TA45: 2 pole, push button actuated

- Thermal release
- Positively trip-free

The 2 pole, push button actuated version of the TA45 line of thermal CBE's can be used for various purposes. Basically it is a CBE for automatic interruption of overloads with facilities for regular manual ON/OFF switching operations under normal load conditions. It is capable of interrupting moderate short circuit currents without the aid of back-up protection.

A special version is available as a «CBE-switch», in which the means for automatic overcurrent interruption (the bimetal relases), are omitted.

Another available version of this line utilizes an under-voltage release to protect persons against injuries caused by unexpected events like the automatic restarting of motors after a power failure. This release can be combined with the thermal release required for overcurrent protection. Protection against injuries is also provided by another CBE of this line, which prevents the starting of a machine should a protective cover be removed from dangerous parts of the machine.

Available options:

- CBE for overcurrent protection
  1 or 2 protected poles (thermal)
- CBE with undervoltage release:
  The CBE will open automatically when the voltage drops below the trip level. Only when the supply voltage has reached the reset level, the CBE can be reclosed manually.
- CBE switch with mechanical lock-out latch:
  A spring loaded pin will trip the CBE if a protective cover of the equipment is removed. The CBE can not be switched ON until the protective cover is refitted.
- CBE with remote trip release:
  The remote trip release permits the CBE to be tripped by a external contact (sensor) energizing the trip coil.
- CBE with auxiliary contact:
  All types of the line can be outfitted with an auxiliary contact (changeover contact).

TA45 is positively trip-free. The rated current range is 0,1 to 20 A at AC 230 V / DC 60 V. The CBE comes with snap-in mounting or flange mounting. A locking device suitable for padlocks prevents unauthorized switching ON of the CBE. The TA45 is approved in all major industrial countries and complies with the CBE-standard EN60934.

In conjunction with its accessories the TA45 product line of Schurter paves the way for new unconventional applications.

Applications

- Motors
- Power supplies
- Processing machines
- etc.

Effect of ambient temperature

The unit is calibrated for an ambient temperature of +23°C. To determine the rated current for a lower or higher ambient temperature, use a correction factor from the table below:

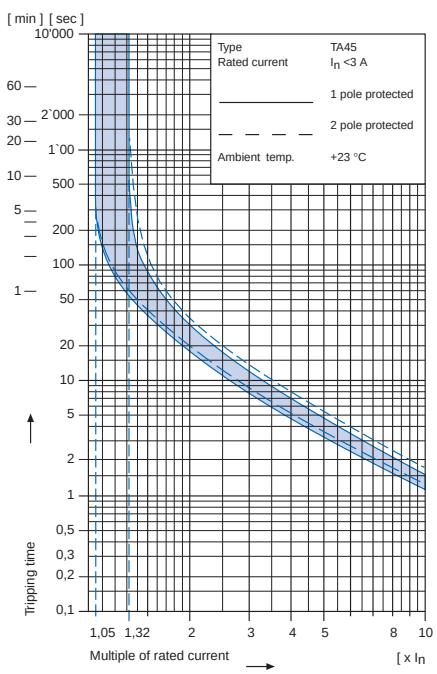
*Ambient temperature [°C]	Correction factor
–10	0,89
–5	0,91
0	0,92
+23	1,00
+30	1,03
+40	1,08
+55	1,16

Example

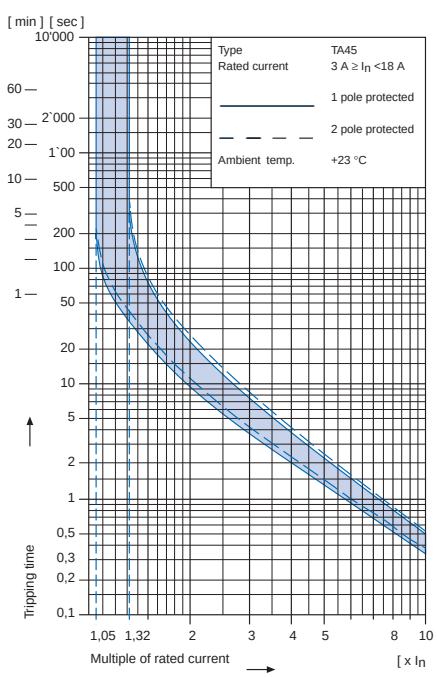
Rated current at +23°C	5,0 A
Ambient temperature	+40°C
Correction factor	1,08
Chosen rated current at +40°C ambient temperature	
5 A x 1,08 = 5,5 A	

***Temperature must be measured at the rear of the breaker next to the terminals after equipment operating temperature has been reached.**

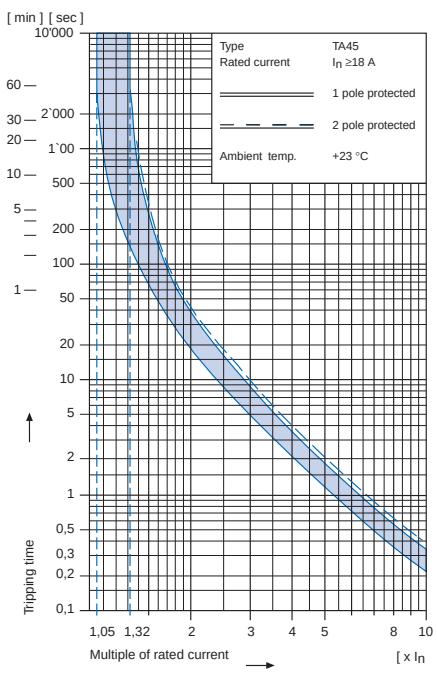
Tripping characteristics I_n <3 A



Tripping characteristics 3 A ≥ I_n <18 A



Tripping characteristics I_n ≥18 A



Technical data

Rated voltage U_e	See approvals page 241		AC 240 V; DC 60 V
Rated current I_n	See approvals page 241		AC/DC 0,1 A – 20 A
Conditional short circuit current I_{nc}	EN 60934, PC1, AC 240 V		1000 A
Short circuit capacity I_{cn}	AC 240 V with I_n<3 A	(number of cycles: 3)	10 I_n
	AC 240 V with I_n≥3 A	(number of cycles: 3)	300 A
	DC 60 V with I_n<3 A	(number of cycles: 3)	10 I_n
	DC 48 V with I_n ≥3 A	(number of cycles: 3)	120 A
Degree of protection	Accessible range		IP40
	With accessories		IP54, IP65
	Terminal side		IP00
	With accessories		IP40
Dielectric strength	Accessible range		AC 4000 V
Insulation resistance	DC 500 V		>100 MΩ
Endurance	Number of cycles at I_n (AC 240 V; DC 60 V)		50'000 x
	Number of cycles at 6 x I_n (AC 240 V)		40 x
	Number of cycles at 4 x I_n (DC 60 V)		40 x
Permissible ambient temperature			-10°C to +55°C
Resistance to vibration	IEC 68-2-6, test Fc, 1mm amplitude 5-60 Hz, 60-500 Hz		>10 g
Shock resistance	IEC 68-2-6, test Ea		>30 g
Type of tripping	• Thermal positively trip-free • Undervoltage release • Remote trip • Mechanical lock-out latch		
Weight			approx. 35 g

