



Urząd Dozoru Technicznego  
UDT-CERT

# CERTIFICATE

No. 505/CW/001/07

Office of Technical Inspection  
Product Certification Body UDT-CERT

certifies that

pressure and differential pressure transmitters  
PC(E)-28 SAFETY, PR(E)-28 SAFETY, PC(E)-28 Ex SAFETY,  
PR(E)-28 Ex SAFETY

manufactured by

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

satisfy the requirements of the standards

PN-EN 61508-1:2004; PN-EN 61508-2:2005; PN-EN 61508-3:2004;  
PN-EN 61511-1:2007; PN-EN 62061:2008

for safety integrity level SIL 1 with a tolerance of hardware faults HFT = 0  
for implementing safety functions based on pressure and differential pressure measurements:

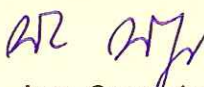
	$\lambda_s$	$\lambda_{DD}$	$\lambda_{DU}$	SFF	DC
PC(E)-28 SAFETY PC(E)-28 Ex SAFETY	$3,9143 \times 10^{-6}$ 1/h	$3,5687 \times 10^{-6}$ 1/h	$2,0920 \times 10^{-6}$ 1/h	78,15%	63,04%
PR(E)-28 SAFETY PR(E)-28 Ex SAFETY	$3,9143 \times 10^{-6}$ 1/h	$3,5687 \times 10^{-6}$ 1/h	$2,1962 \times 10^{-6}$ 1/h	77,31%	61,90%

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

Date of issue: 04.05.2012

Director of the Centre for Certification  
and Conformity Assessment



  
Anna Geryńska

**Office of Technical Inspection**  
**Product Certification Body UDT-CERT**  
**Annex to the Certificate**  
**No. 505/CW/001/07**

1. Information on the product:

1.1. Category, type, brand or trade name:

Pressure and differential pressure transmitters: PC(E)-28 SAFETY, PR(E)-28 SAFETY, PC(E)-28 Ex SAFETY, PR(E)-28 Ex SAFETY.

1.2. Basic technical data:

Measurement ranges:

The PC(E)-28 SAFETY, PC(E)-28 Ex SAFETY transmitters are produced with any desired range in the interval 2,5 kPa÷100 MPa (overpressure, underpressure); 40 kPa ÷ 8 MPa (absolute pressure).

The PR(E)-28 SAFETY, PR(E)-28 Ex SAFETY transmitters are produced with any desired range in the interval 1 kPa to 2,5 MPa.

Environmental requirements:

Operating temperature -40 ÷ 80°C for PC(E)-28 SAFETY,

Operating temperature -25 ÷ 80°C for PR(E)-28 SAFETY,

Thermal compensation range -10 ÷ 80°C for PC(E)-28 SAFETY, PC(E)-28 Ex SAFETY,

Thermal compensation range 0 ÷ 70°C for PR(E)-28 SAFETY, PR(E)-28 Ex SAFETY.

Relative humidity 0 ÷ 98%,

Vibration max 4g.

Power supply: 10,5÷36 VDC, (rated 24 VDC) - for output signal 4÷20 mA, for PC(E)-28 SAFETY, PR(E)-28 SAFETY.

Table 1. Metrological parameters - PC(E)-28 SAFETY, PC(E)-28 Ex SAFETY.

Parameters	Measurement range		
	10 kPa	40 kPa	0...100 kPa ÷ 100 MPa
Overpressure limit (repeatable, no hysteresis)	100 kPa	250 kPa	4 x range max 120 MPa
Damaging overpressure	200 kPa	500 kPa	8 x range max 200 MPa
Accuracy	0,3%	0,2% (0,16% - special version)	
Thermal error	typically 0,3% / 10°C; max 0,4% / 10°C		typically 0,2% / 10°C; max 0,3% / 10°C
The maximum cumulative error for the compensation range	± 1% of range		
Long term stability	0,2% / year	0,1% / year	
Hysteresis and repeatability	0,05%		

Table 2. Metrological parameters - PR(E)-28 SAFETY, PR(E)-28 Ex SAFETY.

Parameters	Measurement range		
	10 kPa	40 kPa	10 kPa...2,5 MPa
Static pressure limit. Overpressure limit (repeatable, no hysteresis).	100 kPa	250 kPa	6 x range max 4 MPa
Damaging overpressure	200 kPa	500 kPa	8 x range max 10 MPa
Accuracy	0,4%	0,25%	
Thermal error	typically - 0,3% / 10°C max - 0,4% / 10°C	typically - 0,2% / 10°C max - 0,3% / 10°C	
The maximum cumulative error for the compensation range	± 1% of range		
Hysteresis and repeatability	0,05%		

Electromagnetic immunity:

ESD - 6 kV/8 kV contact / air, Burst - 2 kV, Surge 1kV/0,5 kV, conducted - 10 V (150 kHz - 80 MHz), radiation - 10 V/m to 1 GHz, 3 V/m to 2 GHz, 1V/m to 2,7 GHz.

Enclosure ingress protection:

IP65 - PC(E)-28 SAFETY, PR(E)-28 SAFETY with PD-type connector, acc. to DIN 43650, with PG-11.

IP66 - PC(E)-28 SAFETY, PR(E)-28 SAFETY with PZ-type connector, with M20x1,5.

IP67 - PC(E)-28 SAFETY with connector types: PK and PM12.

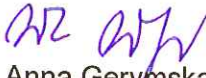
### 1.3. Intended use of a product:

Pressure transmitters or differential pressure transmitters PC(E)-28 SAFETY, PR(E)-28 SAFETY, PC(E)-28 Ex SAFETY, PR(E)-28Ex SAFETY are devices used for pressure and differential pressure measurements. Additionally the level, flow and density can be measured.

2. 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.
3. The results of the certification process have been recorded in the following documents:
  - Report of verification of the technical documentation of the products No. 505/CW/001/03 of 19.03.2012,
  - Report of assessment No. 505/CW/001/04 of 17.04.2012,
  - Report on checking the organizational and technical manufacturer conditions and the functional safety management No. 467/CW/001/05 of 14.02.2011,
  - Assessment of the documentation gathered during certification process No. 505/CW/001/06 of 17.04.2012.
4. The provisions concerning the supervision of the issued certificate are contained in the Agreement No. 37498/CW/2012 of 05.01.2012 on the certification of products.
5. The certificate loses its validity when the commitments contained in the Agreement No. 37498CW/2012 on the certification products are not fulfilled.

6. 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.
7. Together with the Certificate the manufacturer receives the labelled documentation necessary for identification of certified products.

Director of the Centre for Certification  
and Conformity Assessment

  
Anna Gerymska