

Description

Single pole high performance thermal-magnetic circuit breaker with tease-free, trip-free, snap action mechanism and toggle actuation (S-type TM CBE to EN 60934). Options include auxiliary contacts, a moulded flame retardant enclosure for added environmental protection, and remote operation - disconnection only, or disconnection and re-connection. Now also available in an IP65 housing (see E-1032, page 269).

Typical applications

Battery and cable protection for all types of vehicles (including rail vehicles and boats), battery powered systems.

Ordering information

Type No.	
437	single pole, toggle actuator (2-pole upon request)
Enclosure design (optional)	
B3	moulded, high environmental protection degree, without operating knob
B31	moulded, high environmental protection degree, with operating knob
B35	as B31, but for remote disconnection and re-connection facility
C3	housing without operating knob, single pole, IP65
Terminal design	
K12	flat screw terminals M10, for enclosure B3, B31 or B35
K60	flat screw terminals DIN 46206, sheet 2, form 1, thread M10
K71	compulsory and only for C3 housing
Mounting	
1	lugs
2	compulsory and only for C3 housing
5	brackets
Characteristic curve	
06	fast trip
07	delayed trip
Auxiliary contacts (blade terminals 6.3x08)	
Si	one each N/O and N/C
Si01	one N/C (11/12), two N/O (13/14 + 23/24)
Si2	one N/O (13/14)
2Si2	two N/O
Remote trip (optional)	
FA	electrical remote disconnection
FC	electrical remote disconnection (FA) and re-connection (FE)
BC-FA	electrical remote disconnection (FA) and manual/remote re-connection not for enclosure B and C
Coil voltage	
12	DC 12 V
24	DC 24 V
(higher voltage ratings upon request)	
Current ratings	
40...240 A	
Voltage ratings	
(blank) ≤ DC 110 V	
B > DC 110 V	

437 - ... - K60 - 5 - 06 - 2Si2 - FA 24 - 50A - ... ordering example

The exact part number required can be built up from the table of choices shown above. Ordering references for optional features should be omitted if not required.

Standard current ratings and typical internal resistance values

Current rating (A)	Internal resistance (Ω)	Current rating (A)	Internal resistance (Ω)
40	< 0.003	120	≤ 0.002
50	< 0.002	160	≤ 0.001
63	≤ 0.002	200	≤ 0.001
80	≤ 0.002	240	≤ 0.001
100	≤ 0.002		

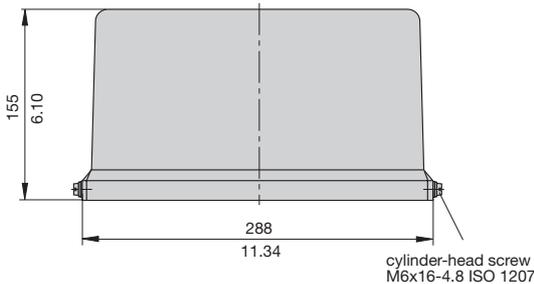
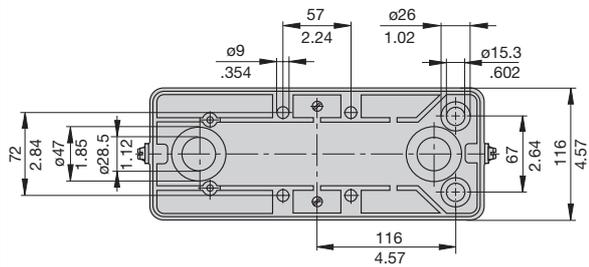


Technical data

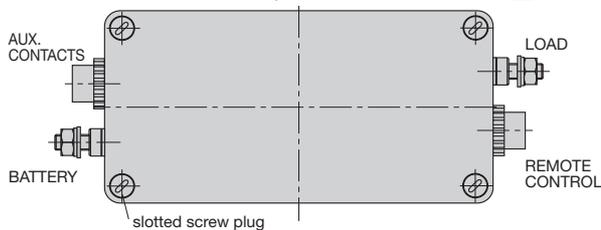
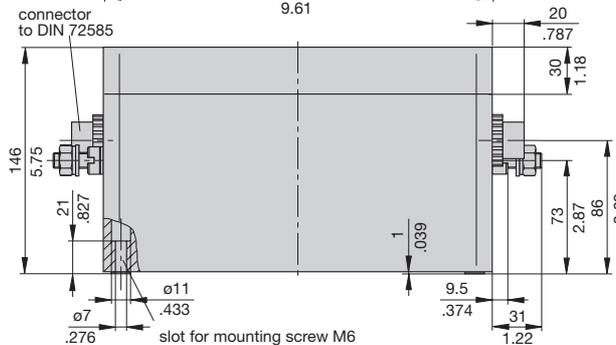
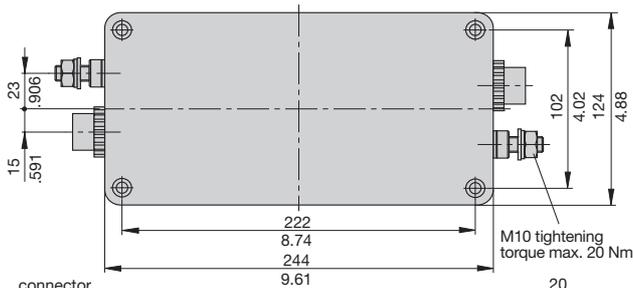
Voltage rating	DC 144 V (higher voltage ratings upon request)	
Current rating range	40...240 A (higher current ratings upon request)	
Auxiliary contact rating	6 A max. at DC 28 V 0.2 A at DC 180 V	
Electrical remote disconnection (-FA)		
operating voltage	DC 12 V or DC 24 V	
operating current	approx. 18 A or 12 A	
max. pulse time	10 ms < t _{ON} < 20 ms / t _{OFF} > 10 s	
switching time	< 20 ms	
Electrical remote re-connection (-FC)		
operating voltage	DC 12 V or DC 24 V	
operating current	approx. 30 A or 15 A	
max. pulse time	0.1 s < t _{ON} < 1.2 s / t _{OFF} > 60 s	
switching time	< 100 ms	
Typical life	3,000 operations at 240 A, DC 180 V 10,000 operations at 240 A, DC 28 V 20,000 operations mechanical	
Ambient temperature	-40...+60 °C (-40...+140 °F)	
Insulation co-ordination (IEC 60664 and 60664 A)	rated impulse withstand voltage 6 kV	pollution degree 3
Dielectric strength (IEC 60664 and 60664 A)		
operating area	test voltage AC 3,300 V	
main to aux. circuit	AC 2,200 V	
aux. circuits 11-12 to 13-14	AC 1,000 V	
Insulation resistance	> 100 MΩ (DC 500 V)	
Interrupting capacity I _{cn}	2,000 A at DC 180 V; L/R = 0 ms 10,000 A at DC 28 V; L/R = 0 ms 7,500 A at DC 28 V; L/R = 13 ms	
Degree of protection (IEC 60529/DIN 40050)	operating area IP40, terminal area IP00 with enclosure B IP54 with enclosure C IP65	
Vibration	curve 06:	3 g (60-500 Hz), ± 0.23 mm (10-60 Hz)
	curve 07:	4 g (60-500 Hz), ± 0.30 mm (10-60 Hz) to IEC 60068-2-6, test Fc, 10 frequency cycles/axis
Shock	curve 06:	20 g (11 ms), to IEC 60068-2-27, test Ea
	curve 07:	25 g (11 ms), to IEC 60068-2-27, test Ea
Corrosion	48 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. 900 g base unit + approx. 400 g remote disconnection + approx. 100 g remote re-connection + approx. 750 g B housing + approx. 1,000 g C housing	

Dimensions

Moulded enclosure IP54 -B3

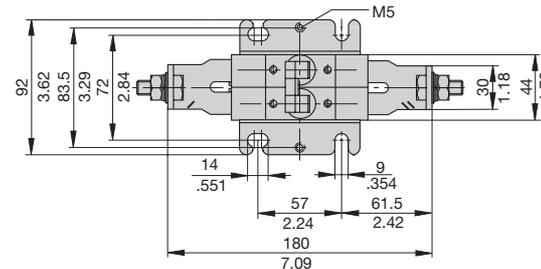
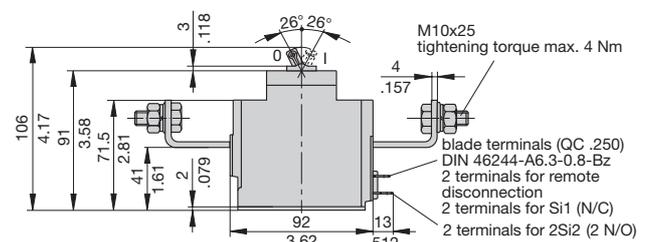


Moulded enclosure IP65 -C3

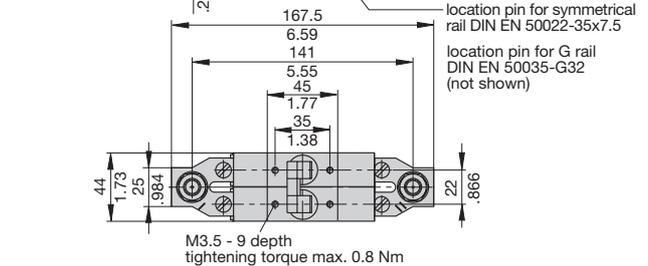
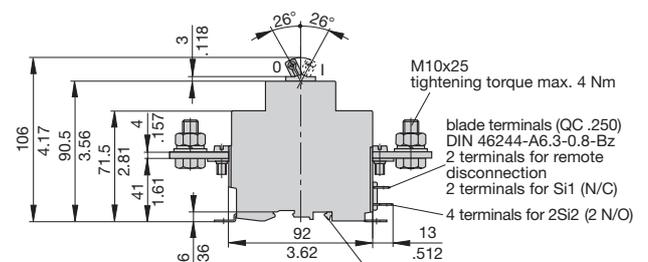


