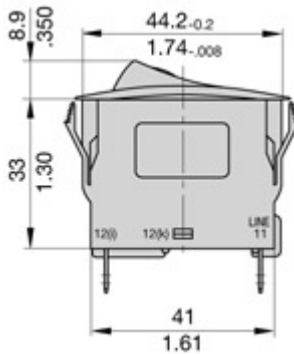


**Type: 3120-F7**

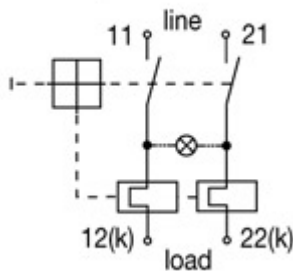


**Dimensions**



**Internal connection diagrams**

2 pole  
thermally protected



E-T-As proven type 3120 in a new attractive styling (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 illumination as an option. Under overload conditions the rocker returns to the OFF position.

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

- Undervoltage 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).

Available accessories: water splash protection and actuator guard to prevent inadvertent operation.

**Voltage rating:**

- AC 240 V (AC 415 V to special order)
- DC 50 V
- UL/CSA: AC 250 V

**Current ratings:**

from 0.1 A to 20 A  
(up to 30 A to special order, single pole only)

**Number of poles:**

single pole  
double pole

**Mounting method:**

flange

**Terminal design:**

blade terminals  
screw terminals

**Actuation:**

rocker

**Auxiliary contacts:**

with auxiliary contacts  
without auxiliary contacts

**Water splash protection:**

with water splash protection  
without water splash protection

**Illumination:**

with illumination  
without illumination

**Typical life:**

0.1...16 A 50,000 operations at  $1 \times I_N$ , inductive, double pole  
0.1...20 A 30,000 operations at  $1 \times I_N$ , inductive, single pole

**Interrupting capacity  $I_{cn}$ :**

0.1...2 A:  $10 \times I_N$   
2.5...20 A: 150 A single pole  
2.5...20 A: 250 A double pole

**Approvals:**

VDE, CSA, UL, CCC

## Description

E-T-A's proven type 3120 in a new attractive styling (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 illumination as an option. Under overload conditions the rocker returns to the OFF position.

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- Auxiliary contacts for status signalling.
- Mechanical slide interlock.

Approved to CBE standard EN 60934 (IEC 60934).

Available accessories: water splash protection and actuator guard to prevent inadvertent operation.

## Typical applications

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

## 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	3.5	0.0565
0.2	24	4	0.0435
0.3	12	4.5	0.0435
0.4	5.30	5	0.0325
0.5	4.20	6	0.0215
0.6	2.90	7	0.0165
0.8	1.50	8	0.0165
1	0.9	10	< 0.02
1.2	0.80	12	< 0.02
1.5	0.45	14	< 0.02
2	0.27	16	< 0.02
2.5	0.0785	18	< 0.02
3	0.0595	20	< 0.02

## Illumination voltage/power consumption

operating voltage	power consumption	
	filament/neon	LED
6 V	60 mA	9 mA
12 V	20 mA	9 mA
24 V	20 mA	9 mA
48 V	20 mA	1.5 mA
115 V	< 1.5 mA	< 1 mA*
230 V	< 1.5 mA	< 1 mA*

