

Description

The 3120-N...-...Q1... switch serves for switching devices and machinery on or off. It is available in a range of design versions and meets the requirements of the relevant standard IEC/EN 61058 for switches for appliances. Type 3120 N is also available as a circuit breaker for equipment protection in accordance with IEC/EN 60934 (see data sheet thermal circuit breaker 3120-N).

Features:

- Rocker or push button actuation
- Single pole and double pole versions
- Convenient snap-in mounting

Optional:

- Illumination
- Water splash cover
- Push-in terminals
- With undervoltage release module

Typical applications

Medical and laboratory equipment, apparatus and machine construction, professional tools, household and garden appliances, offices machines, audio equipment, machine tools

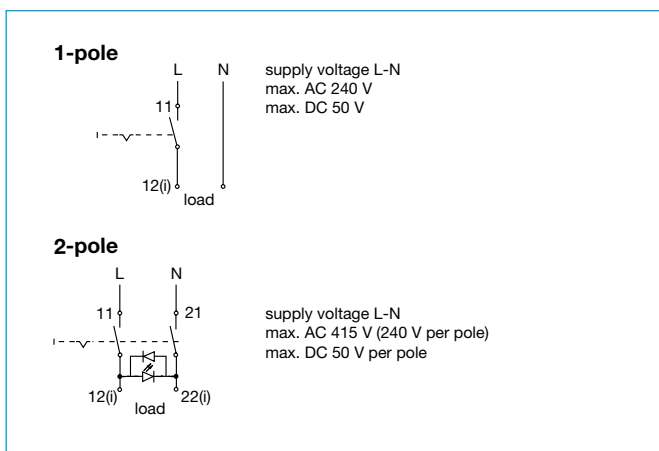
Compliance



Approvals

Approval authority	Standard	Rated voltage	Current rating	Approval marks
VDE	IEC/EN 61058	AC 240 V DC 50 V	16 (4) A 16 A	
CQC	GB 17701	AC 240 V DC 50 V	0.1 – 16 A	

Schematic diagrams



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3120-N...-... Q1...

Technical data

Voltage rating per pole	AC 240 V, DC 50 V	
Switching cycles:		
AC 240 V:	16 (4) A	25,000 switching cycles
DC 50 V:	16 A	50,000 switching cycles
Ambient temperature	0 ... 55 °C	
Insulation coordination (IEC 60664)	2.5 kV / 2 reinforced insulation at operating area	
Dielectric strength		
Operating area	Test voltage AC 3,000 V	
Pole to pole (2-pole)	Test voltage AC 1,500 V	
Insulation resistance	> 100 MΩ (DC 500 V)	
Degree of protection (IEC 60529)		
Operating area	IP40	
Terminal area	IP00	
Other degrees of protection possible, depending on selected variant, see further details in data sheet.		
Vibration	8 g (57-500 Hz), ± 0.61 mm (10-57 Hz) Test to IEC 60068-2-6, Test Fc 10 frequency cycles/axis	
Shock	30 g (11 ms) Test to IEC 60068-2-27, Test Ea	
Corrosion	96 hours at 5 % salt mist, Test to IEC 60068-2-11, Test Ka	
Humidity	240 hours in 95 % RH Test to IEC 60068-2-78, Test Cab	
Mass	approx. 33 g (2-pole) approx. 27 g (1-pole) approx. 42 g (2-pole with PT terminals)	



Ordering information

Type no.	3120 Switch with rocker actuation
Mounting method	
N3	Snap-in, mounting cut-out 50.5 x 21.5 mm
N5	Snap-in, mounting cut-out 44.5 x 22 mm
Number of poles	
0	2-pole
6	1-pole
Style	
1	Standard
3	With actuator guard
4	With accordion-style seal, IP65
6	Version with shorter flange (only for mounting method N5)
7	With water splash cover (IP54 in the actuation area) and shorter flange
A	With actuator guard and cross-hole (for optional interlock)
Terminal design	
PT	Push-in terminals
N7	Blade terminals 6.3 x 0.8
G7	As N7, terminals 11 and 21 with additional flat head screws M3.5
Version	
Q1	Switch only
Actuator style	
W	Rocker
Rocker colour and illumination	
Opaque	
01 .	Black without illumination
02 .	White without illumination
04 .	Red without illumination
Translucent	(when named with Y/R/T/G the rocker is illuminated)
12 . (Y)	White without illumination (illuminated)
14 . (R)	Red without illumination (illuminated)
15 . (Y)	Orange without illumination (illuminated)
16 . (T)	Blue without illumination (illuminated)
19 . (G)	Green without illumination (illuminated)
Marking of rocker	
A	(not for style 4)
D	
F	
K	
L	
X	

