

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Level Transmitter**

with type designation(s)

Micropitot FMR51, FMR52, FMR54, FMR57

Issued to

Endress + Hauser SE + Co. KG
Maulburg, 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.****Location classes:**

Temperature	D
Humidity	B
Vibration	A
EMC	A, B
Enclosure	B

Issued at **Hamburg** on **2020-10-02**This Certificate is valid until **2025-10-01**.for **DNV GL**DNV GL local station: **Augsburg**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.



Product description

Level-Radar for level measurement in liquids or bulk solids

Output (Power supply):

2-wire: 4...20mA HART 6/7 (24V DC), 4...20mA HART 6/7 switch-output (24V DC)

4...20mA HART 6/7 0...20mA (24V DC)

Profibus PA, Foundation Fieldbus

4-wire: 4...20mA HART 6/7 (10.4...48V DC), 4...20mA HART 6/7 (90...253V AC)

Housing: GT19 plastic PBT, GT18 316L or GT20 aluminium coated

Antenna: Horn

Ex-Proof according to Certificate

Model variants:

Micropilot FMR51

10 = Approval	Any double letter and/or number combination
20 = Power Supply; Output	A, B, C, E, G, K, L
30 = Display; Operating	A, C, E, L, M
40 = Housing	A, B, C
50 = Electrical Connection	Any single letter and/or number
70 = Antenna	BA, BB, BC, BD
90 = Seal	Any double letter and/or number
100 = Process Connection	Any triple letter and/or number combination; except for thread $\leq 1/2''$; except for synthetic material
540 = Application Package	EH, EJ, EM
590 = Additional Approval	LA
610 = Accessory Mounted	NA, NC, NF
620 = Accessory Enclosed	No option allowed
850 = Firmware Version	72, 73, 74, 75, 76, 77, 78

Product structure based on document: Order code for Micropilot FMR51, Rev. 00 (2020-02-20)

Micropilot FMR52

10 = Approval	Any double letter and/or number combination
20 = Power Supply; Output	A, B, C, E, G, K, L
30 = Display; Operating	A, C, E, L, M
40 = Housing	A, B, C
50 = Electrical Connection	Any single letter and/or number
70 = Antenna	BO, BP
100 = Process Connection	Any triple letter and/or number combination; except for thread $\leq 1/2''$; except for synthetic material
540 = Application Package	EH, EJ
590 = Additional Approval	LE
610 = Accessory Mounted	NA, NC, NF
620 = Accessory Enclosed	No option allowed
850 = Firmware Version	72, 73, 74, 75, 76, 77, 78

Product structure based on document: Order code for Micropilot FMR52, Rev. 00 (2020-02-20)

Micropilot FMR54

10 = Approval	Any double letter and/or number combination
20 = Power Supply; Output	A, B, C, E, G, K, L
30 = Display; Operating	A, C, E, L, M
40 = Housing	A, B, C
50 = Electrical Connection	Any single letter and/or number
70 = Antenna	AA, BC, BD, BE, BF, BG

Job Id: **262.1-032638-1**
Certificate No: **TAA00002MW**

90 = Seal	Any double letter and/or number combination
100 = Process Connection	Any triple letter and/or number combination; except for thread $\leq 1/2"$; except for synthetic material
540 = Application Package	EH, EJ
590 = Additional Approval	LJ
610 = Accessory Mounted	NA, NC, NF
620 = Accessory Enclosed	No option allowed
850 = Firmware Version	72, 73, 74, 75, 76, 77, 78

Product structure based on document: Order code for Micropilot FMR54, Rev. 00 (2020-02-20)

Micropilot FMR57

10 = Approval	Any double letter and/or number combination
20 = Power Supply; Output	A, B, C, E, G, K, L
30 = Display; Operating	A, C, E, L, M
40 = Housing	A, B, C
50 = Electrical Connection	Any single letter and/or number
70 = Antenna	BC, BD
90 = Seal	Any double letter and/or number
100 = Process Connection	Any triple letter and/or number combination; except for thread $\leq 1/2"$; except for synthetic material
110 = Air Purge Connection	1, 2
540= Application Package	EH, EJ
590= Additional Approval	LJ
610 = Accessory Mounted	NA, NF
620 = Accessory Enclosed	No option allowed
850 = Firmware Version	72, 73, 74, 75, 76, 77, 78

Product structure based on document: Order code for Micropilot FMR57, Rev. 00 (2020-02-20)

Approval conditions

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.

Application/Limitation

Location class EMC 'A': 4-wire

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

Job Id: **262.1-032638-1**
Certificate No: **TAA00002MW**

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