\* single pole version only

## 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-F7..

## 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 $1 \times I_N$ , inductive
	DC 50 V:	0.1...4 A	30,000 operations at $1 \times I_N$ , inductive
		4.5...16 A	30,000 operations at $1 \times I_N$ , resistive
	DC 28 V:	4.5...20 A	30,000 operations at $1 \times I_N$ , inductive
Ambient temperature	AC 415 V:	0.1...16 A	<b>2-pole</b> 10,000 operations at $1 \times I_N$ , inductive
	AC 240 V:	0.1...16 A	50,000 operations at $1 \times I_N$ , inductive
		17...20 A	30,000 operations at $1 \times I_N$ , inductive
	DC 50 V:	0.1...16 A	50,000 operations at $1 \times I_N$ , inductive
	17...20 A	10,000 operations at $1 \times I_N$ , 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) operating area between poles (2-pole)	test voltage	AC 3,000 V AC 1,500 V	
	Insulation resistance	> 100 MΩ (DC 500 V)	
Interrupting capacity $I_{cn}$	0.1...2 A	$10 \times I_N$	
	2.5...20 A	250 A 2-pole, or 150 A 1-pole	
Interrupting capacity (UL 1077)	$I_N$	$U_N$	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...6 A	AC 250 V	3,500 A
	18...20 A	AC 250 V	5,000 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 60068-2-3, test Ca		
Mass	approx. 33 g (double pole)		
	approx. 27 g (single pole)		

## Ordering information

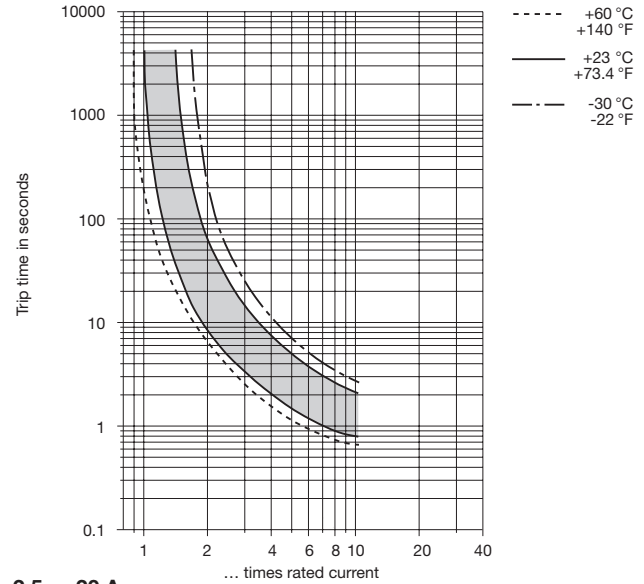
<b>Type No.</b>	
3120	rocker switch/circuit breaker
<b>Mounting</b>	
<b>F</b> snap in frame	
<b>Size of frame</b> <span style="float: right;"><b>panel thickness</b></span>	
7	to fit mounting cut-out 44.5x22 mm (1.75x.866 in) 1-4 mm (.039-.157 in)
<b>Number of poles</b>	
0	2-pole, unprotected, switch only
1	1-pole, thermally protected
2	2-pole, thermally protected
5	2-pole, thermally protected on one pole only (terminals 11,12k,12l)
6	1-pole, unprotected, switch only
<b>Mounting frame design</b>	
<b>N</b>	grey frame
<b>P</b>	snap-on actuator guard grey
<b>Q</b>	snap-on water splash cover grey
<b>R</b>	black frame
<b>S</b>	snap-on actuator guard black
<b>T</b>	snap-on water splash cover black
<b>Terminal configuration</b>	
<b>P7</b>	blade terminals 2x2.8x0.8 mm (QC 2x.110) (terminals 12(k), 22(k), 11, 21), not for under voltage module, not for switch
<b>H7</b>	12(k), 22(k): blade terminals 2x2.8-0.8 (QC 2x.110) 11, 21: terminal screws, not for switch
<b>N7</b>	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
<b>G7</b>	as H7, but including shunt terminals 12(i) and 22(i) as blade terminals 2x2.8x0.8 mm (QC 2x.110)
<b>Characteristic curve</b>	
<b>T1</b>	thermal, $1.01-1.4 \times I_N$
<b>Q1</b>	switch only
<b>Actuator style</b>	
<b>A</b>	rocker
<b>Switch colour designation</b>	
<b>20</b>	blue opaque
<b>30</b>	blue translucent
<b>Rocker markings</b>	
<b>Q</b>	"I" and "0" moulded in
<b>Push button illumination (optional)</b>	
<b>B</b>	filament, AC/DC
<b>G</b>	green LED, AC/DC
<b>R</b>	red LED, AC/DC
<b>Illumination voltage range (optional)</b>	
<b>0</b>	4 - 7 V (G,B,R)
<b>1</b>	10 - 14 V (G,B,R)
<b>2</b>	20 - 28 V (G,B,R)
<b>3</b>	90 - 140 V (B)
<b>4</b>	185 - 275 V (B)
<b>5</b>	42 - 54 V (B,R)
<b>Current ratings</b>	
<b>0.1...20 A</b>	
3120 - F 7 2 N - N7 T1 - A 20 Q B 4 - 10 A ordering example	
3120 - F . 0 N - N7 Q1 - A 20 Q B 4 - 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.