3120-N5 0 4 - N7 Q1-W 19D G ...	Ordering example
Illumination voltage range	(= operating voltage)
1	DC 12 V
2	DC 24 V
3	AC 115 V
4	AC 230 V
5	DC 48 V
6	AC 400 V (for 2-pole versions)
Current rating	
16 A	
Terminal shroud	
A	With terminal shroud, mounted
3120-N5 0 4 - N7 Q1-W 19D G4 - 16 A - A	Ordering example

3120-N5 0 4 - N7 Q1-W 19D G ... Ordering example



Ordering information

Type no.	
3120 Switch with push button actuation	
Mounting method	
N3	Snap-in, mounting cut-out 50.5 x 21.5 mm
N5	Snap-in, mounting cut-out 44.5 x 22 mm
Number of poles	
0	2-pole
6	1-pole
Style	
D	With actuator guard
E	With actuator guard and water splash cover IP54
F	With power-on protection
V	With power-on protection and water splash cover IP54
Terminal design	
PT	Push-in terminals
N7	Blade terminals 6.3 x 0.8
G7	As N7, terminals 11 and 21 with additional flat head screws M3.5
Version	
Q1	Switch only
Actuator style	
S	Two push buttons
Colour of push button/illumination (Style D and F without water splash protection)	
GRD	Green/red without illumination
GRDG	Green with LED illumination/red without illumination
Colour of push button/illumination (Style E and V with water splash protection)	
GRX	Green/red without illumination
GRXG	Green with LED illumination/red without illumination
Illumination voltage range (= operating voltage)	
1	DC 12 V
2	DC 24 V
3	AC 115 V
4	AC 230 V
5	DC 48 V
6	AC 400 V (for 2-pole versions)
Current rating	
16 A	
Terminal shroud	
A	With terminal shroud, mounted

3120-N3 0 V - N7 Q1-S GRXG - 16 A-A Ordering example

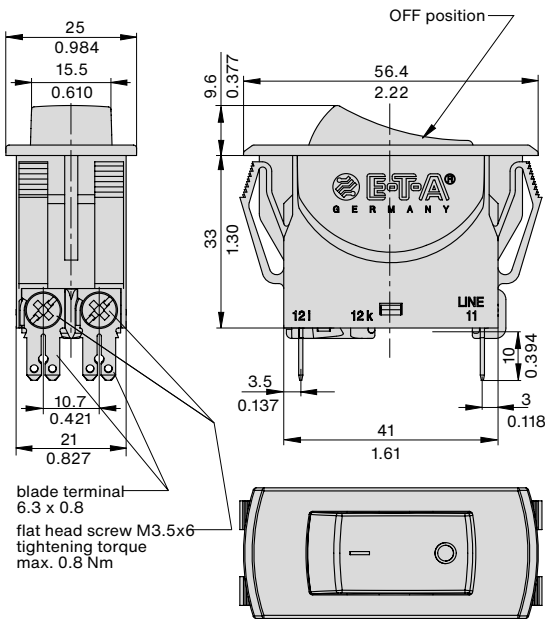
Please observe our minimum ordering quantities.

Customer-specific solutions

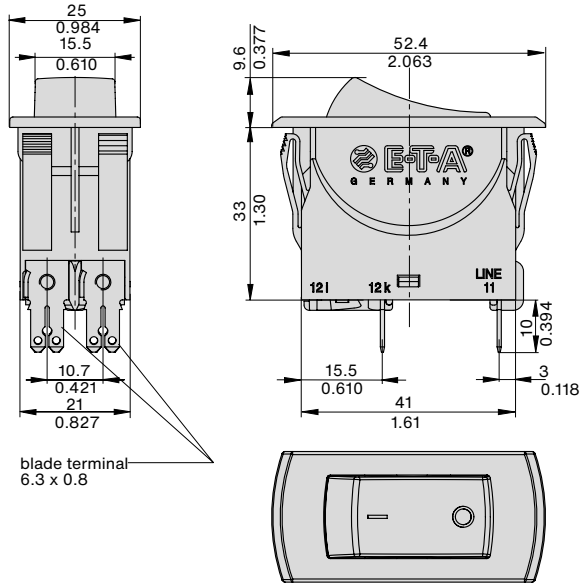
Looking for a version you cannot find in our order numbering code? Please get in touch.

