GIG

PCA POLSKIE CENTRUM AKREDYTACJI CERTYFIKACJA WYROBÓW

AC 038

INTERNATIONAL ACCREDITATION FORUM IAF

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 14ATEX0004X**

[4] Equipment:

**Smart Pressure Transmitter type DPC-2000ALW**
**Smart Differential Pressure Transmitter type DPR-2000ALW and DPR-2200ALW**
**Smart Level Probe type DPR-2000YALW**

[5] Manufacturer:

**DELTA CONTROLS LTD.**

[6] Address:

**Island Farm Avenue, West Molesey, Surrey KT8 2UZ, United Kingdom**

[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. 14.005 [T-7123]

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

EN 60079-0:2012; EN 60079-1:2007; EN 60079-11:2012; EN 60079-26:2007; EN 60079-31:2009;

[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 shall include the following:

Ex **I M2 Ex d ia I Mb**
**II 1/2G Ex ia/d IIC T6/T5 Ga/Gb**
**II 1/2D Ex ia/t IIIC T85°C/T100°C Da/Db**
or
Ex **II 1/2G Ex ia/d IIC T6/T5 Ga/Gb**
**II 1/2D Ex ia/t IIIC T85°C/T100°C Da/Db**

Główny Instytut Górnictwa
Jednostka Certyfikująca
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43-190 Mikołów,
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'roduct certification program no: PCW-ISO/IEC-1b
CODE ICS 13.230

Specjalista ds. Certyfikacji Urządzeń Przeciwwybuchowych
dr inż. Michał Górny

Date of issue: 23.01.2014

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

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

13 **SCHEDULE**

14 **EC-Type Examination Certificate KDB 14ATEX0004X**

[15] **Description:**

The Smart Pressure Transmitter type DPC-2000ALW are designed to measure gauge pressure, vacuum pressure and absolute pressure of gases, vapours and liquids. The Smart Differential Pressure Transmitter type DPR-2000ALW and DPR-2200ALW are designed to measure differential pressure across constrictions. The Smart Level Probe type DPR-2000YALW are designed to measure liquid levels in closed tanks. The transmitter consists of a housing, sensing probe with process connection, measuring sensor and electronic module converting the signal from measuring sensor into unified amplified output signal. The transmitter housing is a flameproof enclosure made of aluminium alloy with a baked epoxy paint finish or steel (316). The housing consists of a main enclosure, two electrical threaded entries and two screwed access covers (one of which is equipped with a glass window). Inside the enclosure is mounted electronics with galvanically separated intrinsically safe sensor circuit with a level of protection ia.

Marking:

version with steel enclosure:

Ex I M2 Ex d ia I Mb
II 1/2G Ex ia/d IIC T6/T5 Ga/Gb
II 1/2D Ex ia/t IIIC T85°C/T100°C Da/Db

version with aluminium alloy enclosure:

Ex II 1/2G Ex ia/d IIC T6/T5 Ga/Gb
II 1/2D Ex ia/t IIIC T85°C/T100°C Da/Db

Marking T6 and T85°C applies to range -40°C < Ta ≤ 45°C.
Marking T5 and T100°C applies to range -40°C < Ta ≤ 75°C.

**Technical parameters:**

| | |
|---|---|
| Power supply | 13,5 ÷ 45 VDC |
| Measuring range | DPC-2000ALW: 100MPa<br>DPR-2000ALW, DPR-2200ALW: -160kPa ÷ 7MPa<br>DPR-2000YALW: 0÷10 $mH_2O$ |
| Degree of protection | IP67/66 |
| Output Signac | 4 ÷ 20 mA |

[16] **Test report:**

Sprawozdanie KDB Nr 14.005

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

# SCHEDULE

## EC-Type Examination Certificate KDB 14ATEX0004X

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

- When replacing parts within the enclosure use only those specified in the descriptive documentation
- The permitted gap of flameproof cylindrical joint, marked in the documentation as L4, is smaller than the one specified in EN 60079-1:2007 and shall not exceed the values specified in the manufacturer's instructions.

[18] **Essential health and safety requirements:**

Met by compliance with standards listed below:

EN 60079-0:2012 *(PN-EN 60079-0:2013)*;

EN 60079-1:2007 *(PN-EN 60079-1:2010)*;

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

EN 60079-26:2007 *(PN-EN 60079-26:2007)*;

EN 60079-31:2009 *(PN-EN 60079-31:2011)*;

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Jednostka Certyfikująca
Zespół Certyfikacji Wyrobów KD "Barbara" Mikołów

[1] # EU-TYPE EXAMINATION CERTIFICATE

[2] Equipment and protective systems intended for use in potentially explosive atmospheres. Directive 2014/34/EU

[3] EU – type examination certificate (module B):

**KDB 14ATEX0004X** issue 1

[4] Equipment:

**Smart Pressure Transmitter type DPC-2000ALW, DPC-2000ALW Ex Safety**
**Smart Differential Pressure Transmitter type DPR-2000ALW, DPR-2200ALW, DPR-2000ALW Ex Safety, DPR-2000GALW, DPR-2000GALW Ex Safety**
**Smart Level Probe type DPR-2000YALW**

[5] Manufacturer:

**DELTA CONTROLS LTD.**

[6] Address:

**Riverside Buiness Park, Dogflud Way,Farnham, GU9 7SS, United Kingdom**

[7] This product and any acceptable variation thereto is specified in the schedule to this certificate.

[8] Główny Instytut Górnictwa, Notified Body number 1453 in accordance with Directive 2014/34/EU of 26 February 2014, 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 2014/34/EU. The examination and test results are recorded in confidential report **KDB Nr 14.005-1 [T-7123]**

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

**EN 60079-0:2012 + A11:2013; EN 60079-1:2014; EN 60079-11:2012; EN 60079-26:2015; EN 60079-31:2014**

[10] In case if the sign „X" is placed after the certificate number, it indicates special conditions for safe use, specified in the schedule to this certificate.

[11] This EU-type examination certificate relates only to the construction, evaluation and tests of product accordance with Directive 2014/34/EU. The certificate does not include other requirements of the Directive relating to manufacturing process and putting into the market of the equipment or protective device.

[12] Marking of the equipment shall include:

Ex
I M2 Ex db ia I Mb
II 1/2G Ex ia/db IIC T6/T5 Ga/Gb
II 1/2D Ex ia/tb IIIC T85°C/T100°C Da/Db

or

Ex
II 1/2G Ex ia/db IIC T6/T5 Ga/Gb
II 1/2D Ex ia/tb IIIC T85°C/T100°C Da/Db

or

Ex
I M2 Ex db ia I Mb
II 2G Ex ia/db IIC T6/T5 Gb
II 2D Ex ia/tb IIIC T85°C/T100°C Db

or

Ex
II 2G Ex ia/db IIC T6/T5 Gb
II 2D Ex ia/tb IIIC T85°C/T100°C Db

mgr inż. Piotr Madej
ATEX Certification Specialist

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

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

Date of issue: **27.01.2017 r.**



**Główny Instytut Górnictwa, 40-166 Katowice, Plac Gwarków 1, POLAND, www.gig.eu**
(Certification Body-Certification Team-Kopalnia Doświadczalna "Barbara" Mikołów)

**Certification Body accredited by PCA, Nr AC038**
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PC/CM-ATEX-01/ExXen ed. 02.2016

KDBEx.eu

**[15] Description:**

Pressure transmitters type DPC-2000ALW, DPC-2000ALW Ex Safety and differential pressure transmitters type DPR-2000ALW, DPR-2200ALW, DPR-2000ALW Ex Safety, DPR-2000GALW, DPR-2000GALW Ex Safety and level probes type DPR-2000YALW work by converting proportional to the measured pressure resistance changes of piezoresistive bridge, located in the single crystal of silicon diaphragm, into a standard current signal 4 ÷ 20 mA with HART communications signal.

The basic units of the transmitter and probe is a measuring head (Ex i) with a silicon diaphragm sensor. Measuring head can be equipped with different pressure connections. Inside the head there is the "pressure chamber" filled with manometer liquid. On the side of measured medium it is limited by a diaphragm welded tightly to the head's body (differential pressure transmitters have two separated diaphragms for the inputs: "+" and "-"). The measuring head is mounted in the housing and secured with two screws.

In the heads to measure differential pressure and absolute pressure the tight bushings are applied. For overpressure measurements at a pressure range head to 7MPa, bushings are used with the opening from which a tube connecting the rear side of the measuring diaphragm to the atmosphere is pulled out; there are cylindrical flameproof joints used additionally in this case and in some versions of pressure difference heads. The transmitters with the head versions described above have category 1/2G, 1/2D.