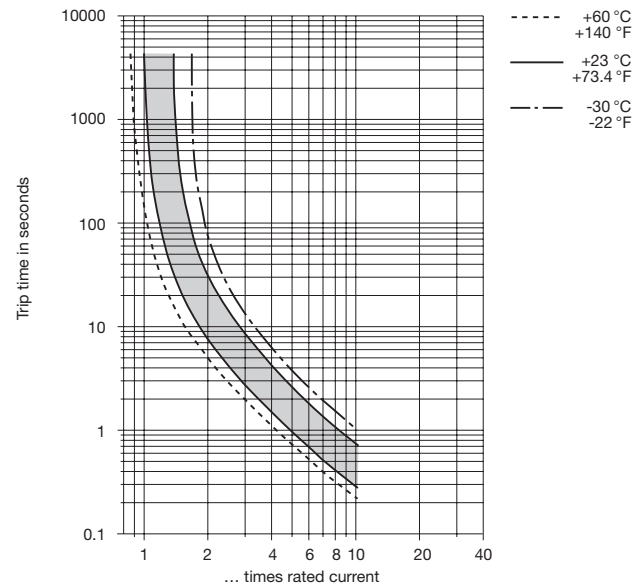
## Typical time/current characteristics

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.

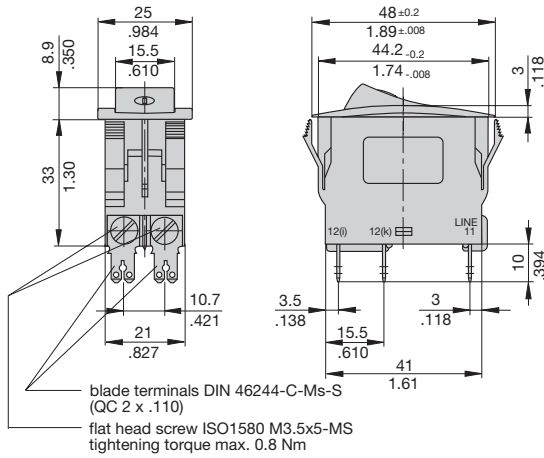
Ambient temperature °F	-22	-4	+14	+32	+73.4	+104	+122	+140
°C	-30	-20	-10	0	+23	+40	+50	+60
Derating factor	0.8	0.76	0.84	0.92	1	1.08	1.16	1.24



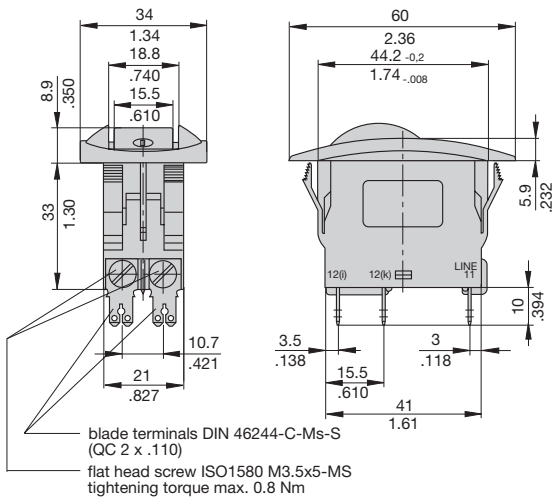
# Thermal Overcurrent Circuit Breaker 3120-F7..

## Dimensions

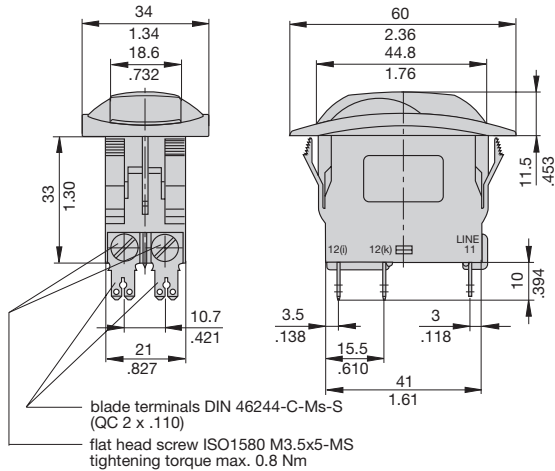
### Style -F7.N and F7.R



### Style -F7.P and F7.S

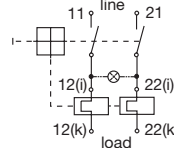


### Style -F7.Q and F7.T

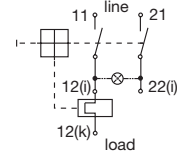


## Internal connection diagrams

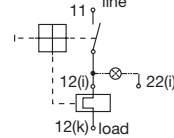
### 2-pole, thermally protected on both poles



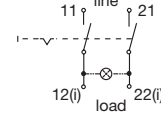
### 2-pole, thermally protected on one pole only



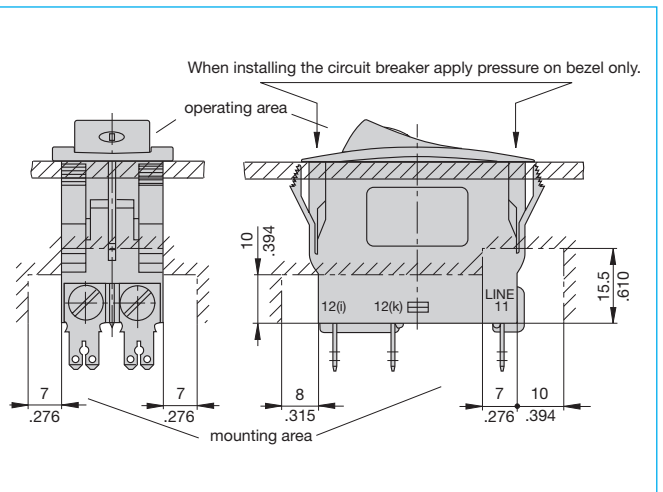
### 1-pole, thermally protected



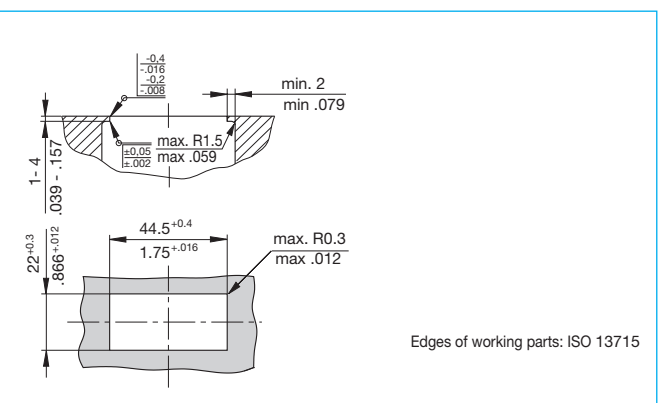
### 2-pole, unprotected



## Installation drawing



## Panel cut-out



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