CERTIFICATE OF CONFORMITY

1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** **FM20US0156X**
3. **Equipment:** **Smart pressure transmitters type: APC-2000ALW, APC-2000ALW Safety**
   (Type Reference and Name) **Smart differential pressure transmitters type: APR-2000ALW, APR-2000ALW Safety**
4. **Name of Listing Company:** **Aplisens SA**
5. **Address of Listing Company:** **ul Morelowa 7**
   Warsaw PL 03 192
   Poland
6. The examination and test results are recorded in confidential report number:

   PR454095 dated 11th June 2021

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

   FM Class 3600:2018, FM Class 3610:2018, FM Class 3615:2018, FM Class 3616:2011, FM Class 3810:2018, ANSI/UL 61010-1: 2012, ANSI/UL 60079-0:2019, ANSI/UL 60079-1:2015, ANSI/UL 60079-11:2014, ANSI/UL 60079-31:2015, UL 50E:2015, and ANSI/IEC 60529:2020

8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

Certificate issued by:

J.E. Marquedant
VP, Manager - Electrical Systems

30 November 2021
Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

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10. Equipment Ratings:

Intrinsically safe for Class I, II and III, Division 1, Groups A, B, C, D, E, F and G; Intrinsically safe for Class I, Zone 0 AEx ia IIC T4 Ga; Intrinsically safe for Zone 20 AEx ia IIIC T105°C Da hazardous (classified) locations, indoors and outdoors (Type 4X, IP66) with an ambient temperature rating of -40°C to +80°C.

Explosionproof with intrinsically safe sensor for Class I, Division 1, Groups A, B, C and D; Explosionproof with intrinsically safe sensor for Class I, Division 1, Groups B, C and D; Dust-ignitionproof for Class II/III, Division 1, Groups E, F and G; Flameproof with intrinsically safe sensor for Class I, Zone 1, AEx db ia IIC T5 Gb; Protection by enclosure with intrinsically safe sensor for Zone 21 AEx ia tb IIIC T105°C Db hazardous (classified) locations, indoors and outdoors (Type 4X, IP66) with an ambient temperature rating of -40°C to +75°C.

11. The marking of the equipment shall include:

For intrinsically safe versions:

Class I, Division 1, Groups A, B, C, D; T4 Ta = -40°C to +80°C; Type 4X, IP66

Class II, Division 1, Groups E, F, G; Class III, Division 1; T5 Ta = -40°C to +80°C; Type 4X, IP66

Class I, Zone 0, AEx ia IIC T4 Ga Ta = -40°C to +80°C, Type 4X, IP66

Zone 20, AEx ia IIIC T105°C Da Ta = -40°C to +80°C, Type 4X, IP66

For Explosionproof and Dust-ignitionproof:

Class I, Division 1, Groups A, B, C, D; T5 Ta = -40°C to +75°C; Type 4X, IP66

Class I, Division 1, Groups B, C, D; T5 Ta = -40°C to +75°C; Type 4X, IP66

Class II, Division 1, Groups E, F, G; Class III, Division 1; T5 Ta = -40°C to +75°C; Type 4X, IP66

Class I, Zone 1, AEx db ia IIC T5 Gb Ta = -40°C to +75°C, Type 4X, IP66

Zone 21 AEx ia tb IIIC T105°C Db Ta = -40°C to +75°C, Type 4X, IP66

12. **Description of Equipment:**

General - The Model APC-2000ALW, APC-2000ALW Safety; differential pressure transmitters type APR-2000ALW, APR-2000ALW Safety, are smart transmitters. The transmitters 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. The transmitters can be used for measurement of dense and aggressive media, at high and low temperatures

Construction - The Smart Transmitters are made of die-cast aluminium alloy or stainless steel. The enclosures consist of a two-chamber body closed with two screwed covers (chamber of the main board with display and electrical connection board chamber). The cable is introduced into the enclosure by cable gland or conduit entry with thread M20 x 1,5 or ½" NPT depending on the version of the enclosure body. The unused opening is fitted with a blanking cap.

Ratings - The Smart Transmitters have the following electrical ratings:

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For Type of Protection intrinsic safety, Energy limitation parameters:
Linear characteristic:
Ui ≤ 30 Vdc; Ii ≤ 100 mA; Pi ≤ 0.75 W; Ci < 2.5 nF; Li < 18 µH

Trapezoidal characteristic:
Ui ≤ 24 Vdc; Ii ≤ 50 mA; Pi ≤ 0.70 W; Ci < 2.5 nF; Li < 18 µH

Rectangular characteristic:
Ui ≤ 24 Vdc; Ii ≤ 25 mA; Pi ≤ 0.60 W; Ci < 2.5 nF; Li < 18 µH

Ui ≤ 24 Vdc; Ii ≤ 50 mA; Pi ≤ 1.2 W; Ci < 2.5 nF; Li < 18 µH

All other protection techniques, the Smart Transmitter has the following rated inputs:
U ≤ 36 Vdc for APC-2000ALW Safety and APR-2000ALW Safety transmitters.

U ≤ 55 Vdc for APC-2000ALW and APR-2000ALW transmitters.

The IS transmitters are rated for use in an ambient temperature range of -40°C to +80°C.

The XP, DIP, Flameproof, Protection by enclosure transmitters are rated for use in an ambient temperature range of -40°C to +75°C.

The transmitter probes are rated for use in a process temperature range of -40°C to +120°C.

APC-2000ALW - abcdefgh Smart pressure transmitters – Entity - APC200-A544-TA

a = Versions: blank or Safety
b = Certificate, Options: IS, XP, XPC, IS/XP, IS/XPC, SA, 0,05%, SS, -40…+80°C, Hart7, HS
c = Nominal Measuring Range: - 1 bar to 1000 bar
d = measuring set range: Units
e = Process connections: M, G1/2, G1/2(Au), P, GP, GP(Hastelloy), CG1”, CG1” (Hastelloy), CG1/2”, 1/2”NPTM, 1/2”NPTM(Hastelloy), 1/2”NPTF, code of diaphragm seal
f = Electrical connections: M20x1.5, US
g = Accessories (not relevant to safety): AL, AL(SS), ST, MT

APR-2000ALW - abcdefgh Smart pressure transmitters – Entity - APC200-A544-TA

a = Versions: blank or Safety
b = Certificate, Options: IS, XP, XPC, IS/XP, IS/XPC, SA, 0,05%, SS, Hart7, HS, 320 bar, 413 bar, 700 bar
c = Nominal Measuring Range: -1.6 bar to 70 bar
d = measuring set range: Units
e = Process connections: C, CH, P, PN, code of diaphragm seal/seals
f = Material of wetted parts: blank, 316L/Hast, Hast/Hast, 316L/Au, 316L/Ta, Hast/Ta other according to datasheet of diaphragm seals
g = Gasket: blank, NBR or PTFE
h = Electrical connections: M20x1.5, US
i = Accessories (not relevant to safety): C-2”, C-2”(SS), C-2”B, C-2”B(SS), FI25, RedSpaw P,

RedSpaw C, Red d/p 1/2' ,ST, MT.

13. **Specific Conditions of Use:**

1. The user shall ensure that any source of external heating does not result in the transmitter exceeding the maximum marked ambient temperature.
2. The flameproof joints are not intended to be repaired. Contact manufacturer for information related to the repair of flameproof joints.
3. 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 PTFE layer, shall be installed in a way that prevents electrostatic charging, in accordance with the instructions.
4. The diaphragm separator containing titanium elements shall be protected against mechanical impacts.
5. Intrinsically safe transmitters marked "SA", indicating that a surge arrestor is fitted, do not pass the 500Vrms requirement of ANSI/UL 60079-11 and shall be installed in a circuit using galvanically isolated associated apparatus.
6. When the manufacturer of the equipment has not identified the type of protection on the label, the user shall, on installation, mark the label with the type of protection used. Once the type of protection has been marked it shall not be changed.
7. In the device version including the flameproof enclosure, the diaphragm shall 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 shall not be exposed to medium that could cause its damage.
8. The enclosure made of aluminum alloy and given a protective polyurethane paint finish; care should be taken to protect it from impact or abrasion of located in Zone 0.

14. **Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. **Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

16. **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
11th June 2021	Original Issue.
6th August 2021	Supplement 1: Report Reference: – RR229100 dated 6th August 2021. Description of the Change: Addition of Specific Condition of Use.

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30th November 2021	Supplement 2: Report Reference: - RR230024 dated 30th November 2021. Description of the Change: Correction of typographical errors.

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