

Operating Manual DRR10

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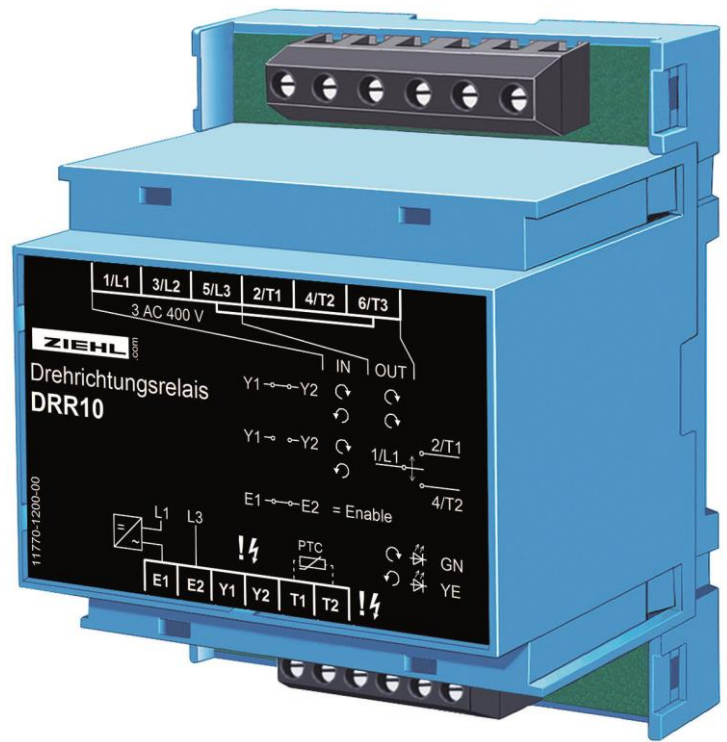
- Phase-Sequence Relay

1 Application and Short Description

Phase-sequence relays DRR10 measure the sequence of the phases when being switched on and switch - if necessary - the rotation of the field by changing 2 phases.

The integrated PTC-monitor protects the motor from overheating.

Applications are especially machines and equipment, that is operated at variable locations e.g. at building sites. Pumps, compressors and vacuum cleaners always run correctly. No more search for faults or change of wiring necessary.



2 Overview of Function

- automatic change of wrong phase-sequence when connected falsely
- running backward of motors is avoided
- integrated PTC-protection for motor
- enable-input for direct switching on/off of the motor with DRR 10
- max. 3 x 12 A
- switch-on currents 30 A / max. 4 s / 60 A / max. 1 s
- higher currents with external contactors
- integrated protection for relay contacts
- integrated protection from over-temperature
- housing for mounting in fuse-boxes or switchgear cabinets, mounting height 55 mm

3 Detailed Description

The device can be switched on and off with a potential-free contact at the enable-input (E1/E2). When no contact is connected, an isolated bridge has to be mounted.

After switching on the voltage, the sequence of the rotatory field is measured. When there is a bridge between Y1/Y2, after a short delay the correct phase-sequence is available at the output.

If there is no bridge in Y1/Y2, the output is connected as follows:

Input correct (right) phase-sequence --> Output 2/T1 = L1

Input wrong (left) phase-sequence --> Output 4/T2 = L1

Thus for big motors the phase-sequence can be corrected with contactors at 2/T1 and 4/T2 (see Examples for Connection).

PTC-sensors according to DIN 44081 / 44082 can be connected to the inputs T1, T2.

When no PTCs are connected, the inputs T1/T2 have to be shorted with a bridge.

4 Important Notes



WARNING

Dangerous electrical voltage!
May lead to electrical shock and burn.
Before beginning of work switch unit and equipment free of voltage.

To use the equipment flawless and safe, transport and store properly, install and start professionally and operate as directed.

Only let persons work with the equipment who are familiar with installation, start and use and who have appropriate qualification corresponding to their function. They must observe the contents of the instructions manual, the information which are written on the equipment and the relevant security instructions for the setting up and the use of electrical units.

The equipments are built according to DIN / EN and checked and leave the plant according to security in perfect condition. To keep this condition, observe the security instructions with the headline „Attention“ written in the instructions manual. Ignoring of the security instructions may lead to death, physical injury or damage of the equipment itself and of other apparatus and equipment.

If, in any case the information in the instructions manual is not sufficient, please contact our company or the responsible representative.

