



Certificate No:
TAA00002YG

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Bridge Panel Ethernet connected

with type designation(s)
BTE101 & BTE201

Issued to

Wärtsilä SAM Electronics GmbH
Hamburg, Germany

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.

Temperature B

Humidity B

Vibration A

EMC B

Enclosure Required protection according to DNV GL Rules shall be provided upon installation on board

Issued at **Hamburg** on **2021-10-26**

This Certificate is valid until **2026-10-25**.

for **DNV**

DNV local station: **Hamburg – CMC North/East**

Approval Engineer: **Didier Girardin**

.....
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.

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.



Form code: TA 251

Revision: 2021-03

www.dnv.com

Page 1 of 3

Product description

BTE101 & BTE201 MODULEs

Bridge Panel Ethernet connected module & BTE201 EXTENSION MODULE ¹⁾

¹⁾ Note: For details see annex

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.

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 certification the clause for software control will be put into force.

Type Approval documentation

01-08/2013 RMS, 01-08/2013 RMS (Revision 05.05.2014), 072958.134.21 V1.0, 072877.221.21 V1.0
271.053 219.PV, 271.053 219.ST, 271.053 219.BG, 271.048 568.TD, 271.048 563.ST,
271.048 563.TD, 271.048 563.STR, 271.048 560.GZ, 271.048 560.SA; 271.053 220.ST,
271.053 220.BG, 271.048 569.TD, 271.048 564.ST, 271.048 564.STR, 271.048 564.GZ,
271.048 564.SA, 271.048 567.ST, 271.048 567.TD, 271.048 567.STR

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021

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

ANNEX

BTE101 MODULE:

- | | |
|---------------------------------------|---|
| | 144mm*144mm |
| - 16-bit Processor | 36 MHz, 512K FLASH, 32K RAM, 4K EEPROM |
| - Programming interface | RS-232 TTL / BGND |
| - 19 buttons with LED lighting incl.: | 4 buttons with protective caps / 1 Sounder + emergency stop |
| - | |

INTERFACES TO PERIPHERIES:

- Ethernet Modbus (UDP)
- CAN-Bus (for Extension BTE201 or other application)
- Internal watchdog
- 4 DI (optocoupler)
- 4 relays (changeover contacts)
- 4 AO -10V...+10V electrical isolated /common 0 Volt, 1% Precision
- 2 AI 0...10V elect. Isolated /common 0 V., 1% Precision (for e.g. control lever)
- 2 Elect. Isolated contacts for emergency Stop // resistance for wire break monitoring with jumper
- 3 pulsed analog voltages for diming external equipment (5V, 12V & 24V)
- 24 Volt (18..32 Volt) power supply
- Software version: **1.1.14**

BTE201 EXTENSION MODULE (also as single module):

- | | |
|---|--|
| | 96mm*144mm |
| - 16-bit Processor | 36 MHz, 512K FLASH, 32K RAM, 4K EEPROM |
| - Programming interface | |
| - Internal watch dog | |
| - 10 push buttons with dimmed LED lighting: | 2 buttons with protective caps |
| - CAN-Bus | |
| - 24 Volt (18..32 Volt) power supply | |
| - Software version: 1.1.02 | |