Technical data (continued)

Auxiliary contact (changeover)

Rated voltage	DC 28 V	DC 60 V (30V per pole)	AC 240 V
Rated current	Max. 10 A resistive load	max. 2 A resistive load	max. 2 A cos φ 0,7 (PF 0,7)

Undervoltage release

Max. operating voltage							1,1 U_e
Rated operating voltage U_e	5 V	12 V	24 V	48 V	120 V	240 V	
Current consumption (±10%)	10,5mA	16,5 mA	17,0 mA	3,2 mA	3,7 mA	2,8 mA	
Highest reset level							0,85 U_e
Lowest trip level							0,20 U_e
Trip delay							20 ms – 50 ms
Impulse withstand voltage (1,2 / 50 µs)							≥4 kV

Remote trip

Permissible impulse duration of the make contact (n/o)	(Between terminal C and P1)	unlimited
Electrical load of the make contact (n/o)	Current max. 12 mA / power max. 1,1 W	

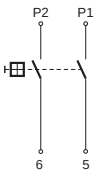
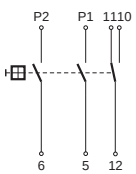
Approvals

			Rated current range AC	Rated voltage AC	Rated voltage DC
	UL	1077	0,1 – 20 A	240 V	60 V (30V per pole)
	CSA	22.2 No. 235	0,1 – 20 A	240 V	60 V (30V per pole)
	VDE	EN60934 CEE24/VDE0630	0,1 – 20 A 16A*	240 V 250V	60 V (30V per pole)
	SEMKO	EN60934	0,1 – 20 A	250 V	60 V (30V per pole)
	SEV	EN60934	0,1 – 20 A	240 V	60 V (30V per pole)

* without thermal release

Order code 2 pole, push button actuated

Basic type — **Without thermal overload protection**

Auxiliary contact (changeover) Shunt terminal							•	
								
Terminal type	Quick connect terminal Screw type terminal (lineside P1, P2)		•	•		•	•	
Snap-in type	Dimension	Page	245	246		247	248	
	Push button gasket IP40 Push button gasket IP65		ABK ABS	AEK AES		AUK AUS	AXK AXS	
Flange type	Dimension	Page	249	250		251	252	
	Push button gasket IP40 Push button gasket IP65		AHK AHS	AJK AJS		ALK ALS	APK APS	

Order example

ABL	T	F	J28	U2

Colors

	Switch front	ON Button	OFF Button
T	black	green	red
U	yellow	green	red
V	grey	green	red

Push button legend

	Surface	Illustration	Color of print
F	embossed	I 0	
H	printed	ON OFF	white
K	printed	ON OFF	black
L	printed	I 0	white
M	printed	I 0	black
P	printed	I 0	white
R	printed	I 0	black
S	printed	ON I 0 OFF	white
T	printed	ON I 0 OFF	black

Without thermal overload protection: code C00

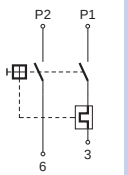
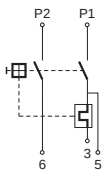
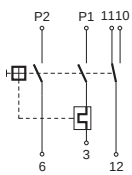
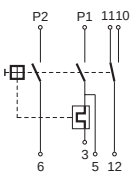
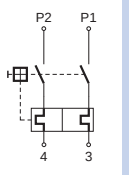
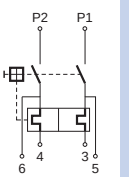
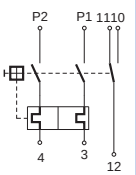
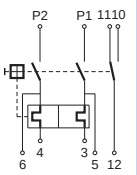
With thermal overload protection: rated current I_n (A)

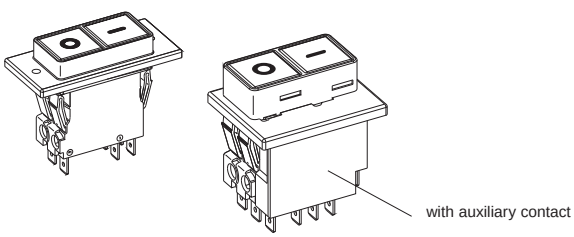
Other amperages available on request.

I_n	Code	I_n	Code	I_n	Code	I_n	Code
0,1	J01	1,3	J13	2,8	J28	10,0	100
0,2	J02	1,4	J14	3,0	030	11,0	110
0,3	J03	1,5	J15	3,5	035	12,0	120
0,4	J04	1,6	J16	4,0	040	13,0	130
0,5	J05	1,7	J17	4,5	045	14,0	140
0,6	J06	1,8	J18	5,0	050	15,0	150
0,7	J07	1,9	J19	6,0	060	16,0	160
0,8	J08	2,0	J20	6,5	065	17,0	170
0,9	J09	2,1	J21	7,0	070	18,0	180
1,0	J10	2,2	J22	7,5	075	19,0	190
1,1	J11	2,3	J23	8,0	080	20,0	200
1,2	J12	2,5	J25	9,0	090		

1 pole thermal overload protection

2 pole thermal overload protection

															
245	246	245	246	247	248	247	248	245	246	245	246	247	248	247	248
ABL ABU	AEL AEU	ABM ABV	AEM AEV	AUL AUU	AXL AXU	AUM AUV	AXM AXV	ABN ABW	AEN AEW	ABP ABX	AEP AEX	AUN AUW	AXN AXW	AUP AUX	AXP AXX
249	250	249	250	251	252	251	252	249	250	249	250	251	252	251	252
AHL AHU	AJL AJU	AHM AHV	AJM AJV	ALL ALU	APL APU	ALM ALV	APM APV	AHN AHW	AJN AJW	AHP AHX	AJP AJX	ALN ALW	APN APW	ALP ALX	APP APX



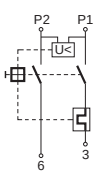
with auxiliary contact

Accessories see page 244

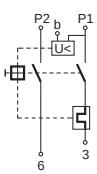
Without release / lock-out latch: code C0

Detail see pages 224-225

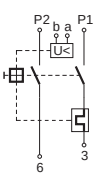
Undervoltage release



U*

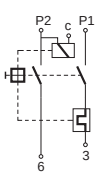


E*



Z

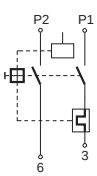
Remote trip release



A*

Code	Rated voltage U_n AC (V)	U*	E*	Z	A*
2	240	•	•	•	•
3	230	•	•	•	•
4	120	•	•	•	•
	AC / DC (V)				
6	48	•	•	•	•
7	24	•	•	•	•
8	12	•	•	•	
9	5	•	•	•	

Mechanical lock-out latch

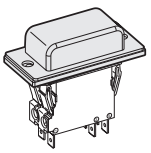


S0

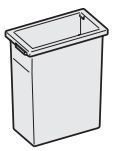
* Release U, E and A not available in combination with screw clamp terminals (basic type)

Order code accessories 2 pole, push button actuated

For customer mounting

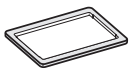


AZZ05 Screw-on cover, 2 pole, IP65

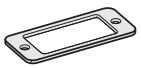


AZZ51 Rear cover 2 pole, IP40

AZZ61 Flat gasket for snap-in type, 2 pole, IP54



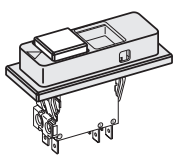
AZZ62 Flat gasket for snap-in type, 3 pole, IP54

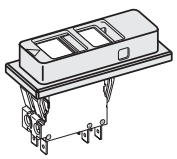


AZZ63 Flat gasket for screw-on type, 2 pole, IP54

AZZ05

Order example

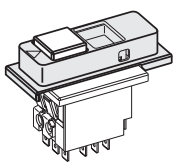


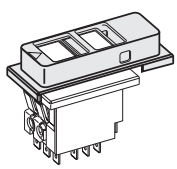


AZZ71 Locking device black, 2 pole, safety-lock type

AZZ72 Locking device yellow, 2 pole, safety-lock type

AZZ73 Locking device grey, 2 pole, safety-lock type





AZZ81 Locking device black, 3 pole, safety-lock type

AZZ82 Locking device yellow, 3 pole, safety-lock type

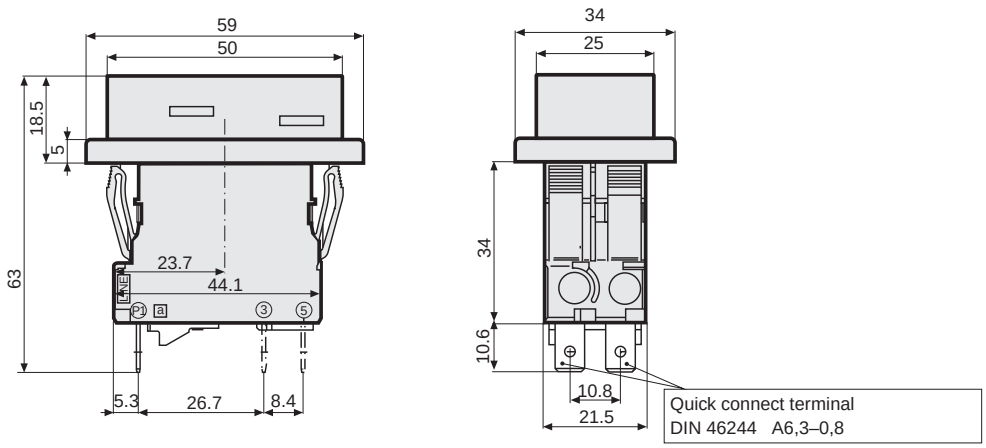
AZZ83 Locking device grey, 3 pole, safety-lock type

Available accessories

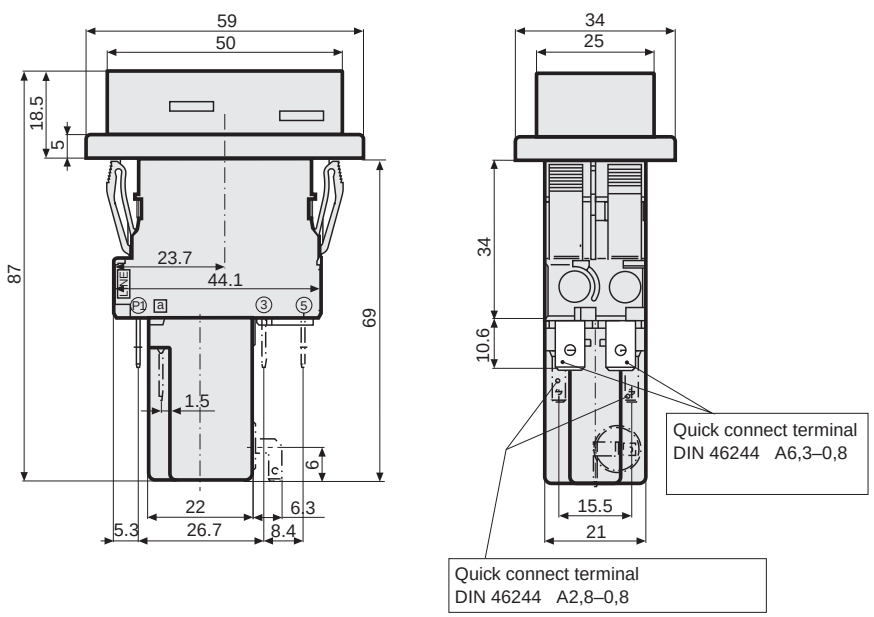
	2 pole version		2 pole version with auxiliary contact	
	Snap-in type	Flange type	Snap-in type	Flange type
AZZ05		•		•
AZZ51	•	•		
AZZ61	•			
AZZ62			•	
AZZ63		•		•
AZZ71 AZZ72 AZZ73	•			
AZZ81 AZZ82 AZZ83			•	

Quick connect terminals

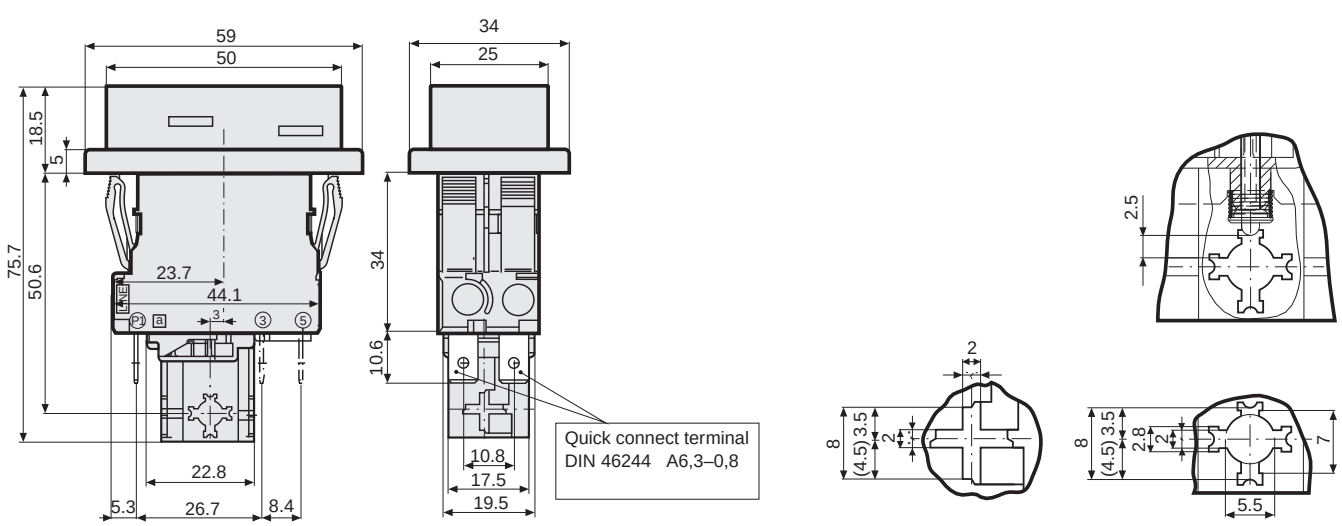
Basic type



Undervoltage release, remote trip release

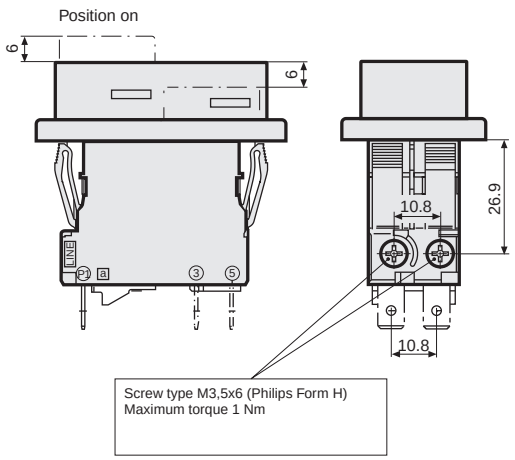


Mechanical lock-out latch



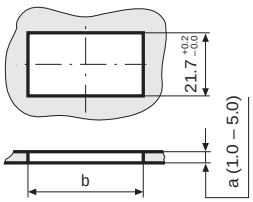
Screw clamp terminal

Basic type

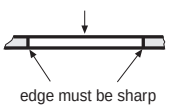


Cut-out and pin-out

Cut-out

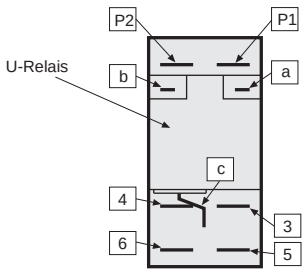


Assembly



a	b
1.0	44,5...45,0
1.5	44,5...45,0
2.0	44,7...45,2
2.5	44,7...45,2
3.0	44,8...45,3
4.0	44,9...45,4
5.0	45,0...45,5

