

## Description

Three pole, miniaturised, aircraft style thermal circuit breaker with tease-free, trip-free, snap action mechanism and push/pull on/off manual actuation (M-type TO CBE to EN 60934). An indicator band on the push button clearly shows the tripped/off position. Threadneck panel mounted, available in metric and US (AS 14154) configurations. Advanced two-chamber design minimises contact contamination to provide fail-safe operation. Temperature compensated with optional auxiliary contacts, and fully approved for use on a wide range of aircraft and equipment. For single pole version see type 483.

## Typical applications

Aircraft systems and equipment (fixed wing and helicopters); other extra low voltage wiring applications; defence equipment; communications systems.

## Standard current ratings and typical volt drop values

Current rating (A)	Volt drop per pole (mV)	Current rating (A)	Volt drop per pole (mV)
1	750	7.5	230
2	520	10	190
2.5	400	15	190
3	360	20	200
4	350	25	170
5	260	30	160

## Approvals

Approvals:

LN 29887

VG 95345, part 11

prEN 2996

AS 14154

QPL



without auxiliary contact

583-...

with auxiliary contact

## Technical data

Voltage rating	3 AC 200 V (400 Hz); DC 28 V	
Current rating range	1...30 A	
Auxiliary circuit	0.5 A, DC 28 V	
Typical life	20,000 operations mechanical 10,000 operations at $I_N$ ( $\leq 25$ A) 4,000 operations at $I_N$ (30 A)	
Ambient temperature	-55...+125 °C (-67...+257 °F) $\leq 15$ A -55...+90 °C (-67...+194 °F) $> 15$ A	
Insulation co-ordination (IEC 60664 and 60664A)	rated impulse withstand voltage 1.5 kV	pollution degree 3
Dielectric strength (IEC 60664 and 60664A)	test voltage operating area pole/pole main to aux. circuit	AC 1,500 V AC 1,500 V AC 1,500 V
Insulation resistance	$> 100$ M $\Omega$ (DC 500 V)	
Interrupting capacity $I_{cn}$	3 AC 200 V (400 Hz): $\leq 4$ A                    1,000 A 5 A                        2,000 A 7.5...25 A               2,500 A 30 A                       1,500 A DC 28 V: 1...25 A                   6,000 A 30 A                       4,000 A	
Degree of protection (IEC 60529/DIN 40050)	operating area IP40 terminal area IP00	
Vibration (sinusoidal)	10 g (57-2000 Hz) $\pm 0.76$ mm (5-57 Hz) to VG 95210, sheet 19/ IEC 60068-2-6, test Fc/ISO 7137	
Vibration (random)	16.4 g rms, 0.2 g <sup>2</sup> Hz $\pm 1.5$ dB, to VG 95210, sheet 29/ IEC 60068-2-6, test Fc/ISO 7137	
Acceleration	17 g, to ISO 2669	
Shock	50 g (11 ms), to VG 95210, sheet 28/ IEC 60068-2-27, test Ea/ISO 7137	
Corrosion	96 hours at 5 % salt mist 48 hours at 20 % salt mist to VG 95210, sheet 2/ IEC 60068-2-11, test Ka/ISO 7137	
Humidity	240 hours at 95 % RH, to VG 95210, sheet 7/ IEC 60068-2-3, test C/ISO 7137	
Explosion	to VG 95210, sheet 10/ MIL-STD-202, meth. 109	
Altitude	$\leq 25,000$ m above sea level	
Mass	max. 67 g with auxiliary contact max. 63 g without auxiliary contact	

**Mass reduction through aluminium threadneck approx. 3 g**

## Ordering information

### Type No.

583 three pole, with temperature compensation

### Mounting

G threadneck panel mounting

### Threadneck design

- 1 M12x1x6.4x8.8 dia. with mounting plate (aux. contact version)
- 2 15/32-32UNx6.4x7.8 dia. (only without aux. contact)
- 3 MJ12x1x6.4x8.8 dia. (only without aux. contact)
- 4 M12x1x6.4x8.8 dia. (only without aux. contact)
- 5 7/16-32UNx6.4x7.8 (only without aux. contact)
- 6 M12x1x9.4x8.8 dia. (without aux. contact)
- 7 7/16-32 UNx6.4x7.8 dia. with mounting plate (aux.contact version)
- 8 M12x1x6.4x8.8 with mounting plate, aluminium threadneck
- 9 M12x1x6.4x8.8, aluminium threadneck

### Hardware for threadneck (washers)

- 0 without hardware
- 1 corrugated washer 12/15, fitted
- 2 serrated lock washer 12.1/17.2, fitted
- 3 serrated lock washer 11.3/14.9, fitted
- 4 serrated lock washer 12/15, fitted

### Hardware for threadneck (nuts)

- 0 without hardware
- 1 hex nut M12x1
- 2 hex nut 15/32-32UN
- 3 hex nut 7/16-32UN
- 5 hex nut MJ12x1 (only with threadneck design 3)

### Terminal design (main terminals)

K screw terminals with metric thread

- 1 K14 (M4, MJ4)

J screw terminals with inch thread

- 1 J14 (8-32UNC-2B)
- 2 J17 (8-32UNC-2B)
- 3 J25 (6-32UNC-2B)

### Characteristic curve

M1 thermal, 1.15-1.38 I<sub>N</sub>

### Terminal screws

- A Phillips screw M4x6
- B Phillips screw 8-32UNC-2Ax6 (MS 51957-41)
- C Phillips screw 6-32UNC-2Ax6 (MS 51957-41)
- D slotted flat head screw M4x6
- E hex screw with Phillips head 8-32UNC-3Ax9.5
- K hex screw with Phillips head 8-32UNC-3Ax7.6
- L Phillips screw MJ4x6
- Z without accessories

### Terminal washers

- 0 without lock washer
- 1 lock washer B4
- 2 lock washer 4.3 (MS 35338-137)
- 3 lock washer B4 and washer 4.4/9.5
- 4 lock washer 3.7 (MS 35338-136)
- 5 lock washer 4.3/9

### Auxiliary contact

- S0 without auxiliary contact
- S1 with auxiliary contact (N/C) (connector to EN 3155-016M2018, size 20)
- S5 with polarized auxiliary contact (N/C)

### Barrier

- T barrier 25.5 mm wide, 37.7 mm long (-S0 only)
- U barrier 19.5 mm wide, 37.7 mm long
- V barrier 25.5 mm wide, 37.7 mm long, colour marking between the terminals (-S0 only)
- X barrier 19.5 mm wide, 34.1 mm long

### Colour of the push button

- (blank) black (standard) (e.g. 7.5)
- A green (e.g. 7.5)
- G green to EN (e.g. 7 1/2)
- N black to EN (e.g. 7 1/2)

### Current ratings

1...25 A

583 - G 4 1 1 - K 1 M1 - A 1 S0 T . - 5 A ordering example

## Ordering information for approved devices

### 583-G411-K1M1-A1S0TN (583-96-TC-K14)

Metric threadneck M12x1 and terminal design -K14 (M4x6), listed by the German Materialamt der Bundeswehr to VG 95345 T11.

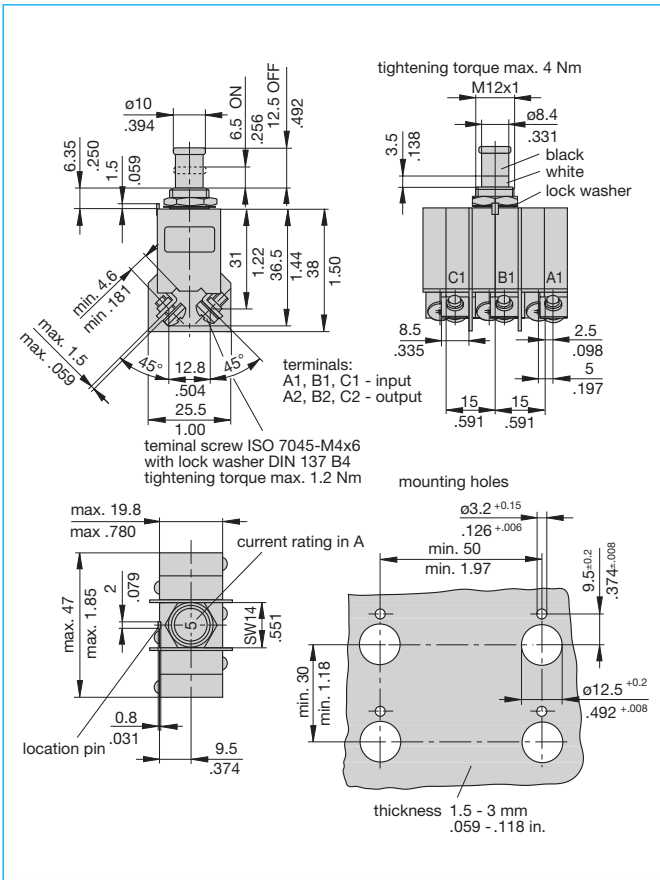
### 583-G111-K1M1-A1S1UN

Metric threadneck M12x1 and terminal design -K14 (M4x6) with auxiliary contact -Si, listed by the German Materialamt der Bundeswehr to VG 95345 T11.

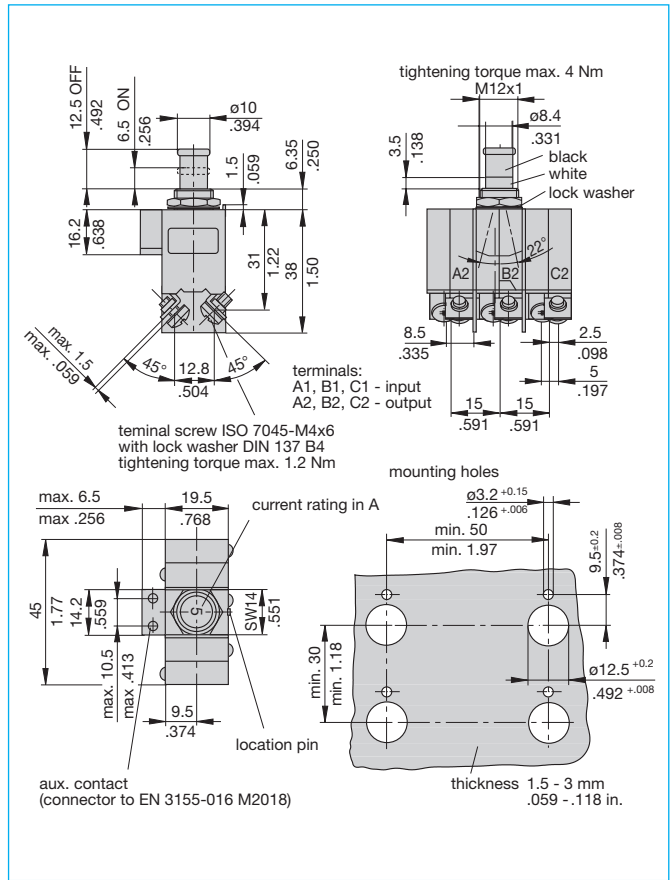
### 583-G533-J1M1-B2S0XN (AS 14154)

Threadneck size 7/16-32UNx6.4 and terminal design -J14 (inch thread 8-32), approved to AS 14154.

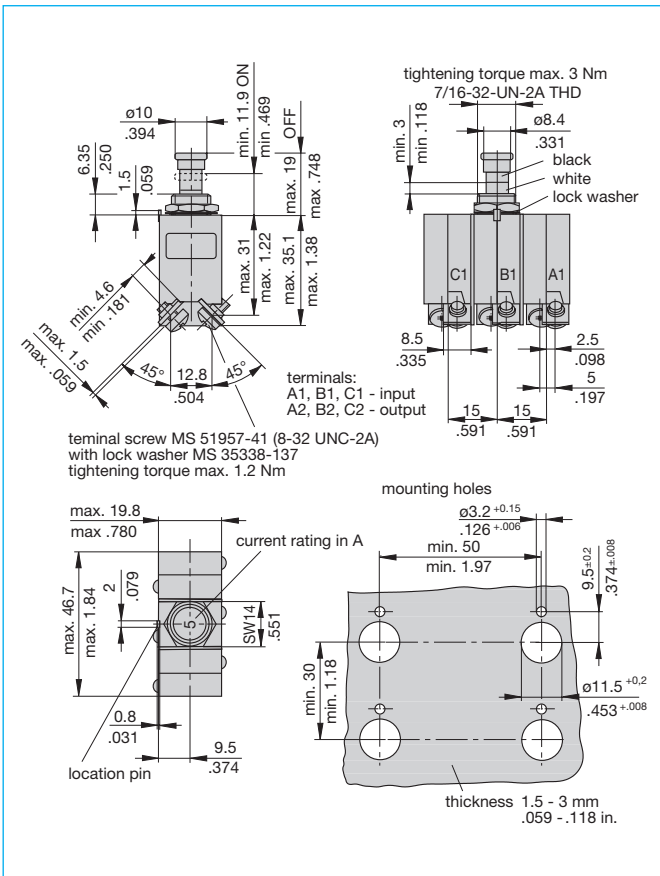
## Dimensions 583-G411-K1M1-A1S0TN (VG 95345 T11)



## Dimensions 583-G111-K1M1-A1S1UN (VG 95345 T11)



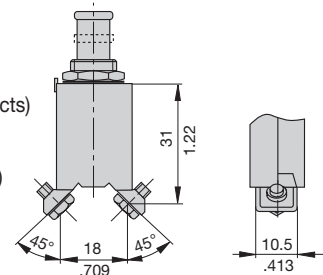
## Dimensions 583-G533-J1M1-B2S0XN (AS14154)



## Other main terminal and threadneck designs

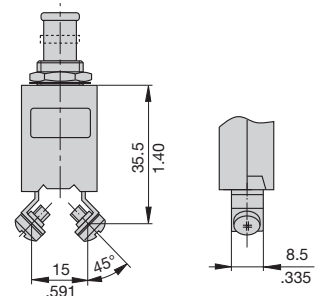
### terminal design -J2

- recommended barrier:
- T or -X for -S0 (without auxiliary contacts)
  - U or -X for -S1 or -S5 (with auxiliary contacts)

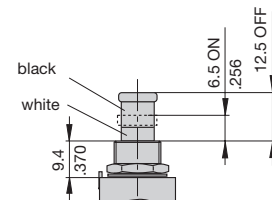


### terminal design -J3

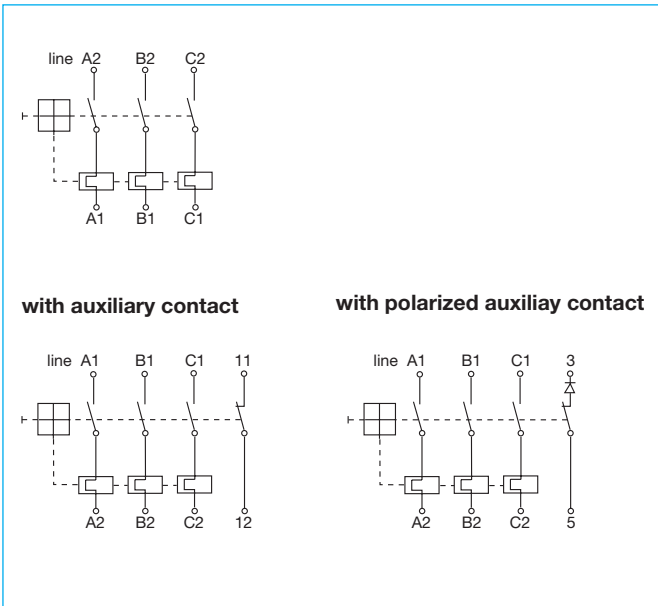
- recommended barrier:
- T for -S0 (without auxiliary contacts)
  - U for -S1 or -S5 (with auxiliary contacts)



### mounting -G6

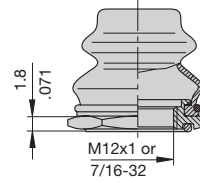


## Internal connection diagrams

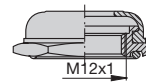


## Accessories

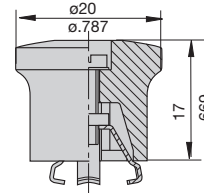
- Splash cover/hex nut assembly with O ring (IP66)**  
 (approved to VG 95345, part 23)  
**X 200 801 08** nickel plated nut, transparent cover  
**X 200 801 03** matt black finish nut, black cover  
**X 200 801 09** matt black finish nut 7/16-32, black cover



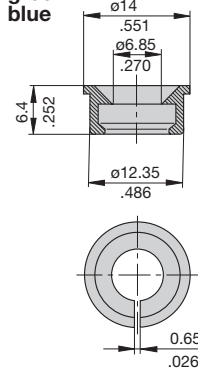
- Splash cover black/hex nut assembly with O ring (IP54)**  
 only for threadneck nut M12 (to VG 95345, sheet 23)  
**X 200 802 01** nickel plated nut  
**X 200 802 02** matt black finish nut



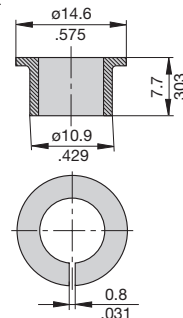
- Actuator extension (black)** to be fitted on the push button  
 (approved to VG 95345, T23)  
**X 200 803 01**



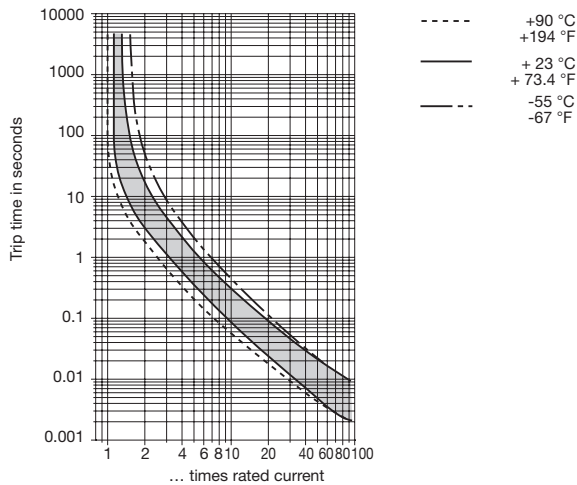
- Identification collar** to be snapped on the push button  
**Y 307 004 01** black  
**Y 307 004 02** white  
**Y 307 004 03** red  
**Y 307 004 04** green  
**Y 307 004 05** blue



- Lock out ring** to block the push button in OFF position  
**Y 307 005 01** red  
**Y 307 005 02** black



## Typical time/current characteristics



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 and three pole isolators to EN 60947 / IEC 60947 with toggle actuation. Designed for rail, panel or surface mounting. Options include auxiliary contacts and remote electrical disconnection. For circuit breaker versions see types 410, 520, 530.

## Typical applications

Control systems, industrial equipment.

## Ordering information

### Type No.

**911** single pole switch

**912** double pole switch

**913** three pole switch

### Terminal design

**K** main terminal

up to 32 A: pressure plate B5-DIN 46288

up to 63 A: pressure plate B6-DIN 46288

up to 125 A: terminal screws DIN 46206, sheet 2, form 1, thread M6

### Mounting

**1** surface mounting

**2** rail or panel mounting (rail DIN EN 50022-35x7.5)

**3** rail or panel mounting (rail DIN EN 50035-G32)

**4** panel mounting only

**5** mounting brackets – surface mounting

### Auxiliary contacts (terminals M3.5 or blade terminals (-FA))

**Si** one each N/O and N/C (not for 911-FA)

**Si1** one N/C (11,12) (not for 911-FA)

**Si2** one N/O (13,14)

**2Si** two each N/O and N/C – types 912, 913 only (not for 912-FA)

**3Si** three each N/O and N/C – type 913 only (not for 913-FA)

### Remote trip (optional)

**FA 12** remote disconnection, for DC 12 V

**FA 24** remote disconnection, for DC 24 V

### Current ratings

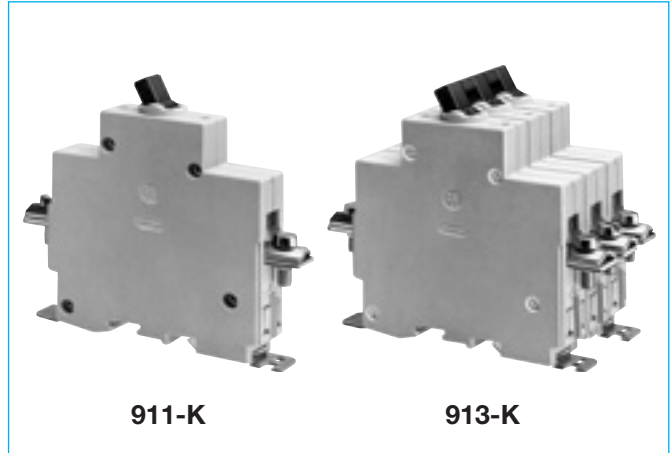
**32, 63, 125 A**

**911 - K - 1 - Si - ... - 63 A** 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

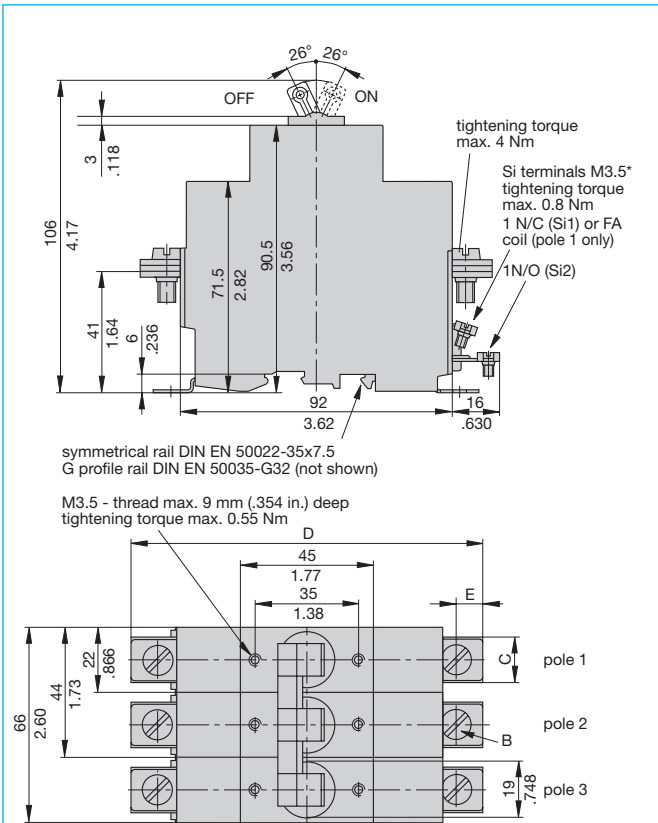
Current rating (A)	Internal resistance (Ω)
32	≤ 0.002 per pole
63	≤ 0.002 per pole
125	≤ 0.002 per pole



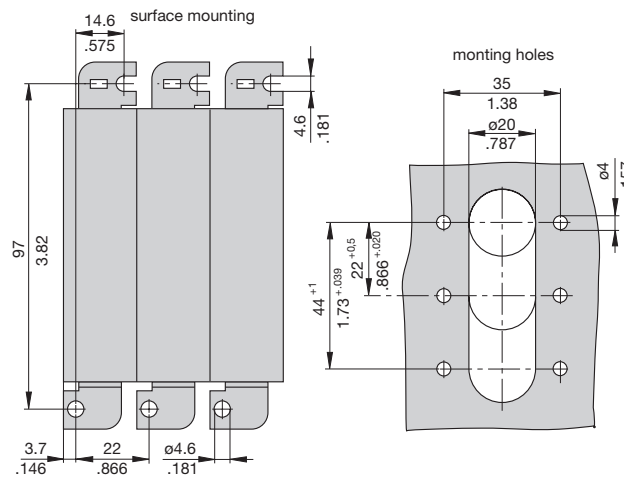
## Technical data

Voltage rating	AC 240 V; 3 AC 415 A; 3 AC 500 V; DC 110 V	
Current rating range	32 A, 63 A, 125 A	
Auxiliary contact rating	6 A at AC 240 V or DC 28 V; 1 A at DC 110 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 <sub>ON</sub> < 20 ms / t <sub>OFF</sub> > 10 s	
	switching time < 20 msec	
Typical life	10,000 operations at I <sub>N</sub> 20,000 operations mechanical	
Ambient temperature	-40...+75 °C (-40...+167 °F)	
Insulation co-ordination (IEC 60664 and 60664A)	rated impulse withstand voltage 6 kV	pollution degree 3
Dielectric strength (IEC 60664 and 60664A)	test voltage	
	operating area AC 3,300 V	
	pole/pole AC 3,300 V	
	main to aux. circuit AC 2,200 V	
	aux. circuit 11-12 to 13-14 AC 1,000 V	
Insulation resistance	> 100 MΩ (DC 500 V)	
Short-circuit protection	back up fuse max. 125 A	
Degree of protection (IEC 60529/DIN 40050)	operating area IP40 terminal area IP00	
Vibration	5 g (57-200 Hz) ±0.38 mm (10-57 Hz) to IEC 60068-2-6, test Fc 10 frequency cycles/axis	
Shock	25 g (11 ms) 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. 220 g single pole approx. 440 g double pole approx. 660 g three pole	

## Dimensions

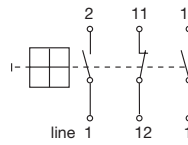


Current rating	Dimensions mm/in.				Terminal	Cross section (see DIN 46288)		Max. tightening torque
	B	C	D	E		with 1 or 2 equal conductors	with 2 different conductors	
≤ 32 A	M5 13 .512	114 4.49	7 .276	pressure plate B5 DIN 46288	2.5 mm <sup>2</sup> to 10 mm <sup>2</sup>	2.5 mm <sup>2</sup> to 10 mm <sup>2</sup>	2.0 Nm	
≤ 63 A	M6 15.4 .606	120 4.72	9 .354	pressure plate B6 DIN 46288	4 mm <sup>2</sup> to 16 mm <sup>2</sup>	4 mm <sup>2</sup> and 6 mm <sup>2</sup> or 6 mm <sup>2</sup> to 16 mm <sup>2</sup>	2.5 Nm	
≤ 125 A	M6 15.4 .606	120 4.72	9 .354	terminal screw			2.5 Nm	

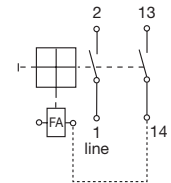


## Internal connection diagrams

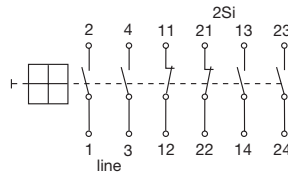
911



911-...-FA

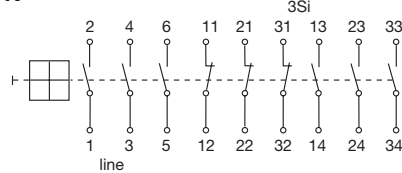


912-K



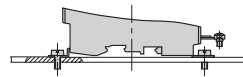
recommended link for FA coil protection pre-wired at the factory

913-K

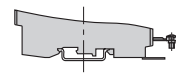


## Mounting method

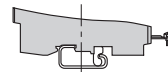
Surface mounting  
suffix: -1



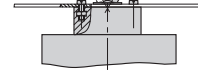
Rail mounting  
(EN 50022-35x7.5)  
suffix: -2



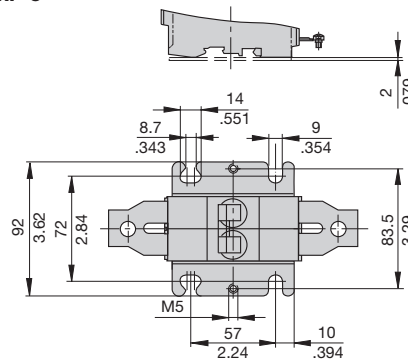
Rail mounting  
(EN 50035-G32)  
suffix: -3



Panel mounting  
suffix: -4



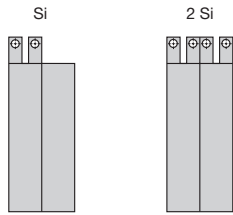
Mounting brackets - surface mounting  
suffix: -5



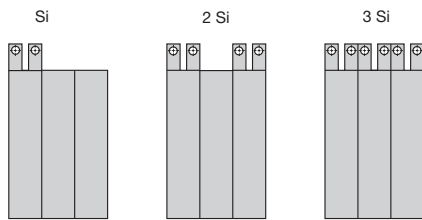
Covers, labels, sealing screws etc. can be fitted on the front of the housing.

## Auxiliary contact arrangement with multipole switches

### double pole devices



### three pole devices

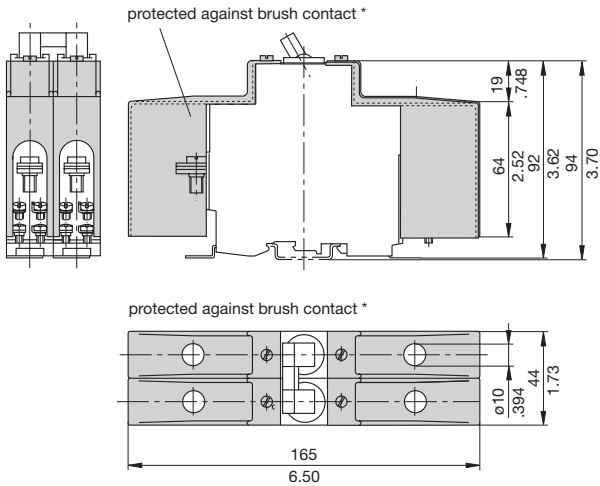


## Accessories

### Terminal insulation cover

X 211 705 01

(1 set = 2 pcs per pole)



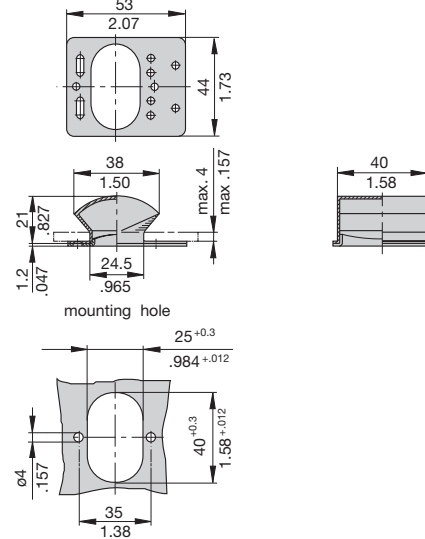
\* to DIN 57106T100/VDE 0106 T100

## Accessories

### For series 911 ≤ 125 A

### Water splash cover translucent with fixing plate and screws (IP54)

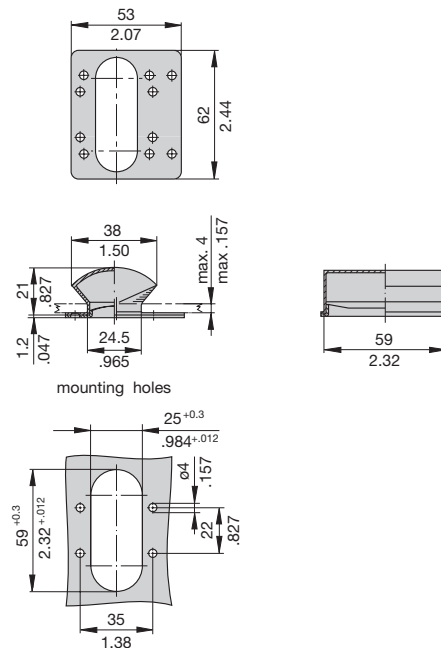
X 211 118 01



### For series 911 - 240 A and 912

### Water splash cover translucent with fixing plate and screws (IP54)

X 211 119 01



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

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## Description

Single or two pole isolation switches to IEC 60947/EN 60947 with toggle actuation. Options include auxiliary contacts, a moulded flame retardant enclosure for added environmental protection (with or without rotary action external operating knob), and remote operation - disconnection only, or disconnection and re-connection. A version for use in hazardous areas (e.g. petroleum and chemical tankers) is available to special order.

## Typical applications

Vehicles of all types (including tankers), boats, battery powered systems.

## Ordering information

Type No.	
921	single pole switch
922	double pole switch
<b>Enclosure design (optional)</b>	
B3	without external operating knob, for use only with single pole devices
B31	with external operating knob, for use only with single pole devices
B32	without external operating knob, for use only with double pole devices
B33	with external operating knob, for use only with double pole devices
B34	with external operating knob, for use only with double pole devices with remote-re-connection facility
B35	with external operating knob, for use only with single pole devices with remote-re-connection facility
C3	without external operating knob, 1-pole, IP65
C32	without external operating knob, 2-pole, IP65
<b>Terminal design</b>	
K12	for single pole version, enclosures B3, B31, B35
K60	for single pole version
K61	for double pole version
K62	for double pole version
K71	compulsory and only for C3 housing
K72	for double pole version, enclosures B32, B33, B34
K76	compulsory and only for C32 housing
<b>Mounting</b>	
2	compulsory and only for C3 and C32 housing
5	mounting brackets - surface mounting
<b>Auxiliary contacts (blade terminals 6.3x0.8)</b>	
Si2	one N/O
Si01	one N/C, two N/O
2Si2	two N/O
Si10	one each N/O and N/C
<b>Remote operation</b>	
FA	remote disconnection
FC	electrical remote disconnection (FA) and re-connection (FE)
BC-FA	electrical remote disconnection and manual remote re-connection (not for enclosure -B.. or -C..)
<b>Coil voltage</b>	
12	AC/DC 12 V
24	AC/DC 24 V
<b>Current ratings</b>	
240 A	type 921
120 A	type 922
921 - ... - K60 - 5 - Si2 - FA 24 - 240 A	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.



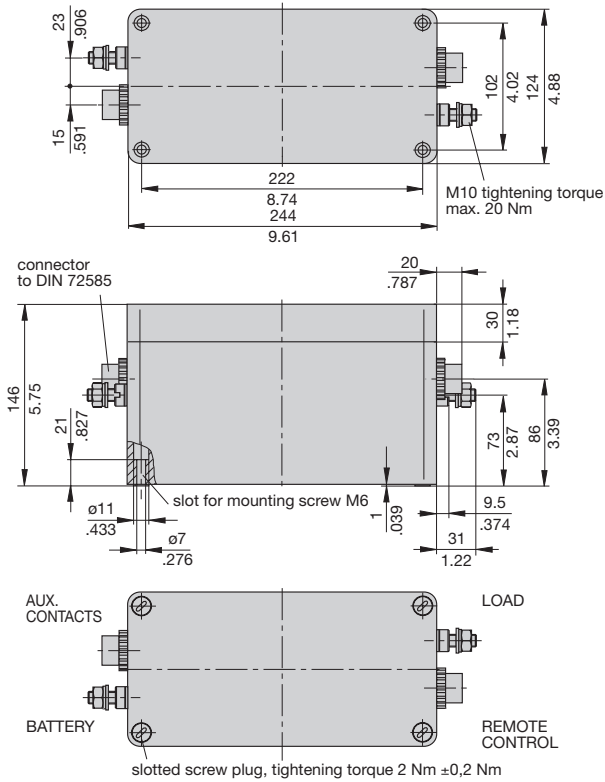
**921** single pole  
**922** double pole

## Technical data

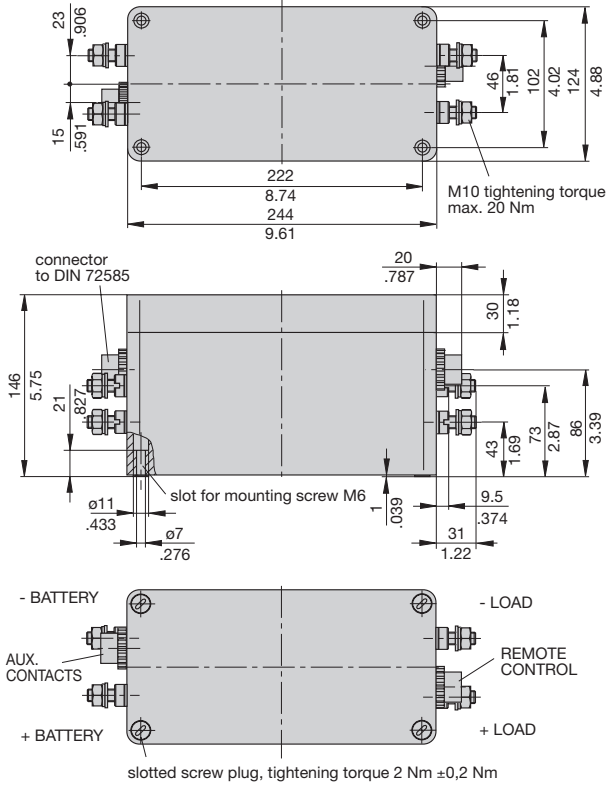
Voltage rating	DC 12 V; DC 24 V	
Current rating range	240 A type 921, single pole 120 A type 922, double pole	
Auxiliary contact rating	6 A at DC 24 V 1 A at DC 110 V	
Electrical remote disconnection (-FA):	operating voltage DC 12 V or DC 24 V operating current approx. 18 A or approx. 12 A max. pulse time 10 ms < t <sub>ON</sub> < 20 ms / t <sub>OFF</sub> > 10 s switching time < 20 ms	
Electrical remote re-connection (-FE):	operating voltage DC 12 V or DC 24 V operating current approx. 30 A or approx. 15 A max. pulse time 0.1 s < t <sub>ON</sub> < 1.2 s / t <sub>OFF</sub> > 60 s switching time < 100 ms	
Typical life	10,000 operations at I <sub>N</sub> 20,000 operations mechanical	
Ambient temperature	-40...+75 °C (-40...+167 °F)	
Insulation co-ordination (IEC 60664 and 60664A)	rated impulse withstand voltage 6 kV	pollution degree 3
Dielectric strength (IEC 60664 and 60664A)	test voltage AC 3,300 V operating area pole/pole 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)	
Switching capacity	Type 921 2,500A for 1s at +23°C 600A for 1min at +23°C 600A for 2min at -23°C 600A for 90s at 0°C	Type 922 1,500A for 1s at +23°C 600A for 30s at +23°C 600A for 1min at -23°C 600A for 45s at 0°C
Degree of protection (IEC 529/DIN 40050)	operating area IP40 terminal area IP00 IP54 with enclosure -B.. IP65 with enclosure -C..	
Vibration	5 g (57-200 Hz) ±0.38 mm (10-57 Hz) to IEC 60068-2-6, test Fc 10 frequency cycles/axis	
Shock	25 g (11 ms), 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. 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 IP 65 -C3

