

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Level Transmitter

with type designation(s)
Guided Level-Radar, Series FMP5x

Issued to

Endress + Hauser GmbH+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 B
Enclosure B (IP6x, IPx6/IPx8 tested)

Issued at **Hamburg** on **2017-12-12**

This Certificate is valid until **2018-11-17**.

DNV GL local station: **Augsburg**

for **DNV GL**

Approval Engineer: **Dariusz Lesniewski**

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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

Guided Level-Radar for level measurement in liquids or bulk solids – model variants:
FMP51, FMP52, FMP54, FMP55, FMP57

Power supply	DC: 24V, 2-wire, loop-powered or 10.4-48V, 4-wire
Output	4-20mA 4-20mA HART PROFIBUS-PA Foundation Fieldbus Switch-output
Housing	Plastic PBT 316L or aluminium coated
Probe	- Rod, max. length = 4.0 m (only in bypass and surge pipe applications) Rod probe must always be fixed at each 500mm with center washer; Installation of center washer at the level of inlets and outlets is forbidden - Coax, max. length = 6.0 m Coax pipe must always be fixed at the end and at each 1500mm - Rope, max. length = 45 m

Levelflex FMP51

Product structure based on / related to approval drawing no. 960016238 version A (31.08.2017)

10	Approval	Any double letter and/or number combination
20	Power Supply; Output	A, B, C, E, G
30	Display; Operating	A, C, E, L, M
40	Housing	A, B, C
50	Electrical Connection	Any single letter and/or number
60	Probe	Any double letter and/or number (rods only in bypass and surge pipe applications)
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	EB, EH, EJ
590	Additional Approval	LA, LC, LE, LF, LG, LH, LI, LU, L8, L9
600	Probe Design	No option allowed
610	Accessory Mounted	NA, NC, NF, OA, OB, OC, OD, OE
620	Accessory Enclosed	PG
850	Firmware Version	71, 72, 73, 74, 75, 76, 77, 78

Levelflex FMP52

Product structure based on / related to approval drawing no. 960016239 version A (31.08.2017)

10	Approval	Any double letter and/or number combination
20	Power Supply; Output	A, B, C, E, G
30	Display; Operating	A, C, E, L, M
40	Housing	A, B, C
50	Electrical Connection	Any single letter and/or number combination
60	Probe	Any double letter and/or number (rods only in bypass and surge pipe applications)
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	EB, EH, EJ
590	Additional Approval	LA, LC, LE, LF, LG, LH, LI, LU, L8, L9
600	Probe Design	No option allowed
610	Accessory Mounted	NA, NC, NF, OE
620	Accessory Enclosed	No option allowed

Job Id: **262.1-026349-1**
 Certificate No: **TAA00001DB**

850	Firmware Version	71, 72, 73, 74, 75, 76, 77, 78
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Levelflex FMP54

Product structure based on / related to approval drawing no. 960018944 (01.09.2017)

10	Approval	Any double letter and/or number combination
20	Power Supply; Output	A, B, C, E, G
30	Display; Operating	A, C, E, L, M
40	Housing	A, B, C
50	Electrical Connection	Any single letter and/or number
60	Probe	Any double letter and/or number combination
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	EB, EF, EG, EH, EJ, E9
590	Additional Approval	LA, LC, LE, LF, LG, LH, LX, L8, L9
600	Probe Design	MB, MC, MD, ME
610	Accessory Mounted	NA, NF, OA, OB, OC, OD, OE
620	Accessory Enclosed	No option allowed
850	Firmware Version	71, 72, 73, 74, 75, 76, 77, 78

Levelflex FMP55

Product structure based on / related to approval drawing no. 960016240 version A (31.08.2017)

10	Approval	Any double letter and/or number combination
20	Power Supply; Output	A, B, C, E, G
30	Display; Operating	A, C, E, L, M
40	Housing	A, B, C
50	Electrical Connection	Any single letter and/or number
60	Probe	Any double letter and/or number (rods only in bypass and surge pipe applications)
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	LA, LE, LF, LG, LH, LI, LU, L8, L9
600	Probe Design	No option allowed
610	Accessory Mounted	NA, NC, NF, OE
620	Accessory Enclosed	No option allowed
850	Firmware Version	71, 72, 73, 74, 75, 76, 77, 78

Levelflex FMP57

Product structure based on / related to approval drawing no. 960016241 version A (31.08.2017)

10	Approval	Any double letter and/or number combination
20	Power Supply; Output	A, B, C, E, G
30	Display; Operating	A, C, E, L, M
40	Housing	A, B, C
50	Electrical Connection	Any single letter and/or number combination
60	Probe	Any double letter and/or number (rods only in bypass and surge pipe applications)
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
590	Additional Approval	LA, LE, LF, LG, LH, LI, LU, L8, L9
600	Probe Design	No option allowed
610	Accessory Mounted**	NA, NF

Job Id: **262.1-026349-1**
Certificate No: **TAA00001DB**

620	Accessory Enclosed**	PG
850	Firmware Version	71, 72, 73, 74, 75, 76, 77, 78

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 RU SHIP Pt.4 Ch.9 Sec. 1.

Application/Limitation

The installation and operating instructions for marine application according to document SD01328F/00/03.17 are to be observed.

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 Excertificate issued by a notified/recognized Certification Body.

Tests carried out

Applicable tests according to Class Guideline DNVGL-CG-0339, Edition November 2016.

Marking of product

The products to be marked with:

- manufacturer name
- device name / type
- order code
- 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 at least every second year and at renewal of this certificate.

END OF CERTIFICATE