Dimensions

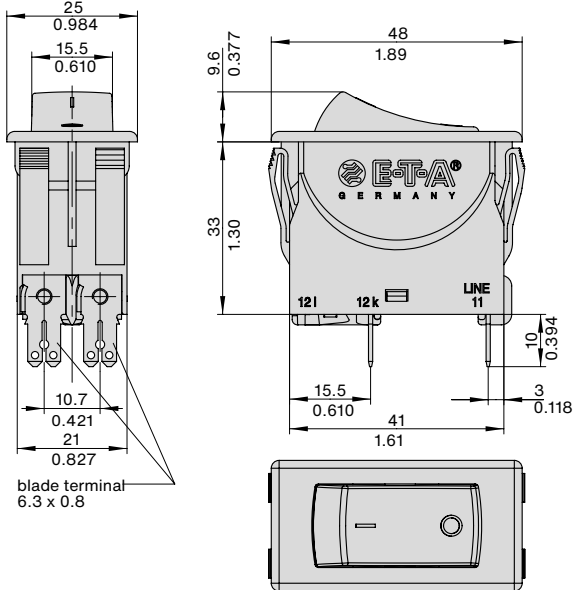
3120-N3.1-H7...



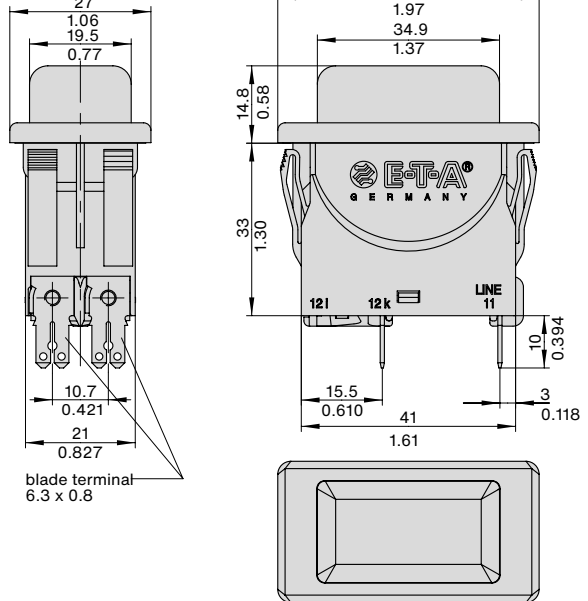
3120-N5.1-P7...



3120-N5.6-P7...

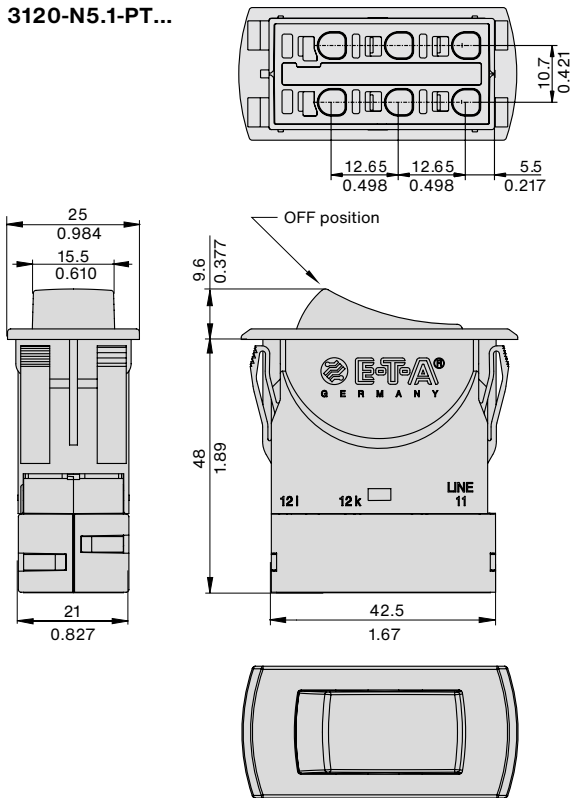


3120-N5.7-P7...

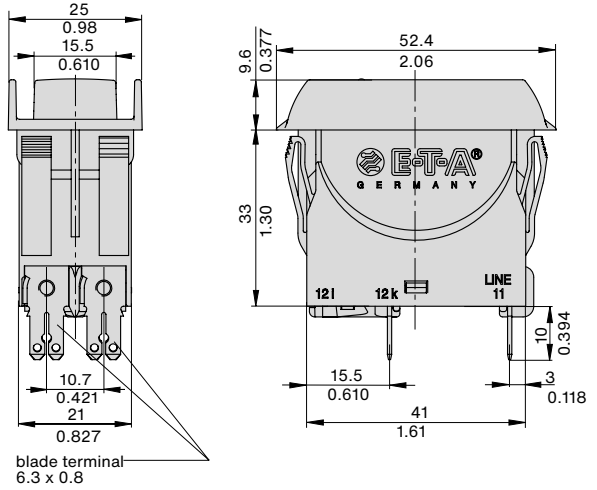


Dimensions

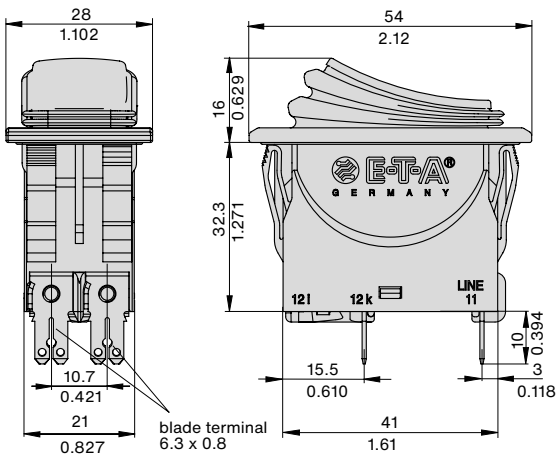
3120-N5.1-PT...



