

## 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.

Various dummies are available without protective function, allowing connection of pre-installed wiring without loads.

**US patent number:** US 6,490,141 B2 (4120-G4 moulded threadneck)

## Typical applications

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

## Ordering information

### Type No.

4120 single pole, with temperature compensation

### Mounting

**G** threadneck panel mounting

### Threadneck design

**1** M12x1x6.3 (aluminium)

**2** 7/16-32 UNx6.3 (aluminium)

### Number of poles

**1** 1-pole, thermally protected

### Hardware for threadneck

**0** without hardware

**1** hex nut M12x1, corrugated washer 12/15, 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

### Terminal design (main terminals)

**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)

**P1** blade terminals 6.3x0.8, DIN 46244, silver-plated

### Characteristic curve

**M1** thermal, 1.15 - 1.4 I<sub>N</sub>

### Terminal screws

**A** Phillips screw M4x6, fitted

**B** Phillips screw 8-32UNC-2Ax6, fitted

**C** Phillips screw 6-32UNC-2Ax6 (MS 51957-26)

**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

### Terminal washers

**0** without lock washer

**1** wave washer A4, 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

### Auxiliary contact

**S0** without auxiliary contact

**S1** with auxiliary contact (connector EN 3155-016M2018) (NC)

**S5** with polarized auxiliary contact (NC)

### Barrier

**Z** without barrier

### Colour of the push button

**G** green to EN (e. g. 2 1/2)

**N** black to EN (e. g. 2 1/2)

### Current ratings

**1...25 A**

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



4120-...

## Technical data

Voltage rating	AC 115 V (300 Hz to 800 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	
Dielectric strength (IEC 60664 and 60664A)	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...4 A	1,000 A
		5...25 A	2,000 A
	DC 28 V:	1...25 A	6,000 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		
Vibration	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		

## Preferred types

Preferred types	Standard current ratings (A)								
	1	2	3	5	7.5	10	15	20	25
4120-G214-J1M1-B2S0ZN (MS3320)	x	x	x	x	x	x	x	x	x
4120-G111-K1M1-A1S0ZN (EN 2495/VG93345 T06)	x	x	x	x	x	x	x	x	x

## Standard current ratings and typical volt drop values

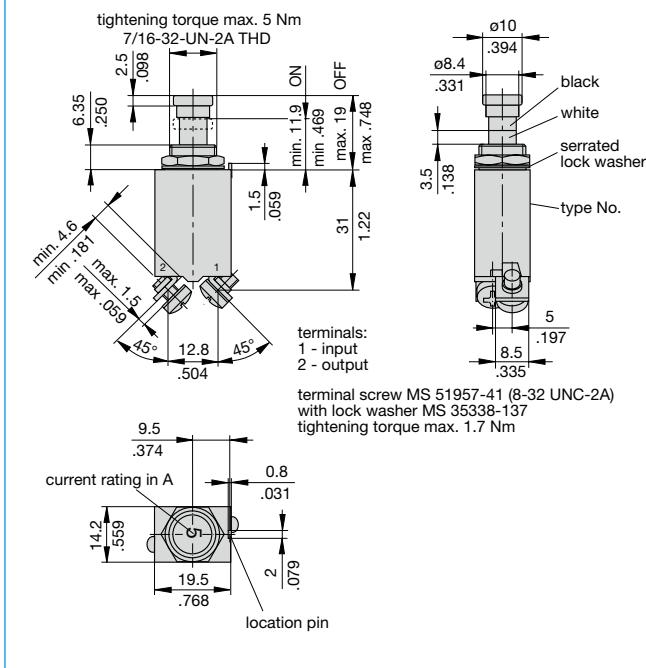
Current rating (A)	Volt drop (mV)	Current rating (A)	Volt drop (mV)
1	1100	7.5	250
2	550	10	230
2.5	460	15	200
3	440	20	190
4	380	25	190
5	260		

## Approvals (configurations)

Authority	Standard	Voltage ratings	Current ratings
UL	UL 1077	DC 50 V	0.5 A...25 A
Bw	VG 95345, part 6	AC 115 V, 400 Hz DC 28 V	1 A...25 A 1 A...25 A
Bw	EN 2495-...U / -...M	AC 115 V, 400 Hz DC 28 V	1 A...25 A 1 A...25 A
Bw	LN 29887	AC 115 V, 400 Hz DC 28 V	5 A...25 A 5 A...25 A
Bw	EN 3773-004	AC 115 V, 400 Hz DC 28 V	1 A...25 A 1 A...25 A
Dep. of the Navy	MS 3320	AC 115 V, 400 Hz DC 28 V	1 A...20 A 1 A...20 A
Airbus	EN 2995-004	AC 115 V, 400 Hz DC 28 V	1 A...25 A 1 A...25 A
Airbus	EN 2995-005	AC 115 V, 400 Hz DC 28 V	1 A...25 A 1 A...25 A

