



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 02 ATEX 1950 X**

(4) Equipment: Hydrostatic filling level measuring device type Precont Ex S\_0...

(5) Manufacturer: ACS CONTROL SYSTEM GmbH

(6) Address: Lauterbachstraße 57  
D-84307 Eggenfelden

(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° 03 YEX 181587.

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

**EN 50014:1997**

**EN 50020:1994**

**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 1/2 G EEx ia IIC T4 or II 2 G EEx ib IIC T4**

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TÜV CERT-Certification Body  
Am TÜV 1  
D-30519 Hannover  
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Head of the  
Certification Body



**TÜV NORD CERT**

Hanover, 2004-01-07

German original certificate  
issued on 2002-10-31



(13)

## SCHEDULE

(14) **EC-TYPE EXAMINATION CERTIFICATE N° TÜV 02 ATEX 1950 X**

(15) Description of equipment

The hydrostatic filling level measuring device type Precont Ex S\_0... measures the pressure of gases, mists and fluids in tanks and pipes. The enclosure may be installed in hazardous explosive areas that require apparatus of category 2 and the sensor may be installed in hazardous explosive areas that require apparatus of category 1.

The permissible ambient temperature in the area of the sensor is 60°C.

The permissible ambient temperature in the area of the enclosure is 85°C.

Extension of the temperature range: see (17) Special conditions for safe use

### Electrical data

Supply and signal circuits (cable connection, plug/socket connection or terminals)

in type of protection Intrinsic Safety EEx ia IIC only for the connection of certified intrinsically safe circuits

Sum of the maximum values of the intrinsically safe circuits:

$$U_i = 27.3 \text{ V}$$

$$I_i = 140 \text{ mA}$$

$$P_i = 0.9 \text{ W}$$

Due to the variants of the transmitter electronics the following effective internal capacitances and inductances result:

Variants	C <sub>i</sub> [nF]	L <sub>i</sub> [µH]
A	22	230
B/C/D	19	110
E	28	400
F/G/H	25	170

In addition of the above stated values also the capacitances and inductances of the connection line (length L) have to be taken into consideration at devices with prefabricated connection line.

$$L_i = L \times 0,65 \mu\text{H/m}$$

$$C_i = L \times 120 \text{ pF/m (wire/wire)}$$

$$C_i = L \times 160 \text{ pF/m (wire/screen)}$$

The supply and signal circuits are galvanically connected between each other. The capacitances and inductances of each circuit have to be observed for the interconnection.



(16) Test documents are listed in the test report No.: 02 YEX 181587.

(17) Special conditions for safe use

The hydrostatic filling level measuring device type Precont Ex S\_0... may be operated in hazardous explosive areas that require apparatus of category 1 only when atmospheric conditions are present. (temperature from -20°C to 60°C, pressure from -0.8 bar to 1.1 bar).

In hazardous explosive areas that require apparatus of category 2 the maximum permissible ambient temperature in the area of the sensor is 85°C.

In this case the supply and signal circuit may be connected with intrinsically safe circuits of the category "ib". The marking of the device in this case is: II 2 G EEx ib IIC T4.

The permissible operation pressures and temperatures for none-explosive gas mixtures have to be taken from the manufacturer specifications (operation instruction)

(18) Essential Health and Safety Requirements

no additional ones



Translation

1. SUPPLEMENT to

EC TYPE-EXAMINATION CERTIFICATE No. TÜV 02 ATEX 1950 X

of the company: ACS CONTROL SYSTEM GmbH  
Lauterbachstraße 57  
D-84307 Eggenfelden

In the future, the hydrostatic filling level measuring device type Precont Ex S\_0... may also be manufactured according to the test documents listed in the test report. The changes refer to the shape of the housing, the use of the hydrostatic filling level measuring device with metal housing in explosion hazardous areas with combustible dust as well as the type designation.

In the future, the type designation of the hydrostatic filling level measuring device for use in explosion hazardous areas with combustible dust reads Precont XD S\_0... .

The marking, the permissible temperature range at the sensor and the permissible ambient temperature range have to be taken from the following tables:

Table 1

Explosion hazardous area

- for category 1-apparatus on the sensor and
- for category 2-apparatus on the housing

Marking	Temperature range at the sensor	Ambient temperature range
II 1/2 GD EEx ia IIC T4 IP65 T60°C/T102°C (T57°C) resp. II 1/2 G EEx ia IIC T4	-20°C ... 60 °C	-20°C ... 85 (40)°C

Table 2

Explosion hazardous area for category 2-apparatus at the sensor and at the housing

Marking	Temperature range at the sensor	Ambient temperature range
II 2 GD EEx ib IIC T4 IP65 T102°C resp. II 2 G EEx ib IIC T4	-20°C ... 85 °C	-20°C ... 85 °C
II 2 GD EEx ib IIC T4 IP65 T125°C resp. II 2 G EEx ib IIC T4	*) -20°C ... 125 °C	-20°C ... 50 °C

\* with temperature decoupling unit according to the test documents of the manufacturer.



1. Supplement to EC Type-Examination Certificate No. TÜV 02 ATEX 1950 X

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The hydrostatic filling level measuring device type Precont Ex S\_0... und XD S\_0 ... according to this 1. supplement also meets the requirements of

EN 50 014:1997+A1+A2,

EN 50 284:1999,

EN 50 020:2002 and

EN 50 281-1-1:1998

The electrical data as well as all other details remain unchanged.

(16) The test documents are listed in the test report no. 04YEX551128.

(17) Special conditions for safe use

no additional ones

(18) Essential Health and Safety Requirements

no additional ones

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TÜV CERT-Certification Body  
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Tel.: 0511 986-1470  
Fax: 0511 986-2555

Hanover, 2004-07-21

A handwritten signature in blue ink, appearing to read 'J. V. Schmitt', is written over the printed name of the certification body.

Head of the  
Certification Body

**Translation**  
**2. SUPPLEMENT**

<b>to Certificate No.</b>	<b>TÜV 02 ATEX 1950 X</b>
Equipment:	Hydrostatic filling level measuring device type Precont Ex S/D_0... resp. XD S/D_0... with Profibus PA-electronics
Manufacturer:	ACS CONTROL SYSTEM GmbH
Address:	Lauterbachstraße 57 84307 Eggenfelden
Order number:	80005554233
Date of issue:	2008-03-10

In the future, the hydrostatic filling level measuring device type Precont may also be manufactured according to the documents listed in the test report.

The changes refer to

- the execution of the devices with electronics for Profibus PA applications
- the electrical data
- the new executions Precont\_D40 and Precont\_S30
- the execution of the inserted measuring cells
- the marking of the devices

The 2. supplement to EC Type Examination Certificate TÜV 02 ATEX 1950 X includes the following apparatus types with Profibus PA electronics

Precont Ex/XD S10  
 Precont Ex/XD S20  
 Precont Ex/XD S30  
 Precont Ex/XD S40  
 Precont Ex/XD D40  
 Precont Ex/XD S60  
 Precont Ex/XD S70

Electrical data

Input circuit ..... (cable connection, plug/socket connection or terminals)	in type of protection Intrinsic Safety Ex ia IIC Only for connection to a certified intrinsically safe circuit
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Maximum values:

$$U_i = 24 \text{ V}$$

$$I_i = 380 \text{ mA}$$

$$P_i = 5.32 \text{ W}$$

Effective internal capacitance: 1 nF

Effective internal inductance: 15 µH

In addition of the above stated values also the capacitances and inductances of the connection cable (length L) have to be taken into consideration at devices with prefabricated connection cable.

$$L_i = L \times 0.65 \mu\text{H/m}$$

$$C_i = L \times 120 \text{ pF/m (wire/wire)}$$

$$C_i = L \times 160 \text{ pF/m (wire/screen)}$$

2. Supplement to Certificate No. TÜV02 ATEX 1950 X

The marking, the permissible temperature range at the sensor and the permissible ambient temperature range have to be taken from the following tables:

**Table 1**

Explosion hazardous area

- for category 1-apparatus on the sensor and
- for category 2-apparatus on the housing

Marking	Temperature range at the sensor	Ambient temperature range
II 1/2 D Ex iaD 20/21 T60°C/T102°C (T57°C) resp. II 1/2 G Ex ia IIC T4	-20°C ... 60°C	-20°C ... 85°C (40°C)

**Table 2**

Explosion hazardous area for category 2-apparatus at the sensor and at the housing

Marking	Temperature range at the sensor	Ambient temperature range
II 2 D Ex ibD 21 T102°C resp. II 2 G Ex ib IIC T4	-20°C ... 85 °C	-20°C ... 85 °C
II 2 D Ex ibD 21 T125°C resp. II 2 G Ex ib IIC T4	*) -20°C ... 125 °C	-20°C ... 50 °C

\* with temperature decoupling unit according to the test documents of the manufacturer

All other details remain unchanged for this supplement.

Die equipment according to this supplement meets the requirements of the following standards:

EN 60079-0:2006  
EN 61 241-0:2002

EN 60079-11:2007  
EN 61 241-11:2001

EN 60079-26:2007

(16) The test documents are listed in the test report No. 08 203 554233.

## 2. Supplement to Certificate No. TÜV02 ATEX 1950 X

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### (17) Special condition for safe use

The sensor of the hydrostatic filling level measuring device type Precont Ex S/D\_0... may be operated in hazardous explosive areas that require apparatus of category 1 only if atmospheric conditions are present (temperature from -20°C to 60°C, pressure from -0.8 bar to 1.1 bar).

In hazardous explosive areas that require apparatus of category 2, the maximum permissible ambient temperature may be taken from table 2.

In this case, the Input circuit may be connected to an intrinsically safe circuit of protection level "ib".

The permissible operation pressures and temperatures for none-explosive gas mixtures have to be taken from the manufacturer specifications (operation instruction)

### (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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Translation

**3. SUPPLEMENT**

<b>to Certificate No.</b>	<b>TÜV 02 ATEX 1950X</b>
Equipment:	Pressure transmitter type Precont Ex S/D_0... resp. XD S/D_0...
Manufacturer:	ACS CONTROL SYSTEM GmbH
Address:	Lauterbachstraße 57 84307 Eggenfelden
Order number:	8000555499
Date of issue:	2009-11-19

In the future, the pressure transmitter type Precont Ex S/D\_0... resp. XD S/D\_0... may also be manufactured according to the documents listed in the test report.

The changes refer to

- the series Precont "D" in the execution with 4...20mA resp. with 0...10V output,
- the internal construction of the apparatus and
- the electrical data of the apparatus with 4...20mA resp. with 0...10V output.

Electrical data

Supply and signal circuits ..... in type of protection „Intrinsic safety“ Ex ia IIC resp. Ex iaD  
(Cable connection, only for connection to certified intrinsically safe circuits  
plug connection or terminals)

Sum of the maximum values of the intrinsically safe circuits:

$$U_i = 30 \text{ V}$$

$$I_i = 300 \text{ mA}$$

$$P_i = 0.9 \text{ W}$$

In dependence of the variants for the transmitter electronics the following effective internal capacitances and inductances result:

Variant	C <sub>i</sub> [nF]	L <sub>i</sub> [µH]
A	22	230
B/C/D	19	110
E	28	400
F/G/H	25	170

In addition to the values mentioned above the capacitances and inductances of the connecting cable (Length L) have to be taken into account for devices with connecting cable installed fixed:

$$L_i = L \times 1.0 \text{ µH/m}$$

$$C_i = L \times 45 \text{ pF/m (wire/wire)}$$

$$C_i = L \times 105 \text{ pF/m (wire/shield)}$$

The supply and signal circuits are galvanically connected with each other. The capacitances and inductances of each circuit have to be taken into account for an interconnection.

### 3. Supplement to Certificate No. TÜV 02 ATEX 1950 X

The marking, the permissible temperature range at the sensor and the permissible ambient temperature range have to be taken from the following tables:

**Table 1**

Explosion hazardous area

- for category 1-apparatus on the sensor and
- for category 2-apparatus on the housing

Marking	Temperature range at the sensor	Ambient temperature range
II 1/2 D Ex iaD 20/21 T60°C/T102°C (T57°C) resp. II 1/2 G Ex ia IIC T4	-20°C ... 60°C	-20°C ... 85°C (40°C)

**Table 2**

Explosion hazardous area for category 2-apparatus at the sensor and at the housing

Marking	Temperature range at the sensor	Ambient temperature range
II 2 D Ex ibD 21 T102°C resp. II 2 G Ex ib IIC T4	-20°C ... 85 °C	-20°C ... 85 °C
II 2 D Ex ibD 21 T125°C resp. II 2 G Ex ib IIC T4	*) -20°C ... 125 °C	-20°C ... 50 °C

\* with temperature decoupling unit according to the test documents of the manufacturer

Die equipment according to this supplement meets the requirements of the following standards:

EN 60079-0:2006  
EN 61241-0:2002

EN 60079-11:2007  
EN 61241-11:2001

EN 60079-26:2007

(16) The test documents are listed in the test report No. 09 203 555499.

### 3. Supplement to Certificate No. TÜV 02 ATEX 1950 X

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#### (17) Special condition for safe use

1. The sensor of the pressure transmitter type Precont Ex S/D\_0... resp. XD S/D\_0... may be operated in hazardous explosive areas that require apparatus of category 1 only if atmospheric conditions are present (temperature from -20°C to 60°C, pressure from -0.8 bar to 1.1 bar).

In hazardous explosive areas that require apparatus of category 2, the maximum permissible ambient temperature may be taken from table 2.

In this case, the supply and signal circuits may be connected to intrinsically safe circuits of protection level "ib".

The permissible operation pressures and temperatures for none-explosive gas mixtures have to be taken from the manufacturer specifications (operation instruction).

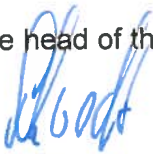
2. At the chargeable plastic parts of the pressure transmitter type Precont Ex S/D\_0... resp. XD S/D\_0... there is a danger of ignition by electrostatic discharges. The operator has to ascertain the suitability of this equipment for his use. The manual of the manufacturer has to be observed.

#### (18) Essential Health and Safety Requirements

no additional ones

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