RH to IEC 60068-2-3, test Ca	
Mass	approx. 70 g per pole	

Ordering information

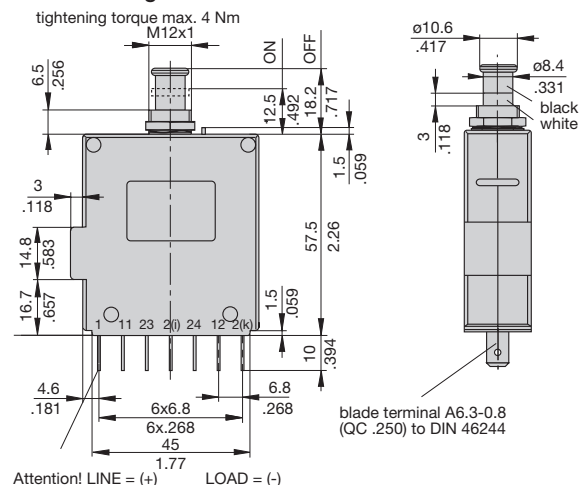
Type No.	8340	Magnetic push/pull circuit breaker
Mounting	G	threadneck panel mounting
Threadneck design	2	M12x1
Number of poles (main current paths)	1	single pole, protected
	2	two pole, protected
	5	two pole, protected on one pole only
Panel hardware	0	without panel hardware
	1	with hex nut M12x1 and washer 12/15
Terminal design	P1	blade terminals A6.3-0.8mm (QC.250)
	N1	blade terminals A6.3-0.8mm (QC.250) with -A3 terminal (blade terminal) A6.3-0.8mm (QC.250)
	G3	screw terminals M4* with -A3 terminal (blade
	G4	screw terminals M5* terminals A6.3-0.8mm (QC.250)
	K3	screw terminals M4*
	K4	screw terminals M5*
	R1	round connectors ø6
	X1	blade terminals A6.3-0.8mm (QC.250), separate switching and trip circuit
Characteristic curve	F4	instantaneous trip: magn. 1.5-2.2 x I _N
	E1	short delay: magn.-hydr. 1.01-1.4 x I _N
	H1	medium delay: magn.-hydr. 1.01-1.4 x I _N
	R1	long delay: magn.-hydr. 1.01-1.5 x I _N
Actuator colour	A	black with white trip indicator band
Actuator marking	4	rated current (legible with location pin above) standard
	7	rated current (legible with location pin below)
Auxiliary contacts	H0	without auxiliary contacts
	H1	with auxiliary contacts
	H2	with auxiliary contacts on pole 1 only (2- and 3-pole types)
Auxiliary contact function	1	one each N/O and N/C
	2	1 pair N/O (23/24)
	3	1 pair N/C (11/12)
Auxiliary contact terminal design	1	blade terminals A6.3-0.8 mm
Voltage rating	D	DC 110 V
Current ratings		0.02...50 A

8340 - G 2 1 1 - P1 H1 - A 4 H1 1 1 D - 8 A ordering example

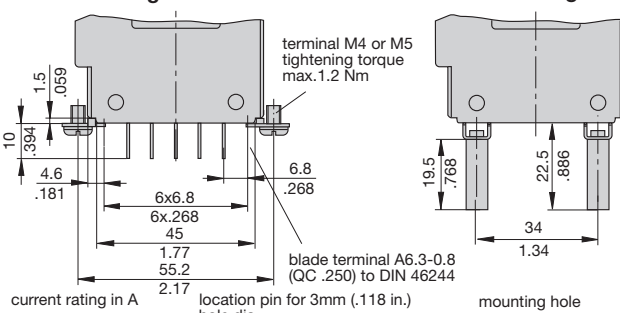
* M4 thread recommended for I_N > 20 A
M5 thread for I_N > 40 A

Dimensions (1-pole)

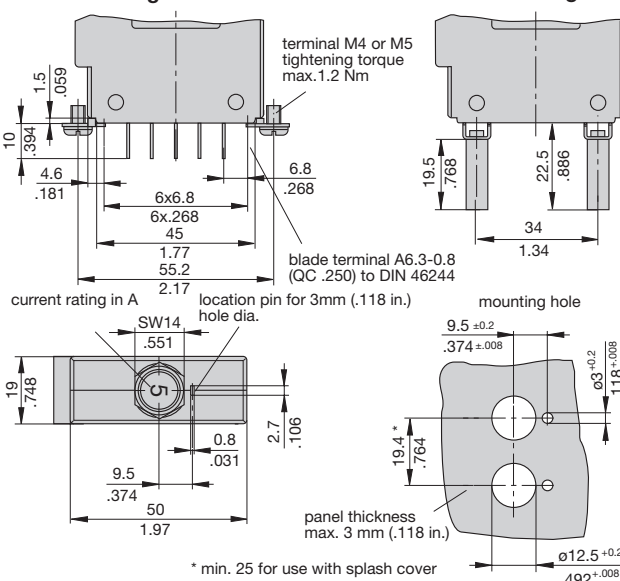
Terminal design -N



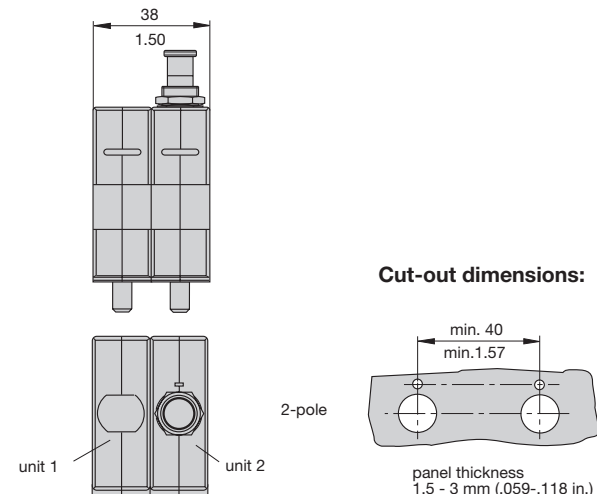
Terminal design -G



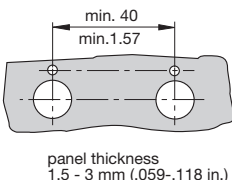
Terminal design -R



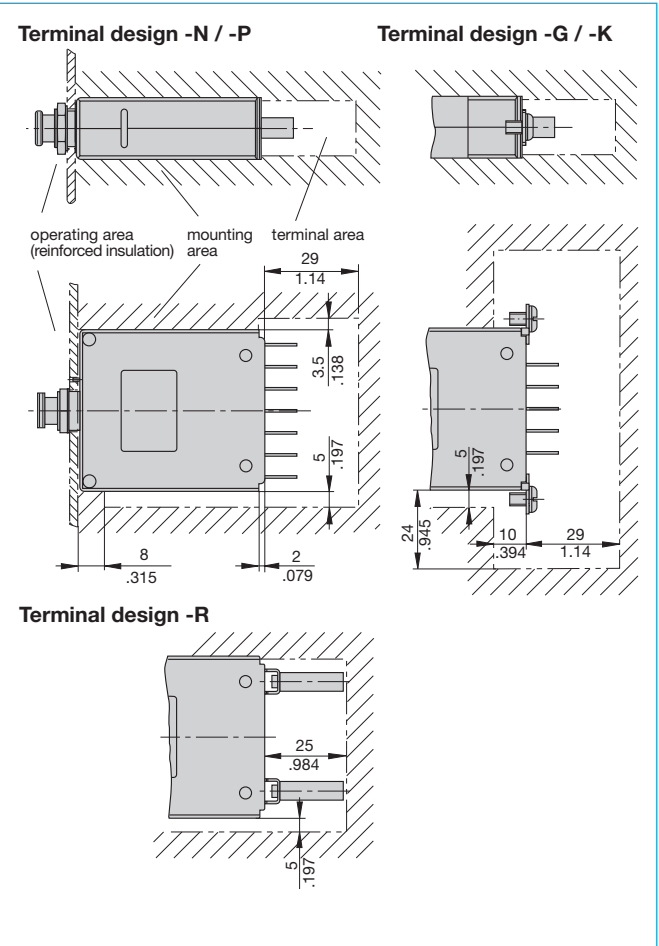
Dimensions (2-pole)



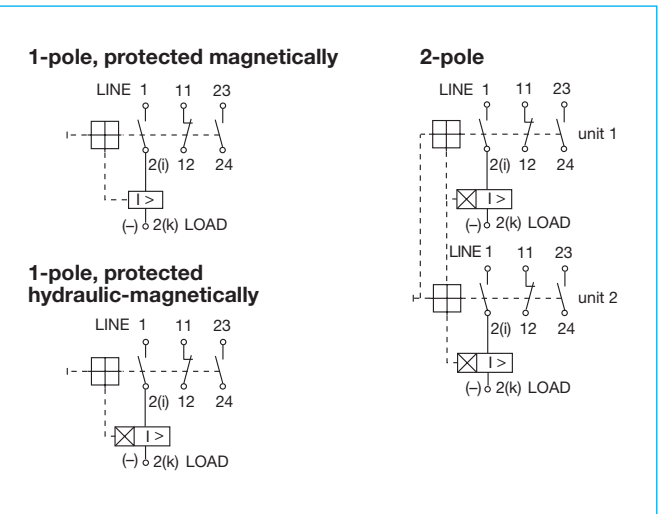
Cut-out dimensions:



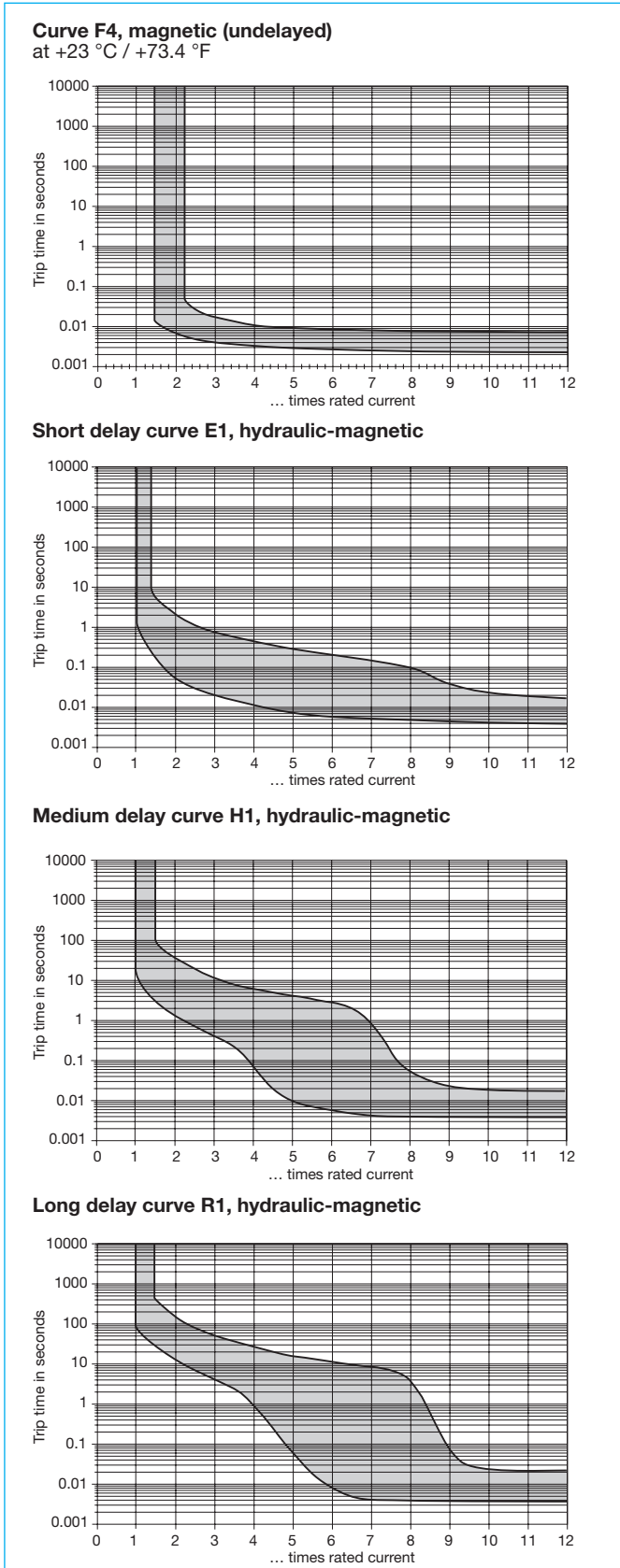
Installation drawings



Internal connection diagrams



Typical time/current characteristics



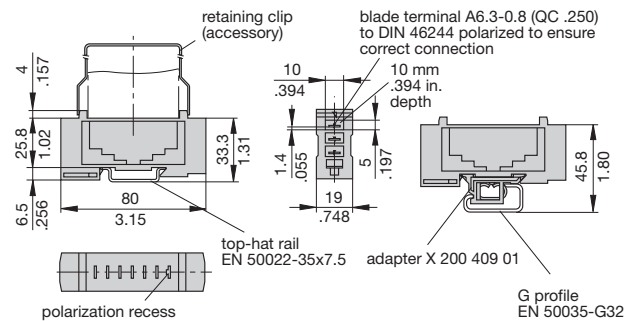
N.B. Curves E1, H1 and R1 will only be maintained if the escutcheon is mounted on a vertical surface.

Other curves upon request (e.g. impulse delay).

Accessories

Socket 18-P10-Si

(for ratings >16 A please contact E-T-A)

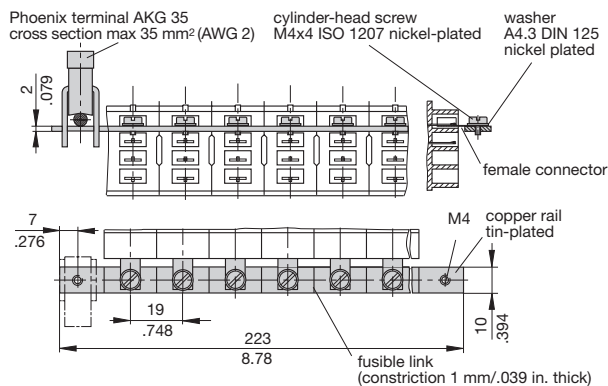


Bus bar (10-way) (supplied as a complete package) for type 18 socket

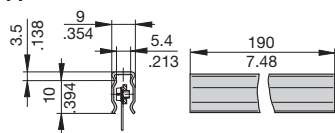
(for max. 100 A continuous load), more positions available on request

