



(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 02 ATEX 2214 X

(4) Equipment: Conductive sensing probes, type series EL1 ... EL9

(5) Manufacturer: VEGA Grieshaber KG

(6) Address: Am Hohenstein 113, D-77761 Schiltach, Germany

(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 02-22206.

(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:



II 1 G or 1/2 G or 2 G EEx ia IIC T6

Zertifizierungsstelle Explosionsschutz

By order:

Braunschweig, January 28, 2003

Dr.-Ing. U. Johannsmeyer
Regierungsdirektor



(13)

SCHEDULE

(14)

EC-TYPE-EXAMINATION CERTIFICATE PTB 02 ATEX 2214 X

(15) Description of equipment

The conductive sensing probes, type series EL1 ... EL9, are used in conjunction with an evaluator for liquid level monitoring or control in potentially explosive atmospheres.

They consist of an adapter box with open-circuit monitoring resistor, the process connector, and the sensor designed as rod or cable variant.

Category-1 equipment

The conductive sensing probes are installed in potentially explosive atmospheres requiring category-1 equipment.

Category-1/2 equipment

The adapter box is installed in potentially explosive atmospheres requiring category-2 equipment. The process connectors are installed in the partition separating areas requiring category-2 or category-1 equipment. The sensors are installed in areas requiring category-1 equipment.

Category-2 equipment

The conductive sensing probes are installed in potentially explosive atmospheres requiring category-2 equipment.

For the relationship between the temperature class and the maximum permissible temperature at the sensor, as well as the maximum permissible ambient temperature for the electronics system, reference is made to the following tables.

Category-1 equipment

Temperature class	Temperature at the sensor	Ambient temperature for the adapter box
T6, T5, T4, T3, T2, T1	-20 ... +60 °C	-20 ... +60 °C

For applications requiring category-1 equipment, the media process pressure has to be between 0.8 bar and 1.1 bar. The permissible ambient temperatures specified for the sensor and the adapter box are based on the 80% rule in section 6.4.2 of EN 1127-1. For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

Category-1/2 equipment

Temperature class	Temperature at the sensor	Ambient temperature for the adapter box
T6, T5, T4, T3, T2, T1	-20 ... +60 °C	-40 ... +85 °C

For applications requiring category-1/2 equipment, the media process pressure has to be between 0.8 and 1.1 bar.

Category-2 equipment

Temperature class	Temperature at the sensor	Ambient temperature for the adapter box
T6	-50 ... +85 °C	-40 ... +85 °C
T5	-50 ... +100 °C	-40 ... +85 °C
T4, T3, T2, T1	-50 ... +130 °C	-40 ... +85 °C

For the process conditions without explosive mixtures, as well as the permissible temperatures and pressures, reference shall be made to the specifications provided by the manufacturer.

Electrical data

Signal circuit

type of protection Intrinsic Safety EEx ia IIC
Only for connection to the signal circuit of the
conductive limit level evaluators of
type VEGATOR631 Ex (PTB 02 ATEX 2207).

For the total values of the permissible external
inductances L_o and capacitances C_o , reference is
made to the EC type-examination certificate;
or

type VEGATOR 532 Ex (TÜV 01 ATEX 1782)
Permissible total values of the external
capacitances C_o and inductances L_o , which result
from the combination C_o and L_o :

$$L_o = 5 \text{ mH}$$

$$C_o = 710 \text{ nF}$$

L_i negligibly low

C_i negligibly low

(16) Test report PTB Ex 02-22206

(17) Special conditions for safe use

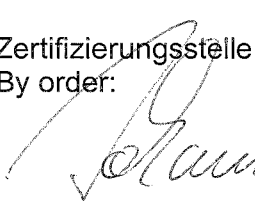
1. Since the signal circuit of the conductive sensing probes of type series EL1 ... EL9 is earthed by the medium, equipotential bonding has to be provided within the total installation area of the intrinsically safe signal circuit, both within and outside the potentially explosive atmosphere.
2. The conductive sensing probes shall be installed in such a way that contact between the sensor and the tank wall is impossible with sufficient safety considering the tank installations and the flow conditions inside the tank. This applies, in particular, to sensors which are longer than 3 m.
3. The conductive sensing probes with plastic enclosure and plastic elements include surfaces that could become charged electrostatically (note warning label).