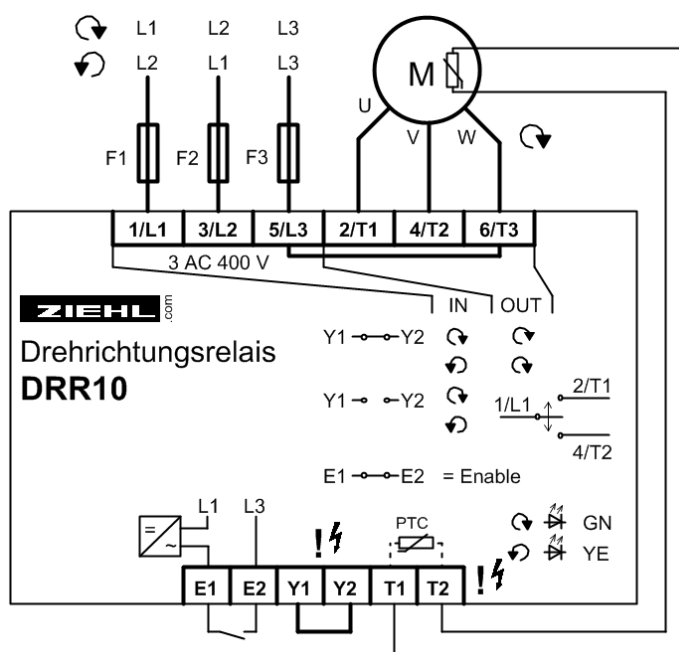
Instead of the industrial norms and regulations written in this instructions manual valid for Europe, you must observe out of their geographical scope the valid and relevant regulations of the corresponding country.

Observe the maximum temperature permissible when installing in switching cabinet. Make shure sufficient space to other equipment or heat sources. If the cooling becomes more difficult e.g. through close proximity of apparatus with elevated surface temperature or hindrance of the cooling air, the tolerable environmental temperature is diminishing.

5 Mounting

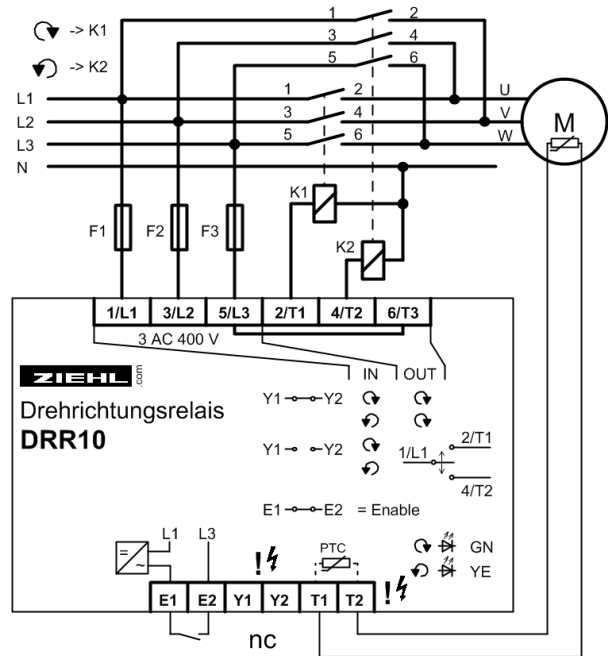
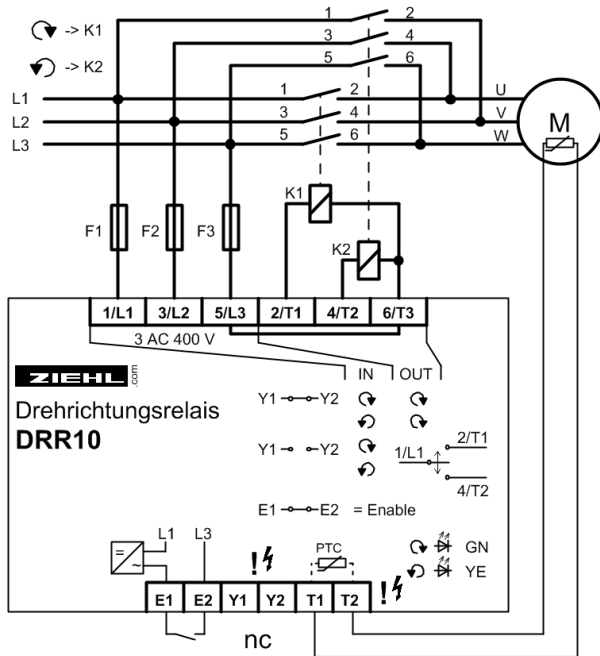
- mount on 35 mm mounting rail according to EN 60715
- wall-mount with 2 x screws M4
- connecting wires refer to the wiring diagram to prevent miss-operation and malfunction.

6 Examples for Connection





**ATTENTION! E1, E2, Y1, Y2, T1, T2 not potentially separated,
use insulated bridges and cables only !**



7 Technical Data

Rated supply voltage U_s :

Tolerance

Inputs:

E1, E2

T1, T2

Output relays:

Switching voltage

Thermal current I_{th}

Switch-on current

Rated nominal current I_e (AC 15)

Recommended fuse

Expected contact life mech.

Expected contact life electr.

