



- [1] **EU TYPE EXAMINATION CERTIFICATE**
- [2] Protective equipment and systems intended for use in potentially explosive atmospheres. Directive 2014/34/EU (Rozporządzenie Ministra Rozwoju z dnia 06.06.2016r. Dz.U. z dnia 09.06.2016r. Poz. 817)
- [3] EU type examination certificate (module B):
KDB 19ATEX0011X **0 edition**
- [4] Equipment:
**Smart pressure transmitters type
APC-2000ALW, APC-2000ALW Safety;**
**Smart differential pressure transmitters type
APR-2000ALW, APR-2200ALW, APR-2000ALW Safety, APR-2000GALW;**
Smart level probes type APR-2000YALW
- [5] Manufacturer:
APLISENS S.A.
- [6] Address:
ul. Morelowa 7, 03-192 Warszaw, POLAND
- [7] The protective equipment or system and any acceptable variations thereto are specified in the schedule to this certificate.
- [8] Central Mining Institute, Notified Body no 1453 according to Directive 2014/34/EU of February 26, 2014, approves that the protective equipment or system specified in this certificate has been found to comply with the essential health and safety requirements for the design and construction of protective equipment and systems intended for use in potentially explosive atmosphere given in Annex II to Directive 2014/34 /EU (Załącznik nr 2 Rozporządzenia Ministra Rozwoju z dnia 06.06.2016r. Dz.U. z dnia 09.06.2016r. Poz. 817). The results of the assessment and examinations as well as the list of agreed documentation are recorded in the confidential Report **KDB No 19.012 [T-7517]**
- [9] The essential health and safety requirements have been met by compliance with the requirements of the following standards:
**EN 60079-0:2012 + A11:2013; EN 60079-1:2014;
EN 60079-11:2012; EN 60079-26:2015; EN 60079-31:2014;
EN 50303:2000**
- [10] If sign "X" is placed after the certificate number, this means the specific conditions of use set out in the schedule to this certificate.
- [11] This EU type examination certificate relates only to the construction, assessment and testing of the specified product in accordance with Directive 2014/34 /EU (Rozporządzenie Ministra Rozwoju z dnia 06.06.2016r. Dz.U. z dnia 09.06.2016r. Poz. 817). The certificate shall not cover the remaining requirements of the Directive regarding the manufacturing process and placing the protective equipment or system on the market.
- [12] The marking of the equipment is included in the descriptive part of the certificate.



KDBEX

mgr inż. Piotr Madej

ATEX Certification
Expert



Główny Instytut Górnictwa
Jednostka Oceny Zgodności
p.o. KIEROWNIKA

dr inż. Dariusz Stęfaniak

Date of issue: **30.04.2019**

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Central Mining Institute, 40-166 Katowice, Plac Gwarków 1, Poland, www.gig.eu
Conformity Assessment Body, 43-190 Mikołów, ul. Podleska 72, www.gigcert.com
Certification Body accredited by PCA [Polish Centre for Accreditation], No AC038.

This certificate may only be reproduced in its entirety together with schedules. The document without signatures and stamps shall be not valid.
PC-ATEX-01/ExXen ed.1, 03.2019

**[15] Description:**

Pressure transmitters type APC-2000ALW, APC-2000ALW Safety; differential pressure transmitters type APR-2000ALW, APR-2200ALW, APR-2000ALW Safety, APR-2000GALW and level probes type APR-2000YALW convert resistance changes proportional to the measured pressure of piezoresistive bridge, located in the single crystal of silicon diaphragm, into a standard current signal $4 \div 20$ mA with HART communications signal. Transmitters can be used for measurement of dense and aggressive media, at high and low temperatures.

The basic unit of the transmitter and the probe is a measuring head with a silicon diaphragm sensor, working in the intrinsically safe circuit (Ex ia), mounted in transmitter enclosure. Measuring heads can be equipped with different pressure connections. Inside the head there is the "pressure chamber" filled with manometer liquid. It is limited by a diaphragm welded tightly to the head's body, on the side of measured medium. Differential pressure transmitters have two separated membrans for the inputs: "+" and "-". Inside the head there is a bushing in which a measuring silicon diaphragm with piezoresistors is installed. The parts of the diaphragm seals can be coated with Teflon.

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

The device version including the flameproof enclosure requires use of flameproof cable gland and plug. Cable entries and plugs should also meet the requirements for dust-proof covers (Ex tb). The device in the flameproof and dustproof version includes plug produced by Aplisens S.A..

The measuring head working in the intrinsically safe circuit (Ex ia), in the version of the device including the flameproof enclosure, is separated from the rest of the equipment by the bushing.

In the transmitter enclosure, is also installed a terminal strip allowing additional connection of the communicator and measurement of the output current, without interrupting the circuit.