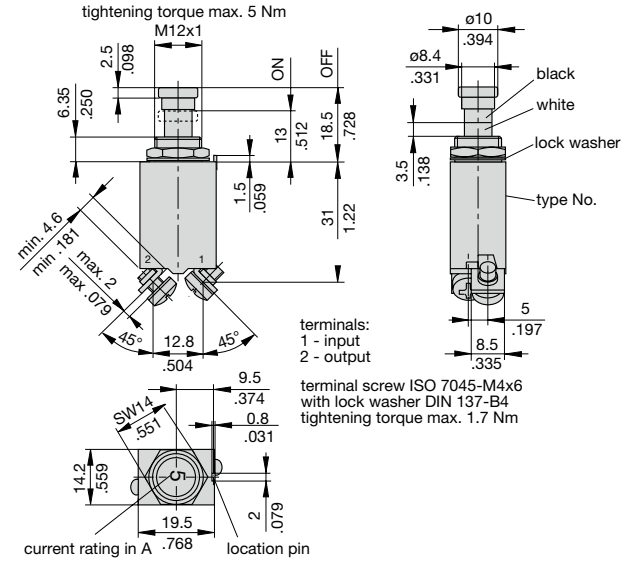
## Dimensions 4120-...

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

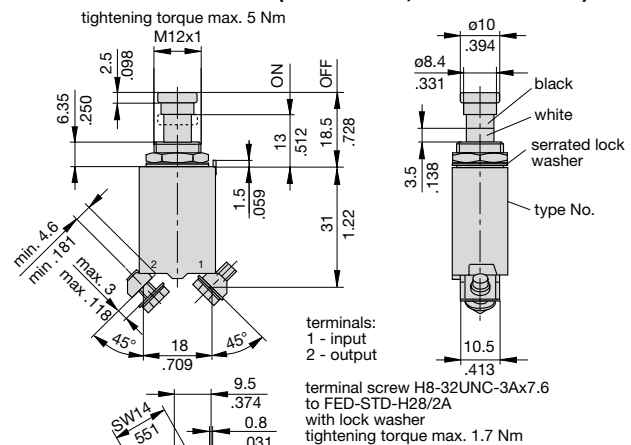


## Dimensions 4120-G1..

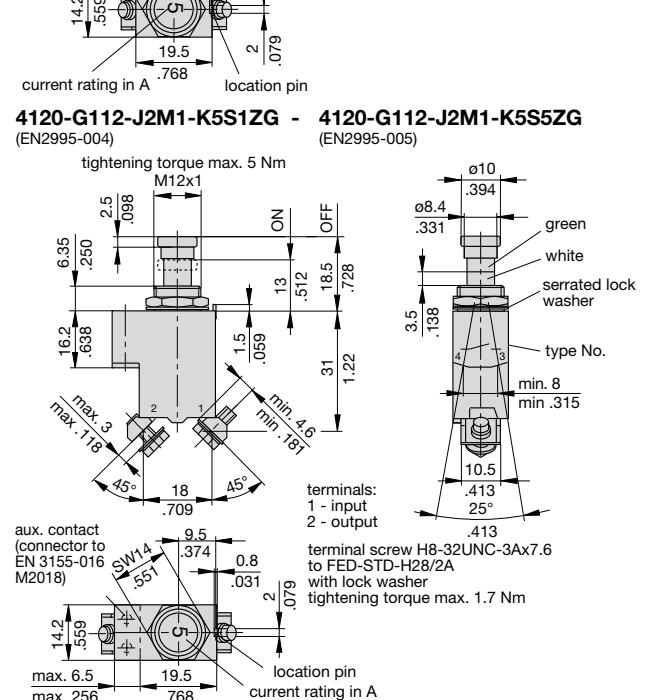
### 4120-G111-K1M1-A1S0ZN (EN2495-...M) (VG95345 T06)



