

E-T-A® Thermal Overcurrent Circuit Breaker 3130

Description

Single, two and three 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.

Ordering information - 1 pole

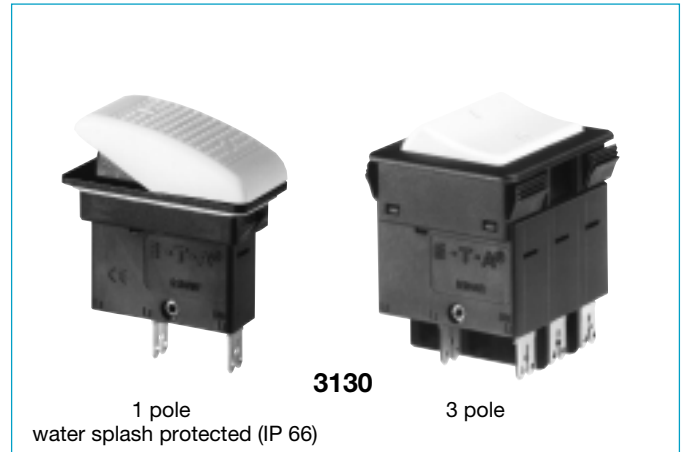
Type No.	
3130	rocker switch/circuit breaker
Mounting	
F	snap in frame
Frame	
1	standard
3	special single pole version
Number of poles	
1	single pole, thermally protected
A	1 pole, unprotected
Frame mounting	
0	panel thickness 1-2.5 mm (only 3130-F1...-...)
1	panel thickness 1.5-3.2 mm (only 3130-F3.1...-...)
Terminal design	
P7	blade terminals DIN 46244-C-Ms-S (QC 2x.110)
H7	for terminals 1.1, 2.1 3.1 terminal screws M 3,5 for terminals 1.2, 2.2, 3.1 blade terminals (QC 2x.110)
N7	blade terminals (QC 2x.110), with shunt terminal
Characteristic curve	
T1	thermal, 1.05-1.4 I _N
Q1	switch, only with terminal design -N7
Switch style	
W	rocker, one-piece, rounded profile
U	momentary switch function
Switch colour designation	
opaque	translucent
01 black	12 white
02 white	14 red
04 red	19 green
09 green	29 black, rocker with green dot
Rocker markings	
A	dot (ON position)
Q	"I" and "O" moulded in
Rocker illumination	
.	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
.	29 A G black rocker with dot, green LED
Illumination voltage range*	
1	4 - 7 V (G, R, Y)
2	10 - 14 V (G, R, Y)
3	20 - 28 V (G, 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
Current ratings	
	0.1...20 A

3130 - F 1 3 0 - P7 T1 - W 12 Q B 7 - 5 A ordering example

* N/A for non-illuminated version

** Single pole version only

Packaging quantity: 1 pole 50 pcs



Technical data

Voltage rating	AC 240 V; 3 AC 415 V; DC 50 V (AC 250 V; 3 AC 250 V; DC 50 V UL/CSA)		
Current ratings	0.1...20 A 1 pole 0.1...16 A 2 and 3 pole		
Typical life	30,000 operations at I _N , 1 and 3 pole 50,000 operations at I _N , 2 pole		
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 current path/current path	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 x I _N	
	2.5...20 A	150 A	1 pole
	2.5...16 A	250 A	2 pole
	2.5...12 A	150 A	3 pole
	14 + 16 A	130 A	3 pole
Interrupting capacity (UL 1077)	I _N	0.1...12 A	14...16 A
	1 + 2 pole	AC 250V/3500A	AC 250V/3500A
	3 pole	3AC 250V/5000A	
	1 + 2 pole	DC 50V/2000A	DC 50V/2000A
Degree of protection (IEC 60529/DIN 40050)	operating area IP 40 terminal area IP 00		
Vibration	5 g (57-500 Hz), ±0.38 mm (10-57 Hz) to IEC 60068-2-6, Test Fc 10 frequency cycles/axis		
Shock	1 pole: 25 g (11 ms) 2 + 3 pole: 20 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. 45 g (three pole) approx. 31 g (double pole) approx. 17 g (single pole)		

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.

