

# E-T-A® Thermal Overcurrent Circuit Breaker 3130

## Description

Single pole rocker switch/thermal trip free circuit breakers (S-type TO CBE to EN 60934) of compact design for snap-in panel mounting. Available either with protection on one/both/all poles or, in the case of the double pole version, protection on one pole only. Illumination is optional and there is a choice of rocker colours. Approved to CBE standard EN 60934 (IEC 60934).

## Typical applications

Motors, transformers, solenoids, household and office machines, electrical tools, mobile homes, boating, construction vehicles, medical equipment to EN 60601.

## Standard current ratings and typical internal resistance values

Current rating (A)	Internal resistance per pole ( $\Omega$ )	Current rating (A)	Internal resistance per pole ( $\Omega$ )
0.1	94	4	0.0435
0.2	24	5	0.0325
0.3	12	6	0.0215
0.4	5.30	7	0.0165
0.5	4.20	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	
	filament/neon (B)	LED (G, R, Y)
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

## Approvals

Authority	Voltage rating	Current rating
VDE (EN 60934)	AC 240/415 V	0.1...20 A
	DC 50 V	0.1...8 A
	DC 28 V	0.1...20 A
UL, CSA	AC 250 V, DC 50 V	0.1...16 A



**3130**  
water splash protected (IP 66)

## Technical data

For further details please see chapter: Technical Information

Voltage rating	AC 240 V; DC 50 V (UL: AC 250 V; DC 50 V)	
Current ratings	0.1...20 A	
Typical life	AC 240 V: 0.1...20 A 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	-30...+60 °C (-22...+140 °F)	
Insulation co-ordination (IEC 60664 and 60664 A)	rated impulse withstand voltage 2.5 kV reinforced insulation in operating area	pollution degree 2
Dielectric strength (IEC 60664 and 60664A)	test voltage operating area current path/current path	AC 3,000 V AC 1,500 V
Insulation resistance	> 100 M $\Omega$ (DC 500 V)	
Interrupting capacity $I_{cn}$	0.1...2 A 2.5...20 A	10 $\times I_N$ 150 A
Interrupting capacity (UL 1077)	0.1...12 A AC 250 V/3,500 A DC 50 V/2,000 A	14...16 A AC 250 V/3,500 A DC 50 V/2,000 A
Degree of protection (IEC 60529/DIN 40050)	operating area IP66 terminal area IP00	
Vibration	5 g (57-500 Hz) $\pm$ 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 60068-2-78, test Cab	
Mass	approx. 17 g	

## Ordering information - IP66

<b>Type No.</b>	
3130	rocker switch/circuit breaker
<b>Mounting</b>	
F	snap in frame
<b>Frame</b>	
2	splash water protected
<b>Number of poles</b>	
1	single pole, thermally protected
A	1-pole, unprotected **
<b>Frame mounting</b>	
2	panel thickness 2-3.5 mm
<b>Terminal design</b>	
P7	blade terminals DIN 46244-C-Ms-S (QC 2x.110)
H7	for terminals 1.1 terminal screws M 3.5 for terminals 1.2 2 x .110 blade terminals
N7	blade terminals DIN 46244-C-Ms-S (QC 2x.110), with shunt terminal or for switch only
<b>Characteristic curve</b>	
T1	thermal, 1.05-1.4 I <sub>N</sub>
Q1	switch, only with terminal design -N7
<b>Switch style</b>	
S 00	without actuator rocker X 222 420 .. must be ordered separately. Available symbols see following pages.
S	rocker
P	momentary switch
<b>Switch colour designation (not S00)</b>	
opaque	translucent
01 black	12 white
02 white	14 red
04 red	19 green
09	green
<b>Switch markings</b>	
0	without actuator
Q	„I“ and „O“ moulded in
<b>Switch illumination</b>	
12 Q Y	white rocker, yellow LED, AC/DC
14 Q R	red rocker, red LED, AC/DC
19 Q Y	green rocker, yellow LED, AC/DC
S 00 0 Y	without rocker, LED yellow, AC/DC
<b>Illumination voltage range*</b>	
2	10 - 14 V (R,Y)
3	20 - 28 V (R,Y)
4	42 - 54 V (R,Y)
6	90 - 140 V (R,Y)
7	185 - 275 V (R,Y)
X	LED, DC 8-10 mA ***
<b>Current ratings</b>	
0.1...20 A	
3130 F 2 1 2 - P7 T1 - S 12 Q Y 7 - 5 A	ordering example

\* N/A for non-illuminated version

\*\* unprotected poles have to ordered with terminal design N7

\*\*\* without series resistor and diode, to be selected by customer.

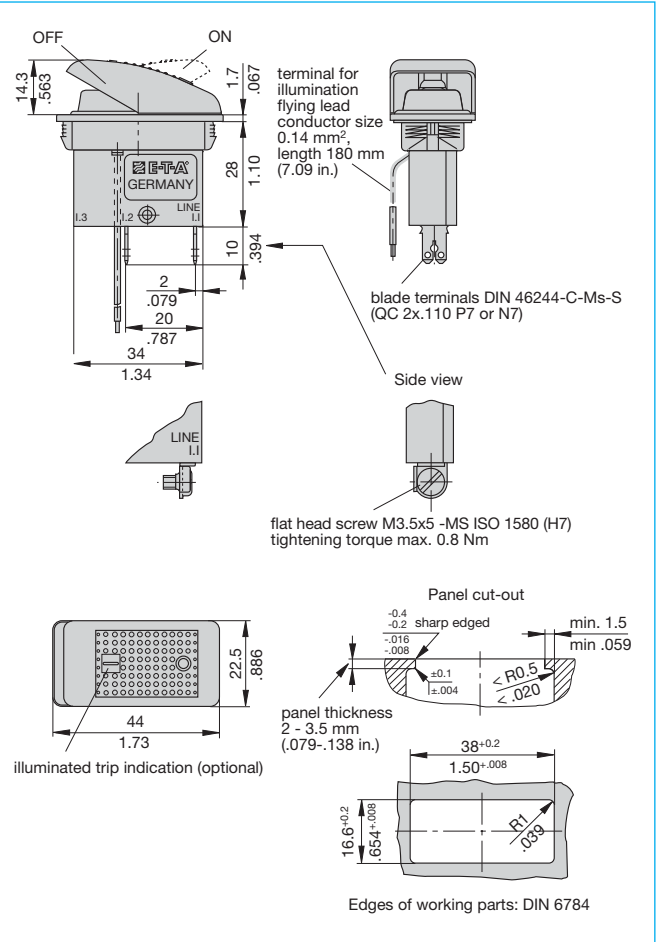
Recommendation:

10-14 V Rv 1,1 kΩ

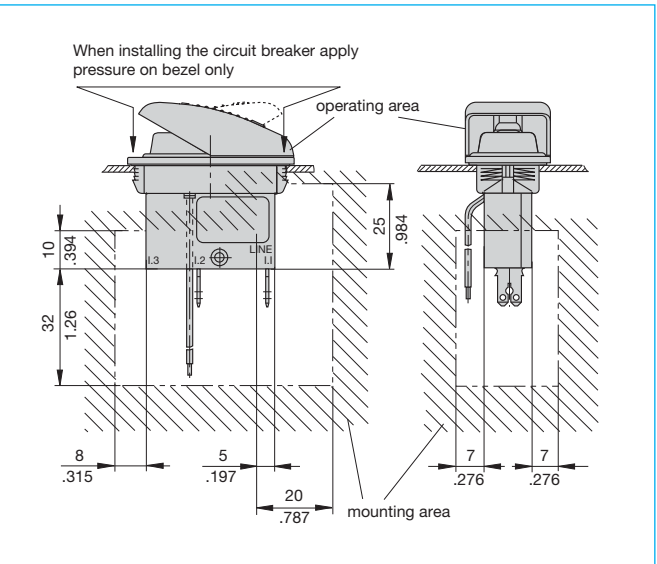
20-28 V RV 2,7 kΩ

diode 1N4007

## Dimensions 3130-F212-...



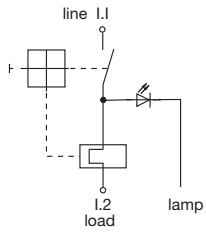
## Installation drawing 3130-F212-...



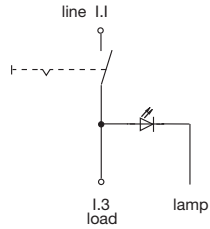
This is a metric design and millimeter dimensions take precedence (mm/inch)

## Internal connection diagrams

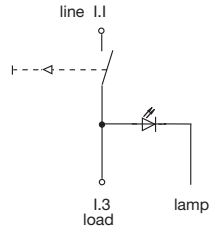
### 1-pole



### 1-pole switch

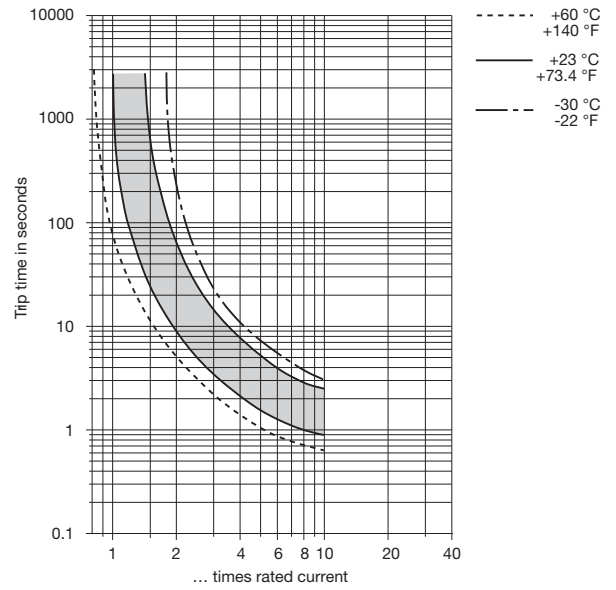


### 1-pole momentary switch

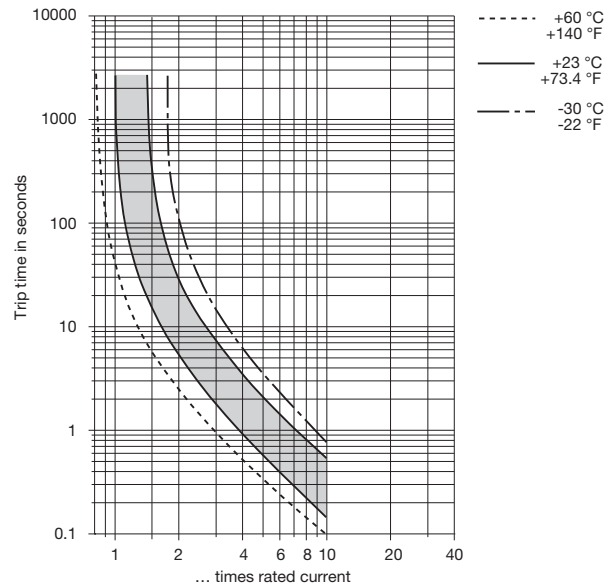


## Typical time/current characteristics

### 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 Technical information.

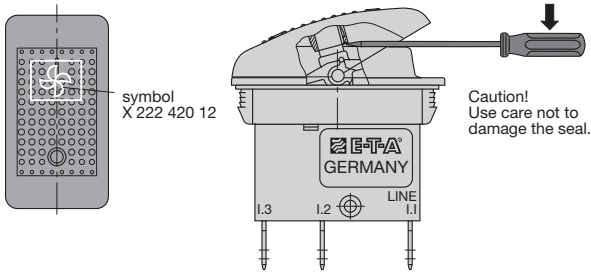
Ambient temperature °F	-22	-4	+14	+32	+73.4	+104	+122	+140
°C	-30	-20	-10	0	+23	+40	+50	+60
Derating factor	0.8	0.76	0.84	0.92	1	1.08	1.16	1.24

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

## Accessories

### Rocker X 222 420 ..

### How to exchange rockers



### Symbols/legends available

Navigation instruments		X 222 420 14
Music		X 222 420 15
Heating		X 222 420 16
Shower pump		X 222 420 17
		X 222 420 18
Icebox		X 222 420 19
Water for windshield wiper		X 222 420 20
Weigh anchor		X 222 420 21
Drop anchor		X 222 420 22
Search light		X 222 420 23
Autopilot		X 222 420 24
Trim flaps		X 222 420 25
Mast lift		X 222 420 26
Navigation lights (sailing ship)		X 222 420 27
Cockpit light (sailing ship)		X 222 420 28
Deck light (sailing ship)		X 222 420 29
Anchor light (sailing ship)		X 222 420 30

### Symbols/legends available

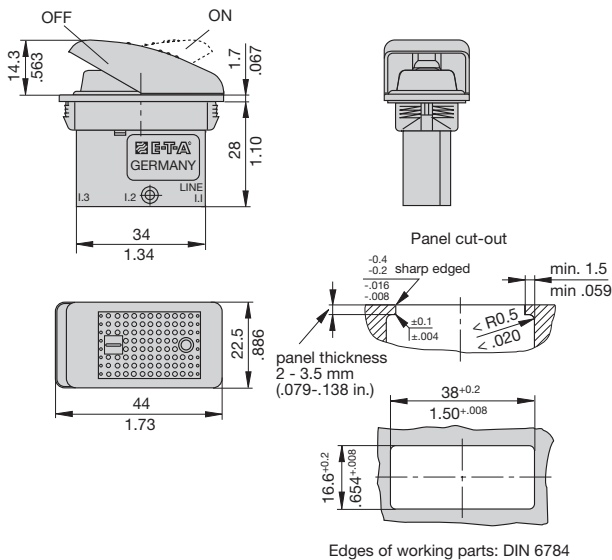
Interior light		X 222 420 01
Anchor light		X 222 420 02
Cockpit light		X 222 420 03
Navigation light		X 222 420 04
VHF radio		X 222 420 05
Refrigerator		X 222 420 06
Anchor		X 222 420 07
Windshield wiper		X 222 420 08
Bilge pump		X 222 420 09
Potable water		X 222 420 10
Horn		X 222 420 11
Ventilation fan		X 222 420 12
Panel light		X 222 420 13

Further symbols upon request.

### S00 switch style:

white translucent rocker coated with black lacquer with laser marked symbols that appear in white translucent.

### Blanking piece (black) 3130-387012



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

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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