

## Translation

# (1) EC-TYPE EXAMINATION CERTIFICATE

# TÜV NORD

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



(3) EC-Type Examination Certificate Number

## TÜV 97 ATEX 1164

(4) **Equipment:** Isolating signal converter type TV501-Ex

(5) **Manufacturer:** Martens Elektronik GmbH

(6) **Address:** Kiebitzhörn 18  
D-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 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° 125/97/4046.

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

**EN 50 014:1994-03                      EN 50 020:1996-04**

(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 [EEx ia] IIC

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Am TÜV 1  
D-30519 Hannover  
Tel.: 0511 986-1470  
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Head of the  
Certification Body

Hannover, 2005-01-18

TÜV NORD CERT GmbH & Co. KG legal successor of the  
notified body of TÜV Hannover/Sachsen-Anhalt e.V.  
German original certificate issued on 1997-03-25

(13) **SCHEDULE**

(14) **EC-TYPE EXAMINATION CERTIFICATE N° TÜV 97 ATEX 1164**

(15) Description of equipment

The isolating signal converter type TV501-Ex is used for the separation and conversion of industry standard signals.

The intrinsically safe output circuit is safely galvanically separated from the non intrinsically safe circuits.

The maximum permissible ambient temperature is 55°C.

Electrical data

Supply circuit ..... U = 85 ...253 V a.c., 47 ...63 Hz or 10 ...30 V d.c.,  
 (terminals U<sub>m</sub> = 253 V a.c. resp. 125 V a.c./d.c.  
 10, 12 and 11 [PA] ) about 3.5 VA

Measuring input circuit..... current input: 0 ... 20 mA resp. 4 ... 20 mA,  
 (terminals burden 25Ω  
 7, 8 and 9) voltage input: 0 ... 10 V resp. 2 ... 10 V  
 Ri about 40kΩ  
 U<sub>m</sub> = 250 V a.c.

Measuring output circuit..... in type of protection "intrinsic safety" EEx ia IIC/IIB  
 (TV501-Ex [current/voltage]: resp. EEx ib IIC/IIB  
 terminals 4, 5 and 6, maximum values:  
 TV501-Ex-20 [current]: U<sub>o</sub> = 31.5 V  
 terminals 5 and 6) I<sub>o</sub> = 89 mA  
 P<sub>o</sub> = 730 mW  
 Characteristic line: linear

EEx ia/ib	IIC	IIB
max. permissible outer inductance	1.4 mH	12 mH
max. permissible outer capacitance	47.4 nF	478 nF

The effective internal inductance is negligibly small.  
 effective internal capacitance: 10.4 nF

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

(16) Test documents consisting of 22 pages including 5 drawings are listed in the test report.

(17) Special conditions for safe use

none

(18) Essential Health and Safety Requirements

no additional ones

Translation

1. SUPPLEMENT to

EC-TYPE EXAMINATION CERTIFICATE No. TÜV 97 ATEX 1164

Equipment: Isolating signal converter type TV501-Ex  
Manufacturer: Martens Elektronik GmbH  
Address: Kiebitzhörn 18  
D-22885 Barsbüttel

Amendments:

The amendments concern the extension of the application for the isolating signal converter type TV501-Ex.

In the future, the intrinsic safe circuit (measuring output) may also be fed into areas with dust explosion hazard, which require devices of category 1, if the connected device meets the requirements of category 1D and it has to be certified accordingly.

In the future the marking of the equipment must include the following

 II (1) GD [EEx ia] IIC

The electrical data and all other data apply unchanged for this 1. Supplement.

The equipment according to EC-Type Examination Certificate TÜV 97 ATEX 1164 incl. of this 1. supplement also meets the requirements of

EN 50 014:1997 +A1+A2                      General requirements  
EN 50 020:2002                              Intrinsic safety "i"

(16) The test documents are listed in the test report N° 05 YEX 551802b.

(17) Special conditions for safe use

none

(18) Essential Health and Safety Requirements

no additional ones

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Hanover, 2005-02-15

  
Head of the  
Certification Body

Translation

**2. SUPPLEMENT**

**to Certificate No.** TÜV 97 ATEX 1164  
**Equipment:** Transmitter type TV501Ex  
**Manufacturer:** Martens Elektronik GmbH  
**Address:** Kiebitzhörn 18  
 22885 Barsbüttel  
 Germany  
**Order number:** 8000555488  
**Date of issue:** 2009-11-24

In the future, the Transmitter type TV501Ex 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 55°C.

Electrical data

Auxiliary energy ..... U = 85 ...253 V a. c. or 10 ...30 V d. c.;  
 (Terminals U<sub>m</sub> = 253 V a. c. or 125 V a. c./d. c.  
 10, 12 and 11 [PA] ) max. 2.5 W; max. 3.5 VA

Measuring input ..... Current input: 0 ... 20 mA resp. 4 ... 20 mA,  
 (Terminals Working resistance 25 Ω  
 7, 8 and 9) Voltage input: 0 ... 10 V resp. 2 ... 10 V  
 R<sub>i</sub> ca. 40 kΩ  
 Only for connection to apparatus with supply voltages up to  
 U<sub>m</sub> = 250 V a. c.  
 Max. permissible short circuit current of the apparatus at  
 the measuring input: 2 A

Measuring output ..... in type of protection Intrinsic Safety Ex ia IIC/IIB  
 (Terminals  
 Type TV 501Ex-10... [current/voltage]: Maximum values:  
 4, 5 and 6 U<sub>o</sub> = 31.5 V  
 Type TV 501Ex-20... [current]: I<sub>o</sub> = 95 mA  
 5 and 6) P<sub>o</sub> = 730 mW  
 Characteristic line: linear

Ex ia	IIC	IIB
max. permissible external inductance	0.5 mH	1 mH
max. permissible external capacitance	48 nF	280 nF

Effective internal capacitance (regarded in the table):

C<sub>i</sub> = 10.4 nF

The effective internal inductances are negligibly small.

2. Supplement to Certificate No. TÜV 97 ATEX 1164

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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 60079-25:2004
EN 61241-0:2006	EN 61241-11:2006	

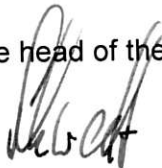
(16) The test documents are listed in the test report No. 09 203 555488.

(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

A handwritten signature in black ink, appearing to read "Schwedt".

Schwedt

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