

Circuit Breaker for Equipment thermal, 2 pole, Rocker actuation



Basic type



With auxiliary contact



With undervoltage protection

See below:

[Approvals and Compliances](#)

Description

- Thermal circuit breaker
- 1 or 2 pole thermal overload protection
- Positively trip-free release
- High configurability
- Rocker non-illuminated or illuminated
- Snap-in version
- Quick connect terminal 6.3 x 0.8 mm or screw clamp terminal M3.5 x 6 mm (lineside P1, P2)

Applications

- Power tools
- Industrial appliances
- Power supplies
- Equipment for construction
- Cleaning equipment

References

Weblinks

[pdf data sheet](#), [html datasheet](#), [General Product Information](#), [Distributor-Stock-Check](#), [Detailed request for product](#), [Product News](#)

Technical Data

| | |
|--|--|
| Rated Voltage AC | 240 VAC |
| Rated Voltage DC | 60 VDC |
| Rated current range AC | 0.05 - 20 A |
| Conditional short circuit capacity I _{nc} | IEC 60934: PC1, AC 240 V: 1 kA |
| Short circuit capacity I _{cn} | IEC 60934: At I _n < 3 A/ 240 VAC: 10xI _n (max. 3 cycles) At I _n ≥ 3 A/ 240 VAC: 300A (max. 3 cycles) At I _n < 3 A/ 60 VDC: 10xI _n (max. 3 cycles) At I _n ≥ 3 A/ 48 VDC: 120A (max. 3 cycles) |
| Degree of Protection | front side IP40 acc. to IEC 60529 With factory mounted protection cover IP54 |
| Dielectric Strength | 4 kVAC |
| Insulation Resistance | 500 VDC > 100 MΩ |
| Lifetime | mechanical: 50'000 switching cycles AC: 1 x I _r : 50'000 switching cycles DC: 1 x I _r : 50'000 switching cycles |

| | |
|---------------------------|---|
| Overload | AC: min. 40trips @ 6 x I _r DC: min. 40trips @ 4 x I _r |
| Allowable Operation Temp. | -10°C to 55°C |
| Storage Temperature | -10°C to 55°C |
| Vibration Resistance | ± 0.75 mm @ 5 - 60 Hz acc. to IEC 60068-2-6, test Fc 10 G @ 60 - 500 Hz acc. to IEC 60068-2-6, test Fc |
| Shock Resistance | 30 G / 18ms acc. to IEC 60068-2-27, test Ea |
| Tripping Type | Thermal |
| Actuation Type | Rocker |
| Weight | 30 - 50g |




Approvals and Compliances

Detailed information on product approvals, code requirements, usage instructions and detailed test conditions can be looked up in [Details about Approvals](#)

SCHURTER products are designed for use in industrial environments. They have approvals from independent testing bodies according to national and international standards. Products with specific characteristics and requirements such as required in the automotive sector according to IATF 16949, medical technology according to ISO 13485 or in the aerospace industry can be offered exclusively with customer-specific, individual agreements by SCHURTER.





Approvals

The approval mark is used by the testing authorities to certify compliance with the safety requirements placed on electronic products.
 Approval Reference Type: TA45

| Approval Logo | Certificates | Certification Body | Description |
|--|-------------------------------|--------------------|--|
|  | VDE Approvals | VDE | VDE Certificate Number: 40019880 |
|  | UL Approvals | UL | UR File Number: E71572 |
|  | CCC Approvals | CCC | CCC Certificate Number: 2020970307001847 |

Product standards

Product standards that are referenced

| Organization | Design | Standard | Description |
|--|-----------------------|-------------------|---|
|  | Designed according to | IEC 60934 | Circuit-breakers for equipment (CBE) |
|  | Designed according to | UL 1077 | Standard for Supplementary Protectors for Use in Electrical Equipment |
|  | Designed according to | CSA C22.2 No. 235 | Supplementary Protectors |
|  | Designed according to | GB 17701 | Circuit-breaker for equipment |





Application standards

Application standards where the product can be used

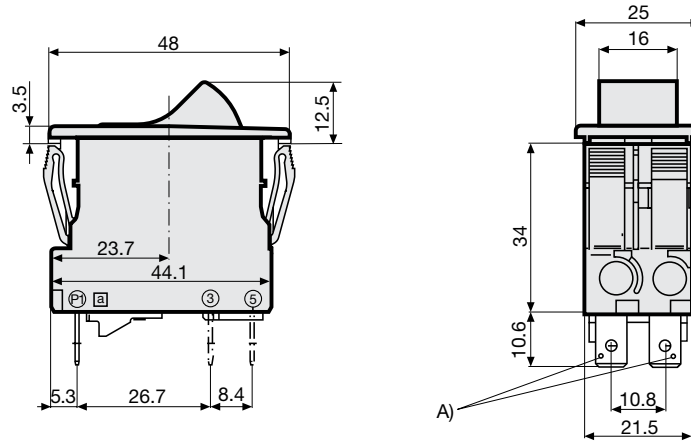
| Organization | Design | Standard | Description |
|---|--------------------------------|----------------|---|
|  | Suitable for applications acc. | IEC/UL 62368-1 | Audio/video, information and communication technology equipment - Part 1: Safety requirements |

