

## 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

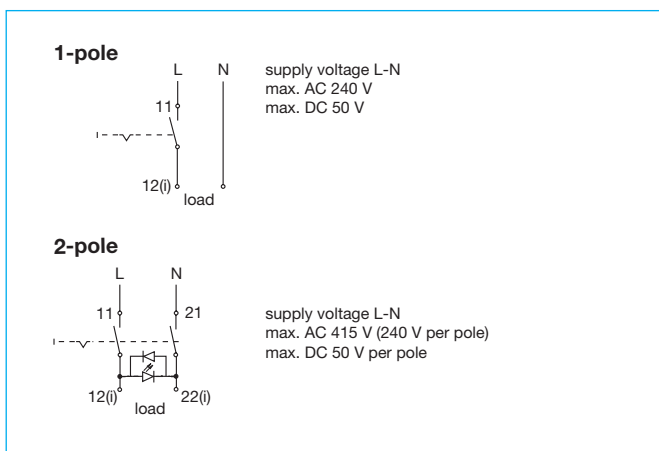
## Compliance



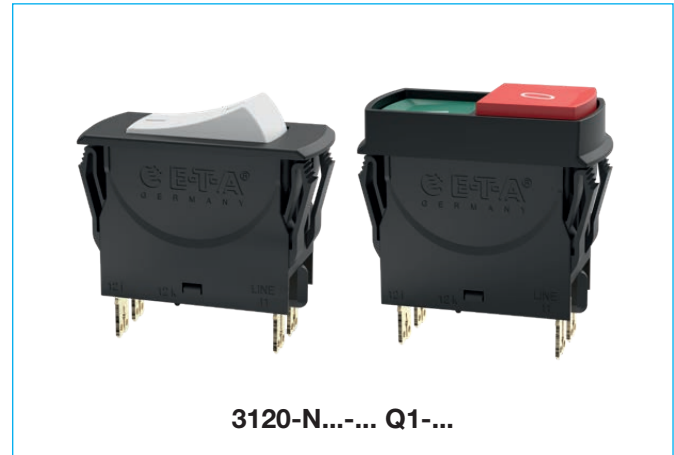
## Approvals

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
<b>Switching cycles:</b>	
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
<b>Dielectric strength</b>	
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)
<b>Degree of protection (IEC 60529)</b>	
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**

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

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

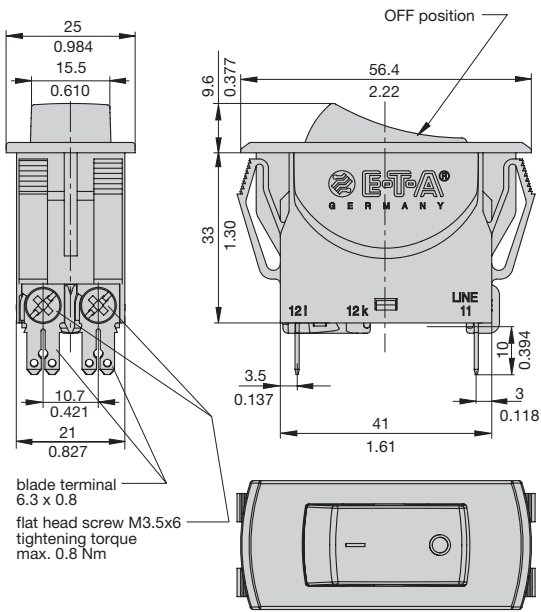
Please observe our minimum ordering quantities.

