SIL2 Universal Transmitter MTP 200i-TE

Powerful Features:

- **SIL2-Transmitter in DuoTec-Failsafe Technology with self-monitoring**
- **Inputs: Resistor and Pt100 with 2-, 3- and 4-wire switch, all types of thermocouple, current, voltage**
- **Analogue output for mA and V**
- **3 individually adjustable limit values**
- **1 service alarm**
- **Gradient alarm function**
- **Square root of the output signal**
- **Safe galvanic separation**

Simple Operation:

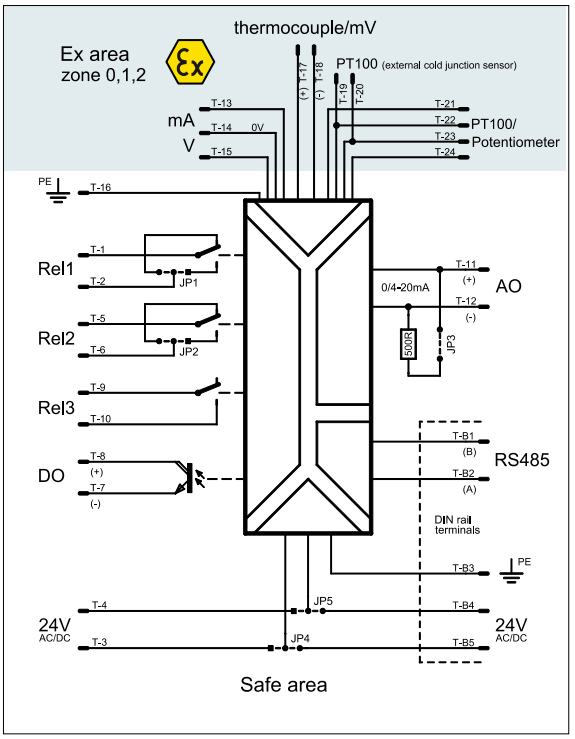
- **Configuration / visualization software WINSMART**
- **Diagnostic manager with fault memory**
- **BUS-Integration (RS 232 and RS 485)**
- **Power supply via DIN rail or terminal**
- **Simple assembling**

Certificated:

- **IEC 61508 / 61511 SIL2**
- **TÜV certificated according to DIN 19250 AK4**
- **ATEX II (1) G [Ex ia Ga] IIC and ATEX II (2) G [Ex ib Gb] IIC**

Function

The universal transmitter MTP200i-TE converts various different input signals (mA, V, PT100, potentiometer, thermocouples, Thermocouple-resistance).
The configuration can be done simply via our software.
An electrically isolated mA / V output is available.
Alarm monitoring takes place by two relay contacts and one transistor output.
Additional another relay contact output is available for signalizing the safety functions.
All output circuits can be used in safety circuits and are galvanic isolated from each other and from the power supply.



Technical Data

Analogue Inputs (AI1 … AI4) of MTP200i-TE

A filter of first order (0.1 – 99.9) is configurable for the measuring inputs!

mA-input AI1

Measuring range:	-22...22 mA, free configurable
Input resistance:	115 Ω

V-input AI2

Measuring range:	-11...+11 V, free configurable
Input resistance:	100 kΩ

Pt100 sensor input (DIN IEC 751) AI3

Connection:	2-, 3- und 4-wire circuit
Measuring range:	-200…+800 °C
Scale range:	5…1000 °C
Measuring current::	1 mA
Measuring dissolving:	0.01 K
Max. loop resistance:	max. 100 Ω

Remote potentiometer/resistance input (DIN 43822) AI3

Connection:	2-, 3-, und 4-wire circuit
Measuring range:	0…600 Ω resp.0…5000 Ω
Scale range:	3…600 Ω resp. 3….5000 Ω
Measuring current::	1/0.2 mA
Measuring dissolving:	0.01/0.1 Ω
Max. loop resistance:	max. 100 Ω

mV-/ Thermocouple measuring input AI4

Measuring range:	-70…+70 mV, free configurable
Input resistance:	>10 MΩ
Max. loop resistance:	2000 Ω
Thermocouple types	B; E; J; K; L; R; S; T; U

Analogue Output (AO)

A filter of first order (0.1 – 99.9) is configurable for the measuring output!

Galvanic separation between input, output and auxiliary power!

	constant current	voltage
Max. range:	0...22 mA	0...11 V
Standard range:	0/4-20 mA	0/2-10 V
Load:	≤ 500 Ω at 20 mA	min. 50 kΩ
Accuracy:	0.02 % of final value	0.02 % of final value
Load influence:	<0.005 %	0.5 % at R_L=100 kΩ
Rise time:	<150 ms	<150 ms

Contact Outputs (REL1, REL2) Transistor Output (DO)

Alarm conditions are indicated with yellow front-side LED's!

