Translation

(1) # EC TYPE-EXAMINATION CERTIFICATE

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

(3) EC-Type Examination Certificate Number

TÜV 04 ATEX 2430 X

(4) Equipment: Resistance thermometer type PTX

(5) Manufacturer: ACS CONTROL SYSTEM GmbH

(6) Address: Lauterbachstraße 57
D-84307 Eggenfelden

(7) This equipment or protective system and any acceptable variation thereto is 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° 04YEX551171.

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

EN 50014:1997+A1+A2 EN 50020:2002 EN 50281-1-1:1998 EN 50284:1999

(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 GD EEx ia IIC Tx°C IP65 resp. II 1/2 GD EEx ib IIC Tx°C IP65 resp. II 2 GD EEx ib IIC Tx °C IP65

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Hanover, 2004-04-02

Head of the Certification Body

TÜV NORD CERT

(13) **SCHEDULE**

(14) **EC-TYPE EXAMINATION CERTIFICATE N° TÜV 04 ATEX 2430 X**

(15) Description of equipment

The Resistance thermometer type PTX is used for the temperature measurement of gases, vapours, liquids or dusts in vessels and pipes.
The Resistance thermometer type PTX consists of a measuring insert with one or two Pt100 sensors (embedded in aluminium oxid powder), a protective tube (wall thickness ≥ 1mm) and a housing (with connecting wires, terminals or built in separately certified transmitter). For temperature decoupling a neck tube may be necessary.
The Resistance thermometer type PTX may be operated according to the thermical/electrical data and categories mentioned below.

Electrical data

Sensor supply without built in transmitter:

Sensor circuit Pt100 ..... in type of protection „Intrinsic safety" EEx ia IIC
resp. EEx ib IIC

Sum of the maximum values:
U_i = 30 V
P_i = 0,9 W
The effective internal capacitances and inductances are negligibly small.

Sensor supply with built in suitably certified Transmitter (e. g. Ex-KTM-_ A0, UTN-500-B___S, PTN-600-B____S):

Signal circuit transmitter ..... in type of protection „Intrinsic safety" EEx ia IIC
resp. EEx ib IIC
only for connection to a certified intrinsically safe circuit
maximum values:
U_i = 30 V
I_i = 140 mA
P_i = 0,9 W
The effective internal capacitances and inductances have to be taken from the regarding EC Type Examination Certificate.

P_{max} (see tables) is the maximum value of the power converted in the sensor circuits (Pt100) (Pmax = Pi resp. the value according the EC Type Examination Certificate of the transmitter).

Table 1

Marking	max. permissible process temperature on the protective tube [°C] at power P_{max}								Ambient temperature range
at level of protection ia	50 mW	100 mW	163 mW	200 mW	500 mW	650 mW	750 mW	900 mW	
II 1 GD EEx ia IIC T80 °C IP65 resp. II 1 G EEx ia IIC T6	58	52	44	40	4	-14	-26	--	-20°C ... 60 °C housing made of POM: -15°C. ... +60°C
II 1 GD EEx ia IIC T95 °C C IP65 resp. II 1 G EEx ia IIC T5	70	64	56	52	16	-2	-14	-32	
II 1 GD EEx ia IIC T130 °C IP65 resp. II 1 G EEx ia IIC T4	98	92	84	80	44	26	14	-4	
II 1 GD EEx ia IIC T195 °C IP65 resp. II 1 G EEx ia IIC T3	150	144	136	132	96	78	66	48	
II 1 GD EEx ia IIC T290 °C IP65 resp. II 1 G EEx ia IIC T2	226	220	212	208	172	154	142	124	
II 1 GD EEx ia IIC T440 °C IP65 resp. II 1 G EEx ia IIC T1	346	340	332	328	292	274	262	244	

Table **2**

Marking	max. permissible process temperature on the protective tube [°C] at power P_{max}								Ambient temperature range
at level of protection ib	50 mW	100 mW	163 mW	200 mW	500 mW	650 mW	750 mW	900 mW	
II 1/2 GD EEx ib IIC T80 °C IP65 resp. II 1/2 G EEx ib IIC T6	51	38	21	11	--	--	--	--	see manual
II 1/2 GD EEx ib IIC T95 °C IP65 resp. II 1/2 G EEx ib IIC T5	63	50	33	23	--	--	--	--	
II 1/2 GD EEx ib IIC T130 °C IP65 resp. II 1/2 G EEx ib IIC T4	91	78	61	51	-29	--	--	--	
II 1/2 GD EEx ib IIC T195 °C IP65 resp. II 1/2 G EEx ib IIC T3	143	130	113	103	24	-16	--	--	
II 1/2 GD EEx ib IIC T290 °C IP65 resp. II 1/2 G EEx ib IIC T2	219	206	189	179	100	60	33	-7	
II 1/2 GD EEx ib IIC T440 °C IP65 resp. II 1/2 G EEx ib IIC T1	339	326	309	299	220	180	153	114	

