

## Description

An extremely versatile range of rocker switch/thermal circuit breakers (S-type TO CBE to EN 60934 with trip free mechanism) offering the choice of single pole, double pole with single pole protection, and double pole with protection on both poles. Designed for snap-in panel mounting with versions available for three different panel cut-out sizes. Illumination is optional and there is a range of colours and markings for the rocker. Under overload conditions the rocker returns to the OFF position. 6-way frame for 3120-F5 available upon request.

Any one of the following additional function modules can be supplied factory fitted to the rear of the switch/circuit breaker.

- Under voltage release coil (for double pole versions only).
- Magnetic trip coil for short circuit protection.
- Magnetic trip coil for remote relay trip.
- Auxiliary contacts for status signalling.
- Mechanical slide interlock.

Approved to CBE standard EN 60934 (IEC 60934).

Meets the requirements regarding fire resistance of EN 60335-1 : 2007-02 Safety of household and similar electrical appliances.

## Typical applications

Motors, transformers, solenoids, extra low voltage wiring systems, office machines, electro-medical equipment, power supplies, communications systems, medical equipment to EN 60601.

## Standard current ratings and typical internal resistance values

Current rating (A)	Internal resistance per pole (Ω)	Current rating (A)	Internal resistance per pole (Ω)
0.1	94	4	0.0435
0.2	24	4.5	0.0435
0.3	12	5	0.0325
0.4	5.30	6	0.0215
0.5	4.20	7	0.0165
0.6	2.90	8	0.0165
0.8	1.50	10	< 0.02
1	0.9	12	< 0.02
1.2	0.80	14	< 0.02
1.5	0.45	15	< 0.02
2	0.27	16	< 0.02
2.5	0.0785	18	< 0.02
3	0.0595	20	< 0.02
3.5	0.0565		

## Illumination voltage/power consumption

operating voltage	power consumption		
	Y + R	G	T
6 V	2 mA	3.6 mA	4.9 mA
12 V	2 mA	3.5 mA	4.9 mA
24 V	2 mA	3.5 mA	4.9 mA
48 V	2 mA	3.5 mA	4.9 mA
115 V	0,9 mA	2.8 mA	2.2 mA
230 V	0,9 mA	2.8 mA	2.2 mA

## Approvals

Authority	Voltage ratings	Current ratings
VDE (EN 60934)	AC 240 V; DC 28 V DC 50 V DC 50 V	0.1...20 A 0.1...20 A 2-pole 0.1...10 A 1-pole
UL, CSA	AC 250 V; DC 50 V	0.1...20 A
CCC	AC 250 V; DC 50 V	0.1...20 A



3120-F...

## Technical data

For further details please see chapter: Technical Information

Voltage rating	AC 240 V; DC 50 V (AC 415 V to special order) (UL: AC 250 V; DC 50 V)		
Current ratings	0.1...20 A (up to 30 A to special order, single pole only)		
Typical life	AC 240 V:	0.1...20 A	<b>1-pole</b> 30,000 operations at 1 x I <sub>N</sub> , inductive
	DC 50 V:	0.1...4 A 4.5...16 A	30,000 operations at 1 x I <sub>N</sub> , inductive 30,000 operations at 1 x I <sub>N</sub> , resistive
DC 28 V:	4.5...20 A		30,000 operations at 1 x I <sub>N</sub> , inductive
	AC 415 V:	0.1...16 A	<b>2-pole</b> 10,000 operations at 1 x I <sub>N</sub> , inductive
AC 240 V:	0.1...16 A		50,000 operations at 1 x I <sub>N</sub> , inductive
	17...20 A		30,000 operations at 1 x I <sub>N</sub> , inductive
DC 50 V:	0.1...16 A		50,000 operations at 1 x I <sub>N</sub> , inductive
	17...20 A		10,000 operations at 1 x I <sub>N</sub> , inductive
Ambient temperature	-30...+60 °C (-22...+140 °F)		
Insulation co-ordination (IEC 60664 and 60664 A)	rated impulse withstand voltage	2.5 kV	pollution degree 2
	reinforced insulation in operating area		
Dielectric strength (IEC 60664 and 60664A)	test voltage	AC 3,000 V	
	operating area between poles (2-pole)	AC 1,500 V	
Insulation resistance	> 100 MΩ (DC 500 V)		
Interrupting capacity I <sub>cn</sub>	0.1...2 A	10 x I <sub>N</sub>	
	2.5...20 A	250 A 2-pole, or 150 A 1-pole	
Interrupting capacity (UL 1077)	I <sub>N</sub>	U <sub>N</sub>	2-pole
	0.1...2 A	AC 250 V	200 A
	2.5...3 A	AC 250 V	1,000 A
	3.5...8 A	AC 250 V	2,000 A
	9...16 A	AC 250 V	3,500 A
	18...20 A	AC 250 V	5,000 A
	0.1...20 A	DC 50 V	1,000 A
Degree of protection (IEC 60529/DIN 40050)	operating area IP40 (IP54 with water splash protection) terminal area IP00		
Vibration	8 g (57-500 Hz), ± 0.61 mm (10-57 Hz) to IEC 60068-2-6, test Fc 10 frequency cycles/axis		
Shock	30 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 60068-2-78, test Cab		
Mass	approx. 33 g (double pole)		
	approx. 27 g (single pole)		

