E-T-A Mechanical Power Relays (MPR/HPR)

Description

The mechanical power relays (MPR/HPR) 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.

MPR/HPR MPR/HPR

Versions

- single-pole make contact
- bistable or hybrid
- hybrid version (HPR10) including electronic control unit for signal adjustment
- with or without auxiliary contact
- side mount flanges as standard version
- extendable mounting with foot flange or side flange with standard hole sizes and also customised mouting methods
- standard: screw terminals for the activation
- connector Tyco HDSCS™, other types upon request

Options

Optional functions are available, e.g.
- ON or OFF delay (HPR10)
- overvoltage/undervoltage detection and disconnection
- level or pulse triggered
- parameterisation of the hybrid version

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
- hybrid version with integral electronic control unit
- barrier between main terminals
- snap-on cover for main terminals as protection against brush contact or short circuit

Technical Data

Load circuit		
Rated voltage	U_N	12 V DC, 24 V DC
Continuous current	I_N	300 A
Overload	20 s 1 s	2 × I_N 8 × I_N
Contact voltage drop	max. 150 mV max. 175 mV	(initially) (after typical life)
Control circuit		
Operating voltage	12 V DC: 24 V DC:	9...16 V DC 16...32 V DC
Coil power	bistable	< 90 W (50 ms)
General		
Typical life [1]	mechanical resistive	> 100,000 cycles > 50,000 cycles (300 A)
High voltage resistance	1050V / 1 min	to ISO 16750-2, Code F
Insulation resistance	> 100 MΩ (initially)	to ISO 16750-2, Code F
Temperature range	-40 … +85 °C	
Degree of protection	IP67 to ISO 20653 (0.2 bar 1 min)	
Vibration	> 6 g (50...2000 Hz) ISO 16750-3, Code S	
Shock	> 6 g (11 msec) ISO 16750-3, Code S	
Chemical resistance to ISO 16750-5		
Oil, fuels, hydraulic liquids, alcohol, urea, extinguishing agents, battery acid, salt mist, detergents, humidity, corrosive gases		
Dimensions	w x h x d (without terminals or flanges)	
Single pole, bistable	49.6 (62) × 91.3 × 45.8 [mm]	
Mass single pole	≤ 290 g	
Tightening torque values:	M8/M10 studs M4 screws	15 Nm 2.0 Nm

1) typical for a bistable relay

Order numbering code

Type No.

MPR10-N bistable
HPR10-N hybrid

Number of poles
1 single pole

Rated voltage
1 12 V
2 24 V

Current rating
1 100 A (M8)
2 200 A (M8, M10)
3 300 A (M10)

Design of load terminals
1 M8 studs (100 A, 200 A)
2 M10 studs (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 M5 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

Software (HPR10)
0 without
1 universal

Monitoring of the switching function (HPR10)
0 without
1 main terminals
3 main terminals and auxiliary contacts

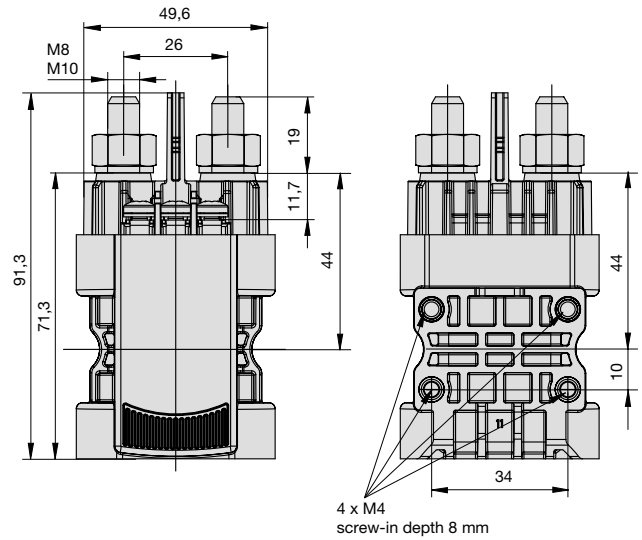
Options 4 (HPR10)
0 without

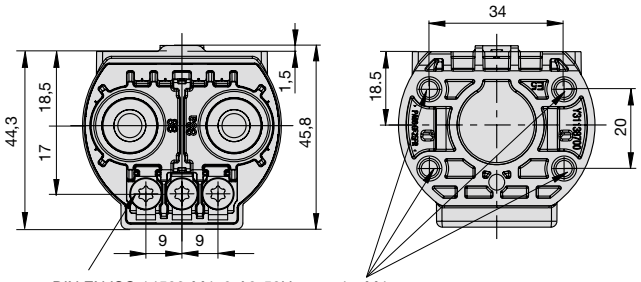
Options 5 (HPR10)
0 without

MPR10-N-	**1**	**2**	**3**	**-**	**2**	**1**	**1**	**1**	**-**	**2**	**0**	**0**	ordering example									
HPR10-N-	**1**	**2**	**3**	**-**	**2**	**1**	**1**	**1**	**-**	**2**	**0**	**0**	**-**	**1**	**1**	**0**	**0**					

Dimensions

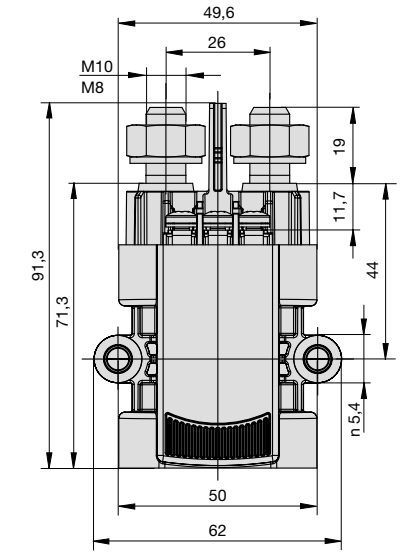
Version without integral side flange for optional side and/or foot plate with M4 connectors

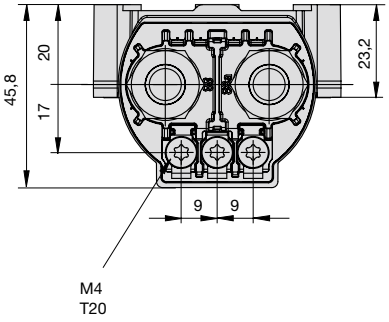




Dimensions

Version with side flange (50 mm distance between holes) and M4 screw terminals





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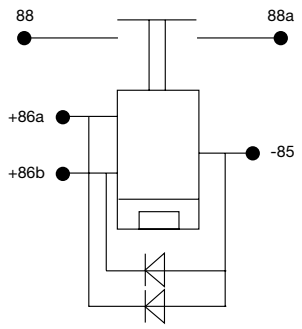
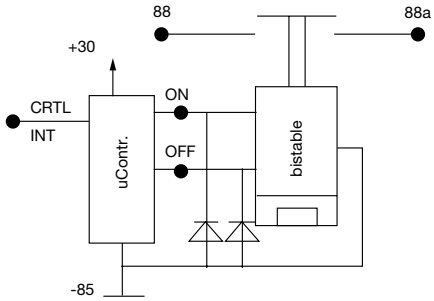
Schematic diagrams

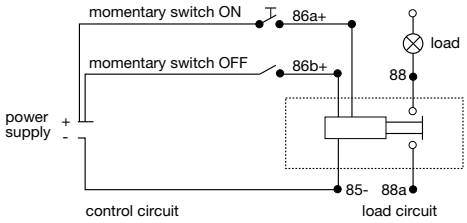
MPR10 bistable



HPR10 hybrid (with electronic control unit)



MPR10 bistable



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.