Table 3

Marking	max. permissible process temperature on the protective tube [°C] at power P_{max}								Ambient temperature range
at level of protection ib	50 mW	100 mW	163 mW	200 mW	500 mW	650 mW	750 mW	900 mW	
II 2 GD EEx ib IIC T80 °C IP65 resp. II 2 G EEx ib IIC T6	74	68	60	56	20	2	-10	-28	see manual
II 2 GD EEx ib IIC T95 °C IP65 resp. II 2 G EEx ib IIC T5	89	83	75	71	35	17	5	-13	
II 2 GD EEx ib IIC T130 °C IP65 resp. II 2 G EEx ib IIC T4	124	118	110	106	70	52	40	22	
II 2 GD EEx ib IIC T195 °C IP65 resp. II 2 G EEx ib IIC T3	189	183	175	171	135	117	105	87	
II 2 GD EEx ib IIC T290 °C IP65 resp. II 2 G EEx ib IIC T2	284	278	270	266	230	212	200	182	
II 2 GD EEx ib IIC T440 °C IP65 resp. II 2 G EEx ib IIC T1	434	428	420	416	380	362	350	332	

The temperature measurements were carried out without dust layer (see EN 50 281-1-1, 10.5).

(16) Test documents are listed in the test report No. 04YEX551171.

(17) Special conditions for safe use

1. The thermometer is not marked with the permissible medium temperature and ambient temperature. The appropriate designations have to be taken from this certificate resp. from the manual.
2. At the housing made of plastic there is a danger of ignition by electrostatic discharges. The operator has to ascertain the suitability of this equipment for his use.
3. At the housing made of aluminium there is a danger of ignition by sparks caused by impact or friction. The operator has to ascertain the suitability of this equipment for his use.
4. It has to be ensured, that the permissible ambient temperature range of the built in transmitters is observed (e. g. by thermical isolation and/or an appropriate length of the neck tube). Restrictions by the temperature class and the category of the built in transmitters have to be observed (see manual).
5. If mounted in the partition wall to the hazardous area for category 1 apparatus, the process connections have to be designed in such a way, that they are sufficiently tight according to EN 50284 section 4.5 .
6. For applications, which require category 1/2 apparatus or category 1 apparatus, the process pressure and temperature range of the media has to be between 0.8 bar and 1.1 bar and between -20 °C and 60 °C. If the thermometer is operated beyond these atmospheric conditions, this approval serves as a a guide. Additional tests for the special application conditions are recommend.
7. The permissible operating pressures and temperatures have to be taken from the manual if no explosion hazardous gas mixtures exist.

(18) Essential Health and Safety Requirements

no additional ones

Translation

1. SUPPLEMENT

to Certificate No.	**TÜV 04 ATEX 2430 X**
Equipment:	Resistance thermometer type PTX
Manufacturer:	ACS CONTROL SYSTEM GmbH
Address:	Lauterbachstraße 57 84307 Eggenfelden, Germany
Order number:	8000555819
Date of issue:	2010-06-16

The resistance thermometer type PTX was tested according to the standards listed below.

The changes refer to
- the marking
- die informtion in the table 1,
- the power to be taken into account for the sensor circuit Pt100 and
- the „Special conditions for safe use".

Electrical data

Sensor supply without built-in transmitter:

Sensor circuit Pt100 ..... in type of protection „Intrinsic safety" Ex ia/ib IIC
resp. Ex iaD/ibD

Sum of the maximum values:
U_i = 30 V
P_i = 0.9 W
The effective internal capacitances and inductances are negligibly small.

Sensor supply with built-in suitably certified Transmitter (e. g. Ex-KTM-_ A0, UTN-500-B___S, PTN-600-B____S):

Signal circuit transmitter ..... in type of protection „Intrinsic safety" Ex ia/ib IIC
resp. Ex iaD/ibD

only for connection to a certified intrinsically safe circuit
maximum values:
U_i = 30 V
I_i = 140 mA
P_i = 0.9 W
The effective internal capacitances and inductances have to be taken from the regarding EC Type Examination Certificate.

The power P_{max} (see tables) is the maximum value of the power converted in the sensor circuits (Pt100)
$P_{max} = P_i$, a power reduction by the transmitter is not allowed to be taken into account.

Table 1

Marking	max. permissible process temperature on the protective tube [°C] at power P_{max}								Ambient temperature range
at level of protection ia	50 mW	100 mW	163 mW	200 mW	500 mW	650 mW	750 mW	900 mW	
II 1 D Ex iaD 20 T80 °C resp. II 1 G Ex ia IIC T6	58	52	44	40	4	-14	-26	--	see manual
II 1 D Ex iaD 20 T95 °C resp. II 1 G Ex ia IIC T5	70	64	56	52	16	-2	-14	-32	
II 1 D Ex iaD 20 T130 °C resp. II 1 G Ex ia IIC T4	98	92	84	80	44	26	14	-4	
II 1 D Ex iaD 20 T195 °C resp. II 1 G Ex ia IIC T3	150	144	136	132	96	78	66	48	
II 1 D Ex iaD 20 T290 °C resp. II 1 G Ex ia IIC T2	226	220	212	208	172	154	142	124	
II 1 D Ex iaD 20 T440 °C resp. II 1 G Ex ia IIC T1	346	340	332	328	292	274	262	244	

Table 2

Marking	max. permissible process temperature on the protective tube [°C] at power P_{max}								Ambient temperature range
at level of protection ib	50 mW	100 mW	163 mW	200 mW	500 mW	650 mW	750 mW	900 mW	
II 1/2 D Ex ibD 20/21 T80 °C resp. II 1/2 G Ex ib IIC T6	51	38	21	11	--	--	--	--	see manual
II 1/2 D Ex ibD 20/21 T95 °C resp. II 1/2 G Ex ib IIC T5	63	50	33	23	--	--	--	--	
II 1/2 D Ex ibD 20/21 T130 °C resp. II 1/2 G Ex ib IIC T4	91	78	61	51	-29	--	--	--	
II 1/2 D Ex ibD 20/21 T195 °C resp. II 1/2 G Ex ib IIC T3	143	130	113	103	24	-16	--	--	
II 1/2 D Ex ibD 20/21 T290 °C resp. II 1/2 G Ex ib IIC T2	219	206	189	179	100	60	33	-7	
II 1/2 D Ex ibD 20/21 T440 °C resp. II 1/2 G Ex ib IIC T1	339	326	309	299	220	180	153	114	

Table 3

Marking	max. permissible process temperature on the protective tube [°C] at power P_{max}								Ambient temperature range
at level of protection ib	50 mW	100 mW	163 mW	200 mW	500 mW	650 mW	750 mW	900 mW	
II 2 D Ex ibD 21 T80 °C resp. II 2 G Ex ib IIC T6	74	68	60	56	20	2	-10	-28	see manual
II 2 D Ex ibD 21 T95 °C resp. II 2 G Ex ib IIC T5	89	83	75	71	35	17	5	-13	
II 2 D Ex ibD 21 T130 °C resp. II 2 G Ex ib IIC T4	124	118	110	106	70	52	40	22	
II 2 D Ex ibD 21 T195 °C resp. II 2 G Ex ib IIC T3	189	183	175	171	135	117	105	87	
II 2 D Ex ibD 21 T290 °C resp. II 2 G Ex ib IIC T2	284	278	270	266	230	212	200	182	
II 2 D Ex ibD 21 T440 °C resp. II 2 G Ex ib IIC T1	434	428	420	416	380	362	350	332	

Al other details remain unchanged for this supplement.

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

EN 60079-0:2006	EN 60079-11:2007	EN 60079-26:2007
EN 61241-0:2006	EN 61241-11:2006	
IEC 60079-0:2004	IEC 60079-11:2006	IEC 60079-26:2006
IEC 61241-0:2004	IEC 61241-11:2005	

(16) The test documents are listed in the test report No. 10 203 555819.

(17) Special conditions for safe use

1. The thermometer is not marked with the permissible medium temperature and ambient temperature. The appropriate designations have to be taken from this certificate resp. from the manual.
2. At the housing made of plastic there is a danger of ignition by electrostatic discharges. The operator has to ascertain the suitability of this equipment for his use.
3. At the housing made of aluminium there is a danger of ignition by sparks caused by impact or friction. Operational friction or impacts with equipment parts made of iron/steel is not permitted. The operator has to ascertain the suitability of this equipment for his use.
4. It has to be ensured, that the permissible ambient temperature range of the built in transmitters is observed (e. g. by thermal insulation and/or an appropriate length of the neck tube). Restrictions by the temperature class and the category of the built in transmitters have to be observed (see manual).
5. If mounted in the partition wall to the hazardous area for category 1 apparatus, the process connections have to be designed in such a way, that they are sufficiently tight according to EN 60079-26 section 4.6.
6. For applications, which require category 1/2 apparatus or category 1 apparatus, the process pressure and temperature range of the media has to be between 0.8 bar and 1.1 bar and between -20 °C and 60 °C. If the thermometer is operated beyond these atmospheric conditions, this approval serves as a a guide. Additional tests for the special application conditions are recommend.
7. The permissible operating pressures and temperatures have to be taken from the manual if no explosion hazardous gas mixtures exist.

(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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