



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00001V2
Revision No:
5

This is to certify:

That the Position Transmitter

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

Issued to

Pepperl+Fuchs SE
Mannheim, Germany

is found to comply with
DNV 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.

Location classes:

Temperature	D
Humidity	B
Vibration	B
EMC	B
Enclosure	C + D

Issued at **Hamburg** on **2021-11-26**

for **DNV**

This Certificate is valid until **2026-07-05**.

DNV local station: **Augsburg**

Approval Engineer: **Holger Jansen**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

F90 series PMI Position Measuring System inductive equipped with IO-Link
 Switching outputs programmable via IO-Link, 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⁾ Model No.

Measuring range

PMI*-F90-IU2EP-IO-*: 1 analog output, 2 switching outputs (push-pull) ¹⁾

PMI40-F90-IU2EP-IO-V15	0 ... 40 mm
PMI80-F90- IU2EP -IO-V15	0 ... 80 mm
PMI120-F90- IU2EP-IO-V15	0 ... 120 mm
PMI40-F90- IU2EP-IO-V15-3G-3D	0 ... 40 mm
PMI80-F90- IU2EP-IO-V15-3G-3D	0 ... 80 mm
PMI120-F90-IU2EP-IO-V15-3G-3D	0 ... 120 mm

PM*-F90-IU-IO-*: 1 Analog output (current or voltage) ²⁾

PMI40-F90-IU-IO-V15	0 ... 40 mm
PMI80-F90-IU-IO-V15	0 ... 80 mm
PMI120-F90-IU-IO-V15	0 ... 120 mm

PMI*-F90-3EP-IO-*: 3 switching outputs (push-pull) ³⁾

PMI40-F90-3EP-IO-V15	0 ... 40 mm
PMI80-F90-3EP-IO-V15	0 ... 80 mm
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 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)
Type Approval Assessment Report 2021-06-30

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021

Marking of product

The products to be marked with:

- manufacturer name or manufacturer logo
- product name and part no.

Place of manufacture

Pepperl+Fuchs (Vietnam) Company Limited
Lot S12-16, Street 20 Tan Thuan EPZ
Tan Thuan Dong Ward, District 7
Ho Chi Minh City
Vietnam

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