Ordering information - multipole

Type No.	
3130	rocker switch/circuit breaker multipole
Mounting	
F snap in frame	
Frame	
1 standard	
Number of poles	
2	2 pole, thermally protected
3	3 pole, thermally protected
5	2 pole, thermally protected on one pole only
6	3 pole, thermally protected on two poles only
B	2 pole, unprotected
C	3 pole, unprotected
Frame mounting	
0 panel thickness 1-2.5 mm (only 3130-F1...)	
Terminal design	
P7 blade terminals DIN 46244-C-Ms-S (QC 2x.110) (curve T1)	
H7 for terminals 1.1, 2.1 3.1 terminal screws M 3,5; for terminals 1.2, 2.2, 3.1 blade terminals (QC 2x.110) (curve T1)	
N7 blade terminals DIN 46244-C-Ms-S (QC 2x.110), with shunt terminal (curve Q1)	
Characteristic curve	
T1 thermal, 1.05-1.4 I _N	
Q1 switch, only with terminal design -N7	
Switch style	
W rocker, one-piece, rounded profile	
U momentary switch	
Switch colour designation	
opaque	translucent
01 black	12 white
02 white	14 red
04 red	19 green
09	green
Rocker markings	
Q "I" and "O" moulded in	
Rocker illumination	
B filament (≤AC/DC 48 V), neon (≥AC 115 V)	
G green LED, DC	
R red LED, DC	
Y yellow LED, DC	
Illumination voltage range*	
1	4 - 7 V (B, G, R, Y)
2	10 - 14 V (B, G, R, Y)
3	20 - 28 V (B, G, R, Y)
4	42 - 54 V (B, R, Y)
6	90 - 140 V (B, R, Y)
7	185 - 275 V (B, R, Y)
8	320 - 450 V (B)
Current ratings	
0.1...16 A	

3130 - F 1 3 0 - P7 T1 - W 12 Q B 7 - 5 A ordering example

* N/A for non-illuminated version

Packaging quantities: 2 pole 35 pcs
3 pole 25 pcs

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 mA	< 1 mA*
230 V	< 1 mA	< 1 mA*
415 V	< 1 mA	***

* single pole version only
*** not available

Ordering information - IP 66

Type No.	
3130	rocker switch/circuit breaker
Mounting	
F snap in frame	
Frame	
2 splash water protected	
Number of poles	
1 single pole, thermally protected	
A 1 pole, unprotected	
Frame mounting	
2 panel thickness 2-3.5 mm	
Terminal design	
P7 blade terminals DIN 46244-C-Ms-S (QC 2x.110) (curve T1)	
H7 for terminals 1.1 terminal screws M 3.5 for terminals 1.2 2 x .110 blade terminals (curve T1)	
N7 blade terminals DIN 46244-C-Ms-S (QC 2x.110), with shunt terminal or for switch only (curve Q1)	
Characteristic curve	
T1 thermal, 1.05-1.4 I _N	
Q1 switch, only with terminal design -N7	
Switch style	
S 00 without actuator rocker X 222 088 .. must be ordered separately. Available symbols see following pages.	
S rocker, rounded profile	
P momentary switch	
Switch colour designation (not S00)	
opaque	translucent
01 black	12 white
02 white	14 red
04 red	19 green
09	green
Switch markings	
0 without actuator	
Q "I" and "O" moulded in	
Switch illumination	
. 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	
Illumination voltage range*	
1	4 - 7 V (R, Y)
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 without series resistor and diode, to be selected by customer.	
Recommendation:	
4- 7 V	Rv 0,43 kΩ
10-14 V	Rv 1,1 kΩ
20-28 V	Rv 2,7 kΩ
Diode	1N4007
Current ratings	
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

Standard current ratings and typical internal resistance values

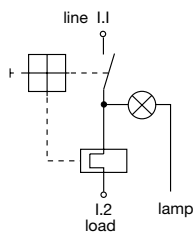
Current rating (A)	Internal resistance per pole (Ω)	Current rating (A)	Internal resistance per pole (Ω)
0.1	94	3.5	0.0565
0.2	24	4	0.0435
0.3	12	5	0.0325
0.4	5.30	6	0.0215
0.5	4.20	7	0.0165
0.8	1.50	8	0.0165
1	0.9	10	<0.02
1.2	0.80	12	<0.02
1.5	0.45	14	<0.02
2	0.27	16	<0.02
2.5	0.0785	18	<0.02
3	0.0595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

Approvals

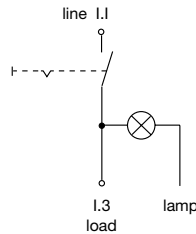
Authority	Voltage rating	Current rating
VDE (EN 60934)	AC 240/415 V	0.1...20 A single pole 0.1...16 A multi pole
	DC 50 V	0.1... 8 A single pole 0.1...16 A multi pole
	DC 28 V	0.1...20 A single pole
UL, CSA	AC 250 V, DC 50 V	0.1...16 A 1 and 2 pole
	3 AC 250 V	0.1...12 A 3 pole
Semko	AC 240 V, DC 28 V	0.1...16 A 1 and 2 pole
	3 AC 415 V	0.1...12 A 3 pole

Internal connection diagrams

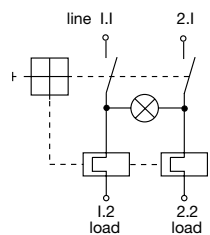
1 pole



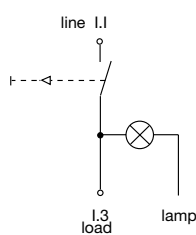
1 pole switch



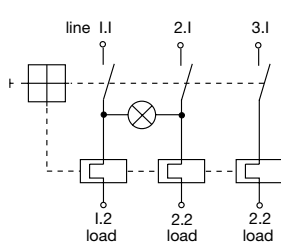
2 pole



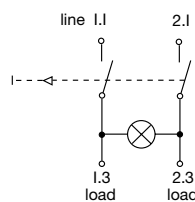
1 pole momentary switch



3 pole



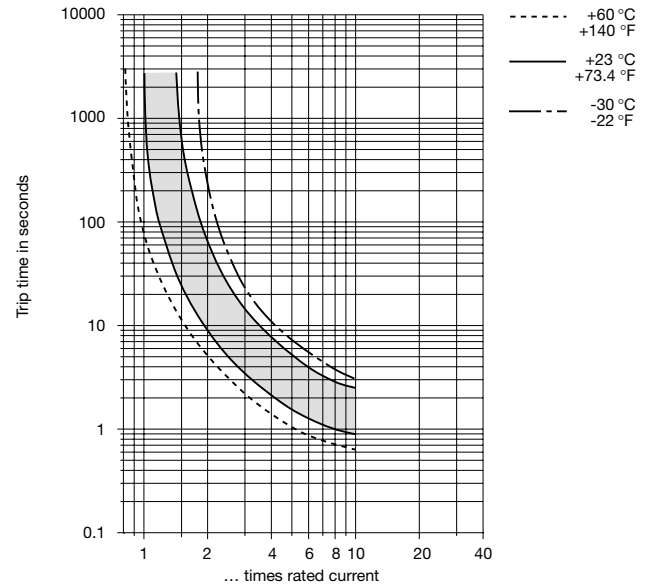
2 pole momentary switch



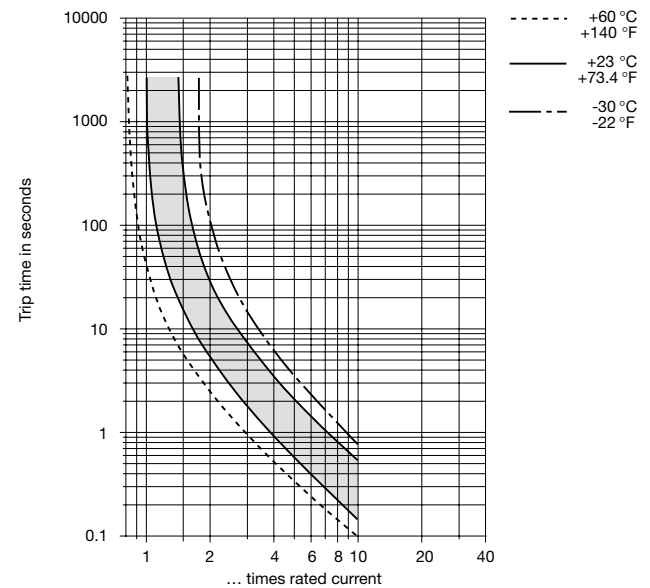
Typical time/current characteristics

Multi-pole types: all poles symmetrically loaded.
With single pole overload, thermal tripping will be at approx. $1.54 \times I_N$ with 2 pole devices and at approx. $1.68 \times I_N$ with 3 pole devices.

0.1...2 A



2.5...20 A 1 pole 2.5...16 A 2 and 3 pole

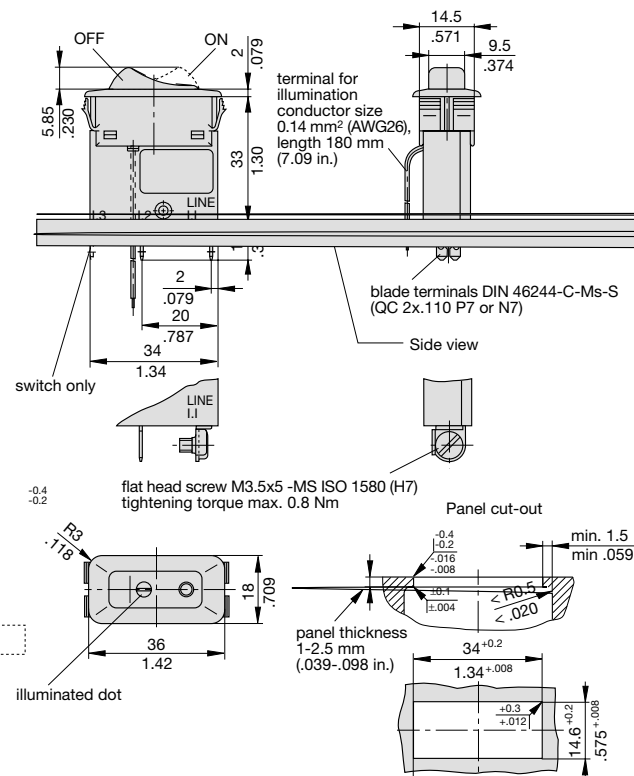


The time/current characteristic curve depends on the ambient temperature prevailing. In order to eliminate nuisance tripping, please multiply the circuit breaker current ratings by the derating factor shown below. See also section 9 - Technical information.

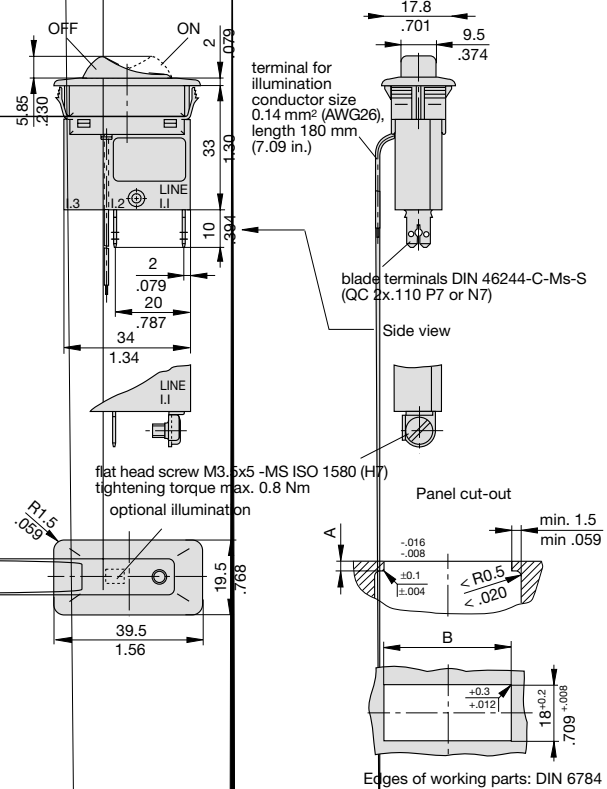
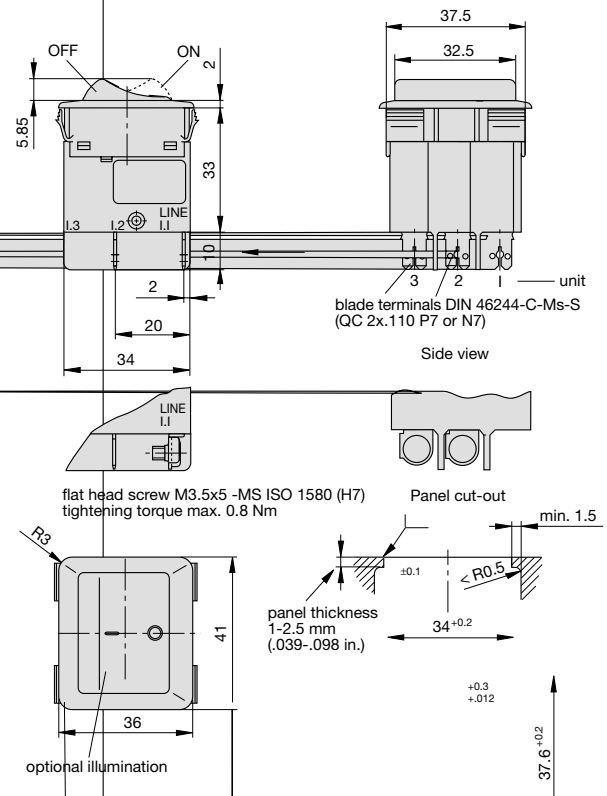
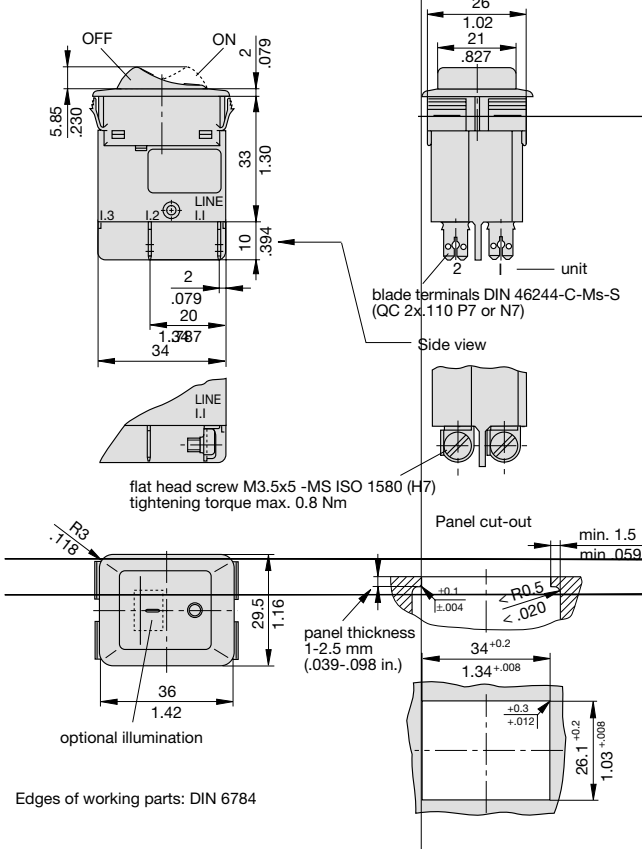
Ambient temperature °F	-22	-4	+14	+32	+73.4	+104	+122	+140
°C	-30	-20	-10	0	+23	+40	+50	+60
Multiplication factor	0.8	0.76	0.84	0.92	1	1.08	1.16	1.24