(18) Essential health and safety requirements

Met by compliance with the standards mentioned above.

Zertifizierungsstelle Explosionsschutz

By order:


Dr.-Ing. U. Johannsmeyer
Regierungsdirektor



Braunschweig, January 28, 2003


1. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 02 ATEX 2214 X

(Translation)

Equipment: Konduktive Mess-Sonden Typ EL1...EL9

Marking:  II 1, 1/2, 2 G EEx ia IIC T6


Manufacturer: VEGA Grieshaber KG

Address: Am Hohenstein 113, 77761 Schiltach, Deutschland

Description of supplements and modifications

The name of the conductive sensing probes, type series EL1...EL9 is changed into conductive sensing probes, type series EL*EX.****.

Other changes concern the marking, the standards, the electrical data, the temperature tables and the "Special Conditions".

The marking changes as follows:  1 G or 1/2 G or II 2 G Ex ia IIC T6

All other specifications remain valid without changes.

For the relationship between the temperature class and the maximum permissible temperature at the sensor, as well as the maximum permissible ambient temperature for the electronics system, reference is made to the following tables.

Category-1 equipment

Temperature class	Temperature at the sensor	Ambient temperature for the adapter box
T6, T5, T4, T3, T2, T1	-20 ... +60 °C	-20 ... +60 °C

For applications requiring category-1 equipment, the pressure of the explosive atmosphere has to be between 0.8 bar and 1.1 bar. The permissible ambient temperatures specified for the sensor and the adapter box are based on the 80% rule in section 6.4.2 of EN 1127-1. For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

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1. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 02 ATEX 2214 X

Category-1/2 equipment

Temperature class	Temperature at the sensor	Ambient temperature for the adapter box
T6, T5, T4, T3, T2, T1	-20 ... +60 °C	-40 ... +85 °C

For applications requiring category-1/2 equipment, the pressure of the explosive atmosphere has to be between 0.8 and 1.1 bar.

Category-2 equipment

Temperature class	Temperature at the sensor	Ambient temperature for the adapter box
T6	-50 ... +85 °C	-40 ... +85 °C
T5	-50 ... +100 °C	-40 ... +85 °C
T4, T3, T2, T1	-50 ... +130 °C	-40 ... +85 °C

For the process conditions without explosive mixtures, as well as the permissible temperatures and pressures, reference shall be made to the specifications provided by the manufacturer.

Electrical data

Signal Circuit
(Max-Circuit KL1, KL3)
(Min-Circuit KL2, KL3)

type of protection Intrinsic Safety Ex ia IIC
Only for connection to an intrinsically safe circuit.
Maximum values (Sum of the values)

$$U_i = 13 \text{ V}$$

$$I_i = 60 \text{ mA}$$

$$P_i = 120 \text{ mW}$$

The effective internal capacitances and inductances are negligibly low.

Special conditions

1. Since the signal circuit of the conductive sensing probes of type series EL*EX.**** is earthed by the medium, equipotential bonding has to be provided within the total installation area of the intrinsically safe signal circuit, both within and outside the potentially explosive atmosphere.
2. The conductive sensing probes shall be installed in such a way that contact between the sensor and the tank wall is impossible with sufficient safety considering the tank installations and the flow conditions inside the tank. This applies, in particular, to sensors which are longer than 3 m.
3. The conductive sensing probes with plastic enclosure and plastic elements include surfaces that could become charged electrostatically (note warning label).

Braunschweig und Berlin

1. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 02 ATEX 2214 X

Applied standards

EN 60079-0:2006, EN 60079-11:2007, EN 60079-26:2007

Assessment and test report: PTB Ex 09-28277

Zertifizierungssektor Explosionsschutz

By order:

Braunschweig, April 2, 2009


Dr.-Ing. U. Gerlach
Oberregierungsrat




2. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 02 ATEX 2214 X

(Translation)

Equipment: Konduktive Messsonden Typ EL*EX.****

Marking:  II 1 G, 1/2 G, 2 G Ex ia IIC T6...T1

Manufacturer: VEGA Grieshaber KG

Address: Am Hohenstein 113
77761 Schiltach, Germany

Description of supplements and modifications

The name of the conductive sensing probes, type series EL*EX.**** is changed into conductive sensing probes, type series EL*Ex.****(*)*.

