

TYPE APPROVAL CERTIFICATE

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

with type designation(s)

Liquicap M FMI51/FMI52, Liquicap M FTI51/FTI52

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:**

Type	Temperature	Humidity	Vibration	EMC	Enclosure
Liquicap M FMI51/FMI52	D	B	A	B	B/C**
Liquicap M FTI51/FTI52	D	B	A	B/A*	B/C**

Class A: for FTI 51/52 with electronic insert FEI54***Class C: for housing F27 (order code for hosing = 6)**Issued at **Hamburg** on **2018-02-12**This Certificate is valid until **2023-02-11**.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

Liquicap M FMI51 (rod probe), **FMI52** (rope probe)

Capacitive level measurement for continuous measurement in liquids

Liquicap M FTI51 (rod probe), **FTI52** (rope probe)

Level limit switch, universal capacitive limit switch for liquids

Housing: Aluminium or Stainless steel 316L

Electrical connection: cable entry (gland, thread, plug)

Process connection: flange, thread

Electronic inserts :

- FMI 51/52: FEI50H (4...20mA/HART)
- FTI 51/52: FEI52 (3-wire PNP, 10...55V DC)
FEI54 (relay DPDT, 19...253V AC, 50/60Hz or 19...55V DC)
FEI55 (8/16mA, 11...36V DC)

Degree of protection: IP66

Software version: V01.03 (HART)

Versions Ex-protected: refer to Ex-proof certificates

Liquicap M FMI51

Product structure related to approval drawing 960015901	10 20 30 50 60 70 80 90 100
10 = Approval	Any single letter and/or number
20 = Inactive length (L3)	1, 2, 3, 5, 6
30 = Active probe length (L1); Insulation	A-H, K, M, N, P, R, S
50 = Process connection	Any triple letter and/or number combination; not approves are process connections <1/2" and of synthetic material
60 = Electronics; Output	A, B, V, W
70 = Housing	1, 3, 4, 5, 6
80 = Cable entry	A, B, C, D, E, Y* (*Only allowed modification = standardized cable entries)
90 = Type of probe	1-5
100 = Additional option	Any single letter and/or number (Multiple combination allow)

Liquicap M FMI52

Product structure related to approval drawing 960015902	10 20 30 50 60 70 80 90 100
10 = Approval	Any single letter and/or number
20 = Inactive length (L3)	1, 2, 3, 5, 6
30 = Active probe length (L1); Insulation	A-H, K, M, N, P, R, S
50 = Process connection	Any triple letter and/or number combination; not approves are process connections <1/2" and of synthetic material
60 = Electronics; Output	A, B, V, W
70 = Housing	1, 3, 4, 5, 6, 9* (TSPCR2819)
80 = Cable entry	A, B, C, D, E, Y* (TSPCR2819 (Standardized cable entries)
90 = Type of probe	1-5
100 = Additional option	Any single letter and/or number (Multiple combination allow)

70: 9* = TSPCR2819: Housing 316L, IP68 (50m/24h) with cable connected at E-insert, Housing with 2 eye bolts M6 and threat sleeve G1 -1/2 ISO288

80: Y* = TSPCR2819: Cable (type Li2GYS2Y 6 x 0,2 + 2 x Shl-sw-FEP) with cover and cable entry pressure resistant;

Note: 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).

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.

Application/Limitation

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

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

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