DNV·GL

Certificate No:
TAA0000272
File No:
899.60
Job Id:
262.1-017581-2

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Peripheral Equipment

with type designation(s)
Fieldbus devices

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 :

Location classes:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Temperature	**D**
Humidity	**B****
Vibration	**A**
EMC	**A for Power Supply devices, B for other devices**
Enclosure	**Required protection according to DNV Rules shall be provided upon installation on board**

This Certificate is valid until **2024-05-07**.

Issued at **Hamburg** on **2019-05-08**
DNV GL local station: **Augsburg** for **DNV GL**

Approval Engineer: **Didier Girardin**

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.

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Product description

Power Supply devices

Motherboards:

Compact Fieldbus Power Hub, 8 channel Motherboard, redundant

Device family	Device
MBHC-FB-8R*	MBHC-FB-8R
	MBHC-FB-8R.YO
	MBHC-FB-8R.RH
	MBHC-FB-8R.RH.R
	MBHC-FB-8R.HSC
	MBHC-FB-8R.HSC.R
	MBHC-FB-8R.1
	MBHC-FB-8R.YO.1
	MBHC-FB-8R.RH.1
	MBHC-FB-8R.RH.R.1
	MBHC-FB-8R.HSC.1
	MBHC-FB-8R.HSC.R.1

Universal Fieldbus Power Hub, 1, 2, or 4 channel Motherboard

MB-FB-4*	MB-FB-1R
	MB-FB-2R
	MB-FB-4
	MB-FB-4R

Universal PROFIBUS Power Hub, Gateway Motherboard

MB-FB-GT*	MB-FB-GT
	MB-FB-GTR

DART High-Density Power Hub, 4 channel Motherboard, redundant

MBHD-FB-D-4R*	MBHD-FB-D-4R
	MBHD-FB-D-4R.GEN
	MBHD-FB-D-4R.YO
	MBCB-FB-GT-D-2

Compact Fieldbus Power Hub, 4 channel Motherboard

MBHC-FB-4*	MBHC-FB-4R
	MBHC-FB-4R.1
	MBHC-FB-4R.YO
	MBHC-FB-4R.YO.1
	MBHC-FB-4R.HSC

	MBHC-FB-4R.HSC.1
	MBHC-FB-4
	MBHC-FB-4.1
	MBHC-FB-4.YO
	MBHC-FB-4.YO.1
	MBHC-FB-4.HSC
	MBHC-FB-4.HSC.1

Power Hub Motherboard SK3 Basis

MBCB-FB-GT*	MBCB-FB-GT

Power Supplies:

Fieldbus Power Hub, Compact Power Supply Module

HCD2-FBPS*	HCD2-FBPS-1.500
	HCD2-FBPS-1.23.500

Fieldbus Power Hub, Power Supply Module

HD2-FBPS-1.25.360

DART Power Supply

HD2-FBPS-IBD-1.24.360

Fieldbus Power Supply

KLD2-FBPS*	KLD2-FBPS-1.25.360
	KLD2-FBPS-1.12.220

Gatewaymodules:

PROFIBUS Power Hub, Gateway Module

HD2-GTR*	HD2-GTR-4PA
	HD2-GTB-2PA

Diagnostic Modules:

Fieldbus Power Hub, Diagnostic Module, basic or advanced or advanced with relay outputs

HD2-DM*	HD2-DM-B
	HD2-DM-A
	HD2-DM.A.RO

Kit versions:

Compact PROFIBUS Power Hub and Segment Coupler

Kit version	Includes following devices
KT-MB-GTB-2PS	
includes	MBCB-FB-GT
	HD2-FBPS-1.25.360
	HD2-GTB-2PA

DART High-Density Power Hub

KT-MB-FB-D-4R	
KT-MB-FB-D-4R.GEN	
KT-MB-FB-D-4R.YO	
includes	MBHD-FB-D-4R*
	HD2-FBPS-IBD-1.24.360

DART Compact PROFIBUS Power Hub and Segment Coupler

KT-MB-GTB-D-2PS	
includes	MBCB-FB-GT-D-2
	HD2-FBPS-IBD-1.24.360
	HD2-GTB-2PA

Other devices

Field Barriers:

FieldBarrier, rated voltage 16…32V DC

R4D0-FB-IA*	R4D0-FB-IA12.0
	R4D0-FB-IA10.0
	R4D0-FB-IA8.0
	R4D0-FB-IA12.1
	R4D0-FB-IA10.1
	R4D0-FB-IA8.1

RD0-FB-Ex.4*	RD0-FB-Ex.4
	RD0-FB-Ex.4.COM

FieldBarrier in F2 housing

F2D0-FB-Ex4*

Segment Protector:

Fieldbus Segment Protector, different number of channels

F2-SP-IC*	F2-SP-IC10*
	F2-SP-IC8*

	F2-SP-IC6*
	F2-SP-IC4*

Segment Protector for Cabinet Installation, different number of channels

R2-SP-IC*	R2-SP-IC12
	R2-SP-IC10
	R2-SP-IC08
	R2-SP-IC06
	R2-SP-IC04
	R2-SP-IC12.1
	R2-SP-IC10.1
	R2-SP-IC08.1
	R2-SP-IC06.1
	R2-SP-IC04.1

DART Segment Protector for Cabinet Installation

R3-SP-IBD*	R3-SP-IBD8
	R3-SP-IBD12
	R3-SP-IBD8.1
	R3-SP-IBD12.1

Fieldbus distribution interface, Segment Protector with trunk short circuit protection, for cabinet and enclosed installation, different number of channels

R2-SP-N*	R2-SP-N4
	R2-SP-N6
	R2-SP-N8
	R2-SP-N10
	R2-SP-N12

Modular Segment Protector for Cabinet Installation

RM-SP*	RM-SPTM-N2
	RM-SPEM-N4

Fieldbus Segment Protector

R-SP-E12

Temperature Multiplexer:

Temperature Multi-Input Device with Aluminum Housing

F2D0-TI-Ex8*	F2D0-TI-Ex8.PA*
	F2D0-TI-Ex8.FF*

Temperature Multi-Input Device for Cabinet Installation

RD0-TI-Ex8.*	RD0-TI-Ex8.PA.ST
	RD0-TI-Ex8.PA.SC
	RD0-TI-Ex8.FF.SC
	RD0-TI-Ex8.FF.ST

Overvoltage protection:

Fieldbus Surge Protector, Field Installation on Trunk

TCP-LBF*	TCP-LBF-IA1.36.IE.0
	TCP-LBF-IA1.36.IE.1

Fieldbus Surge Protector, Field Installation on Spur

SCP-LBF*	SCP-LBF-IA1.36.IE0
	SCP-LBF-IA1.36.IE1

Fieldbus Surge Protector, Field Installation, Ex d or Ex ia

F*-LBF*	F*-LBF-D1.32
	F*-LBF-I1.32

Leakage Sensor:

ELS-1

* Different letter and number combinations can be used instead. The letters describe different terminals or cable glands

** All devices fulfil the requirements of Humidity Class B except RD0-TI-EX8.* which fulfils the requirements of Humidity Class A

Approval conditions

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.

Application/Limitation

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.

Devices listed under Product Description:

- "Power supply devices" fulfil EMC location class A
- "Other devices" fulfil EMC location class B

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016

Marking of product

The products to be marked with:

- model name
- manufacturer name
- 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 after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE