

## 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  $\Omega$



### 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.  $\pm 8 \Omega$  ( $\pm 20$  °C for Pt100,  $\pm 2$  °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  $\leq 1$  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 mm<sup>2</sup>

**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-...:  $U_0 = 1,3$  V,  $I_0 = <3$  mA,  $P_0 = <3$  mW,  $C_0 = 29$   $\mu$ F,  $L_0 = 100$  mA,  $C_i = 5$  nF,  $L_i = 0$  mH  
 MU 500-ex-ia-53-...:  $U_0 = 4,9$  V,  $I_0 = <3$  mA,  $P_0 = <3$  mW,  $C_0 = 2,2$   $\mu$ F,  $L_0 = 100$  mA,  $C_i = 5$  nF,  $L_i = 0$  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  
 ( $R_i = \sim 40$  k $\Omega$ , max. 100 V overload)

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

**Transmitter supply:** approx. 20 V DC,  $R_i =$  approx. 300  $\Omega$

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

**max. load:** burden  $\leq 1$  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:**  $T_{90} = < 100$  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 mm<sup>2</sup>

**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:**  
 $U_0 = 25,2$  V,  $I_0 = 95$  mA,  $P_0 = 600$  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.**