Dimensions

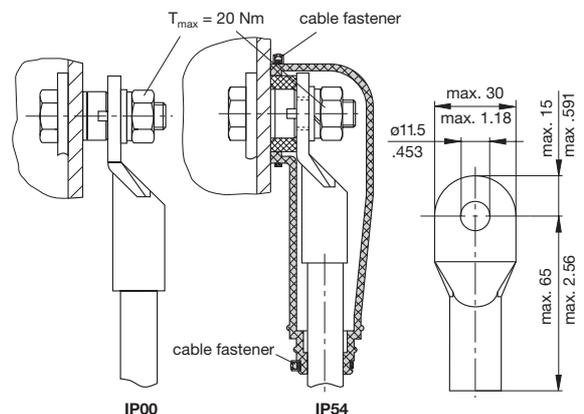
437-K12-5-Si-...-FA



437-K60-1-...-FA



Terminals with housing C3

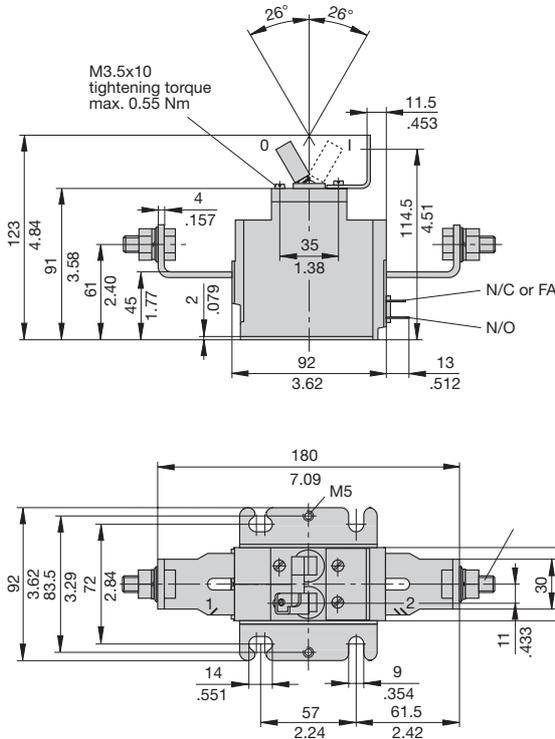


Rubber caps and cable fasteners are supplied with the product.

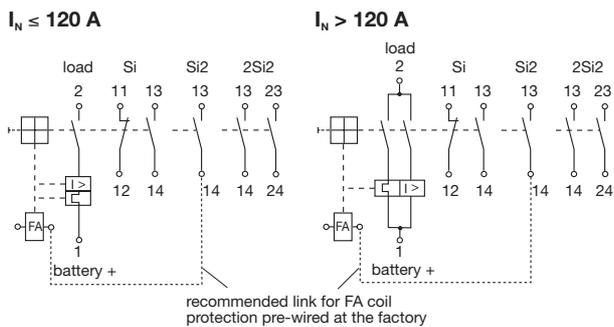
This is a metric design and millimeter dimensions take precedence (mm/inch)

Dimensions

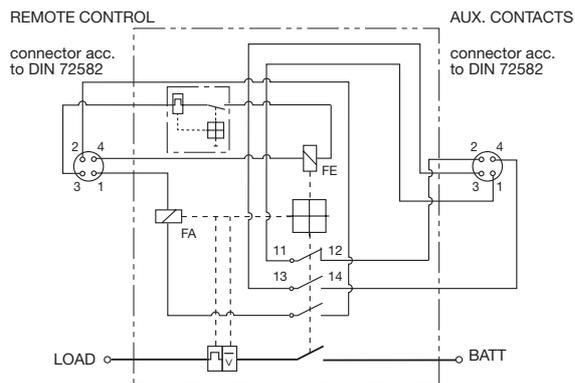
437-K12-...-BC-FA..



Internal connection diagram



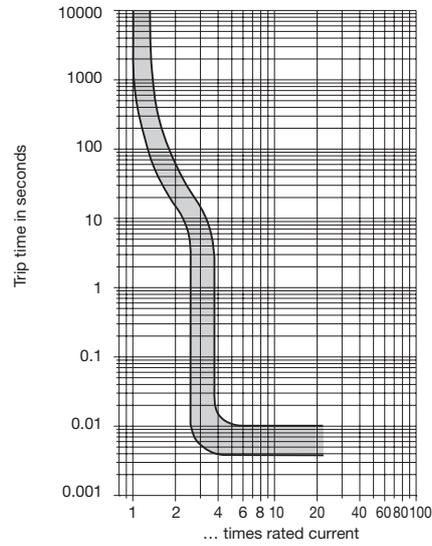
for housing C3



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

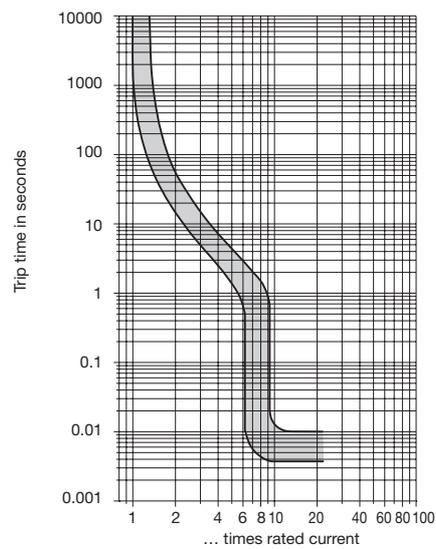
Curve 06 (fast trip)

DC



Curve 07 (delayed trip)

DC



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.