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



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

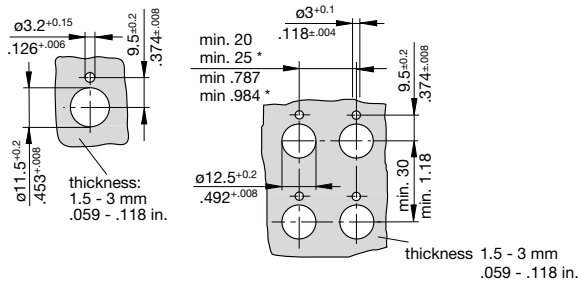


This is a metric design and millimeter dimensions take precedence (mm/inch)

## Mounting holes

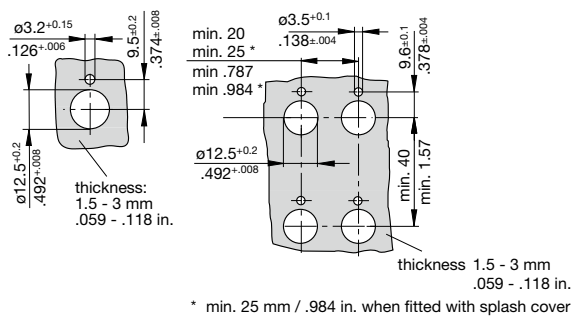
### 4120-G2...

### mounting holes S0



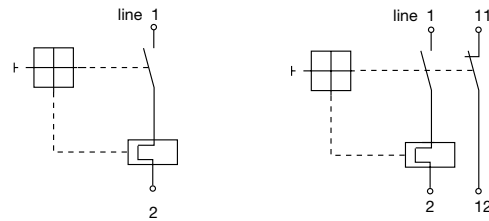
### 4120-G1...

### mounting holes S1 or S5

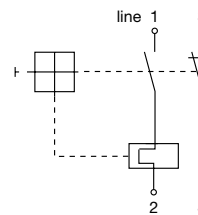


## Internal connection diagram

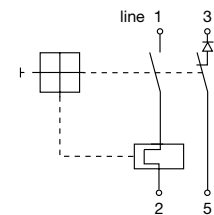
### with auxiliary contact VG 95345 T06



### with auxiliary contact EN 2995-004



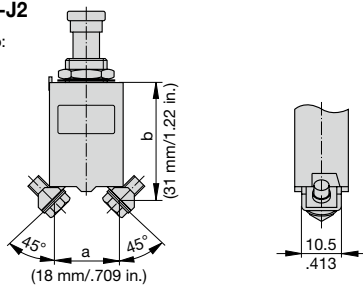
### with polarized auxiliary contact EN 2995-005



## Other terminal designs

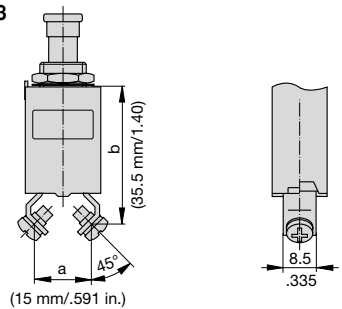
### Terminal design -J2

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)

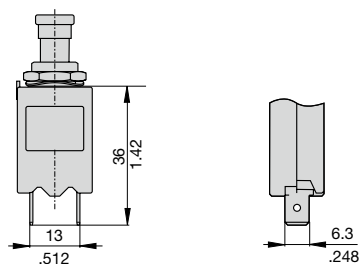


### Terminal design -J3

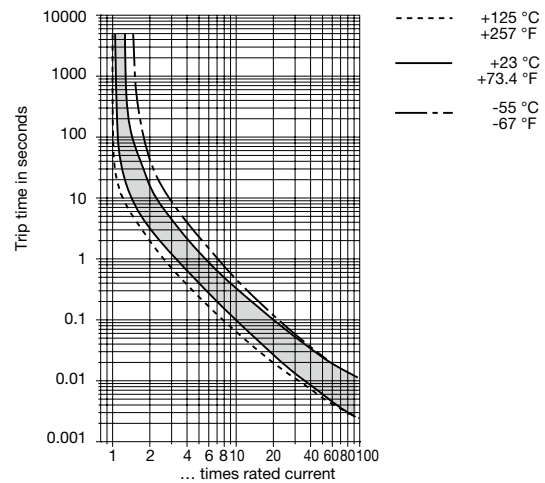
Terminal distances to:  
MS 26 574 (a, b)



### Terminal design -P1



## Typical time/current characteristics



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