IBExU Institut für Sicherheitstechnik GmbH

An-Institut der TU Bergakademie Freiberg

[1] **EC-TYPE EXAMINATION CERTIFICATE**
according to Directive 94/9/EC, Annex III (Translation)

[2] Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres, Directive 94/9/EC

[3] EC-Type Examination Certificate Number: **IBExU04ATEX1004 X**

[4] Equipment: Temperature sensor series ELTF-PTEx.1 and ELTF-PTEx.2

[5] Manufacturer: eltherm Elektrowärmetechnik GmbH

[6] Address: Ernst-Heinkel-Straße 8-10
D-57299 Burbach

[7] The equipment mentioned in [4] and any acceptable variation thereto are specified in the schedule to this EC-Type Examination Certificate.

[8] IBExU Institut für Sicherheitstechnik GmbH, NOTIFIED BODY number 0637 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 intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The test results are recorded in the test report IB-03-3-698 of 16 February 2004.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 50014:1997 +A1, +A2, EN 50019:2000 and EN 50281-1-1:1999.

[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 under [17] in the schedule to this EC-Type Examination Certificate.

[11] This EC-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this directive apply to the manufacture and supply of this equipment.

[12] The marking of the equipment mentioned in [4] shall include the following:

Ex II 2 G EEx e II T6 ... T2 **Ex II 2 D TX IP 65**

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Phone: 00493731 3805-0 - Fax: 00493731 23650

Authorised for certifications
-Explosion protection-

By order

(Dr. Lösch)

Zertifizierungsstelle Explosionsschutz IBExU Institut für Sicherheitstechnik GmbH Kenn-Nr. 0637

- Seal-
(ID no. 0637)

Freiberg, 16 February 2004

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Schedule

[13] **Schedule**

[14] **to the EC-TYPE EXAMINATION CERTIFICATE IBExU04ATEX1004 X**

[15] **Description of equipment**

The Temperature sensors of series ELTF-PTEx are intended for use in potentially explosive atmospheres.
They consist of a measuring resistor inside of a metallic protection pipe and a shielded sensor cable grouted with the protection pipe. The measuring resistor is casted and placed in the pipe by means of heat-conduction paste. The connection is carried out with a separate, certified Ex terminal compartment.

Operating temperature range: -45 °C up to +235 °C

Maximum permitted Operating temperature:
T6 ≤ 80 °C T5 ≤ 95 °C T4 ≤ 130 °C T3 ≤ 195 °C T2 ≤ 235 °C
The maximum surface temperature TX corresponds to the operating temperature.

Electrical data

- Max. measuring voltage: 1,3 V at use in T6 and T5
  1,5 V at use in T4
  1,7 V at use in T3 and T2
- Max. measuring current: 10 mA
- Temperature sensor: Pt 100 according to DIN EN 60751
- Degree of protection: IP 65 according to EN 60529

Further details are specified in the test documents which are part of the test report.

[16] **Test report**

The proof of explosion protection is recorded in detail in the test report IB-03-3-698 of 16 February 2004.

Summary of the test results:
The Temperature sensors of series ELTF-PTEx fulfil the requirements of explosion protection for electrical apparatus of explosion protection for equipment group II and equipment category 2G, type of protection Increased safety as well as equipment category 2D by application of the type of protection „Protected by enclosure".

Safety instructions

- The permissible cable temperature of 240 °C during construction and operation must not be exceeded.
- The electrical data must not be exceeded by the supply unit. The sensor has to be connected in the equipotential bonding in accordance with the specifications in the instructions.

[17] **Special conditions for safe use**

- The connection of the free cable end of the temperature sensor must be carried out either outside of the potentially explosive atmosphere or in a terminal compartment, which is certified in a standardized type of protection according to EN 50014, section 1.2.
- The maximum permissible operating temperatures for the respective temperature class according to [15] must not be exceeded.
- The cable has to be laid protected and installed fixed.
- The Temperature sensor ELTF-PTEx.1 must be installed and operated mechanical protected in accordance with EN 50014:2000 according to the low risk of mechanical danger.

[18] **Essential Health and Safety Requirements**

Confirmed by compliance of standards (see [9]).

By order

(Dr. Lösch)

Freiberg, 16 February 2004

[1] **1st Addition to**
EC-TYPE EXAMINATION CERTIFICATE IBExU04ATEX1004 X
(Translation)

[2] Equipment: Temperature sensor

a) Types corresponding to IBExU04ATEX1004 X:
ELTF-PTEx.1 and ELTF-PTEx.2

b) Added types: ELTF-PTEx.3 and ELTF-PTEx.4

[3] Manufacturer: eltherm Elektrowärmetechnik GmbH

[4] Address: Ernst-Heinkel-Straße 6 - 10
57299 Burbach
GERMANY

[5] **Additions/Modifications**

The Additions/Modifications to the equipment mentioned under [2] compared to the already certified equipment concern in detail:

a) The completed temperature sensors contain 2 measuring resistances and a 6-wire connection cable.

b) The Temperature sensors correspond also to the requirements of standards series EN 60079-0 and EN 61241-0.

Types:

ELTF-PTEx.1	Material 1.4571, 50 mm x Ø 5 mm with 1 piece Pt100 (four-conductor)
ELTF-PTEx.2	Material 1.4301, 47 mm x 6 mm x 6 mm with 1 pieces Pt100 (four-conductor) (with protection hanger and fastening hole Ø 4 mm)
ELTF-PTEx.3	Material 1.4571, 50 mm x Ø 5 mm with 2 pieces Pt100 (three-conductor)
ELTF-PTEx.4	Material 1.4301, 47 mm x 6 mm x 6 mm with 2 pieces Pt100 (three-conductor) (with protection hanger and fastening hole Ø 4 mm)

All other parameters are unchanged.

[6] **Test report**

The proof of explosion protection for the Additions mentioned under [5] is recorded in the test report IB-08-3-125 of 17th July 2008. The test documents are part of the test report and listed there.

[7] **Test result**

IBExU certifies that the equipment mentioned under [2] fulfils the Essential Health and Safety Requirements given in Annex II of the Directive 94/9/EC in compliance with EN 60079-0:2006, EN 60079-7:2007, EN 61241-0:2006 and EN 61241-1:2004.

The equipment mentioned under [2] fulfils the requirements of explosion protection for equipment of Group II, Category 2G, type of protection Increased safety. Furthermore the requirements for equipment of the Group II, Category 2D, type of protection Protection by enclosures, are fulfilled.

The marking of the equipment mentioned under [2] shall include the following:

⟨Ex⟩ II 2G Ex e II T6 ... T2

⟨Ex⟩ II 2D Ex tD A21 IP65 TX

[8] **Special conditions**

- The operating temperatures maximum permissible for the respective temperature class are 5 K respectively at simultaneous use of two measuring resistances 10 K lower than the maximum surface temperatures mentioned under clause 5.3.2.2 in the EN 60079-0.
- The cable has to be laid protected and installed tightly.
- In accordance with EN 60079:0 the Temperature sensors ELTF-PTEx.1 and ELTF-PTEx.3 must be installed and operated mechanically protected according to the low level of mechanical danger.

This Addition is only valid in combination with the EC-Type Examination Certificate IBExU04ATEX1004 X of 16th February 2004.

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Authorised for certifications
-Explosion protection-

By order

(Dr. Lösch)

Zertifizierungsstelle Explosionsschutz IBExU Institut für Sicherheitstechnik GmbH Kenn-Nr. 0637
- Seal -
(ID no. 0637)

Freiberg, 17th July 2008

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IBExU Institut für Sicherheitstechnik GmbH

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[1] **2nd Addition to**
EC-TYPE EXAMINATION CERTIFICATE IBExU04ATEX1004 X
according to Directive 94/9/EC, Annex III
(Translation)

[2]	Equipment:	**Temperature sensor** Types ELTF-PTEx.1, ELTF-PTEx.2, ELTF-PTEx.3 and ELTF-PTEx.4
[3]	Manufacturer:	eltherm GmbH
[4]	Address:	Ernst-Heinkel-Straße 6 - 10 57299 Burbach GERMANY

[5] **Additions/Modifications**

The Additions/Modifications to the equipment mentioned under [2] compared to the already certified equipment concern in detail:

The Temperature sensors correspond also to the requirements of the newest standards.
All other parameters are unchanged.

[6] **Test report**

The proof of explosion protection for the Additions mentioned under [5] is recorded in the test report IB-11-3-258 of 6 December 2011. The test documents are part of the test report and listed there.

[7] **Test result**

IBExU certifies that the equipment mentioned under [2] fulfils the Essential Health and Safety Requirements given in Annex II of the Directive 94/9/EC in compliance with IEC 60079-0:2011, EN 60079-7:2007 and EN 60079-31:2009.

The equipment mentioned under [2] fulfils the requirements of explosion protection for equipment of Group II, Category 2G, type of protection Increased safety. Furthermore the requirements for equipment of the Group II, Category 2D, type of protection Protection by enclosures, are fulfilled.

The marking of the equipment mentioned under [2] shall include the following:

Ex II 2G Ex e IIC T6 ... T2 Gb
Ex II 2D Ex tb IIIC TX Db

This addition is only valid in connection with the EC-Type Examination Certificate IBExU04ATEX1004 X of 16 February 2004 and the 1st addition of 17 July 2008.

The special conditions mentioned in the EC-Type Examination Certificate have to be taken into account furthermore.

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Authorised for certifications
-Explosion protection-

By order

Wagner

(Dr. Wagner)

Zertifizierungsstelle Explosionsschutz IBExU Institut für Sicherheitstechnik GmbH Kenn-Nr. 0637

- Seal -
(ID no. 0637)

Freiberg, 6 December 2011

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