AC 038

KDB ATEX

[1] # EC-TYPE EXAMINATION CERTIFICATE

[2] Equipment, protective systems and components intended for use in potentially explosive atmospheres - Directive 94/9/EC

[3] EC – type examination certificate:

KDB 06ATEX260

[4] Equipment or protective system:

Temperature sensors of type CT…..., CT XX…., AP CT …

[5] Manufacturer:

Aplisens – Produkcja
Przetworników Ciśnienia i Aparatury Pomiarowej
Sp. z o.o.

[6] Address:

ul. Morelowa 7, 03-192 Warszawa

[7] This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] Główny Instytut Górnictwa, Notified Body number 1453 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, certifies that this equipment and 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 KDB No. 06.217 [T-5869]

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014:1997/A2:1999, EN 50020:2002
EN 50281-1-1:1998/A1:2002, 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 and construction of the specified equipment and protective system in accordance with Directive 94/9/EC.
Further requirements of the Directive may 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 the following:

Ex II 1/2G D EEx ia IIC T6* T75°C*

*** temperature class of a sensor dependent on the temperature of a measured medium**

Date of issue: 16.10.2006

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KIEROWNIK
Zespołu Certyfikacji Wyrobów
KD "BARBARA" Mikołów
doc. dr hab. inż. Krzysztof Cybulski

[13] # SCHEDULE

[14] **EC-Type Examination Certificate KDB 06ATEX260**

[15] **Description:**

Industrial temperature sensors with replaceable measuring elements in connection with control instruments enable remote measuring, recording, and controlling liquids , vapors and gases temperature in range from -200°C to 900°C. The measuring units of sensors are thermometer resistors or thermocouples.

An industrial temperature sensor type CT .... consists of a dust- and splash-proof head made of light alloy, an outer steel cover and a replaceable measuring element is placed inside the outer cover.

Measuring elements may be single or double: depending on manufacturing, a thermoelectric element may have a measuring junction isolated from a cover of insert or connected with it.

The manufacturer plans to produce the following types of sensors:
CT1 – 2 3 – 4 5 6 7 – 8/EExia

1. Cover type according to the catalogue: I4 - I6 - I8; GB1; GB2, GE1, GN1, GN2, G1, T1, SW1, SW2; P1; X
2. Length of the cover – according to the order [mm]
3. Screw of connector - according to the catalogue
4. Type and multiplicity of transformation element
   - Platinum thermometer resistor : PT, 2xPT
   - Fe –Constantan thermocouple: J, 2xJ
   - NiCr-NiAl thermocouple: K, 2xK

5. Class of the measuring element
   - for Pt 100: A; B; 1/3DIN B
   - for Thermocouple: 1 or 2
6. Connection with the measuring element 2-, 3-or 4-wire

7. Type of a measuring junction

   - isolated from a cover: O;
   - isolated from a cover but shorted each other – 2 measuring circuits: P (double connections with a measuring junction);
   - grounded : Z;

8. Additional information
/EExia intrinsically safe type

Produced type of sensor: AP-CT ...– it means that instead of a cube clamp, a 4-20 mA intrinsically safe measuring temperature transmitter, which has the manufacturer's declaration of conformity with the Directive 94/9/WE (94/9/CE), was applied in the cover.

Główny Instytut Górnictwa w Katowicach Jednostka Certyfikująca Zespół Certyfikacji Wyrobów KD „Barbara"

[13] # SCHEDULE

[14] **EC-Type Examination Certificate KDB 06ATEX260**

[15] **Description : continued**

Technical data:

Thermometric characteristics of the thermoelectric sensor	according to the PN-EN 60584:1997
Thermometric characteristics of the resistance sensor	according to the PN-EN 60751:1997
Quantity of measuring elements	1 or 2
Cover material	15 HM, 1H18N9T, H25N20S2, 316, 10H2M
Length to dip	80-3 000 mm
4 – 20mA temperature transmitter	Optional, only with-head version, applicable in the explosive conditions, – Directive 94/9/WE (94/9/CE); corresponding in size with a cube clamp jointly with head.
Ambient temperature	-20 + 60°C
Ingress protection of a head	IP65 according to the PN-EN 60529:2003 except for a version without head
Level protection of a electrical device according to the PN-EN 50020:2005	ia
Gas group according to the PN-EN 50020:2005	IIC
Temperature class according to the PN-EN 50020:2005	T6*
* sensor's temperature class dependent on the medium temperature being measured	
Parameters of the intrinsically safe:	
Single thermocouple: Clamp: 1-2 Double thermocouple Clamp: 1-2, 3-4	Uo=10V, Io=10mA, Po=100mW, Co=3µF (sensor with the single thermocouple) Lo = 0,9 µF (sensor with the double thermocouple) Lo =100mH
2-wire single thermometer resistor Clamp 1-2 2-wire double thermometer resistor Clamp: 1-2 i 3-4 3-wire single thermometer resistor Clamp: 1-2-3 3-wire double thermometer resistor Clamp: 1-2-3 i 4-5-6 4-wire single thermometer resistor Clamp: 1-2-3-4	Ui=10V, Ii=10mA, Pi=100mW, Ci=1000pF Li=0, in case of sensors equipped in 2 measuring elements, it is to assume their galvanic connection (coupling)

Główny Instytut Górnictwa w Katowicach Jednostka Certyfikująca Zespół Certyfikacji Wyrobów KD "Barbara" Mikołów

[13] # SCHEDULE

[14] **EC-Type Examination Certificate KDB 06ATEX260**

[16] **Test report:**

Report KDB No 06.217

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

- None

[18] **Essential health and safety requirements:**
Met by compliance with standards listed in section 9. of this Certificate.

[19] **Descriptive documents:**

Przemysłowe czujniki temperatury w wykonaniu iskrobezpiecznym / Exia
Instrukcja Użytkowania.
Czujniki temperatury – rezystancyjne i termoelektryczne - wykonanie CT-A001-TA-ATEX

[1]

SUPPLEMENT No 1
to EC-TYPE EXAMINATION CERTIFICATE
KDB 06ATEX260X

[2] Equipment, protective systems and components intended for use in potentially explosive atmospheres - Directive 94/9/EC

[3] Equipment and protective system:

Industrial temperature sensors
Type CT...,CT X..., CT CL
intrinsically safe type of protection

[4] Manufacturer:

APLISENS S.A. - Produkcja Przemysłowej Aparatury Pomiarowej i Elementów Automatyki

[5] Address:

ul. Morelowa 7, 03-192 Warszawa

[6] Changes were introduced to design or construction of component in accordance with the specification set out in the Schedule attached to this certificate and the documents therein referred to.

This document shall be held with the original Certificate.

The examination and test results are recorded in confidential report KDB No. 09.151 [T-5869]

[7] Marking:

II 1/2 G D EEx ia II C T6* T75°C*

* temperature class/temperature of a sensor depends on the temperature of a measured medium

[8] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2006; *(PN-EN 60079-0:2009);*
EN 60079-11:2007; *(PN-EN 60079-11:2007);*
EN 50303:2000; *(PN-EN 50303:2004);*
EN 61241-0:2006; *(PN-EN 61241-0:2007);*
EN 61241-11:2006; *(PN-EN 61241-11:2007);*

[9] The marking will change to:

I M1 Ex ia I or
II 1/2 G Ex ia IIC T6*
II 1 D Ex ia D 20 T75°C*

Specjalista ds. Certyfikacji Urządzeń Przeciwwybuchowych
dr inż. Michał Górny

Główny Instytut Górnictwa w Katowicach Jednostka Certyfikująca Zespół Certyfikacji Wyrobów KD "Barbara"

KIEROWNIK Zespołu Certyfikacji Wyrobów KD "BARBARA" Mikołów
dr hab. inż. Krzysztof Cybulski, prof. GIG

Date of issue: 11.08.2009
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Product certification progam no: PCW-ISO/IEC-1b
CODE ICS 13.230

[10] # SCHEDULE

[11] **Supplement no 1 to EC-Type Examination Certificate KDB 06ATEX260X**

[12] **Description of the variation to the equipment or protective system:**

- the type series of intrinsically safe industrial temperature sensors type CT..., CT X..., and AP-CT... has been expanded;
- the sensors have been structured and grouped by applicability in the explosion hazard Groups I and II;
- analysis of compliance has been carried out against: EN 60079-0:2006, EN 60079-11:2007, EN 50303:2000, EN 61241-0:2006, EN 61241-11:2006;
- the technical parameters have been corrected to as follows:

The sensor design allows interchangeable use of the terminal block with an intrinsically safe measuring transducer, e.g. 4 to 20 mA which has been declared by the manufacturer to comply with the ATEX Directive 94/9/EC.

Technical parameters:

Two-wire single thermoresistors:
terminals 1 - 2;

Two-wire double thermoresistors:
terminals 1 - 2 and 3 - 4;

Three-wire single thermoresistors:
terminals 1 - 2 - 3;

Three-wire double thermoresistors:
terminals 1 - 2 - 3 and 4 - 5 - 6;

Four-wire single thermoresistors:
terminals 1 - 2 - 3 - 4;

U_i=30V, I_i=10mA, P_i=100mW, C_i=1000pF, L_i~0;
The sensors with 2 measuring elements have the circuits galvanically connected.

-ambient temperature: -25°C ÷ 75°C,

- requirements for use have been introduced;
- the device name has been changed to: "Intrinsically safe industrial temperature sensors type CT..., CT X..., CT CL...".

[10] # SCHEDULE

[11] **Supplement no 1 to EC-Type Examination Certificate KDB 06ATEX260X**

[13] **Special conditions for safe use:**

The maximum surface temperature shall be determined at the installation site of the device, with consideration of the temperature values of the measured medium, the ambient temperature, and the power dissipated by the optional transducer installed in the sensor head. The temperature value shall not exceed:

- the operating temperature of the sensor head and the transducer installed there in;
- the auto-ignition temperature of the explosive atmosphere around the device;
- 2/3 of the auto-ignition temperature of the dust cloud, where the sensor surface temperature must be below the dust auto-ignition temperature acc. to Annex B to PN-EN 61241-10.

The sensor in which the measuring element is galvanically connected with the enclosure shall be powered from an intrinsically safe power supply line with galvanic separation of the ground.

The housing of the sensor indicated CT Z1…, intended for the explosion hazard Group II shall bear the warning plate which reads: "Do not rub with dry cloth!".

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AC 038

INTERNATIONAL IAF ACCREDITATION FORUM

KDB 06ATEX260X

[1] # SUPPLEMENT No 2
to EC-TYPE EXAMINATION CERTIFICATE
KDB 06ATEX260X

[2] Equipment, protective systems and components intended for use in potentially explosive atmospheres - Directive 94/9/EC

[3] Equipment:

Industrial temperature sensors
type: CT..., CT X..., CT CL
intrinsically safe type of protection

[4] Manufacturer:

APLISENS S.A.

[5] Address:

ul. Morelowa 7, 03-192 Warszawa, POLAND

[6] Changes were introduced to design or construction of component in accordance with the specification set out in the Schedule attached to this certificate and the documents therein referred to.

This document shall be held with the original Certificate.

The examination and test results are recorded in confidential report KDB No. 09.151-1 [T-5869]

[7] Marking:

I M1 Ex ia I or
II 1/2G Ex ia IIC T6*
II 1D Ex iaD 20 T75*

[8] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012; *(PN-EN 60079-0:2013);*
EN 60079-11:2012; *(PN-EN 60079-11:2012);*
EN 60079-26:2007 *(PN-EN 60079-26:2007);*
EN 50303:2000; *(PN-EN 50303:2004);*

[9] The marking will change to:

I M1 Ex ia I Ma or
II 1/2 G Ex ia IIC T6* Ga/Gb
II 1D Ex ia IIIC T75°C* Da

* temperature class/temperature of a sensor depends on the temperature of a measured medium

Specjalista ds. Certyfikacji
Urządzeń Przeciwwybuchowych
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Główny Instytut Górnictwa w Katowicach
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Product certification progam no: PCW-ISO/IEC-1b
CODE ICS 13.230

[10] # SCHEDULE

[11] **Supplement no 2 to EC-Type Examination Certificate KDB 06ATEX260X**

[12] **Description of the variation to the equipment or protective system:**

Device has been adopted to requirements of the new edition of standards. The marking, output parameters and special conditions for safe use have been changed.

