



TYPE APPROVAL CERTIFICATE

Certificate No. : HMB18553-AE012 **Initial Approval :** 15th May, 2020
Product : Level Transmitter
Manufacturer : Endress+Hauser SE+Co. KG
Hauptstr. 1, D-79689, Maulburg, Germany

Product Description : Type : Micropilot FMR60, FMR62, FMR67

" See Appendix 1 "

Approval Condition : " See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows and entered in the "List of Approved Manufacturers and Type Approved Equipment".

Pt. 6, Ch. 2, Art. 301 of the Rules for Classification of Steel Ships.

This Certificate is valid until 14th May, 2025

Issued at Busan, Korea on 15th May, 2020



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No (ME20017084100) and certificate No.(HMB18553-AE012).



KOREAN REGISTER

*General Manager of
Marine & Ocean Equipment Team*

- Note :**
1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
 2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
 3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
 4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Appendix 1

Product Description and/or Approval Condition

Certificate No : HMB18553-AE012

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A. Product Description

1. Product Specification

Micropilot FMR6x series is a free space radar device for level measurement in liquids (FMR60/62) and in solids (FMR67).

- 1) Supply voltage : 24V DC, 2-wire, loop-powered
- 2) Output : 4-20 mA HART, 4-20 mA or open collector switch output
- 3) Degree of protection : IP66/68
- 4) Model designation
Order code : FMR60 10, 20, 30, 40, 50, 70, 90, 100, 540, 550, 550, 580, 590, 610, 850
10 - Approvals : Any double letter and/or number combination
20 - Power supply / Output : A, B, C
30 - Display : A, C, E, L, M
40 - Housing : A, C
50 - Electrical connection : A, B, C, D, I, M
70 - Antenna : GA
90 - Sealing : A3, A4
100 - Process connection : GGJ, RGJ, XJG, XJJ, XKG, XKJ, XLG, XLJ
540 - Application package : EH, EJ, E9
550 - Calibration : Any double letter/number combination
580 - Test, certificate : Any double letter/number combination
590 - Additional approval : Any double letter/number combination
610 - Accessory mounted : NA, NC, NF
850 - Firmware version : 72

- Order code : FMR62 10, 20, 30, 40, 50, 70, 90, 100, 540, 550, 550, 580, 590, 610, 850
- 10 - Approvals : Any double letter and/or number combination
 - 20 - Power supply / Output : A, B, C
 - 30 - Display : A, C, E, L, M
 - 40 - Housing : A, C
 - 50 - Electrical connection : A, B, C, D, I, M
 - 70 - Antenna : GE, GF, GM, GN, GP
 - 90 - Sealing : A5, C1, F5
 - 100 - Process connection : AFK, AGK, AHK, AJK, ATK, CFK, CGK, CHK, CJK, GDJ, GGJ, KFK, KJK, KHK, KJK, RDJ, RGJ
 - 540 - Application package : EH, EJ, E9
 - 550 - Calibration : Any double letter/number combination
 - 580 - Test, certificate : Any double letter/number combination
 - 590 - Additional approval : Any double letter/number combination
 - 610 - Accessory mounted : NA, NC, NF
 - 850 - Firmware version : 72

- Order code : FMR67 10, 20, 30, 40, 50, 70, 90, 100, 110, 540, 550, 550, 580, 590, 610, 850
- 10 - Approvals : Any double letter and/or number combination
 - 20 - Power supply / Output : A, B, C
 - 30 - Display : A, C, E, L, M
 - 40 - Housing : A, C
 - 50 - Electrical connection : A, B, C, D, I, M
 - 70 - Antenna : GA, GP
 - 90 - Sealing : A3, A5
 - 100 - Process connection : AGJ, AHJ, CGJ, CHJ, GGJ, KGJ, KHJ, RGJ, XJG, XJJ, XKG, XKJ, XLG, XLJ, X3J, X5J
 - 110 - Flushing air connection : A, 1, 2, 3, 4
 - 540 - Application package : EH, EJ, E9
 - 550 - Calibration : Any double letter/number combination
 - 580 - Test, certificate : Any double letter/number combination
 - 590 - Additional approval : Any double letter/number combination
 - 610 - Accessory mounted : NA, NF
 - 850 - Firmware version : 72

2. Approved Drawings and Documents

- 1) Technical information No. TI01302F/00/EN/04.18, TI01303F/00/EN/04.18, TI01304F/00/EN/04.18 (2018-04-12)
- 2) Drawing No. 960018584, 960018593, 960018607, 960018608, 960018611, 960018612
- 3) Order code for Micropilot FMR60 Rev.4, FMR62 Rev.4, FMR67 Rev.4 (2019-09-01)

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3. Test Reports, etc.

- 1) Test Reports
 - paconsult No. 18-10721 Rev.0 (2018-12-03)
 - MTN No. 072225.038.19 V2.0 Issue No. 2 (2019-05-09)
 - E+H No. 970005920 and 970005921 (2016-08-25), 970006013 and 970006014 (2016-08-24), 970006015 and 970006016 (2016-08-30)
- 2) E+H Statement EMC test report 072225.038.19 Issue 2 (2019-05-20)
- 3) Operating instructions No. BA01618F/00/EN/02.18, BA01619F/00/EN/02.18, BA01620F/00/EN/02.18 (2018-04-12)
- 4) Ex-proof Cert. No. IECEx IBE 16.0035X Issue No.1, IBExU16ATEX1194X Issue No.2

B. Approval Condition

1. Application & Limitation

- 1) This approval is granted on the basis of the test reports and the approved documentation.
- 2) The manufacturer should inform this Society of all kinds of revisions of the equipment. If the changes are recognized to affect functionality of the approved equipment, type test to confirm the reliability of the revised equipment may be performed in the presence of our surveyor.
- 3) Explosion-proof certification by a notified/recognized Certification Body is not covered by this certificate. Ratings and Special Condition for Safe Use in hazardous areas are to be obtained from the relevant valid Ex-Certificate.

2. Individual Product Cert. and Drawing Approval Requirement

- 1) Individual Product Certification is not required.

3. Marking

- 1) The product or packing is to be marked with the manufacturer's name and type designation on a suitable position.

4. Others

- 1) Test condition

Test	Condition	Remark
EMC	All locations including the bridge and deck zone	Up to 6GHz
Temperature	-40 ~ +76°C	-
Vibration	Acceleration $\pm 0.7g$	-
Degree of protection	IP66/67/68	-
Salt mist	Not applied	-

< End of Certificate >