

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. Also available in an IP65 housing (see type E-1032).

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
Terminal design	
K12	flat screw terminals M10
K60	flat screw terminals DIN 46206, sheet 2, form 1, thread M10
Mounting	
1	lugs
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)
Remote trip (optional)	
FA	electrical remote disconnection
FC	electrical remote disconnection (FA) and re-connection (FE)
Coil voltage	
12	DC 12 V
24	DC 24 V
Current ratings	
40...240 A	
437 - K60 - 5 - 06 - Si01-FA 24 - 50A ordering example	

Please be informed that we have minimum ordering quantities to be observed.

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		



437-...

Technical data

For further details please see: www.e-t-a.de/ti_e

Voltage rating	DC 110 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
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	10,000 cycles at electrical remote control 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)	test voltage operating area 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}	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 15 (11 ms) for -FA/-FC in shock direction 6 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 re-connection + approx. 100 g remote disconnection

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

Technical drawing showing the side and top views of the 437-K12-5-Si-...-FA rail-to-rail converter. Dimensions are in millimeters.

Side View Dimensions:

- Overall height: 106
- Mounting hole center-to-center: 91
- Mounting hole diameter: 4.17
- Terminal block height: 3.58
- Terminal block width: 71.5
- Terminal block mounting hole diameter: 2.81
- Terminal block mounting hole offset: 41
- Terminal block mounting hole offset: 1.61
- Terminal block mounting hole offset: 2
- Terminal block mounting hole offset: .079
- Terminal block mounting hole offset: 3
- Terminal block mounting hole offset: .118
- Terminal block mounting hole offset: 26°
- Terminal block mounting hole offset: 26°
- Terminal block mounting hole offset: 0
- Terminal block mounting hole offset: 1
- Terminal block mounting hole offset: 4
- Terminal block mounting hole offset: .157
- Terminal block mounting hole offset: 92
- Terminal block mounting hole offset: 13
- Terminal block mounting hole offset: .512
- Terminal block mounting hole offset: 3.62

Top View Dimensions:

- Overall width: 180
- Overall height: 72
- Mounting hole center-to-center: 92
- Mounting hole diameter: 4.17
- Mounting hole offset: 3.62
- Mounting hole offset: 83.5
- Mounting hole offset: 3.29
- Mounting hole offset: 72
- Mounting hole offset: 2.84
- Mounting hole offset: 14
- Mounting hole offset: .551
- Mounting hole offset: 57
- Mounting hole offset: 2.24
- Mounting hole offset: 180
- Mounting hole offset: 7.09
- Mounting hole offset: 61.5
- Mounting hole offset: 2.42
- Mounting hole offset: 9
- Mounting hole offset: .354
- Mounting hole offset: 30
- Mounting hole offset: 1.18
- Mounting hole offset: 4.4
- Mounting hole offset: 1.73

Labels:

- M10x25 tightening torque max. 10 Nm
- blade terminals (QC .250) DIN 46244-A6.3-0.8-Bz
- 2 terminals for remote disconnection
- 2 terminals for Si1 (N/C)
- 2 terminals for 2Si2 (2 N/O)

437-K60-1-...-FA

Technical drawing showing the side and top views of the 437-K60-1-...-FA rail-to-rail converter. Dimensions are in millimeters.

Side View Dimensions:

- Overall height: 106
- Mounting hole center-to-center: 90.5
- Mounting hole diameter: 4.17
- Terminal block height: 3.56
- Terminal block width: 71.5
- Terminal block mounting hole diameter: 2.81
- Terminal block mounting hole offset: 41
- Terminal block mounting hole offset: 1.61
- Terminal block mounting hole offset: 2
- Terminal block mounting hole offset: .079
- Terminal block mounting hole offset: 3
- Terminal block mounting hole offset: .118
- Terminal block mounting hole offset: 26°
- Terminal block mounting hole offset: 26°
- Terminal block mounting hole offset: 0
- Terminal block mounting hole offset: 1
- Terminal block mounting hole offset: 4
- Terminal block mounting hole offset: .157
- Terminal block mounting hole offset: 92
- Terminal block mounting hole offset: 13
- Terminal block mounting hole offset: .512
- Terminal block mounting hole offset: 3.62