Technical data:

Single thermocouples: terminals 1-2 Double thermocouples: terminals: 1-2, 3-4	Ui= 30V, Ii=10mA, Pi= 100mW, Ci= 1000pF, Li~0. In the case of the sensors with 2 or more measuring elements, treat the sensor circuits as galvanically connected.
Two-wire single thermoresistors: terminals 1-2 Two-wire double thermoresistors: terminals: 1-2 and 3-4 Three-wire single thermoresistors: terminals: 1-2-3 Three-wire double thermoresistors: terminals: 1-2-3 and 4-5-6 Four-wire single thermoresistors: terminals: 1-2-3-4	
Ambient temperature	-40 ÷ 75°C

[13] **Special conditions for safe use:**

Determine the maximum surface temperature at the device installation site. Consider the temperature of the measured medium, the ambient temperature and the power dissipated by the head-mounted transducer.
The maximum temperature must not exceed the following values:

- The head and transducer service temperature
- Minimum explosive gas atmospheres ignition
- The maximum sensor surface in contact with the dust cloud must not exceed 2/3 of the minimum dust cloud ignition temperature. The maximum sensor surface temperature for a dust layer must not exceed of the minimum dust layer ignition accordance with the requirements EN 60079-14.

The sensor with the measuring element galvanically coupled with the enclosure shall be feature an intrinsically safe power supply line with galvanic separation of the earth (ground).
The housing of the sensors designated CT Z1..., (intended for the explosion hazard group II) shall bear the warning plate which reads: "Electrostatic hazard - see instruction"

Główny Instytut Górnictwa w Katowicach Jednostka Certyfikująca Zespół Certyfikacji Wyrobów KD "Barbara"

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AC 038

[1] **SUPPLEMENT No 3**
to EC-TYPE EXAMINATION CERTIFICATE
KDB 06ATEX260X

[2] Equipment, protective systems and components intended for use in potentially explosive atmospheres - Directive 94/9/EC

[3] Equipment:

Industrial temperature sensors
type: CT..., CT X..., CT CL
intrinsically safe type of protection

[4] Manufacturer:

APLISENS S. A. – Produkcja
Przemysłowej Aparatury Pomiarowej i Elementów
Automatyki

[5] Address:

ul. Morelowa 7, 03-192 Warszawa

[6] Changes were introduced to design or construction of equipment in accordance with the specification set out in the Schedule attached to this certificate and the documents therein referred to.

This document shall be held with the original Certificate.

The examination and test results are recorded in confidential report KDB No. 09.151-2 [T-5869]

[7] Marking:

Ex **I M1 Ex ia I Ma** or

Ex **II 1/2 G Ex ia IIC T6* Ga/Gb**
II 1D Ex ia IIIC T75°C* Da

[8] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50303:2000; *(PN-EN 50303:2004);*
EN 60079-0:2012 + A11:2013; *(PN-EN 60079-0:2013-03 + A11:2014-03);*
EN 60079-11:2012; *(PN-EN 60079-11:2012);*
EN 60079-26:2007; *(PN-EN 60079-26:2007);*

[9] The marking will be changed to:

Ex **I M1 Ex ia I Ma** or

Ex **II 1/2 G Ex ia IIC T6..T1 Ga/Gb**
II 1D Ex ia IIIC T75°C Da

Specjalista ds. Certyfikacji Urządzeń Przeciwwybuchowych
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[10] # SCHEDULE

[11] **Supplement no 3 to EC-Type Examination Certificate KDB 06ATEX260X**

[12] **Description of the variation to the equipment:**

The manufacturer had updated the device to the requirements of the standards listed in section 8 of this document, and also updated the documentation and parameters of the sensors, according to the following table.

Technical data:

Sensors type: - CT..., CT CL...: Ui=30V, Ii=101mA, Pi=750mW, Ci~0, Li~0. - CT X...: Ui=30V, Ii=101mA, Pi=750mW, Ci=280pF/m, Li=15µH/m.
The thermal resistance of measuring inserts and enclosures: - measuring insert diameter 3,0 mm 110 K/W - measuring insert diameter 4,5 mm 75 K/W - measuring insert diameter 4,5 mm 60 K/W - enclosure diameter 6x1 mm 50 K/W - enclosure diameter 8x1 mm 35 K/W - enclosure diameter 9x1 mm 30 K/W - enclosure diameter 10x1,5 mm 25 K/W

[13] **Special conditions for safe use:**

Special conditions for safe use had been changed:

- The maximum surface temperature and / or the temperature class of the sensor need to be specified in the installation place of the sensor, according to the manual
- Warning - potential electrostatic charging hazard CTZ1 type sensor - see instruction.