DNV·GL

Certificate No:
TAA00000XJ

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Peripheral Equipment

with type designation(s)
Greyhound Switch GRS1020/1120/1030/1130, Greyhound Media Modules GRM20

Issued to
Hirschmann Automation and Control GmbH
Neckartenzlingen, Germany

is found to comply with
DNV GL rules for classification – Ships

Application :

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

Location classes:

Temperature	**D (-40°C / 16h)**
Humidity	**B**
Vibration	**A**
EMC	**B**
Enclosure	**A**

This Certificate is valid until **2021-12-11**.

Issued at **Hamburg** on **2016-12-12**

for **DNV GL**

DNV GL local station: **Augsburg**

Approval Engineer: **Klaus-Peter Schröder**

Duy Nam Le
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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Job Id:
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Product description

The device name corresponds to the product code. The product code is made up of characteristics with defined positions. The characteristic values stand for specific product properties.

Item	Characteristic	Characteristic value	Description
1..3	Product	GRS	Greyhound Switch
4	Series	1	Greyhound Series
5	Port position	0 1	Ports front, power supply rear Ports rear, power supply rear
6	Data rate	2 3	FE-Switch FE-Switch with GE-Uplink Ports
7	PoE support	0	No PoE support
8	Hypen	-	
9…12	Configuration fixed ports	16T9 8T8Z	16 x Fast Ethernet TX ports 8xFE TX ports + 8xFE SFP ports
13	Operating temperature range	S T E	0°C …+60°C -40°C … +70°C -40°C … +70°C, conformal coating
14	Power supply unit 1	C M	Rated voltage: 24 ... 48 VDC Voltage range incl. maximum tolerances: 18…60 V DC Rated voltage: 110…230 V AC, 50…60Hz Voltage range incl. maximum tolerances: 88…265 V AC, 47…63 Hz
15	Power supply unit 2	C M 9	Rated voltage: 24 ... 48 VDC Voltage range incl. maximum tolerances: 18…60 V DC Rated voltage: 110…230 V AC, 50…60Hz Voltage range incl. maximum tolerances: 88…265 V AC, 47…63 Hz no second power supply
16…17	Approvals		Not relevant for this certificate
18…19	Customization	HH	Hirschmann Standard
20	Hardware configuration	S	Standard
21	Software configuration	E	Standard
22…23	Software level	2S	HiOS Layer 2 Standard
24…28	Software version	04.x 05.x	Software version 04.x Software version 05.x
29…30	Maintenance version	00	Maintance version 00

GREYHOUND Switch Media Module

Item	Characteristic	Characteristic value	Description
1..3	Product	GRM	Greyhound Switch Media Module
4	Data rate	2	10/100 Mbit/s Ports
5	PoE support	0	No PoE support
6	Hypen	-	
7…8	Configuration ports 1+3	TT ZZ MM NN VV UU	2 x TP TX, RJ45, 100 Mbit/s 2 x SFP Slot, 100 Mbit/s 2 x MM FX, DSC, 100 Mbit/s 2 x MM FX, ST, 100 Mbit/s 2 x SM FX, DSC, 100 Mbit/s 2 x SM FX, ST, 100 Mbit/s
9…10	Configuration ports 5+7	TT ZZ	2 x TP TX, RJ45, 100 Mbit/s 2 x SFP Slot, 100 Mbit/s

		MM NN VV UU	2 x MM FX, DSC, 100 Mbit/s 2 x MM FX, ST, 100 Mbit/s 2 x SM FX, DSC, 100 Mbit/s 2 x SM FX, ST, 100 Mbit/s
11…12	Configuration ports 2+4	TT ZZ MM NN VV UU	2 x TP TX, RJ45, 100 Mbit/s 2 x SFP Slot, 100 Mbit/s 2 x MM FX, DSC, 100 Mbit/s 2 x MM FX, ST, 100 Mbit/s 2 x SM FX, DSC, 100 Mbit/s 2 x SM FX, ST, 100 Mbit/s
13…14	Configuration ports 6+8	TT ZZ MM NN VV UU	2 x TP TX, RJ45, 100 Mbit/s 2 x SFP Slot, 100 Mbit/s 2 x MM FX, DSC, 100 Mbit/s 2 x MM FX, ST, 100 Mbit/s 2 x SM FX, DSC, 100 Mbit/s 2 x SM FX, ST, 100 Mbit/s
15	Operating temperature range	S T E	0°C …+60°C -40°C … +70°C -40°C … +70°C, conformal coating
16…17	Approvals		Not relevant for this certificate
18…19	Customization	HH	Hirschmann Standard
20	Hardware configuration	S	Standard
21	Software configuration	E	Standard
22…23	Software level	2S	HiOS Layer 2 Standard
24…28	Software version	04.x 05.x	Software version 04.x Software version 05.x

Application/Limitation

The Type Approval covers hardware listed under Product description.
When operating the device in an environment with strong vibrations, the device is to additionally fasten to the switch cabinet using 2 holding brackets on the back of the device.
When the hardware is used in applications to be classed by DNV GL, 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 GL RU SHIP Pt.4 Ch.9 Sec. 1.

Type Approval documentation

Tests carried out

Applicable tests according to Class Guideline DNVGL-CG-0339, Edition November 2015.

Marking of product

The products to be marked with:
- device 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 at least every second year and at renewal of this certificate.
END OF CERTIFICATE