



Translation

(1) **EC-TYPE EXAMINATION CERTIFICATE**

(2) Equipment and protective systems intended for use in potentially explosive atmospheres - **Directive 94/9/EC**



(3) EC-Type Examination Certificate Number

TÜV 03 ATEX 2283

(4) Equipment: Temperature transmitter type MU500-Ex-ia-**-*

(5) Manufacturer: Martens Elektronik GmbH

(6) Address: Kiebitzhörn 18
22885 Barsbüttel

(7) This equipment or protective system and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV NORD CERT GmbH & Co. KG, TÜV CERT-Certification Body, notified body number N° 0032 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential report N° 03YEX550711.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014:1997+A1+A2

EN 50020:2002

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

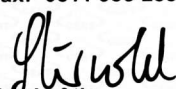
(11) This EC-type examination certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment or protective system must include the following:

 II (1) G D [EEx ia] IIC

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TÜV CERT-Certification Body
Am TÜV 1
D-30519 Hannover
Tel.: 0511 986-1470
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Hanover, 2003-10-10


Head of the
Certification Body





(13)

SCHEDULE

(14) **EC-TYPE EXAMINATION CERTIFICATE N° TÜV 03 ATEX 2283**

(15) Description of equipment

The temperature transmitter type MU500-Ex-ia-**-* is used for the conversion of the resistance of platinum temperature sensors into normalised standard signals as well as for the safe galvanic separation of the intrinsically safe input circuit and the non intrinsically safe circuits.

The maximum permissible ambient temperature is 60°C.

Electrical data

Auxiliary energy **MU500-Ex-ia-**-0:**
(Terminals U = 85 ...253 V a. c., 40 ... 400 Hz resp. 110 ... 125 V d. c.
10, 12 and 11 [PA]) U_m = 253 V a. c. resp. 125 V d. c.

MU500-Ex-ia--5:**
U = 10 ... 30 V a. c., 40 ... 400 Hz resp. 10 ... 42 V d. c.
U_m = 45 V d. c. resp. 32 V a. c.
max. 2,2 W resp. 3,3 VA

Output circuit Current output: 0 ... 20 mA resp. 4 ... 20 mA,
(Terminals impedance: max.1kΩ
8, 9 [current output], voltage output: 0 ... 10 V resp. 2 ... 10 V
7, 9 [voltage output]) max. 15 mA
U_m = 250 V a. c.

Input circuit in Zündschutzart Eigensicherheit EEx ia IIC
(Terminals 1, 2, 3) **Pt100-input**

Maximum values:
U_o = 1,3 V
I_o < 3 mA
P_o < 3 mW

The effective internal inductances are negligibly small.
Effective internal capacitance: 5 nF

EEx ia	IIC
Maximum perm. external inductance	100 mH
Maximum perm. external capacitance	29 µF

Pt1000-input

Maximum values:

$$U_o = 4,9 \text{ V}$$

$$I_o < 3 \text{ mA}$$

$$P_o < 3 \text{ mW}$$

The effective internal inductances are negligibly small.

Effective internal capacitance: 5 nF

EEx ia	IIC
Maximum perm. external inductance	100 mH
Maximum perm. external capacitance	2,2 μ F

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

(16) The test documents are listed in the test report no. 03YEX550711.

(17) Special conditions for safe use

none

(18) Essential Health and Safety Requirements

no additional ones

Translation
1. SUPPLEMENT

to Certificate No.	TÜV 03 ATEX 2283
Equipment:	Temperature transmitter type MU500Ex-**-*-00
Manufacturer:	Martens Elektronik GmbH
Address:	Kiebitzhörn 18 22885 Barsbüttel Germany
Order number:	8000555487
Date of issue:	2009-10-21

In the future, the Temperature transmitter type MU500-Ex-ia-**-* is manufactured according to the documents listed in the test report.
 The changes refer to the electrical data as well as the internal construction of the apparatus and the marking.
 This reads: II (1) G [Ex ia] IIC resp. II (1) D [Ex iaD]
 The maximum permissible ambient temperature is 60°C.

Electrical data

Auxiliary energy (Terminals 10, 12 and 11 [PA])	MU500Ex-**-0-00: U = 85 ...253 V a. c., 40 ... 400 Hz resp. 110 ... 125 V d. c. U _m = 253 V a. c. resp. 125 V d. c.
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MU500Ex-**-5-00: U = 10 ... 30 V a. c., 40 ... 400 Hz resp. 10 ... 42 V d. c. U _m = 45 V d. c. resp. 32 V a. c. max. 2.2 W resp. 3.3 VA
--

Output circuit (Terminals 8, 9 [current output], 7, 9 [voltage output])	Current output: 0 ... 20 mA resp. 4 ... 20 mA, impedance: max.1kΩ voltage output: 0 ... 10 V resp. 2 ... 10 V max. 15 mA
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Only for connection to apparatus
 with supply voltages up to U_m = 250V a. c.
 Max. permissible short circuit current of the apparatus at the
 measuring output: 2 A

Input circuit (Terminals 1, 2, 3)	in type of protection Intrinsic Safety Ex ia IIC Pt100-input
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Maximum values:
 U_o = 1.3 V
 I_o < 3 mA
 P_o < 3 mW
 The effective internal inductances are negligibly small.
 Effective internal capacitance: 5 nF

Ex ia	IIC
Max. permissible external inductance	100 mH
Max. permissible external capacitance	29 µF

Pt1000-input

Maximum values:

$$U_o = 4.9 \text{ V}$$

$$I_o < 3 \text{ mA}$$

$$P_o < 3 \text{ mW}$$

The effective internal inductances are negligibly small.

Effective internal capacitance: 5 nF

Ex ia	IIC
Max. permissible external inductance	100 mH
Max. permissible external capacitance	2.3 μ F

The maximum values of the table are also allowed to be used up to the permissible limits as concentrated capacitances and as concentrated inductances.

The intrinsically safe circuits are safely galvanically separated from the non intrinsically safe up to a peak value of the voltage of 375 V.

The equipment according to this supplement meets the requirements of these standards:

EN 60079-0:2006

EN 60079-11:2007

EN 61241-0:2006

EN 61241-11:2006

(16) The test documents are listed in the test report No. 09 203 555487.

(17) Special conditions for safe use

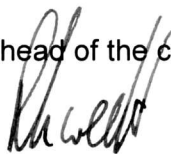
none

(18) Essential Health and Safety Requirements

no additional ones

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, accredited by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the certification body



Schwedt

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