X 211 158 01 with terminal

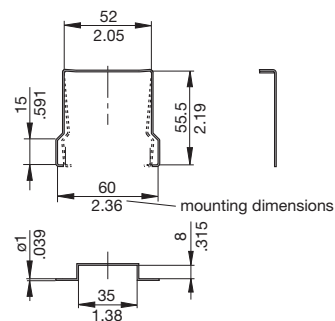
X 211 158 02 without terminal



Insulated sleeving for bus bars Y 303 824 11



Retaining clip for socket 18-P10-Si Y 300 579 11



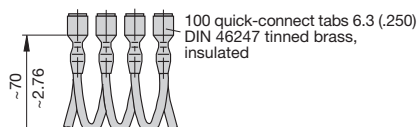
Connector bus link -P10

X 210 588 01/1.5 mm² (AWG 16), brown (up to 13 A max. load)

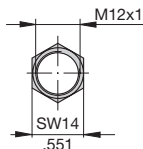
X 210 588 02/2.5 mm² (AWG 14), black (up to 20 A max. load)

X 210 588 03/2.5 mm² (AWG 14), red (up to 20 A max. load)

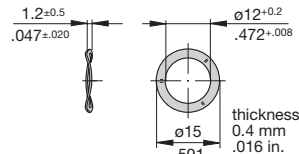
X 210 588 04/2.5 mm² (AWG 14), blue (up to 20 A max. load)



Hex nut Y 300 116 02



Spring washer Y 300 118 03

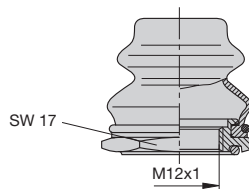


Accessories for push button

Splash cover with hex nut and O ring (IP66)

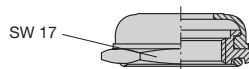
X 200 801 08 (nickel plated hex nut M12x1, splash cover transparent)

X 200 801 03 (black finish hex nut M12x1, splash cover black)



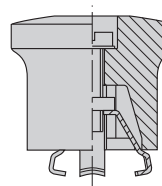
Splash seal, black, hex nut and O ring (IP54)

X 200 802 01 (nickel plated hex nut M12x1, splash seal black)

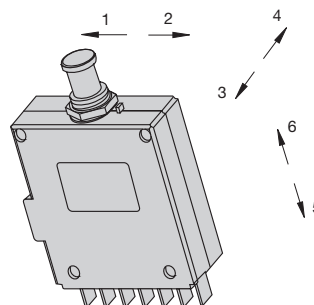


Actuator extension

X 200 803 01 (black button)



Shock directions / Mounting attitudes



This is a metric design and millimeter dimensions take precedence ($\frac{\text{mm}}{\text{inch}}$)

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.

Description

Single, two, three and four pole magnetic and hydraulic-magnetic circuit breakers with trip-free mechanism and toggle actuation. A choice of fast magnetic only or hydraulically delayed switching characteristics (S-type MO or HM CBE to EN 60934) ensures suitability for a wide range of applications. Featuring a combi-foot design for symmetric and asymmetric rail mounting. Low temperature sensitivity at rated load. Approved to CBE standard EN 60934 (IEC 60934).

Typical applications

Power supplies, control equipment, communication systems, EDP systems.

Standard current ratings and typical internal resistance values

Current rating (A)	Curves and internal resistance per pole (Ω)			
	F1	F2	K1, M1, T1	K2, M2, T2
0.02	1493	953	2669	2457
0.05	276	152	452	376
0.1	58	37	100	94
0.25	8.2	6.0	15.5	14.7
0.5	2.3	1.47	3.9	3.2
0.75	0.98	0.63	1.65	1.56
1	0.58	0.35	0.95	0.90
2	0.145	0.096	0.26	0.20
2.5	0.096	0.061	0.15	0.15
3	0.065	0.048	0.10	0.10
5	0.025	< 0.02	0.042	0.040
6	< 0.02	< 0.02	0.029	0.028
8	< 0.02	< 0.02	< 0.02	< 0.02
10	< 0.02	< 0.02	< 0.02	< 0.02
12	< 0.02	< 0.02	< 0.02	< 0.02
15	< 0.02	< 0.02	< 0.02	< 0.02
16	< 0.02	< 0.02	< 0.02	< 0.02
20	< 0.02	< 0.02	< 0.02	< 0.02
25	< 0.02	< 0.02	< 0.02	< 0.02
30	< 0.02	< 0.02	< 0.02	< 0.02
40	≤ 0.01	-	≤ 0.01	-
50	≤ 0.01	-	≤ 0.01	-

Approvals

Authority	Voltage ratings	Current ratings
VDE (EN 60934)	3 AC 415 V; AC 240 V; DC 80 V	0.02...30 A 1 to 6-pole 0.02...50 A 1-pole
UL1077, CSA	DC 80 V 3 AC 250 V; AC 250 V	0.02...50 A 1 to 6-pole 0.02...30 A 1 to 6-pole
UL 489 A	DC 80 V	0.05...30 A 1, 2-pole
CCC	3 AC 415 V; AC 240 V DC 80 V	0.02...30 A 0.02...50 A 1, 2-pole

Humidity	240 hours at 95 % RH, to IEC 60068-2-3, test Ca
Mass	approx. 98 g per pole



single pole

8340-T...

three pole

Technical data

For further details please see chapter: Technical Information

Voltage rating	3 AC 415V; AC 240V (50/60Hz); DC 80V (higher DC voltages to special order)	
Current rating range	0.02...50 A single pole (40 + 50 A DC only) 0.02...30 A multipole	
Auxiliary circuit	1 A, AC 240 V/DC 65 V; 0.5 A DC 80 V	
Typical life	3 AC 415 V AC 240 V: 0.02...30 A 6,000 operations at 1 x I _N , inductive 10,000 operations at 1 x I _N , resistive DC 80 V: 0.02...25 A 6,000 operations at 1 x I _N , inductive 0.02...30 A 10,000 operations at 1 x I _N , resistive 40 + 50 A 6,000 operations at 1 x I _N , resistive	
Ambient temperature	-40...+85 °C (-40...+185 °F)	
Insulation co-ordination (IEC 60664 and 60664A)	rated impulse withstand voltage 2.5 kV reinforced insulation in operating area	pollution degree 2
Dielectric strength (IEC 60664 and 60664A)	test voltage operating area pole to pole main to aux. circuit	AC 3,000 V AC 1,500 V AC 1,500 V
Insulation resistance	> 100 M Ω (DC 500 V)	
Interrupting capacity I _{cn}	1,200 A at AC 2,000 A at DC	
Interrupting capacity (UL 1077)	AC:	I _N 0.02...20 A 25...30 A 1-pole AC 250 V/3,500A AC 250 V/3,500A 2-pole AC 250 V/3,500A AC 250 V/5,000A 3-pole 3AC 250V/3,500A 3AC250V/5,000A
	DC:	1-pole 0.02...50 A DC 80 V/3,500 A 2-pole 0.02...30 A DC 80 V/3500 A
Interrupting capacity (UL 489A)	2000 A	
Degree of protection (IEC 60529/DIN 40050)	operating area IP40 terminal area IP20	
Vibration	with toggle down: 10 g at 0.9 I _N directions 1,2,3,4,5: 10 g at 1 x I _N with curves F1, F2: 10 g at 0.8 x I _N in all planes. (57-2000 Hz) ± 0.76 mm (10-57 Hz) to IEC 60068-2-6, test Fc 10 frequency cycles/axis	
Shock	100 g (11 ms) at 1 x I _N , directions 1,2,3,4,5 100 g (11 ms) at 0.8 x I _N , direction 6 with curves F1, F2: 100 g (11 ms) at 0.8 x I _N to IEC 60068-2-27, test Ea	
Corrosion	96 hours at 5 % salt mist, to IEC 60068-2-11, test Ka	

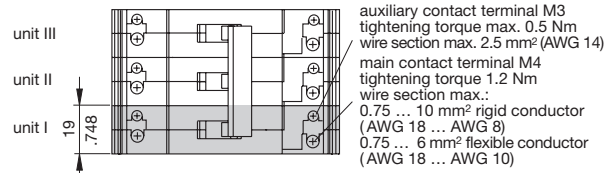
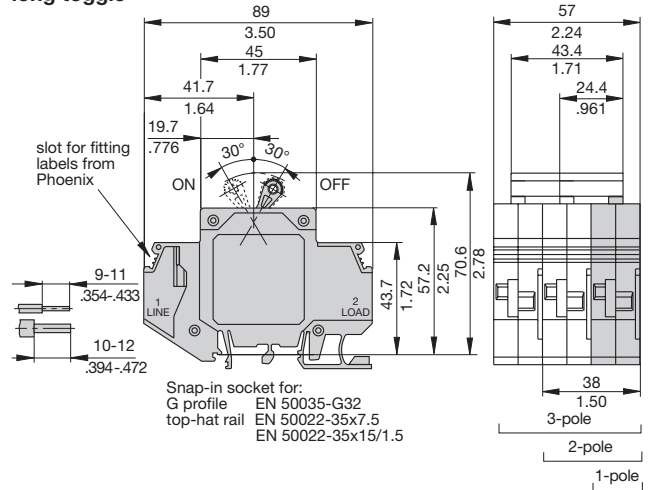
Ordering information

