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Operating Manual MSR820V

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For more information and help about this product please scan the QR-Code or choose the following link: MSR820V

Operating manual, Quick guide, Datasheet, Connection diagram, CAD Data
Firmwareupdates, FAQ, Videos about installation and settings, Certificates

- PTC thermistor relay with 8 inputs for monitoring of
motors, transformers, machines and systems

CE

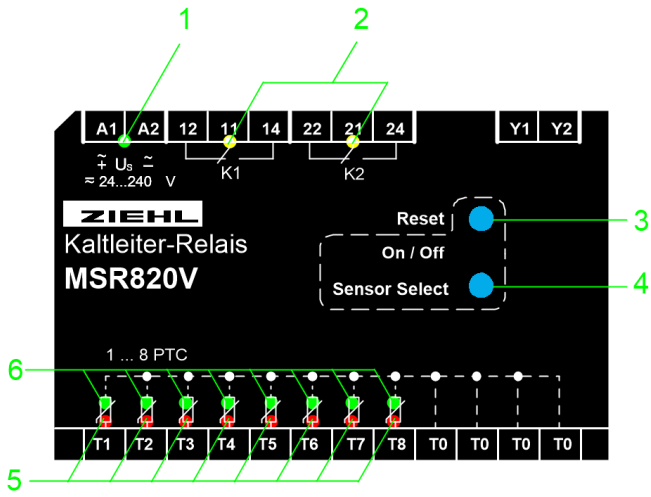
Table of contents

1 General Notes

Compliance with the following instructions is mandatory to ensure the functionality and safety of the product. If the following instructions given especially but not limited for general safety, transport, storage, mounting, operating conditions, commissioning and disposal / recycling are not observed, the product may not operate safely and may cause a hazard to the life and limb of users and third parties.

Deviations from the following requirements may therefore lead both to the loss of the statutory material defect liability rights and to the liability of the buyer for the product that has become unsafe due to the deviation from the specifications.

2 Display and controls



2.1 Green LED Mains	
on	Device is switched on
off	Device is switched off

2.2 Yellow LED Relay status	
on	Relay is energized, contacts 11/14 (K1) or 21/24 (K2) are closed
off	Relay has de-energized, contacts 11/12 (K1) or 21/22 (K2) are closed

2.3 Reset button (for Sensor Select on/off)
• Resetting an alarm message
• In Sensor Select operation: Switching the selected sensor on or off
• Press and hold ≥ 2s when mains is turned on -> Factory Reset
• Press and hold ≥ 10s when mains is turned on -> Device configuration

2.4 Sensor Select button
• Selection of a PTC thermistor circuit
○ The corresponding red LED flashes quickly ○ Press the On/Off (reset) button to turn the circuit off or on ○ The green LED indicates the status (on/ off) ○ Button ≥ 2s pressed, return to normal operation ○ ≥ 5s no button actuation, return to normal operation

2.5 Red sensor LEDs T1 .. T8	
on	no tripping in the PTC thermistor circuit
off	Resistance in the PTC circuit > 3650 Ohm (tripping)
flashes	after a tripping - Resistance in the PTC thermistor circuit < 1600 Ohm, device is ready to be switched back
flashes quickly	PTC thermistor circuit was selected with Sensor Select button, with On/Off (Reset) button the circuit can be switched on/off (green LED on/off)

2.6 Green sensor LEDs T1 .. T8	
on	PTC thermistor circuit is switched on
off	PTC thermistor circuit is switched off
flashes	Sensor short circuit in the PTC thermistor circuit

3 Factory setting

Function ext. Reset:	N/O contact
Relay function:	K1, K2 Quiescent current
Zero-voltage safe restart interlock:	OFF
Short-circuit monitoring:	OFF

4 Application and short description

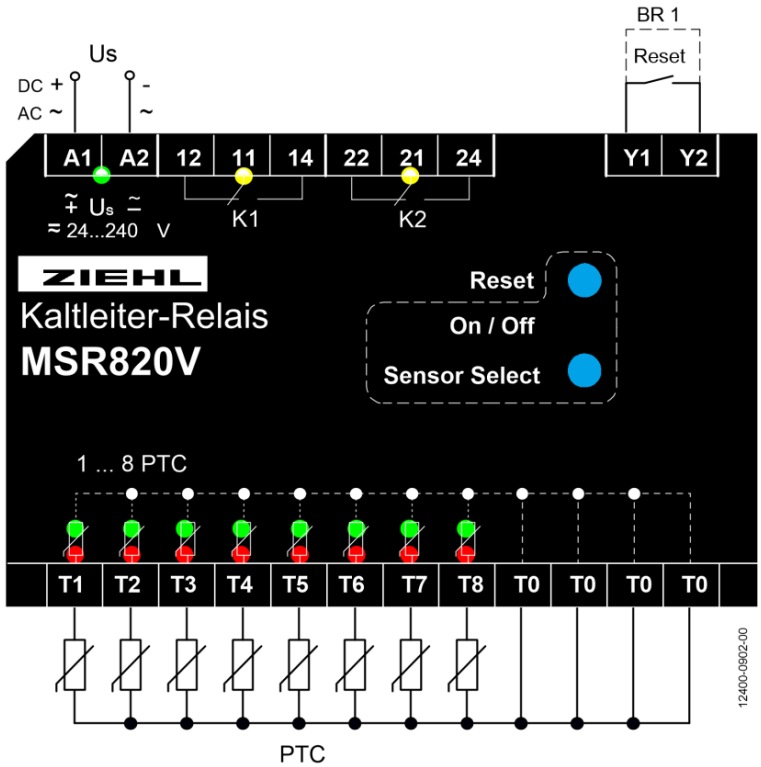
ZIEHL PTC thermistor tripping devices protect motors, transformers, machines and systems against thermal overload. Together with ZIEHL PTC thermistor temperature sensors type MINIKA®, response values between 60°C and 180°C can be realized.
The MSR820V monitors up to 8 PTC thermistor circuits. The individual circuits can be activated or deactivated during operation.

5 Overview of functions

- 8 PTC thermistor circuits, 1...6 PTC thermistors in series each (max. total cold resistance 1500Ω each)
- Simple activation/deactivation of individual PTC thermistor circuits (display via LEDs)
- 2 potential-free relay outputs, indication of switching status via LEDs
- Status display of the PTC thermistor circuits via 2 LEDs each
- Restart interlock (can be switched off by jumper)
- All-voltage mains supply AC/DC 24 – 240V
- Mounting on 35 mm standard rail DIN EN 60715 or screw fixing (option)
- Programmable functions:
  - Short circuit monitoring in the PTC thermistor circuit (off/on)
  - External reset as N/O contact/N/C contact (terminals Y1, Y2)
  - Zero-voltage safe restart interlock (off/on)
  - Relay function
    - K1 and K2 Quiescent current
    - K1 and K2 working current
    - K1 quiescent current and K2 working current

6 Connecting diagram

BR1: Restart interlock switched off



7 Important Information

DANGER!
Hazardous voltage!
Will cause death or serious injury. Turn off and lock out all power supplying this device before working on this device.

Attention!
If the working current version function is programmed for all relays, a failure of the control voltage or the device will not be detected. When used as a monitoring device, the operator must ensure that this error is detected by regular functional tests. We recommend programming at least one relay in quiescent current version and evaluating it accordingly.

Attention! Universal power supply
The device has a universal power supply, that is suitable for DC- and AC-voltages. Before connecting the device to supply-voltage make sure that the connected voltage corresponds with the voltage on the lateral type on the device

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 instruction's 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 equipment is built according to DIN VDE/EN/IEC and checked and leave the plant according to security in perfect condition. If, in any case the information in the instruction's manual is not sufficient, please contact our company or the responsible representative.
In order to maintain this status, you must observe the safety regulations entitled "caution" in this operating manual. Failures to follow the safety regulations can result in death, personal injury or property damage to the device itself and to other devices and facilities.
To maintain this condition, you must observe the safety instructions in this instruction manual titled "Important Information". Failure to follow the safety instructions may result in death, personal injury, or property damage to the equipment itself and other equipment and facilities.
Instead of the industrial norms and regulations written in this instruction manual valid for Europe, you must observe out of their geographical scope the valid and relevant regulations of the corresponding country.

8 Installation

- mount on 35 mm mounting rail according to EN 60715
- wall-mount with 3 x screws M4
- connecting wires refer to the connection plan to prevent miss-operation and malfunction.

Attention!
Observe the maximum temperature permissible when installing in switching cabinet. Make sure 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.

9 Commissioning

When switched on, all LEDs light up for 1s.

9.1 Normal operation

PTC thermistor T1 .. T8			Button	Alarm messages
Sensor (Ohm)	LED red	LED green	Reset Y1, Y2	
< 1600	off	on		No alarm
> 3650	on	on		Alarm, response temperature exceeded
< 1600	flashes	on		Storage of an alarm
< 1600	off	on	X	Reset an alarm
< 20	on	flashes		Alarm, sensor short circuit
> 40	off	on		No alarm

9.2 Switching PTC thermistor circuits on and off

During operation, individual PTC thermistor circuits can be switched on or off.

