

Temperature-Transmitter MU500-Ex

Switch selectable temperature ranges for RTD, Pt100 or Pt1000



Features

- Intrinsically safe input ATEX II (1) G [Ex ia] IIC
ATEX II (1) D [Ex iaD]
- Pt100: 13 temperature ranges
Pt1000: 16 temperature ranges
- Basic accuracy 0.2 %
(0.1 % factory calibration for one range available)
- 2- or 3-wire connection
- Linearized outputs
0/4 ... 20 mA and 0/2 ... 10 V DC
- Current burden max. 1000 Ω
- Start-value and span adjustable
- Full 3-port isolation
- Supply voltage 10 ... 30 V AC/DC or
85 ... 253 V AC/110 ... 125 V DC
- Power-on LED
- 22.5 mm case for DIN rail mounting



General information

Temperature transmitters series MU500-Ex offer an intrinsically safe input and convert RTD sensor signals (Pt100 or Pt1000) into industry standard signals.

Short information

- Temperature sensor For applications in gas hazardous areas Zone 0 and zone 1, standard temperature sensors can be used. Over all it must be ensured, that the sensors will meet chemical and mechanical demands and have the minimum protection of IP54 according to DIN EN60079-0.
- For applications in dust hazardous areas (Zone 20 and 21) special certified temperature sensors must be used.
- Range switching Measuring range and output signal can be configured by front mounted 10-steps rotary switch and 2 DIP-switches.
- Current output Burden max. 1000 Ω, e.g. direct operating with servo amplifiers is possible.

Technical data

Power supply

Supply voltage	: 85 ... 253 V AC/110 ... 125 V DC, 10 ... 30 V AC/DC
Frequency AC	: 40 ... 400 Hz
Power consumption	: < 3.3 VA
Working temperature	: -10 ... +60 °C
Rated voltage	: 253 V AC or 125 V DC (U _m) acc. to EN 60079-0 250 V AC acc. to EN 60664-1, degree of pollution 2 over-voltage catgoric III between input/output/supply
Test voltage	: 3 kV AC, between input/output/supply
CE-conformity (Certificate MU500ATEX.002)	: ATEX-directive 94/9/EG, <i>European standard</i> : EN60079-0:2006, EN60079-11:2007, EN61241-0:2006, EN61241-11:2006 EN61316-1:2004-05; EMC-directive 2004/108/EG

Explosion protection

EC-Type Certificate number	: TÜV 03 ATEX 2283
Marking	: ⚠ II (1) G [Ex ia] IIC, II (1) D [Ex iaD]
U ₀	: MU500-Ex...-51: 1.3 V MU500-Ex...-53: 4.9 V
I ₀	: MU500-Ex...-51: <3 mA MU500-Ex...-53: <3 mA
P ₀ (characteristic linear)	: MU500-Ex...-51: <3 mW MU500-Ex...-53: <3 mW
C ₀	: MU500-Ex...-51: 29 µF MU500-Ex...-53: 2.2 µF
L ₀	: MU500-Ex...-51: 100 mH MU500-Ex...-53: 100 mH
C _i , L _i	: 5 nF, 0 mH

The intrinsically safe circuit is galvanically separated from the non-intrinsically safe circuits up to a peak crest value of the voltage of 375 V.

Measuring input

Drive current	: Pt100 approx. 1 mA, Pt1000 approx. 0,25 mA (no self-heating)
Cable resistance	: max. 100 Ω, (inline installion of safety barriers possible) automatic compensation by 3-wire connection, with symmetric cable resistance.
Zero adjust	: Pt100 approx. ± 8 Ω, (Δ 20°C), Pt1000 approx. ± 8 Ω (Δ 2°C) (for 2-wire connection or error compensation)
Span adjust	: approx. +/-20 %
shorted or break of wire	: output takes max. value (voltage output > 12 V DC, current output > 25 mA DC)

Outputs

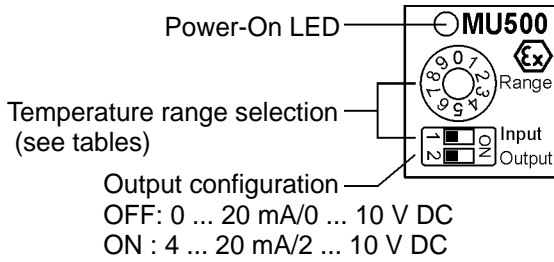
Current output	: 0 ... 20 mA, 4 ... 20 mA DC switch selectable, burden ≤ 1 kΩ
Voltage output	: 0 ... 10 V, 2 ... 10 V DC switch selectable, load max. 15 mA, short circuit protection (simultaneously with current output max. 5 mA)
Rated voltage	: 253 V AC or 125 V DC (U _m) acc. to EN 60079-0

Accuracy	: ≤ 0.2 % (≤ 0.1 % factory calibration for one range available)
Temperature coefficient	: ≤ 0.01 %/K
Current- and voltage output	: ≤ 0.1 %

Case

Type	: Standard case material polycarbonate 8020 UL94V-1
Weight	: appr. 200 g
Protection	: Case IP40, terminals IP20 acc. to German BGV A3
Connection	: Screw terminals with pressure plate, max. 2.5 mm ²
Mounting area	: Installation in dry, clean and good protected ambient, according to DIN EN60079-11:2007, paragraph 6.1