## Customer-specific solutions

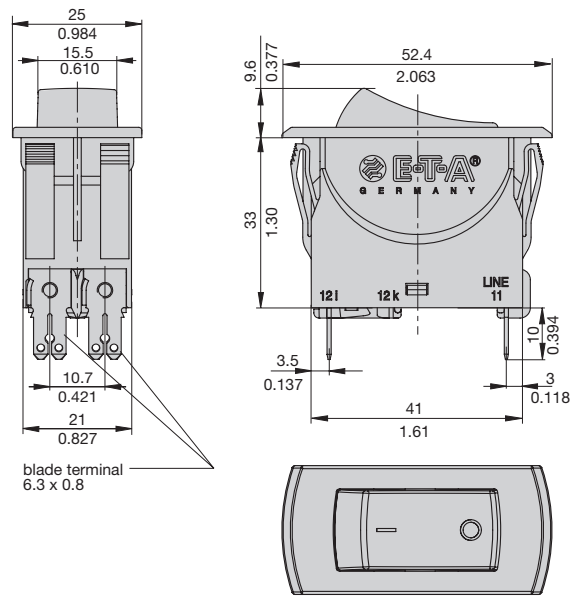
Looking for a version you cannot find in our order numbering code?  
Please get in touch.

## Dimensions

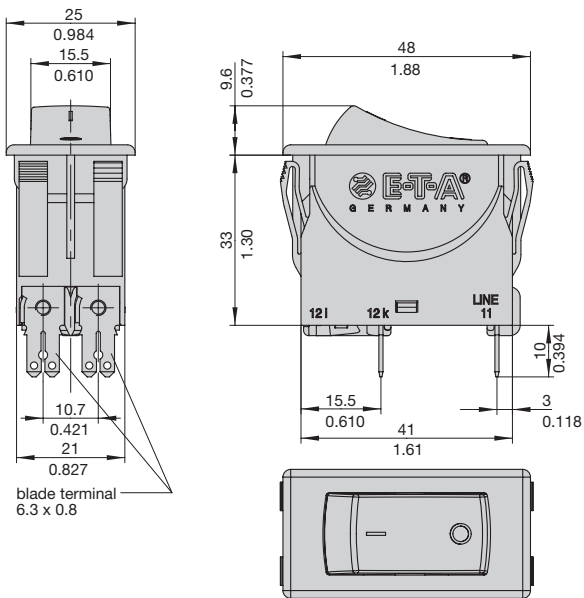
### 3120-N3.1-H7...



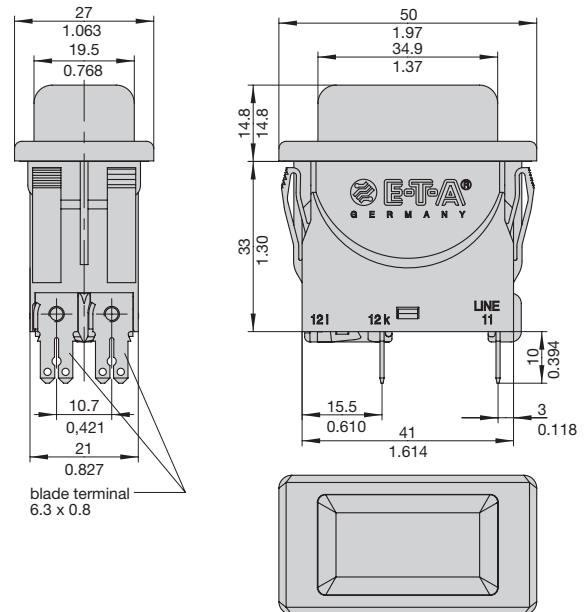
### 3120-N5.1-P7...



