TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00001WX
Revision No:
4

This is to certify:

That the Measurement Converter

with type designation(s)
K-System, Z-System

Issued to
Pepperl+Fuchs SE
Mannheim, Baden-Württemberg, 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	**A**
EMC	**See product description on page 2**
Enclosure	**Required protection according to DNV GL Rules shall be provided upon installation onboard.**

Issued at **Hamburg** on **2024-02-05**
This Certificate is valid until **2024-06-30**.
DNV local station: **Augsburg**

Approval Engineer: **Holger Jansen**

for **DNV**

Joannis Papanuskas
Head of Section

Product description

System measurement converter modules as listed below:

Accessories / Power feed module (EMC B)
UPR-03
KFD2-EB2
KFD2-EB2.R4A.B

Isolated Switch amplifier 24V DC Supply voltage (EMC A)
KCD2-SR-Ex1.LB
KCD2-SR-Ex2
KFD2-SH-Ex1.T
KFD2-SH-Ex1.T.OP

Isolated Switch amplifier 24V DC Supply voltage (EMC B)
KFD2-SR2-Ex1.W
KFD2-SR2-Ex1.W.LB
KFD2-SR2-Ex2.W
KFD2-SR2-Ex2.W.SM
KFD2-SR2-Ex2.2S
KFD2-SOT2-Ex1.LB.IO
KFD2-SOT2-Ex2.IO

Isolated Switch amplifier 115/230 V AC Supply voltage (EMC B)
KFA5-SR2-Ex1.W
KFA5-SR2-Ex1.W.LB
KFA5-SR2-Ex2.W
KFA5-SR2-Ex2.W.IR
KFA6-SR2-Ex1.W
KFA6-SR2-Ex1.W.LB
KFA6-SR2-Ex2.W
KFA6-SR2-Ex2.W.IR

Pulse converter units 48...253 V AC or 20...90 V DC Supply voltage (EMC B)
KFU8-CRG2-Ex1.D
KFU8-GUT-Ex1.D
KFU8-UFC-Ex1.D
KFU8-UFT-Ex2.D

Temperature converter 24V DC Supply voltage (EMC B)
KFD2-UT2-1
KFD2-UT2-1-1
KFD2-UT2-2
KFD2-UT2-2-1
KFD2-UT2-Ex1
KFD2-UT2-Ex1-1
KFD2-UT2-Ex2
KFD2-UT2-Ex2-1

Transmitter Power Supply 24V DC Supply voltage (EMC A)
KCD2-STC-Ex1
KCD2-STC-Ex1.ES
KFD2-STC4-Ex1.ES
KFD2-CR4-1
KFD2-CR4-1.2O
KFD2-CR4-Ex1
KFD2-CR4-Ex1.2O
KFD2-STC4-1
KFD2-STC4-1-3
KFD2-STC4-1.2O
KFD2-STC4-1.2O-3
KFD2-STC4-Ex1
KFD2-STC4-Ex1.H
KFD2-STC4-Ex1-Y1

KFD2-STC4-Ex1-Y2
KFD2-STC4-Ex1.2O
KFD2-STC4-Ex1.2O.H
KFD2-STC4-Ex1.2O-Y1
KFD2-STV4-1-1
KFD2-STV4-Ex1-1
KFD2-STV4-Ex1-1-Y1
KFD2-STV4-Ex1-2
KFD2-STC4-Ex1.2O-1
KFD2-STC4-Ex1.2O-2
KFD2-CR4-2
KFD2-CR4-Ex2
KFD2-STC4-2
KFD2-STC4-2-3
KFD2-STC4-Ex2
KFD2-STC4-Ex2-Y229428
KFD2-STV4-2-1
KFD2-STV4-Ex2-1
KFD2-STV4-Ex2-2
KFD2-STC4-Ex1-Y122583
KFD2-STC4-Ex1.2O-Y122582
KFD2-STC4-Ex2-Y132953

Smart Repeater 24V DC Supply voltage (EMC A)

KCD2-SCD-Ex1
KFD2-SCD2-1.LK
KFD2-SCD2-2.LK
KFD2-SCD2-Ex1.LK
KFD2-SCD2-Ex2.LK

Solenoid driver loop powered (EMC A)

KCD0-SD-Ex1.1245

Solenoid driver loop powered (EMC B)

KFD0-SD2-Ex1.10100
KFD0-SD2-Ex1.1045
KFD0-SD2-Ex2.1045
KFD0-SD2-Ex1.1065
KFD0-SD2-Ex1.1180
KFD0-SD2-Ex2.1245

Solenoid driver 24 V DC supply voltage (EMC A)

KFD2-RCI-EX1
KFD2-SL2-Ex1
KFD2-SL2-Ex1.B
KFD2-SL2-Ex1.B-Y129909
KFD2-SL2-Ex2
KFD2-SL2-Ex2.B
KFD2-SL2-Ex1.LK
KFD2-SL2-Ex1.LK-Y1
KFD2-SL2-Ex1.LK.1045
KFD2-SL2-Ex1.LK.1270

DC repeater loop powered (EMC B)

KFD0-CS-1.50
KFD0-CS-Ex1.50P
KFD0-CS-2.50
KFD0-CS-Ex2.50P
KFD0-CS-Ex1.51P
KFD0-CS-Ex2.51P
KFD0-CS-Ex2.51P-Y107439
KFD0-CS-Ex1.53
KFD0-CS-Ex2.53
KFD0-CS-Ex1.52
KFD0-CS-Ex2.52
KFD0-CS-Ex1.54
KFD0-CS-Ex2.54
KFD0-CS-Ex1.54-Y1
KFD0-CS-Ex1.54-Y2

KFD0-CS-Ex1.54-Y3
KFD0-CS-Ex2.54-Y207412

Earth leakage detector 24 V DC supply voltage (EMC A)
KFD2-ELD-16
KFD2-ELD-EX16

Relay module loop powered (EMC B)
KFD0-RO-2
KFD0-RO-Ex2
KFD0-RSH-1.4S.PS2

Z-System Zener barriers as listed below:
Positive Polarity Shunt Zener Diode Barriers: Z7**
Negative Polarity Shunt Zener Diode Barriers: Z8**
A.C. Shunt Zener Diode Barriers: Z9**

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 electromagnetic compatibility (EMC) in the range of 2 GHz to 6 GHz according to DNV-CG-0339 from the year 2021 has not been documented. The EMC up to 6 GHz must be additionally documented for installations on ships contracted for construction on or after January 1, 2022

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.

The modules must be terminated with Phoenix Contact E/AL-NS 35 termination fittings, or equivalent, on both ends of the DIN-rail to satisfy the requirements for vibration.

Type Approval documentation

Production places

Pepperl+Fuchs Asia Pte. Ltd
P+F Building
18 Ayer Rajah Crescent
139942 Singapore
Singapore

PT Pepperl+Fuchs Bintan
SD 56, 57 Lobam
Bintan Industrial Estate
Pulau Bintan, Riau
Indonesia

Pepperl+Fuchs Co. Ltd.
Lot S 12-16a, Street 20 Tan Thuan EPZ
Ward Tan Thuan Dong , District 7
Ho Chi Minh City
Viet Nam

Tests carried out

Applicable tests according to Class Guideline DNVGL-CG-0339, Nov 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

A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE