DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **A-13714**

This is to certify that the
Measurement Converter

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

Issued to
Pepperl+Fuchs GmbH
Mannheim, Germany

is found to comply with
Det Norske Veritas' Rules for Classification of Ships and High Speed and Light Craft
Det Norske Veritas' Offshore Standards

Application
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.**

This Certificate is valid until **2018-06-30**.

Issued at **Høvik** on **2014-03-28**

for **Det Norske Veritas AS**

DNV local station: **Essen CMC Southern Germany**

Approval Engineer: **Ståle Sneen**

Odd Magne Nesvåg
Head of Section

Place of manufacture

Pepperl + Fuchs GmbH
Lilienthalstraße 200
68307 Mannheim
Germany

Pepperl + Fuchs (Mfg) Pte. Ltd.
P+F Building
18 Ayer Rajah Crescent
139942 Singapore
Singapore

PT Pepperl+Fuchs Bintan
SD 35, 56, 57 Lobam
Bintan Industrial Estate
Pulau Bintan, RIAU
Indonesia

Product description

K-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-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.

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

Tests carried out

Applicable tests according to Standard for Certification No. 2.4, April 2006.

Marking of product

The modules are marked with manufacturer name (Pepperl+Fuchs), model name as listed in Product description and a unique serial number.

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 at least every second year and at renewal of this certificate.

END OF CERTIFICATE