## Ordering information

### Type No.

3120 rocker switch/circuit breaker

### Mounting

#### F snap in frame

Size of frame	panel thickness
3 to fit mounting cut-out 50.5 x 21.5 mm	1-6.35 mm (.039-.250 in)
5 to fit mounting cut-out 44.5 x 22 mm	1-4 mm (.039-.157 in)
6 to fit mounting cut-out 45 x 33.7 mm	1.2-2.4 mm (.047-.094 in)

#### Number of poles

- 0 2-pole, unprotected, switch only
- 1 1-pole, thermally protected
- 2 2-pole, thermally protected
- 5 2-pole, thermally protected on one pole only (terminals 11,12k,12i)
- 6 1-pole, unprotected, switch only

#### Mounting frame design

- 1 collar height 1 mm
- 3 collar height 9 mm
- 4 collar height 2 mm with water splash protection (IP54), not with -F6...
- U with water splash protection and actuator guard

#### Terminal configuration

- P7 blade terminals 2x2.8x0.8 mm (QC 2x.110)  
(terminals 12(k), 22(k), 11, 21), not for under voltage module, not for switch
- H7 12(k), 22(k): blade terminals 2x2.8-0.8 (QC 2x.110)  
11, 21: terminal screws, not for switch
- N7 as P7, but including shunt terminals 12(i) and 22(i)  
as blade terminals 2x2.8x0.8 mm (QC 2x.110)  
not for under voltage module
- G7 as H7, but including shunt terminals 12(i) and 22(i)  
as blade terminals 2x2.8x0.8 mm (QC 2x.110)

#### Characteristic curve

- T1 thermal, 1.01-1.4 x I<sub>N</sub>
- Q1 switch only

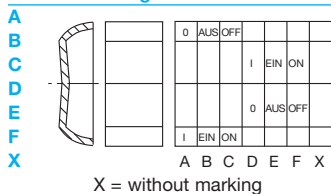
#### Actuator style

- W rocker
- U momentary switch

#### Switch colour designation

opaque	translucent (for illuminated versions)
01 black	12 white
02 white	14 red
04 red	15 orange
	16 sky blue
	19 green

#### Rocker markings



#### Rocker illumination (optional)

- G green LED
- Y yellow LED
- R red LED
- T blue LED

#### Illumination voltage range

0	0 - 4 V	AC/DC
1	10 - 14 V	AC/DC
2	20 - 28 V	AC/DC
3	90 - 140 V	AC
4	185 - 275 V	AC
5	50 - 70 V	AC/DC

#### Current ratings

0.1...20 A

3120 - F 3 2 1 - N7 T1 - W 14 A R 4 - 10 A ordering example  
3120 - F . 0 . . - N7 Q1 - W .. . . . - 20 A (switch only)

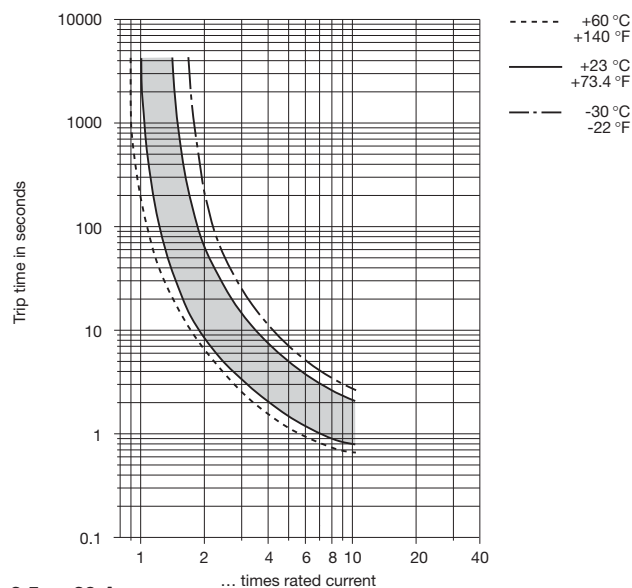
### N.B.