Front panel controls

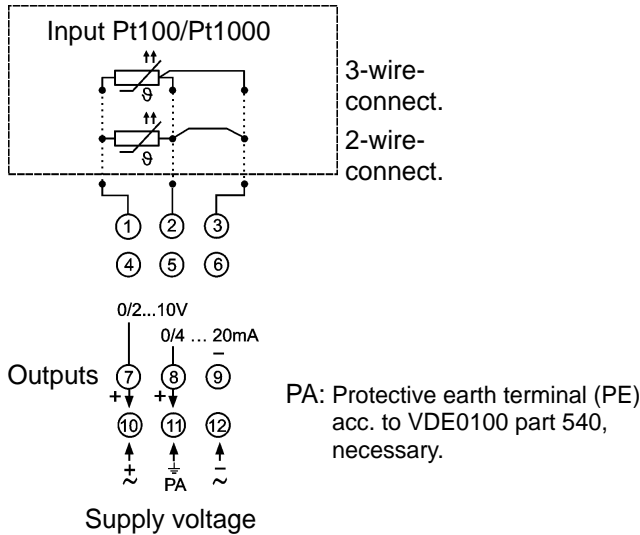


Measuring ranges Pt100

Range [°C]	Rotary-switch range	DIP-switch Input
-50 ... 0	6	ON
-50 ... 50	7	ON
-30 ... 20	4	ON
-30 ... 70	5	ON
-20 ... 30	2	ON
-20 ... 80	3	ON
0 ... 50	0	ON
0 ... 100	1	ON
0 ... 150	8	ON
0 ... 200	9	ON
0 ... 300	1	OFF
0 ... 450	8	OFF
0 ... 600	9	OFF

Connection diagram

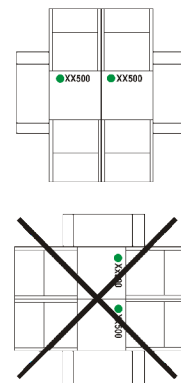
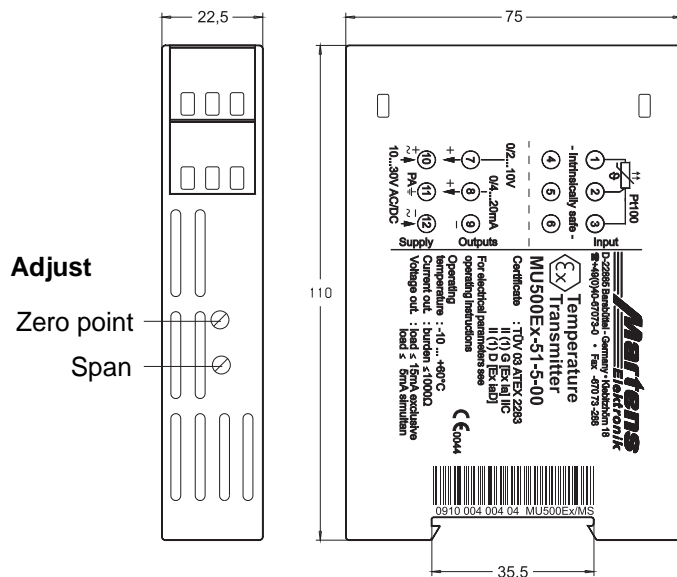
Connection from the Hazardous area



Measuring ranges Pt1000

Range [°C]	Rotary-switch range	DIP-switch Input
-50 ... 0	2	OFF
-50 ... 50	3	OFF
-30 ... -20	6	ON
-30 ... -10	7	ON
-20 ... -10	4	ON
-20 ... 0	5	ON
-10 ... 0	2	ON
-10 ... 10	3	ON
0 ... 10	0	ON
0 ... 20	1	ON
0 ... 20	8	ON
0 ... 40	9	ON
0 ... 50	0	OFF
0 ... 100	1	OFF
0 ... 150	8	OFF
0 ... 200	9	OFF

Dimension and controls (small side)



Caution!
 Mounting of multiple units without distance is only permitted in horizontal orientation.

TS35 DIN rail mounting
 acc. to DIN 46277 and DIN EN 50022

Ordering code

MU500Ex- 1. - 2. - 3.

1. Model

51 Pt100 13 measuring ranges switch selectable, see table
53 Pt1000 16 measuring ranges switch selectable, see table

2. Supply voltage

0 85 ... 253 V AC/110 ... 125 V DC
5 10 ... 30 V AC/DC

3. Options

00 without option

EG-KONFORMITÄTSBESCHEINIGUNG EC-CERTIFICATE OF CONFORMITY



Zertifikat-Nr.:
Certificate No.:

MU500ATEX.002



Hersteller / Importeur:
Manufacturer / Importer:

*Martens Elektronik GmbH
Kiebitzhörn 18
D-22885 Barsbüttel*

Produkt:
Product:

MU500Ex

Produktbeschreibung:
Object description:

*Temperatur-Messumformer
Temperature Transmitter*

Wir erklären in alleiniger Verantwortung, dass das bezeichnete Produkt die
Schutzanforderungen der Europäischen Richtlinien erfüllt.

We hereby declare in sole responsibility that the designated product fulfills the safety requirements of the European
directives.

Erfüllung der EMV-Richtlinie 2004/108/EG

Fulfills the EMC directive 2004/108/EG

Prüfung nach den Normen:

EN 61316-1: 2004-05

Tested in compliance with norms:

Erfüllung der ATEX-Richtlinie 94/9/EG

Fulfills the ATEX directive 94/9/EG

Prüfung nach den Normen:

EN 60079-0: 2006

EN 60079-11: 2007

Tested in compliance with norms:

EN 61241-0: 2006

EN 61241-11: 2006

EG - Baumuster-
prüfbescheinigung:

TÜV 03 ATEX 2283

EC-type examination certificate:

Datum der Erstanbringung des:

07.1995

CE-Zeichens auf das Produkt

Date of first application of the CE mark
to the product

Ort, Datum:

Barsbüttel, den 8.6.2009

Place, date:

Rechtsverbindliche Unterschrift:


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Legally binding signature:

Geschäftsleitung, manager