### 3120-N5.6-P7...

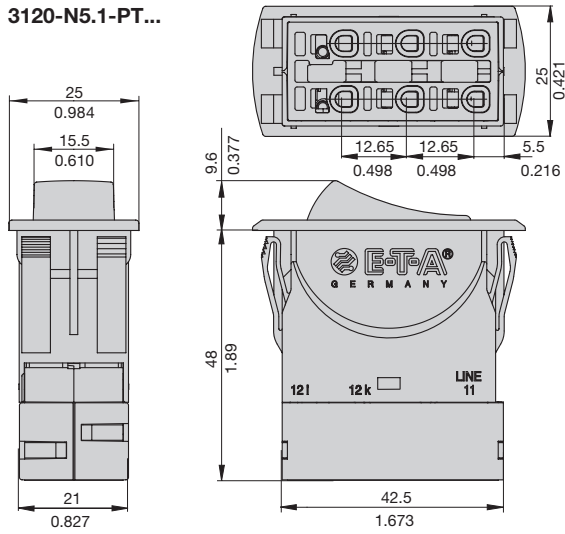


### 3120-N5.7-P7...

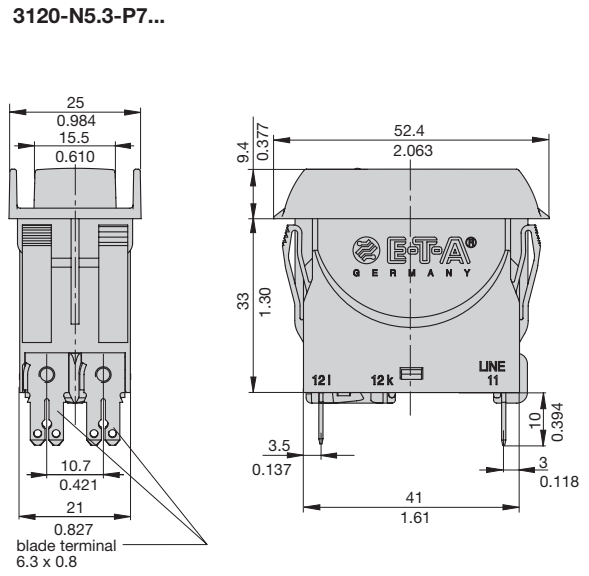


**Dimensions**

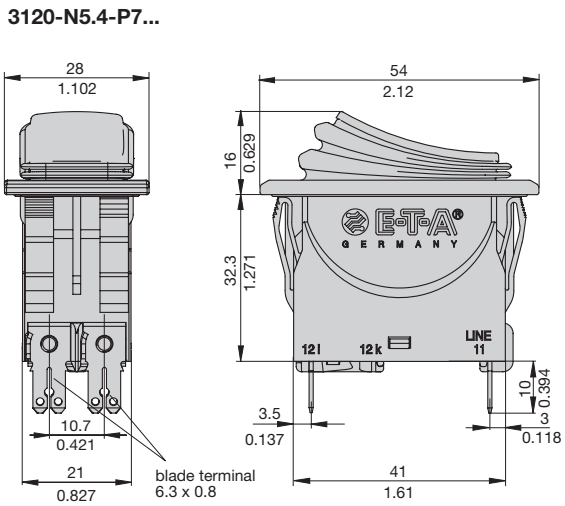
**3120-N5.1-PT...**



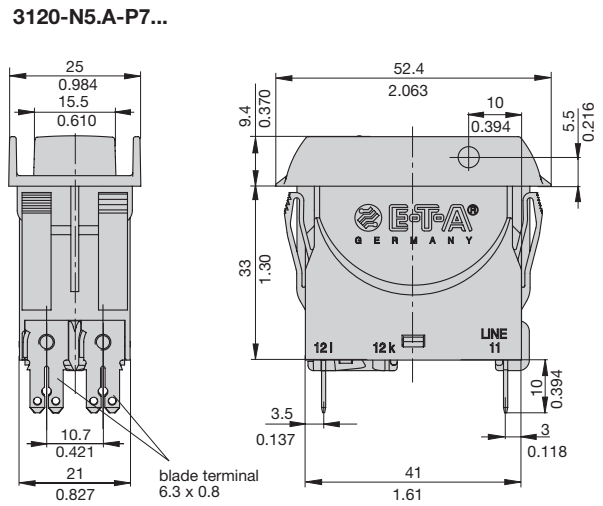
