

Translation

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

TUV 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 1150

- (4) **Equipment:** Isolating signal converter with additional transmitter supply type ST500-Ex
Isolating signal converter type TV500-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° 125/97/1198.
- (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 [EEEx ia] IIC

TÜV NORD CERT GmbH & Co. KG
Am TÜV 1
D-30519 Hannover
Tel.: 0511 986-1470
Fax: 0511 986-2555

Head of the
Certification Body

Hannover, 2005-01-11

TÜV NORD CERT GmbH & Co. KG legal successor of the
notified body of TÜV Hannover/Sachsen-Anhalt e.V.
German original certificate issued on 1997-01-29

(13)

SCHEDULE

(14) **EC-TYPE EXAMINATION CERTIFICATE N° TÜV 97 ATEX 1150**

(15) Description of equipment

The isolating signal converter with additional transmitter supply type ST500-Ex and the isolating signal converter type TV500-Ex are used for the separation and conversion of industry standard signals.

The intrinsically safe input circuits are 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. or 10 ...30 V d.c.,
 (terminals U_m = 253 V a.c. resp. 30 V d.c.
 10, 12 and 11 [PA]) about 2,5 VA

Measuring output circuit..... current output: 0 ... 20 mA resp. 4 ... 20 mA,
 (terminals burden ≤ 1kΩ
 7, 8 and 9) voltage output: 0 ... 10 V resp. 2 ... 10 V
 U_m = 250 V a.c.

Type ST 500-Ex

Measuring input circuit..... in type of protection "intrinsic safety" EEx ia IIC/IIB
 (terminals resp. EEx ib IIC/IIB
 1, 2, 3, 4 and 6) maximum values:
 U_o = 25,2 V
 I_o = 95 mA
 P_o = 600 mW
 Characteristic line: linear

EEx ia/ib	IIC	IIB
max. permissible outer inductance	2,3 mH	14 mH
max. permissible outer capacitance	107 nF	820 nF

The effective internal inductance and capacitance are negligibly small.

Type TV 500-Ex

Measuring input circuit
(terminals
2, 3, 4 and 6)

in type of protection "intrinsic safety"

EEx ia IIC/IIB

resp.

EEx ib IIC/IIB

maximum values:

$$U_o = 25,2 \text{ V}$$

$$I_o < 1 \text{ mA}$$

$$P_o < 1 \text{ mW}$$

Characteristic line: linear

EEx ia/ib	IIC	IIB
max. permissible outer inductance	50 mH	50 mH
max. permissible outer capacitance	107 nF	820 nF

The effective internal inductance and capacitance are negligibly small.

The intrinsic safe circuits are 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 30 pages including 7 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 1150

Equipment: Isolating signal converter with additional transmitter supply type ST500-Ex
Isolating signal converter type TV500-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 with additional transmitter supply type ST500-Ex and the isolating signal converter type TV500-Ex.

In the future, the intrinsic safe circuit (measuring input) 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 1150 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"

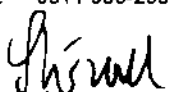
(16) The test documents are listed in the test report N° 05 YEX 551802a.

(17) Special conditions for safe use
none

(18) Essential Health and Safety Requirements
no additional ones

TÜV NORD CERT GmbH & Co. KG
Am TÜV 1
D-30519 Hannover
Tel.: 0511 986-1470
Fax: 0511 986-2555

Hanover, 2005-02-15


Head of the
Certification Body

Translation
2. SUPPLEMENT

to Certificate No. TÜV 97 ATEX 1150
Equipment: Transmitter/Isolating signal converter type TV500Ex/ST500Ex
Manufacturer: Martens Elektronik GmbH
Address: Kiebitzhörn 18
 22885 Barsbüttel
 Germany
Order number: 8000555616
Date of issue: 2009-10-19

In the future, the Transmitter/Isolating signal converter type TV500Ex/ST500Ex 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_m = 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 output Current output: 0 ... 20 mA resp. 4 ... 20 mA,
 (Terminals Working resistance ≤ 1kΩ
 7, 8 and 9) Voltage output: 0 ... 10 V resp. 2 ... 10 V
 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

Type ST500Ex

Measuring output in type of protection Intrinsic Safety Ex ia IIC/IIB
 (Terminals
 1, 2, 3, 4 and 6) Maximum values:
 U_o = 25.2 V
 I_o = 95 mA
 P_o = 600 mW
 Characteristic line: linear

Ex ia	IIC		IIB	
max. permissible external inductance	2 mH	0,2 mH	15 mH	1 mH
max. permissible external capacitance	47 nF	107 nF	370 nF	430 nF

The effective internal capacitances and inductances are negligibly small.

Type TV500Ex

Measuring input in type of protection Intrinsic Safety Ex ia IIC/IIB
 (Terminals
 2, 3, 4 and 6)

Maximum values:
 $U_o = 25.2 \text{ V}$
 $I_o < 1 \text{ mA}$
 $P_o < 1 \text{ mW}$
 Characteristic line: linear

Ex ia	IIC		IIB	
max. permissible external inductance	100 mH	0,5 mH	100 mH	0,5 mH
max. permissible external capacitance	84 nF	100 nF	460 nF	570 nF

The effective internal capacitances and inductances are negligibly small.

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 60 079-0:2006
 EN 61241-11:2006

EN 60079-11:2007

EN 61 241-0:2006

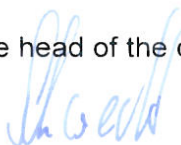
(16) The test documents are listed in the test report No. 09 203 555616.

(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