Physical Technical Testing Institute

Ostrava-Radvanice

EC-Type Examination Certificate

(1)

(2) **Equipment or Protective Systems Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

(3) EC-Type Examination Certificate Number:

FTZÚ 08 ATEX 0153X

(4) Equipment or protective system: **Temperature sensors series XI - ..... -.**

(5) Manufacturer: **Termoaparatura Wrocław**

(6) Address: **ul. Rzemieślnicza 4, Zębice, 55-010 Swięta Katarzyna, Poland**

(7) This equipment or protective system and any of acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physical Technical Testing Institute, notified body number 1026 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, 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 confidential Report N°

08/0153 dated 25 November 2008

(9) Compliance with Essential Health and safety requirements has been assured by compliance with:

EN 60079-0:2006; EN 60079-11:2007; EN 60079-26:2004;
EN 61241-0:2006; EN 61241-1:2004; EN 50303 : 2000

(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 testing of the specified equipment or protective system in accordance to the directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

(12) The marking of the equipment or protective system shall include following:

II 1/2G Ex ia IIC T6-T1 resp. Ts (450°C ≤ Ts ≤ 1200°C)

II 1D Ex ia tD A20 IP 65 Ts (85°C ≤ Ts ≤ 1200°C)

I M1 Ex ia I

This EC-Type Examination Certificate is valid till: **26. 11. 2013**

Responsible person: Date of issue: 26 of November 2008

Dipl. Ing. Šindler Jaroslav
Head of certification body

PHYSICAL-TECHNICAL TESTING INSTITUTE FTZÚ Ex AO 210 NB 1026

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(13) **Schedule**

(14) # EC-Type Examination Certificate N° FTZÚ 08 ATEX 0153X

(15) Description of Equipment or Protective System:

The temperature sensor consists of a measuring probe, which contain (at its end) an one or two sensing resistors and/or an one or two thermocouples. The second end of the measuring probe is provided with electric terminals protected by a sensor head type XE-DANA... or type XE-DAND... or XE-BE.... . The measuring probe can be protected by additional measure resistant at certain process conditions.

The sensor heads were approved by separate certificate FTZÚ 03 ATEX 0073U (XE-DANA), 04 ATEX 0264U (XE-DAND) and FTZÚ 06 ATEX 0254U (XE-BE).

Inside of sensor head could be a ceramic terminal board and/or a measuring transducer, which must be separately certified according to Directive 94/9/EC. If the temperature measurement are applied in pressure vessel, the pressure tests must be carried out with built-in sensor well.

Technical parameters:

1. Range of temperature measurement:
   -200 °C to +550 °C for resistor sensor
   -40 °C to +1200 °C for thermocouples
2. Sensors without transducer
   Ambient temperature: T_a – 40°C to + 75°C (for temperature class T6 and process fluid temperature $T_p \leq 75°C$)
3. Maximum input parameters
   $U_i = 3$ V for resistor sensors
   $U_i = 10$ V; $I_i = 200$ mA for thermocouples
4. Sensors with transducer
   The ambient temperature and temperature class and surface temperature depend on used transducer type and process fluid temperature.

(16) Report No.: 08/0153 (34 pages)

Responsible person:

Dipl. Ing. Šindler Jaroslav
Head of certification body

PHYSICAL-TECHNICAL TESTING INSTITUTE FYZIKÁLNÍ TECHNICKÝ ZKUŠEBNÍ ÚSTAV FTZÚ Ex AO 210 NB 1026

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(13) **Schedule**

(14) **EC-Type Examination Certificate N° FTZÚ 08 ATEX 0153X**

(17) Special conditions for safe use: -

17.1 For sensor without transducers or application of transducer without galvanic separation, the equalisation of ground potential between sensor and earth point of Zener barrier must be carried out.

17.2 If transducer with galvanic separation is used, the equalisation of potential is not necessary.

17.3 The sensing part of the sensor has a surface temperature equal to process fluid temperature and so this fact is decisive for temperature class (for T6 to T1) or maximum surface temperature Ts.

