



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEX Scheme visit www.iecex.com

Certificate No.: **IECEX KDB 19.0003X** Page 1 of 5 Certificate history:
Status: **Current** Issue No: 1 Issue 0 (2019-04-30)
Date of Issue: 2022-10-28
Applicant: **APLISENS S. A.**
ul. Morelowa 7, 03-192 Warszawa
Poland
Equipment: **Smart pressure transmitters type APC-2000ALW, APC-2000ALW Safety; Smart differential pressure transmitters type APR-2000ALW, APR-2000ALW Safety, APR-2000ALW/G; Smart level probes type APR-2000YALW**
Optional accessory:
Type of Protection: **Equipment protection by flameproof enclosure "d", intrinsic safety "ia". Dust ignition protection by enclosure "t"**
Marking: Ex db ia I Mb *
Ex ia/db IIC T6/T5 Ga/Gb
Ex ia/tb IIIC T105°C Da/Db
or
Ex db ia I Mb *
Ex db ia IIC T6/T5 Gb
Ex ia tb IIIC T105°C Db
or
Ex ia I Ma *
Ex ia IIC T5/T4 Ga/Gb
Ex ia IIIC T105°C Da
* - only stainless steel version of enclosure

Approved for issue on behalf of the IECEX
Certification Body:

mgr inż. Piotr Madej

Position:

Head of ExCB

Signature:
(for printed version)

Date:
(for printed version)

28.10.2022

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:

Główny Instytut Górniczo-Kopalniczy "BARBARA"
(Central Mining Institute Experimental Mine "Barbara")
ul. Podleska 72
43-190 Mikołów
Poland





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Manufacturer: **APLISENS**
ul. Morelowa 7, 03-192 Warszawa
Poland

Manufacturing
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-1:2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-26:2014-10 Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
Edition:3.0

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[PL/KDB/ExTR19.0003/00](#)

[PL/KDB/ExTR19.0003/01](#)

Quality Assessment Report:

[PL/KDB/QAR12.0001/05](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Pressure transmitters type APC-2000ALW, APC-2000ALW Safety; differential pressure transmitters type APR-2000ALW, APR-2000ALW Safety, APR-2000ALW/G 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 ± 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 diaphragms for the inputs: "+" and "-". Inside the head there is a bushing in which a measuring silicon diaphragm with piezoresistors is installed. In pressure and differential pressure transmitters it is allowed to cover diaphragm seals with PTFE foil.

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.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- The maximum temperature of the external heating source cannot heat the transmitter above the maximum declared ambient temperature.
- The flameproof joints are not intended to be repaired.
- In hazardous zones of dust explosion, transmitters with painted enclosures, as well as transmitters equipped with plastic marking plates and diaphragm separator elements covered with PTFE layer, should be installed in a way that prevents electrostatic charging, in accordance with the instructions.
- In hazardous zones of explosion, diaphragm separators covered PTFE layer, should be installed in places and in a way that prevents electrostatic charging.
- 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.



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Equipment (continued):

Technical parameters:

Output signal:

4 + 20mA in a two-wire system + HART

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

Supply voltage:

U_{max} = 55V DC (APC-2000ALW, APR-2000ALW, APR-2000ALW/G, 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

Device version Ex ia:

Supply voltage: U_{max} = 30V DC

Ambient temperature: -40 + 80°C (special version: from -50°C)

Temperature class: T5/T4

Maximum surface temperature: 105°C

Degree of protection: IP66 / IP67

Intrinsically safe parameters:

Supply from a power source with linear output characteristic:

U_i=30V L_i = 18μH 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 = 18μH 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 = 18μH Temperature class: T5

I_i=25mA C_i = 2,5nF

P_i=0,6W

U_i=24V L_i = 18μH Temperature class: T4

I_i=50mA C_i = 2,5nF

P_i=1,2W



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Type names for differential pressure transmitters have been changed. New versions of the MPC-FH-Exi-Exd-rev2 and MPC5-rev2.1.2 board assembly have been added. Seals made of NBR material have also been introduced for the Exd and Ext versions. New versions of Exd bushings have been added. The marking of the explosion-proof version has been changed. A special conditions of use has been changed.