Dimensions

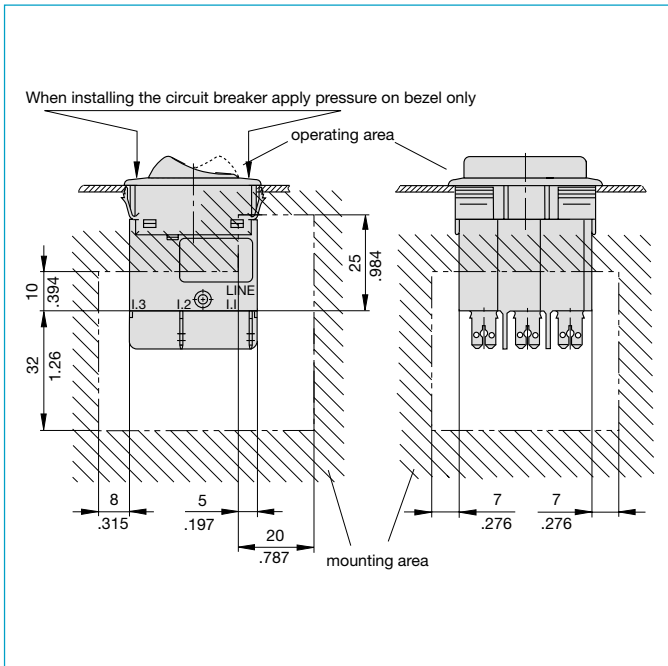
3130-F110-...



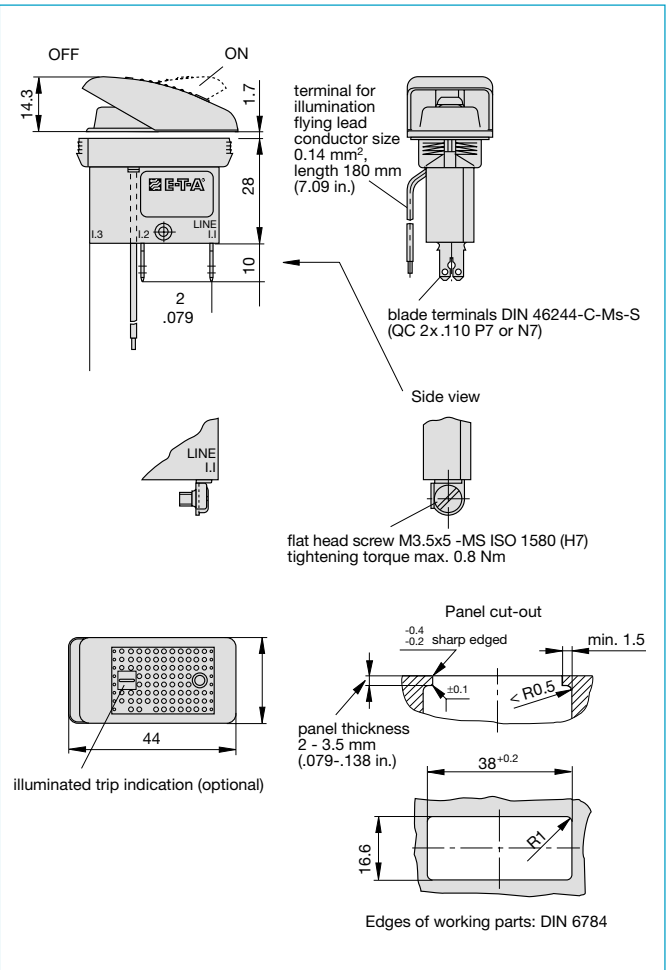
3130-F120-...



Installation drawing 3130-F1...

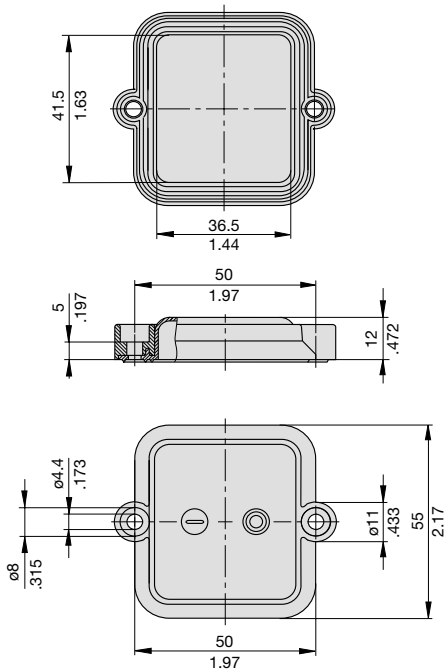


Dimensions 3130-F212-...

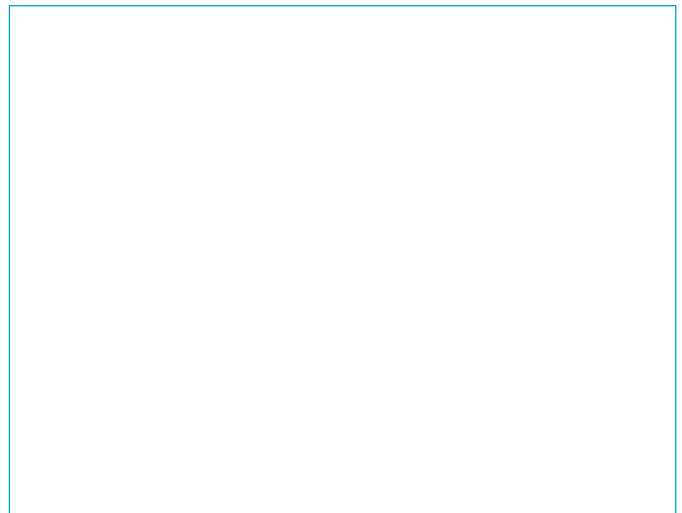


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Splash cover, transparent, for 3 pole version
X 221 258 01 (IP 54), comprising bezel Y 306 109 01 and transparent cover Y 306 108 01



Installation drawing 3130-F212-...

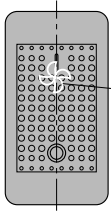


This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

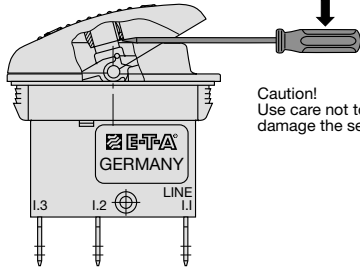
Accessories

Rocker X 222 082 ..

How to exchange rockers



symbol
X 222 088 12



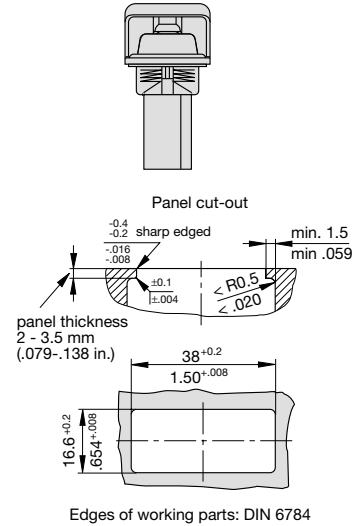
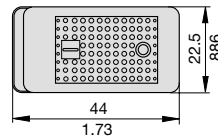
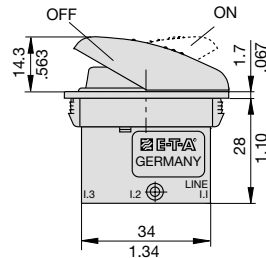
Caution!
Use care not to
damage the seal.

Symbols/legends available

Interior light		X 222 088 01
Anchor light		X 222 088 02
Cockpit light		X 222 088 03
Navigation light		X 222 088 04
VHF radio		X 222 088 05
Refrigerator		X 222 088 06
Anchor		X 222 088 07
Windshield wiper		X 222 088 08
Bilge pump		X 222 088 09
Potable water		X 222 088 10
Horn		X 222 088 11
Ventilation fan		X 222 088 12
Panel light		X 222 088 13
Navigation instruments		X 222 088 14
Music		X 222 088 15
Heating		X 222 088 16
Shower pump		X 222 088 17
		X 222 088 18
icebox		X 222 088 19

Further symbols upon request.

Blanking piece (black) 3130-387012



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