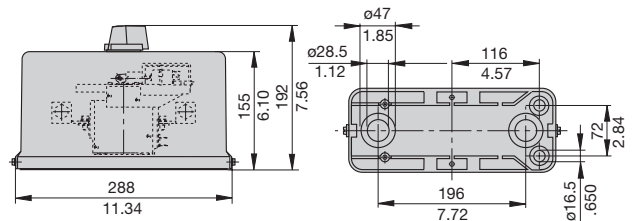


### Moulded enclosure IP 65 -C32

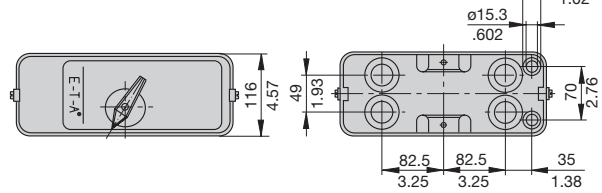


### Moulded enclosure IP54 -B3

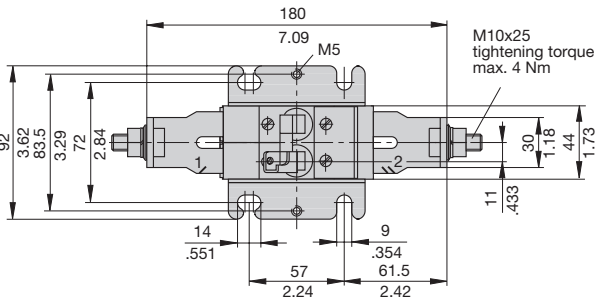
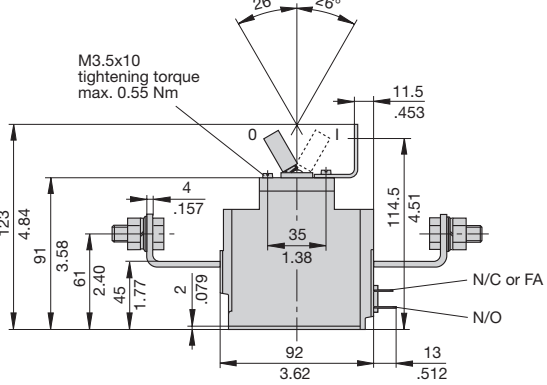
#### 1-pole



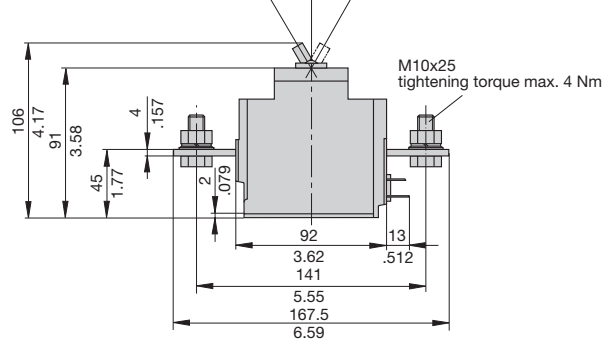
#### 2-pole



### 921-K12-5-...-BC-FA..



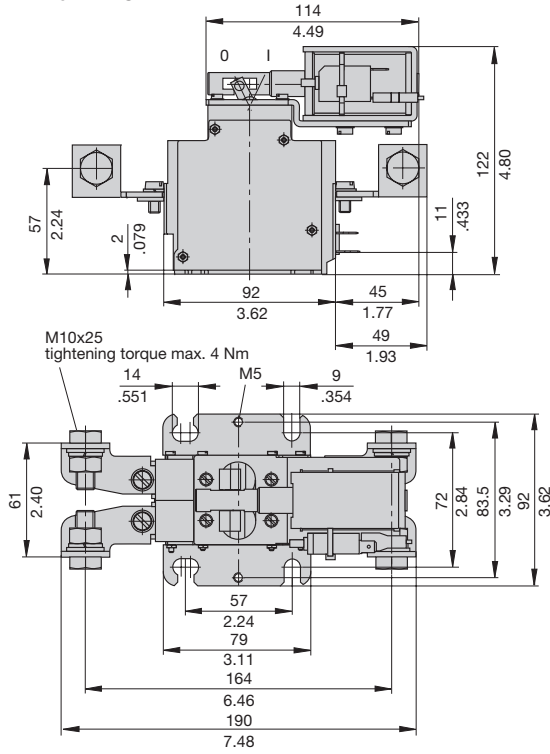
### 921-K60-...-FA



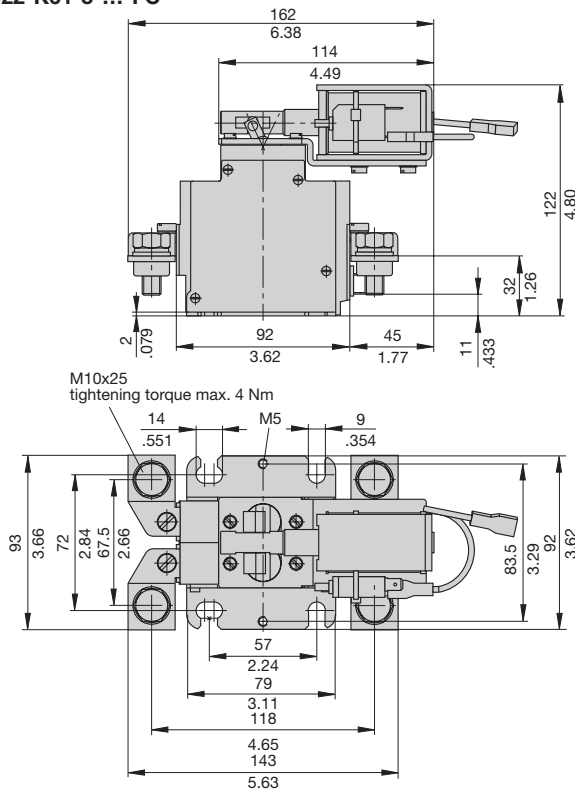
This is a metric design and millimeter dimensions take precedence (mm)  
inch

## Dimensions types 922

922-K72-5-...-FC

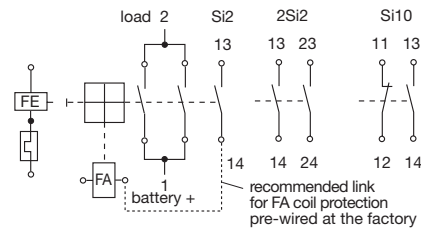


922-K61-5-...-FC

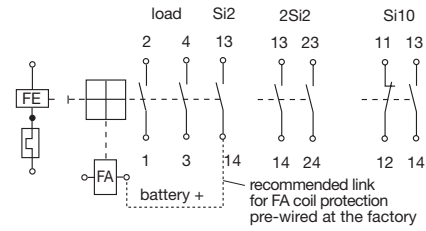


## Internal connection diagrams

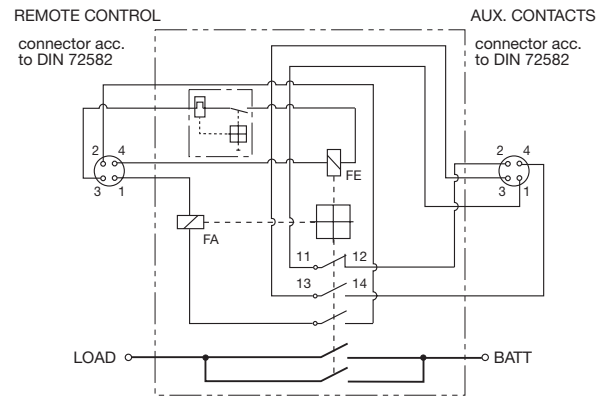
921



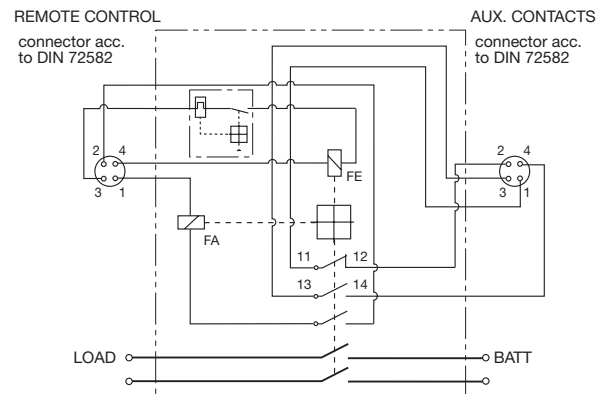
922



921-C3-...

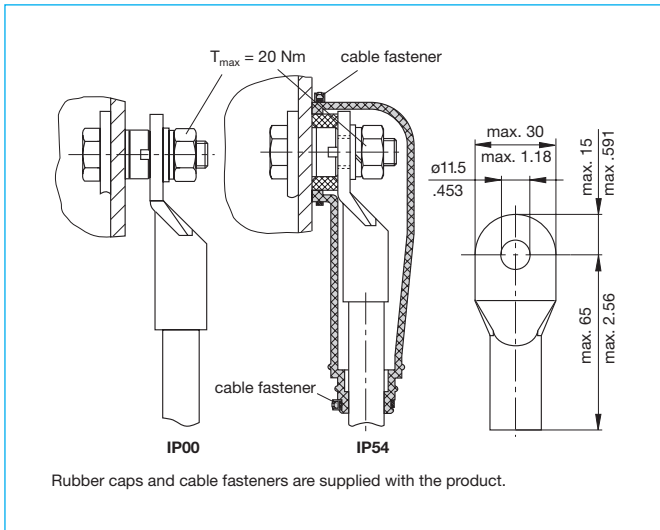


922-C32-...

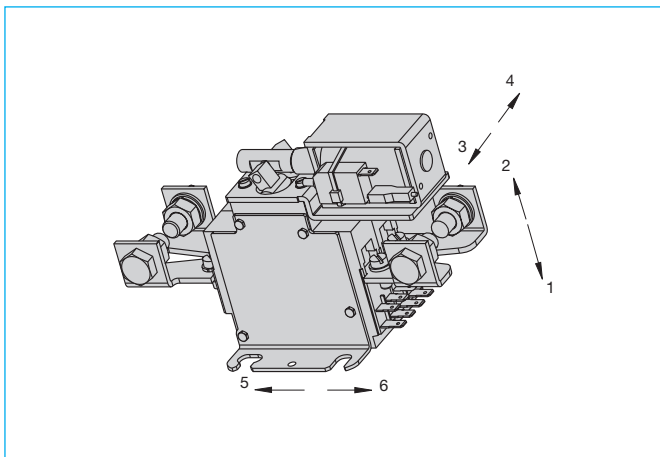


This is a metric design and millimeter dimensions take precedence (mm/inch)

## Terminals with housing C3.



## Shock directions



4

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 pole, miniaturised thermal circuit breaker with trip-free mechanism and push/pull on/off manual actuation (M-type TO CBE to EN 60934). Threadneck panel mounted, temperature-compensated, with optional auxiliary contacts. Fully approved for commercial aircraft and similar requirements.

## Typical applications

Extra low voltage wiring systems on all types of vehicles for land, sea and air.

## Ordering information

<b>Type No.</b>	
4120	single pole, with temperature compensation
<b>Mounting</b>	
G	threadneck panel mounting
L	threadneck panel mounting, extended push button
<b>Threadneck design</b>	
1	M12x1x6.3 (aluminium)
2	7/16-32 UNx6.3 (aluminium)
<b>Number of poles</b>	
1	1-pole, thermally protected
<b>Hardware for threadneck</b>	
0	without hardware
1	hex nut M12x1, corrugated washer 12/15, fitted
2	hex nut M12x1 (aluminium), serrated lock washer 12.1/17.2, fitted
3	hex nut M12x1 (aluminium), serrated lock washer 12.1/17.2, bulk shipped
4	hex nut 7/16-32UN (aluminium), serrated lock washer 11.3/14.9, fitted
<b>Terminal design (main terminals)</b>	
K1	screw terminals with metric thread K14 (M4)
J1	screw terminals with inch thread J14 (8-32UNC-2B)
J2	screw terminals with inch thread J17 (8-32UNC-2B)
J3	screw terminals with inch thread J25 (6-32UNC-2B)
<b>Characteristic curve</b>	
M1	thermal, 1.15 - 1.38 I <sub>N</sub>
<b>Terminal screws</b>	
A	Phillips screw M4x6, fitted
B	Phillips screw 8-32UNC-2Ax6, fitted
C	Phillips screw 6-32UNC-2Ax6 (MS 51957-26)
D	slotted flat head screw M4x6, fitted
K	hex screw with Phillips head 8-32UNC-3Ax7.6, fitted
M	hex screw with Phillips head 8-32UNC-3Ax7.6, bulk shipped
Z	without terminal hardware
<b>Terminal washers</b>	
0	without lock washer
1	wave washer B4, fitted
2	lock washer 4.3, fitted
4	lock washer 3.7 (MS 35338-136)
5	lock washer 4.3/9, fitted
6	lock washer 4.3/9, bulk shipped
<b>Auxiliary contact</b>	
S0	without auxiliary contact
S1	with auxiliary contact (connector EN 3155-016M2018 (NC))
S5	with polarized auxiliary contact (NC)
<b>Barrier</b>	
Z	without barrier
U	with barrier (19.5 wide)
<b>Colour of the push button</b>	
G	green to EN (e.g. 2 1/2)
N	black to EN (e.g. 2 1/2)
S	black, with white marking (e.g. 2.5)
X	black, without marking
<b>Current ratings</b>	
	1...25 A

4120 - G 1 1 - 1 - K1 M1 - A 1 S0 Z N - 10 A ordering example



4120-...

## Technical data

Voltage rating	AC 115 V (400 Hz); DC 28 V	
Current rating range	1...25 A (0.5 A upon request)	
Auxiliary circuit	1 A, DC 28 V (0.5 A upon request)	
Typical life	20,000 operations mechanical, or 5,000 operations at 1 x I <sub>N</sub>	
Ambient temperature	-55°C ...+125°C (-67...+257 °F)	
Insulation co-ordination (IEC 60664 and 60664A)	rated impulse withstand voltage	pollution degree 3
	1.5 kV	
Dielectric strength (IEC 60664 and 60664A)	test voltage	
	operating area main to aux. circuit	AC 1,500 V AC 1,500 V
Insulation resistance	> 100 MΩ (DC 500 V)	
Interrupting capacity I <sub>cn</sub>	AC 115 V (400 Hz):	1...3 A 1,000 A
	DC 28 V:	5...25 A 2,000 A
Degree of protection (IEC 60529/DIN 40050)	operating area	IP40
	terminal area	IP00
Vibration (sinusoidal)	10 g (57-2000 Hz), ±0.76 mm (5-57 Hz) to ISO 7137, EN 2350 para. 5.3.1	
	1...2.5 A: 0.04 g <sup>2</sup> /Hz ± 1.5 dB; 7.3 g eff 3...20 A: 0.06 g <sup>2</sup> /Hz ± 1.5 dB; 9 g eff to ISO 7137, EN 2350 para. 5.3.1	
Acceleration	17 g, to ISO 2669, EN 2350 para. 5.3.3	
Shock	50 g (11 ms), to ISO 7137, EN 2350 para. 5.3.2	
Corrosion	48 hours at 5 % salt mist to ISO 7137, EN 2350 para. 5.4.2	
Humidity	240 hours at 95 % RH, to ISO 7137, EN 2350 para. 5.4.3	
Explosion	to VG 95210, sheet 10	
Altitude	≤ 22,000 m above sea level	
Mass	approx. 20.6 g	with terminal screws, without -Si
	approx. 24.6 g	with terminal screws, with -Si

## Standard current ratings and typical volt drop values

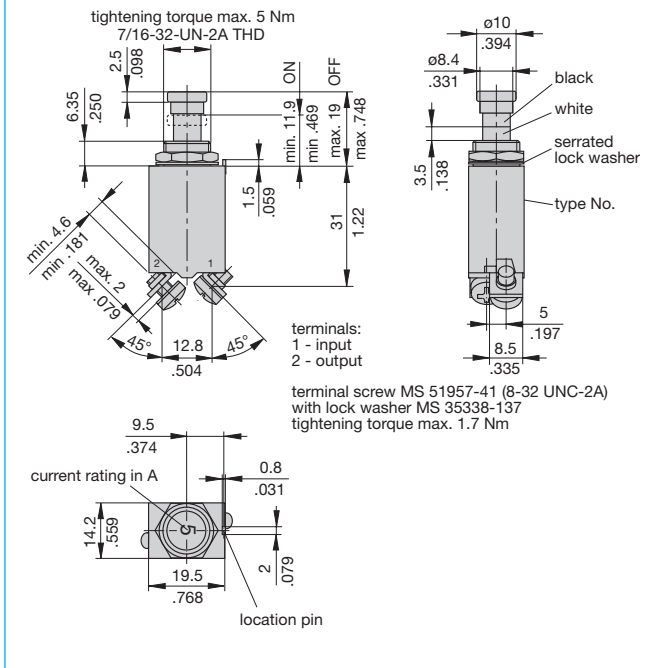
Current rating (A)	Volt drop (mV)	Current rating (A)	Volt drop (mV)
1	1100	7.5	250
2	550	10	230
2.5	460	15	200
3	440	20	190
5	260	25	190

## Approvals (configurations)

Authority	Voltage ratings	Current ratings
EN 2495		
EN 3773		
prEN 2995		
MS 3320		
QPL		
VG 95345 T06	DC 28 V; AC 115 V	0.5...20 A
BWB (to VG 95345, part 6)		
UL 1077	DC 50 V	0.5...25 A

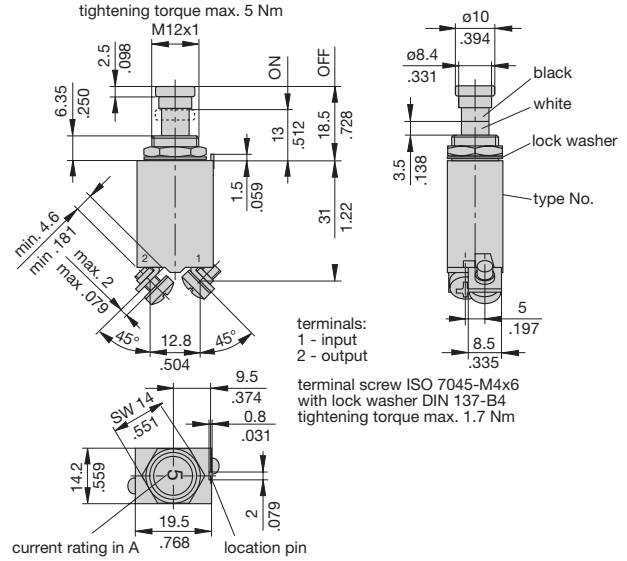
## Dimensions 4120-...

### 4120-G214-J1M1-B2S0ZN (MS 3320)

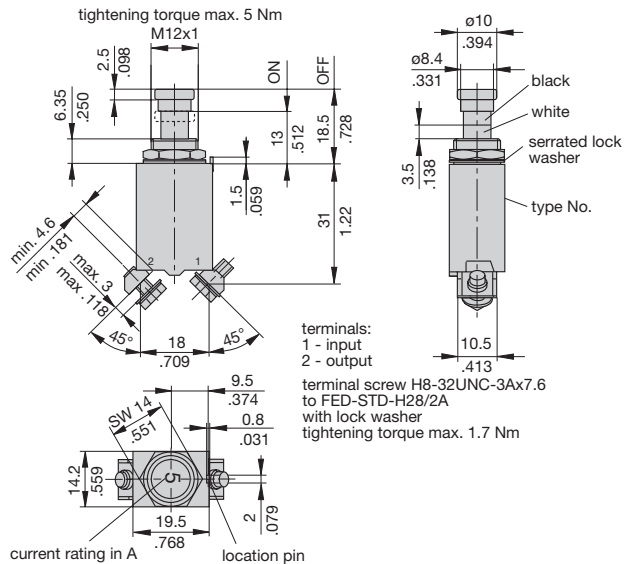


## Dimensions 4120-G1..

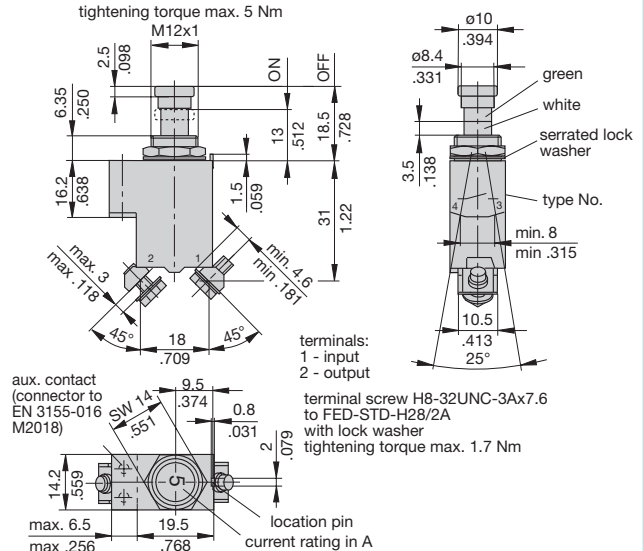
### 4120-G111-K1M1-A1S0ZN (EN2495-...M) (VG95345 T06)



### 4120-G11-J2M1-K5S0ZN (EN2495-...U, EN3773-004 D...)

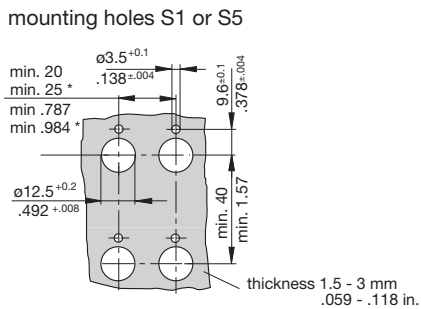
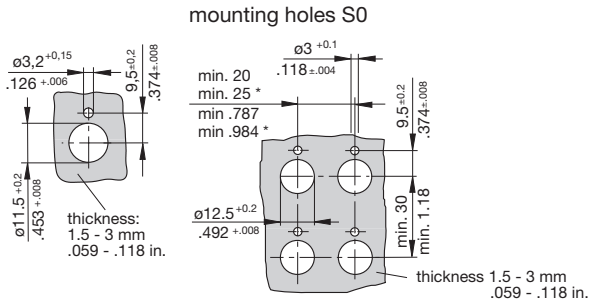


### 4120-G112-J2M1-K5S1ZG - 4120-G112-J2M1-K5S5ZG (EN2995-004) (EN2995-005)



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

## Mounting holes



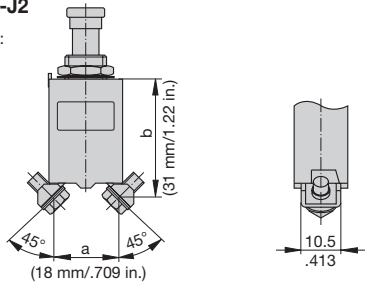
\* min. 25 mm / .984 in. when fitted with splash cover

## Other terminal designs

### Terminal design -J2

Terminal distances to:

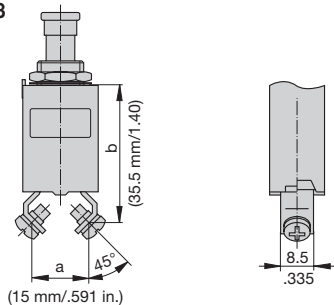
- MS 14 105 (a, b)
- MS 14 153 (a, b)
- MS 22 073 (a)
- MS 22 074 (a)
- MS 25 244 (a)
- MS 25 373 (a, b)



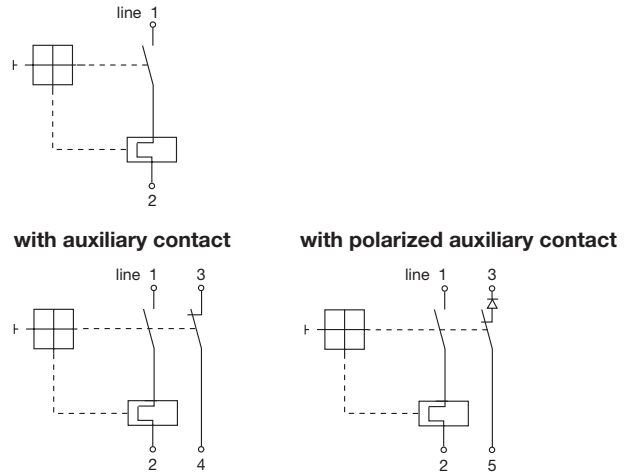
### Terminal design -J3

Terminal distances to:

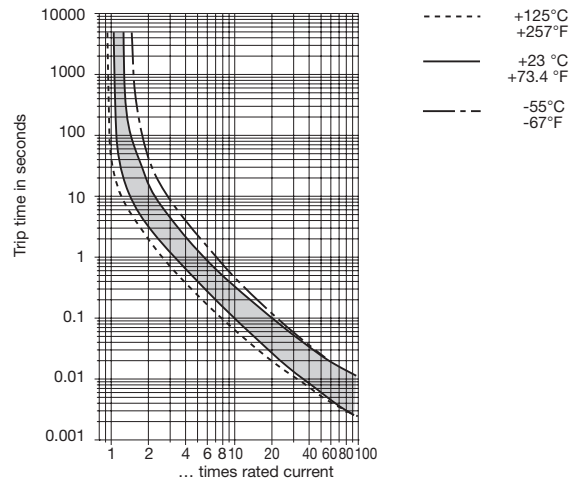
- MS 26 574 (a, b)



## Internal connection diagram

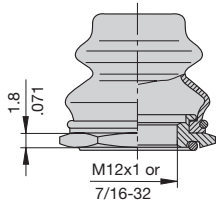


## Typical time/current characteristics

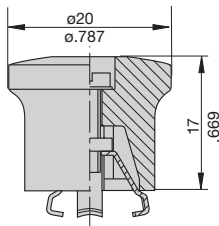


## Accessories (approved to VG 95 345, part 23)

- Splash cover/hex nut assembly with O ring (IP66)**  
**X 200 801 08** nickel plated nut, transparent cover  
**X 200 801 03** matt black finish nut, black cover  
**X 200 801 09** matt black finish nut 7/16-32, black cover



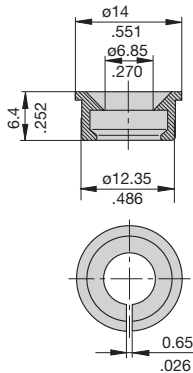
- Actuator extension (black) to be fitted on the push button**  
**X 200 803 01**



## Accessories

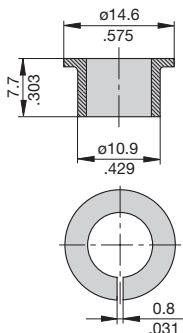
- Identification collar to be snapped on the push button**

- Y 307 004 01** black  
**Y 307 004 02** white  
**Y 307 004 03** red  
**Y 307 004 04** green  
**Y 307 004 05** blue



- Lock out ring to block the push button in OFF position**

- Y 307 005 01** red  
**Y 307 005 02** black



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 pole, thermal circuit breaker with trip-free mechanism, push/pull on/off manual actuation (M-type TO CBE to EN 60934) and temperature compensation. An indicator band on the push button clearly shows the tripped/off position. Threadneck panel mounted, available in metric and US configurations. The robust design makes type 4140 suitable for extremely harsh conditions.

## Typical applications

Land vehicles, aircraft, watercraft, special vehicles.

## Ordering information

<b>Type No.</b>	
<b>4140</b>	High performance thermal circuit breaker with temperature compensation
<b>Mounting</b>	
<b>G</b>	threadneck panel mounting
<b>Threadneck design</b>	
<b>1</b>	M12x0.75x7 alu, blackened, 1 location pin
<b>3</b>	7/16-32UNx7 alu, blackened, 1 location pin
<b>Number of poles</b>	
<b>1</b>	1-pole, protected
<b>Hardware for threadneck</b>	
<b>0</b>	without hardware
<b>2</b>	hex nut M12x0.75, alu, serrated lock-washer 12.1/17.2, fitted
<b>3</b>	hex nut M12x0.75, alu, serrated lock-washer 12.1/17.2, supplied separately
<b>4</b>	hex nut 7/16-32UN, alu, toothed lock-washer 11.3/14.9, fitted
<b>5</b>	hex nut 7/16-32UN, alu, toothed lock-washer 11.3/14.9, supplied separately
<b>Terminal design (main terminals)</b>	
<b>J1</b>	screw terminals with inch thread (8-32UNC-2B)
<b>Characteristic curve</b>	
<b>M1</b>	thermal 1.1-1.45 x I <sub>N</sub>
<b>Terminal screws</b>	
<b>B</b>	Phillips cylinder head screw 8-32UNC-2Ax6
<b>K</b>	hex screw with Phillips head 8-32UNC-3Ax7.6, fitted
<b>M</b>	hex screw with Phillips head 8-32UNC-3Ax7.6, supplied separately
<b>Z</b>	without accessories
<b>Terminal washers</b>	
<b>0</b>	without lock washer
<b>5</b>	lock washer 4.3/9 fitted
<b>6</b>	lock washer 4.3/9 supplied separately
<b>Auxiliary contact</b>	
<b>S0</b>	without auxiliary contact
<b>S1</b>	with aux. contact (N/C) (female contact for male contacts to EN3155-016M2018)
<b>S5</b>	as S1 but polarized
<b>Barrier</b>	
<b>T</b>	with barrier
<b>Colour of the push button</b>	
<b>G</b>	green
<b>N</b>	black
<b>Current ratings</b>	
	20...50 A
<b>4140 - G 1 1 3 - J1 M1 - M 6 S5 T G - 20 A ordering example</b>	



**4140**  
without auxiliary contact      with auxiliary contact

## Technical data

Voltage rating	AC 115 V (400 Hz); DC 28 V	
Current rating range	20...50 A	
Auxiliary circuit	0.5 A, DC 28 V	
Typical life	5,000 operations mechanical and 2,500 operations at I <sub>N</sub>	
Ambient temperature	-55...+125 °C (-67...+257 °F)	
Temperature compensation	-55...+90 °C (-67...+194 °F)	
Insulation co-ordination (IEC 60664)	rated impulse withstand voltage 1.5 kV	pollution degree 3
Dielectric strength	test voltage operating area AC 1,500 V	main to aux. circuit AC 1,500 V
Insulation resistance	> 100 MΩ (DC 500 V)	
Interrupting capacity I <sub>cn</sub>	AC 115 V (400 Hz): 1,500 A DC 28 V: 4,000 A	
Degree of protection (IEC 60529)	operating area IP40 terminal area IP00	
Vibration (sinusoidal)	± 0.76 mm (5-80 Hz) 10 g (80-500 Hz), 5 g (500-2000 Hz) to EN 2350 para 5.3.1 and ISO 7137	
Vibration (random)	0.04 g <sup>2</sup> /Hz (40-500 Hz) 5.8 g rms (10-2000 Hz) to ISO 7137	
Acceleration	17 g, to EN 2350, para 5.3.3 and ISO 2669	
Shock	50 g (11 ms), to EN 2350 para 5.3.2 and ISO 7137	
Corrosion	48 hours at 5 % salt mist to EN 2350 para 5.4.2 and ISO 7137	
Humidity	48 hours at 95 % RH, to EN 2350 para 5.4.3 and ISO 7137	
Altitude	≤ 15,000 m above sea level	
Mass	ca. 57 g with accessories and without auxiliary contact ca. 60 g with accessories and with auxiliary contact	

## Standard current ratings and typical volt drop values

Current rating (A)	Volt drop per pole (mV)
20	150
25	150
30	150
35	150
40	120
45	120
50	120

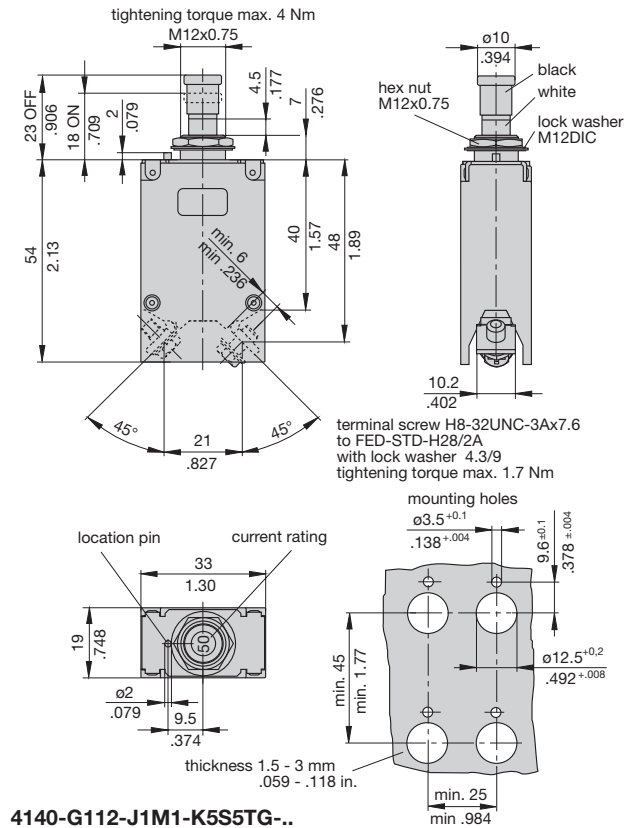
## Approvals

ASNE 0732-005 / prEN 3661-005

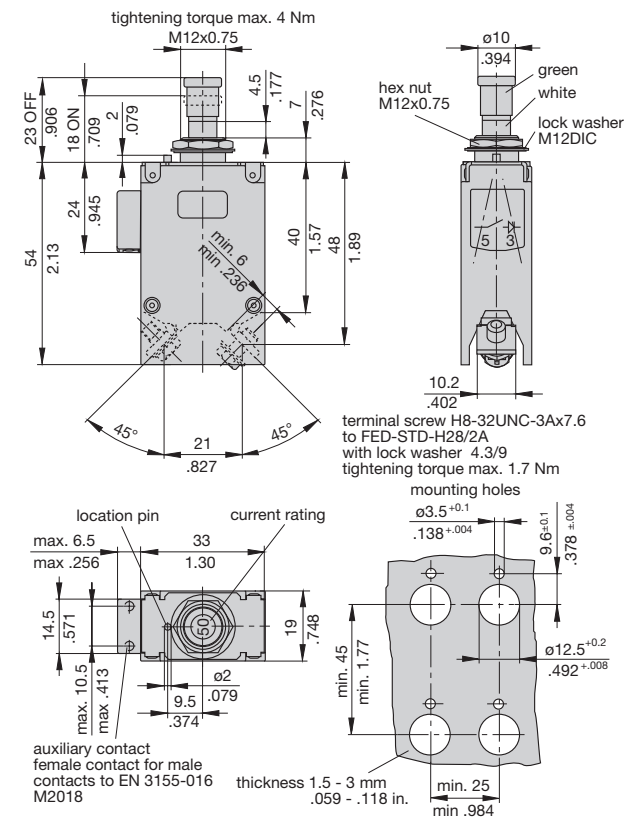
NSA 931321 / prEN2794-004

## Dimensions

### 4140-G112-J1M1-K5S0TN-..

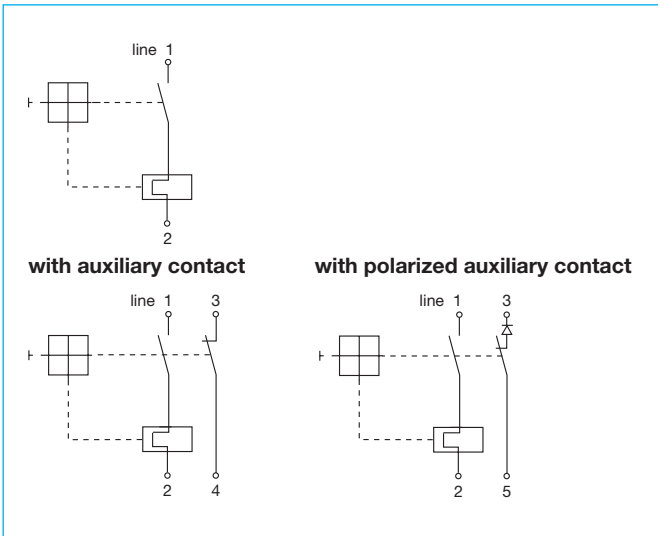


### 4140-G112-J1M1-K5S5TG-..

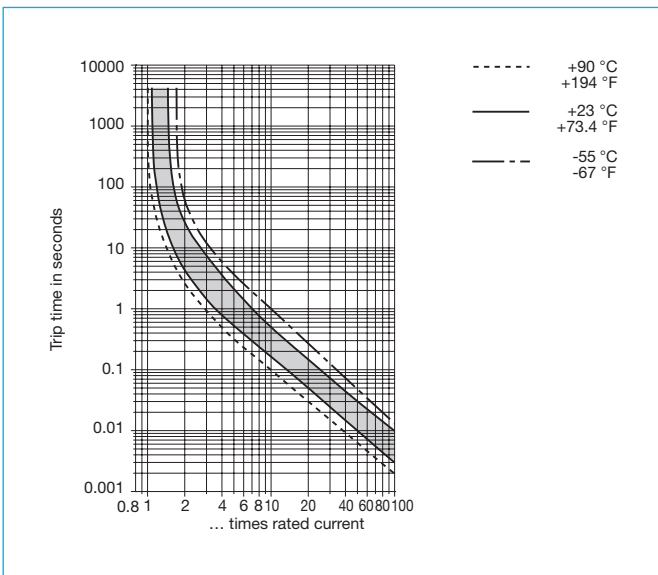


This is a metric design and millimeter dimensions take precedence ( $\frac{\text{mm}}{\text{inch}}$ )

