

TYPE APPROVAL CERTIFICATE**This is to certify:****That the Network and Communication Components**

with type designation(s)

Industrial Ethernet Switch OCTOPUS OS20/OS24 Managed, OCTOPUS OS20/OS24 Unmanaged

Issued to

**Hirschmann Automation and Control GmbH
Neckartenzlingen, Baden-Württemberg, Germany**

is found to comply with

DNV GL 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 GL.****Location classes:****Temperature D*****Humidity B****Vibration A****EMC B****Enclosure Required protection according to the Rules shall be provided upon installation on board*****see Application/Limitation**Issued at **Hamburg** on **2019-10-04**This Certificate is valid until **2024-07-23**.DNV GL local station: **Augsburg**for **DNV GL**Approval Engineer: **Heinz Scheffler****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.



Job Id: **262.1-024574-4**
 Certificate No: **TAA000016A**
 Revision No: **3**

Product description

The OCTOPUS OS20/OS24 devices support switched ETHERNET networks that conform to the IEEE 802.3 standard.

The devices work without a fan.

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

Item	Characteristic	Characteristic value	Description
1..2		OS	OCTOPUS device
3..4		20 24	With Fast Ethernet ports, without PoE ports With Fast Ethernet ports, with PoE ports
5	(hyphen)	-	
6..7	Number: Special ports	00 08	0 * PoE+ ports 8 * PoE+ ports
8..9	Number: 100 Mbit/s ports	09 10	9 * 100 Mbit/s ports 10 * 100 Mbit/s ports
10..11	Number: 1000 Mbit/s ports	00	0 * 1000 Mbit/s ports
12..13	Uplink port	T5	1 * 100 Mbit/s ports Twisted pair M12
14..15	Uplink port	T5	1 * 100 Mbit/s ports Twisted pair M12
16	Temperature range	T	Extended -40°C ... +70°C
17	Operating voltage	A F	Rated voltage range DC 24V ... 48V Voltage range DC incl. maximum tolerances 16,8V ... 60V Connection type M12 Rated voltage range DC 24V ... 48V Voltage range DC incl. maximum tolerances 16,8V ... 60V Connection type 7/8" connectors, 5-pin
18	Certifications		Not relevant for this certificate
19	Software variants	B U	Basic Unmanaged
20	Configuration	H	Hirschmann
21	Device model	B H	IP54 IP67

Software release: HiOS 05.x; HiOS 06.x; HiOS 07.x; HiOS 08.x

Application/Limitation

Location class Temperature D: -40°C / 2

Equipment for installation outside a distance of 5 m from a standard or a steering magnetic compass. The installation requirements according to the User Manual's Installation are to be observed.

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNVGL, 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 DNVGL Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

If the control system is intended for remote software maintenance the functionality shall be part of the system documentation as required in DNV GL Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

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Product certificate

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After the certification the clause for application software control will be put into force.

Clause for application software control

All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNVGL for evaluation and approval. Major changes in the software are to be approved before being installed in the computer.

Type Approval documentation

See ANNEX

Place of Production

See ANNEX

Tests carried out

Applicable tests according to Class Guideline DNVGL-CG-0339, Edition November 2016.

Marking of product

The products to be marked with:

- manufacturer name
- type number
- 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



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ANNEX

- Type Approval documentation (hidden)
- Place of Production (hidden)