Top View Dimensions:

- Overall width: 167.5
- Overall height: 72
- Mounting hole center-to-center: 92
- Mounting hole diameter: 4.17
- Mounting hole offset: 3.62
- Mounting hole offset: 83.5
- Mounting hole offset: 3.29
- Mounting hole offset: 72
- Mounting hole offset: 2.84
- Mounting hole offset: 14
- Mounting hole offset: .551
- Mounting hole offset: 57
- Mounting hole offset: 2.24
- Mounting hole offset: 180
- Mounting hole offset: 7.09
- Mounting hole offset: 61.5
- Mounting hole offset: 2.42
- Mounting hole offset: 9
- Mounting hole offset: .354
- Mounting hole offset: 30
- Mounting hole offset: 1.18
- Mounting hole offset: 4.4
- Mounting hole offset: 1.73

Labels:

- M10x25 tightening torque max. 10 Nm
- blade terminals (QC .250) DIN 46244-A6.3-0.8-Bz
- 2 terminals for remote disconnection
- 2 terminals for Si1 (N/C)
- 4 terminals for 2Si2 (2 N/O)
- location pin for symmetrical rail DIN EN 50022-35x7.5
- location pin for G rail DIN EN 50035-G32 (not shown)
- M3.5 - 9 depth tightening torque max. 0.8 Nm

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

Technical drawing showing the side and top views of the 437-K12-...-BC-FA.. rail-to-rail converter. Dimensions are in millimeters.

Side View Dimensions:

- Overall height: 123
- Mounting hole center-to-center: 91
- Mounting hole diameter: 4.84
- Terminal block height: 3.58
- Terminal block width: 61
- Terminal block mounting hole diameter: 2.40
- Terminal block mounting hole offset: 45
- Terminal block mounting hole offset: 1.77
- Terminal block mounting hole offset: 2
- Terminal block mounting hole offset: .079
- Terminal block mounting hole offset: 3
- Terminal block mounting hole offset: .118
- Terminal block mounting hole offset: 26°
- Terminal block mounting hole offset: 26°
- Terminal block mounting hole offset: 0
- Terminal block mounting hole offset: 1
- Terminal block mounting hole offset: 4
- Terminal block mounting hole offset: .157
- Terminal block mounting hole offset: 35
- Terminal block mounting hole offset: 1.38
- Terminal block mounting hole offset: 92
- Terminal block mounting hole offset: 13
- Terminal block mounting hole offset: .512
- Terminal block mounting hole offset: 3.62

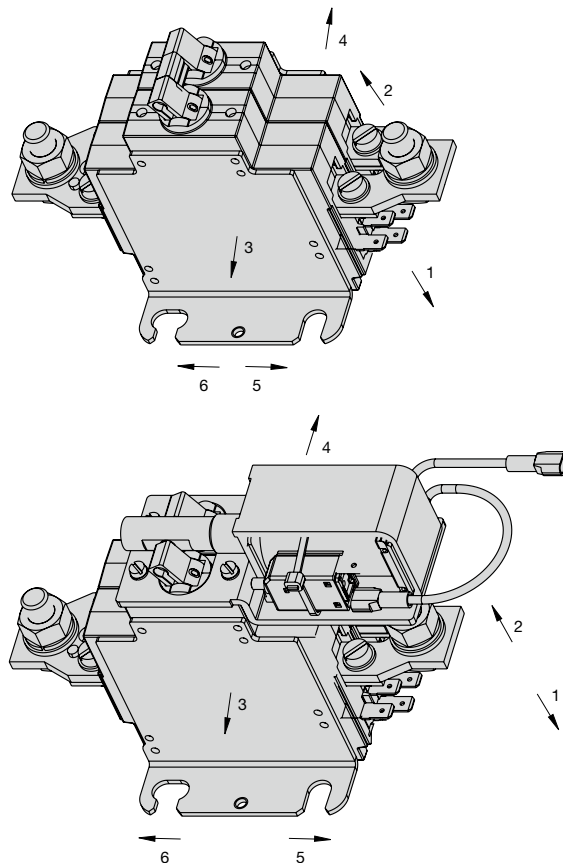
Top View Dimensions:

- Overall width: 180
- Overall height: 72
- Mounting hole center-to-center: 92
- Mounting hole diameter: 4.84
- Mounting hole offset: 3.62
- Mounting hole offset: 83.5
- Mounting hole offset: 3.29
- Mounting hole offset: 72
- Mounting hole offset: 2.84
- Mounting hole offset: 14
- Mounting hole offset: .551
- Mounting hole offset: 57
- Mounting hole offset: 2.24
- Mounting hole offset: 180
- Mounting hole offset: 7.09
- Mounting hole offset: 61.5
- Mounting hole offset: 2.42
- Mounting hole offset: 9
- Mounting hole offset: .354
- Mounting hole offset: 30
- Mounting hole offset: 1.18
- Mounting hole offset: 4.4
- Mounting hole offset: 1.73

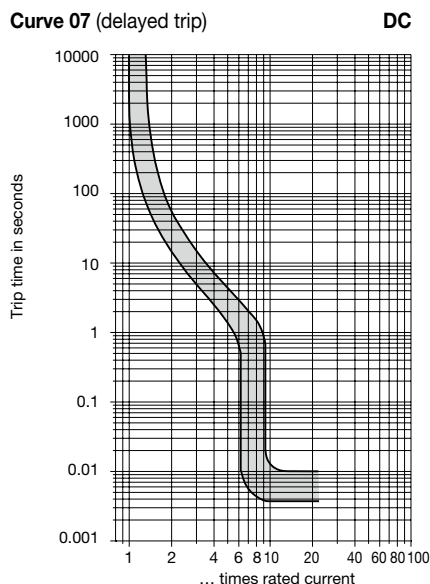
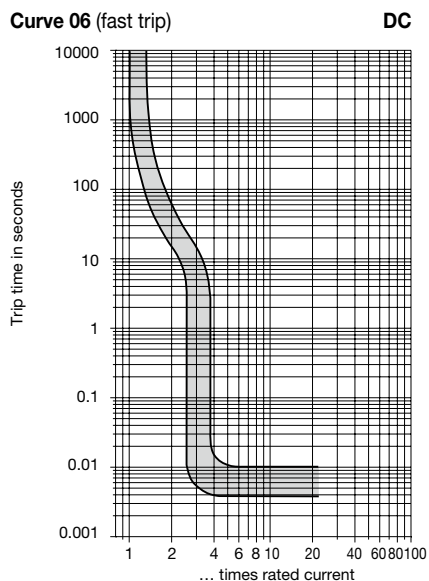
Labels:

- M3.5x10 tightening torque max. 0.55 Nm
- M10x25 tightening torque max. 10 Nm
- N/C or FA
- N/O

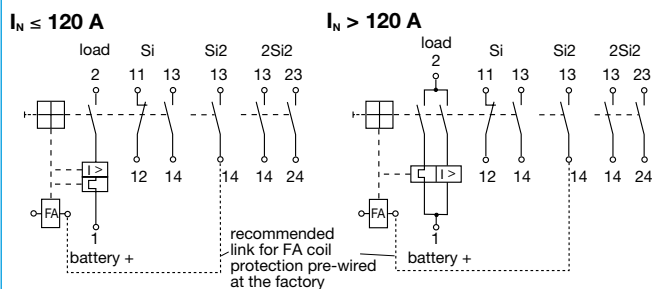
Shock direction



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



Internal connection diagram



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.

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