DNV·GL

Certificate No:
TAA00002W0

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Level Switches

with type designation(s)
Liquiphant FTL31

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.

Temperature	**D**
Humidity	**B**
Vibration	**B**
EMC	**B**
Enclosure	**C, D (cable version only)**

Issued at **Hamburg** on **2020-10-06**

This Certificate is valid until **2025-10-05**.
DNV GL local station: **Augsburg**

Approval Engineer: **Dariusz Lesniewski**

for **DNV GL**
Digitally Signed By:
Papanuskas, Joannis

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

Switching behaviour: on/off
Function:
- 3-wire DC-PNP: Positive signal at the switch output of the electronics
- 2-wire AC/DC: Load switching in the power supply line

Supply voltage:
- DC-PNP: 10 to 30 V DC, 2-wire
- AC/DC: 20 to 252 V AC/DC, 2-wire

Electrical connection: valve plug, M12 connector or cable (5m)
Housing versions: compact or short tube
LED display: green, yellow, red
Test magnet for function test
Degree of protection: IP 65 - valve plug
IP 65/67 - M12 connector
IP 66/68 (24h) - cable

Order code:

Selection code		**Description**
10 Approval		
	AA	Non Ex-area
	CA	CSA C/US General Purpose
20 Power supply		
	1	20-253VAC/DC; 2-Wire
	2	10-30VDC; 3-Wire PNP
40 Electrical Connection		
	M	Connector M12, IP65/67 NEMA Type 4X Encl.
	S	Cable 5m, IP66/68 NEMA Type 4X/6P Encl.
	U	Valve plug ISO4400 M16, IP65 NEMA Type 4X
	V	Valve plug ISO4400 NPT1/2, IP65
	W	Valve plug QUICKON, IP65
50 Sensor Design		
	2	Max. Process temperature 100°C
	3	Max. Process temperature 150°C
60 Sensor Type		
	AA	Compact version 316L Ra <3,2µm
	BA	Short rode version 316L Ra <3,2µm
110 Process connection		
	VAJ	Thread ASME MNPT1/2, 316L
	VBJ	Thread ASME MNPT3/4, 316L
	VCJ	Thread ASME MNPT1, 316L
	WBJ	Thread ISO228 G1/2, 316L
	WCJ	Thread ISO228 G3/4, 316L
	WDJ	Thread ISO228 G1, 316L
	WSJ	Thread ISO228 G1, 316L, with mounting adapter
	W5J	Thread ISO228 G3/4, 316L, with mounting adapter
	XBJ	Thread EN10226 R1/2, 316L
	XCJ	Thread EN10226 R3/4, 316L
	XDJ	Thread EN10226 R1, 316L
590 Further approvals		
	LC	WHG Overfill prevention (certificate)
	LE	DNV GL Marine approval

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.

Product certificate

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After certification the clause for software control will be put into force.

Type Approval documentation

Test Reports: MTN No. 07310.185.14 V1.0, MTN 07310.186.14 V1.0
Test Reports: paconsult No.14-6106, paconsult No. 14-5891a
Test Reports: E+H No. 970004180, E+H No. 970004181, E+H 970004182
Test Reports: E+H No. 970007893_AK, E+H No. 970007894_AK
Technical Information: TI01147F/00/EN/02.14
Technical Drawings according to 'E+H Document List' dated 20 Febr. 2015
E+H Document: 'Liquiphant Transducer Line, Liquiphant FTL3x, Ver. 02.00'
Type approval assessment report issued at Augsburg on 2020-09-16

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, December 2019.

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

END OF CERTIFICATE