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.
Add on modules:

- 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.

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
12 V DC	5,2 mA	2 mA	1,4 mA
24 V DC	4,5 mA	2,2 mA	1,6 mA
115 V AC	2,8 mA	1,1 mA	1 mA
230 V AC	2,2 mA	0,9 mA	0,9 mA

3120-F3...F5

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		**1-pole**
AC 240 V:	0.1...20 A	30,000 operations at 1 x I_N, inductive
DC 50 V:	0.1...4 A	30,000 operations at 1 x I_N, inductive
	4.5...16 A	30,000 operations at 1 x I_N, resistive
DC 28 V:	0.1...20 A	30,000 operations at 1 x I_N, inductive
		2-pole
AC 415 V:	0.1...16 A	10,000 operations at 1 x I_N, inductive
AC 240 V:	0.1...16 A	50,000 operations at 1 x I_N, inductive
	17...20 A	30,000 operations at 1 x I_N, inductive
DC 50 V:	0.1...16 A	50,000 operations at 1 x I_N, inductive
	17...20 A	10,000 operations at 1 x 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)		test voltage
operating area		AC 3,000 V
between poles (2-pole)		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 250 A 2-pole, or 150 A 1-pole

Interrupting capacity (UL 1077)

	I_N	U_N	I_{nc}
1, 2-pole	0.1...20 A	AC 250 V	5000 A
1, 2-pole	0.1...20 A	DC 50 V	1000 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

3 to fit mounting cut-out 50.5 x 21.5 mm
panel thickness: 1-6.35 mm (.039-.250 in)

5 to fit mounting cut-out 44.5 x 22 mm
panel thickness: 1-4 mm (.039-.157 in)

7 to fit mounting cut-out 44.5 x 22 mm
panel thickness: 1-4 mm (.039-.157 in)

Number of poles

0 2-pole, unprotected, switch only
1 1-pole, thermally protected
2 2-pole, thermally protected
5 2-pole, 1-pole thermally protected

Mounting frame design (F3 & F5)

1 collar height 1 mm
3 collar height 9 mm
4 collar height 2 mm with water splash protection (IP54)

Mounting frame design (F7)

R black
T black with snap-on splash cover

Terminal configuration

P7 blade terminals, standard for curve T1 (thermal circuit breaker)
H7 as P7, terminals 11 and 21 with flat head screws M3.5 – standard for units with undervoltage release module
N7 as P7, but with additional shunt terminals 12(i) and 22(i) – standard for version Q1 (switch only)

Characteristic curve

T1 thermal 1.01 - 1.4 x I_N
Q1 switch only

Actuator style

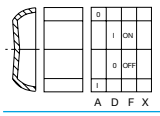
W standard rocker (F3 & F5)
A specially designed rocker (F7)

Colour and Illumination

01 . rocker black opaque without illumination
02 . rocker white opaque without illumination
04 . rocker red opaque without illumination
14 . R rocker red translucent with LED-illumination
15 . Y rocker orange translucent with LED-illumination
19 . G rocker green translucent with LED-illumination

Rocker markings for F3 and F5

A D F Q X



Q: as D, but moulded in
X: without markings

Rocker markings for F7

Q »I« and »O« moulded in

Illumination voltage range

1 10 - 14 V DC
2 20 - 28 V DC
3 90 - 140 V AC
4 185 - 275 V AC

Current ratings

0.1...20 A

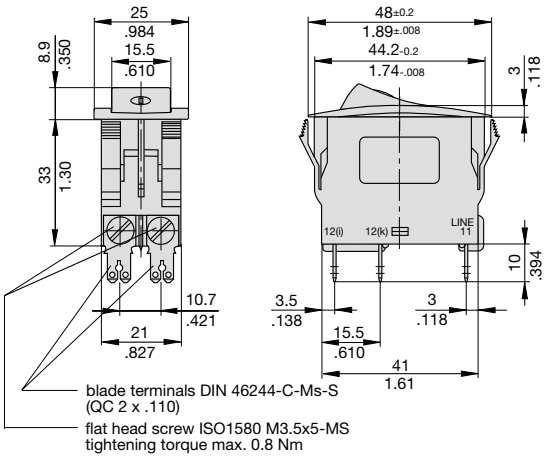
3120 - F 7 2 R - P7 T1 - A 14 Q R 4 - 10 A ordering example
3120 - F . 0 . - N7 Q1 - W .. . . . - 20 A (switch)

Preferred types

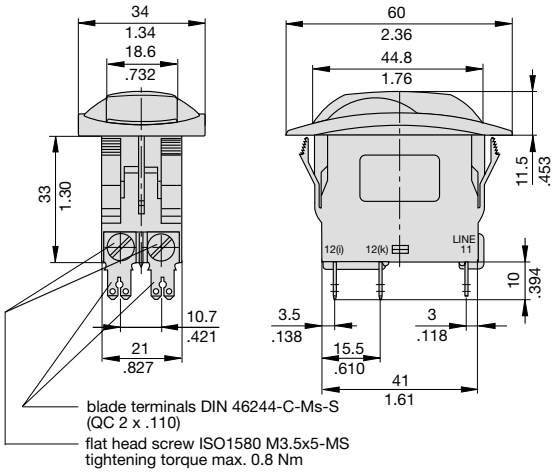
Preferred types F7/2-pole protected	Standard current ratings (A)													
	0.5	1	1.5	2	3	4	5	6	8	10	12	15	16	20
3120-F72R-P7T1-A14QR4	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Dimensions

Style F7.R



Style F7.T

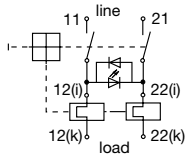


Preferred types

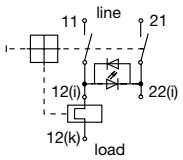
Preferred types	Standard current ratings (A)													
Preferred types F3/1-pole protected	0.5	1	2	3	4	5	6	8	10	12	15	16	20	
3120-F311-P7T1-W02D-		x			x	x	x	x	x		x		x	
Preferred types F3 /2-pole protected	0.5	1	2	3	4	5	6	8	10	12	15	16	20	
3120-F321-P7T1-W01D-	x	x	x	x	x	x	x	x	x	x	x	x	x	
Preferred types F5/2-pole protected	0.5	1	2	3	4	5	6	8	10	12	15	16	20	
3120-F521-P7T1-W01D-		x	x	x	x	x	x	x	x	x	x	x	x	

Internal connection diagrams

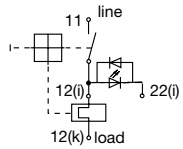
2-pole,
thermally protected on both poles



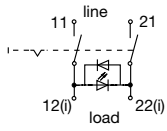
2-pole,
thermally protected on one pole only