Type No.	8340	circuit breaker with toggle actuator
Mounting	T	rail mounting
Configuration	1	snap-on installation
Number of poles	0	single pole, switch only
	1	single pole protected
	2	two pole protected
	3	three pole protected
	4	four pole protected
	5	two pole, protected on one pole only
	6	four pole, protected on poles 1, 2 and 3 only
	7	two pole, switch only
Panel hardware	0	without panel hardware
Terminal design (main contact)	K1	recessed screw/pressure plate M4
Characteristic curve		
Curve F, instantaneous trip:		
F1	DC	trip at $1.01-1.5 \times I_N$
F2	AC 60/50Hz	trip at $1.01-1.5 \times I_N$
Curve K, short delay:		
K1	DC	trip at $2 \times I_N$ 0.16-1.2s
K2	AC 60/50Hz	trip at $2 \times I_N$ 0.13-1.6s
Curve M, medium delay:		
M1	DC	trip at $2 \times I_N$ 0.6-7.5s
M2	AC 60/50Hz	trip at $2 \times I_N$ 2.2-20 s
Without characteristic curve		
Q0		switch only
Curve T, long delay:		
T1	DC	trip at $2 \times I_N$ 10-70s
T2	AC 60/50Hz	trip at $2 \times I_N$ 15-150s
Other characteristic curves to special order		(e.g. pulse-delayed, high inrush currents, capacitive loads)
Actuator colour / design		
A		black, long toggle
B		white, long toggle
K		black, short toggle
L		white, short toggle
other colours to special order		
Marking on actuator		
0		without marking
L		I-O; ON-OFF
M		I-O; ON-OFF (I_N , U_N , trip curve, schematic diagram on housing top)
N		I-O; ON-OFF (I_N , on housing top)
Auxiliary contacts		
H0		without auxiliary contacts
H1		with auxiliary contact
H2		with auxiliary contact on one pole only (multipole)
Auxiliary contact function		(see internal connection diagrams)
2		1 N/O contact
3		1 N/C contact
Auxiliary contact terminal design		
6		screw/pressure plate M3
Current ratings		
0.02...50 A		
Approval (optional)		
U		UL 489 A

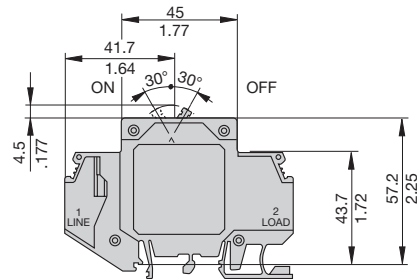
8340 - T 1 1 0 - K1 M1 - A E H1 2 6 - 10 A - U ordering example