Alarm number:	3 independently adjustable limit values
Setting:	physical values in the WINSMART® Program
Accuracy	as measured value accuracy
Alarm type:	free configurable
Alarm output:	2x relay contact and 1x transistor output
Alarm delay:	free configurable from 0 ... 9.9 s
Switch hysteresis	free configurable from 0 ... 99.9 %
Operating mode:	normally opened or normally closed principle
Alarm function:	input signal monitoring + maintenance report

Contact outputs REL1/REL2

Contact:	opener or closing contact (via jumper setting)
Switching power:	max. 62.5 VA resp. max. 30 W
Switching voltage:	max. 125 V AC or 110 V DC
Switching current:	max. 1 A
Min. contact voltage:	10 mV DC
Min. contact current:	10 µA
Contact material:	AG Pd + 10 µAu
Relay type:	according to IEC 947-5-1 resp. EN60947

Transistor output DO

Switching power:	<1.4 W
Switching voltage:	<28 V DC
Switching current:	<50 mA

Contact Output REL3 for maintenance requirement report

Alarm conditions are indicated with red front-side LED's!

Contact position:	Closed in good condition
Contact data:	see REL1/REL2
Operating mode:	Normally closed principle
Alarm function:	Maintenance requirement report

Supply voltage

Supply indication:	Green LED for good status
Supply voltage range:	19 … 30 VDC or 18 … 28 VAC
Power consumption:	1.2 W (for 24 VDC and 4 mA im AA) 1.5 W (for 24VDC and 20mA im AA)

Interfaces (COM, RS485)

Galvanic separation of the COM and RS485-interface to the auxiliary energy and all other circuits!

COM/RS232:	Via front socket connection for PC
RS485:	Half duplex, without termination
Baud rate:	9600 bps
Device address:	1-248

General Data

Accuracy

Maximum:	<0.04 % of final value
Typical:	<0.02 % of final value

Temperature coefficient

Maximum:	<0.01 %/K
Typical:	<0.005 %/K

Galvanic separation

Input/output/supply:	300 Veff (rated insulation voltage, overvoltage category II, Contamination level 2, safe separation as per EN 61010, EN 50178); 2.5 kV AC testing voltage (50 Hz, 1 min.);
Input/output:	375 V (peak value as per EN 60079-11)
Input/supply:	375 V (peak value as per EN 60079-11)

Ambient conditions

Perm. temperature:	-20 °C … +60 °C
Storage/transport:	-30 °C … +80°C
Perm. humidity (operation):	10 % … 95 % r.H. without condensation

Electric connection

T-1 to T-12:	Screw-plug-connection/grey with 2.5 mm²
T-17 to T-24	Screw-plug-connection/blue with 2.5 mm²
T-B1 to T-B5:	TBUS- connection with 2.5 mm²

Housing

Material:	PBT
Protection class:	IP20
Combustibility class:	V0 according to UL
Dimensions:	22.5 mm x 114.5 mm x 99 mm without clamps
Weight:	250 g
Form of construction:	Clamp housing for DIN-rail mounting
Mounting/Position:	Free

Proceeding of self-monitoring

mV/TC- measuring input:	1 monitoring cycle
Resistance input:	1 monitoring cycle
Analog output:	1 monitoring cycle
Power supplies:	2 monitoring cycles
Sensor-/wire-break:	1 monitoring cycle
Relay (REL1 … REL3):	indirect contact monitoring
Maintenance requirement:	constant light of red front-LED and REL3-contakt opened

Conformity

ATEX-directive:	EN60079-0, EN60079-11, EN60079-26
EMV-directive 2004/108/EG:	EN61000-6-2, EN61000-6-4, EN61326-1

Optional: ATEX [Ex ia] IIC

The permissable max. values according to ATEX can be viewed in the relevant certification or in the manual!

Assembling

The device must be operated outside a potentially explosive area only! ME-MAX-Housing is combinable with a TBUS Connector/ Support Rail Connector. Because of the TBUS-Connector, which is snapped in the DIN rail, the RS485 interface and the supply voltage can be wired convenient. The TBUS Connection occurs automatically in the grid of the participating devices. So there is no need for an elaborated preliminary or for subsequent work of the TBUS Connection anymore.

Open TBUS-connector → turn housing → device installed!