

Certificate No:

MR-A-9

File No:

MR-A002

Job Id:

262.4-000018-1

EU RO MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE

This Certificate is issued to

PSM Instrumentation Ltd
HAYWARDS HEATH, WEST SUSSEX, United Kingdom

for
Sensors

with type designation(s)
ICT 1000 Pressure Transmitter for marine applications

The product is found to comply with
DNV TA program for EU-RO-MR for Sensors

Intended service

Applicable for a ship as defined in Mutual Recognition provisions Article 10 Regulation on Common Rules and Standards For Ship Inspection and Survey Organizations.
Sensors intended for a wide range of process and electrical connections.

This Certificate is valid until **2019-12-16**.

Issued at **Høvik** on **2014-12-17**

DNV GL local station: **Southampton**

Approval Engineer: **Nils Jarem**

for **DNV GL**

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Odd Magne Nesvåg
Head of Section

If any person suffers loss or damage which is proven to have been caused by any negligent act or omission of the Society, then the Society shall pay compensation to such person for his proven direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question. The maximum compensation shall never exceed USD 2 million.

In this provision the "Society" shall mean DNV GL AS as well as all its direct and indirect owners, affiliates, subsidiaries, directors, officers, employees, agents and any other person or entity acting on behalf of DNV GL AS.

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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Product description

ICT 1000 Series:

Description - Intelligent Process Transmitter.

The ICT converts a non-electric quantity to a process-relevant electrical signal.

Power Supply Digital only Mode	8 – 30Vdc	Isolated external PSU required	
Power Supply Including Analogue Mode	12 – 30Vdc		
Accuracy: Level (at 20°C and 1 bar)	± 0.1% FS (Digital mode only) ± 0.25% FS (Analogue mode or dual mode)		
Long term stability	< ± 0.2% FS per year		
Accuracy: Temperature	± 1°C (Measurement available in digital mode only)		
Temperature coefficient	± 0.025% FS per 1°C (Over calibration range 0-60°C (Other temperature ranges on request))		
Programmable measurement Range	-10 mbar to 20 bar (Gauge or Absolute reference options)		
Measuring cell pressure overload ratings	Range (Bar)	Proof Pressure (Bar)	Burst pressure (Bar)
	0.20	1.4	2.7
	0.35	1.5	3
	1	3	5
	2	6	10
	10	30	50
20	60	100	
Analogue Output	4 – 20mA / 2 wire loop powered		
Digital Output	MODBUS / RS485 2 Wire half duplex		
Sensing Element	Ceramic (96% AL2O3) measuring cell		
Construction	316 SS with Kalrez seal and LSHF PET-E sheathed cable		
Operating Temperature	-20°C to +80°C		
IP rating	IP68 (suitable for continuous immersion)		
Intrinsic Safety	Ex ia IIC T4		

Manufactured by

PSM Instrumentation Ltd,
 Unit 3 Burrell Road, Haywards Heath,
 West Sussex, RH16 1TW.
 UK

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.

Type Approval documentation

Manual: Man 049k, dated 2014-08-05, Installation Operation & Maintenance, Instruction Manual
 Data Sheet: DAT 04d, dated 2014-06-24, iCT 1000 marine pressure transmitter
 Drawings: P95022-1000-GA, Rev B, iCT Main and interconnect boards outline
 P95006-1000-GA, Rev C, iCT Exploded drawing \ parts list
 AP02702, Rev B, iCT Outline & additional fittings drawing
 AP02705 Firmware revision list, dated 2014-06-26 (Version: 2.53)
 Description: AP02704, Rev A, ICT Block Diagram
 Test reports: TL1203 dated 12.05.2008, PSM test report
 TL1203 dated 30.06.2008, PSM shock test report
 TL1203 dated 25.06.2008, PSM salt mist test report
 EMC001 ver 5 EMC Test Plan & Results
 AP02706, dated 14.10.2014, EU MR DNV/GL Witnessed Testing
 SOU 0800311/1 dated 22.08.2008, IP68 Certificate
 ITS09ATEX26339X-EC-Type Examination Certificate

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EU RO MR type approval PQA scheme periodical assessment checklist dated 2014-10-15

Marking of product

Model Code ICT 1000
Unique S/N
Manufacture date

Other Conditions

The sensors have been verified for compliance with EU Mutual Recognition Technical Requirements version 0.1, dated 2014-01-31.

MS Testing test reports TL1203 are accepted based on the following:
Mariner Systems was recognized by Bureau Veritas as per note NR320 as listed in these reports. They are now a UKAS accredited Test Laboratory no. 4413.

Environmental test parameters
Temperature: -25°C and 70°C
Vibration: ±0.7 mm / 1,0g
EMC: All locations including bridge and open deck
Enclosure: IP68 (IP ratings according to IEC 60529)

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 is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE