EUROPEAN UNION RECOGNISED ORGANISATION (EU RO) MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE

Certificate No:
MRA000003Z

In accordance with Article 10.1 of EU Regulation 391/2009

This Certificate is issued to

ifm electronic gmbh

Essen, **Germany**

for
Pressure Transmitters

with type designation(s)
PT24xx, PT53xx, PT54xx

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

Intended service
The pressure transmitters are intended for use in control and monitoring systems subject to classification.

Temperature [°C]:	**-25 to 70**
Vibration:	**±1.6 mm / 4.0 g**
EMC:	**All locations including bridge and open deck**
IP Code:	**IP56**

This is to certify:

that the Product referred to herein has been inspected for the Manufacturer, pursuant to the relevant requirements of the European Union Recognised Organisation Mutual Recognition procedure, required by Article 10.1 of EU Regulation 391/2009, and has been found in accordance with those requirements.

This Certificate is valid until **2027-07-25**.

Issued at **Hamburg** on **2022-07-26**

DNV local station: **Augsburg**

for **DNV**

Approval Engineer: **Dariusz Lesniewski**

Joannis Papanuskas
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.
LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

2-wire pressure transmitter for hydraulic applications

product family	article number	operating voltage	output function	process connection	measuring range
PT54xx	PT5400	8,5…36 V DC	4…20 mA	G 1/4 A	0…400 bar
	PT5401	8,5…36 V DC	4…20 mA	G 1/4 A	0…250 bar
	PT5402	8,5…36 V DC	4…20 mA	G 1/4 A	0…100 bar
	PT5403	8,5…36 V DC	4…20 mA	G 1/4 A	0…25 bar
	PT5404	8,5…36 V DC	4…20 mA	G 1/4 A	0…10 bar
	PT5412	8,5…36 V DC	4…20 mA	G 1/4 A	0…160 bar
	PT5414	8,5…36 V DC	4…20 mA	G 1/4 A	0…16 bar
	PT5415	8,5…36 V DC	4…20 mA	G 1/4 A	0…6 bar
	PT5423	8,5…36 V DC	4…20 mA	G 1/4 A	0…60 bar
	PT5443	8,5…36 V DC	4…20 mA	G 1/4 A	0…40 bar
	PT5460	8,5…36 V DC	4…20 mA	G 1/4 A	0…600 bar
	PT5494	8,5…36 V DC	4…20 mA	G 1/4 A	-1…10 bar
PT24xx	PT2400	8,5…36 V DC	4…20 mA	1/4-18 NPT	0…5000 psi
	PT2402	8,5…36 V DC	4…20 mA	1/4-18 NPT	0…1000 psi
	PT2415	8,5…36 V DC	4…20 mA	1/4-18 NPT	0…100 psi
	PT2424	8,5…36 V DC	4…20 mA	1/4-18 NPT	0…200 psi
	PT2432	8,5…36 V DC	4…20 mA	1/4-18 NPT	0…3000 psi
	PT2434	8,5…36 V DC	4…20 mA	1/4-18 NPT	0…300 psi
	PT2443	8,5…36 V DC	4…20 mA	1/4-18 NPT	0…500 psi
PT53xx	PT5300	8,5…36 V DC	4…20 mA	G 1/4 A	0…400 bar
	PT5301	8,5…36 V DC	4…20 mA	G 1/4 A	0…250 bar
	PT5302	8,5…36 V DC	4…20 mA	G 1/4 A	0…100 bar
	PT5303	8,5…36 V DC	4…20 mA	G 1/4 A	0…25 bar
	PT5304	8,5…36 V DC	4…20 mA	G 1/4 A	0…10 bar
	PT5312	8,5…36 V DC	4…20 mA	G 1/4 A	0…160 bar
	PT5314	8,5…36 V DC	4…20 mA	G 1/4 A	0…16 bar
	PT5315	8,5…36 V DC	4…20 mA	G 1/4 A	0…6 bar
	PT5343	8,5…36 V DC	4…20 mA	G 1/4 A	0…40 bar
	PT5360	8,5…36 V DC	4…20 mA	G 1/4 A	0…600 bar

Accessories:

Suitable connectors for operation are ifm-connectors of the EVM-Family designated as follows:

X	XX	X	X	XX	X	XX	X	XXXX	X	XX
[1]	[2;3]	[4]	[5]	[6;7]	[8]	[9;10]	[11]	[12;13;14;15]	[16]	[17;18]

[1]	A	= cable with connector
[2;3]	DO	= socket
[4]	A	= angled
	G	= straight
[5]	H	= M12 (A-coded)
[6;7]	04	= four contacts
	05	= five contacts
[8]	0	= no LEDs
[9;10]	VA	= stainless steel nut
[11]	S	= Standard

[12;13;14;15]		= length in m, 5m max. (filled with leading 0´s if required, e.g. “0002”; “02,5”; “0,25”)
[16]	H	= PUR, free from halogen
[17;18]	04	= four cores
	05	= five cores

Manufactured by

ifm prover gmbh
Waldesch 9
88069 Tettnang, GERMANY

ifm prover s.r.l.
Sibiu, ROMANIA

Application/Limitation

The Type Approval covers all hardware listed under Product description. The pressure transmitters are intended for marine use in control, alarm, monitoring and instrumentation systems subject to classification.

The operating voltage of the sensor must be protected against surge.

Type Approval documentation

Marking of product

The products to be marked with:
- manufacturer name
- model name
- product code (with serial number and date of manufacture)

Other Conditions

The pressure transmitters have been verified for compliance with EU Mutual Recognition Technical Requirements PRESSURE GAUGES – TRANSMITTERS version 0.1, dated 2022-01-01.

Environmental test parameters

Temperature:	-25°C and +70°C
Vibration:	±1.6 mm / 4.0 g
EMC:	All locations except bridge and open deck
Enclosure:	IP56 (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 annually and at renewal of this certificate.

Generic Statement for EU RO MR Type Approval Certificate

When a product is presented with this EU RO MR Type Approval Certificate for given application, its acceptability with regards to the limitations stated in the certificate conditions defined in 1b, 1c and 1d of the applied Technical Requirement will be evaluated by the EU RO in charge of classing the ship or being in charge of the unit/system certification.

In accordance with Article 10 of Regulation (EC) No 391/2009 of the European Parliament and of the Council of 23 April 2009 "on common rules and standards for ship inspection and survey organizations", the following organizations, recognized by the EU on this date, have agreed on the technical and procedural conditions under which they will mutually recognize this certificate:

- American Bureau of Shipping (ABS);
- Bureau Veritas (BV);
- China Classification Society (CCS);
- Croatian Register of Shipping (CRS);
- DNV;
- Indian Register of Shipping (IRS);
- Korean Register (KR);
- Lloyd's Register Group Ltd. (LR);
- Nippon Kaiji Kyokai General Incorporated Foundation (ClassNK);
- Polish Register of Shipping (PRS);
- RINA Services S.p.A. (RINA);
- Russian Maritime Register of Shipping (RS).

The scheme for the mutual recognition of class certificates for materials, equipment and components laid down by Article 10(1) of Regulation (EC) No 391/2009 is only enforceable within the Union in respect of ships flying the flag of a Member State. As far as foreign vessels are concerned, the acceptance of relevant certificates remains at the discretion of relevant non-EU flag States in the exercise of their exclusive jurisdiction, notably under the United Nations Convention on the Law of the Sea (UNCLOS). (In accordance with COMMISSION IMPLEMENTING REGULATION (EU) No 1355/2014 amending Regulation (EC) No 391/2009 - recital (25)).