3 AC 400 V, 50/60 Hz < 3 VA

+10 % ... -20 %

no potential separation from supply

potential-free contact for AC 400 V

PTC according to DIN 44081 / 44082

2 x 2 NO-contacts

max. AC 440 V

12 A

30 A max. 4 s / 60 A max. 1 s

3 A AC 400 V

gG/gL 16 A

30×10^6 operations

1×10^6 operations at AC 400 V / 3 A

2×10^5 operations at AC 400 V / 6 A $\cos \varphi 0,5$

Test conditions:

Rated impulse withstand voltage

Overvoltage category

Pollution degree

Rated insulation voltage U_i

EMV - immunity

EMV - emission

Rated ambient temperature range

EN 60255-27

4000 V

III

2

300 V

EN 61000-6-2

EN 61000-6-3

- 20 ... + 55 °C

Housing:

Mounting height

Width

Dimensions (B x H x D)

Line connection 1 wire

Stranded wire with wire-end sleeves

Protection housing

Protection terminals

Mounting

Weight

Design V4

55 mm

4 TE

70 x 90 x 58 mm

each 1 x 4 mm²

each 1 x 2.5 mm²

IP 30

IP 20

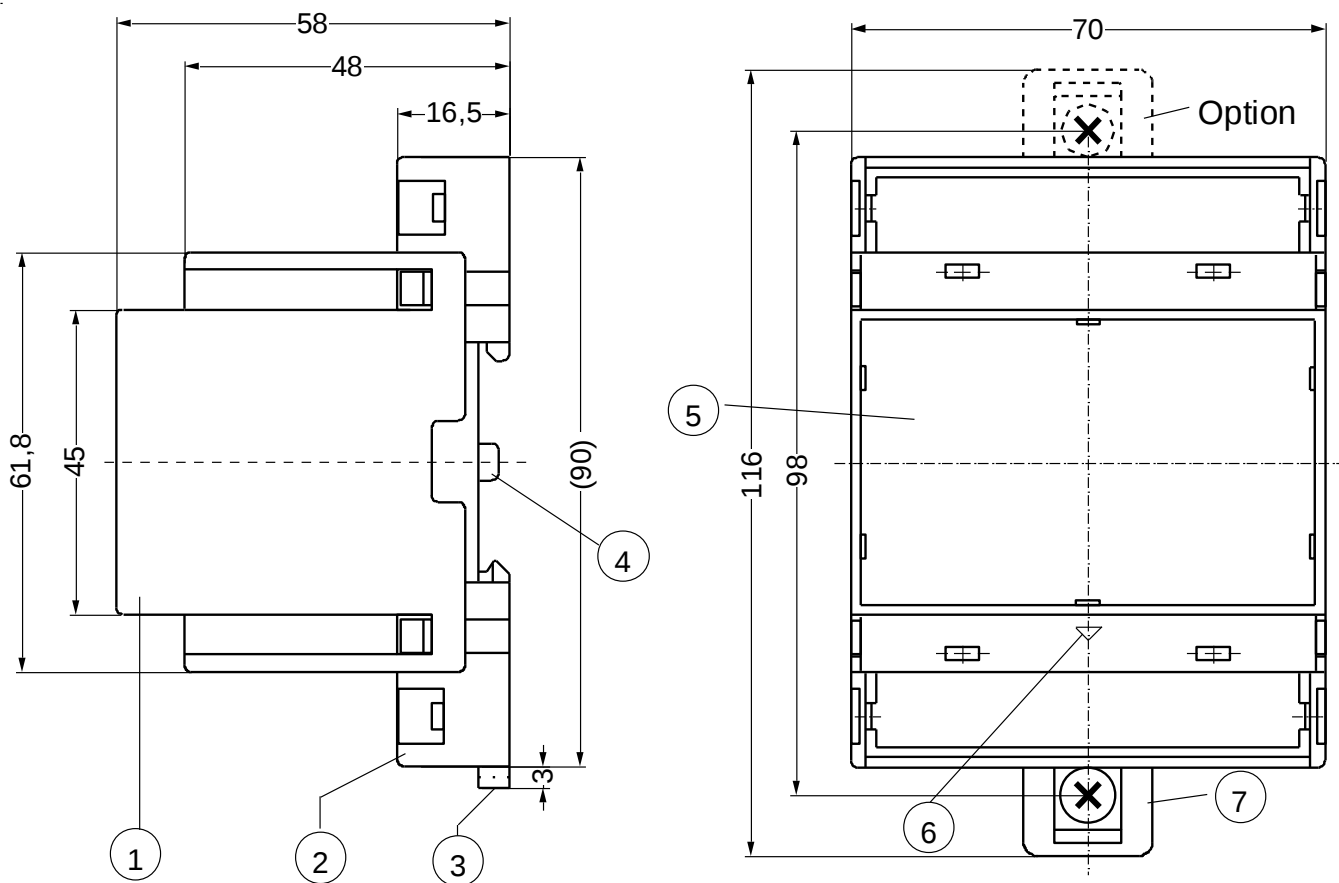
Snap mounting on 35 mm standard rail 35 mm

according to EN 60715 or with 2 screws M4

app. 230 g

Subject to technical modifications

8 Design V4: dimensions in mm



- 1 Oberteil / cover
- 2 Unterteil / base
- 3 Riegel / bar for snap mounting
- 4 Plombenlasche / latch for sealing
- 5 Frontplatteneinsatz / front panel
- 6 Kennzeichen für unten / position downward
- 7 Riegel bei Wandbefestigung mit Schrauben. Riegelbohrung Ø 4,2 mm / for fixing to wall with screws, Ø 4,2 mm.