**3120-N5.3-P7...**



**3120-N5.4-P7...**

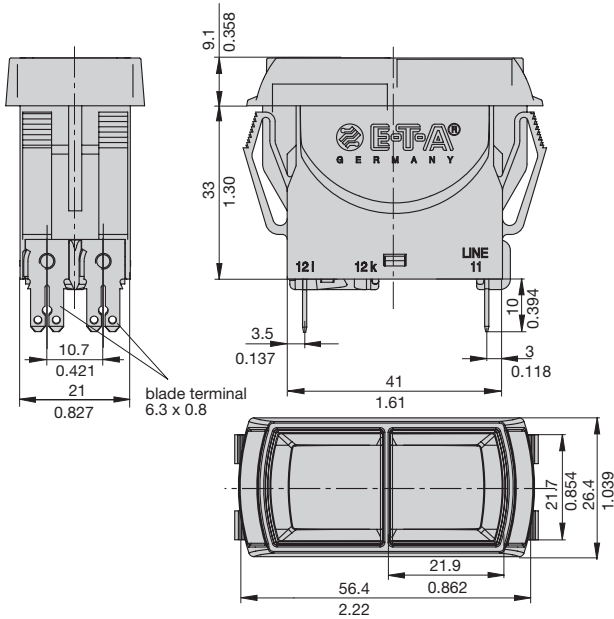


**3120-N5.A-P7...**

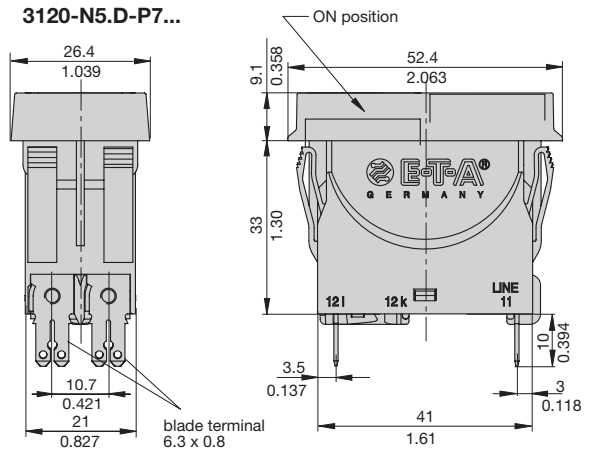


Dimensions

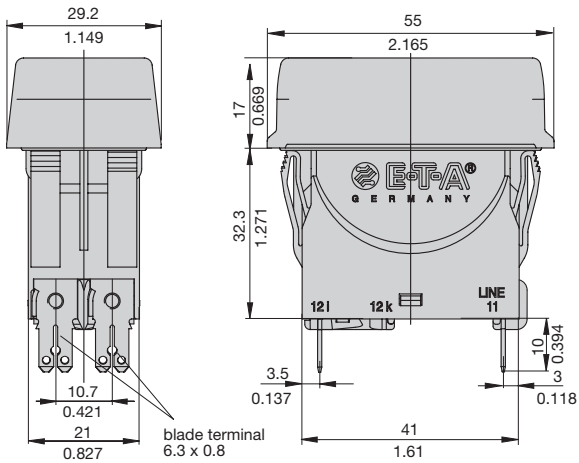
3120-N3.D-P7...



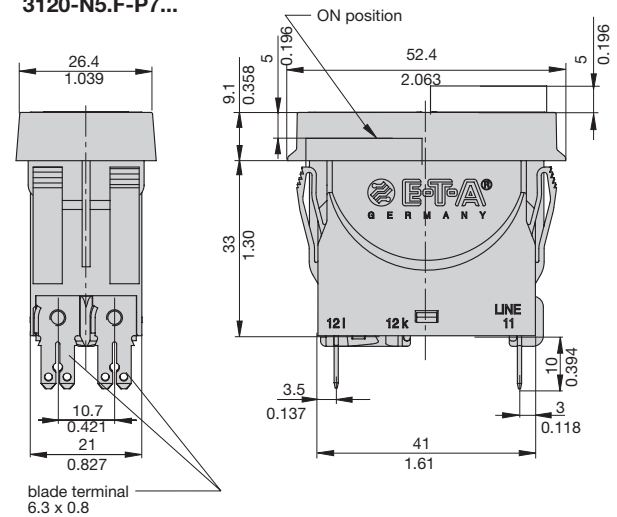
3120-N5.D-P7...



