

Description

The mechanical power relays are a product group of electro-mechanical high current relays.

These relays have been designed for the use in utility vehicles and passenger cars and are able to switch or carry up to 300 A continuous load at 12 or 24 V DC.

The high number of operating cycles at rated load, including capacitive and inductive loads, make these power relays particularly suitable for the utility vehicle sector.

The main terminals are stud terminals. Screw flanges allow horizontal and vertical mounting. Thus these relays can replace any conventional power relays in the market.

Versions

- single-pole make contact
- bistable
- side mount flanges as standard version
- extendable mounting with foot flange or side flange with standard hole sizes and also customised mounting methods
- standard: screw terminals for the activation

Applications

- battery isolation switch or battery switch-over relay
- switching of high-capacity loads (examples: air-conditioning, compressor units)
- replacement of massive cylindrical standard automotive relays

Features and Benefits

- water-proof and dust-proof
- side mount and foot mount
- low weight
- long life span
- high continuous current
- low current consumption and power loss
- wide temperature range
- free-wheeling diode optional
- overheating protection optional
- barrier between main terminals

Approvals

| Authority | Approval mark | Regulation | Rated voltage |
|-----------|---------------|------------|---------------|
| KBA | E1 10R-047621 | ECE-R 10 | 24 V |



Technical Data

Load circuit

| | | |
|------------------------------------|-------------|----------------------|
| Rated voltage | U_N | 12 V DC, 24 V DC |
| Continuous current | I_N | 100 A, 200 A, 300 A |
| Overload | 20 s | $2 \times I_N$ |
| | 1 s | $8 \times I_N$ |
| Contact voltage drop ¹⁾ | max. 150 mV | (initially) |
| | max. 175 mV | (after typical life) |

Control circuit

| | | |
|-------------------|----------|----------------|
| Operating voltage | 12 V DC: | 9...16 V DC |
| | 24 V DC: | 16...32 V DC |
| Coil power | bistable | < 60 W (50 ms) |
| Pulse duration | | 50 ms...1 s |

General

| | | |
|----------------------------|---|---------------------------|
| Typical life ²⁾ | mechanical | > 100,000 cycles |
| | resistive | > 50,000 cycles (300 A) |
| Voltage resistance | 1050 V / 1 min | to ISO 16750-2, Code F |
| Insulation resistance | > 100 M Ω (initially) | to ISO 16750-2, Code F |
| Temperature range | -40...+85 °C | |
| Degree of protection | housing | IP 6K9K to ISO 20563 |
| | terminal area | IP00 to ISO 20653 |
| Vibration | 57,9 m/s ² to ISO 16750-3 Kap. 4.1.2.7 | |
| Shock | 500 m/s ² : | ON position |
| | 300 m/s ² : | OFF position |
| | | to ISO 16750-3 Kap. 4.2.2 |
| Corrosion | 5 % salt mist to ISO 16750-4 Cap. 5.5 Code H | |
| Humidity | 85 % rel. humidity to ISO 16750-4 Cap. 5.7 Code H | |

Chemical resistance to ISO 16750-5

Oil, hydraulic liquids, alcohol, urea, extinguishing agents, battery acid, detergents, grease, cold cleaner

| | | |
|--------------|---|--|
| Flammability | meets the requirements to ECE-R 118 02 app. 6.7 | |
|--------------|---|--|

Dimensions

| | | | |
|--------------------------|------------------------------|--------|----------------|
| Single pole, bistable | 49.6 (62) × 91.3 × 45.8 [mm] | | |
| Mass single pole | ≤ 290 g | | |
| Tightening torque values | M10 studs | 15 Nm | M8 studs 12 Nm |
| | M4 screws | 2.0 Nm | |
| | M5 side flange | 6,0 Nm | |

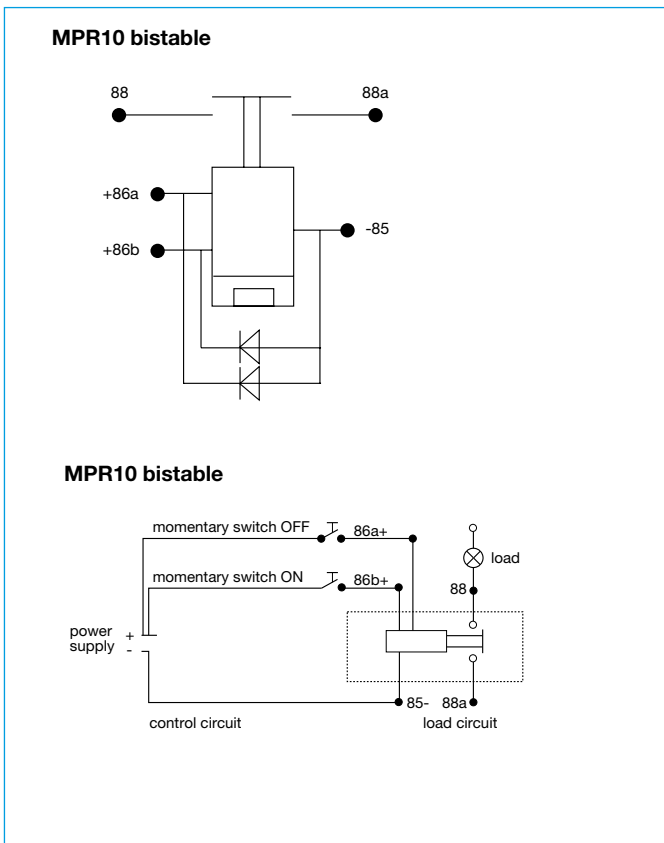
¹⁾ at rated current

²⁾ typical for a bistable relay

Order numbering code

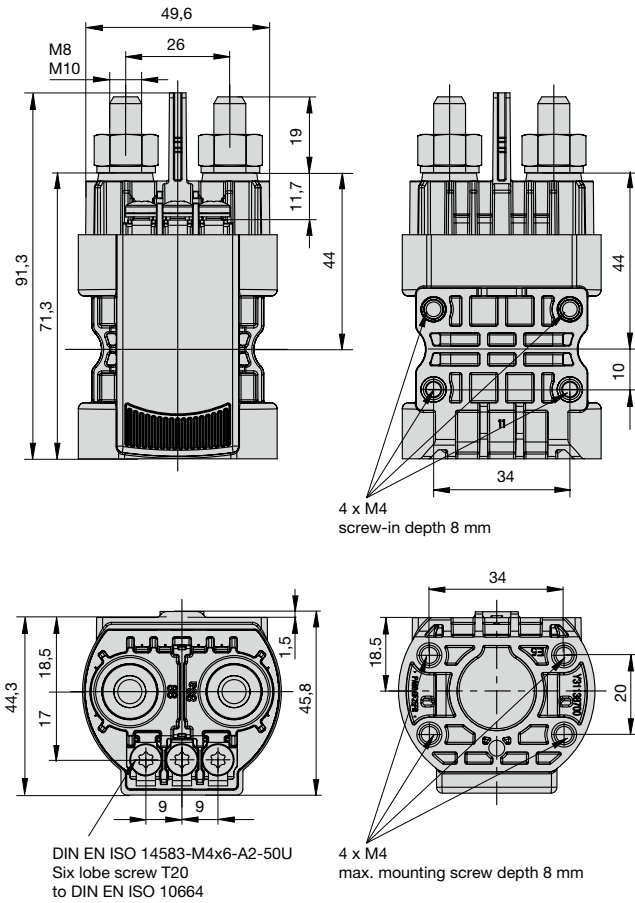
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|--|--|--|--|--|--|--|--|--|--|
| Type No. | | | | | | | | | |
| MPR10-N bistable | | | | | | | | | |
| Number of poles | | | | | | | | | |
| 1 single pole | | | | | | | | | |
| Rated voltage | | | | | | | | | |
| 1 12 V | | | | | | | | | |
| 2 24 V | | | | | | | | | |
| Current rating | | | | | | | | | |
| 1 100 A (M8, M10) | | | | | | | | | |
| 2 200 A (M8, M10) | | | | | | | | | |
| 3 300 A (M10) | | | | | | | | | |
| Design of load terminals | | | | | | | | | |
| 1 M8 studs (100 A, 200 A) | | | | | | | | | |
| 2 M10 studs (100 A, 200 A, 300 A) | | | | | | | | | |
| Accessories of load terminals | | | | | | | | | |
| 1 washers and nuts mounted | | | | | | | | | |
| 2 washers and nuts bulk shipped | | | | | | | | | |
| Coil connection (control contacts) | | | | | | | | | |
| 1 M4 screws | | | | | | | | | |
| Mounting method | | | | | | | | | |
| 0 without | | | | | | | | | |
| 1 side flange with Ø 5,4 mm hole | | | | | | | | | |
| 3 plate for side flange | | | | | | | | | |
| 4 plate for foot mount | | | | | | | | | |
| 5 M4 connectors side and foot | | | | | | | | | |
| Options 1 | | | | | | | | | |
| 0 without | | | | | | | | | |
| 2 with suppressor diode | | | | | | | | | |
| Options 2 | | | | | | | | | |
| 0 without | | | | | | | | | |
| Options 3 | | | | | | | | | |
| 0 without | | | | | | | | | |
| MPR10-N- 1 2 3 -2 1 1 1 - 2 0 0 ordering example | | | | | | | | | |

Schematic diagrams



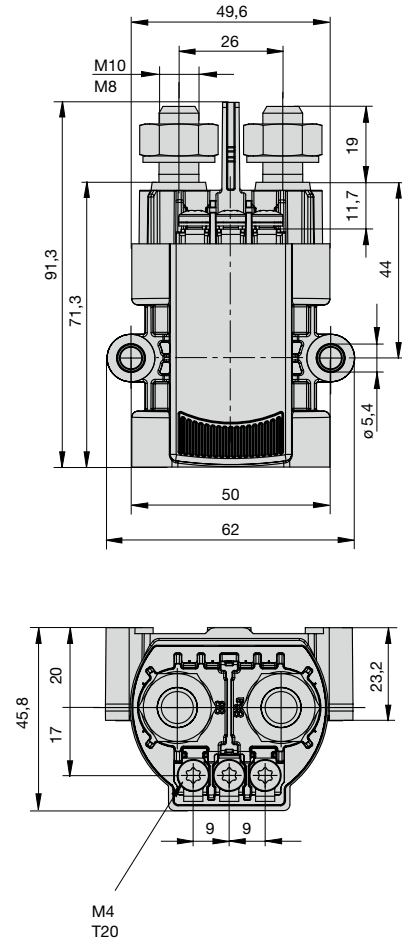
Dimensions

Mounting method 5 without integral side flange for optional side and/or foot plate with M4 connectors



Dimensions

Mounting method 1 with side flange (50 mm distance between holes) and M4 screw terminals



All dimensions without tolerances are for reference only. E-T-A reserves the right change specifications at any time in the interest of improved design, performance and cost effectiveness, the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.