1-pole,
thermally protected

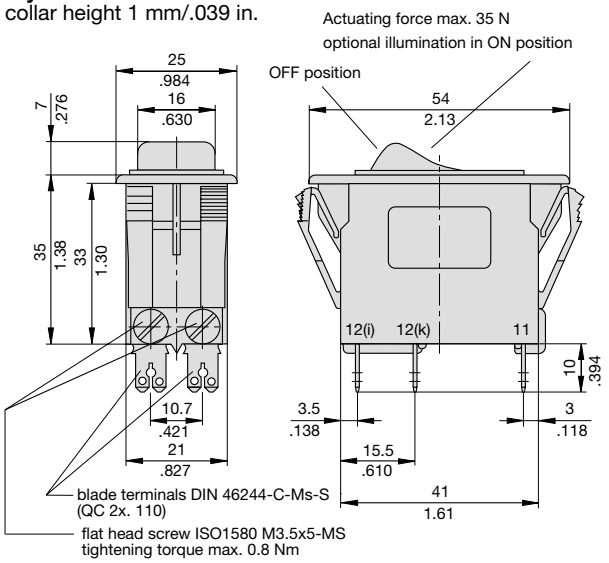


2-pole,
unprotected

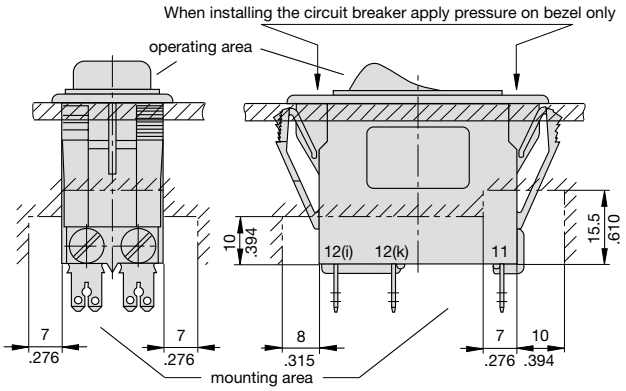


Dimensions

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



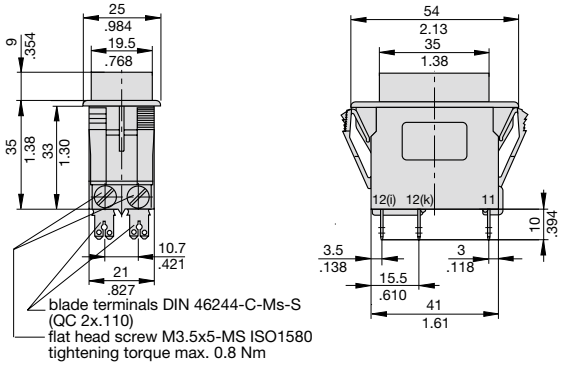
Installation drawing



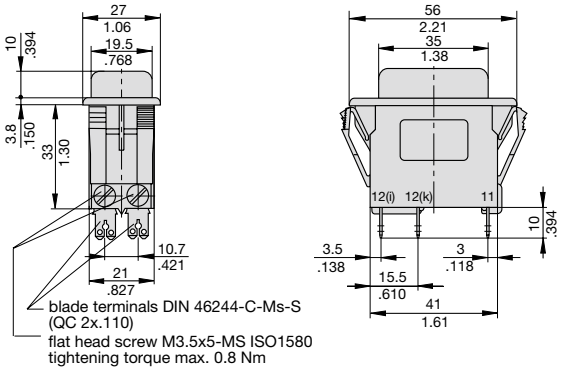
This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

Mounting style variants

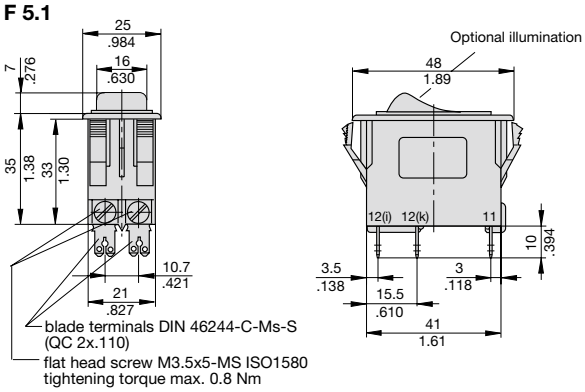
Style F 3.3 collar height 9 mm (.354 in.)