Furhter changes concern modification of the type key, an alternate open-circuit-monitoring with the characteristic "M", the electrical data (increasing of the allowed power P_i), the temperature tables and the "Special Conditions".

All other specifications remain valid without changes.

For the relationship between the temperature class and the maximum permissible temperature at the sensor, as well as the maximum permissible ambient temperature for the electronics system, reference is made to the following tables.

Category-1 equipment

Temperature class	Temperature at the sensor	Ambient temperature for the adapter box
T6	-20 ... +40°C	-20 ... +40°C
T5	-20 ... +52°C	-20 ... +52°C
T4	-20 ... +60°C	-20 ... +60°C
T3	-20 ... +60°C	-20 ... +60°C
T2	-20 ... +60°C	-20 ... +60°C
T1	-20 ... +60°C	-20 ... +60°C

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2. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 02 ATEX 2214 X

For applications requiring category-1 equipment, the pressure of the explosive atmosphere has to be between 0.8 bar and 1.1 bar. The permissible ambient temperatures specified for the sensor and the adapter box are based on the 80% rule in section 6.4.2 of EN 1127-1. For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

Category-1/2 equipment

Temperature class	Temperature at the sensor	Ambient temperature for the adapter box
T6	-20 ... +60°C	-20 ... +56°C
T5	-20 ... +60°C	-20 ... +71°C
T4	-20 ... +60°C	-20 ... +85°C
T3	-20 ... +60°C	-20 ... +85°C
T2	-20 ... +60°C	-20 ... +85°C
T1	-20 ... +60°C	-20 ... +85°C

For applications requiring category-1/2 equipment, the pressure of the explosive atmosphere has to be between 0.8 and 1.1 bar. For the process conditions without explosive mixtures, reference shall be made to the specifications provided by the manufacturer.

Category-2 equipment

Temperature class	Temperature at the sensor	Ambient temperature for the adapter box
T6	-50 ... +85°C	-20 ... +56°C
T5	-50 ... +100°C	-20 ... +71°C
T4	-50 ... +130°C	-20 ... +85°C
T3	-50 ... +130°C	-20 ... +85°C
T2	-50 ... +130°C	-20 ... +85°C
T1	-50 ... +130°C	-20 ... +85°C

For the process conditions as well as the permissible temperatures and pressures, reference shall be made to the specifications provided by the manufacturer.

2. SUPPLEMENT TO EC-TYPE-EXAMINATION CERTIFICATE PTB 02 ATEX 2214 X

Electrical data

Signal Circuit
(Max-Circuit KL1, KL3)
(Min-Circuit KL2, KL3)

type of protection Intrinsic Safety Ex ia IIC
Only for connection to an intrinsically safe circuit.
Maximum values (Sum of the values)
 $U_i = 13 \text{ V}$
 $I_i = 60 \text{ mA}$
 $P_i = 200 \text{ mW}$
The effective internal capacitances and inductances
are negligibly low

Special Conditions

1. Since the signal circuit of the conductive sensing probes of type series EL*Ex.****(*)* is earthed by the medium, equipotential bonding has to be provided within the total installation area of the intrinsically safe signal circuit, both within and outside the potentially explosive atmosphere.
2. The conductive sensing probes shall be installed in such a way that contact between the sensor and the tank wall is impossible with sufficient safety considering the tank installations and the flow conditions inside the tank. This applies, in particular, to sensors which are longer than 3 m.
3. The conductive sensing probes with plastic enclosure and plastic elements include surfaces that could become charged electrostatically (note warning label).
4. For applications where equipment of category 1 or category 1/2 is required, all parts of the conductive sensing probes which are in contact with the medium must only be used in such media, against which they are sufficiently resistant.

Applied standards

EN 6079-0:2006, EN 60079-11:2007, EN 60079-26:2007

Assessment and test report: PTB Ex 09-29213

Zertifizierungssektor Explosionsschutz
By order:

Dr.-Ing. U. Johannsmeyer
Direktor und Professor



Braunschweig, October 13, 2009