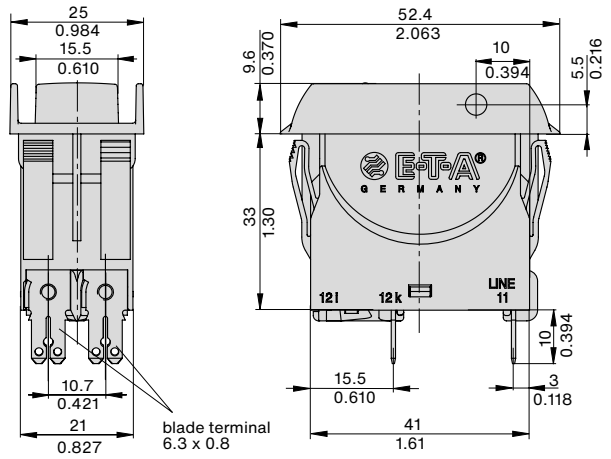
3120-N5.3-P7...



3120-N5.4-P7...



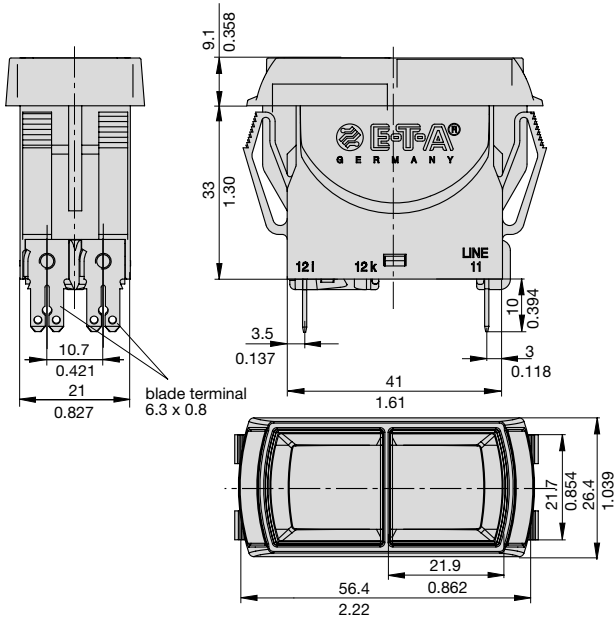
3120-N5.A-P7...



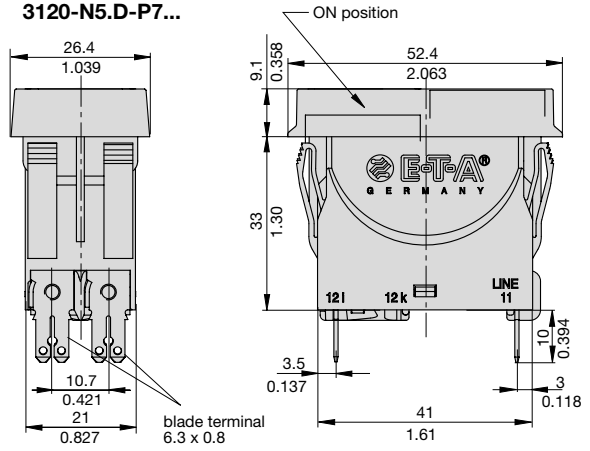
1

Dimensions

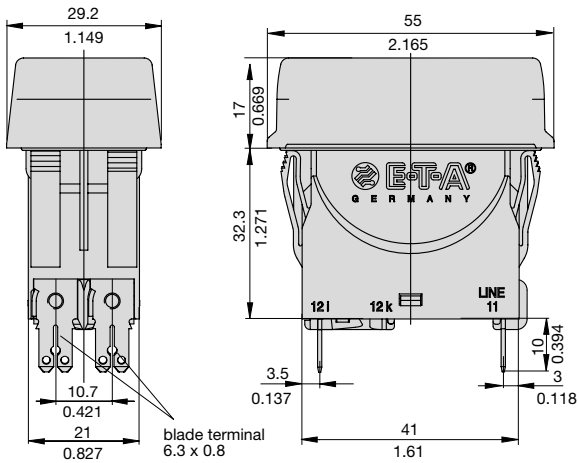
3120-N3.D-P7...