**Marking:**

 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 T105°C Da/Db
 lub

 I M2 Ex db ia I Mb *
 II 2G Ex ia/db IIC T6/T5 Gb
 II 2D Ex ia/tb IIIC T105°C Db
 lub

 I M1 Ex ia I Ma *
 II 1/2G Ex ia IIC T5/T4 Ga/Gb
 II 1D Ex ia IIIC T105°C Da

* - only stainless steel version of enclosure

Technical parameters:

Range of the measured pressure:

-100kPa ÷ 100MPa (APC-2000ALW, APC-2000ALW Safety)
 -50kPa ÷ 7MPa (APR-2000ALW, APR-2000ALW Safety)
 -160kPa ÷ 1,6MPa (APR-2200ALW)
 -10 kPa ÷ 10 kPa (APR-2000GALW)

Range of the measured liquid level:

0 ÷ -6mH₂O (APR-2000YALW)

Output signal:

4 ÷ 20mA in a two-wire system + HART

Device version Ex ia/db and Ex ia/tb:

Supply voltage:

U_{max} = 55V DC (APC-2000ALW, APR-2000ALW, APR-2200ALW,
 APR-2000GALW, APR-2000YALW)
 U_{max} = 36V DC (APC-2000ALW Safety, APR-2000ALW Safety)

Ambient temperature: -40 ÷ 40°C (special version: from -50°C)

Temperature class: T6

Ambient temperature: -40 ÷ 75°C (special version: from -50°C)

Temperature class: T5

Maximum surface
temperature - version Ex ia/tb: 105°C

Degree of protection: IP66 / IP67



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[14]

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Device version Ex ia:

Supply voltage: $U_{max} = 30V$ DC
Ambient temperature: $-40 \div 80^{\circ}C$ (special version: from $-50^{\circ}C$)
Temperature class: T5/T4
Maximum surface temperature: $105^{\circ}C$
Degree of protection: IP66 / IP67

Intrinsically safe parameters:

Supply from a power source with linear output characteristic:

$U_i=30V$ $L_i = 18\mu H$ Temperature class: T5
 $I_i=100mA$ $C_i = 2,5nF$
 $P_i=0,75W$

Supply from a power source with trapezoidal output characteristic:

$U_i=24V$ $L_i = 18\mu H$ Temperature class: T5
 $I_i=50mA$ $C_i = 2,5nF$
 $P_i=0,7W$

Supply from a power source with rectangular output characteristic:

$U_i=24V$ $L_i = 18\mu H$ Temperature class: T5
 $I_i=25mA$ $C_i = 2,5nF$
 $P_i=0,6W$
 $U_i=24V$ $L_i = 18\mu H$ Temperature class: T4
 $I_i=50mA$ $C_i = 2,5nF$
 $P_i=1,2W$

[16] Test Report:

"ATEX assessment report" KDB No 19.012

[17] Special conditions of use:

- The maximum temperature of the external heating source cannot heat the transmitter above the maximum declared ambient temperature.
- Some gaps of flameproof joints are smaller and longer than those required in table 3 of standard EN 60079-1. Relevant information for the user are included in the instruction.
- In hazardous zones of dust explosion, transmitters with painted aluminum enclosures, as well as transmitters equipped with plastic marking plates and diaphragm separator elements covered with a teflon layer, should be installed in a way that prevents electrostatic charging, in accordance with the instructions.



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- The diaphragm separator containing titanium elements must be protected against mechanical impacts.
- An intrinsically safe transmitter version with surge arrester, marked on the nameplate as "SA" does not meet the requirements of clause 10.3 of EN 60079-11 (500Vrms). The device should be installed in accordance with the instructions.
- In the case of use a transmitter with a nameplate containing various types of explosion-proof execution, the type of protection must be permanently marked on the nameplate before installation, according to the instructions.
- In the device version including the flameproof enclosure, the diaphragm should not be subject on damage during installation and exploitation of the transmitter. The transmitter diaphragm is made of stainless steel, Hastelloy alloy or tantalum and must not be exposed to medium that could cause its damage.

[18] Essential health and safety requirements:

Met by fulfilling the requirements of the following standards:

EN 60079-0:2012 + A11:2013	(PN-EN 60079-0:2013-03 + A11:2014-03)
EN 60079-1:2014	(PN-EN 60079-1:2014-12)
EN 60079-11:2012	(PN-EN 60079-11:2012)
EN 60079-26:2015	(PN-EN 60079-26:2015-04)
EN 60079-31:2014	(PN-EN 60079-31:2014-10)
EN 50303:2000	(PN-EN 50303:2000)

Document history:

- EU type examination certificate KDB 19ATEX0011X, 0 edition of 30.04.2019, initial certification

