

7XV5662-□AD10 Temperature Monitoring Box



Fig. 15/48
Temperature monitoring box

Function overview

- Measurement and display of 6 temperatures with Pt100, Ni100 or Ni120 sensors per box. With two boxes: a total of 12 measurements.
- Connection of up to 2 boxes via the RS485 interface of the relay. Optical connection can be established with additional converters (7XV5650 / 7XV5651)
- 2- or 3-wire connection of thermal sensors is supported (3-wire connection recommended)
- Monitoring of each sensor wiring and alarm in case of wire breakage. Alarm is indicated in the box itself and in the relay monitoring function.
- Measuring range of temperature for Pt100: -100 °C to +800 °C

Description

The temperature monitoring box (also called RTD-unit(resistance temperature detector) or thermo-box) can be used together with the 7UT6, 7UM62 and 7SJ6 relays for thermal monitoring of machines and transformers. It is connected via its serial RS485 interface to the RS485 interface of the SIPROTEC 4 units. External optoelectrical converters (7XV5650 / 7XV5651), however, allow the RTD unit to be connected to the optical 820 nm interface of the protection relay (Port C or Port D). Measurement of 6 temperature values is effected by Pt100 (recommended), Ni100 or Ni200 sensors and transmitted by telegrams to the SIPROTEC relay. The relay displays the measured values, monitors them and generates alarms when previously parameterized limiting values are exceeded. For 7UT6 with its extensive transformer monitoring functions, special functions like hot-spot calculation are available. Wiring to the sensors and wire breakage are monitored as well. Two boxes with a maximum of 12 sensors (this corresponds to 12 measuring locations) can be connected to one SIPROTEC relay.

Application

A maximum of two RTD units can be connected to a protection relay. These units offer up to 12 RTD inputs, which can be monitored by the RTD function in the relay or supervised by a user-defined logic in the relay, where user-defined alarms can be generated. The connection (up to 1000 m) between the RTD unit and the relay can be made by an RS 485-electrical bus. For distributed RTD units or fully interference-free connections, FO connections are recommended. Fig. 15/50 illustrates the application with FO cables and 7XV5651 converters. If only one RTD unit is connected to the relay it is sufficient to have one FO connection from the 7XV565x converter to the relay.

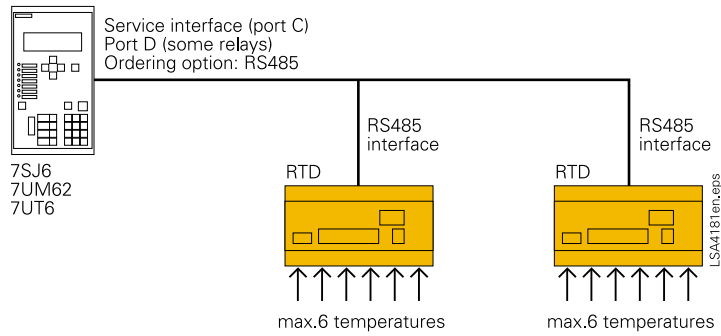


Fig. 15/49
Connection of two RTD units to a protection unit via RS485 bus

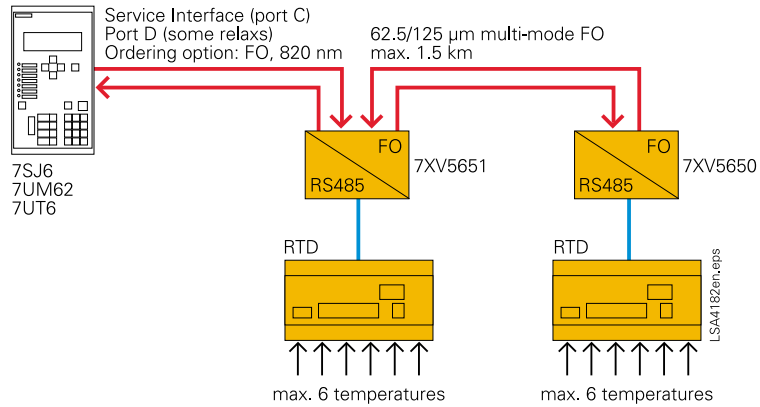


Fig. 15/50
Optical connection of two RTD units to a protection unit

Technical data

Rated auxiliary voltage

for 7XV5662-2AD10	24 to 60 V AC/DC
Tolerance DC-supply	20 to 81 V DC (0.85 x 24 V...1.35 x 60 V)
Tolerance AC-supply	20 to 66 V AC (0.85 x 24 V...1.1 x 60 V)