Dimensions

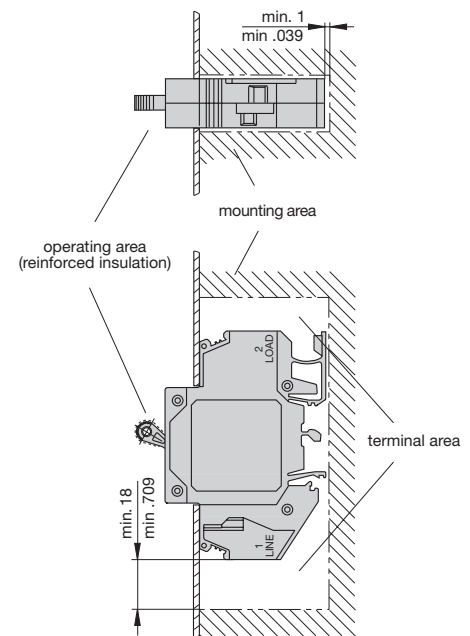
long toggle



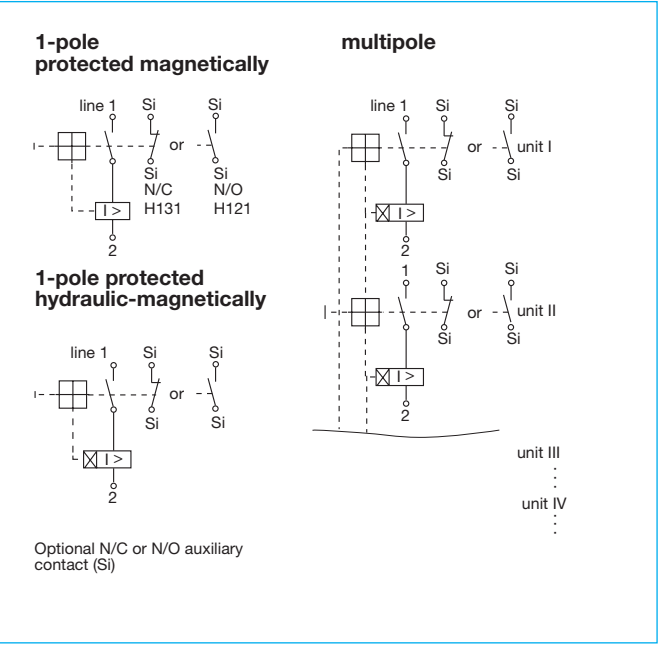
short toggle



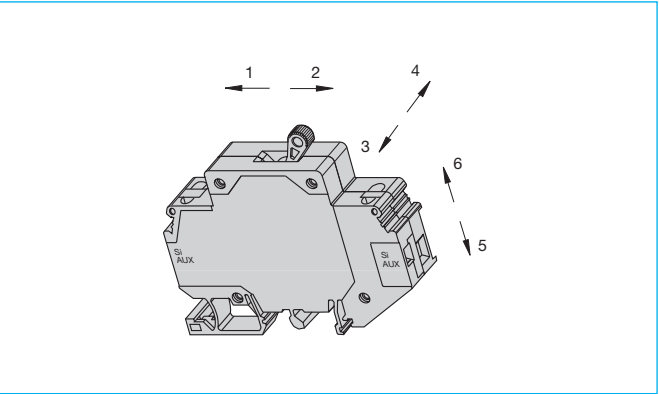
Installation drawing



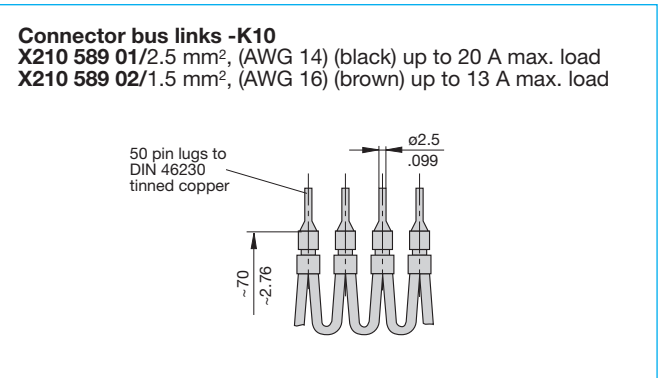
Internal connection diagrams



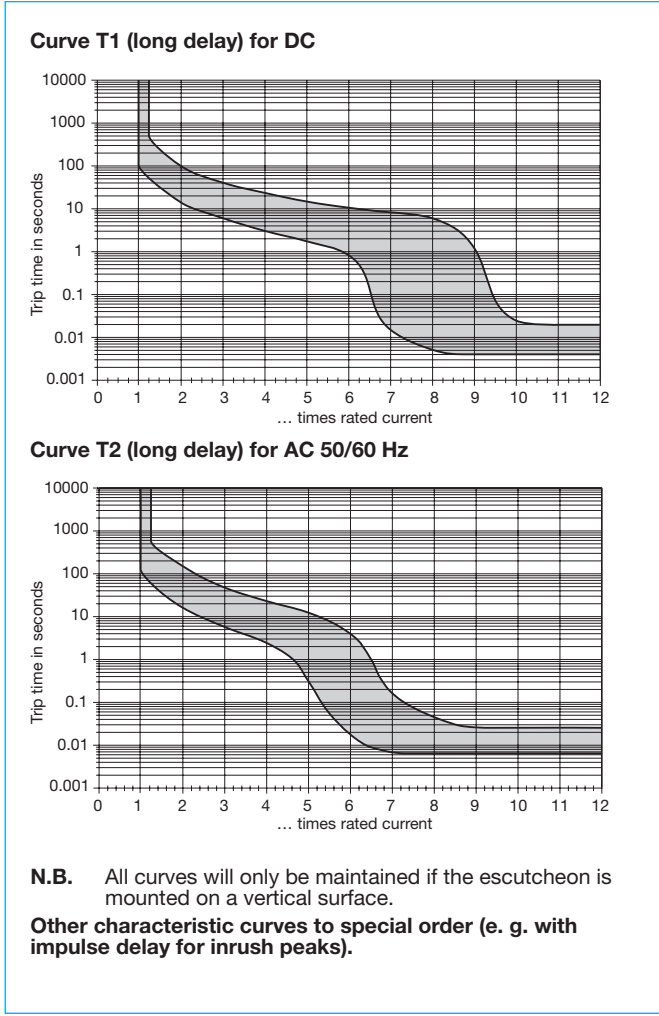
Shock directions



Accessories



Typical time/current characteristics at 23 °C / +73.4 °F

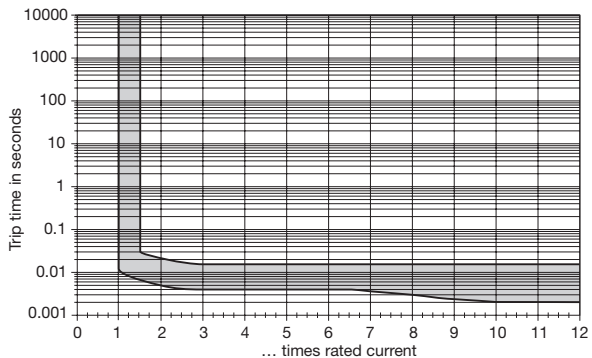


This is a metric design and millimeter dimensions take precedence ($\frac{\text{mm}}{\text{inch}}$)

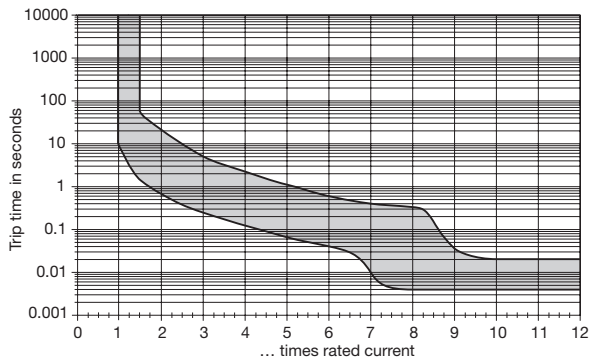
All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.