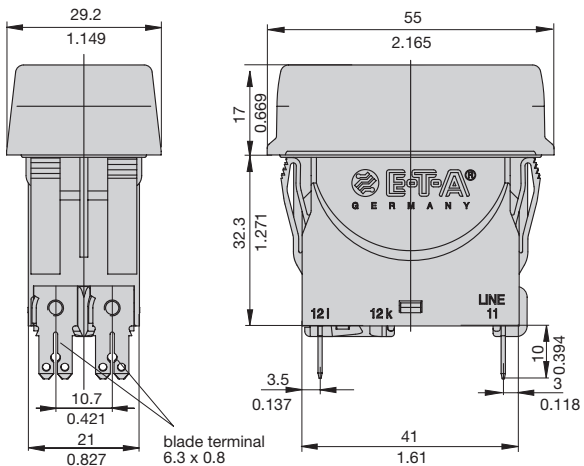
3120-N5.E-P7...



3120-N5.F-P7...



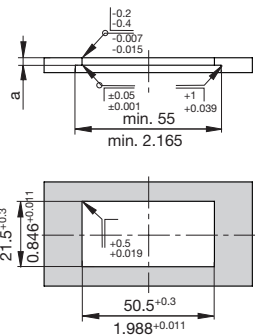
3120-N5.V-P7...



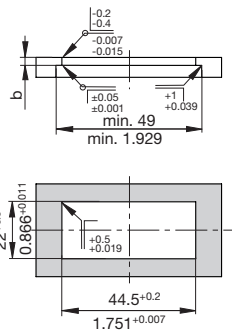
## Mounting method

### Mounting method

mounting cut-out -N3



mounting cut-out -N5

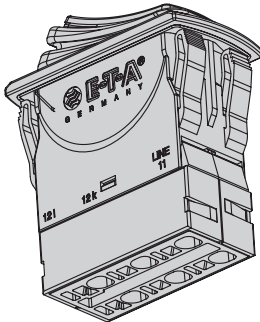


Panel thickness	Style variants 1/3/6/7/A/D/F	Style variants 4, E and V
a	1 – 6.35 mm	1 – 5.5 mm
b	1 – 4 mm	1 – 3.2 mm

## Terminal types

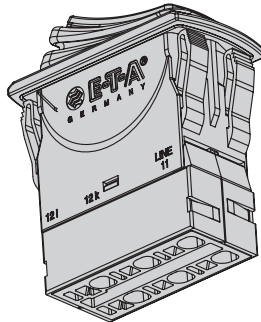
### 1-pole versions

3120-N564-PT

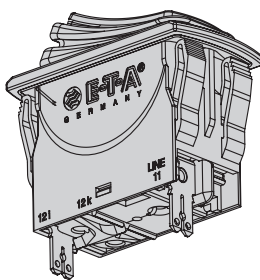


### 2-pole versions

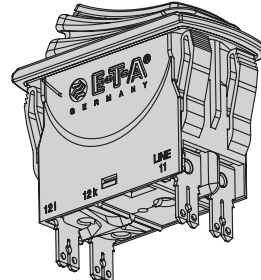
3120-N504-PT



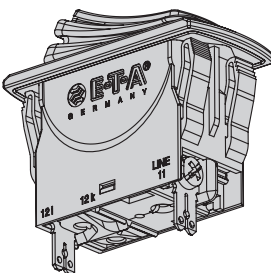
3120-N564-N7Q1



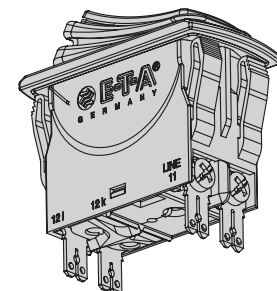
3120-N504-N7Q1



3120-N564-G7Q1

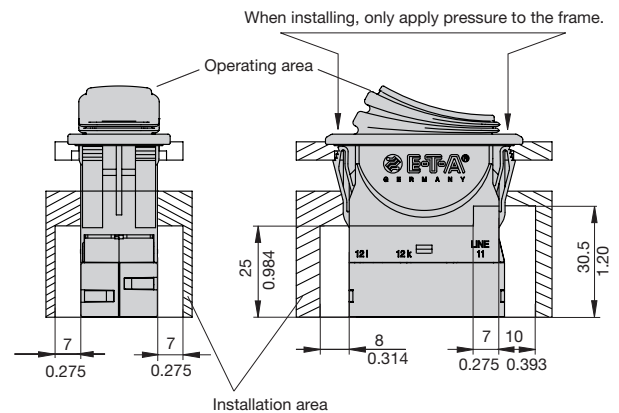


3120-N504-G7Q1

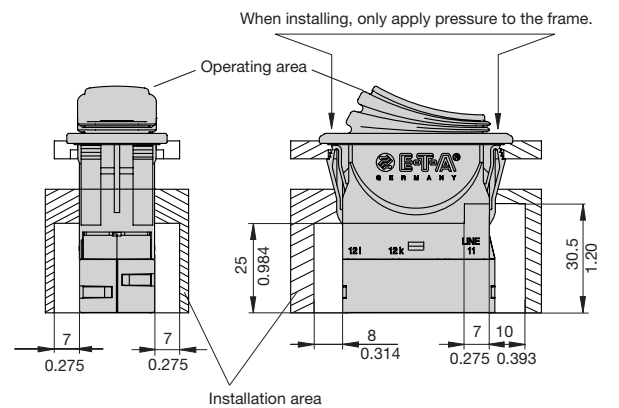


## Installation drawing

### 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 <sup>2</sup>
via	including	
-	3	0.75
3	6	1.0
6	10	1.5
10	16	2.5

Use of tin-plated brass receptacles only.

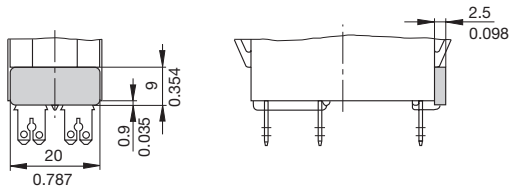
**For screwless terminals (push-in / PT connection), please note additionally:**

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 <sup>2</sup> , stripping length: 10 mm
flexible with wire end ferrule (with or without plastic sleeve)	0.75...2.5 mm <sup>2</sup> , length of metal sleeve 8 - 12 mm