Auxiliary voltage

for 7XV5662-5AD10	90 to 240 V AC/DC
Tolerance DC-supply	81 to 297 V DC (0.9 x 90 V...1.35 x 220 V)
Tolerance AC-supply	76 to 264 V AC (0.85 x 90 V...1.1 x 240 V)
Power consumption	< 8 VA
Frequency	0 / 50 / 60 Hz

Relay output

Number	1 changeover (CO) contact
Switching voltage max.	415 V AC
Switching current	max. 5 A
Switching power $\cos \varphi = 1$ (PF)	max. 1250 V A (ohmic load) max. 48 W at 24 V DC
Derating factor	PF = 0.7/0.5
U _L electrical ratings	3 A resistive, 240 V AC C300/Q300

Sensor connection

Number	6 x Pt100 acc. to DIN 43760 / IEC 60751
Measuring accuracy	± 0.5 % of value ± 1 digit
Sensor current	< 2 mA
3-wire sensor	Pt100 + R _L = max. 490 Ω
2-wire sensor	R _L = 0...50.6 Ω adjustable

Measuring delay time

Time	$t_M < 1.5$ s (normal operation, depends on number of connected sensors)
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Switch points

Number	6, numerically adjustable
Relay operating function	Standard = closed circuit current principle (NC) Option = operating current (NO)

Temperature alarm

Temperature range 1 ... 6	- 199 to + 800 °C
Hysteresis	1 to 20 K
Release delay time t_{ALARM}	0.1 to 99.9 s
Pickup delay time $t_{ALARM\ off}$	0 to 999 s

Max. ambient temperature

Operating temperature	- 20 to + 65 °C
UL 508 ambient temperature	- 20 to + 55 °C
Storage temperature	- 20 to + 70 °C no condensation permitted

RS485 interface

Address of unit	0 to 99
Baud rate	4800, 9600, 19200 Baud
Parity	N, O, E (no, uneven, even)

Housing

Type	V8
Dimensions (W x H x D)	140 x 90 x 58 mm
Line connection solid wire	each 1 x 1.5 mm ²
Stranded wire with insulated connector end sleeve	each 1 x 1.0 mm ²
Torque	0.5 Nm (3.6 lb.in)
Protection class of housing	IP31
Protection class of terminals	IP20
Mounting	Snap-on mounting onto 35 mm EN 50022 rail or M4 screws
Weight	Approx. 350 gr

Selection and ordering data

Description	Order No.
<i>Temperature monitoring box</i>	7XV5662 - □ AD 10
Measurement of up to 6 temperatures for 7UT6, 7SJ6 or 7UM62 with Pt100, Ni100 or Ni120 sensors (Pt100 recommended), With serial RS485 interface	
Power supply range (24 - 60 V AC/DC)	2
Power supply range (90 - 240 V AC/DC)	5

Dimension drawings in mm / inch

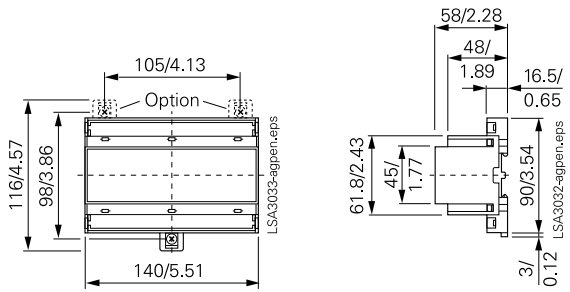


Fig. 17/54
Temperature monitoring box