Switch only versions must be specified with -N7 or -G7 terminals.  
Terminals 12(k) and 22(k) are not fitted.

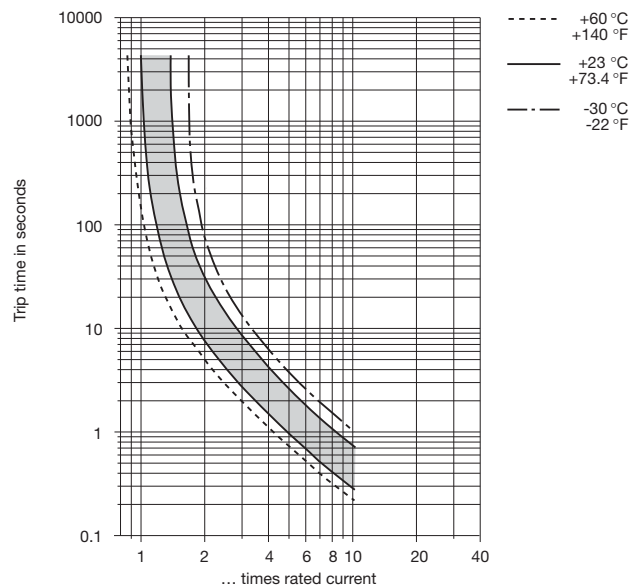
## Typical time/current characteristics

single or double pole load

### 0.1 ... 2 A



### 2.5 ... 20 A

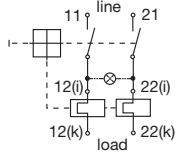


The time/current characteristic curve depends on the ambient temperature prevailing. In order to eliminate nuisance tripping, please multiply the circuit breaker current ratings by the derating factor shown below. See also section 9 - Technical information.

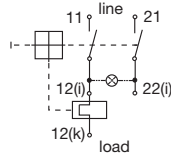
Ambient temperature °F	-22	-4	+14	+32	+73.4	+104	+122	+140
°C	-30	-20	-10	0	+23	+40	+50	+60
Derating factor	0.8	0.76	0.84	0.92	1	1.08	1.16	1.24

## Internal connection diagrams

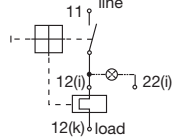
**2-pole, thermally protected on both poles**



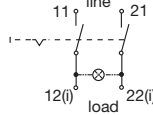
**2-pole, thermally protected on one pole only**



