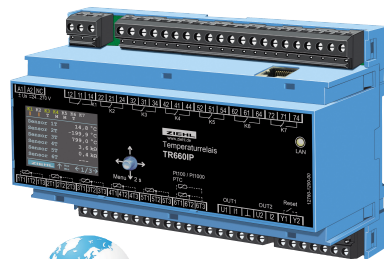


# Temperature Relay Type TR660IP

Sensors 6 x Pt 100, Pt 1000 or PTC, 7 limits, analog outputs or interface RS485, IP interface, operation with browser via TCP/IP

## TR660IP



UK  
CA C RU US

### Part numbers:

TR660IP analog      **T224370**  
TR660IP RS485      **T224371**

### ER8



**T224388**

Temperature Relays TR660IP monitor up to 6 sensors for up to 7 limits. Different sensors can be connected at the same time, e.g. Pt 100 (RTD) and PTC-thermistors. Typical applications are monitoring of motors, generators or transformers. Another application is the use as a 2- or more step-controller with additional monitoring of over- or undertemperature or monitoring of differences in temperatures of 2 sensors.

Preset programs allow easy setting e.g. monitoring of transformers with/without monitoring of temperature of core or with/without controlling a ventilator. If evaluation "2 out of x" is activated with several connected sensors, an alarm is only triggered when the limit value is exceeded in 2 sensors. This prevents false alarms due to a fault in one sensor.

Operation can be made at the device or with a standard browser via ethernet.

- 6 inputs for sensors Pt 100, Pt 1000 and PTC, mixed sensors possible
- 7 alarms / output relays
- alarm 2 of x = alarm only when limit is exceeded in min. 2 sensors
- monitoring of difference of temperatures
- monitoring of rate of change of temperature
- logging of temperatures and history
- preset programs for protection of motors, transformers and more
- interface ethernet TCP/IP, values available via modbus TCP
- programming with browser via TCP/IP or with joystick at device
- coloured LCD display for clear display of temperatures and states of alarms
- universal power supply AC/DC 24-270 V

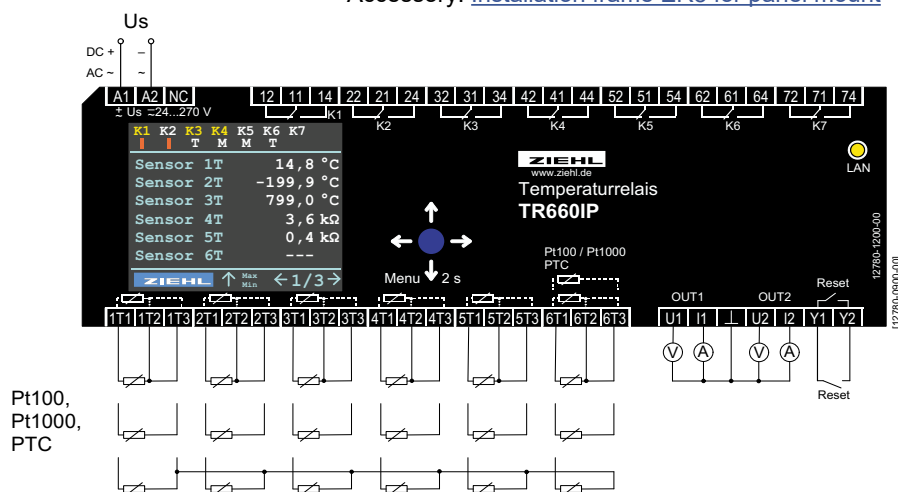
TR660IP RS485:

Interface RS 485 (modbus RTU)

TR660IP analog:

4 analog outputs 2x 0/4-20 mA and 2x 0/2-10V, isolated from sensor inputs, individually programmable

Accessory: [Installation frame ER8 for panel mount](#)



## Technical data

Supply voltage Us:	DC/AC 24 ... 270 V, 0/50/60 Hz	
Tolerance	DC 20,4 ... 297 V	AC 20 ... 297 V
Power consumption	< 3 W	< 9 VA
Relay outputs K1 ... K7 (Alarm 1 ...7)	Change over	
Switching voltage	max. AC 300 V; DC 300 V	
Inrush current normally open (NO)	AC 15 A 4s 10% ED	
Min. voltage / current	12 V 10 mA	
Conventional thermal current Ith	max. 5 A	
Switching power max. AC cos φ = 1	2000 VA	
Switching power max. DC (ohm)	0,3 A 300 V; 0,4 A 120 V; 0,8 A 60 V; 8 A 30 V	
Contact service life, electrical cos φ = 1	cos φ = 1 -> 5 x 10 <sup>5</sup> operations at 250 V / 2 A	

Contact service life, mechanical	3 x 10 <sup>7</sup> operations
Short circuit strength (NO)	4 A sluggish or circuit breaker B4
Short circuit strength (NC)	3,15 A sluggish
Switching capacity usage category	AC-15 I <sub>e</sub> = 3 A U <sub>e</sub> = 250 V
	DC-13 I <sub>e</sub> = 2 A U <sub>e</sub> = 24 V
Rated operational current	DC-13 I <sub>e</sub> = 0,4 A U <sub>e</sub> = 120 V
Rated operational voltage	DC-13 I <sub>e</sub> = 0,2 A U <sub>e</sub> = 240 V
UL electrical ratings	250 V ac, 3 A, general use
	240 V ac, 1/4 hp, 2.9 FLA
	120 V ac, 1/10 hp, 3.0 FLA
	C300

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**Sensor inputs** Pt100, Pt1000 according to EN60751

Sensor	Measuring range °C		Short circuit Ohm	Sensor break Ohm	Sensor resistance + line resistance Ohm
	min	max	<	>	max
Pt 100	-199,9	800,0	15	400	500
Pt 1000	-199,9	800,0	150	4000	4100
PTC			20	20000*	

\*if no value between 3800 and 20000 ohms was measured before

Tolerance Pt100, Pt1000	±0,5% from measuring value ±1K
Tolerance PTC	±0,5% from measuring value ±5Ω
Sensor current	≤ 1 mA
Measuring cycle / Measuring time t <sub>M</sub>	<1 s (depending on the number and type of connected sensors)

**Analog output (TR660IP Analog only)** U1, U2, I1, I2

<b>Voltage output</b>	DC 0/2 ... 10V
Accuracy	0,3% of full scale (from 0,1V)
Temperature drift	< 0,01% / K
Resolution	11,6 Bit <3,1mV
Burden	≥ 1 kΩ
<b>Current output</b>	DC 0/4 ... 20mA
Accuracy	0,3% of full scale (from 0,1mA)
Temperature drift	< 0,015% / K
Resolution	11,6 Bit <6,1mV
Load	≤ 500 Ω
Error load	(250 Ω – load) / 250 Ω * 0,3% of current

**RS485 interface** (TR660IP RS485 only)

Protocol	Modbus RTU
Adress / bus number	1 ... 247
Baud rate	4800, 9600, 19200, 57600
Parity	No, odd, even
Stop bit	1 ... 2

**Test conditions** EN 61010-1; EN 61326-1

**Installation conditions**

Operating temperature	-20 °C ... +65 °C
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**Housing** Construction type V8, distribution board

Mounting depth	55 mm
Width	8 TE
Dimensions (W x H x D)	140 x 90 x 58 mm
Protection class housing / terminals	IP 30 / IP20
Mounting	Snap-on fastening on 35 mm mounting rail acc. EN 60 715 or with M4 screwed attachment (additional bar not included in the scope of delivery)
Weight	app. 370 g

The technical data listed on this data sheet is only an excerpt; please refer to the operating manual for the complete technical data, which we strongly recommend you observe.

Subject to technical changes