

Temperature transmitter (electrically isolated)



MU 500-51-... (Pt100)
MU 500-53-... (Pt1000)
MU 500-Ex-51-... (Pt100)
MU 500-Ex-53-... (Pt1000)

Properties

- **Electrically isolated: between input / output / supply voltage**
- 2 power-supply-designs with wide range of allowed supply voltage: 10 ... 30 V DC / 10 ... 42 V AC or 85 ... 265 V AC / 110 ... 125 V DC
- 22.5 mm standard case for rail mounting TS35
- Several measuring ranges, selectable via rotary switch at front panel (13 for Pt100, 16 for Pt1000)
- Offset and span adjustable

For Ex-designs:

- Input intrinsically safe ATEX II (1) G [Ex ia] IIC, II (1) D [Ex iaD]
- Burden: max. 1000 Ω



Specification

Measuring ranges: selectable via rotary switch
 Pt100: -50 ... 0, -50 ... 50, -30 ... 20, -30 ... 70, -20 ... 30, -20 ... 80, 0 ... 50, 0 ... 100, 0 ... 150, 0 ... 200, 0 ... 300, 0 ... 450, 0 ... 600 °C
 Pt1000: -50 ... 0, -50 ... 50, -30 ... -20, -30 ... -10, -20 ... -10, -20 ... 0, -10 ... 0, -10 ... 10, 0 ... 10, 0 ... 20, 0 ... 30, 0 ... 40, 0 ... 50, 0 ... 100, 0 ... 150, 0 ... 200 °C

Offset adjust: offset: approx. $\pm 8 \Omega$ ($\pm 20^\circ\text{C}$ for Pt100, $\pm 2^\circ\text{C}$ for Pt1000)
 span: approx. $\pm 20\%$

Sensor connection: 2- or 3-wire connection

Sensor current: approx. 1 mA (Pt100), approx. 0.25 mA (Pt1000)

Output signal: 0 - 20 mA, 4 - 20 mA, 0 - 10 V or 2 - 10 V
(selectable via DIP switch)

max. load: burden $\leq 1 \text{ k}\Omega$ (at mA), load: max. 15 mA (at V)

Basic accuracy: $\leq 0.2\%$ of measuring range
Temperature coefficient: $\leq 0.01\%/K$
Output accuracy: $\leq 0.1\%$ of measuring range

Power supply: ... - 0 - 00 85 ... 265 V AC / 110 ... 125 V DC
 ... - 5 - 00 10 ... 42 V DC / 10 ... 30 V AC

Power consumption: max. 2.2 W / 3.3 VA

Isolation voltage: 500 V AC, according to VDE 0110 Gr. 2 between input/output/supply voltage

Test voltage: 4 kV DC between input/output/supply voltage

Working temperature: -10 .. 60 °C

Electrical connection: screw-terminals with pressure plates, max. 2.5 mm²

Dimensions: 22,5 x 75 x 110 mm (W x D x H)

Protection: IP 30 (case), IP 20 (terminals)

Ex-certification: TÜV 03 ATEX 2283, II (1) G [Ex ia] IIC, II (1) D [Ex iaD]

Connection data:
 MU 500-ex-ia-51-...: $U_0 = 1,3 \text{ V}$, $I_0 = <3 \text{ mA}$, $P_0 = <3 \text{ mW}$, $C_0 = 29 \mu\text{F}$, $L_0 = 100 \text{ mH}$, $C_i = 5 \text{ nF}$, $L_i = 0 \text{ mH}$
 MU 500-ex-ia-53-...: $U_0 = 4,9 \text{ V}$, $I_0 = <3 \text{ mA}$, $P_0 = <3 \text{ mW}$, $C_0 = 2,2 \mu\text{F}$, $L_0 = 100 \text{ mH}$, $C_i = 5 \text{ nF}$, $L_i = 0 \text{ mH}$

Ordering example

MU 500-53-5-00: input = Pt1000, power supply: 10 ... 42 V DC / 10 ... 30 V AC

Isolating signal converter



ST 500-Ex-10-0-00 (230 V AC)
ST 500-Ex-10-5-00 (10..30 V DC/AC)

Properties

Isolating signal converter for application in zone 0 or zone 20 (constant explosion risk) with integrated transmitter supply. It allows the direct connection of active 2-wire sensors (4 ... 20 mA) and 3-wire sensors in the Ex-area.

- Input intrinsically safe ATEX II (1) G [Ex ia] IIC, II (1) D [Ex iaD]
- 2 power-supply-designs with wide range of allowed supply voltage: 10 ... 30 V DC / AC oder 85 ... 253 V AC
- Electrically isolated: between input / output / supply voltage
- 22.5 mm standard case for rail mounting TS35
- Universal inputs/outputs for (0)4 ... 20 mA and 0(2) ... 10 V

Specification

Measuring ranges: selectable
Current input: 0 ... 20 mA or 4 ... 20 mA
 ($R_i = 25 \Omega$, max. 100 mA overload)
Voltage input: 0 ... 10 V or 2 ... 10 V
 ($R_i = \sim 40 \text{ k}\Omega$, max. 100 V overload)

Span: approx. $\pm 20\%$, adjustable

Transmitter supply: approx. 20 V DC, $R_i =$ approx. 300 Ω

Output signal: 0 - 20 mA, 4 - 20 mA, 0 - 10 V or 2 - 10 V
(selectable via DIP switch)

max. load: burden $\leq 1 \text{ k}\Omega$ (at mA), load: max. 15 mA (at V)

Basic accuracy: $\leq 0,3\%$ of measuring range
Temperature coefficient: $\leq 0,01\%/K$
Repeat accuracy: $\leq 0,1\%$ of measuring range
Rise time: $T_{90} = < 100 \text{ ms}$

Power supply: ... - 0 - 00 85 ... 253 V AC
 ... - 5 - 00 10 ... 30 V DC / AC

Power consumption: max. 3,5 VA

Isolation voltage: 500 V AC, according to VDE 0110 Gr. 2 between input/output/supply voltage

Test voltage: 4 kV DC between input/output/supply voltage

Working temperature: -10 .. 55 °C

Electrical connection: screw-terminals with pressure plates, max. 2.5 mm²

Dimensions: 22,5 x 75 x 110 mm (W x D x H)

Protection: IP 30 (case), IP 20 (terminals)

Ex-certification: TÜV 97 ATEX 1150, II (1) G [Ex ia] IIC, II (1) D [Ex iaD]

Connection data:
 $U_0 = 25,2 \text{ V}$, $I_0 = 95 \text{ mA}$, $P_0 = 600 \text{ mW}$,
 C_0 / L_0 (ia/IIC) = 47 nF / 2 mH or 107 nF / 0.2 mH,
 C_0 / L_0 (ia/IIB) = 370 nF / 15 mH or 430 nF / 1 mH,
 C_i , $L_i =$ negligible

The intrinsically safe circuit is electrically isolated from the non-intrinsically safe circuits up to a sum of the peak values of the nominal voltage of 375V.