



AC 038



KDB 06ATEX



Główny Instytut Górnictwa
Jednostka Certyfikująca
Zespół Certyfikacji Wytrobów
KD „Barbara”
ul. Podleska 72
43-190 Mikołów,
tel. (+48) 32 3246550
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www.gig.katowice.pl

This certificate and its
schedules may only be
reproduced in its entirety and
without change

[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 06ATEX426

[4] Equipment:

Sensing head SG-X/YZ

[5] Manufacturer:

**Z.B.P „SENSOR GAZ”
Andrzej Rejowicz**

[6] Address:

ul. Biskupa Burschego 7, 43-100 Tychy

[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 Nr 06.273 [T-5916]

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

EN 50014:2004+A1:1999+A2:1999; EN 50020:2002;

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 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:



I M1 EEx ia I

II 2G EEx ia II (CH₄)

Date of issue: 29.12.2006

Date of English version: 04.08.2016

KIEROWNIK Page 1 of 4
Zespołu Certyfikacji Wytrobów
KD „BARBARA” Mikołów

dr hab. inż. Krzysztof Ciołowski, prof. GIG

Specjalista ds. Certyfikacji
Urządzeń Przeciwwybuchowych

dr inż. Michał Górny





[13]

SCHEDULE

[14]

EC-Type Examination Certificate KDB 06ATEX426

[15] **Description:**

Sensing head SG-X/YZ is designed to detection and measure concentration of methane. Sensing head is manufacturer in two version:

1 - with only pellistors

2 - with pellistors and with electronic circuit and digital output

Sensing head is intended for use in underground parts of mines, and in those parts of surface installations of such mines, liable to be endangered by firedamp.

Inside the enclosure are mounted pellistors type PC-31xx and PC-32xx - Certificate KDB 04ATEX271U, marking: I Ma EEx ia I, II 2G EEx ia II (CH₄).

Technical parameters:

Maximum electrical parameters (connector HDR1):	U _i = 6.3V DC; P _i = 820mW; C _i = 15μF; L _i ≈ 0
Operating mode:	continuous, pulse
Ambient temperature:	-20°C ÷ +40°C
Degree of protection:	IP54

[16] **Test report:**

Report no KDB Nr 06.273

[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.





[13]

SCHEDULE

[14]

EC-Type Examination Certificate KDB 06ATEX426

[19] Descriptive documents:

Approval documentation No.: 1/11/06

November 2006

Drawings No.:

Sensing head SG-1		
The measuring chamber type SG -1	009.00-0/1	07.2006
Corps of SG-1	009.00-1/1	07.2006
Corps of SG-1	009.00-2/1	07.2006
Nut SG - 1	009.00-3/1	07.2006
Insert SG - 1	009.00-4/1	07.2006
Filter - net	009.00-5/1	07.2006
PCB SG - 1	009.00-6/1	07.2006
Mounting board SG - 1 drawing	009.00-7/1	07.2006
Filter FW/16	009.00-8/1	07.2006
Insert with filter	009.00-9/1	07.2006
Electrical diagram SG - 1	009.00-10/1	07.2006
Marking of sensing head SG - 1	009.00-11/1	07.2006
Sensing head SG-2		
Sensing head SG -2 type	010.00-0/1	07.2006
Korps SG - 2	010.00-1/1	07.2006
Korps SG - 2	010.00-2/1	07.2006
Nut SG - 2	010.00-3/1	07.2006
Insert SG - 2	010.00-4/1	07.2006
Teflon spacer 1 SG - 2	010.00-5/1	07.2006
Teflon spacer 2 SG - 2	010.00-6/1	07.2006
Filter - net	009.00-5/1	07.2006
Filter FW/16	009.00-8/1	07.2006
Insert with filter FW/16	009.00-9/1	07.2006
Electrical diagram of detector's board	010.00-7/1	07.2006



[13]

SCHEDULE

[14]

EC-Type Examination Certificate KDB 06ATEX426

Electrical diagram of processor's board	010.00-8/1	07.2006
Electrical diagram of sensing head SG - 2	010.00-9/1	07.2006
Detectors PCB	010.00-10/1	07.2006
Mounting drawing of detectors board	010.00-11/1	07.2006
PCB of processor	010.00-12/1	07.2006
Electrical diagram of processor's board	010.00-13/1	07.2006
List of elements	010.00-14/1	07.2006
Marking of sensing head SG - 1 SG - 2	010.00-15/1	07.2006

Attachments:

Explosion safety measures

Inspection certificate of stainless steel 316L

Technical data of Arathane Polyurethane Casting System (Arathane XB5620 Polyol/XB5610)

Inspection certificate of PTFE

Instruction:

Technological instruction No.: IT 005/1 11.2006

Technological instruction No.: IT 006/1 11.2006

Instruction of use No.: IO 004/1 11.2006

Instruction of use No.: IO 005/1 11.2006



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[1] **SUPPLEMENT No 01**
to EC-TYPE EXAMINATION CERTIFICATE
KDB 06ATEX426

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

[3] Equipment: **Sensing head SG-X/YZ**

[4] Manufacturer **Z.B.P „SENSOR GAZ” Andrzej Rejowicz**

[5] Address: **ul. Biskupa Burschego 7, 43-100 Tychy**

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.

[6] This document shall be held with the original Certificate.

The examination and test results are recorded in confidential report KDB Nr 06.273/1 [T-5916]

[7] Marking: **I M1 EEx ia I**
 **II 2G EEx ia II (CH₄)**

[8] Compliance with the Essentials 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);

[9] The marking will change to:
I M1 Ex ia I
 **II 2G Ex ia II (CH₄)**

Specjalista ds. Certyfikacji
Urządzeń Przewodzących

dr inż. Michał Górny



KIEROWNIK
Zespołu Certyfikacji WYROBÓW
KD „BARBARA” Mikołów
dr hab. inż. Krzysztof Czubala, prof. GIG

[10]

SCHEDULE

[11] **Supplement no 01 to EC-Type Examination Certificate WE KDB 06ATEX426**

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

There is no modification in the construction of the sensing head.

Additional tests were included assessment of conformity with requirements of EN 60079-0:2009 and EN 60079-11:2007 standards.

Technical parameters:

not changed.

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

not changed.





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AC 038



KDB 06ATEX



- [1] **SUPPLEMENT No 02**
to EC-TYPE EXAMINATION CERTIFICATE
KDB 06ATEX426
- [2] Equipment, protective systems and components intended for use in potentially explosive atmospheres – Directive 94/9/EC
- [3] Equipment:
Sensing head SG-X/YZ
- [4] Manufacturer
Z.B.P „SENSOR GAZ” Andrzej Rejowicz
- [5] Address:
ul. Przemysłowa 55, 43-100 Tychy

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.

- [6] This document shall be held with the original Certificate.

The examination and test results are recorded in confidential report KDB Nr 06.273-2 [T-5916]

- [7] Marking:
- I M1 Ex ia I**
II 2G Ex ia II (CH₄)

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

EN 60079-0:2009 (PN-EN 60079-0:2009);

EN 60079-11:2007 (PN-EN 60079-11:2010);

EN 50303:2000 (PN-EN 50303-2004);

- [9] The marking will not be changed.

Specjalist: ds. Certyfikacji
Urządzeń Przeciwwybuchowych

dr inż. Michał Górny

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Zespołu Certyfikacji WYROBÓW
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[10]

SCHEDULE

[11] **Supplement no 02 to EC-Type Examination Certificate WE KDB 06ATEX426**

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

In the sensing head SG-X/YZ - in variation of the SG-4/YZ - as detection elements pellistors type PC-4xxx, in varieties of PC-41xx and PC-42xx, are used. Pellistors are having EC type examination certificate KDB 11ATEX041U and marking I M1 Ex ia I; II 2G Ex ia II (CH₄).

Technical parameters:

Maximum voltage supply:	U _i = 10.0 V on the element
Maximum power:	P _i = 1.3 W
Operating mode:	continuous, pulse, or at the constant temperature
Ambient temperature:	-20°C ÷ +40°C

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

None





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[1]

**SUPPLEMENT No 03
to EC-TYPE EXAMINATION CERTIFICATE
KDB 06ATEX426**

[2]

Equipment, protective systems and components intended for use in potentially explosive atmospheres – Directive 94/9/EC

[3]

Equipment:

Sensing head SG-X/YZ

[4]

Manufacturer

Z.B.P „SENSOR GAZ” Andrzej Rejowicz

[5]

Address:

ul. Przemysłowa 55, 43-100 Tychy

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.

[6]

This document shall be held with the original Certificate.

The examination and test results are recorded in confidential report KDB Nr 06.273-3 [T-5916]

[7]

Marking:



I M1 Ex ia I

II 2G Ex ia II (CH₄)

[8]

Compliance with the Essentials Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012/A11:2013 (PN-EN 60079-0:2013+A11:2014-03);

EN 60079-11:2012 (PN-EN 60079-11:2012);

EN 50303:2000 (PN-EN 50303-2004);

[9]

The marking will change to:



I M1 Ex ia I Ma

II 2G Ex ia II (CH₄) Gb

Specjalista ds. Certyfikacji
Urządzeń Przeciwybuchowych

inż. Michał Górny

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Date of issue: 22.08.2014

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Page 1 of 3

[10]

SCHEDULE

[11] Supplement no 03 to EC-Type Examination Certificate WE KDB 06ATEX426

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

There is no modification in the construction of the sensing head SG-2/YZ. Technical parameters of SG-2/YZ have not been changed.

In a SG-1/YZ variation of the sensing head SG-X/YZ, the possibility of alternative use of printed circuit boards designed for the head SG-4/YZ was introduced. Technical parameters of this variety have not been changed.

In a SG-4/YZ variation of the sensing head SG-X/YZ two new printed circuits were used: one for the version with pins or ribbon cable, second for the version only with the ribbon cable. Technical parameters of this variety have not been changed.

A new variant of the sensing head with the symbol SG-4.3/YZ has been introduced, applying pellistors type PC-3xxx with new technical parameters $U_i = 10.0V$ and $P_i = 1.3 W$, certified KDB 04ATEX271U and with marks I M1 Ex ia I Ma and II 2G Ex ia II (CH4) Gb. In this embodiment circuit boards, as in SG-4/YZ, are used.

A new variant of the measuring chamber with the symbol SG-3 was introduced. In this variant were used pellistors type PC-3xxx with new technical parameters $U_i = 10.0V$ and $P_i = 1,3W$, certified KDB 04ATEX271U and with marks I M1 Ex ia I Ma and II 2G Ex ia II (CH4) Gb.

A new variant of the sensing head with the symbol SG-3.4. has been introduced. In this chamber have been used pellistors type PC-4xxx with technical parameters: $U_i = 10.0V$ and $P_i = 1.3 W$ certified, KDB 11ATEX041U and with marks I M1 Ex ia I and II 2G Ex ia II (CH4). Construction of Wheatstone bridge in this variety, as is in the SG-3. In a variation of SG-3 and SG-3.4 two new printed circuits were used: one for the version with pins or ribbon cable, second for the version only with the ribbon cable.

The construction of the bridge of high concentration of methane has been changed. The reference pellistor element in the Wheatstone bridge sensor branch has been replaced by the selected resistor. The compensative element acts as the measuring element of high concentration bridge. This acts like an indicator. Pellistor compensation element of the low concentrations bridge serves as the sensing element of the high concentrations bridge.

All varieties were analyzed for compliance with the editions of the standards: EN 60079-0:2012/A11:2013 (PN-EN 60079-0:2013+A11:2014-03) and EN 60079-11:2012 (PN-EN 60079-11:2012).

[10]

SCHEDULE

[11] Supplement no 03 to EC-Type Examination Certificate WE KDB 06ATEX426

Technical parameters:

Version: SG-3, SG-3.4, SG-4.3/YZ

Maximum voltage supply:	$U_i = 10.0 \text{ V}$ on the element
Maximum power:	$P_i = 1.3 \text{ W}$
Operating mode:	Continuous, pulse, or at the constant temperature
Ambient temperature:	$-20^\circ\text{C} \div +40^\circ\text{C}$

[13] Special conditions for safe use:

None

