

TYPE APPROVAL CERTIFICATE

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

with type designation(s)

BoX2 pro / BoX2 pro SC, BoX2 extreme / BoX2 extreme SC

Issued to

**Beijer Electronics AB
Malmö, Skåne Län, Sweden**

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.**

Type	Temperature	Humidity	Vibration	EMC	Enclosure
BoX2 pro / BoX2 pro SC	B	B	A	B	A (IP20)
BoX2 extreme / BoX2 extreme SC	D	B	B	B	C (IP66)

Issued at **Hamburg** on **2018-09-26**This Certificate is valid until **2023-09-25**.for **DNV GL**DNV GL local station: **Long Beach**Approval Engineer: **Jens Dietrich**

**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.



Product description

Network Gateway Computers:

BoX2 pro / BoX2 pro SC:

CPU: i.MX6 DualLite, Dual ARM Cortex-A9 1.0GHz 512kB L2cache

Flash: 2GB SSD(eMMC), 1.5GB free for application; RAM: 1GB

External Expansion Port: ciX Expansion Module

SD-Card: SD and SDHC

1 Serial port: 1 Port 9pin DSUB:

COM1: RS-232 with RTS/CTS; COM2: RS-422/RS-485; COM3: RS-485.

2 Ethernet ports (A/B): Port shielded RJ45 with LEDs: 10/100Mbit Base-T

Degree of protection: IP20

Power supply: 24VDC.

BoX2 extreme / BoX2 extreme SC:

CPU: i.MX6 Quad, Quad ARM Cortex-A9 1.0GHz 1MB L2cache

Flash: 4GB SSD(eMMC), 3.5GB free for application; RAM: 2GB

SD-Card: SD and SDHC

2 Serial ports 8pin M12:

Serial Port 1 (COM A) 1×RS-232 Rx/Tx with RTS (no CTS); 1×RS-422, or 1×RS-485 or 1×CAN2.0B

Serial Port 2 (COM B) 1×RS-485 with isolated +5V/5mA out for bias resistor network, or 1×CAN2.0B with termination.

2 Ethernet ports (A/B): 4pin M12, 10/100Mbit Base-T

Degree of protection: IP66

Power supply: 24VDC.

Suffix SC = SoftControl (software option).

Compass safe distance

Standard/Steering compass

BoX2 pro: 10cm/5cm

BoX2 extreme: 15cm/5cm.

Application/Limitation

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 Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Tests carried out

Applicable Tests according to DNV GL CG-0339, November2016;

Applicable tests according to section 9, 10 and 11 of IEC60945 (2002).

Marking of product

Maker, type designation, 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



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- 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 this certificate.

END OF CERTIFICATE