

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pressure Sensor

with type designation(s)
Waterpilot FMX21

Issued to

Endress + Hauser SE + Co. KG
Maulburg, Baden-Württemberg, Germany

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Temperature	B
Humidity	B
Vibration	A
EMC	B
Enclosure	D

Issued at **Hamburg** on **2020-09-21**

This Certificate is valid until **2025-09-20**.

DNV GL local station: **Augsburg**

for **DNV GL**

Approval Engineer: **Heinz Scheffler**

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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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

Hydrostatic level measurement Waterpilot FMX21

- Power supply: 24V DC
- Output signal 2-wire connection: 4...20mA; 4...20mA + HART 6.0 (for configuration only)
- Materials (Probe): stainless steel 1.4435 (AISI 316L); PPS/polyolefin coated for saltwater application
- Cable: Li2GS2Y (6x 0,2) screened and insulated with Polyurethane (PUR) or Tetrafluorethylene-Hexafluorpropylene (FEP)
- Seal: EPDM or Viton
- Membrane: ceramic measuring cell
- Pressure range: 0...0.1 up to 0...20.0 bar
- Process connection: Freely suspended cable
- Probe connection=99: TSP - FMX21 with flanged process connection
- Degree of protection: IP68 (400m)
- Ex protection referenced by certificate KEMA 08ATEX0173

Order code, Revision 00 dated 12.08.2020

- 10 = Approval: Ex approval certificates to be ordered by the manufacturer
- 20 = Output: 1, 2
- 45 = Probe tube: 1, 2, 5
- 70 = Sensor range: 1C, 1D, 1F, 1G, 1H, 1K, 1M, 1P, 1Q, 2K, 2M, 2P, 2Q
- 80 = Reference accuracy: D, G
- 90 = Calibration; unit: A, B, C, D, E, F, J, K
- 100 = Probe connection: 30, 31, 35, 40, 41, 45, 50, 51, 55, 60, 61, 65, 99
- 190 = Seal: A, H

Application/Limitation

Please observed Special version documentation FMX21 with process flange (SV01284P/00/A2/01.13).

Halogen-free properties of the cable have not been tested.

Measures for limitation of the propagation of fire along cable bundles are required (fire stops).

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body

Type Approval documentation

Test Reports: 970008006_AK, E092577E1; U092577E1, S092577E; 970002202; 970002203; 970000791; 970002314 PUR cable (26.11.10); 970002203 FEP cable (08.09.10)

Documents: Technical Information: TI00431P/00/EN/17.18; Construction drawings and Wiring diagrams (17.07.2020); Nameplate drawing 960008977-A dated 21.06.2010); Software Reference List 15000234, Ver. 00.03 (2010-05-05); Special version documentation FMX21 with process flange (SV01284P/00/A2/01.13); Water- / Deltapilot marine execution 960017688 drawing (28.04.2015);

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Job Id: **262.1-033492-1**
Certificate No: **TAA00002S1**

Tests carried out

Applicable tests according to DNV GL CG-0339, December 2019

Marking of product

The products to be marked with:

- Model name
- Manufacturer name
- Serial number

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 after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE