

1 **UNITED KINGDOM CONFORMITY ASSESSMENT**
2 **UK TYPE EXAMINATION CERTIFICATE**

3 **Product Intended for use in Potentially Explosive Atmospheres**
4 **UKSI 2016:1107 (as amended by UKSI 2019:696) – Schedule 3A, Part 1**

5 Type Examination Certificate Number: **ExVeritas 22UKEX1415X** Issue: **0**

6 Product: Smart pressure transmitters type APC-2000ALW, APC-2000ALW Safety, Smart differential pressure transmitters type APR-2000ALW, APR-2000ALW Safety, APR-2000ALW/G, Smart level probe type APR-2000YALW

7 Manufacturer: Aplsens S.A.

8 Address: ul. Morelowa 7, 03-192 Warszawa, Poland

9 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

10 ExVeritas Limited Approved Body number 2585, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended by UKSI 2019:696), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

11 Compliance with the applicable Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018
EN 60079-26:2015

EN 60079-1:2014
EN 60079-31:2014


EN 60079-11:2012

Except in respect of those requirements listed at section 16 of the schedule to this certificate.

12 If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

13 This TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

14 The marking of the equipment shall include the following:

	I M2 Ex db ia I Mb* II 1/2 G Ex ia/db IIC T6/T5 Ga/Gb II 1/2 D Ex ia/tb IIIC T105°C Da/Db	I M2 Ex db ia I Mb* II 2 G Ex db ia IIC T6/T5 Gb II 2 D Ex ia tb IIIC T105°C Db	I M1 Ex ia I Ma* II 1/2 G Ex ia IIC T5/T4 Ga/Gb II 1 D Ex ia IIIC T105°C Da
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*Only stainless steel version of the enclosure



No. 8613

On behalf of ExVeritas



S Clarke CEng MSc FIET
Managing Director

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Schedule

13 Description of Product

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 dustproof 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.

Schedule

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, 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

14 Descriptive Documents

14.1 Associated Report and Certificate History:

Report Number	Cert Issue Date	Issue	Comment
R4036/A/1	08-02-2023	0	Initial issue of the Prime Certificate

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14.2 Compliance Drawings:

No	Name of the drawing	Sheet No.	Drawing number	Date
1.	List of construction drawings of documentation (CER.Ex)DT.APC-2000ALW.Exi.Exd.01.	1, 2	(CER.Ex) APC2000-A640-50	11.2022
2.	APR-2000ALW/G differential pressure transmitters APC-2000ALW, APC-2000ALWSafety pressure transmitters; APR-2000ALW, APR-2000ALWSafety differential pressure transmitters; APR-2000YALW level probes; Technical description	1A, 2A, 3A	(CER.Ex) APC2000-A640-01	06.2022
3.	Rating plate (Exi ver.)	1	APC2000-C640-TA	11.2022
	Rating plate (Exd ver.)	2		11.2022
	Rating plate (Exi, Exd ver.)	3		11.2022
	Rating plate (Exi, Exd ver.) (dealer plate)	4		11.2022
	Rating plate. Process connection	5		11.2022
4.	Electrical connection plate MPC5-FHI-Exi_Exd-rev2. Electrical diagram	1A	APC2000-S647-TA	09.2019
5.	Circuit diagram of the MPC5-rev2.1.2 board	1A, 2A	(CER.Ex) APC2000-S659-TA	06.2022
6.	Circuit diagram of the MPC5-AD-rev6.0	1	APC2000-S657-TA	02.2018
7.	MPC5-FH-Exi-Exd-rev2 board assembly.	1A, 2A, 3A	APC2000-B647-TA	09.2019
8.	MPC5-rev2.1.2 board assembly. (Main display board)	1A, 2A,	(CER.Ex) APC2000-B659-TA	06.2022
		3, 4, 5,		07.2018
		6A, 7A,		06.2022
		8A, 9A		06.2022
9.	MPC5-AD-rev6.0 board assembly.	1, 2	APC2000-B657-TA	02.2018
10.	Flexible printing STR3-rev2.	1A	APC2000-B617-01	01.2010
11.	APR-2000YALW level probes; APC-2000ALW, APC-2000ALWSafety pressure transmitters;	1A, 2A, 3A, 4A, 7A	(CER.Ex) APC2000-A641-TA	06.2022
	APR-2000ALW, APR-2000ALWSafety differential pressure transmitters; APR-2000ALW/G gas differential pressure transmitters	5A, 6A	(CER.Ex) APC2000-A641-TA (UKCA)	

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No	Name of the drawing	Sheet No.	Drawing number	Date
12.	APC-2000ALW, APC-2000ALW Safety transmitters, APR-2000ALW, APR-2000ALW Safety with separators	1A, 2A	(CER.Ex) APC2000-A642-TA	06.2022
13.	Specification of dimensions of flameproof joints for transmitters of the APC-2000ALW series.	1A	(CER.Ex) APC2000-A641-Z	06.2022
14.	Transmitter housing with head. Seals diagram.	1A	(CER.Ex) APC2000-A641-U	06.2022
15.	Complete assembly of the MPC5-rev2.1.2 display board.	1A	(CER.Ex) APC2000-B660-TA	06.2022
16.	Pressure head assembly	1D, 2D	APC2000-B618-TA	08.2018
17.	HS/P, HS/GP pressure head assembly	1C, 2C	APC2000-B604-TA	08.2018
18.	Differential pressure head assembly	1D, 2D	APR2000-B619-TA	08.2018
19.	Gas differential pressure head assembly	1D, 2D, 3D	APR2000-B620-TA	08.2018
20.	High and absolute pressure head assembly	1F, 2G	APC2000-B632-TA	08.2018
21.	Low and medium pressure head assembly	1E, 2E	APC2000-B630-TA	08.2018
22.	GR-40 differential pressure head assembly	1E, 2F	APR2000-B634-TA	04.2018
23.	APR-2000YALW level probe differential pressure head assembly.	1D, 2D	APR2000-B621-TA	08.2018
24.	APR-2000YALW level probe measuring unit	1A, 2A	APR2000-B622-TA	08.2018
25.	Isolating transformer TI-E13-DS-48-76 with a 40µm gap	1	APC2000-B606-TA	03.2014
		2		01.2016
26.	Isolation transformer body	1	APC2000-C612-00	08.2018
27.	List of replacements for cable glands and blanking plugs with explosion-proof Exd IIC marking	1B	APC2000-C634-01	11.2022
28.	ALW casing assembly	1, 2	(CER.FM) APC2000-B643-TA	07.2018
29.	ZL102 alloy housing body	1B	(CER.Exd)A-338-TA	06.2022
30.	316 steel housing body	1B	(CER.Exd)A-410-TA	01.2022
31.	Bushing	1	ZA-033-06	08.2018
32.	Exd housing bushing	1A	ZA-024-05	06.2022
33.	Cover assembly with glass	1B	ZA-065-TA	02.2021
34.	Cover assembly with glass	1B	ZA-083-TA	02.2021

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No	Name of the drawing	Sheet No.	Drawing number	Date
35.	Full cover assembly	1A	ZA-064-TA	02.2021
36.	Full cover assembly	1A	ZA-082-TA	02.2021
37.	Glass	1	A-188-00	02.2004
38.	Low, medium and absolute pressure head.	1D,2D,3D	GC3-001-TA	01.2019
39.	Head with flush diaphragm	1B, 2B	GC3-003-TA	01.2019
40.	Medium, high, absolute pressure head.	1D,2D,3D	GC4-001-TA	01.2019
41.	High pressure head	1D,2D,3D	GC4-005-TA	07.2017
42.	Medium pressure head	1B,2B,3B	GC3-015-TA	01.2019
43.	Medium, high pressure head	1B,2B,3B	GC4-018-TA	01.2019
44.	Differential pressure head in a welded version	1E, 2E, 3E, 4E	GR40-108-TA	01.2019
45.	Differential pressure head	1B, 2B, 3B, 4B	GR40-109-TA	02.2019
46.	Differential pressure head with connections	1B	GR40-002-TA	02.2019
47.	Differential pressure head with covers	1G, 2G	GR40-003-TA	10.2022
48.	Structure	1	G-056-TA	09.2003
49.	Exd bushing assembly (threaded)	1D	ZA-057-TA	06.2022
50.	1/2 NPT plug	1B	A-195-TA	03.2019
51.	M20x1.5 plug	1B	A-194-TA	03.2021
52.	Analysis of compliance with the requirements of ATEX and IECEx standards for: smart pressure transmitters APC-2000ALW, APC-2000ALW Safety. Smart differential pressure transmitters: APR-2000ALW, APR-2200ALW, APR-2000GALW, APR-2000YALW, APR-2000ALW Safety.	1...19 + Attachments 1...16	AN.APC-2000ALW.Ex.03	
53.	Analysis of compliance with the requirements of ATEX and IECEx standards for: smart pressure transmitters APC-2000ALW, APC-2000ALW SAFETY, smart differential pressure transmitters: APR-2000ALW, APR-2000ALW SAFETY, APR-2000ALW/G and smart levels probes: APR-2000YALW.	1...22 + Attachments 1...19	AN.APC-2000ALW.Exd(ATEX_IECEX)	

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No	Name of the drawing	Sheet No.	Drawing number	Date
54.	Supplement No. 1..... to AN.APC -2000ALW.Ex.03	1, 2	U1.AN.APC-2000ALW.Ex.03	
55.	Supplement No. 1..... to AN.APC-2000ALW.Exd(ATEX_IECEX)	1, 2	U1.AN.APC-2000ALW.Exd(ATEX_IECEX)	

15 Specific Conditions of Use

15.1 Special Conditions for Safe Use

- 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.

15.2 Routine tests

- The routine test of separating transformer, in accordance with EN 60079-11, it is recommended:
 - 1500 VAC – between the primary and secondary windings
 - 500 VAC – between the secondary winding and the core

16 Essential Health and Safety Requirements (Regulations Schedule 1)

Essential Health and Safety Requirements are addressed by the standards listed in section 9 and where required the report listed in section 14.1

The manufacturer shall inform ExVeritas of any modifications to the design of the product described by this schedule.

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