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

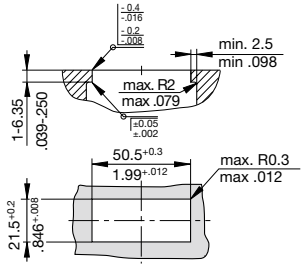


Style F 5.1

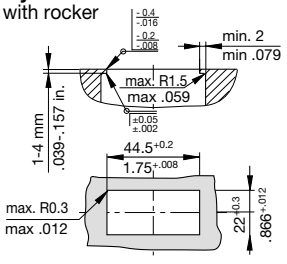


Cut-out dimensions

Cut-out for mounting style -F3
with rocker and push button



Cut-out for mounting style -F5/-F7
with rocker



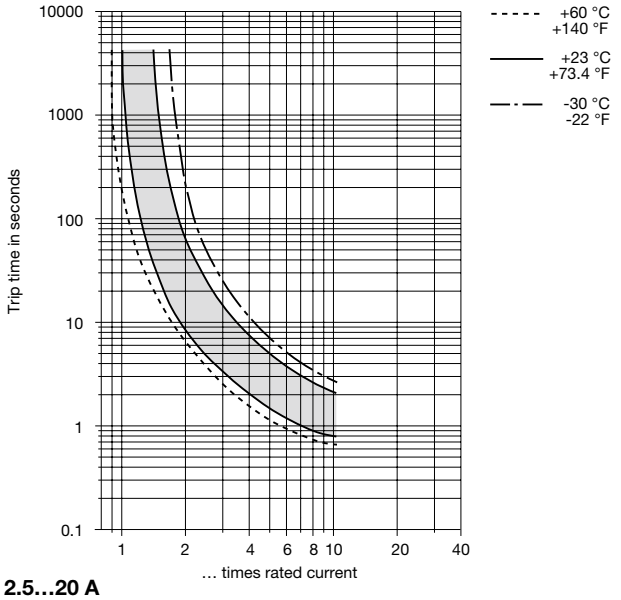
panel thickness	mm	$1.2^{+0.4}$	$1.6^{+0.8}$	2.4^{+1}
	inch	$.047^{+.016}$	$.063^{+.031}$	$.094^{+.039}$
dimension "A"	mm	$45^{+0.2}_{-0.05}$	$45^{+1.1}_{-0.05}$	$45^{+2.2}_{-0.05}$
	inch	$1.77^{+.008}_{-.002}$	$1.77^{+.043}_{-.002}$	$1.77^{+.087}_{-.002}$

Edges of working parts: ISO 13715

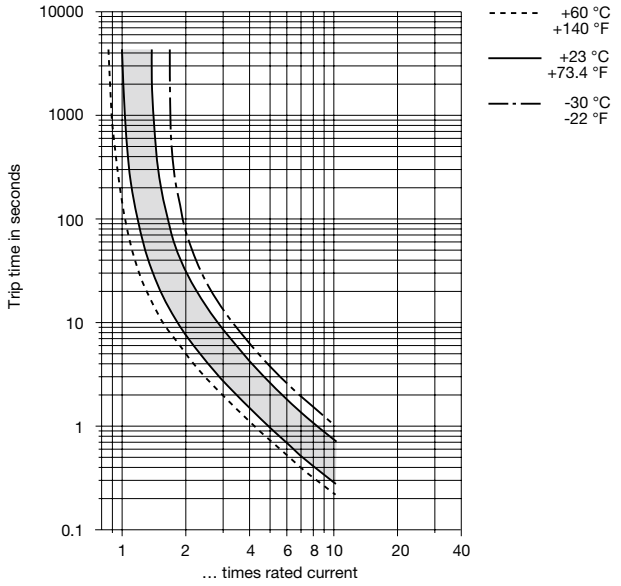
Typical time/current characteristics

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 Technical information.

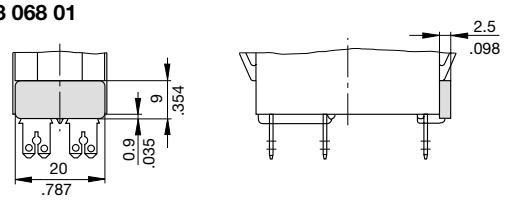
Ambient temperature	°F °C	-22 -30	-4 -20	+14 -10	+32 0	+73.4 +23	+104 +40	+122 +50	+140 +60
Derating factor		0.8	0.76	0.84	0.92	1	1.08	1.16	1.24

Approvals

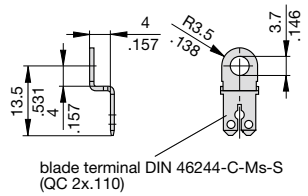
Authority	Standard	Rated voltage	Current ratings
VDE	IEC/EN 60934	3 AC 415 V AC 240 V DC 50 V DC 50 V DC 28 V	0.1 A...16 A (2-pole) 0.1 A...20 A 0.1 A...20 A (2-pole) 0.1 A...4 A (1-pole) 0.1 A...20 A
UL	UL 1077	AC 250 V DC 50 V AC 250 V	0.1 A...20 A 0.1 A...20 A 30 A (2 poles in parallel)
CSA	C22.2 No 235	AC 250 V DC 50 V AC 250 V	0.1 A...20 A 0.1 A...16 A 30 A (2 poles in parallel)
CQC	GB 17701	AC 240 V DC 50 V	0.1 A...20 A 0.1 A...20 A

Accessories

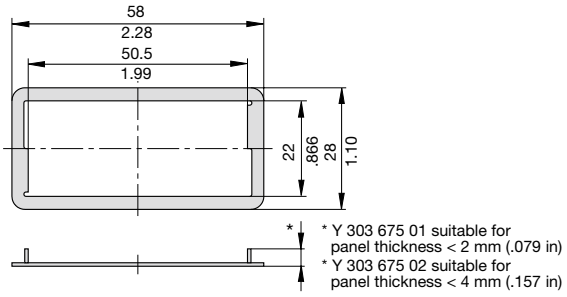
Insulated cover
Y 303 068 01



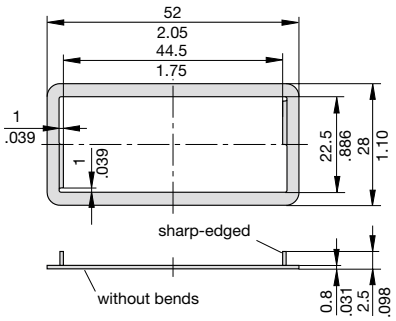
Terminal adapter
Y 303 862 01



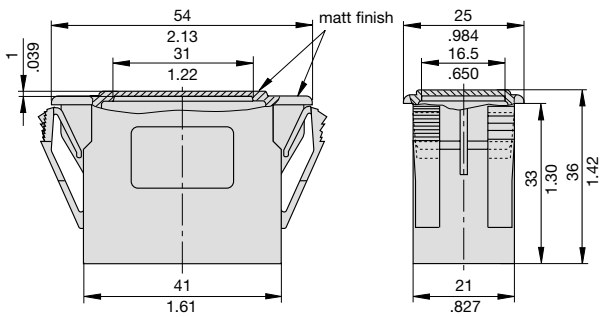
Spacer for 3120-F3...
Y 303 675 01/02



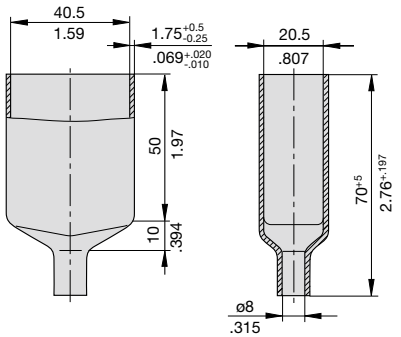
Spacer for 3120-F5...
Y 303 676 01



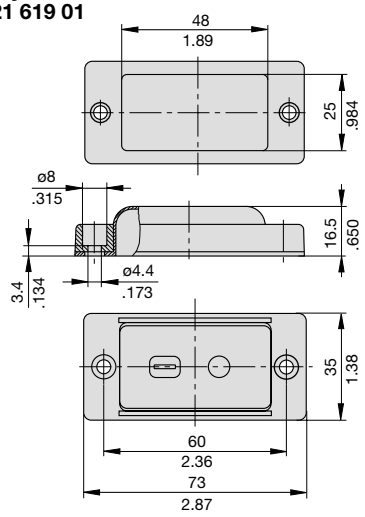
Blanking piece in -F3 frame
Y 303 885 31



Rear terminal shroud black (IP64)
Y 304 275 01



Water splash cover, transparent (IP66)
for style -F5..
X 221 619 01



This is a metric design and millimeter dimensions take precedence (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.