Button	Function
Sensor Select press	• Selection of the PTC thermistor circuit • red LED of selected circuit flashes quickly
On/Off (Reset) press	• green LED on, PTC thermistor circuit switched on • green LED off, PTC thermistor circuit switched off
Sensor Select press	• Selection of the next PTC thermistor circuit • after PTC thermistor circuit T8, return to normal operation takes place
≥ 2s Sensor Select press	• immediate return to normal operation
≥ 5s no button	• Return to normal operation

9.3 Configuration of device functions and factory reset

- Switch off the device
- Press and hold reset button
- Switch on the device
- After 2s, all LEDs flash for 2s
    - Factory reset, all functions have been reset to factory settings
- Continue to press and hold the reset button
- After 10s all LEDs turn off (except for LED T1 green), configure device according to table…

green	T1	red	Function ext. Reset	Button
X			N/O contact *)	Reset
		X	N/C contact	Reset
				Sensor
green	**T2**	**red**	**Relay function**	
X			K1, K2 Quiescent current *)	Reset
		X	K1, K2 Working current	Reset
X		X	K1 quiescent current, K2 working current	Reset
				Sensor
green	**T3**	**red**	**Zero-voltage safe restart interlock**	
X			Off *)	Reset
		X	On	Reset
				Sensor
green	**T4**	**red**	**Short-circuit monitoring**	
X			Off *)	Reset
		X	On, Message to K1 and K2	Reset
X		X	On, Message to K2	Reset
				Sensor
Exit configuration, restart the device				

*) Factory setting

9.4 Display of the configuration settings

- Press and hold the reset button for ≥ 10s
    - Mains LED flashes
    - LEDs T1, T2, T3 and T4 indicate the status of the configuration settings (see table above)
- Release reset button to end the status display
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10 Error search

Relay does not switch on (LED K1, K2 off)	
Cause	No supply voltage at terminals A1, A2
Remedy	Apply supply voltage (check), green mains led must be light up
Cause	At least one red LED of the PTC thermistor circuits T1 ... T8 lights up
Remedy	Check the wiring of the PTC thermistors, PTC thermistor circuits where the red LED lights up have a resistance > 3650 Ohm
Cause	At least one red LED of the PTC thermistor circuits T1 ... T8 lights up and the green LED flashes
Remedy	Short circuit in PTC thermistor circuit, check wiring.
Cause	At least one red LED of the PTC thermistor circuits T1 ... T8 flashes
Remedy	There is a stored tripping. Press the reset or external reset button at Y1, Y2.

