DNV·GL

Certificate No:
TAA00000A7

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Peripheral Equipment

with type designation(s)
Ha-VIS eCon 2000 series, eCon 3000 series

Issued to
HARTING Electric GmbH & Co. KG
Espelkamp, 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	**B*/D***
Humidity	**B**
Vibration	**A**
EMC	**B**
Enclosure	**IP30**

This Certificate is valid until **2019-06-30**.

Issued at **Hamburg** on **2016-02-08**

DNV GL local station: **Magdeburg**

for **DNV GL**

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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Product description

Ha-VIS eCon 2000 series and eCon 3000 series Ethernet switches.
Unmanaged Industrial Ethernet Switches with RJ45, fiber optic and SFP ports. Fast and Full Gigabit Ethernet variants with optional Power over Ethernet plus. For further details, please check http://www.harting.com/en/ethernet-switches

material no.	device name	family	temperature range
24020030000	Ha-VIS eCon 2030BT-A	**eCon 2000B**	-40°C – +70°C
24020030010	Ha-VIS eCon 2030B-A	**eCon 2000B**	0°C – 55°C
24020040000	Ha-VIS eCon 2040BT-A	**eCon 2000B**	-40°C – +70°C
24020040010	Ha-VIS eCon 2040B-A	**eCon 2000B**	0°C – 55°C
24020050000	Ha-VIS eCon 2050BT-A	**eCon 2000B**	-40°C – +70°C
24020050010	Ha-VIS eCon 2050B-A	**eCon 2000B**	0°C – 55°C
24020050020	Ha-VIS eCon 2050BT-A-P	**eCon 2080B**	-40°C – +70°C
24020050030	Ha-VIS eCon 2050B-A-P	**eCon 2080B**	0°C – 55°C
24020061100	Ha-VIS eCon 2061BT-AD	**eCon 2080B**	-40°C – +70°C
24020061110	Ha-VIS eCon 2061B-AD	**eCon 2080B**	0°C – 55°C
24020061120	Ha-VIS eCon 2061BT-AD-P	**eCon 2080B**	-40°C – +70°C
24020061130	Ha-VIS eCon 2061B-AD-P	**eCon 2080B**	0°C – 55°C
24020061200	Ha-VIS eCon 2061BT-AF	**eCon 2080B**	-40°C – +70°C
24020061210	Ha-VIS eCon 2061B-AF	**eCon 2080B**	0°C – 55°C
24020061220	Ha-VIS eCon 2061BT-AF-P	**eCon 2080B**	-40°C – +70°C
24020061230	Ha-VIS eCon 2061B-AF-P	**eCon 2080B**	0°C – 55°C
24020062100	Ha-VIS eCon 2062BT-AD	**eCon 2080B**	-40°C – +70°C
24020062110	Ha-VIS eCon 2062B-AD	**eCon 2080B**	0°C – 55°C
24020062120	Ha-VIS eCon 2062BT-AD-P	**eCon 2080B**	-40°C – +70°C
24020062130	Ha-VIS eCon 2062B-AD-P	**eCon 2080B**	0°C – 55°C
24020062200	Ha-VIS eCon 2062BT-AF	**eCon 2080B**	-40°C – +70°C
24020062210	Ha-VIS eCon 2062B-AF	**eCon 2080B**	0°C – 55°C
24020062220	Ha-VIS eCon 2062BT-AF-P	**eCon 2080B**	-40°C – +70°C
24020062230	Ha-VIS eCon 2062B-AF-P	**eCon 2080B**	0°C – 55°C
24020080000	Ha-VIS eCon 2080BT-A	**eCon 2000B**	-40°C – +70°C
24020080010	Ha-VIS eCon 2080B-A	**eCon 2000B**	0°C – 55°C
24020080020	Ha-VIS eCon 2080BT-A-P	**eCon 2080B**	-40°C – +70°C
24020080030	Ha-VIS eCon 2080B-A-P	**eCon 2080B**	0°C – 55°C
24020160000	Ha-VIS eCon 2160BT-A	**eCon 2160B**	-40°C – +70°C
24020160010	Ha-VIS eCon 2160B-A	**eCon 2160B**	0°C – 55°C
24024043100	Ha-VIS eCon 2043GBT-AD	**eCon 2070GB**	-40°C – +70°C
24024043110	Ha-VIS eCon 2043GB-AD	**eCon 2070GB**	0°C – 55°C
24024043120	Ha-VIS eCon 2043GBT-AD-P	**eCon 2070GB**	-40°C – +70°C
24024043130	Ha-VIS eCon 2043GB-AD-P	**eCon 2070GB**	0°C – 55°C
24024043200	Ha-VIS eCon 2043GBT-AF	**eCon 2070GB**	-40°C – +70°C
24024043210	Ha-VIS eCon 2043GB-AF	**eCon 2070GB**	0°C – 55°C
24024043220	Ha-VIS eCon 2043GBT-AF-P	**eCon 2070GB**	-40°C – +70°C
24024043230	Ha-VIS eCon 2043GB-AF-P	**eCon 2070GB**	0°C – 55°C
24024050000	Ha-VIS eCon 2050GBT-A	**eCon 2070GB**	-40°C – +70°C
24024050010	Ha-VIS eCon 2050GB-A	**eCon 2070GB**	0°C – 55°C
24024050020	Ha-VIS eCon 2050GBT-A-P	**eCon 2070GB**	-40°C – +70°C
24024050030	Ha-VIS eCon 2050GB-A-P	**eCon 2070GB**	0°C – 55°C
24024052100	Ha-VIS eCon 2052GBT-AD	**eCon 2070GB**	-40°C – +70°C
24024052110	Ha-VIS eCon 2052GB-AD	**eCon 2070GB**	0°C – 55°C
24024052120	Ha-VIS eCon 2052GBT-AD-P	**eCon 2070GB**	-40°C – +70°C
24024052130	Ha-VIS eCon 2052GB-AD-P	**eCon 2070GB**	0°C – 55°C
24024052200	Ha-VIS eCon 2052GBT-AF	**eCon 2070GB**	-40°C – +70°C
24024052210	Ha-VIS eCon 2052GB-AF	**eCon 2070GB**	0°C – 55°C

material no.	device name	family	temperature range
24024052220	Ha-VIS eCon 2052GBT-AF-P	**eCon 2070GB**	-40°C – +70°C
24024052230	Ha-VIS eCon 2052GB-AF-P	**eCon 2070GB**	0°C – 55°C
24024061100	Ha-VIS eCon 2061GBT-AD	**eCon 2070GB**	-40°C – +70°C
24024061110	Ha-VIS eCon 2061GB-AD	**eCon 2070GB**	0°C – 55°C
24024061120	Ha-VIS eCon 2061GBT-AD-P	**eCon 2070GB**	-40°C – +70°C
24024061130	Ha-VIS eCon 2061GB-AD-P	**eCon 2070GB**	0°C – 55°C
24024061200	Ha-VIS eCon 2061GBT-AF	**eCon 2070GB**	-40°C – +70°C
24024061210	Ha-VIS eCon 2061GB-AF	**eCon 2070GB**	0°C – 55°C
24024061220	Ha-VIS eCon 2061GBT-AF-P	**eCon 2070GB**	-40°C – +70°C
24024061230	Ha-VIS eCon 2061GB-AF-P	**eCon 2070GB**	0°C – 55°C
24024070000	Ha-VIS eCon 2070GBT-A	**eCon 2070GB**	-40°C – +70°C
24024070010	Ha-VIS eCon 2070GB-A	**eCon 2070GB**	0°C – 55°C
24024070020	Ha-VIS eCon 2070GBT-A-P	**eCon 2070GB**	-40°C – +70°C
24024070030	Ha-VIS eCon 2070GB-A-P	**eCon 2070GB**	0°C – 55°C
24030021100	Ha-VIS eCon 3021BT-AD	**eCon 3080B**	-40°C – +70°C
24030021110	Ha-VIS eCon 3021B-AD	**eCon 3080B**	0°C – 55°C
24030021200	Ha-VIS eCon 3021BT-AF	**eCon 3080B**	-40°C – +70°C
24030021210	Ha-VIS eCon 3021B-AF	**eCon 3080B**	0°C – 55°C
24030041100	Ha-VIS eCon 3041BT-AD	**eCon 3080B**	-40°C – +70°C
24030041110	Ha-VIS eCon 3041B-AD	**eCon 3080B**	0°C – 55°C
24030041120	Ha-VIS eCon 3041BT-AD-P	**eCon 3080B**	-40°C – +70°C
24030041130	Ha-VIS eCon 3041B-AD-P	**eCon 3080B**	0°C – 55°C
24030041200	Ha-VIS eCon 3041BT-AF	**eCon 3080B**	-40°C – +70°C
24030041210	Ha-VIS eCon 3041B-AF	**eCon 3080B**	0°C – 55°C
24030041220	Ha-VIS eCon 3041BT-AF-P	**eCon 3080B**	-40°C – +70°C
24030041230	Ha-VIS eCon 3041B-AF-P	**eCon 3080B**	0°C – 55°C
24030042100	Ha-VIS eCon 3042BT-AD	**eCon 3080B**	-40°C – +70°C
24030042110	Ha-VIS eCon 3042B-AD	**eCon 3080B**	0°C – 55°C
24030042120	Ha-VIS eCon 3042BT-AD-P	**eCon 3080B**	-40°C – +70°C
24030042130	Ha-VIS eCon 3042B-AD-P	**eCon 3080B**	0°C – 55°C
24030042200	Ha-VIS eCon 3042BT-AF	**eCon 3080B**	-40°C – +70°C
24030042210	Ha-VIS eCon 3042B-AF	**eCon 3080B**	0°C – 55°C
24030042220	Ha-VIS eCon 3042BT-AF-P	**eCon 3080B**	-40°C – +70°C
24030042230	Ha-VIS eCon 3042B-AF-P	**eCon 3080B**	0°C – 55°C
24030060000	Ha-VIS eCon 3060BT-A	**eCon 3080B**	-40°C – +70°C
24030060010	Ha-VIS eCon 3060B-A	**eCon 3080B**	0°C – 55°C
24030060020	Ha-VIS eCon 3060BT-A-P	**eCon 3080B**	-40°C – +70°C
24030060030	Ha-VIS eCon 3060B-A-P	**eCon 3080B**	0°C – 55°C
24030061100	Ha-VIS eCon 3061BT-AD	**eCon 3080B**	-40°C – +70°C
24030061110	Ha-VIS eCon 3061B-AD	**eCon 3080B**	0°C – 55°C
24030061120	Ha-VIS eCon 3061BT-AD-P	**eCon 3080B**	-40°C – +70°C
24030061130	Ha-VIS eCon 3061B-AD-P	**eCon 3080B**	0°C – 55°C
24030061200	Ha-VIS eCon 3061BT-AF	**eCon 3080B**	-40°C – +70°C
24030061210	Ha-VIS eCon 3061B-AF	**eCon 3080B**	0°C – 55°C
24030061220	Ha-VIS eCon 3061BT-AF-P	**eCon 3080B**	-40°C – +70°C
24030061230	Ha-VIS eCon 3061B-AF-P	**eCon 3080B**	0°C – 55°C
24030080000	Ha-VIS eCon 3080BT-A	**eCon 3080B**	-40°C – +70°C
24030080010	Ha-VIS eCon 3080B-A	**eCon 3080B**	0°C – 55°C
24030080020	Ha-VIS eCon 3080BT-A-P	**eCon 3080B**	-40°C – +70°C
24030080030	Ha-VIS eCon 3080B-A-P	**eCon 3080B**	0°C – 55°C
24030081100	Ha-VIS eCon 3081BT-AD	**eCon 3100B**	-40°C – +70°C
24030081110	Ha-VIS eCon 3081B-AD	**eCon 3100B**	0°C – 55°C
24030081200	Ha-VIS eCon 3081BT-AF	**eCon 3100B**	-40°C – +70°C
24030081210	Ha-VIS eCon 3081B-AF	**eCon 3100B**	0°C – 55°C

material no.	device name	family	temperature range
24030082100	Ha-VIS eCon 3082BT-AD	**eCon 3100B**	-40°C – +70°C
24030082110	Ha-VIS eCon 3082B-AD	**eCon 3100B**	0°C – 55°C
24030082200	Ha-VIS eCon 3082BT-AF	**eCon 3100B**	-40°C – +70°C
24030082210	Ha-VIS eCon 3082B-AF	**eCon 3100B**	0°C – 55°C
24030100000	Ha-VIS eCon 3100BT-A	**eCon 3100B**	-40°C – +70°C
24030100010	Ha-VIS eCon 3100B-A	**eCon 3100B**	0°C – 55°C
24030100000	Ha-VIS eCon 3100BT-A	**eCon 3160B**	-40°C – +70°C
24030100010	Ha-VIS eCon 3100B-A	**eCon 3160B**	0°C – 55°C
24034011100	Ha-VIS eCon 3011GBT-AD	**eCon 3060GB**	-40°C – +70°C
24034011110	Ha-VIS eCon 3011GB-AD	**eCon 3060GB**	0°C – 55°C
24034011200	Ha-VIS eCon 3011GBT-AF	**eCon 3060GB**	-40°C – +70°C
24034011210	Ha-VIS eCon 3011GB-AF	**eCon 3060GB**	0°C – 55°C
24034011300	Ha-VIS eCon 3011GBT-AC	**eCon 3070GB**	-40°C – +70°C
24034011310	Ha-VIS eCon 3011GB-AC	**eCon 3070GB**	0°C – 55°C
24034041100	Ha-VIS eCon 3041GBT-AD	**eCon 3060GB**	-40°C – +70°C
24034041110	Ha-VIS eCon 3041GB-AD	**eCon 3060GB**	0°C – 55°C
24034041120	Ha-VIS eCon 3041GBT-AD-P	**eCon 3060GB**	-40°C – +70°C
24034041130	Ha-VIS eCon 3041GB-AD-P	**eCon 3060GB**	0°C – 55°C
24034041200	Ha-VIS eCon 3041GBT-AF	**eCon 3060GB**	-40°C – +70°C
24034041210	Ha-VIS eCon 3041GB-AF	**eCon 3060GB**	0°C – 55°C
24034041220	Ha-VIS eCon 3041GBT-AF-P	**eCon 3060GB**	-40°C – +70°C
24034041230	Ha-VIS eCon 3041GB-AF-P	**eCon 3060GB**	0°C – 55°C
24034042100	Ha-VIS eCon 3042GBT-AD	**eCon 3060GB**	-40°C – +70°C
24034042110	Ha-VIS eCon 3042GB-AD	**eCon 3060GB**	0°C – 55°C
24034042120	Ha-VIS eCon 3042GBT-AD-P	**eCon 3060GB**	-40°C – +70°C
24034042130	Ha-VIS eCon 3042GB-AD-P	**eCon 3060GB**	0°C – 55°C
24034042200	Ha-VIS eCon 3042GBT-AF	**eCon 3060GB**	-40°C – +70°C
24034042210	Ha-VIS eCon 3042GB-AF	**eCon 3060GB**	0°C – 55°C
24034042220	Ha-VIS eCon 3042GBT-AF-P	**eCon 3060GB**	-40°C – +70°C
24034042230	Ha-VIS eCon 3042GB-AF-P	**eCon 3060GB**	0°C – 55°C
24034043300	Ha-VIS eCon 3043GBT-AC	**eCon 3070GB**	-40°C – +70°C
24034043310	Ha-VIS eCon 3043GB-AC	**eCon 3070GB**	0°C – 55°C
24034043320	Ha-VIS eCon 3043GBT-AC-P	**eCon 3070GB**	-40°C – +70°C
24034043330	Ha-VIS eCon 3043GB-AC-P	**eCon 3070GB**	0°C – 55°C
24034050000	Ha-VIS eCon 3050GBT-A	**eCon 3060GB**	-40°C – +70°C
24034050010	Ha-VIS eCon 3050GB-A	**eCon 3060GB**	0°C – 55°C
24034050020	Ha-VIS eCon 3050GBT-A-P	**eCon 3060GB**	-40°C – +70°C
24034050030	Ha-VIS eCon 3050GB-A-P	**eCon 3060GB**	0°C – 55°C
24034051100	Ha-VIS eCon 3051GBT-AD	**eCon 3060GB**	-40°C – +70°C
24034051110	Ha-VIS eCon 3051GB-AD	**eCon 3060GB**	0°C – 55°C
24034051120	Ha-VIS eCon 3051GBT-AD-P	**eCon 3060GB**	-40°C – +70°C
24034051130	Ha-VIS eCon 3051GB-AD-P	**eCon 3060GB**	0°C – 55°C
24034051200	Ha-VIS eCon 3051GBT-AF	**eCon 3060GB**	-40°C – +70°C
24034051210	Ha-VIS eCon 3051GB-AF	**eCon 3060GB**	0°C – 55°C
24034051220	Ha-VIS eCon 3051GBT-AF-P	**eCon 3060GB**	-40°C – +70°C
24034051230	Ha-VIS eCon 3051GB-AF-P	**eCon 3060GB**	0°C – 55°C
24034052300	Ha-VIS eCon 3052GBT-AC	**eCon 3070GB**	-40°C – +70°C
24034052310	Ha-VIS eCon 3052GB-AC	**eCon 3070GB**	0°C – 55°C
24034052320	Ha-VIS eCon 3052GBT-AC-P	**eCon 3070GB**	-40°C – +70°C
24034052330	Ha-VIS eCon 3052GB-AC-P	**eCon 3070GB**	0°C – 55°C
24034060000	Ha-VIS eCon 3060GBT-A	**eCon 3060GB**	-40°C – +70°C
24034060010	Ha-VIS eCon 3060GB-A	**eCon 3060GB**	0°C – 55°C
24034060020	Ha-VIS eCon 3060GBT-A-P	**eCon 3060GB**	-40°C – +70°C
24034060030	Ha-VIS eCon 3060GB-A-P	**eCon 3060GB**	0°C – 55°C

material no.	device name	family	temperature range
24034061300	Ha-VIS eCon 3061GBT-AC	**eCon 3070GB**	-40°C – +70°C
24034061310	Ha-VIS eCon 3061GB-AC	**eCon 3070GB**	0°C – 55°C
24034061320	Ha-VIS eCon 3061GBT-AC-P	**eCon 3070GB**	-40°C – +70°C
24034061330	Ha-VIS eCon 3061GB-AC-P	**eCon 3070GB**	0°C – 55°C
24034070000	Ha-VIS eCon 3070GBT-A	**eCon 3070GB**	-40°C – +70°C
24034070010	Ha-VIS eCon 3070GB-A	**eCon 3070GB**	0°C – 55°C
24034070020	Ha-VIS eCon 3070GBT-A-P	**eCon 3070GB**	-40°C – +70°C
24034070030	Ha-VIS eCon 3070GB-A-P	**eCon 3070GB**	0°C – 55°C

Rating: 24V

Approval conditions
The Type Approval covers hardware listed under Product description.
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.

Application/Limitation
Temperature location class **B** for devices with temperature range: 0°C – 55°C .
Temperature location class **D** for devices with temperature range: -40°C – +70°C.

Minimum Standard-Magnetic-Compass safe distance: 0.30m.
Minimum Steering-Magnetic-Compass safe distance: 0.30m.

Except for Ha-Vis eCon 3070GB devices:
Minimum Standard-Magnetic-Compass safe distance: 0.80m.
Minimum Steering-Magnetic-Compass safe distance: 0.50m.

Type Approval documentation

Tests carried out
Applicable tests according to Class Guideline DNVGL-CG-0339, Edition November 2015.
The measurement of the safe distances for Standard- and Steering-Compass were carried out in accordance to ISO 25862 and IEC 60945 (BSH certificate number 885).

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