In the versions pressure transmitters DPC... and differential pressure transmitters DPR... of category 2G and 2D (measured in zone 1 or 21) all pressure heads are allowed, including those without additional flame-proof joints.

Enclosures of transmitters are made of die-cast aluminium alloy or stainless steel. Enclosure consists of a body and two screwed covers (display and electrical connection). The cable line is introduced the enclosure flameproof cable gland with thread M20x1,5 or 1/2NPT depending on the version of the housing body. In the non-used opening the explosion-proof plug (cap) prod. DELTA CONTROLS is mounted.

The transmitters may be fitted with diaphragm seals, which enable them to be used in a variety of conditions such as thick or highly reactive media, high and low temperatures. Elements of the diaphragm seals can be coated with Teflon.

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Jednostka Certyfikująca
Zespół Certyfikacji Wyrobów KD „Barbara" Mikołów

Marking:

version with steel enclosure:

Ex I M2 Ex db ia I Mb
II 1/2G Ex ia/db IIC T6/T5 Ga/Gb
II 1/2D Ex ia/tb IIIC T85°C/T100°C Da/Db

or

Ex I M2 Ex db ia I Mb
II 2G Ex ia/db IIC T6/T5 Gb
II 2D Ex ia/tb IIIC T85°C/T100°C Db

version with aluminium alloy enclosure:

Ex II 1/2G Ex ia/db IIC T6/T5 Ga/Gb
II 1/2D Ex ia/tb IIIC T85°C/T100°C Da/Db

or

Ex II 2G Ex ia/db IIC T6/T5 Gb
II 2D Ex ia/tb IIIC T85°C/T100°C Db

**Technical parameters:**

Range of the measured pressure:
-100kPa ÷ 100MPa (DPC-2000ALW, DPC-2000ALW Ex Safety)
-160kPa ÷ 7MPa (DPR-2000ALW, DPR-2200ALW, DPR-2000ALW Ex Safety)
-10 kPa ÷ 10 kPa (DPR-2000GALW, DPR-2000GALW Ex Safety)

Range of the measured liquid level:
0 ÷ 10m$H_2O$ (DPR-2000YALW)

Output signal:
4÷20mA in a two-wire system + HART

Supply voltage:
10,5V ÷ 55V- standard version
10,5V ÷ 45V- MID version
16V ÷ 45V- safety version

Ingress protection:
IP66 / IP67

Ambient temperature:
-40°C ÷ 45°C/75°C (depending on the temperature class)
-25°C ÷ 55°C (MID version)

**[16] Test report:**

„Sprawozdanie z oceny ATEX" KDB Nr 14.005-1

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

## [17] Special conditions for safe use:

- Only those elements can be used as replacing ones which are specified in the descriptive documentation;

- Some of the permitted gaps in the flameproof joints are smaller and the lengths of the flameproof joints are greater than the ones specified in table 1 EN 60079-1. The relevant information for the user is included in the manual;

- In areas where there is a risk of dust explosion, transmitters in aluminium alloy casing covered with lacquer and transmitters with plastic rating plates or with diaphragm seals covered by Teflon should be installed in a way to prevent electrostatic charging according to the operation manual.

## [18] Essential health and safety requirements:

Met by compliance with standards listed below:

EN 60079-0:2012 + A11:2013; EN 60079-1:2014;
EN 60079-11:2012; EN 60079-26:2015; EN 60079-31:2014
*(PN-EN 60079-0:2013-03 + A11:2014-03; PN-EN 60079-1:2014-12;*
*PN-EN 60079-11:2012; PN-EN 60079-26:2015-04; PN-EN 60079-31:2014-10)*

## Document's history:

- EC-Type Examination Certificate KDB 14ATEX0004X of 23.01.2014 with all supplements, initial certification (issue 0).
- EU-Type Examination Certificate KDB 14ATEX0004X issue 1, **this document**, there is a modification in the construction of the pressure transmitters type DPC-2000ALW, differential pressure transmitters type DPR-2000ALW, DPR-2200ALW, and level probes type DPR-2000YALW. Pressure transmitters and differential pressure transmitters of category 2 have been introduced. The new performances of the pressure transmitters and differential pressure transmitters DPC-2000ALW Ex Safety, DPR-2000ALW Ex Safety, DPR-2000GALW, DPR-2000GALW Ex Safety have been introduced. The changes in the parameters of power supply to 55V have been introduced.

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