## Internal connection diagrams



## Typical time/current characteristics



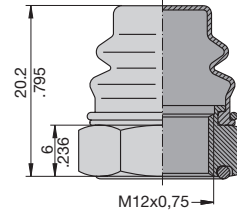
## Accessories

**Splash cover/hex nut assembly with O ring (IP66)**

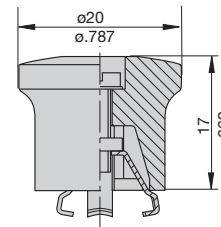
**X 200 801 15** black chromated nut M12x0.75x6, black cover

**Splash cover/hex nut assembly with O ring (IP66)**

**X 200 801 16** black chromated nut 7/16-32UNx6, black cover

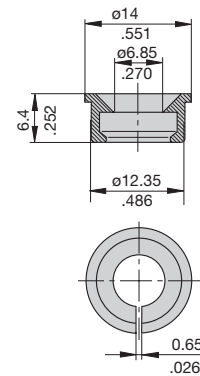


**Actuator extension (black)** to be fitted on the push button  
**X 200 803 01** (approved to VG 95345, part 23)



**Identification collar** to be snapped on the push button

- Y 307 004 01** black
- Y 307 004 02** white
- Y 307 004 03** red
- Y 307 004 04** green
- Y 307 004 05** blue



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 pole remote control circuit breaker (RCCB), temperature compensated, either with or without auxiliary contacts, and featuring a bimetal actuator which trips the circuit breaker mechanism within a specified time under overcurrent conditions. The switching contact latching system is operated by a bi-stable linear motor controlled by electronic circuitry incorporated within the device. Remote control is achieved through the use of a conventional single pole manually operated aircraft style thermal circuit breaker which connects the control input of the RCCB to ground.

With the control circuit breaker in the ON position, the RCCB will switch on. When the control circuit breaker is switched off, the RCCB will change to the OFF condition. If power is applied to a previously de-energised RCCB, the device will adopt the same switching status as the control circuit breaker. The integral electronic circuitry will prevent the switching contacts of the RCCB from cycling on and off in the event of a short circuit.

If the RCCB trips thermally in the event of a load circuit fault, the electronic circuitry will also cause the control circuit breaker to trip, thereby providing a visual indication through the position of the circuit breaker actuator.

Approved to MIL-PRF-83383.

## Typical applications

Aircraft electrical systems and equipment, and other high performance applications.

## Ordering information

### Type No.

4930 single pole remote control circuit breaker (RCCB)

### Variation

- 01 standard, with auxiliary contacts
- 02 with modified terminal barrier and auxiliary contacts
- 03 standard, without auxiliary contacts
- 04 with modified terminal barrier but without auxiliary contacts

### Current ratings

5...100 A

4930 - 01 - 5 A ordering example

## Standard current ratings and typical voltage drop values

Current ratings (A)	Voltage drop at rated current (mV)	Current ratings (A)	Voltage drop at rated current (mV)
5	450	40	225
7.5	360	50	225
10	347	60	225
15	225	75	225
20	225	80	225
25	225	100	225
35	225		

## Approvals

MIL-PRF-83383



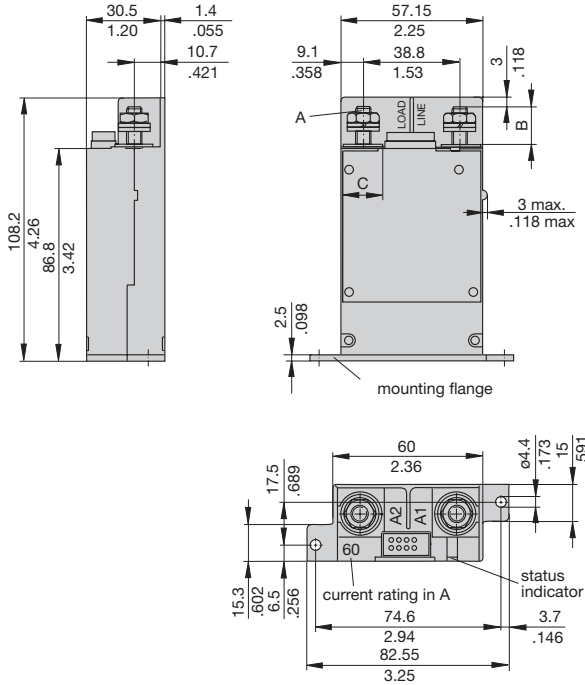
4930 (RCCB)

## Technical data

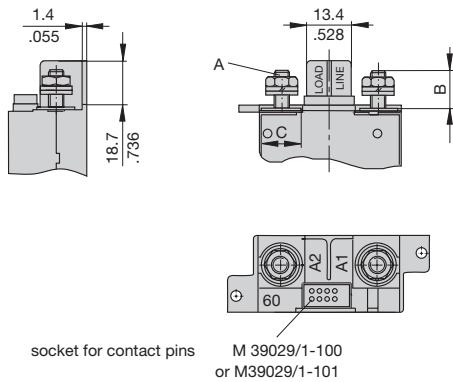
Voltage rating	AC 115 V 400 Hz (AC 104...125 V); DC 28 V (DC 18...36 V)
Current rating range	5...100 A
Auxiliary circuit	3 A, DC 28 V, AC 115 V (400 Hz)
Bias current	2.5 mA max at DC 20 mA max at AC
Switching current/ switching period	3.4 A / 25 ms at DC 2.8 A / 17 ms at AC
Trigger current for ICU ("TRIP FREE"-mode)/ duration	approx. 3.2 A / 5 s max
Typical life	50,000 operations at I <sub>N</sub> (inductive or resistive)
Ambient temperature	-54...+71 °C (-65...+160 °F)
Dielectric strength (IEC 60664 and 60664A)	test voltage between main terminals AC 1,500 V main terminal to mounting area AC 1,500 V
Insulation resistance	> 100 MΩ (DC 500 V)
Interrupting capacity	DC 28 V: 6,000 A AC 115 V 400 Hz: 3,600 A
Vibration (sinusoidal)	10 g (55-2000 Hz), ±0.76 mm (10-55 Hz) to MIL-STD 202, method 204, condition C
Vibration (random)	10-2000 Hz 0.15 g <sup>2</sup> /Hz, rms value 13.5 g; 5 h/axis loaded with 0.9 I <sub>N</sub>
Shock	25 g (11 ms) to MIL-STD 202, method 213, condition J ISO 7137 (RTCA/DO-160 C, part 7)
Corrosion	48 hours at 5 % salt mist to MIL-STD 202, method 101, condition B ISO 7137 (RTCA/DO-160 C, part 14, category S)
Humidity	240 hours at 95 % RH to MIL-STD 202, method 106/ISO 7137 (RTCA/DO-160 C, part 6, category B)
Altitude	≤ 15,000 m above sea level
Mass	5...25 A approx. 315 g 35...100 A approx. 319 g

## Dimensions

**Type 4930-01** (M 83383/02)  
**-03** (M 83383/01)



**Type 4930-02/ -04**



socket for contact pins M 39029/1-100  
or M39029/1-101

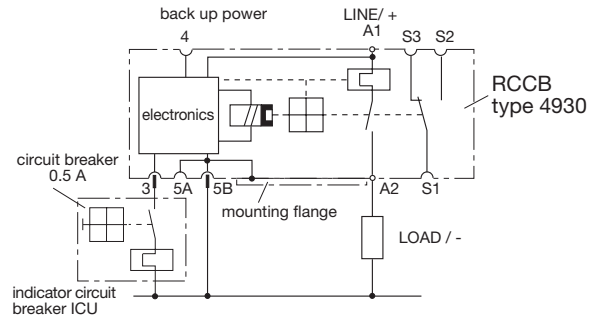
current rating (A)	5 ... 25	35 ... 100
thread A	0.190-32 UNF-2A	0.250-28 UNF-2A
mounting torque	2 Nm	4.1 Nm
B (mm/in.)	12.7/.500	15.5/.610
C (mm/in.)	12.7/.500	15.5/.610
nut	AN315-3R	AN315-4R
lock washer	MS 35338-43	MS 35338-44
washer	AN 960-10L	AN 960-416

mounting flanges mate as shown

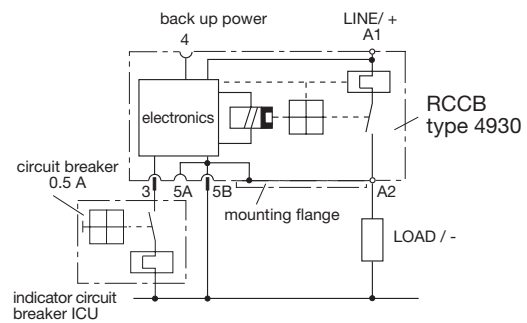


## Internal Connection diagrams

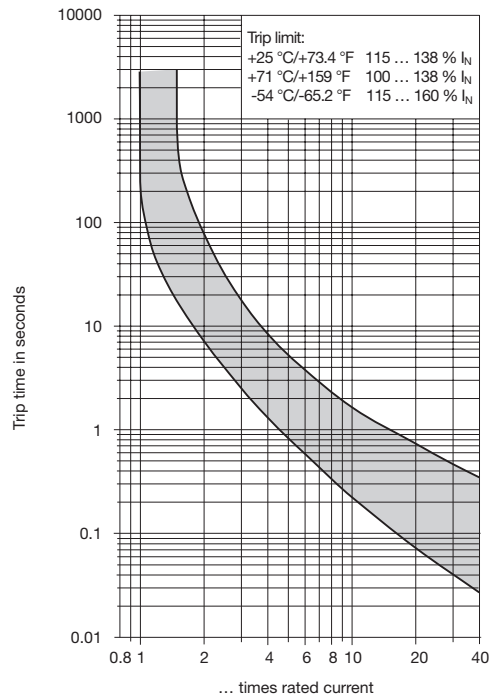
**Type 4930-01/-02 (with auxiliary contacts)**



**Type 4930-03/-04 (without auxiliary contacts)**



## Typical time/current characteristics



## Description

Three pole, aircraft style thermal circuit breaker with trip-free mechanism and push/pull on/off manual actuation. An indicator band on the push button clearly shows the tripped/off position. Threadneck panel mounted, available in metric and US configurations. Temperature compensated, with optional auxiliary contacts. The robust design is well suited to extremely harsh conditions. In the event of an overload in one, two or three phases all three poles will be disconnected.

## Typical applications

Land vehicles, aircraft, watercraft, special vehicles.

## Ordering information

<b>Type No.</b>	5140	High performance thermal circuit breaker with temperature compensation
<b>Mounting</b>	<b>G</b>	threadneck panel mounting
<b>Threadneck design</b>	<b>1</b>	M12x0.75x7 alu, blackened, 1 location pin
	<b>2</b>	M12x0.75x7 alu, blackened, 2 location pins
	<b>3</b>	7/16-32UNx7 alu, blackened, 1 location pin
	<b>4</b>	7/16-32UNx7 alu, blackened, 2 location pins
<b>Number of poles</b>	<b>3</b>	3-pole, protected
<b>Hardware for threadneck</b>	<b>0</b>	without hardware
	<b>2</b>	hex nut M12x0.75, alu, serrated lock-washer 12.1/17.2, mounted
	<b>3</b>	hex nut M12x0.75, alu, serrated lock-washer 12.1/17.2, bulk
	<b>4</b>	hex nut 7/16-32UN, alu, toothed lock-washer 11.3/14.9, mounted
	<b>5</b>	hex nut 7/16-32UN, alu, toothed lock-washer 11.3/14.9, bulk
<b>Terminal design (main terminals)</b>	<b>J1</b>	screw terminals with inch thread (8-32UNC-2B)
	<b>J2</b>	screw terminals with inch thread (8-32UNC-2B) on one side, busbar terminals on other side, with hole bent at 60 °
	<b>J3</b>	screw terminals with inch thread (8-32UNC-2B) on one side, busbar terminals on other side, with hole bent at 40 °
<b>Characteristic curve</b>	<b>M1</b>	thermal 1.1-1.45 I <sub>N</sub>
<b>Terminal screws</b>	<b>B</b>	Phillips cylinder head screw 8-32UNC-2Ax6
	<b>K</b>	hex screw with Phillips head 8-32UNC-3Ax7.6, mounted
	<b>M</b>	hex screw with Phillips head 8-32UNC-3Ax7.6, bulk
	<b>Z</b>	without accessories
<b>Terminal washers</b>	<b>0</b>	without lock washer
	<b>5</b>	lock washer 4.3/9 mounted
	<b>6</b>	lock washer 4.3/9 bulk
<b>Auxiliary contact</b>	<b>S0</b>	without auxiliary contact
	<b>S1</b>	with aux. contact (N/C) (female contact for male contacts to EN3155-016M2018)
	<b>S5</b>	as S1 but polarized
<b>Barrier</b>	<b>T</b>	with barrier
<b>Colour of the push button</b>	<b>G</b>	green
	<b>N</b>	black
<b>Current ratings</b>		20...50 A
5140 - G 1 3 3 - J1 M1 - M 6 S5 T G - 20 A ordering example		