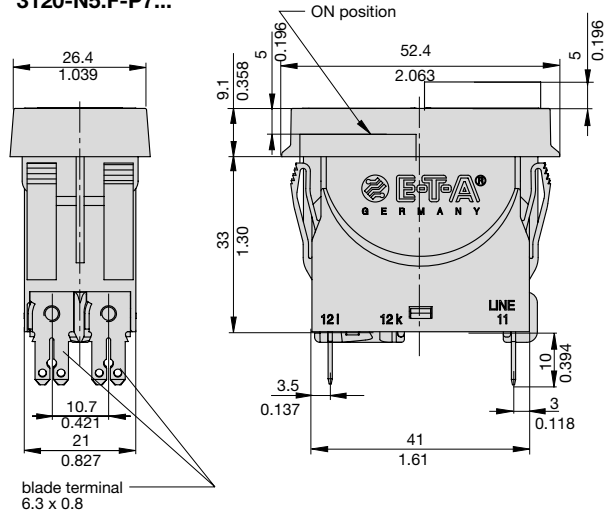
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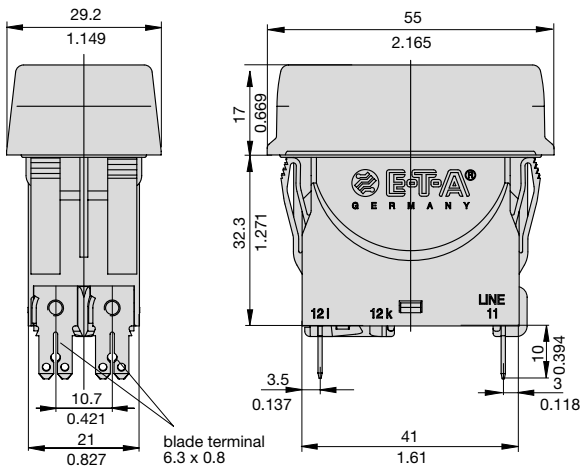
3120-N5.E-P7...



3120-N5.F-P7...



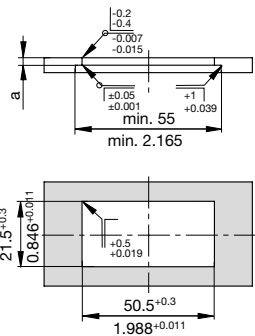
3120-N5.V-P7...



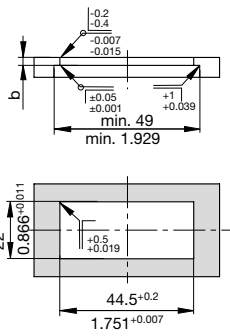
Mounting method

Mounting method

mounting cut-out -N3



mounting cut-out -N5

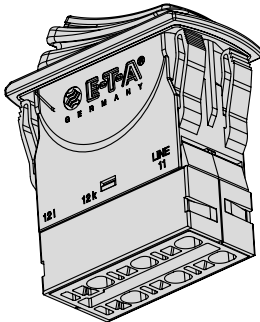


Panel thickness	Style variants 1/3/6/7/A/D/F	Style variants 4, E and V
a	1 - 6.35 mm	1 - 5.5 mm
b	1 - 4 mm	1 - 3.2 mm

Terminal types

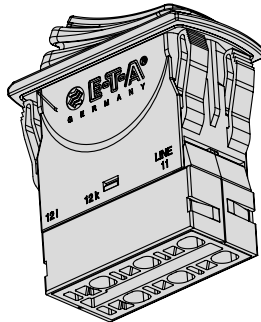
1-pole versions

3120-N564-PT

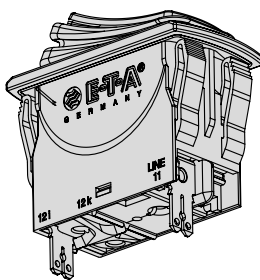


2-pole versions

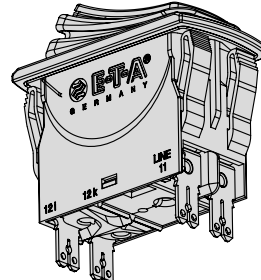
3120-N504-PT



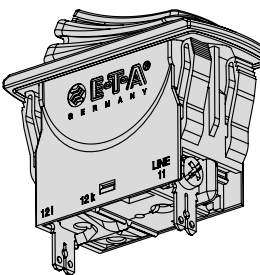
3120-N564-N7Q1



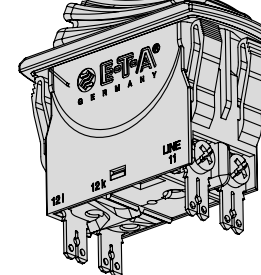
3120-N504-N7Q1



3120-N564-G7Q1

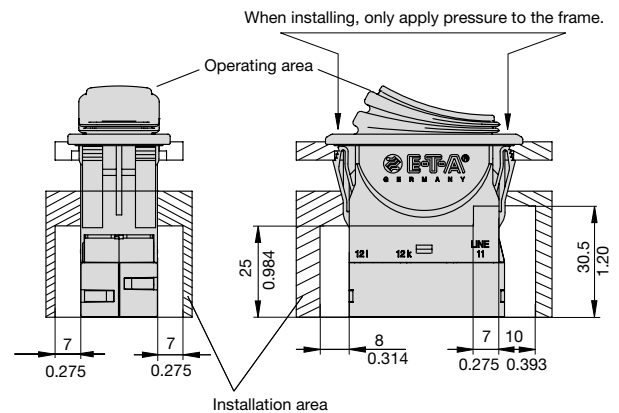


3120-N504-G7Q1

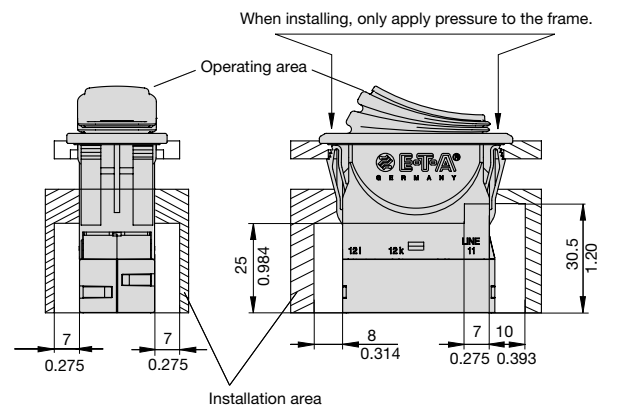


Installation drawing

3120 with push-in terminals



3120 with push-in terminals



Wiring

Related cable cross sections of current values for resistance load (EN61058, table 4)

Current in A		Cable cross section in mm ²
via	including	
-	3	0.75
3	6	1.0
6	10	1.5
10	16	2.5

Use of tin-plated brass receptacles only.

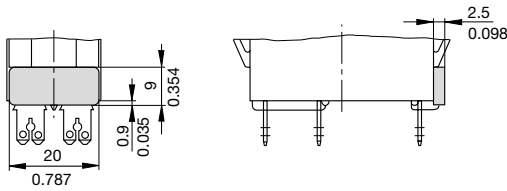
For screwless terminals (push-in / PT connection), please note additionally:

Conductor can be plugged in directly, for releasing actuator corresponding push-in spring with a screw driver (blade 3 - 3.5 mm)

Cable cross section for PT connection

Cable	
rigid	1...4 mm ² , stripping length: 10 mm
flexible with wire end ferrule (with or without plastic sleeve)	0.75...2.5 mm ² , length of metal sleeve 8 - 12 mm

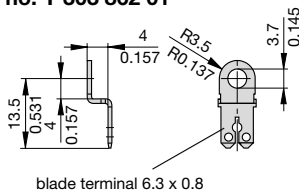
Terminal shroud



Selection A in the order numbering code

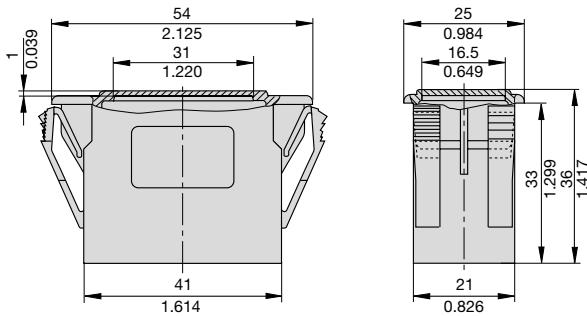
Accessories

Terminal adapter order no. Y 303 862 01

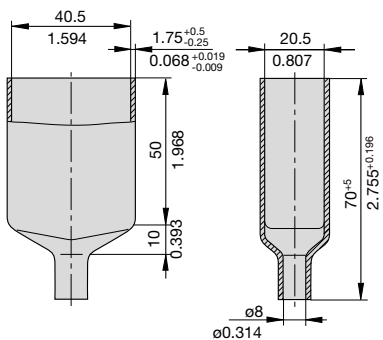


blade terminal 6.3 x 0.8

Cover for -N3 mounting cut-out order no. Y 303 885 31



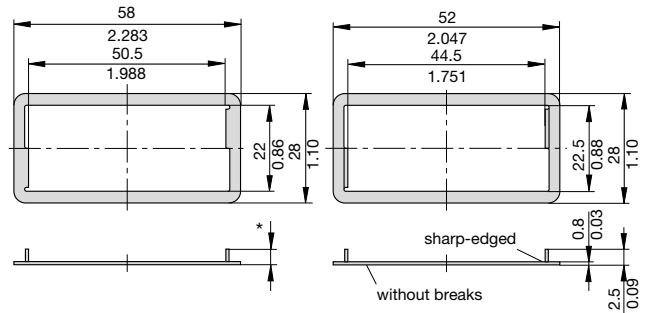
Water splash cover black for terminal area (IP64) order no. Y 304 275 01



Accessories

Snap-in frame for 3120-N3... order no. Y 303 675 01/02

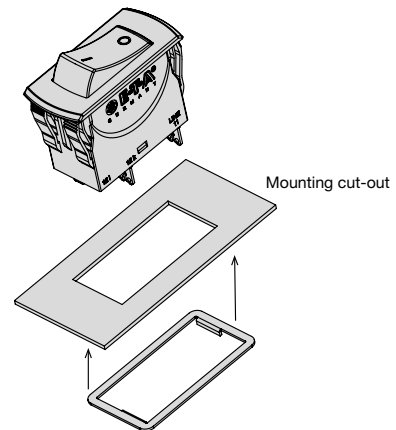
Snap-in frame for 3120-N5... order no. Y 303 676 01



* Y 303 675 01 can only be used for mounting panel thickness < 2 mm
* Y 303 675 02 can only be used for mounting panel thickness < 4 mm

The snap-in frame is used to ensure a tight fit of the circuit breaker in the mounting cut-out, e.g. in case of dimensional tolerances, soft materials or if the specified edge condition cannot be maintained.

Snap-in frame mounting



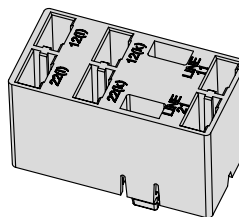
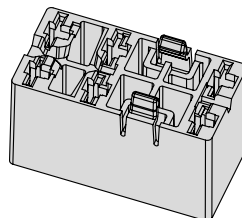
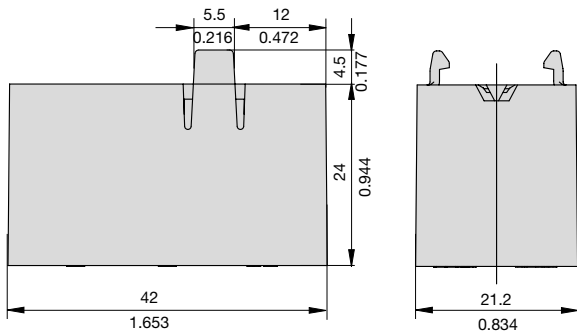
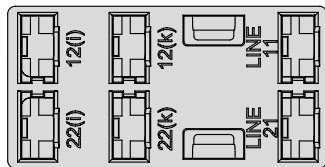
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Accessories

Connection adapter (for terminal types N7 and G7)

Order number Y 31214001

For pre-assembly of the connection cables. Two snap-in hooks ensure a firm plug-in connection.



Benefits:

- Time and cost savings during final assembly
- Quick replacement of devices
- Cover for the blade terminals

Note:

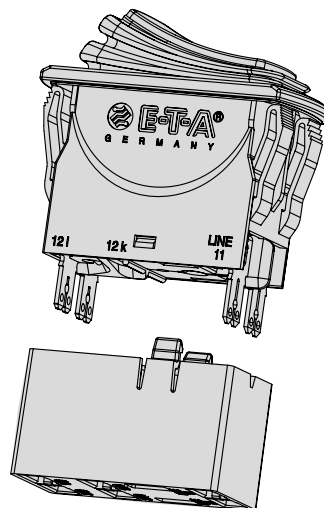
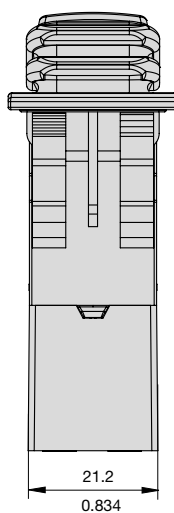
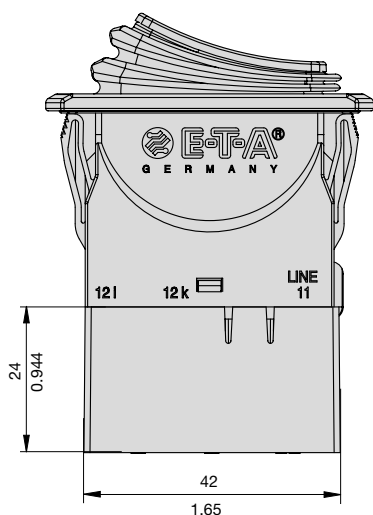
Supplied without female contacts.

The chamber dimensions for the female contacts (plug width 6.3 mm) are in accordance with DIN 46340 Part 3, Form A.

Use of tin-plated brass receptacles only.

Examples of suitable receptacles: Stocko RSB 7916 F6,3-1, Klauke type 2730, Vogt type 3832d.67

Connection adapter plugged onto circuit breaker:



Description X3120-U undervoltage release module

The undervoltage release module reliably excludes personal injury through automatic re-start after voltage dip or power failure.

Note: 3120-N...-G7 basic device requires screw terminals. Not possible in combination with PT terminals.

Applies in combination with design variant 4 (accordion-style):
In the event of voltage dip or power failure, the undervoltage release module switches off. The rocker actuator will go into centre position. Reset is effected in two steps:
Step 1: Switch rocker into OFF position.
Step 2: Reset switch.

Not possible with push button designs D and E.

Typical applications

All machines that could cause personal injury upon automatic re-start, e.g. drilling machines, electric saws, meat cutting machines etc.

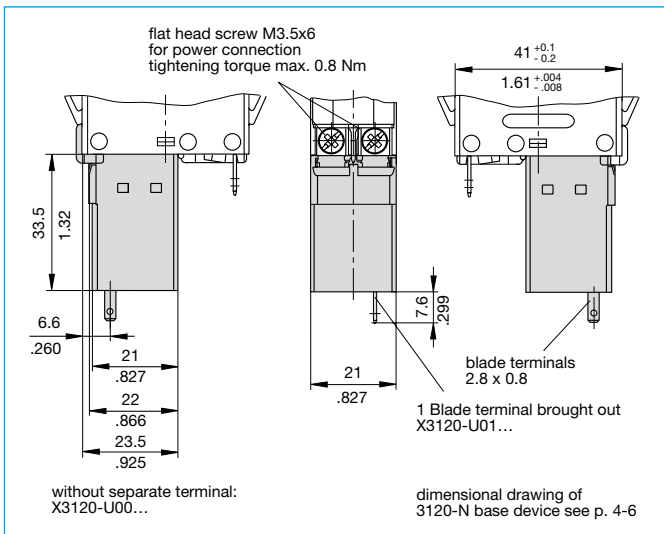
The X3120-U02 version allows set up of a cost-effective safety circuit via the physically isolated undervoltage release module, which enables implementation for example of a remote disconnection with emergency stop.

Ordering information

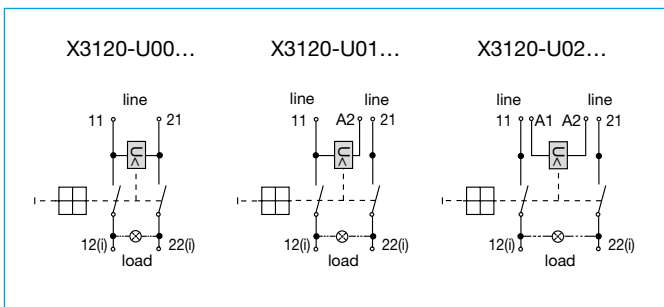
Type no.	
X3120	Module for 3120-N device
Module	
U	Undervoltage release module
Design	
00	Standard (without separate connections)
01	1 blade terminals 2.8x0.8
02	2 blade terminals 2.8x0.8
Rated voltage	
00	AC 230/240 V 50/60 Hz
01	AC 120 V 50/60 Hz
02	AC 100 V 50/60 Hz
03	DC 24 V
04	AC 400 V 50/60 Hz
Supply status	
M	Module only supplied mounted to base device
X3120-U 0000 M	Ordering example

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Dimensions - undervoltage release module



Schematic diagrams



Technical data

Voltage ratings:	AC 100 V; AC 120 V; AC 230/240 V; AC 400 V (50/60 Hz) DC 24 V
Voltage tolerances	+10 % / -15 %
Typical life	20,000 cycles
Current consumption	approx. 2.5 mA
Release values	$0.2 \times U_N < U < 0.7 \times U_N$ (at a rated voltage of AC 100 V the device can trip at 70 V and must trip at 20 V)
Trip time	<20 ms
Latch-in values	$\geq 85 \% U_N$
Ambient temperature	-30 ... 60 °C
Vibration	8 g (57-500 Hz), ± 0.61 mm (10-57 Hz) Test to IEC 60068-2-6, Test Fc 10 frequency cycles/axis
Shock	30 g (11 ms) Test to IEC 60068-2-27, Test Ea
Corrosion	48 hours at 5 % salt mist, Test to IEC 60068-2-11, Test Ka
Humidity	240 hours in 95 % RH Test to IEC 60068-2-78, Test Cab
Mass	approx. 56 g (including base unit)