Certificate No:
TAA000030V

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Network and Communication Components

with type designation(s)
HN G1080A, HN 9084-LA, HN G9812, HN GP1080A, HN GP9084-LA

Issued to
Hatteland Technology AS
AKSDAL, **Norway**

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	**A (tested down to -15°C)**
Humidity	**B**
Vibration	**A***
EMC	**B***
Enclosure	**A / IP30**

*** See Application/Limitation on page 2**

Issued at **Høvik** on **2021-09-08**
This Certificate is valid until **2026-09-07**.
DNV local station: **Høvik Electrical Systems**

Approval Engineer: **Ståle Sneen**

for **DNV**

Marta Alonso Pontes
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

Industrial Gigabit Ethernet switches.

Type	Description	Power supply option	Compass safe distance	
			Standard	Steering
HN G1080A	8-port slim type unmanaged	Dual DC inputs. 12~48 VDC	25 cm	15 cm
HN 9084-LA	12-port slim type managed	Dual DC inputs. 12~48 VDC	30 cm	15 cm
HN G9812	20-port managed	Dual DC inputs. 12~48 VDC	40 cm	25 cm
HN GP1080A	8-port slim type unmanaged Active PoE	Dual DC inputs. 50~57 VDC	40 cm	20 cm
HN GP9084-LA	12-port slim type layer2 managed Active PoE	Dual DC inputs. 50~57 VDC	55 cm	40 cm

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 classification of ships Pt.4 Ch.9 Control and monitoring systems.

Application/Limitation

The switches have been tested and approved for direct wall mounting. DIN-rail mounting is not covered by this approval.

EMC radiated immunity in the range 2 GHz to 6 GHz according to DNV-CG-0339, August 2021 has not been documented. EMC up to 6 GHz must additionally be documented for installation on ships contracted for construction on or after 2022-01-01.

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.
Applicable tests for protected equipment according to IEC 60945, 4th edition (2002), except salt mist test.
5 g / 11 ms / half sine shock test according to IEC 60068-2-27:2008.

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