



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00001WX
Revision No:
6

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 Rules shall be provided upon installation onboard.

Issued at **Hamburg** on **2024-07-01**

This Certificate is valid until **2029-06-30**.

DNV local station: **Augsburg**

for **DNV**

Approval Engineer: **Holger Jansen**

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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

System measurement converter modules as listed below:

Accessories / Power feed module (EMC B)

UPR-03
KFD2-EB2
KFD2-EB2.R4A.B
KFD2-EB2.SP
KFD2-EB2.R4A.B.SP

Isolated Switch amplifier 24V DC Supply Voltage (EMC A)

KCD2-SR-1
KCD2-SR-1.SP
KCD2-SR-1.LB
KCD2-SR-1.LB.SP
KCD2-SR-2
KCD2-SR-2.SP
KCD2-SR-Ex1
KCD2-SR-Ex1.SP
KCD2-SR-Ex1.LB
KCD2-SR-Ex2
KCD2-SR-Ex2-Y1
KCD2-SR-Ex1.LB.SP
KCD2-SR-Ex2.SP
KFD2-SOT3-Ex1.LB
KFD2-SOT3-Ex1.LB.IO
KFD2-SOT3-Ex2
KFD2-SOT3-Ex2.IO
KFD2-SOT3-Ex2.IO-Y1
KFD2-ST3-Ex1.LB
KFD2-ST3-Ex2
KFD2-SR3-2.2S
KFD2-SR3-Ex2.2S
KCD2-SOT-1.LB
KCD2-SOT-1.LB.SP
KCD2-SOT-2
KCD2-SOT-2.SP
KCD2-SOT-Ex1.LB
KCD2-SOT-Ex1.LB.SP
KCD2-SOT-Ex2
KCD2-SOT-Ex2.SP
KCD2-ST-1.LB
KCD2-ST-1.LB.SP
KCD2-ST-2
KCD2-ST-2.SP
KCD2-ST-Ex1.LB
KCD2-ST-Ex1.LB.SP
KCD2-ST-Ex2
KCD2-ST-Ex2.SP
KFD2-SR2-Ex1.W
KFD2-SR2-Ex1.W.LB
KFD2-SR2-Ex2.W
KFD2-SR2-Ex2.W.SM

Isolated Switch amplifier 24V DC Supply Voltage (EMC B)

KFD2-SRA-Ex4
KFD2-SH-Ex1.T
KFD2-SH-Ex1.T.OP
KCD2-SON-Ex1
KCD2-SON-Ex1.SP
KCD2-SON-Ex1.R1
KCD2-SON-Ex1.R2
KCD2-SON-Ex1.R3
KCD2-SON-Ex2
KCD2-SON-Ex2.SP

KCD2-SON-Ex2.R1
KCD2-SON-Ex2.R2
KCD2-SON-Ex2.R3

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

Isolated Switch amplifier wide range Supply Voltage (EMC A)

KFU8-SR-Ex1.W
KFU8-SR-Ex1.W.LB
KFU8-SR-Ex2.W

Frequency converter units 48...253 V AC or 20...90 V DC Supply Voltage (EMC B)

KFU8-CRG2-Ex1.D
KFU8-UFC-1.D
KFU8-UFC-Ex1.D
KFU8-UFT-Ex2.D

Frequency converter units 24V DC Supply Voltage (EMC A)

KFD2-UFC-1.D
KFD2-UFC-Ex1.D
KFD2-UFT-2.D
KFD2-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
KCD2-UT2-1
KCD-UT2-Ex1
KFU8-GUT-Ex1.D
KFD2-GUT-1.D
KFD2-GUT-Ex1.D

Transmitter Power Supply 24V DC Supply Voltage (EMC A)

KCD2-STC-1
KCD2-STC-1.SP
KCD2-STC-Ex1
KCD2-STC-Ex1.SP
KCD2-STC-Ex1-Y1
KCD2-STC-Ex1.ES
KCD2-STC-Ex1.ES.SP
KCD2-STC-1.20
KCD2-STC-Ex1.20
KCD2-STC-Ex1.20.DE
KCD2-STC-Ex1.20.ES
KFD2-STC5-1
KFD2-STC5-Ex1
KFD2-STC5-Ex1-Y2
KFD2-STC5-Ex1.H
KFD2-STV5-1-1
KFD2-STV5-Ex1-1
KFD2-STV5-Ex1-2

KCD2-SCS-2
KCD2-SCS-2.SP
KCD2-SCS-Ex2
KCD2-SCS-Ex2.SP
KFD2-CRG2-1.D
KFD2-CRG2-Ex1.D

Smart Repeater 24V DC Supply Voltage (EMC A)

KCD2-SCD-1
KCD2-SCD-1.SP
KCD2-SCD-Ex1
KCD2-SCD-Ex1.SP
KCD2-SCD-Ex1.ES
KCD2-SCD-Ex1.ES.SP

Smart Repeater 24V DC Supply Voltage (EMC B)

KFD2-SCD2-Ex1.LK
KFD2-SCD2-Ex2.LK

Resistance Repeater 24V DC Supply Voltage (EMC B)

KCD2-RR2-Ex1
KCD2-RR2-Ex1.SP

Solenoid driver loop powered 24 V DC Supply Voltage (EMC A)

KCD0-SD-Ex1.1245.SP
KCD0-SD-Ex1.1245
KCD0-SD3-Ex1.1045
KCD0-SD3-Ex1.1245
KCD0-SD3-Ex1.1245.SP
KFD0-SD2-Ex2.1045
KFD0-SD2-Ex2.1245
KFD0-SD2-Ex2.1545

Solenoid driver loop powered 24 V DC Supply Voltage (EMC B)

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

Solenoid driver 24 V DC Supply Voltage (EMC A)

KCD2-SLD-Ex1.1045
KCD2-SLD-Ex1.1065
KCD2-SLD-Ex1.1245
KFD2-SLD-Ex1.13100
KFD2-SLD-Ex2.1045
KFD2-SLD-Ex2.1245
KFD2-SLD-Ex2.1545

DC repeater loop powered 24 V DC Supply Voltage (EMC B)

KFD0-CS-1.50
KFD0-CS-Ex1.50P
KFD0-CS-2.50
KFD0-CS-2.51P
KFD0-CS-Ex2.50P
KFD0-CS-Ex1.51P
KFD0-CS-Ex2.51P
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

Earth leakage detector 24 V DC Supply Voltage (EMC A)

KFD2-ELD-16
KFD2-ELD-Ex16

Relay module loop powered 24V DC Supply Voltage (EMC A)

KFD0-RSH-1.1D.F1
KFD0-RSH-1.1E.1
KCD0-RSH-1.1D.1
KCD0-RSH-1.1D.4
KCD0-RSH-1.1E.1
KFD2-RSH-1.2D.FL2
KFD2-RSH-1.2D.FL2-Y1
KFD2-RSH-1.2D.FL3
KFD2-RSH-1.2D.FL3-Y1
KFD2-RSH-1.2E.L2
KFD2-RSH-1.2E.L2-Y1
KFD2-RSH-1.2E.L3
KFD2-RSH-1.2E.L3-Y1

Relay module loop powered 24V DC Supply Voltage (EMC B)

KFD0-RO-2
KFD0-RO-Ex2
KFD0-RSH-1.4S.PS2

Voltage Repeater 24V DC Supply Voltage (EMC A)

KFD2-VR4-Ex1.26

Voltage Repeater 24V DC Supply Voltage (EMC B)

KFD2-VR2-Ex1.50m
KFD2-VR2-Ex1.500m

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.

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 DNV-CG-0339, Aug 2021

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