Compliances

The product complies with following Guide Lines

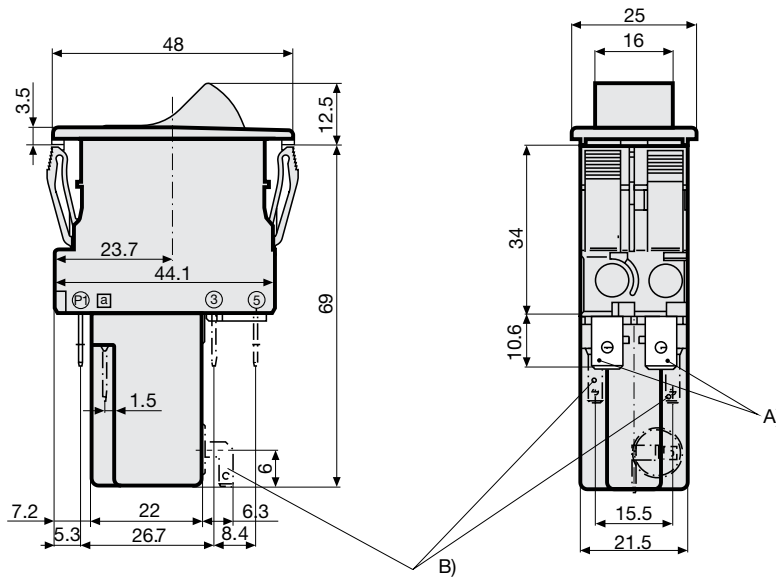
| Identification | Details | Initiator | Description |
|--|--|-------------|---|
|  | CE declaration of conformity | SCHURTER AG | The CE marking declares that the product complies with the applicable requirements laid down in the harmonisation of Community legislation on its affixing in accordance with EU Regulation 765/2008. |
|  | RoHS | SCHURTER AG | Directive RoHS 2011/65/EU, Amendment (EU) 2015/863 |
|  | China RoHS | SCHURTER AG | The law SJ / T 11363-2006 (China RoHS) has been in force since 1 March 2007. It is similar to the EU directive RoHS. |
|  | REACH | SCHURTER AG | On 1 June 2007, Regulation (EC) No 1907/2006 on the Registration, Evaluation, Authorization and Restriction of Chemicals 1 (abbreviated as "REACH") entered into force. |

Dimension [mm]
 Quick connect terminal



A) Quick connect terminal, IEC 61210, A6.3-0.8 mm

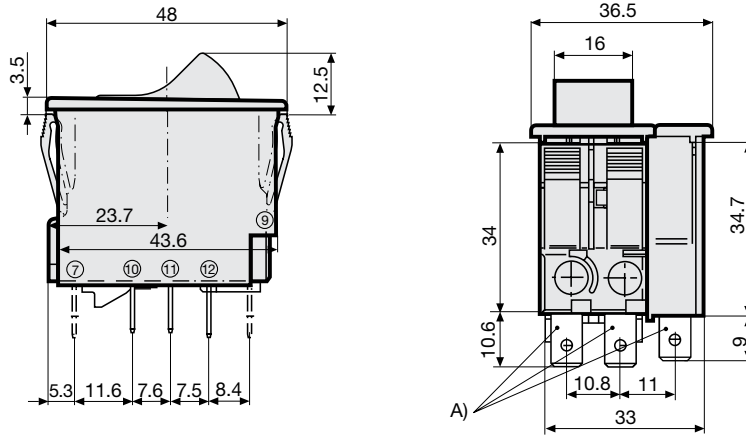
Undervoltage release, remote trip release



A) Quick connect terminal, IEC 61210, A6.3-0.8 mm

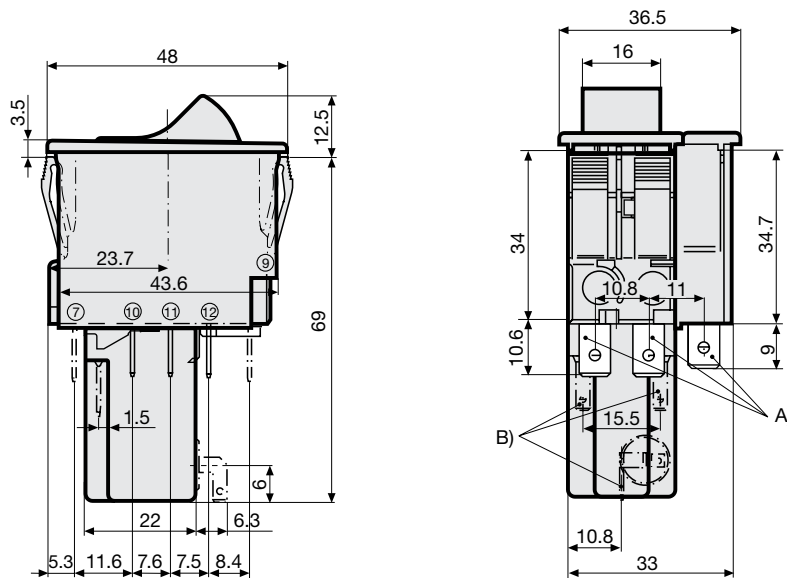
B) Quick connect terminal, IEC 61210, A2.8-0.8 mm

Quick connect terminal with auxiliary contact



A) Quick connect terminal, IEC 61210, A6.3-0.8 mm

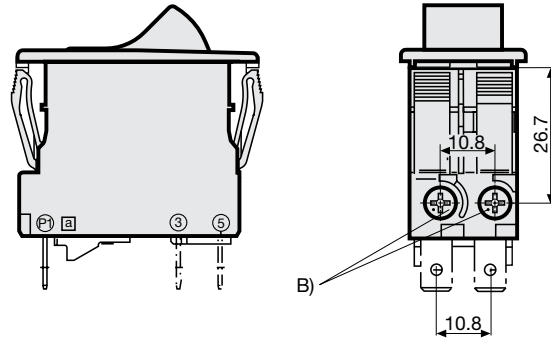
Undervoltage release, remote trip release, auxiliary contact



A) Quick connect terminal, IEC 61210, A6.3-0.8 mm

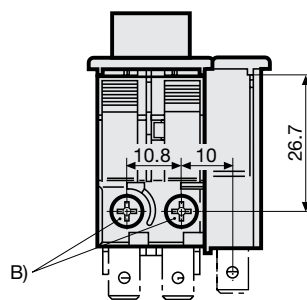
B) Quick connect terminal, IEC 61210, A2.8-0.8 mm

Screw terminal



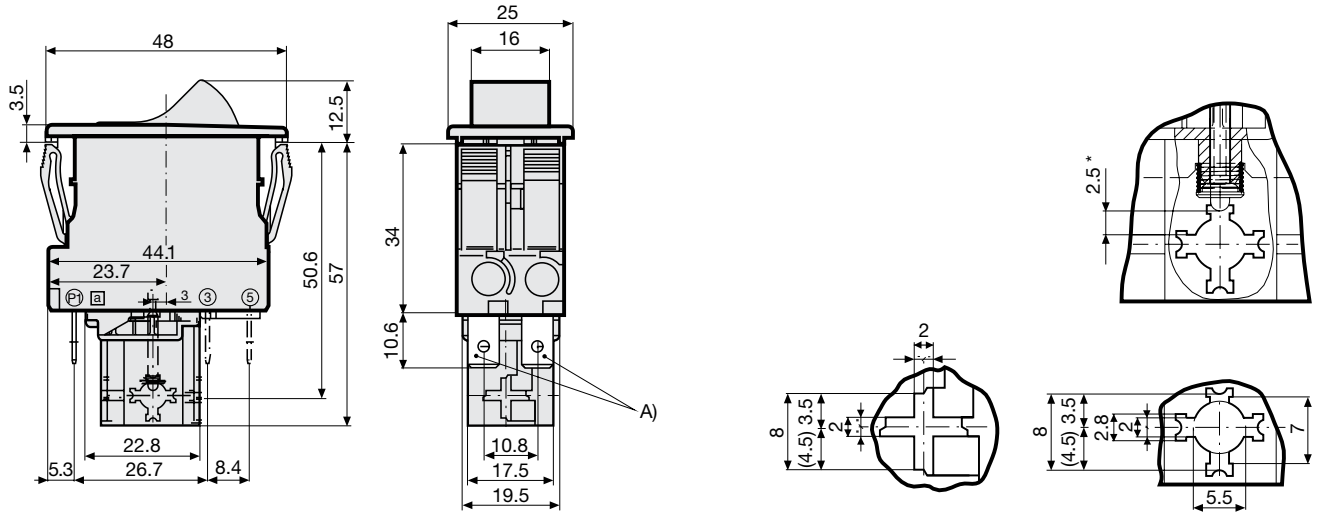
B) Screw type M3, 5x6 (Philips Form H), maximum torque 1 Nm

Screw clamp terminal with auxiliary contact



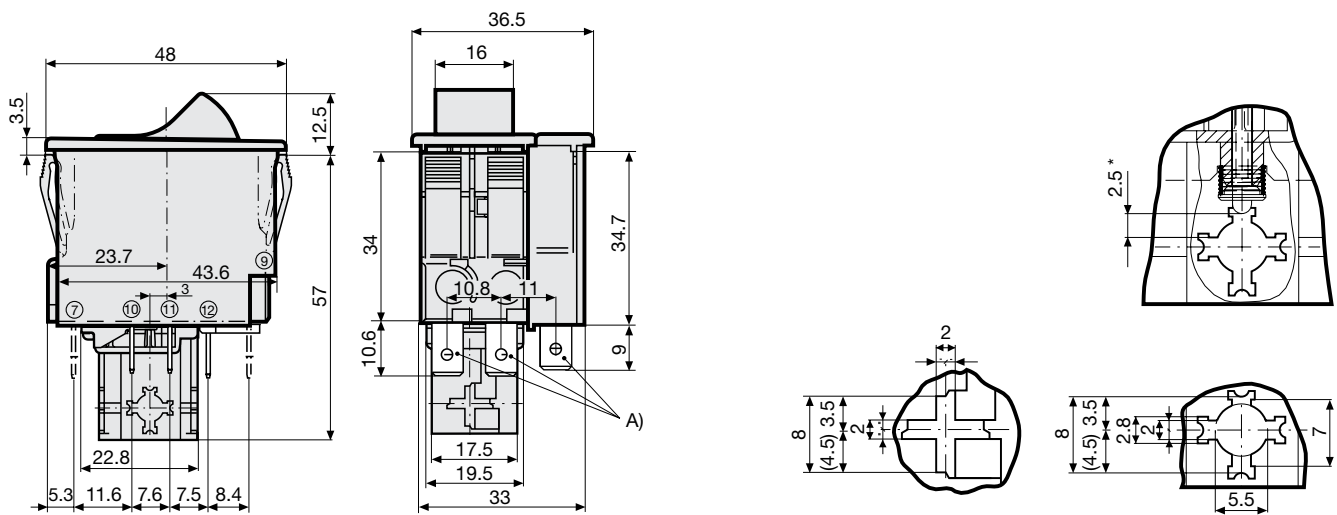
B) Screw type M3, 5x6 (Philips Form H), maximum torque 1 Nm

Mechanical lock-out latch



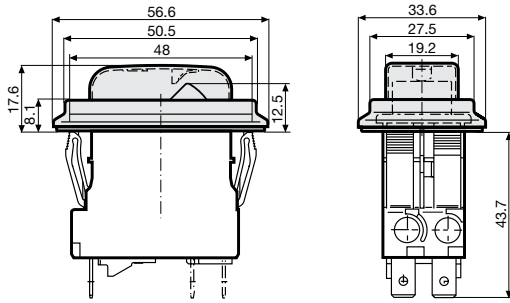
A) Quick connect terminal, IEC 61210, A6.3-0.8 mm
 *) max. switching stroke

Mechanical lock-out latch with auxiliary contact

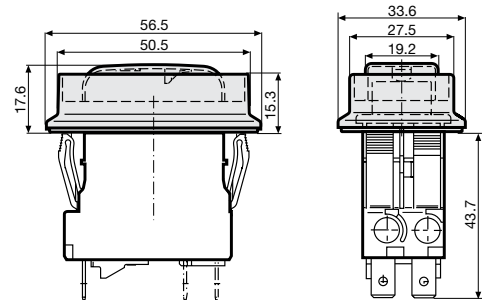


A) Quick connect terminal, IEC 61210, A6.3-0.8 mm
 *) max. switching stroke

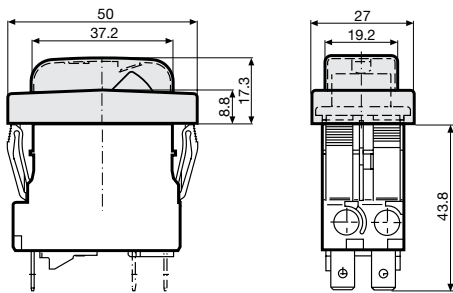
Accessories / factory mounted
 AZM01 / Collar with cover, IP54



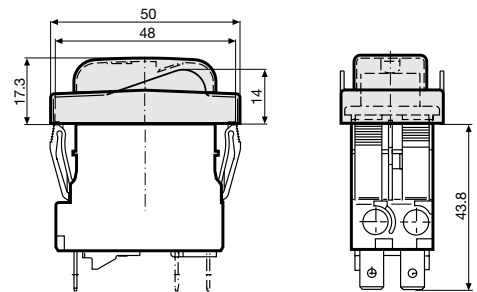
AZM02 / Raised collar with cover, narrow, IP54
 AZM03 / Raised collar, IP40



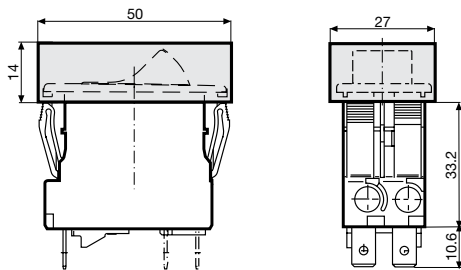
AZM10 / Collar with cover, narrow, IP54



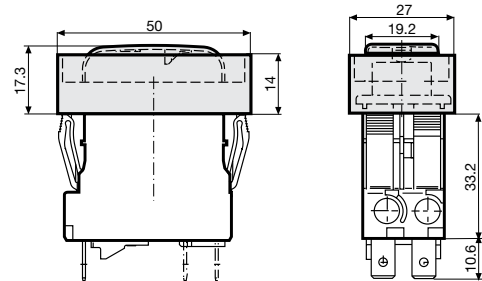
AZM11 / Partially raised collar with cover, narrow, IP54
 AZM12 / Partially raised collar without cover, narrow, IP40



AZM13 / Raised collar narrow, IP40

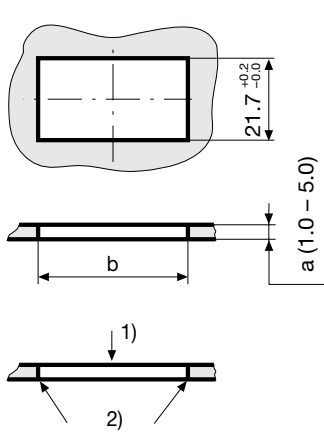


AZM14 / Raised collar with cover narrow, IP54



Cut-out and pin-out

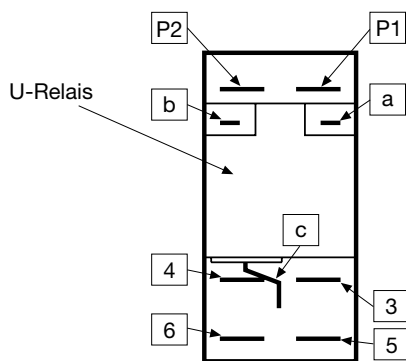
Cut-out snap-in type
 Basic type



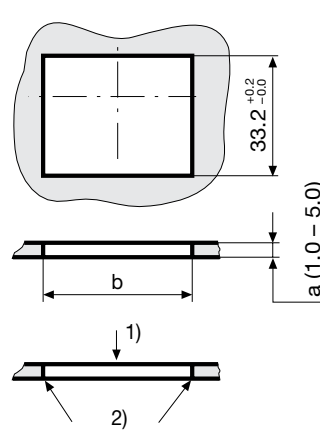
| a | b |
|-----|-------------|
| 1.0 | 44,5...45,0 |
| 1.5 | 44,5...45,0 |
| 2.0 | 44,7...45,2 |
| 2.5 | 44,7...45,2 |
| 3.0 | 44,8...45,3 |
| 4.0 | 44,9...45,4 |
| 5.0 | 45,0...45,5 |

- 1) Assemble
- 2) edge must be sharp

Pin-out
 Basic type



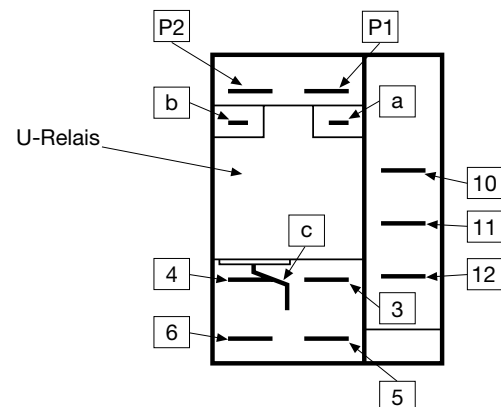
Cut-out snap-in type
 With auxiliary contact



| 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 |

- 1) Assemble
- 2) edge must be sharp

Pin-out
 With auxiliary contact



Effect of ambient temperature

The units are calibrated for an ambient temperature of +23°C. To determine the rated current for a lower or higher ambient temperature, use a correction factor (typical value) 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: With a nominal current of 5A and an ambient temperature of 40°C, a correction factor of 1.08 results. This results in a nominal current of 5.5 A, which is rounded up to the next higher nominal current 6 A.

Auxiliary contact (changeover)

| | | | |
|---------------|--------------------------|-------------------------|--------------------|
| Rated Voltage | 28 VDC | 60 VDC | 240 VAC |
| Rated current | max. 10 A resistive load | max. 2 A resistive load | max. 2 A cos φ 0.7 |

Undervoltage release

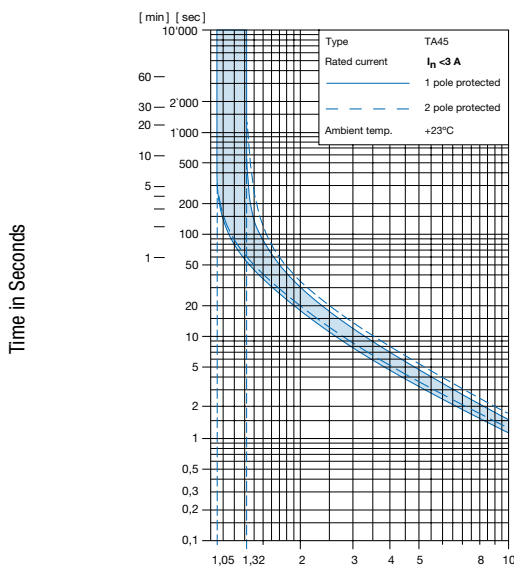
| | | | | | | | |
|---|---------------|---------------|---------------|---------------|---------------|---------------|--------|
| Max. operating voltage | | | | | | | 1.1 Ue |
| Rated operating voltage Ue | 5 V | 12 V | 24 V | 48 V | 120 V | 240 V | |
| Current consumption (± 10%) | 10.5 mA | 16.5 mA | 17.0 mA | 3.2 mA | 3.7 mA | 3.1 mA | |
| Highest reset level | 0.85 Ue | 0.85 Ue | 0.85 Ue | 0.85 Ue | 0.85 Ue | 0.85 Ue | |
| Lowest trip level | 0.20 Ue | 0.20 Ue | 0.20 Ue | 0.20 Ue | 0.20 Ue | 0.20 Ue | |
| Trip delay | 20 ms - 50 ms | 20 ms - 50 ms | 20 ms - 50 ms | 20 ms - 50 ms | 20 ms - 50 ms | 20 ms - 50 ms | |
| Impulse withstand voltage (1.2 / 50 μs) | ≥4 kV | ≥4 kV | ≥4 kV | ≥4 kV | ≥4 kV | ≥4 kV | |

Remote trip

| | | |
|--|---------------------------------------|-----------|
| Permissible impuls duration of the make contact (no) | Between terminal C and P1 | unlimited |
| Electrical load of the make contact (no) | Current max. 12 mA / power max. 1.1 W | |

Time-Current-Curves

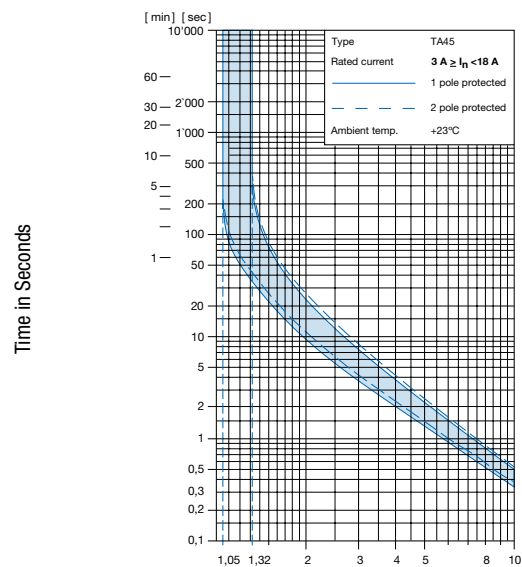
Rated Current $I_n < 3 A$



Multiple of Rated Current I_n

Ambient temperature +23°

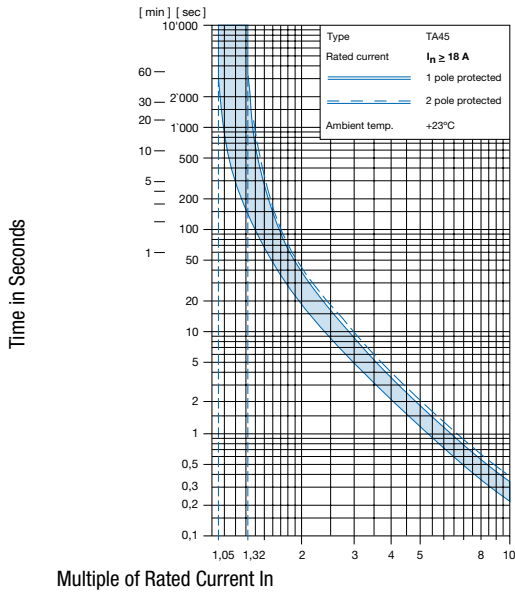
Rated Current $3 A \geq I_n < 18 A$



Multiple of Rated Current I_n

Ambient temperature +23°

Rated Current $I_n \geq 18\text{ A}$



Multiple of Rated Current In

Ambient temperature +23°

Order number key

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|----|--|--|--|--|----|--|--|--|--|
| T | A | 4 | 5 | - | A | B | T | W | F | 2 | 0 | 0 | U | 2 | - | 7 | 0 | 1 | - | A | Z | M | 0 | 1 | | | | | | | | | | | | | | |
| | | | | 1 | | | | | 2 | | | | | 3 | | | | | 4 | | | | | 5 | | | | | 6* | | | | | 7* | | | | |

* These characters are omitted for standard products and serve as placeholder for customised applications.

Basic function 🔑 1

| | | |
|--|---|-------------|
| Auxiliary contact (changeover contact) | | |
| Shunt terminal | | |
| Schematic drawing | | |
| Terminal type | Quick connect terminal Screw terminal (lineside P1,P2) | |
| Snap-in type | | |
| ON/OFF switch | Without illumination | 220V...240V |
| | | 110V...120V |
| | | 20V...26V |
| | | 10V...13V |
| | | 4V...7V |
| Impulse switch | | |

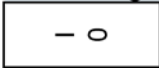

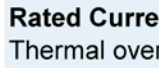
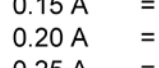
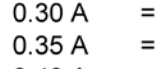
| | | |
|--|---|-------------|
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| | | 110V...120V |
| | | 20V...26V |
| | | 10V...13V |
| | | 4V...7V |
| Impulse switch | | |

| | | | | | | | |
|---|-----|-----|-----|-----|-----|-----|-----|
| 1 pole thermal overload protection | | | | | | | |
| • | | | | | | | |
| • | | | | | | | |
| • | | | | | | | |
| | | | | | | | |
| • | • | • | • | • | • | • | • |
| • | • | • | • | • | • | • | • |
| ABT | AHT | ABF | AHF | APT | AST | APF | ASF |
| A12 | A62 | A22 | A72 | AL2 | A2L | AM2 | A2M |
| A14 | A64 | A24 | A74 | AL4 | A4L | AM4 | A4M |
| A17 | A67 | A27 | A77 | AL7 | A7L | AM7 | A7M |
| A18 | A68 | A28 | A78 | AL8 | A8L | AM8 | A8M |
| A19 | A69 | A29 | A79 | AL9 | A9L | AM9 | A9M |
| AET | AJT | AEF | AJF | ART | AUT | ARF | AUF |

| | | | | | | | |
|---|-----|-----|-----|-----|-----|-----|-----|
| 2 pole thermal overload protection | | | | | | | |
| • | | | | | | | |
| • | | | | | | | |
| • | | | | | | | |
| | | | | | | | |
| • | • | • | • | • | • | • | • |
| • | • | • | • | • | • | • | • |
| ABD | AHD | ABG | AHG | APD | ASD | APG | ASG |
| A32 | A82 | A42 | A92 | AN2 | A2N | AP2 | A2P |
| A34 | A84 | A44 | A94 | AN4 | A4N | AP4 | A4P |
| A37 | A87 | A47 | A97 | AN7 | A7N | AP7 | A7P |
| A38 | A88 | A48 | A98 | AN8 | A8N | AP8 | A8P |
| A39 | A89 | A49 | A99 | AN9 | A9N | AP9 | A9P |
| AED | AJD | AEG | AJG | ARD | AUD | ARG | AUG |

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|---|----|---|---|---|---|
| T | A | 4 | 5 | - | A | B | T | W | F | 2 | 0 | 0 | U | 2 | - | 7 | 0 | 1 | - | A | Z | M | 0 | 1 |
| | | | | 1 | | | | | 2 | | 3 | | 4 | | 5 | | 6* | | | 7* | | | | |

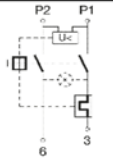
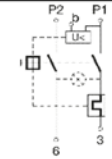
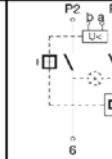
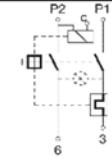
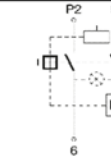
| Front- & Actuation color | | | | 🔑 | 2 |
|--------------------------|-----------------------------|---|--------------------------|---|---|
| Front Bezel | Rocker without illumination | | Rocker with illumination | = | |
| black | - | - | clear transparent | = | 1 |
| black | - | - | red transparent | = | 3 |
| black | - | - | green transparent | = | 4 |
| black | - | - | orange transparent | = | 6 |
| black | black | - | - | = | B |
| black | green | - | - | = | G |
| black | red | - | - | = | R |
| black | white | - | - | = | W |
| black | orange | - | - | = | X |
| black | yellow | - | - | = | Y |

| Rocker legend, marking | | | 🔑 | 3 |
|---|---------------|---|---|---|
|  | Embossed | = | F | |
|  | Printed white | = | H | |
|  | Printed black | = | K | |
|  | Printed white | = | L | |
|  | Printed black | = | M | |
|  | Printed white | = | P | |
|  | Printed black | = | R | |
|  | Printed white | = | S | |
|  | Printed black | = | T | |


| Rated Current In [A] | | | | | | | | 🔑 | 4 | | |
|-----------------------------|---|-----|-------|---|-----|-------|---|-----|--------|---|-----|
| Thermal overload protection | | | | | | | | | | | |
| In | = | 🔑 | In | = | 🔑 | In | = | 🔑 | In | = | 🔑 |
| 0.05 A | = | Z05 | 1.4 A | = | J14 | 4.0 A | = | 040 | 9.0 A | = | 090 |
| 0.10 A | = | J01 | 1.5 A | = | J15 | 4.2 A | = | 042 | 9.5 A | = | 095 |
| 0.15 A | = | Z15 | 1.6 A | = | J16 | 4.4 A | = | 044 | 10.0 A | = | 100 |
| 0.20 A | = | J02 | 1.7 A | = | J17 | 4.5 A | = | 045 | 10.5 A | = | 105 |
| 0.25 A | = | Z25 | 1.8 A | = | J18 | 4.7 A | = | 047 | 11.0 A | = | 110 |
| 0.30 A | = | J03 | 1.9 A | = | J19 | 5.0 A | = | 050 | 11.5 A | = | 115 |
| 0.35 A | = | Z35 | 2.0 A | = | J20 | 5.2 A | = | 052 | 12.0 A | = | 120 |
| 0.40 A | = | J04 | 2.1 A | = | J21 | 5.5 A | = | 055 | 12.5 A | = | 125 |
| 0.45 A | = | Z45 | 2.2 A | = | J22 | 5.7 A | = | 057 | 13.0 A | = | 130 |
| 0.50 A | = | J05 | 2.3 A | = | J23 | 6.0 A | = | 060 | 13.5 A | = | 135 |
| 0.60 A | = | J06 | 2.5 A | = | J25 | 6.2 A | = | 062 | 14.0 A | = | 140 |
| 0.70 A | = | J07 | 2.8 A | = | J28 | 6.5 A | = | 065 | 14.5 A | = | 145 |
| 0.80 A | = | J08 | 2.9 A | = | J29 | 7.0 A | = | 070 | 15.0 A | = | 150 |
| 0.90 A | = | J09 | 3.0 A | = | 030 | 7.1 A | = | 071 | 16.0 A | = | 160 |
| 1.00 A | = | J10 | 3.2 A | = | 032 | 7.2 A | = | 072 | 17.0 A | = | 170 |
| 1.10 A | = | J11 | 3.5 A | = | 035 | 7.5 A | = | 075 | 18.0 A | = | 180 |
| 1.20 A | = | J12 | 3.7 A | = | 037 | 8.0 A | = | 080 | 19.0 A | = | 190 |
| 1.30 A | = | J13 | 3.8 A | = | 038 | 8.5 A | = | 085 | 20.0 A | = | 200 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|---|----|--|--|
| T | A | 4 | 5 | - | A | B | T | W | F | 2 | 0 | 0 | U | 2 | - | 7 | 0 | 1 | - | A | Z | M | 0 | 1 | | |
| | | | | 1 | | | | | 2 | | | 3 | | | 4 | | | 5 | | | 6* | | | 7* | | |

Undervoltage release, Remote trip release, Mechanical lock-out latch  **5**

| Rated voltage | Undervoltage release | | | Remote trip release | Mechanical lock-out latch | Without release or mechanical lock-out latch |
|------------------|---|---|---|---|---|--|
| |  |  |  |  |  | |
| AC (V) | | | | | | |
| 240 | U2 | E2 | Z2 | A2 | S0 | C0 |
| 230 | U3 | E3 | Z3 | A3 | | |
| 120 | U4 | E4 | Z4 | A4 | | |
| AC/DC (V) | | | | | | |
| 48 | U6 | E6 | Z6 | A6 | | |
| 24 | U7 | E7 | Z7 | A7 | | |
| 12 | U8 | E8 | Z8 | A8 | | |
| 5 | U9 | E9 | Z9 | | | |


* Schematic drawings: 1-pole protected version shown only

Special marking  **6**

Standard = (empty)
 Special marking (XXX = placeholder) = XXX

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|---|----|---|---|
| T | A | 4 | 5 | - | A | B | T | W | F | 2 | 0 | 0 | U | 2 | - | 7 | 0 | 1 | - | A | Z | M | 0 | 1 |
| | | | | | 1 | | | | | 2 | | | 3 | | 4 | | 5 | | 6* | | | 7* | | |

Accessories, factory-mounted (optional)

 7

Please note: factory-mounted accessories are only available for configurations without auxiliary contact.

Without accessory

= (empty)

Collar with cover, IP54



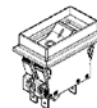
= AZM01

Raised collar with cover, IP54



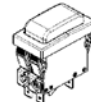
= AZM02

Raised collar, IP40



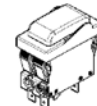
= AZM03

Raised collar with cover narrow, IP54



= AZM10

Partially raised collar with cover, narrow, IP54



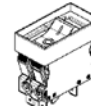
= AZM11

Partially raised collar without cover, narrow, IP40



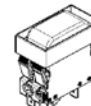
= AZM12

Raised collar narrow, IP40



= AZM13

Raised collar with cover, narrow, IP54



= AZM14

Accessories

Description



[TA45-ACC](#)
 Accessories to TA45

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