TA45: 3 pole, rocker actuated

- Thermal release
- Positively trip-free

The rocker actuated, 3 pole version with 2 protected poles is a thermal CBE of the TA45 line, specifically designed to provide cost effective protection of 3 phase motors against overheating in accordance with EN60204 Part I (Electrical equipment for industrial machines) in cases where the exception specified in this standard is applicable.

A special version is available as a «CBE-switch», in which the means for automatic overcurrent interruption (the bimetal releases), 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
  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 re-closed manually.
- CBE switch with mechanical lock-out latch:
  A spring loaded pin will trip the CBE if a protective cover 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 with an auxiliary contact (changeover contact).

TA45 is positively trip-free. The approved current range is 0,1 to 12A. We recommend to limit the current range to max. 8A at AC 400V.

For the current range 9 to 12A the voltage should be limited to AC 240V. The CBE comes with snap-in mounting. The rocker is available in various colors and also with illumination. It 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:

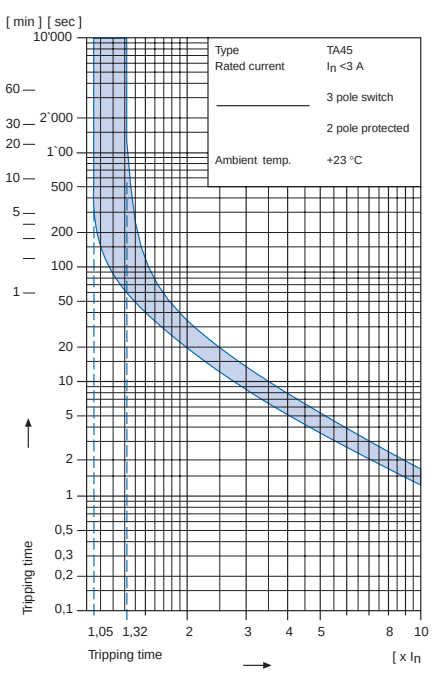
*Ambient temperature [°C]	Correction factor
-10	0,89
-5	0,91
0	0,92
+23	1,00
+30	1,03
+40	1,08
+55	1,16

Example

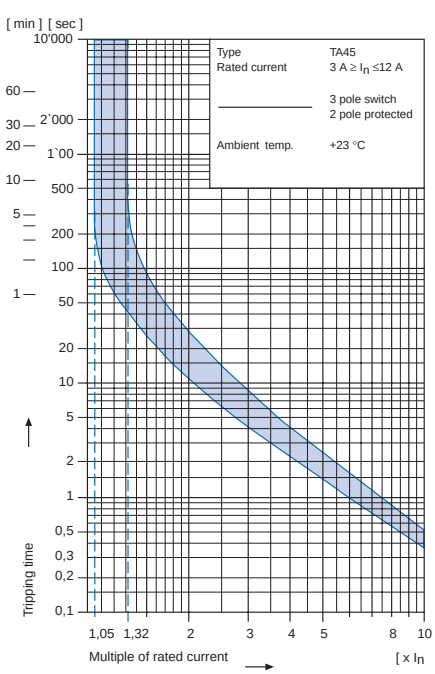
Rated current at +23°C 5,0 A
Ambient temperature +40°C
Correction factor 1,08
Chosen rated current at
+40°C ambient temperature
5 A x 1,08 = 5,5 A

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

Tripping characteristic I_n <3 A



Tripping characteristic 3 A ≥ I_n ≤12 A



Technical data

Rated voltage Ue	See approvals page 257	AC 400 V
Rated current In	See approvals page 257	AC 0,1 A – 12 A
Short circuit capacity I_{cn}	AC 400 V with I_n (number of cycles: 3)	10 I_n
Degree of protection	Accessible range With accessories Terminal side	IP40 IP40, IP65 IP00
Dielectric strength	Accessible range	AC 4000 V
Insulation resistance	DC 500 V	>100 MΩ
Endurance	Number of cycles at I_n (AC 400 V) Number of cycles at 6 x I_n (AC 400 V)	50'000 x 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	• Termal positively trip-free • Undervoltage release • Remote trip • Mechanical lock-out latch	
Weight		approx. 35 g

Auxiliary contact (changeover)

Rated voltage	DC 28 V	DC 60 V	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)

Technical data (continued)

Undervoltage release							
Max. operating voltage							1,1 U_e
Rated operating voltage Ue	5 V	12 V	24 V	48 V	120 V	240 V	400 V
Current consumption (±10%)	10,5 mA	16,5 mA	17,0 mA	3,2 mA	3,7 mA	2,8 mA	2,65 mA
Highest reset level							0,85 U_e
Lowest trip level							0,20 U_e
Trip delay							20 ms – 50 ms
Impulse with stand 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						

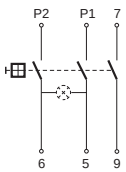
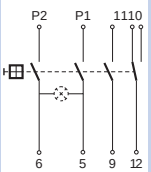
Approvals

			Rated current range AC	Rated voltage AC
	VDE	EN60934	0,1 – 12 A*	400 V
	SEMKO	EN60934	0,1 – 12 A*	400 V
	SEV	EN60934	0,1 – 12 A*	400 V

* The approved current range is 0,1 to 12 A. We recommend to limit the range to max. 8 A at AC 400V. For the current range 9 to 12 A the voltage should be limited to AC 240 V.

Order code 3 pole, rocker 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								
	Dimensions	Page	260	261		260	261	
ON/OFF switch								
	Without illumination		AKC	AMC		AVC	AXC	
	With illumination	380 V…400 V	AC1	A1C		AS1	A1S	
Impulse switch								
	Without illumination		ALC	ANC		AWC	AYC	

Colors

	Switch front	Rocker		
W	black	white	–
1	black	–	clear transp.
B	black	black	–
R	black	red	–
3	black	–	red transp.
G	black	green	–
4	black	–	green transp.
Y	black	yellow	–
X	black	orange	–
6	black	–	orange transp.

Order example

AKD	W	F	030	U1

Rocker 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)

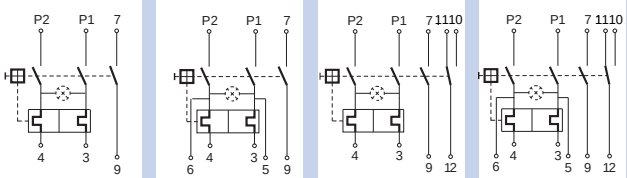
Other amperages available on request.

I_n	Code	I_n	Code	I_n	Code	I_n	Code
0,1	J01	1,0	J10	1,9	J19	4,0	040
0,2	J02	1,1	J11	2,0	J20	4,5	045
0,3	J03	1,2	J12	2,1	J21	5,0	050
0,4	J04	1,3	J13	2,2	J22	6,0	060
0,5	J05	1,4	J14	2,3	J23	6,5	065
0,6	J06	1,5	J15	2,5	J25	7,0	070
0,7	J07	1,6	J16	2,8	J28	7,5	075
0,8	J08	1,7	J17	3,0	030	8,0	080
0,9	J09	1,8	J18	3,5	035		
9,0*	090						
10,0*	100						
11,0*	110						
12,0*	120						

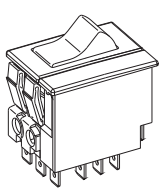
* The approved current range is 0,1 to 12 A. We recommend to limit the range to max. 8 A at AC 400 V. For the current range 9 to 12 A the voltage should be limited to AC 240 V.

1 pole thermal overload protection

2 pole thermal overload protection



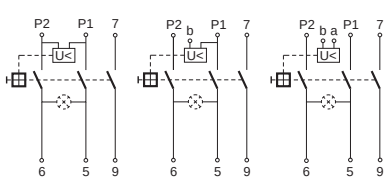
				•		•		•		•	
					•		•		•		•
				260	261	260	261	260	261	260	261
				AKD	AMD	AKG	AMG	AVD	AXD	AVG	AXG
				AD1	A1D	AG1	A1G	AW1	A1W	AX1	A1X
				ALD	AND	ALG	ANG	AWD	AYD	AWG	AYG



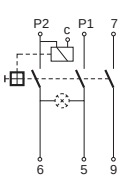
Without release / lock-out latch: code C0

Detail see pages 224-225

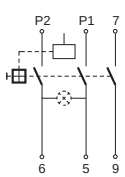
Undervoltage release



Remote trip release



Mechanical lock-out latch



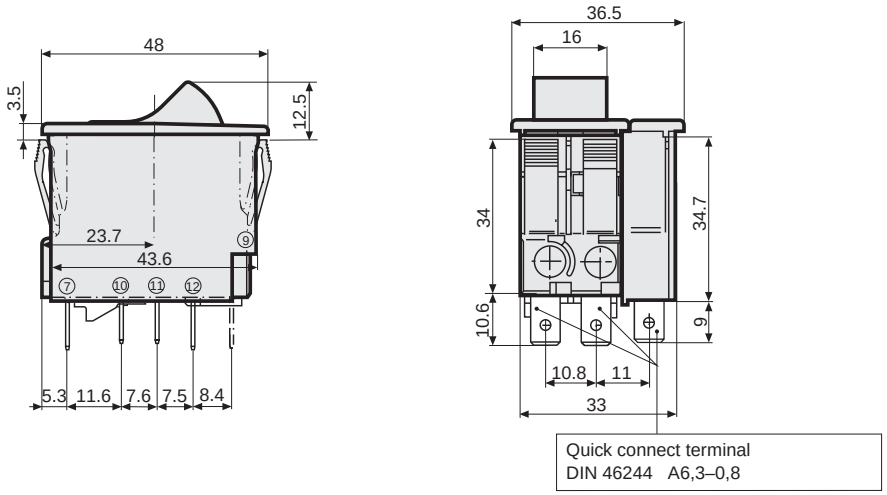
U*	E*	Z	A*	Code	Rated voltage U_n AC (V)
•	•	•	•	1	400
	•	•		2	240
	•	•		3	230
		•		4	120
					AC / DC (V)
		•		6	48
		•		7	24
		•		8	12
		•		9	5

S0

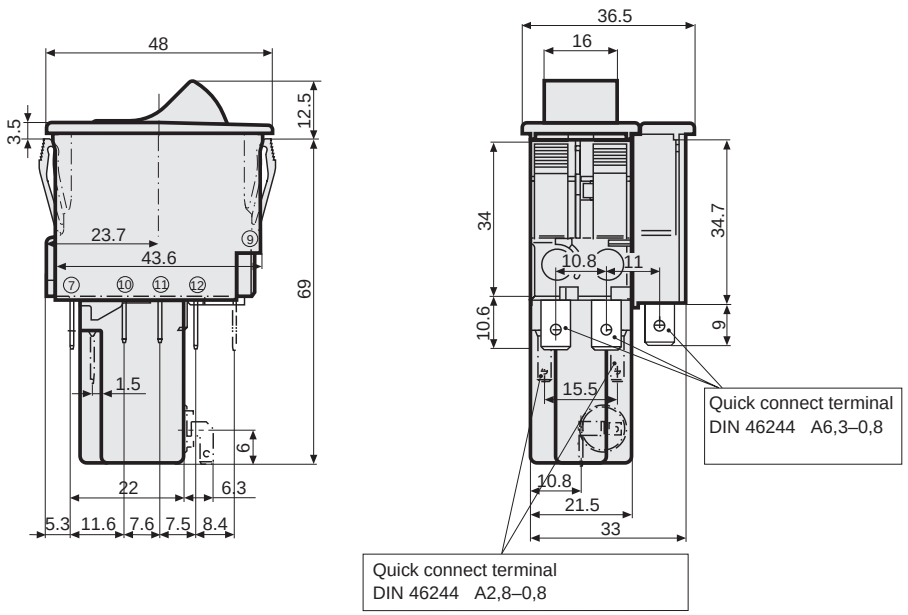
* Release U, E and A not available in combination with screw clamp terminals (basic type)

Quick connect terminals

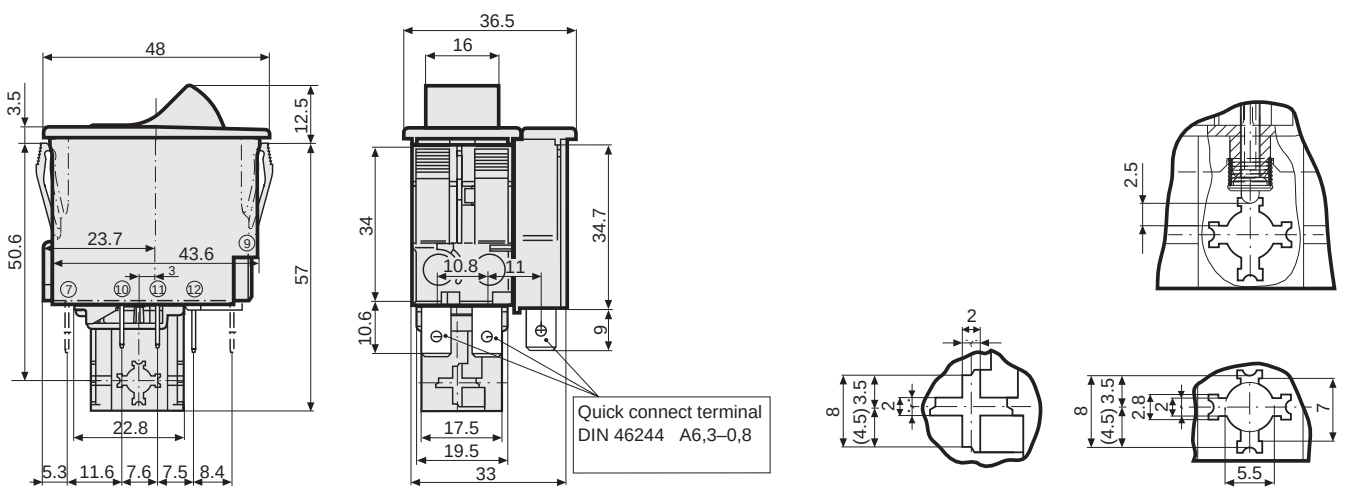
Basic type



Undervoltage release, remote trip release

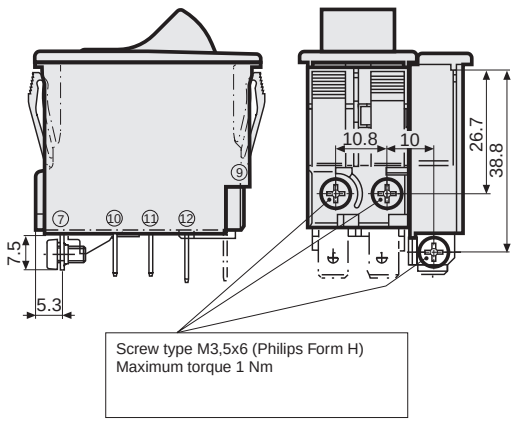


Mechanical lock-out latch



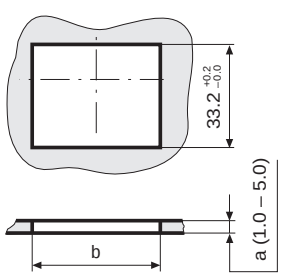
Screw clamp terminal

Basic type



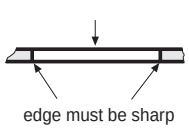
Cut-out and pin-out

Cut-out



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

Assembly



Pin-out