



Urząd Dozoru Technicznego

UDT-CERT

CERTIFICATE

No. 741/CW/001

**Office of Technical Inspection
Product Certification Body UDT-CERT**

certifies that

pressure transmitters

**APC-2000ALW Safety, APC-2000ALW Ex Safety
and differential pressure transmitters**

APR-2000ALW Safety, APR-2000ALW Ex Safety

manufactured by

**APLISENS S.A.
ul. Morelowa 7
03-192 Warszawa**

satisfy the requirements of the standards

PN-EN 61508-1:2010; PN-EN 61508-2:2010; PN-EN 61508-3:2010;

PN-EN 61511-1:2007; PN-EN 62061:2008+A1

for safety integrity level **SIL 2** with a tolerance of hardware faults **HFT = 0**
for implementing safety functions based on pressure and differential pressure measurements

Wyrób	λ_S	λ_{DD}	λ_{DU}	SFF	DC
APC-2000 ALW Safety	$1,487 \times 10^{-6}$ 1/h	$1,698 \times 10^{-6}$ 1/h	$0,939 \times 10^{-7}$ 1/h	97,14%	94,76%
APR-2000 ALW Safety	$1,487 \times 10^{-6}$ 1/h	$1,698 \times 10^{-6}$ 1/h	$0,941 \times 10^{-7}$ 1/h	97,13%	94,75%
APC-2000 ALW Ex Safety	$1,553 \times 10^{-6}$ 1/h	$1,734 \times 10^{-6}$ 1/h	$0,961 \times 10^{-7}$ 1/h	97,16%	94,75%
APR-2000 ALW Ex Safety	$1,553 \times 10^{-6}$ 1/h	$1,734 \times 10^{-6}$ 1/h	$0,962 \times 10^{-7}$ 1/h	97,16%	94,74%

The conditions for issue and validity of the Certificate are specified in the Annex.

Date of issue: 04.12.2014



Director of the Department for Certification
and Conformity Assessment

p.p. Janusz Samuła
Anna Gerymska

Office of Technical Inspection

Product Certification Body UDT-CERT

Annex, edition I dated 04.12.2014

to the Certificate No. 741/CW/001

1. Information on the certified product:

1.1. Category, type, brand or trade name:

Pressure transmitters: APC-2000ALW Safety, APC-2000ALW Ex Safety
and differential pressure transmitters :
PR-2000ALW Safety, APR-2000ALW Ex Safety.

1.2. Basic technical data:

Measuring ranges according to the User's manual DTR.APC.APR.ALW.20.
Environmental requirements (operating temperatures: $-40^{\circ}\text{C} \div 85^{\circ}\text{C}$, humidity
up: to 100%)

vibration: to max 1,6 mm and 4 g in the range of $2 \div 100$ Hz – in accordance
with the User's manual DTR.APC.APR.ALW.20.

Power supply parameters $U_{ZMIN} = 16$ VDC, in accordance with the User's
manual DTR.APC.APR.ALW.20.

Metrological parameters in accordance with the User's manual
DTR.APC.APR.ALW.20.

Electromagnetic immunity: ESD - 6 kV/8 kV contact/air, Burst - 2 kV,

Surge 1 kV/0,5 kV, conducted - 10 V (150 kHz – 80 MHz),

radiation - 10 V/m to 1 GHz, 3 V/m do 2 GHz, 1 V/m do 2,7 GHz.

Ingress protection provided by enclosure: IP 66/67 according to
PN-EN 60529:2003+A2.

1.3. Intended use of the product:

Pressure transmitters or differential pressure transmitters APC-2000ALW
Safety, APC-2000ALW Ex Safety, APR-2000ALW Safety, APR-2000ALW
Ex Safety are devices used for pressure and differential pressure
measurements. Additionally, the level, flow and density can be measured.