**1-pole, thermally protected**

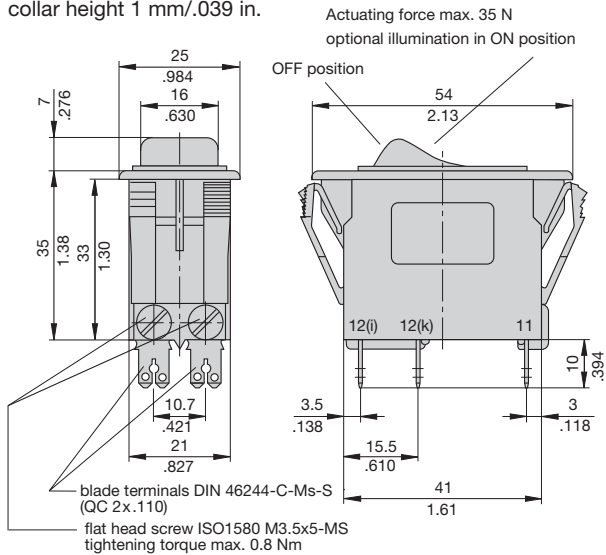


**2-pole, unprotected**

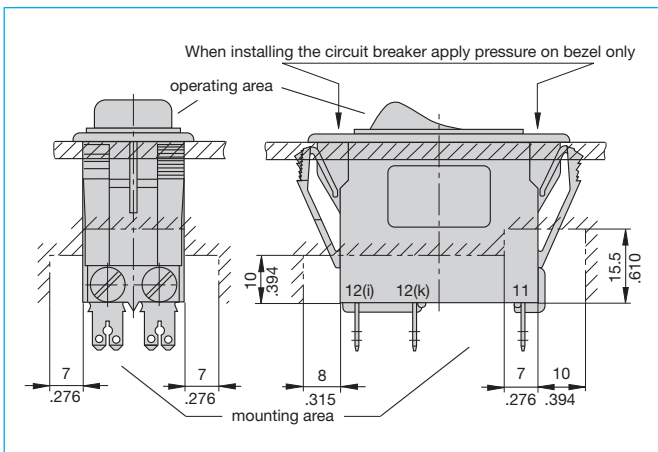


## Dimensions

**Style F3.1**  
collar height 1 mm/.039 in.



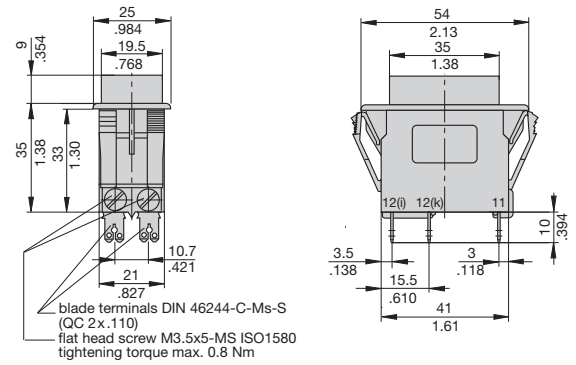
## Installation drawing



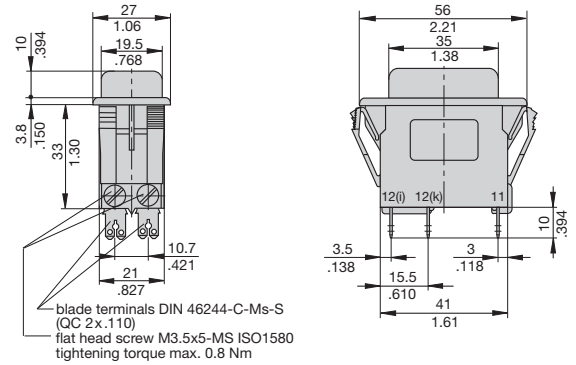
This is a metric design and millimeter dimensions take precedence (mm/inch)

## Mounting style variants

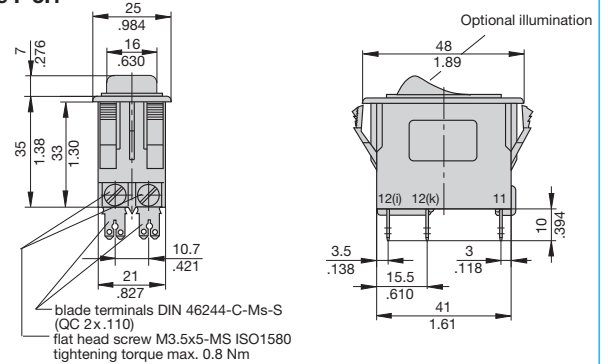
**Style F 3.3** collar height 9 mm (.354 in.)



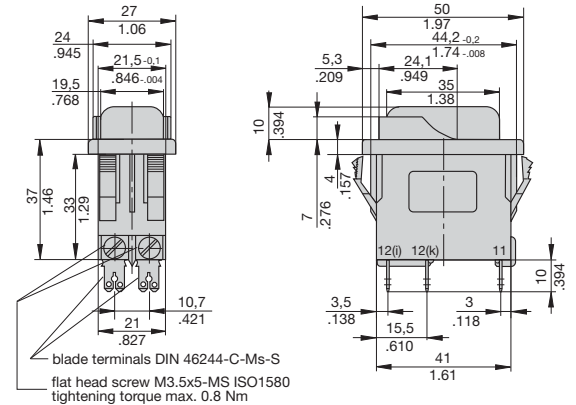
**Style F 3.4**  
collar height 2 mm (.079 in.), with water splash protection



**Style F 5.1**



**Style F 5.U**  
with water splash protection (IP54) and actuator guard



Dimension diagram for style F6 is available on request.



























