

## Operating Instructions

English translation

### Correct Use

The motor protection relay DHC is a temperature control relay for electric motors with no-voltage protected reconnection-stop, e.g. in case of a mains failure the relay remains to be interlocked at a release.

### Features

- Compact housing
- High security is given by the reconnection-stop and the principle of rest current
- Easy installation of several sensor resistances at one relay
- Maximum of reliability because of the modern CMOS-technology
- Integrated reset button



### Function

The DHC motor protection relay is a temperature monitoring relay for electro motors. It evaluates the resistance values of the PTC resistor integrated in the motor coil.

At a small sensor resistance (normal temperature) at T1-T2 the output contact 13-14 is closed. When the nominal cut-off temperature is reached, the contact 13-14 opens and interrupts the control circuit. Simultaneously, the interlocking of the output relay follows assured by the permanent memory; the red LED shines.

This interlocking could only be canceled after the temperature falls under the nominal cut-off temperature and the reset button is pressed.

An interruption of the supply voltage will not lead to electrical reset. A reset and therewith a restart of the motor could only result of a cooled off motor winding and an actuation of the integrated reset button at the front.

Because of the principle of rest current, also a wire breakage in the sensor line will be indicated as a fault.

### Installation

According to EN 60204-1 the unit is designed to be used in control cabinets with a minimum environmental protection of IP54. The housing is designed to be mounted on a 35 mm DIN rail according to DIN EN 60715 TH35.

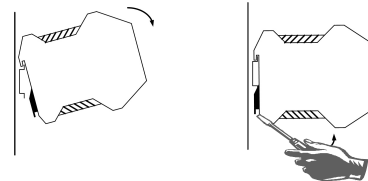


Fig. 1 Mounting / Demounting

### Safety Precautions



- The installation and operation must be carried out by qualified personnel only,
  - who is familiar with the professional handling of machine equipment,
  - who is familiar with the valid rules of industrial safety and accident prevention,
  - who read and understood the operating instructions.
- The safe function of the device during machine operation cannot be guaranteed in case of wrong connection or improper operation. This may lead to fatal injuries.
- Pay attention to country specific regulations.
- The electrical installation must be performed after disconnecting the device and the machine from the mains supply.

- The wiring must be carried out according to the instructions of this operating manual.
- The person who programs the device must be protected against electrostatic discharge (ESD protection).
- Opening the device, any manipulation of the device and the avoidance of the safety facilities are not permitted.
- All relevant safety regulations and standards must be attended to.
- Non-observance of the safety regulations may cause death, severe injuries or substantial damage to property.
- Before use, please, read the operating instructions and keep it in a safe place. Make sure that the operating instructions are always available for installation, initial operation and maintenance.

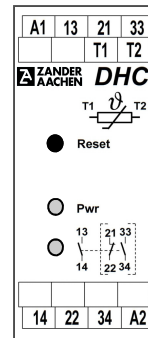
Non-observance of the instructions above will cause the loss of warranty.

### Electrical Connection

At the terminals T1-T2 the thermally controlled resistors (PTC), which are in the motor winding, are connected. Several temperature sensors can be connected in series; the cumulative cold resistance has to be smaller than 1.65 kΩ.

By the DHC with alternating voltage supply (standard type), the measuring circuit is galvanically isolated from the mains.

On application items with DC24 V-supply are possible; but for the galvanic isolation of the measuring line it is recommended to connect the DC24 V-type to an external transformer.



- A1: Power supply
- A2: Power supply
- T1: PTC resistor input
- T2: PTC resistor input
- 13-14: Output contact 1 only 446060:
- 21-22: Output contact 2
- 33-34: Output contact 3

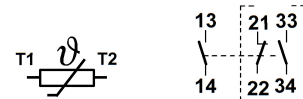


Fig. 2: Electrical Connection

### Maintenance

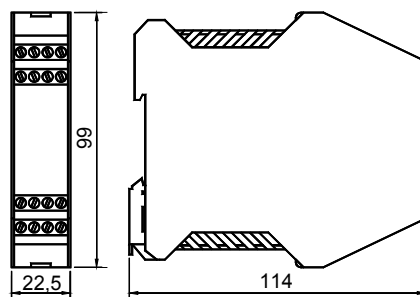
The device must be checked once per month for proper function and for signs of tampering.

The device is otherwise maintenance free, provided that it was installed properly.

### Techn. Data

Operating voltage $U_N$	AC24 V, AC230 V, 50-60 Hz
Voltage tolerance	+ 10 / - 15%
Power consumption	approx. 0.5 VA
LED's	stand by (green) overtemperature relay contact (red)
Protection	IP20
Operating range T1-T2	1.65 - 4.0 kOhm
Terminal voltage resistor-input	< 6 V
Reset/acknowledgement	Button at front
Switching capacity	1 NO (Order-No. 446052) 2 NO/1 NC (Order-No. 446060) AC250 V: max. 5 A, max. 1250 VA DC: 2 A at 24 VDC
Contact life	mechanical $5 \times 10^7$ operations
Contact fuses	3 A
Max. line cross section	2.5 mm <sup>2</sup>
Test voltage	2.5 kV (control voltage/contacts)
Rated impulse withstand voltage	4 kV (DIN VDE 0110-1)
Rated insulation voltage	250 V
Temperature range	-20° - + 60°C
Weight	approx. 200 g
Installation position	any

### Dimensions



### Variants

Order-No. 446052	DHC AC24 V, 1 NO contact
Order-No. 446060	DHC AC230 V, 2 NO / 1 NC *)

\*) discontinued model