RTD-box TR1200 7XV5662–6AD10

General Description

The Thermobox TR1200 can capture up to 12 temperatures with 12 measuring inputs. 2- and 3-conductor Pt 100 sensors are supported. For the 2 conductor mode, the measured conductor resistance can be compensated for with a corresponding setting. The measurement of temperatures may be simulated for commissioning purposes.

The output of measured values to the protection device is compatible with TR600 and implemented with bus cable 7XV5103-7AAxx via a RS485-Bus.

All settings are done via 3 push buttons on the front of the device. Entry can be blocked via a code.

The TR1200 has a wide range power supply from 24 V – 250 V DC and 115/230 V AC as well as an alarm relay. Sensor failure or sensor short circuit are alarmed and transmitted via protocol to the SIPROTEC – device.

Communication over RS485-Bus

The Thermobox TR1200 is connected via a RS485-interface to one SIPROTEC 4 bay device with thermo function (e.g. 7SJ6, 7UT6, 7UM6) or to the compact protection 7SK80 via a serial RS485-interface (Port B).

The special cable 7XV5103-7AAxx is used for the connection. In the event of remote measuring locations, the connections may also be done using multimode fibre optic conductors and the converter 7XV5650 (see Fig. 1).

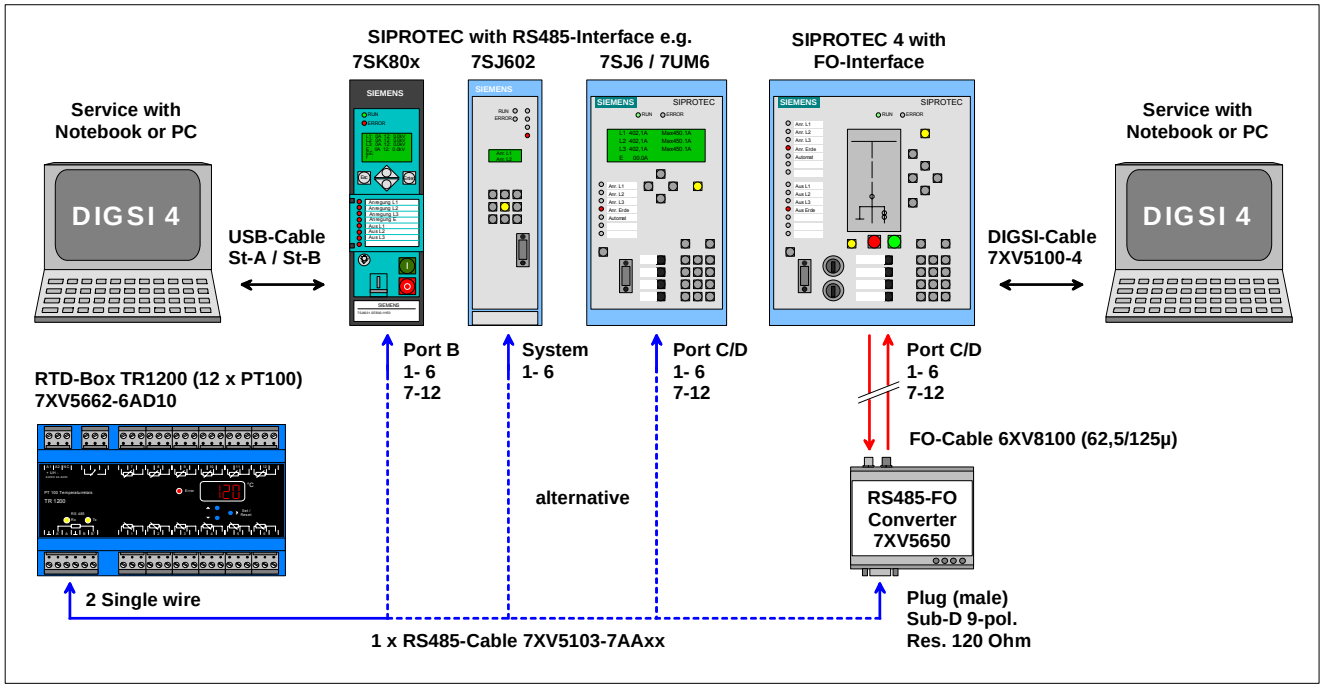


Fig 1: Connection of devices via a serial RS485 Bus or FO cable

Compatibility with TR600

SIPROTEC 4 protection devices can process up to 12 temperature measurements. Previously two Thermoboxes of type TR600 were required for this purpose. The Thermobox TR1200 can, by means of its 12 Pt100 measuring inputs, replace up to two Thermoboxes of type TR600 for temperature measurement.

NOTE: The TR1200 does not provide any alarm indications or contacts of its own.
The alarm thresholds must be set, indicated and output via contact or transferred to the system interface separately for every input.

For different applications, 3 modes of operation are available. All three modes are compatible with thermo box TR600 with 6 measuring inputs. The mode of operation is set via the RS 485 address of the TR1200.

Device	**Settings**	**6 measured values in the „Simplex-mode“**
TR1200	Address 0	measured values are sent by the TR1200 in 3 s intervals
SIPROTEC	6 RTD Simplex	Protection equipment receives 3 measurements every 3 sec.
Device	**Settings**	**6 measured values in the „Half-duplex-mode“**
TR1200	Address 1	The TR1200 responds to a request from protection device
SIPROTEC	6 RTD Half duplex	The protection device requests 6 measurements
Device	**Settings**	**12 measured values in the „Half-duplex-mode“**
TR1200	Address 1	The TR1200 responds to a request from protection device
SIPROTEC	12 RTD Half duplex	The protection device requests 12 measurements

Detailed information (e.g. settings of thermo functions in the devices, protocols etc.) may be obtained from the applicable device manuals and the extensive application description of the TR 800 Web operation together with SIPROTEC devices in the Internet.

www.siprotec.com -> Accessories -> 7XV5662-xAD.

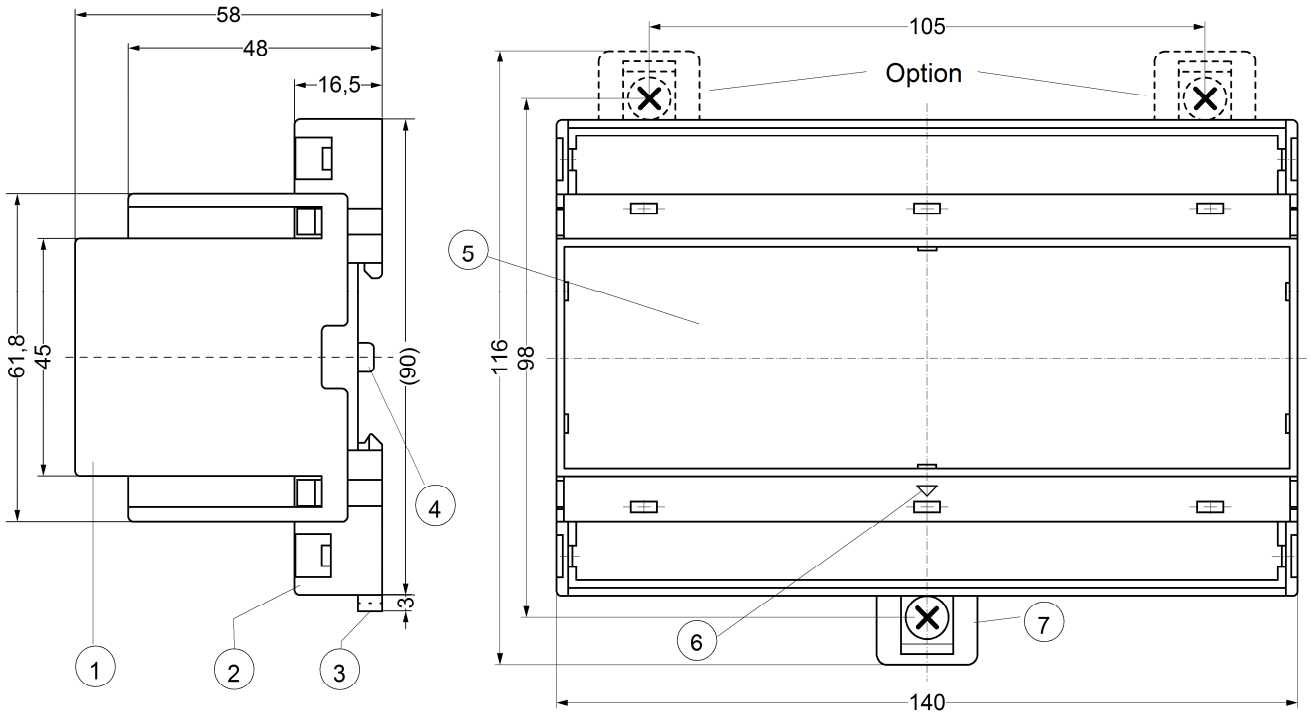
Technical data

Auxiliary voltage Us:			AC/DC 24 – 240 V, 0 / 45 - 65 Hz < 5 VA
Tolerance			DC 20,4 - 297 V, AC 20 - 264 V
Relay out-put:			1 Wechsler (CO)
Switching voltage			max. AC 415 V
Switching current			max. 5 A
Switching power			max. 2000 VA (ohmic load)
			max. 120 W at DC 24 V
De-rating factor with cosφ = 0,7			0,5
UL electrical ratings:			250 V AC, 3 A general use
			D300 1 A 240 VAC
Rated operating current Ie:			
	AC15	Ie = 2 A	Ue = 250 V
	DC13	Ie = 2 A	Ue = 24 V
		Ie = 0,2 A	Ue = 125 V
		Ie = 0,1 A	Ue = 250 V
Recommended fuse			T 3,15 A (gL)
Contact life span mech.			1 x 107 switching operations
Contact life span electr.			1 x 105 switching operations at AC 250 V / 5 A

Sensor connenction:	
12 x Pt 100	according to EN 60751
Measuring cycle / measuring time	0,25 … 3 s (depending on the number of sensors)
Measuring cycle / circuit resistance	0,25 … 30 s (per measuring cycle of a sensor)
Measuring range	-199 … 850 °C
Resolution	1 °C
Accuracy	± 0,5 % of measured value ± 1 K
Sensor current	≤ 0,8 mA
Temperature drift	< 0,04 °C/K
Short circuit	< 15 Ohm
Interruption	> 400
Sensor resistance + circuit resistance	max. 500 Ohm
RS485 Interface:	
Device address	0 … 96
Baud rate	4800, 9600, 19200 Bit/s
Parity	N, O, E (no, odd, even)
Max. Cable length	1000 m at 19200 Bit/s
Serial protocol	Serial RTD – Protocol Ziehl / SIPROTEC
	Protocol description in the manual
Testing conditions*:*	EN 61010
Rated impulse voltage insulation	4000 V
Overvoltage category	III
Pollution rate	2
Rated insulation level Ui	300 V
Duty cycle	100 %
Perm. Ambient temperature	-20 °C ... +65 °C
	EN 60068-2-2 dry heat
Electrical isolation	Power supply – measuring inputs 3820 V DC
No electrical isolation	RS 485 Interface – measuring inputs
EMC-tests:	EN 61326-1
EMC test for noise emission	EN 61000-4-3
Fast transient disturbances/Burst	EN 61000-4-4 +/-4 kV
	Pulse 5/50 ns, f = 5 kHz, t = 15 ms, T = 300 ms
High energy surge voltages (SURGE)	IEC 61000-4-5 +/-1Impulse 1,2/50 µs (8/20 µs)
Electrostatic discharge	IEC 61000-4-2 +/-4 kV contact discharge,
	+/- 8kV air discharge
Housing:	
Housing type	V8, Distribution panel mounting
Size (W x H x D)	140 x 90 x 58 mm
Depth / Width	55 mm / 8 TE
Circuit termination single strand	per 1 x 1,5 mm2
Braided conductor with crimp lug	per 1 x 1,0 mm2
Tightening torque of terminal screw	0,5 Nm (3,6 lb.in)
Degree of protection of housing/terminals	IP 30 / IP 20
Mounting vertical/horizontal	optional
Affixing	Snap on to standard rail mounting
35 mm acc. to EN 60715 or	
Screw mounting (with 2 additional brackets)	
Weight	approx. 370 g

Technical changes may take place

Construction V8



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.

Ordering data

Product name	Order No.:
RTD-Box TR1200	**7 X V 5 6 6 2 - 6 A D 1 0**

Distributed Input-box for 12 RTD-connection Pt100

Rail mounting plastic, Protection class IP21

1 serial Interface RS485 for communication with SIPROTEC devices for measurements and fault reports.

Wide range power supply AC / DC 24-240V

Note: The device can be operated in a 7 XV5662-2AD10 or 7 XV5662-5AD10 compatible mode.

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