## Technical data

Voltage rating	3 AC 200 V (400 Hz); DC 28 V	
Current rating range	20...50 A	
Auxiliary circuit	0.5 A, DC 28 V	
Typical life	5,000 operations mechanical and 2,500 operations at I <sub>N</sub>	
Ambient temperature	-55...+125 °C (-67...+257 °F)	
Temperature compensation	-55...+90 °C (-67...+194 °F)	
Insulation co-ordination (IEC 60664)	rated impulse withstand voltage 1.5 kV	pollution degree 3
Dielectric strength	test voltage operating area pole/pole main to aux. circuit	AC 1,500 V AC 1,500 V AC 1,500 V
Insulation resistance	> 100 MΩ (DC 500 V)	
Interrupting capacity I <sub>cn</sub>	2,000 A	
Degree of protection (IEC 60529)	operating area IP40 terminal area IP00	
Vibration (sinusoidal)	± 0.76 mm (5-80 Hz) 10 g (80-500 Hz), 5 g (500-2000 Hz) to EN 2350 Abschn. 5.3.1 and ISO 7137	
Vibration (random)	0.04 g <sup>2</sup> /Hz (40-500 Hz) 5.8 g rms (10-2000 Hz) to ISO 7137	
Acceleration	17 g, to EN 2350, para 5.3.3 and ISO 2669	
Shock	50 g (11 ms), to EN 2350 para 5.3.2 and ISO 7137	
Corrosion	48 hours at 5 % salt mist to EN 2350 para 5.4.2 and ISO 7137	
Humidity	48 hours at 95 % RH, to EN 2350 para 5.4.3 and ISO 7137	
Altitude	≤ 15,000 m above sea level	
Mass	ca. 144 g	with accessories and without auxiliary contact
	ca. 150 g	with accessories and with auxiliary contact

## Standard current ratings and typical volt drop values

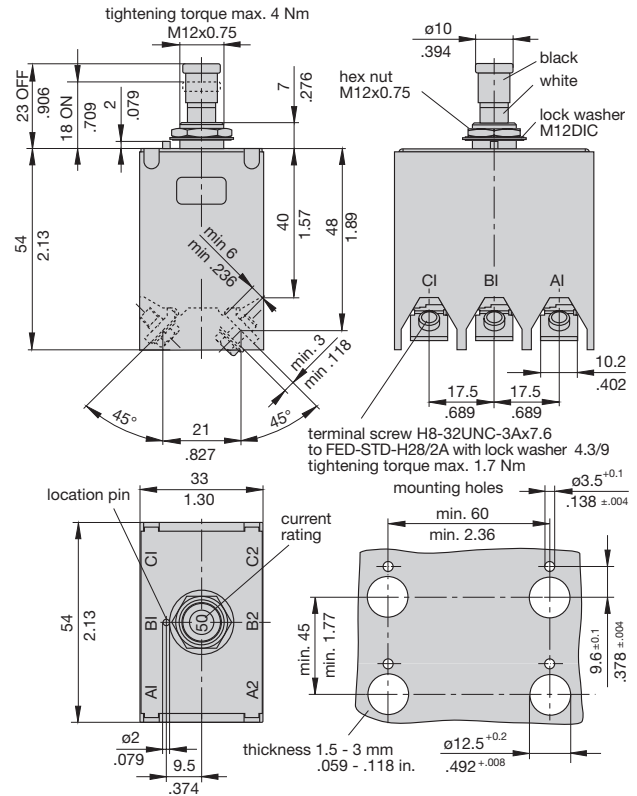
Current rating (A)	Volt drop per pole (mV)
20	150
25	150
30	150
35	150
40	120
45	120
50	120

## Approvals

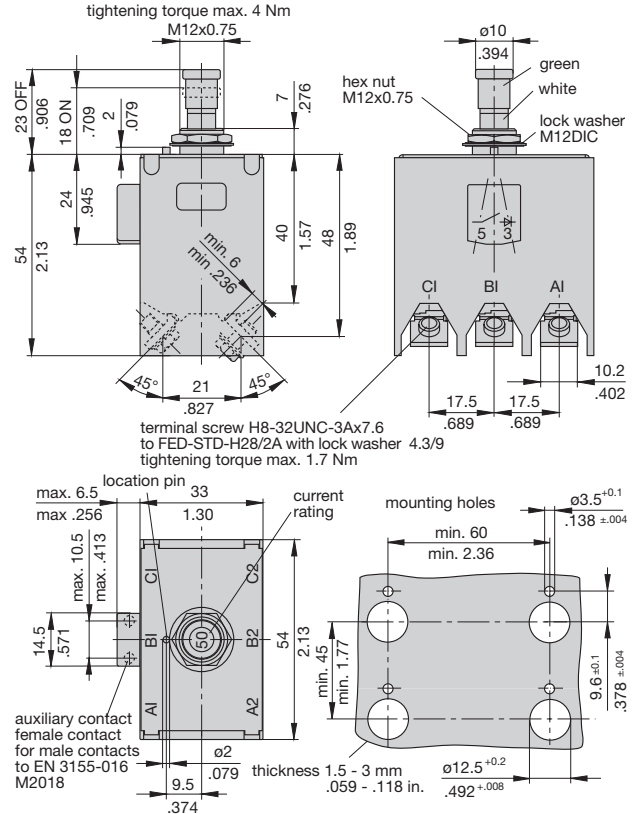
ASNE 0459  
 NSA 931323 / prEN2665-004  
 ASNE 0733-005 / prEN 3662-005  
 ASNE 0733-006 / prEN 3662-006

## Dimensions

### 5140-G132-J1M1-K5S0TN (NSA 931 323; prEN 2665-004)



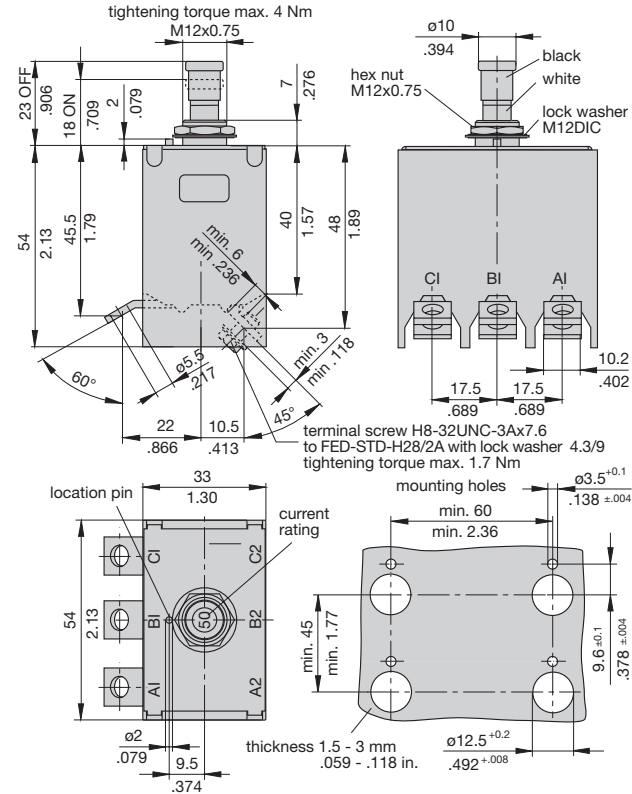
### 5140-G132-J1M1-K5S5TG (ASNE 0733-005; prEN 3662-005)



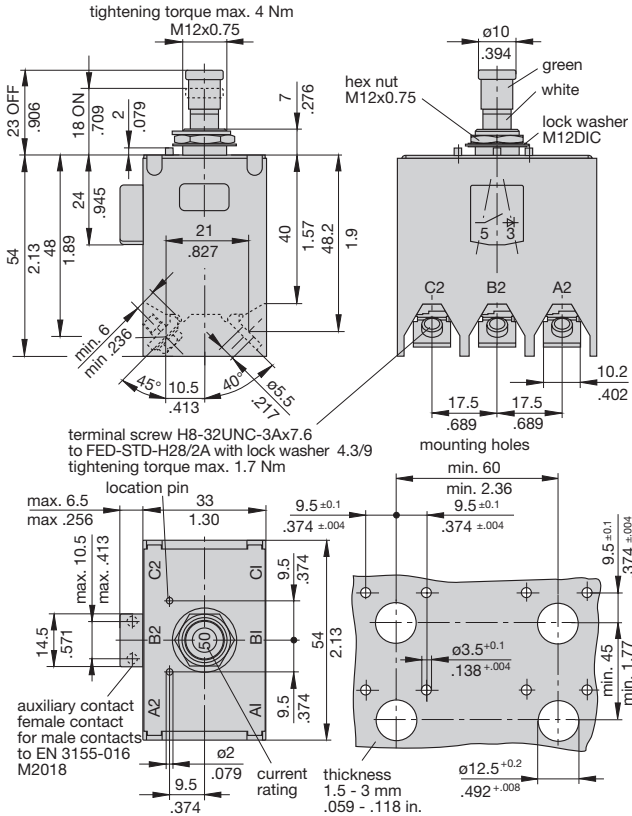
This is a metric design and millimeter dimensions take precedence (mm)  
 inch

## Dimensions

### 5140-G132-J2M1-K5S0TN (ASNE 0459)

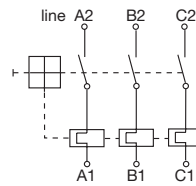


### 5140-G232-J3M1-K5S5TG (ASNE 0733-006; prEN 3662-006)

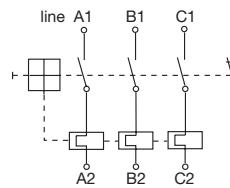


## Internal connection diagrams

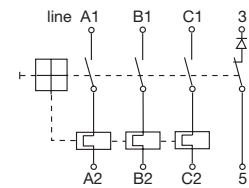
### without auxiliary contact



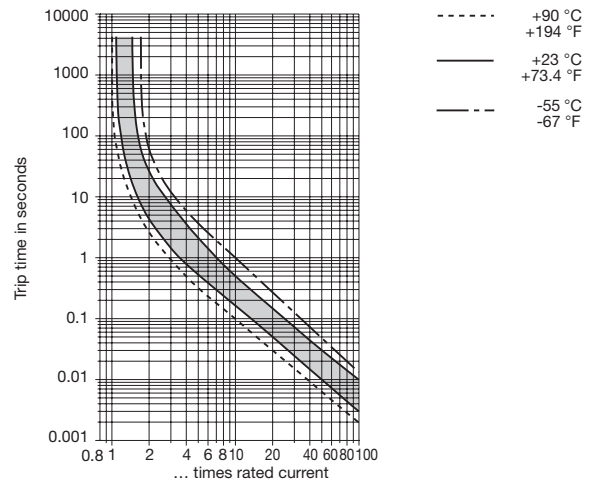
### with auxiliary contact



### with polarized auxiliary contact



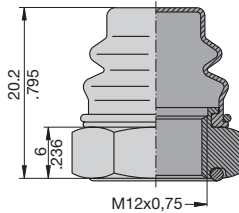
## Typical time/current characteristics



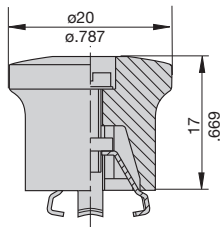
## Accessories

**Splash cover/hex nut assembly with O ring (IP66)**  
**X 200 801 15** black chromated nut M12x0.75x6, black cover

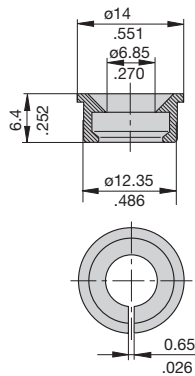
**Splash cover/hex nut assembly with O ring (IP66)**  
**X 200 801 16** black chromated nut 7/16-32UNx6, black cover



**Actuator extension (black)** to be fitted on the push button  
**X 200 803 01** (approved to VG 95345, part 23)



**Identification collar** to be snapped on the push button  
**Y 307 004 01** black  
**Y 307 004 02** white  
**Y 307 004 03** red  
**Y 307 004 04** green  
**Y 307 004 05** blue



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.