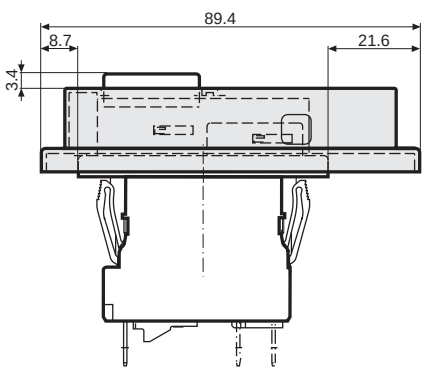
Pin-out



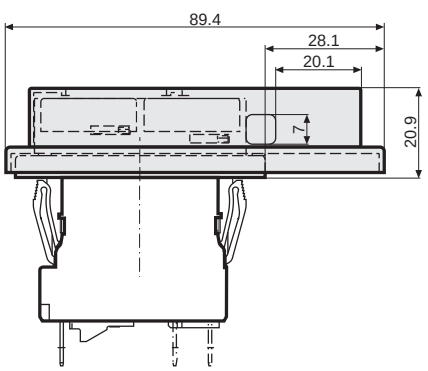
Accessories

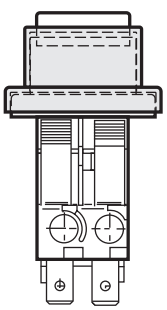
AZZ71 AZZ72 AZZ73

CBE switchable

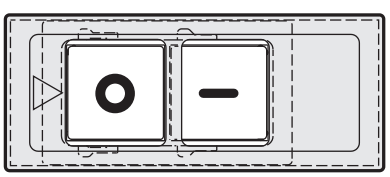


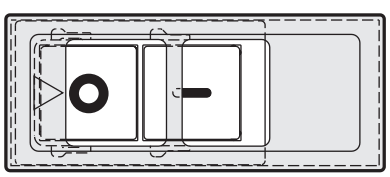
CBE not switchable



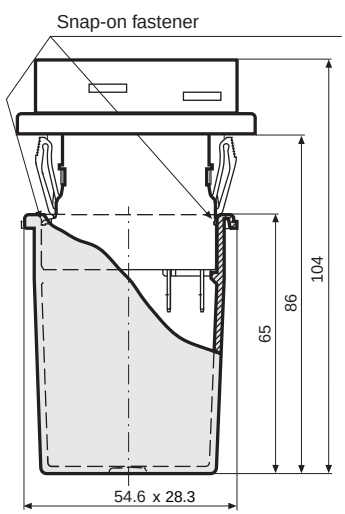


AZZ51



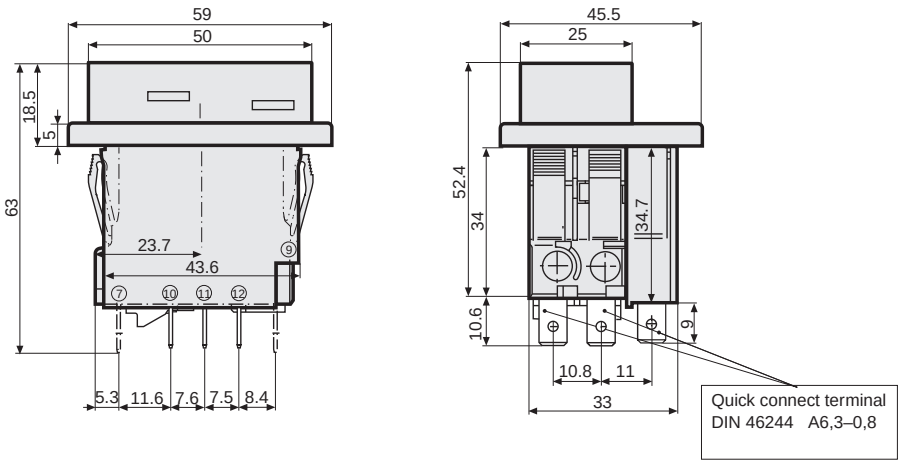


Snap-on fastener

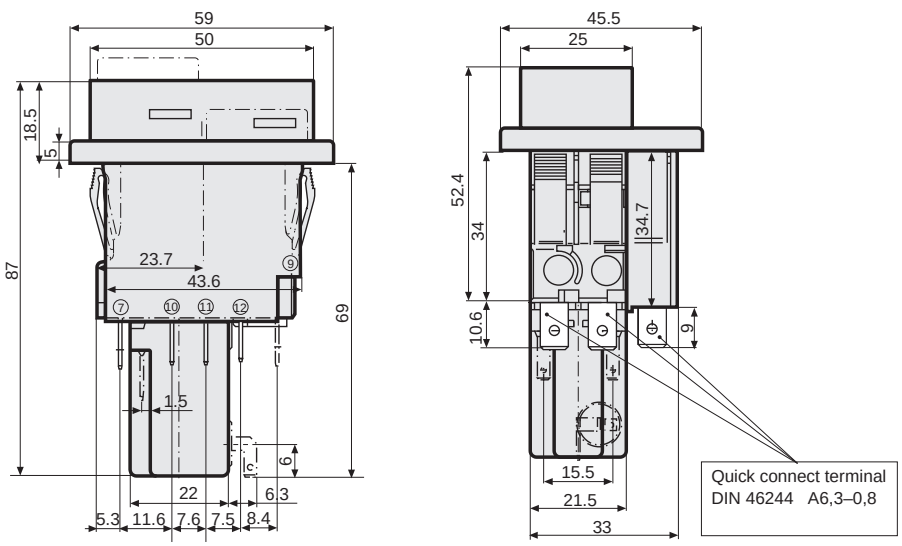


Quick connect terminals

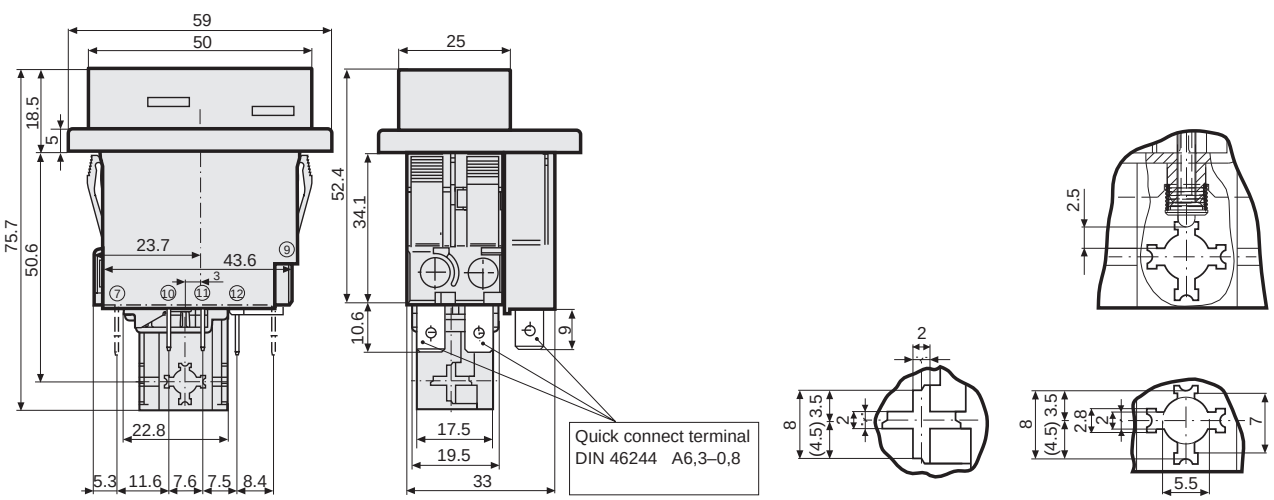
Basic type with auxiliary contact



Undervoltage release, remote trip release

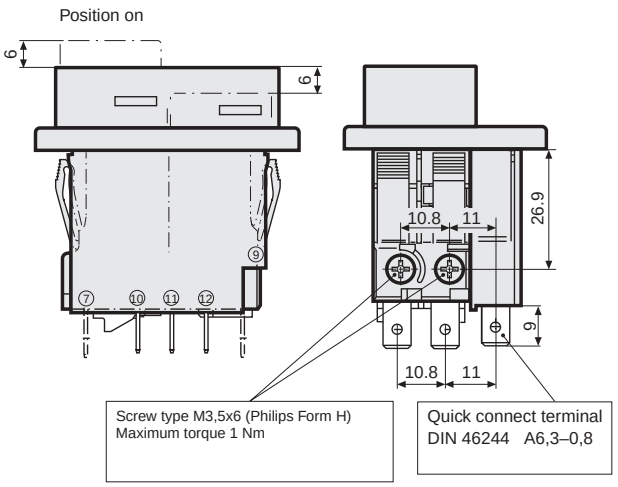


Mechanical lock-out latch



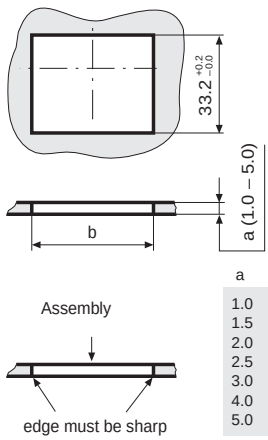
Screw clamp terminal

Basic type with auxiliary contact



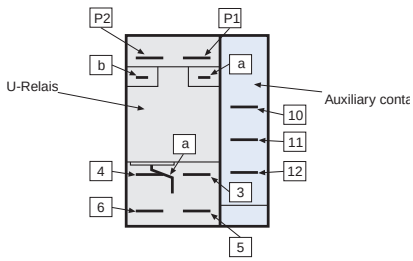
Cut-out and pin-out

Cut-out



a	b
1.0	44,5...45,0
1.5	44,5...45,0
2.0	44,7...45,2
2.5	44,7...45,2
3.0	44,8...45,3
4.0	44,9...45,4
5.0	45,0...45,5

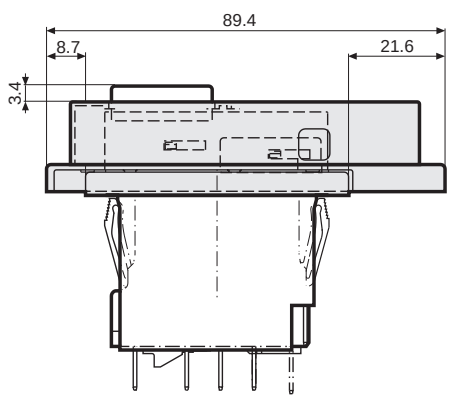
Pin-out



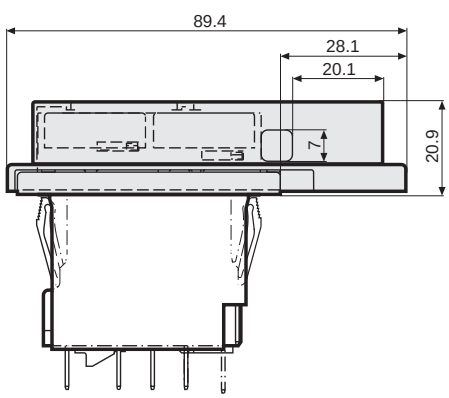
Accessories

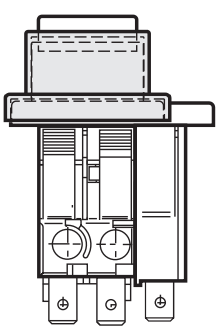
AZZ81 AZZ82 AZZ83

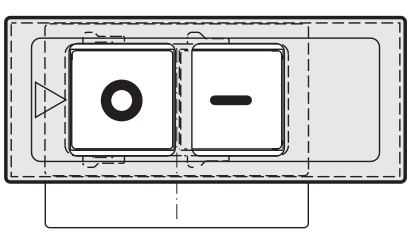
CBE switchable

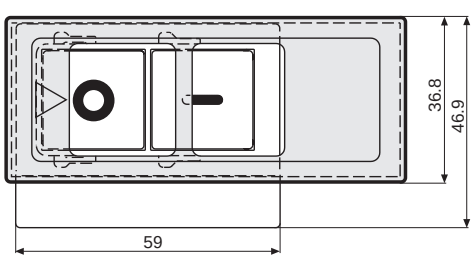


CBE not switchable



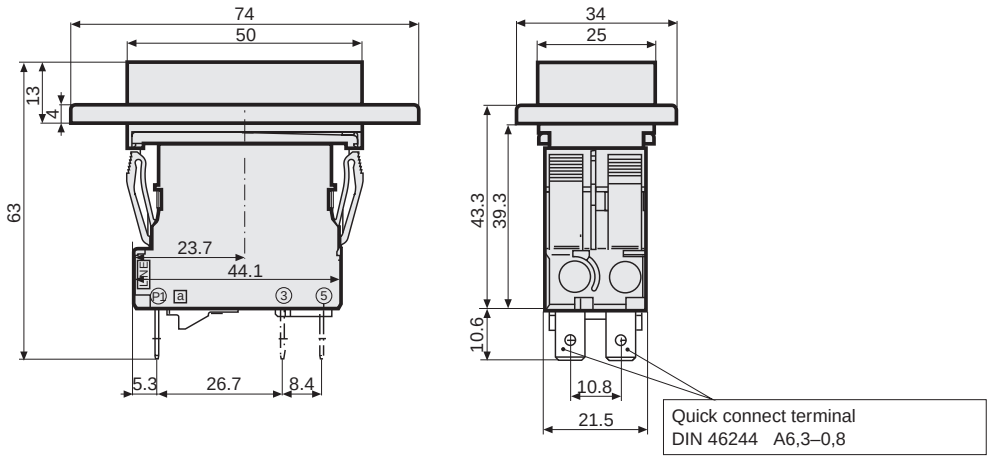




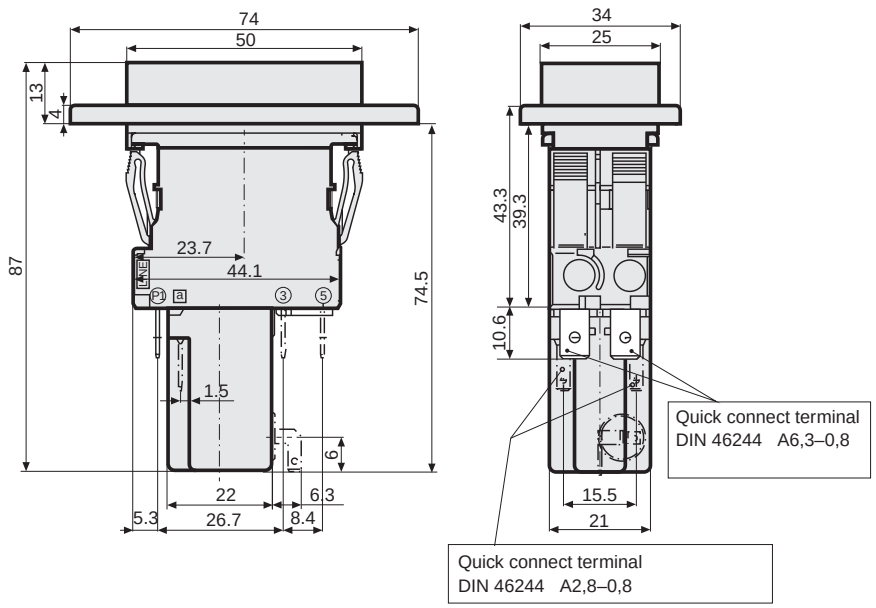


Quick connect terminals

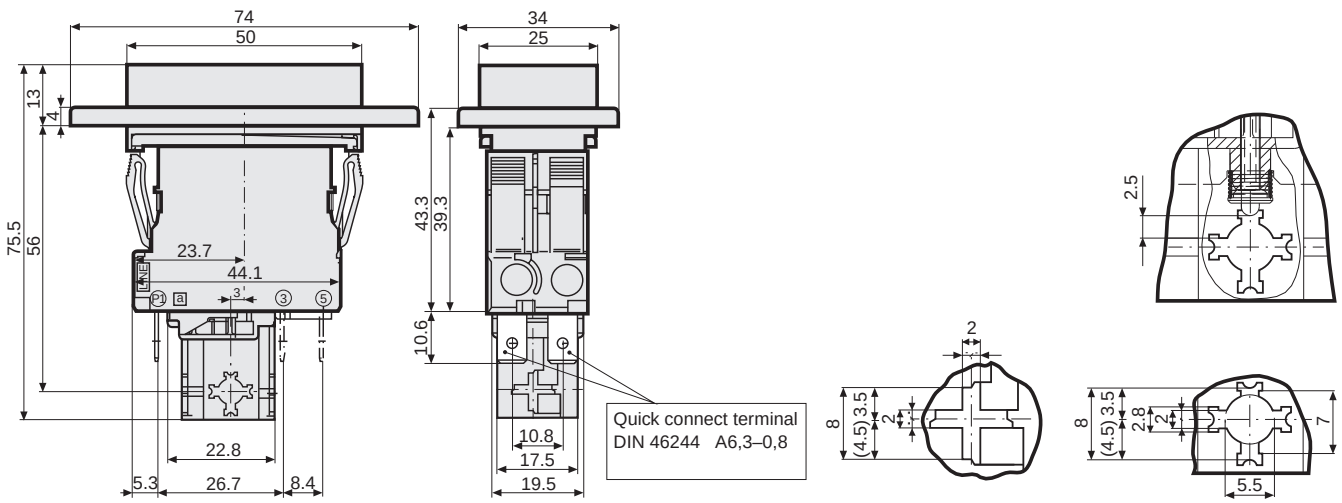
Basic type



Undervoltage release, remote trip release



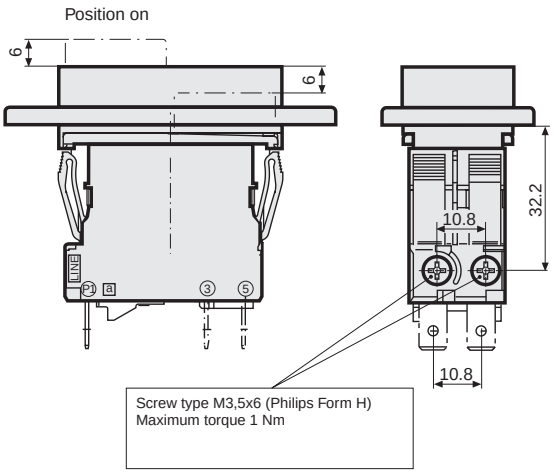
Mechanical lock-out latch



Screw clamp terminal

Basic type

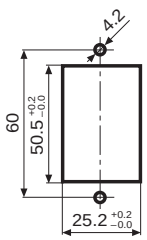
Position on



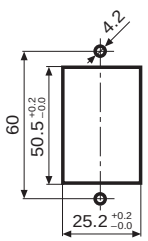
Cut-out and pin-out

Cut-out

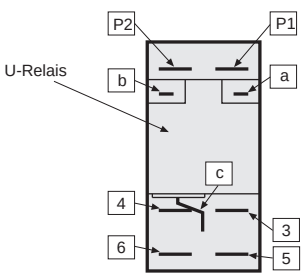
Installation from front and rear



Installation from front and rear

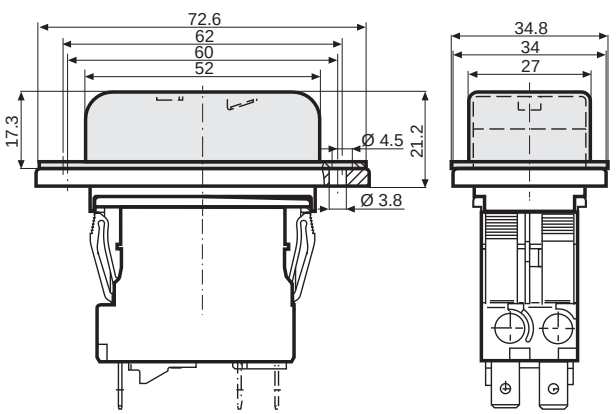


Pin-out



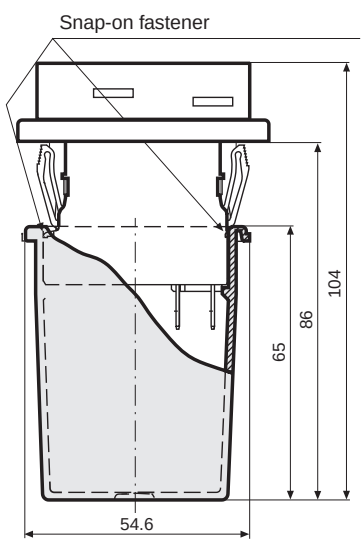
Accessories

AZZ05



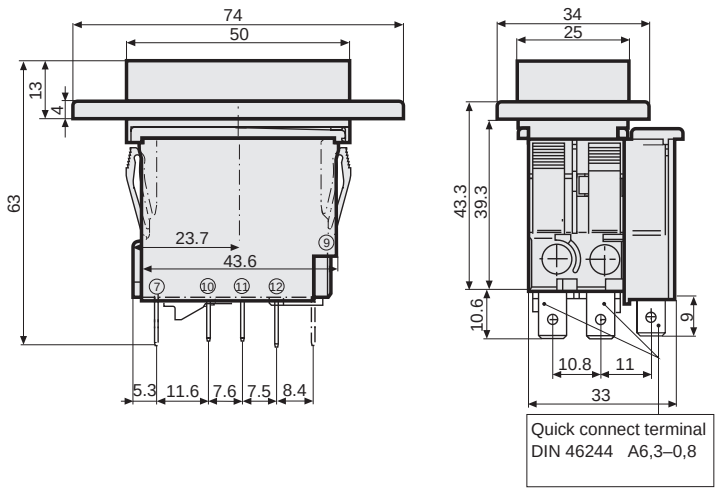
AZZ51

Snap-on fastener

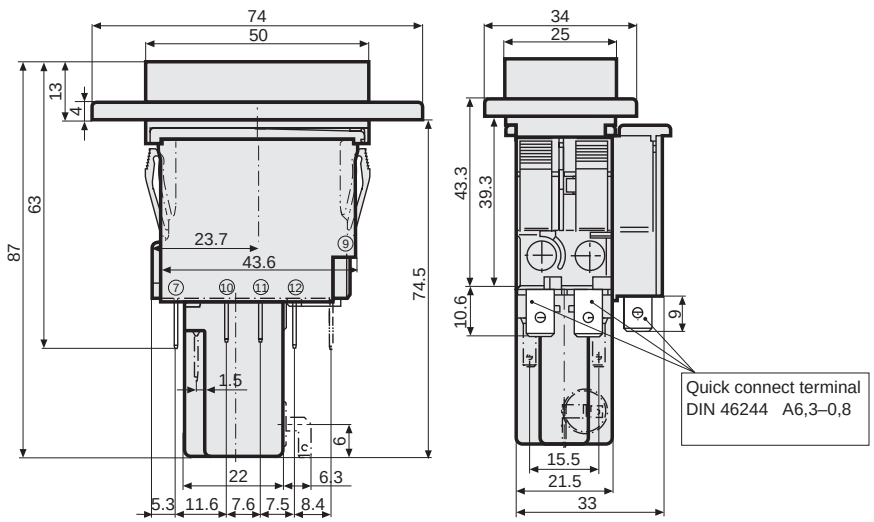


Quick connect terminals

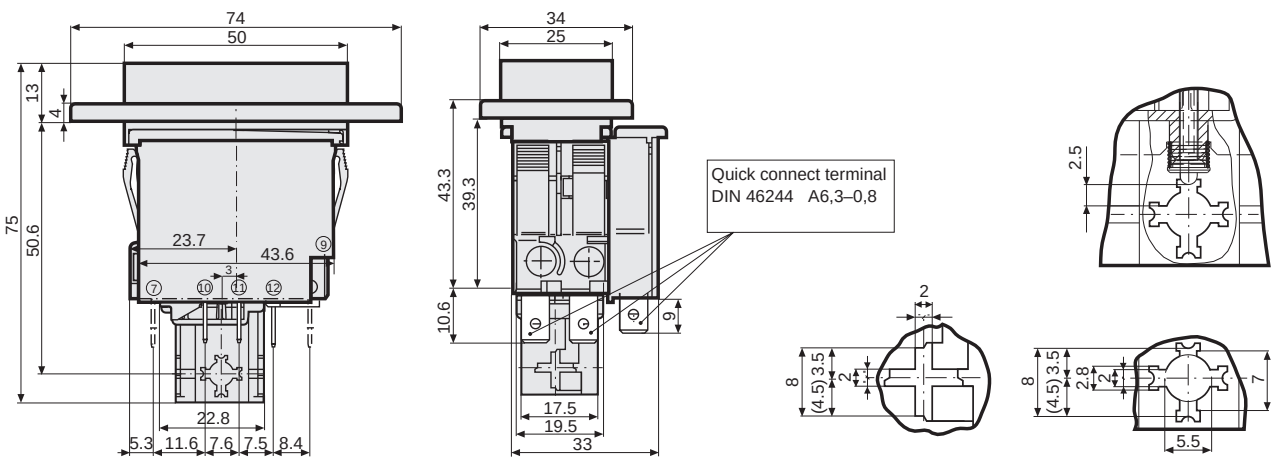
Basic type with auxiliary contact



Undervoltage release, remote trip release



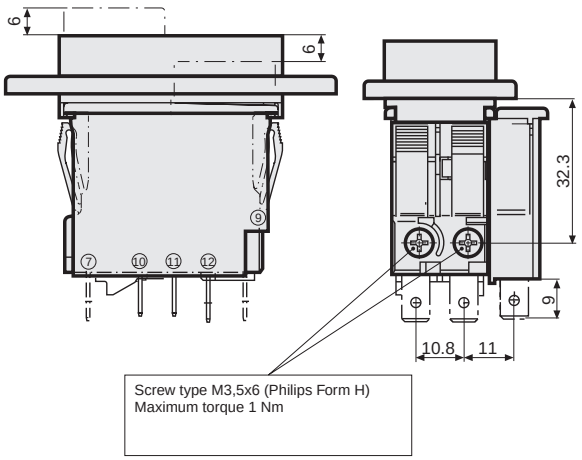
Mechanical lock-out latch



Screw clamp terminal

Basic type with auxiliary contact

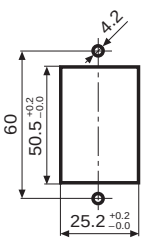
Position on



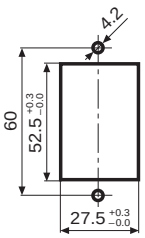
Cut-out and pin-out

Cut-out

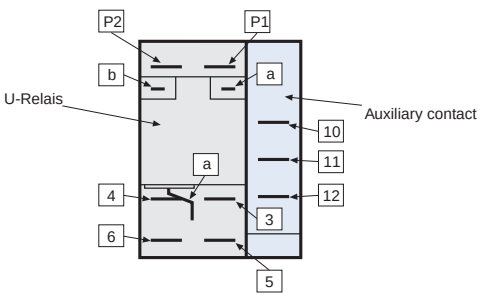
Installation from rear



Installation from rear with AZZ05 cover



Pin-out



Accessories

AZZ05