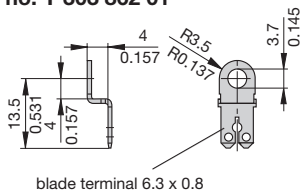
## Terminal shroud



Selection A in the order numbering code

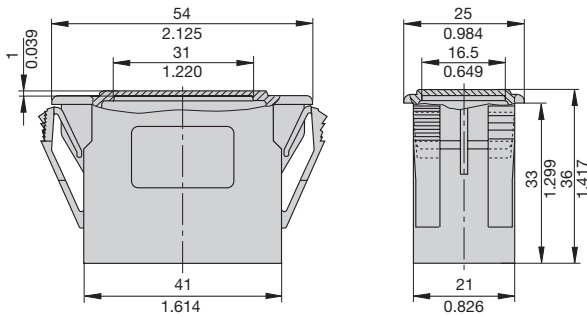
## Accessories

### Terminal adapter order no. Y 303 862 01

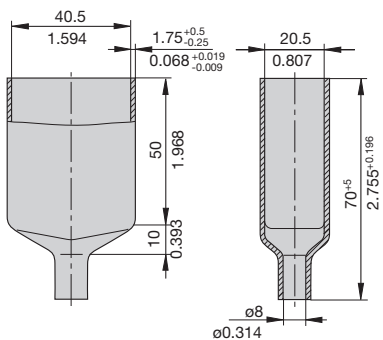


blade terminal 6.3 x 0.8

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



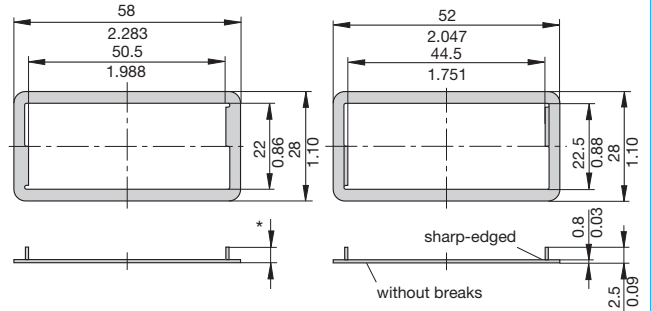
### Water splash cover black for terminal area (IP64) order no. Y 304 275 01



## Accessories

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

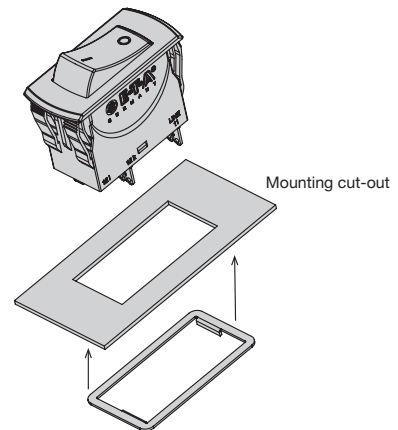
### Snap-in frame for 3120-N5... order no. Y 303 676 01



\* 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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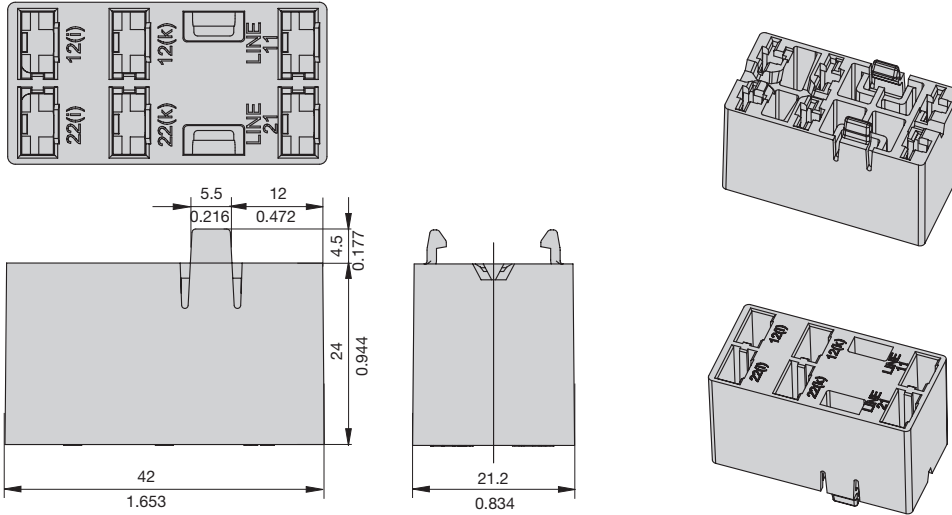


