DNV·GL

Certificate No:
TAA00001V2

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Position Transmitter

with type designation(s)
F90 series PMI Position Measuring System

Issued to
Pepperl+Fuchs GmbH
Mannheim, Baden-Württemberg, 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**

Issued at **Hamburg** on **2018-09-19**
This Certificate is valid until **2023-09-18**.
DNV GL local station: **Augsburg**

Approval Engineer: **Didier Girardin**

for **DNV GL**

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.

© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

Job Id: **262.1-026889-1**
Certificate No: **TAA00001V2**

Product description

F90 series PMI Position Measuring System inductiv equipped with IO-Link
Switching outputs programmable via IOLink, simultaneous detection of two damping elements at the same time, measuring and switching functions integrated, available in three measurement lengths (40 mm, 80 mm, and 120 mm)

Processor: STM32L151RDT6
software no. 18-32161C

F90 series [1)]

Art. No.	**Model No.**	**Measuring range**
PMI*-F90-IU2EP-IO-*: 1 analog output, 2 switching outputs (push-pull) [1)]		
#315190	PMI40-F90-IU2EP-IO-V15	0 ... 40 mm
#315193	PMI80-F90- IU2EP -IO-V15	0 ... 80 mm
#315196	PMI120-F90- IU2EP-IO-V15	0 ... 120 mm
#315191	PMI40-F90- IU2EP-IO-V15-3G-3D	0 ... 40 mm
#315194	PMI80-F90- IU2EP-IO-V15-3G-3D	0 ... 80 mm
#315197	PMI120-F90-IU2EP-C2EP-IO-V15-3G-3D	0 ... 120 mm
PM*-F90-IU-IO-*: 1 Analog output (current or voltage) [2)]		
#315189	PMI40-F90-IU-IO-V15	0 ... 40 mm
#315192	PMI80-F90-IU-IO-V15	0 ... 80 mm
#315195	PMI120-F90-IU-IO-V15	0 ... 120 mm
PMI*-F90-3EP-IO-*: 3 switching outputs (push-pull) [3)]		
#231920	PMI40-F90-3EP-IO-V15	0 ... 40 mm
#231921	PMI80-F90-3EP-IO-V15	0 ... 80 mm
#231922	PMI120-F90-3EP-IO-V15	0 ... 120 mm

1)	2)	-	3)		4)	-	5)	-	6)	-	7)
PMI	x	**-**	**F90**	**-**	x	**-**	**IO**	**-**	x	**-**	x

1) Basic Type: PMI (Position Measuring System inductive)
2) Measuring Range: 40 mm, 80 mm, 120 mm
3) Housing Type: F90 (PBT, stainless steel 1.4404 , brass, nickel-plated)
4) Electrical Output:
IU (Configurable Current/Voltage Analog-Output)
3EP (3 Switching Outputs programmable (P, N, Push-Pull)
IU2EP (Configurable Current/Voltage Analog-Output + 2 Switching Outputs programmable (P, N, Push-Pull)
5) Communication: IO-Link
6) Connector Type: V15 (12 mm Connector 5 Pole)
7) Special Properties: none, 3G-3D (Atex 3G-3D)

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, 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 Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

The operating voltage of the sensors must be well protected against surge caused by lightning, for example by operating at SELV/PELV power supplies.

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.

Clause for application software control
All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV GL for evaluation and approval.
Major changes in the software are to be approved before being installed in the sensor.

Type Approval documentation
Test report Pepperl+Fuchs no. PRDE-BW61C (2018.09.03)
Test report Pepperl+Fuchs no. PRDE-BFE7K (2018.09.03)
Test report Pepperl+Fuchs no. PRDE-BPR1 (2017.01.11)
Test report Pepperl+Fuchs no. PRDE-C2X0 (2018.08.15)

Typecode_PMI_Series (2018.07.16)

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 or manufacturer logo
- product name and part no.

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