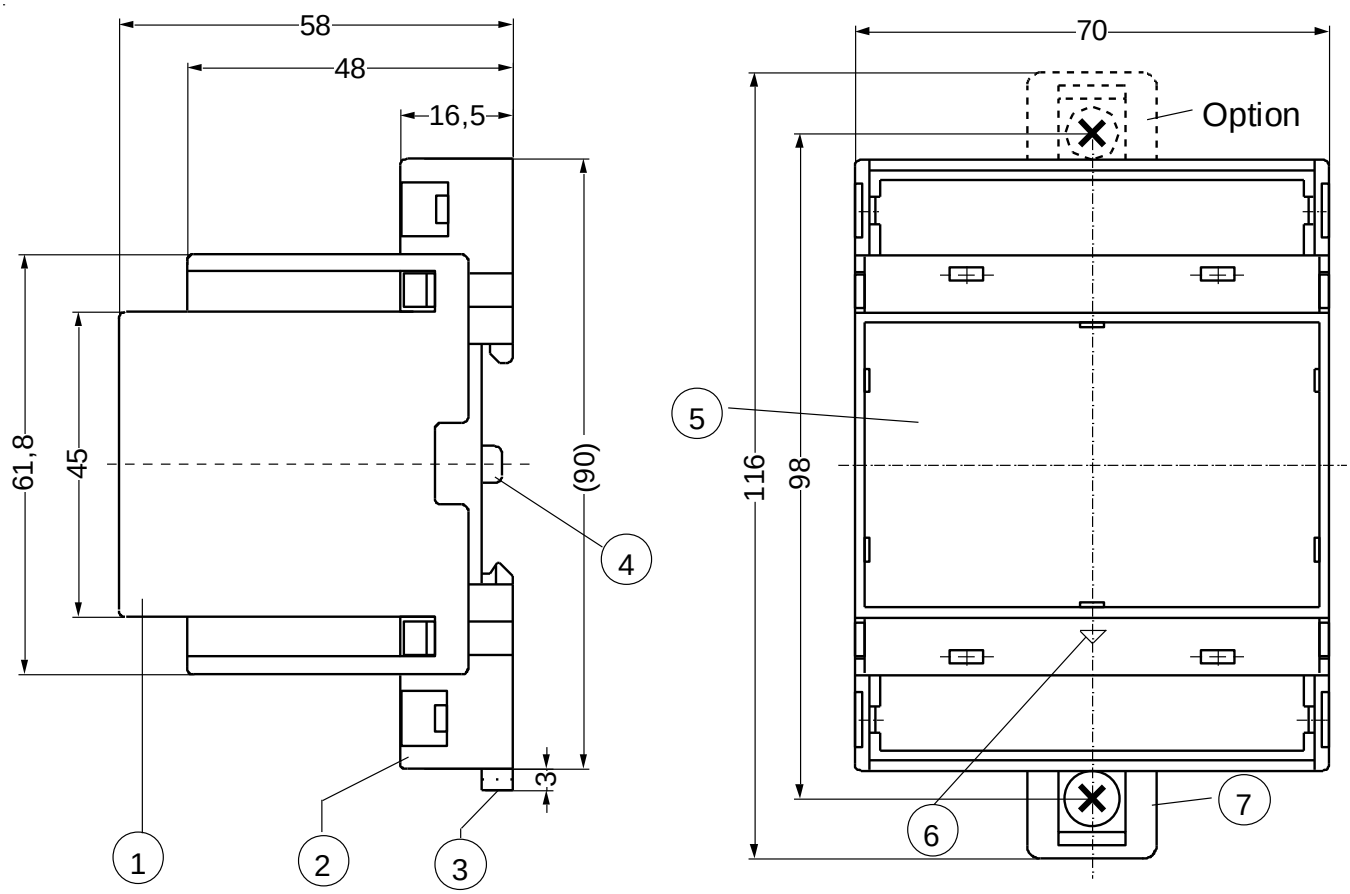
11 Technical data

Rated supply voltage Us	DC/AC 24 – 240 V		
Tolerance	DC 20.4 - 297 V	AC 20 - 264 V	0/50/60 Hz
Power consumption	< 1 W	< 3 VA	
PTC thermistor connection	PTC sensor according to DIN 44081/82		
Number	8 sensor circuits x 1...6 PTC thermistors (250Ω) in series		
Shutdown value	3.3kΩ...4kΩ, typical 3.65kΩ		
Reset value	1.5kΩ...1.65kΩ, typical 1.6kΩ		
Short-circuit detection	On: approx. 20 Ω		
Terminal voltage	≤ 2.0V at R ≤ 3.65kΩ, ≤ 3.3V at R = ∞		
Sensor current	≤ 1.25mA		
Power consumption	≤ 2mW		
Relay output	2 x 1 Change-over contact (CO) (Bistable relays)		
Switching voltage	max. AC 440 V, max. DC 230 V		
Switching current	max. 8 A		
Switching power (resistive load)	max. 2000 VA max. 240 W at DC 30 V		
Nominal operating current Ie for changers	AC15 Ie = 3 A DC13 Ie = 0,2 A		
Recommended back-up fuse	max. 4 A		
Mechanical contact life	10^7 operations		
Electrical contact life	Resistive 1 x 10^5 AC Resistive 5 x 10^4 DC		
Testing conditions	EN 50178 / EN 60 947		
Rated impulse voltage	4000 V		
Overvoltage category	III		
Pollution degree	3	2	
Rated insulation Ui	250 V	415	
On period	100 %		
permissible ambient temperature	-20 °C ... +55 °C EN 60068-2-2 dry warmth		
EMC immunity (industry)	EN 61000-6-2		
EMC emission	EN 61000-6-3		
Vibration resistance EN 60068-2-6	2…25 Hz ±1,6 mm 25 ... 150 Hz 5 g		
Housing	Type V4		
Mounting height / Width (DIN 43880)	55 mm/4 TE		
Dimensions (W x H x D)	70 x 90 x 58 mm		
Connection cross-section – solid-core	1x0.5…2.5mm² each		
fine wire with ferrules	1x0.14mm² to 1.5mm² each		
Protection class housing / terminals	IP 30 / IP 20		
Mounting	Snap mounting on 35 mm standard rail EN60715 or M4 screws (additional bar not included)		
Weight	app. 180 g		

Subject to technical changes

12 Housing Type V4

Dimension in mm



1	cover
2	base
3	bar for snap mounting
4	latch for sealing
5	front panel
6	position downward
7	for fixing to wall with screws, Ø 4,2 mm

13 Disposal

Disposal should be carried out properly and in an environmentally friendly manner in accordance with legal provisions.
ZIEHL is registered with the EAR Foundation under WEEE no .: DE 49 698 543.