2. Technical documentation according to which the tested products were
produced:

- Version "Safety"

[1] Safety requirements specification, edition 2.0

[2] Description of the design process of the transmitter APC(APR) -
2000ALW Safety, performance N, edition 2.0

[3] Functional safety management procedures, edition 2.0.1

- [4] Rules of policies and strategies to achieve functional safety, edition 2.0.1
- [5] Software safety requirements specification, edition 2.0
- [6] Software documentation of the transmitter, edition 2.0
- [7] Software test plans, edition 2.0
- [8] MPC5-SIS-rev200 source – Assembler source file listing of the main program, revision 200
- [9] MPC5-SIS-rev200.hex listing - Output file listing in the format INTEL-STANDARD of the main program, revision 200
- [10] MPC5-SIS-MASTER_108 source – Assembler source file listing of the program of the communications processor MASTER, revision 108
- [11] MPC5-SIS-MASTER_108.hex listing – Output file listing in the format INTEL-STANDARD of the program of the communications processor MASTER, revision 108
- [12] MPC5-SIS-SLAVE_110 source – Assembler source file listing of the program of the communications processor SLAVE, revision 110
- [13] MPC5-SIS-SLAVE_110.hex listing – Output file listing in the format INTEL-STANDARD of the program of the communications processor SLAVE, revision 110
- [14] Report on the software review and verification, edition 2.0
- [15] Integration tests plan, edition 2.0
- [16] Hardware documentation, edition 1.0
- [16-2] Erratum to [16] Hardware documentation, edition 1.0
- [17] Operating instructions, edition 2.0.1
- [18] SIL analysis report of transmitters APC(R)-2000ALW (Ex) SAFETY, rev 2.0.6
- [19] SIL safety instructions, rev 2.0.1
- [20] Functional safety assessment procedures, edition 1.0

- Version “Ex Safety”

- [1] Safety requirements specification, edition 2.0
- [2] Description of the design process of the transmitter APC(APR) - 2000ALW Ex Safety, edition 2.1.1
- [3] Functional safety management procedures, edition 2.0.1
- [4] Rules of policies and strategies to achieve functional safety, edition 2.0.1
- [5] Software safety requirements specification, edition 2.0
- [6] Software documentation of the transmitter, edition 2.0
- [7] Software test plans, edition 2.0
- [8] MPC5-SIS-rev200 source – Assembler source file listing of the main program, revision 200
- [9] MPC5-SIS-rev200.hex listing - Output file listing in the format INTEL-STANDARD of the main program, revision 200
- [10] MPC5-SIS-MASTER_108 source – Assembler source file listing of the program of the communications processor MASTER, revision 108
- [11] MPC5-SIS-MASTER_108.hex listing – Output file listing in the format INTEL-STANDARD of the program of the communications processor MASTER, revision 108
- [12] MPC5-SIS-SLAVE_110 source – Assembler source file listing of the program of the communications processor SLAVE, revision 110

- [13] MPC5-SIS-SLAVE_110.hex listing – Output file listing in the format INTEL-STANDARD of the program of the communications processor SLAVE, revision 110
 - [14] Report on the software review and verification, edition 2.0
 - [15] Integration tests plan, edition 2.0
 - [16] Hardware documentation, edition 1.1
 - [16-2] Erratum to [16] Hardware documentation, edition 1.1
 - [17] Operating instructions, edition 2.0.1
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 - [19] SIL safety instructions, rev 2.0.1
 - [20] Functional safety assessment procedures, edition 1.0
3. The certification process of the above mentioned products within the range of conformity with the requirements of reference documents specified by the manufacturer has been performed according to the Products conformity certification programme – SIL within the system 5 according to the PKN-ISO/IEC Guide 67.
 4. The results of the certification process have been recorded in the following documents:
 - Report of assessment to the application No. 741/CW/2014-001 of 03.12.2014,
 - Report of verification of the technical documentation of the product to the application No. 741/CW/2014-001 of 03.12.2014,
 - Report on checking manufacturer's organizational and technical conditions and functional safety management system to the application No. 741/CW/2014-001 of 03.12.2014,
 - Assessment of the documentation gathered during certification process to the application No.741/CW/2014-001 of 04.12.2014,
 5. The provisions concerning the supervision of the issued certificate are contained in the Agreement No. 54981/CW/2014 of 08.10.2014 on the certification products.
 6. The certificate became invalid when the commitments contained in the Agreement No. 54981/CW/2014 of 08.10.2014 on the certification products are not fulfilled.
 7. The manufacturer has the right to mark certified products with conformity mark "UDT-CERT SIL". The pattern of the conformity mark and the rules of using the conformity mark are attached to this certificate.
 8. Together with the certificate the manufacturer receives the labelled documentation necessary for identification of certified products.

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