

Temperature-Transmitter MU 500-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
- 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 , 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	: ATEX-directive 94/9/EG, <i>European standard</i> : EN 60079-0:2006, EN 60079-11:2007, EN 61241-0:2006, EN 61241-11:2006 EN 61326-1:2013 EN 60664-1:2007

Explosion protection

EC-Type Certificate number	: TÜV 03 ATEX 2283, 1. supplement
Marking	:  II (1) G [Ex ia] IIC bzw. 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 installation 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

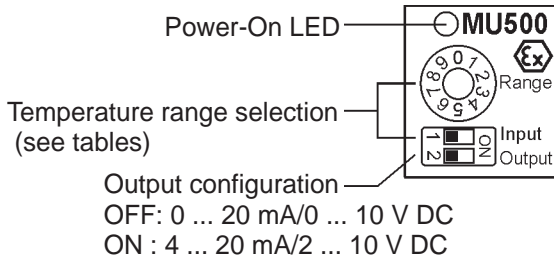
Current output	: 0 ... 20 mA, 4 ... 20 mA DC switch selectable, burden 1 kΩ
Voltage output	: 0 ... 10 V, 2 ... 10 V DC switch selectable, load max. 15 mA, short circuit protection (simultaneously with current output max. 5 mA)
Rated voltage	: 253 V AC or 125 V DC (U _m) acc. to EN 60079-0

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 well monitored area, acc. to DIN EN60079-11:2007, part 6.1

Front panel controls

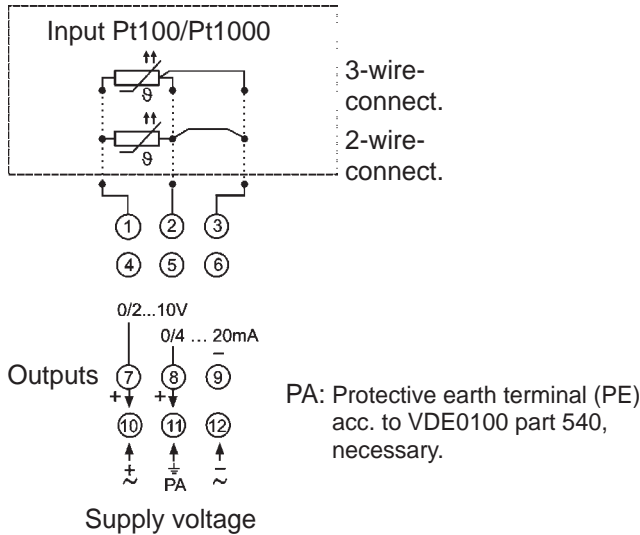


Measuring ranges Pt100

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

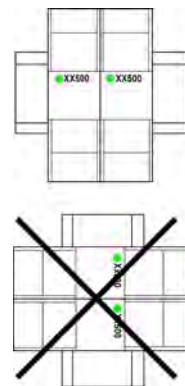
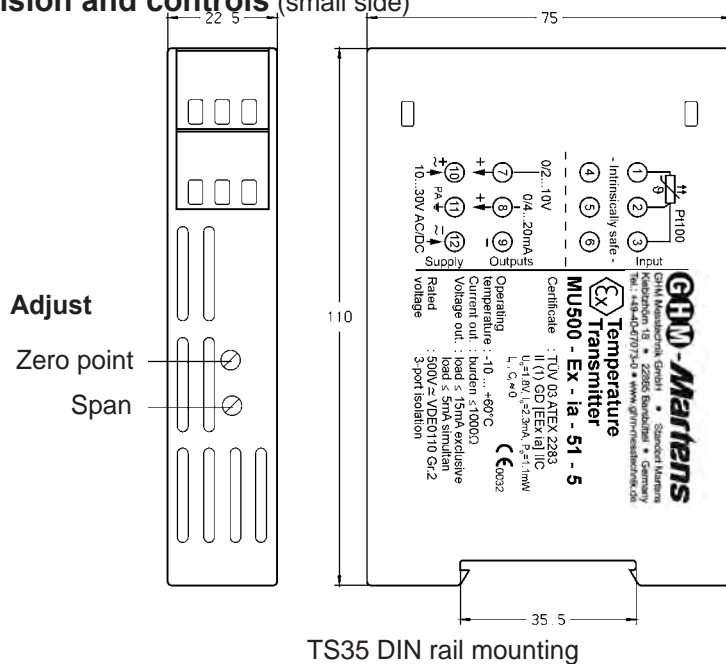
Connection from the Hazardous area



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.

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



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EU-KONFORMITÄTSERKLÄRUNG
EU-DECLARATION OF CONFORMITY

GHM Messtechnik GmbH Standort Martens, Kiebitzhörn 18, 22885 Barsbüttel, Germany

Dokument-Nr. / Monat.Jahr: **3006 / 04.2016**
 Document-No. / Month.Year

Wir erklären hiermit als Hersteller in alleiniger Verantwortung, dass die folgenden Produkte konform sind mit den Schutzziele der Richtlinie des Europäischen Parlaments:
We declare as manufacturer herewith under our sole responsibility that the following products are in compliance with the protection requirements defined in the European Council directives:

Produktbezeichnung: **MU500Ex**
Product identifier:

Produktbeschreibung: **Temperatur Messumformer**
Product description: Temperature transmitter

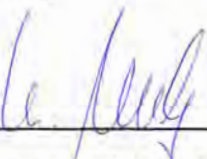
Die Produkte entsprechen den folgenden Europäischen Richtlinien:
The products conforms to following European Directives:

Richtlinien / Directives	Angewandte harmonisierte Normen oder angeführte technische Normen <i>Applied harmonized standards or mentioned technical specifications</i>
2014/30/EU EMV Richtlinie / EMC Directive	EN 61326-1:2013
2014/35/EU Niederspannungsrichtlinie / Low Voltage Directive	EN 60664-1:2007
2011/65/EU RoHS / RoHS	EN 50581:2012
2014/34/EU ATEX-Richtlinie / ATEX Directive	EN 60079-0:2006 EN 60079-11:2007 EN 61241-0:2006 EN 61241-11:2006

Die Produkte stimmen mit den Anforderungen der Richtlinie 2014/34/EU überein. Die in der EG-Baumusterprüfbescheinigungen TÜV 03 ATEX 2263 Erg. 2 genannten Normen wurden durch neue Ausgaben ersetzt. Der Hersteller erklärt für die Produkte weiterhin die Übereinstimmung mit den Anforderungen der Richtlinie 2014/34/EU, da für die Produkte eine von den Anforderungen der neuen Normenausgaben abweichende, gleichwertige Lösung gewählt wurde. The products comply with the directive 2014/34/EU. The norms mentioned in the respective EC type examination certificate TÜV 03 ATEX 2263 app. 2 were already replaced by new ones. The manufacturer declares the products continued compliance with the directive 2014/34/EU, because a technically equivalent solution, deviant from the new edition, was used.

Diese Erklärung wird verantwortlich für den Hersteller abgegeben durch:
The manufacturer is responsible for the declaration released by:

Michael Wulf
 Standortleiter
 Business unit manager
 Barsbüttel, 20. April 2016



Diese Erklärung bescheinigt die Übereinstimmung mit den genannten Harmonisierungsrechtsvorschriften, beinhaltet jedoch keine Zusicherung von Eigenschaften.
This declaration certifies the agreement with the harmonization legislation mentioned, contained however no warranty of characteristics.