Description

The appliance inlet module X3120 with circuit breaker type 3120-F5/-F7/-F8 combines three functions within a single component: A C20 appliance inlet, a rocker-actuated or push button switch and resettable overcurrent protection. Screw-type mounting from the front or from the rear.

Typical applications

Electrical medical apparatus, laboratory equipment, professional audio equipment and office machines.

Order numbering code

Type No.
X3120 Appliance inlet module for circuit breaker type 3120

Module
B appliance inlet C20

Version
04 screw-type mounting

Accessories
00 without

Version
00 not wired; mounting position 3120: ON position to connector
01 not wired; mounting position 3120: OFF position to connector (standard)

Assembly status
M module supplied with circuit breaker 3120 fitted

X3120- B 04 00 01 M ordering example

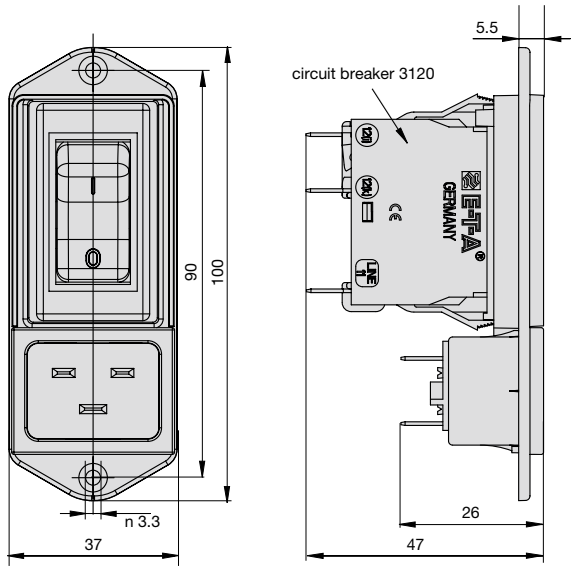
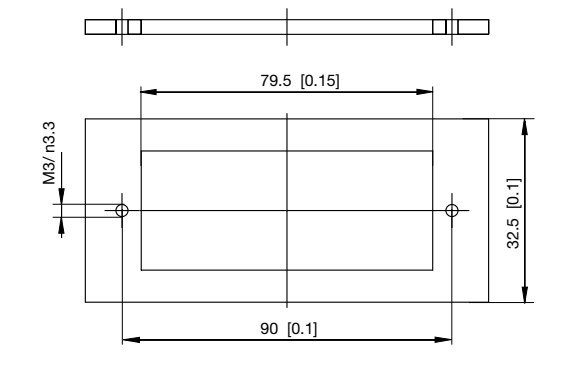
Approvals

ENEC, UL, CCC

Technical Data

Rated voltage	AC 240 V
Current rating	16 A (IEC) 20 A (UL/CSA)
Ambient temperature	-25°C ...+ 70°C
Number of poles	L, N + earth
Protection class:	I
Mounting method:	screw-type mounting (front or rear)
Connection:	blade terminals DIN 46244 6.3mm x 0.8mm
Housing material:	thermoplastics, black UL94V-0
Appliance inlet:	C20 according to IEC/EN 60320-1, UL498
Mains switch:	Circuit breaker 3120-F5/-F7/-F8 (3120-F8 with push button actuation: technical data upon request)

Dimensions



Cut-out dimensions