Typical time/current characteristics at 23 °C / +73.4 °F

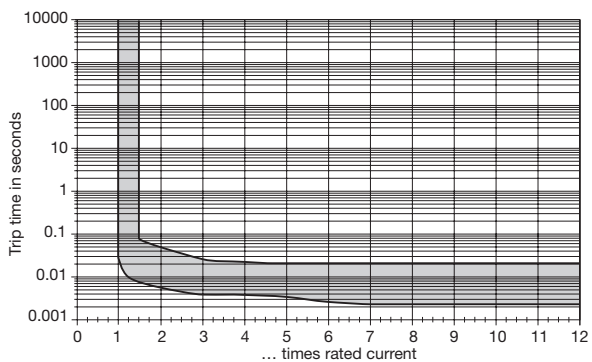
Curve F1 (instantaneous) for DC



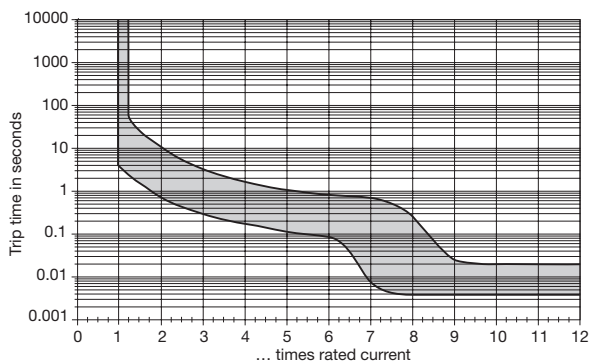
Curve M0 (medium delay) for AC/DC



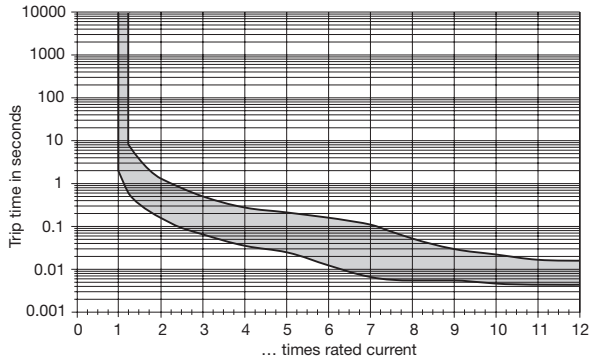
Curve F2 (instantaneous) for AC 50/60 Hz



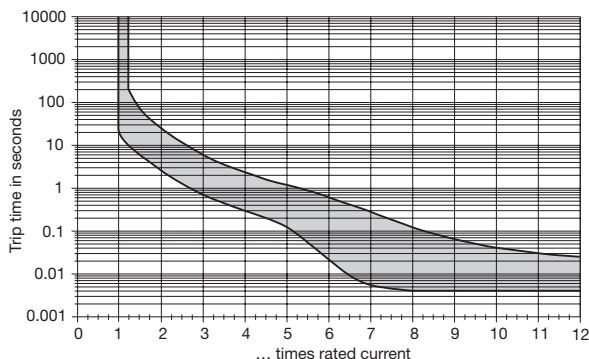
Curve M1 (medium delay) for DC



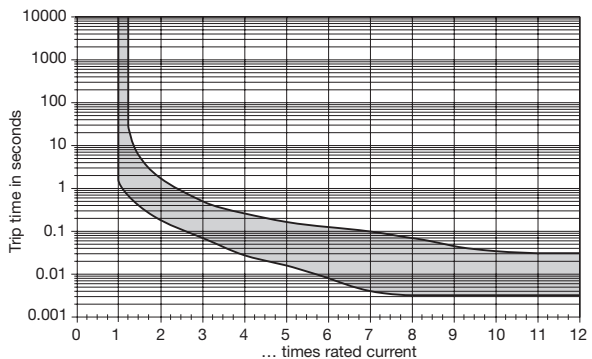
Curve K1 (short delay) for DC



Curve M2 (medium delay) for AC 50/60 Hz



Curve K2 (short delay) for AC 50/60 Hz



N.B. All curves will only be maintained if the escutcheon is mounted on a vertical surface.
Other characteristic curves to special order (e. g. with impulse delay for inrush peaks).