DNV·GL

Certificate No:
MRA000001R

EU RO MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE

This Certificate is issued to

PSM Instrumentation Ltd

Haywards Heath, West Sussex, United Kingdom

for
Pressure Gauges/Transmitters

with type designation(s)
APT 500 series analogue pressure and level transmitters

The product is found to comply with
EU RO Mutual Recognition Technical Requirements for Pressure Gauges – Transmitters

Intended service
Pressure transmitters for use in control, alarm, monitoring and instrumentation systems subject to classification, including ballast and service tank gauging.

Applicable for a ship as defined in Mutual Recognition Provisions Article 10 Regulation on Common Rules and Standards For Ship Inspection and Survey Organizations.

See product description on page 2 for further details.

Temperature [°C]:	**-35°C and 90°C**
Vibration:	**±1 mm / 0.7 g**
EMC:	**All locations including bridge and open deck**
IP Code:	**APT 500D: IP65, APT 500S: IP68 (50 m)**

This Certificate is valid until **2023-02-27**.

Issued at **Høvik** on **2018-02-28**
DNV GL local station: **Southampton** for **DNV GL**

Approval Engineer: **Ståle Sneen**

Odd Magne Nesvåg
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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Job Id: **262.4-000098-1**
Certificate No: **MRA000001R**

Product description

APT 500 series analogue pressure transmitter for pressure and level gauging applications.
Fully submersible construction may be mounted internal or external to tank:

- APT 500S – submersible with cable – IP68 suitable for continuous immersion
- APT 500D – with DIN plug 43650 – IP65 suitable for mounting external to tank

Technical specifications:

Materials Sensor Body	316L or Titanium
Materials Diaphragm	316L, Titanium or Hastelloy C276
Standard Measurement Ranges (Bar)	-1.0, -0.35, -0.2, 0.2 0.35. 1.0, 2.5, 4.0, 6.0, 10, 16, 25, 40, 60
Measurement Type	Vented Gauge or Absolute
Overload	2 x Nominal Range
Span accuracy	±0.1% within compensated range
Zero accuracy	±0.1% within compensated range
Total error band	±0.2% of Nominal Range
Thermal compensation	No thermal effect within range 0°C to 70^{0}C
Long term stability	Error not exceeding ±0.1% per annum
Max / Min process temperature	-35°C to 85^{0}C Continuous (-40°C to 100^{0}C for short periods)
IECEx certification	Refer to manufacturer for valid certification
ATEX	Refer to manufacturer for valid certification
Signal Output	4-20 mA / 2 wire loop powered
Power Supply	10-30 Vdc
Maximum load	Supply dependant. (Vs-10)/0.02 = Load in Ohms

Manufactured by

PSM Instrumentation Ltd,
Unit 3, Burrell Road, Haywards Heath,
West Sussex, RH16 1TW, United Kingdom

Application/Limitation

Applicable for a ship as defined in Mutual Recognition Provisions Article 10 Regulation on Common Rules and standards For Ship Inspection and Survey Organizations.

The pressure transmitter shall be powered by the 4-20 mA loop by an instrument power supply.

Type Approval documentation

Marking of product

The products to be marked with:
- manufacturer name
- model name
- serial number
- power supply ratings

Other conditions

The pressure transmitters have been verified for compliance with EU Mutual Recognition Technical Requirements for Pressure gauges – transmitters version 0.0, dated 2016-07-01.

Environmental test parameters		DNV GL location classes
Temperature:	-35°C ~ +90°C	D
Vibration:	±1.0 mm / 0.7 g	A
Humidity:	95%RH @ 55°C, damp heat cyclic	B
EMC:	All locations including bridge and open deck	B
Enclosure:	IP65 – when delivered with DIN plug 43650	B
	IP68 (50 m, 24 hours) – when delivered with cable	D
	(IP-ratings according to IEC 60529)	

The technical requirements do not specify any special design requirements for the cable. The vented gauge transmitters are delivered with an integrated special cable (Habia Cable R 2019 STR 2x2 + Vent Tube) that has been reviewed and found to comply with DNV GL rules for classification of ships Pt.4 Ch.8 Sec.9.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment will be performed annually and at renewal of the certificate.

END OF CERTIFICATE