Accessories

**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:**

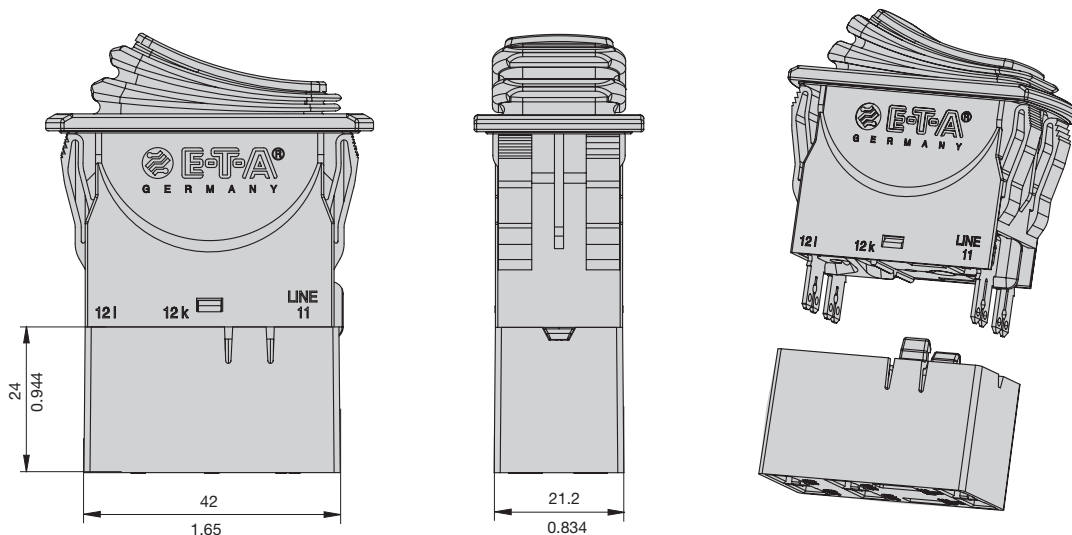
Supplied without female contacts.

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.

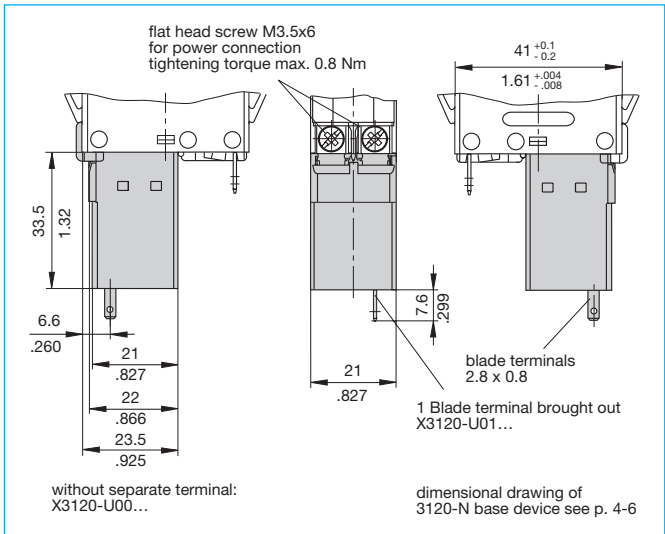
The X3120-U02 version allows set up of a cost-effective safety circuit via the physically isolated undervoltage release module, which enables implementation for example of a remote disconnection with emergency stop.

## Ordering information

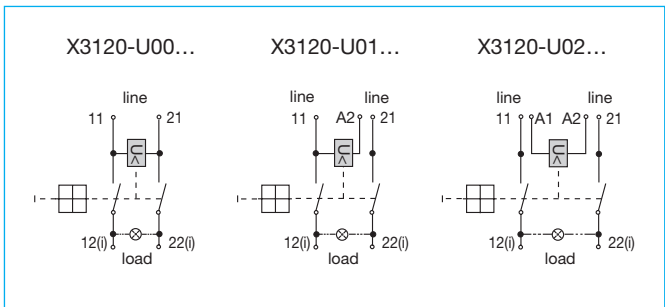
Type no.	
<b>X3120</b>	Module for 3120-N device
<b>Module</b>	
<b>U</b>	Undervoltage release module
<b>Design</b>	
<b>00</b>	Standard (without separate connections)
<b>01</b>	1 blade terminals 2.8x0.8
<b>02</b>	2 blade terminals 2.8x0.8
<b>Rated voltage</b>	
<b>00</b>	AC 230/240 V 50/60 Hz
<b>01</b>	AC 120 V 50/60 Hz
<b>02</b>	AC 100 V 50/60 Hz
<b>03</b>	DC 24 V
<b>04</b>	AC 400 V 50/60 Hz
<b>Supply status</b>	
<b>M</b>	Module only supplied mounted to base device
<b>X3120- U 00 00 M</b>	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), $\pm 0.61$ 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)