17.4 When process temperature is above 450°C it is necessary to indicate the maximum surface temperature Ts equal to maximum measuring range of the sensor (maximum measuring range mustn't be exceeded).

17.5 The surface temperature of sensor head depends on sensor type, installation method, process temperature, ambient temperature and power dissipation of applied transducer. It must be determined individually after its installation and mustn't exceed permitted sensor head Tserv, the transducer and also ignition temperature of explosive gas atmosphere and/or exceed 2/3 Tcl – ignition temperature of dispersed dust.

17.6 The temperature of the others sensor surfaces, that are in contact with explosive atmosphere must be determined individually after installation on site and mustn't exceed ignition temperature of explosive gas atmosphere and/or exceed 2/3 Tcl – ignition temperature of dispersed dust.

17.7 Surface temperature of the sensor covered by excessive dust layer mustn't exceed ignition temperature Tmax determined in accordance with Annex B of EN 61241-10 in dependence on a thickness of the layer

(18) Essential Health and Safety Requirements:
Essential health and safety requirement of Directive 94/9/EC are covered by standards mentioned in (9), according which the product was verified and in manufacturer's instruction for use.

Responsible person:

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Head of certification body

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(13) **Schedule**

(14) **EC-Type Examination Certificate N° FTZÚ 08 ATEX 0153X**

(19) **LIST OF DOCUMENTATION**

Documentation:

1. Instruction of use M-0801 — 24.11.2008
2. Catalogue of the temperature sensors for hazardous areas C-0801 — 24.11.2008

3. Drawings No.:	*Date of verification:*	3. Drawings No.:	*Date of verification:*
PR-026-08	25.11.2008	PR-046-08	25.11.2008
PR-027-08	25.11.2008	PR-047-08	25.11.2008
PR-028-08	25.11.2008	PR-048-08	25.11.2008
PR-029-08	25.11.2008	PR-049-08	25.11.2008
PR-030-08	25.11.2008	PR-050-08	25.11.2008
PR-031-08	25.11.2008	PR-051-08	25.11.2008
PR-032-08	25.11.2008	PR-052-08	25.11.2008
PR-033-08	25.11.2008	PR-053-08	25.11.2008
PR-034-08	25.11.2008	PR-058-08	25.11.2008
PR-035-08	25.11.2008	PR-059-08	25.11.2008
PR-036-08	25.11.2008	PR-060-08	25.11.2008
PR-037-08	25.11.2008	PR-061-08	25.11.2008
PR-038-08	25.11.2008	PR-062-08	25.11.2008
PR-039-08	25.11.2008	PR-063-08	25.11.2008
PR-040-08	25.11.2008	PR-064-08	25.11.2008
PR-041-08	25.11.2008	PR-065-08	25.11.2008
PR-042-08	25.11.2008	PR-066-08	25.11.2008
PR-043-08	25.11.2008	PR-067-08	25.11.2008
PR-044-08	25.11.2008	PR-068-08	25.11.2008
PR-045-08	25.11.2008	PR-069-08	25.11.2008
		PR-070-08	25.11.2008

4. Certificate FTZÚ 03 ATEX 0073U (3 pages) — on 27.06.2003
5. Supplement No. 1 to Certificate FTZÚ 03 ATEX 0073U (2 pages) — on 29.10.2004
6. Supplement No. 2 to Certificate FTZÚ 03 ATEX 0073U (3 pages) — on 08.11.2007
7. Certificate FTZÚ 04 ATEX 0264U (3 pages) — on 29.10.2004
8. Supplement No. 1 to Certificate FTZÚ 04 ATEX 0264U (2 pages) — on 12.07.2006
9. Supplement No. 2 to Certificate FTZÚ 04 ATEX 0264U (3 pages) — on 08.11.2007
10. Certificate FTZÚ 06 ATEX 0254U (3 pages) — on 29.10.2007

Responsible person:

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