Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

(1) # EC-TYPE-EXAMINATION CERTIFICATE

(Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**

(3) EC-type-examination Certificate Number:

PTB 01 ATEX 2166 X

(4) Equipment: pH-transmitter, type 11.0 X

(5) Manufacturer: Mettler-Toledo AG

(6) Address: Im Hackacker 15, 8902 Urdorf, Switzerland

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

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment 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 PTB Ex 01-20453.

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

EN 50014:1997 + A1 + A2 **EN 50020:1994** **EN 50284:1999**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment 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 shall include the following:

Ex II 2 (1) G EEx ia IIC T4 ... T6

Zertifizierungsstelle Explosionsschutz
By order:

Braunschweig, January 24, 2002

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT 24

(13) # SCHEDULE

(14) ## EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2166 X

(15) Description of equipment

The pH-transmitter, type 11.0 X, is primarily used for pH, redox and temperature measurement in the electrochemical and environmental field.

Pt-1000 or NTC sensors, which may be installed separately or be mounted in the measuring cell, provide for general precise temperature measurements and automatic temperature compensation while pH values are measured.

Use as category-1/2 equipment is only permitted in conjunction with the pH/Pt 1000 combined measuring and reference electrode, type ZU 6979 X0.

Category-1/2 equipment

The pH-transmitter, type 11.0 X, is used in potentially explosive atmospheres requiring category-2 equipment.

The pH/Pt 1000 combined measuring and reference electrode, type ZU 6979 X0, is connected to the BU 2 socket of the unit and is installed in the potentially explosive atmospheres requiring category-1 equipment.

For applications requiring category-1/2 apparatus, the permissible ambient temperature as well as the media process pressure has to range from –20 °C to 60 °C, and from 0.8 to 1.1 bar, respectively. Should these conditions not be met at the measuring sensor, it has to be considered that the measuring sensor (even in case of faults) does not show any self-heating reaction. It should also be noted that the plant owner is responsible for safe operation of the plant as regards the pressure/temperature of the materials used. For the operating conditions when used without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

Category-2 equipment

The pH-transmitter, type 11.0 X, the measuring cell, and the separate or mounted Pt 1000 and NTC sensors are installed in the potentially explosive atmospheres for category-2 equipment.

For the relationship between temperature class and the permissible ambient temperature range, reference is made to the following table:

Temperature class	Permissible ambient temperature range
T6	- 10 °C ... 40 °C
T5	- 10 °C ... 40 °C
T4	- 10 °C ... 55 °C

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SCHEDULE TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 2166 X

Electrical data

Auxiliary power .....3 batteries Varta Universal Alkaline No. 4006, type Mignon, model LR6-AA-AM3 (alkali-manganese)
or 3 batteries Varta Universal Alkaline No. 8006, type Mignon, model LR6-AA-AM3 (alkali-manganese)
or 3 batteries Varta Standard No. 3706, type Mignon, model AA (zinc-chloride)

pH/temperature measuring circuits ..... type of protection Intrinsic Safety EEx ia IIC
(BU 2, 3, 4) Maximum values:

U_o = 5 V
I_o = 11 mA
P_o = 13 mW
R_i = 487 Ω
C_i = 30 nF
L_i negligibly low
C_o = 1.8 µF
L_o = 100 mH

Interface circuits RxD, TxD..... U_m = 253 V
(BU 5, 6, 7) The serial interface may only be operated outside the hazardous area.
When the interface is connected to a circuit, neither the equipment nor the pH-temperature measuring circuit may be positioned inside the hazardous area.

(16) Test report PTB Ex 01-20453

(17) Special conditions for safe use

When used as category-1/2 equipment, the pH transmitter, type 11.0 X, shall electrostatically (contact resistance ≤ 1 MΩ) be connected to the equipotential bonding conductor (e.g. using the earth terminal).

The pH/Pt 1000 combined measuring and reference electrode, type ZU 6979 X0, may in tanks only briefly be used in zone 0. Reference has to be made to the risk resulting from the release of explosive atmosphere and of flames penetrating from outside.

(18) Essential health and safety requirements

Met by compliance with the above standards.

Zertifizierungsstelle Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
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Braunschweig, January 24, 2002