



Fig. 13/107 7XV5662-6AD10 RTD-box TR1200

Function overview

- 3-digit temperature display
- 12 inputs for temperature sensors, 1 to 12 sensors can be connected
- Pt 100 thermostats with 2- or 3-conductor technology
- 1 error relay (potential-free change-over contact)
- RS485 interface (ZIEHL standard protocol and MODBUS RTU protocol)
- LED signal the measuring channel, error state, relay function and RS485 activity
- Code lock prevents parameter manipulation
- TR600 compatible (to replace one TR600 with 6 sensors connected)
- Universal power-supply AC/DC 24 to 240 V
- Snap-on mounting onto 35 mm standard rail EN 60715

Description

The RTD-box 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 DC 24 – 250 V and AC 115/230 V as well as an alarm relay. Sensor failure or sensor short-circuit are alarmed and transmitted via protocol to the SIPROTEC device.

Application, technical data

Application

Communication via RS485 bus

The RTD-box 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 multi-mode fiber-optic conductors and the converter 7XV5650 (see Fig. 13/108).

For detailed information please visit www.siemens.com/siprotec

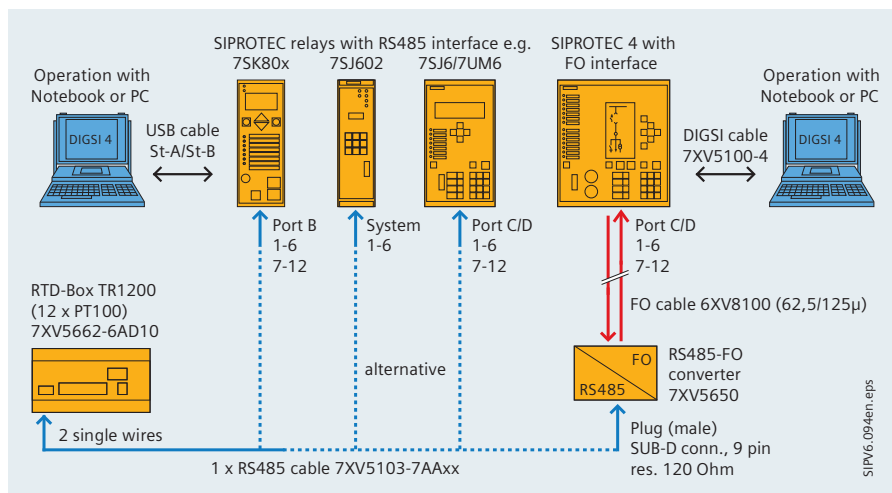


Fig. 13/108 Connection of devices via a serial RS485 bus or FO cable

Technical data

| | |
|--|---|
| Rated auxiliary voltage | |
| Auxiliary voltage V_S | AC/DC 24 – 240 V, 0/45 – 65 Hz < 5 VA |
| Tolerance | DC 20.4 – 297 V, AC 20 – 264 V |
| Relay output | |
| Number | 1 changeover contact (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 $\cos \varphi = 0.7$ | 0.5 |
| U_L electrical ratings: | AC 250 V, 3 A general use D300 1 A AC 240 V |
| Rated operating current I_E AC 15 DC 13 | $I_E = 2$ A $V_E = 250$ V $I_E = 2$ A $V_E = 24$ V $I_E = 0.2$ A $V_E = 125$ V $I_E = 0.1$ A $V_E = 250$ V |
| Recommended fuse | T 3.5 A (gL) |
| Contact service life, mech. | 1×10^7 switching operations |
| Contact service life, electr. | 1×10^5 switching operations at AC 250 V/5 A |
| Sensor connection | |
| Number | $12 \times$ Pt 100 according to EN 60751 |
| Measuring cycle/measuring time | 0.25 to 3 s (depending on the number of sensors) |
| Measuring cycle/circuit resistance | 0.25 to 30 s (per measuring cycle of sensor) |
| Measuring range | -199 to 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 |

| <i>RS485 interface</i> | |
|---------------------------------------|--|
| Device address | 0 to 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 See manual for detailed protocol description |
| <i>Test conditions</i> | |
| Acc. to | EN 61010 |
| Rated impulse voltage insulation | 4000 V |
| Overvoltage category | III |
| Pollution rate | 2 |
| Rated insulation level V_i | 300 V |
| Duty cycle | 100 % |
| Perm. ambient temperature | - 20 °C to + 65 °C EN 60068-2-2 dry heat |
| Electrical isolation | Power supply – measuring inputs DC 3820 V |
| No electrical isolation | RS 485 interface – measuring inputs |
| <u>EMC-tests</u> | 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 ± 1 impulse: 1.2 / 50 µs (8/20 µs) |
| Electrostatic discharge | IEC 61000-4-2 ± 4 contact discharge, ± 8 kV air discharge |
| <i>Housing</i> | |
| Housing type | V8, distribution panel mounting |
| Size (W × H × D) | 140 x 90 x 58 mm |
| Depth/Width | 55 mm/8 TE |
| Circuit termination single strand | Per 1 × 1.5 mm ² |
| Braided conductor with crimp lug | Per 1 × 1.0 mm ² |
| Tightening torque of terminal screw | 0.5 Nm (3.6 lb.in) |
| Protection class of housing/terminals | IP30/IP20 |
| Mounting vertical/horizontal | Optional |
| Affixing | Snap-on mounting onto standard rail mounting 35 mm acc. to EN 60715 or screw mounting (with 2 additional brackets) |
| Weight | Approx. 370 g |

Selection and ordering data

| Description | Order No. |
|---|------------------------|
| Resistance temperature detector (RTD-box) TR1200 Distributed input-box for 12 RTD-connections 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 24 to 240 V/ Note: The device can be operated in a 7XV5662-2AD10 or 7XV5662-5AD10 compatible mode. | 7XV5662 - 6AD10 |