TYPE APPROVAL CERTIFICATE

Certificate no.:
TAA000013D
Revision No:
5

This is to certify:

that the Programmable Electronic System

with type designation(s)
Nexto Series

issued to
ALTUS SISTEMAS DE AUTOMACAO S.A.
Sao Leopoldo, RS, **Brazil**

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	**B**
Humidity	**B**
Vibration	**A**
EMC	**B**
Enclosure	**A**

Issued at **Hamburg** on **2025-11-13**
This Certificate is valid until **2027-08-14**.
DNV local unit: **Station Rio de Janeiro, NB/CMC/Approval**

for **DNV**

Approval Engineer: **Dariusz Lesniewski**

.....

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 USD 300 000.

Product description

Nexto Series Programmable Electronic System
Including:

CPUs – Central Processing Units

- NX3004: CPU with 1 Ethernet port, 1 serial channel, remote rack expansion support and integrated power supply
- NX3005: CPU with 1 Ethernet port, 1 serial channel, remote rack expansion support, power supply integrated and user web pages support
- NX3010: High-speed CPU, 1 Ethernet port, 2 serial channels, memory card interface, remote rack expansion support
- NX3020: High-speed CPU, 2 Ethernet ports, 2 serial channels, memory card interface and remote rack expansion support
- NX3030: High-speed CPU, 2 Ethernet ports, 2 serial channels, memory card interface, remote rack expansion and redundancy support
- NX3035: High-speed CPU, 6 Ethernet ports, 2 SFP ports, 1 serial channel, memory card interface, remote rack expansion and redundancy support
- NX3008: High-speed CPU, 3 Ethernet ports, 1 serial interface, 1 USB port host interface, 1 CAN interface, memory card, interface, remote rack expansion support, power supply integrated and user web pages support

Fieldbus Interfaces

- NX5000: Ethernet Module
- NX5001: PROFIBUS-DP Master
- NX5110: PROFIBUS-DP Head
- NX5210: Redundant PROFIBUS-DP Head
- NX5100: MODBUS TCP Head

Power Supply Modules

- NX8000: 30 W 24 Vdc Power Supply Module

I/O Modules

- NX6000: 8 AI Voltage/Current Module
- NX6010: 8 AI Thermocouple Module
- NX6014: 8 AI Current Module with HART
- NX6020: 8 AI RTD Module
- NX6100: 4 AO Voltage/Current Module
- NX6134: 4 AO Current Module 16 Bits with HART
- NX1001: 24 Vdc 16 DI Module
- NX1005: 24 Vdc 8 DO Transistor / 8 DI Mixed Module
- NX1006: 24 Vdc 8 DI Monitored Module
- NX2001: 24 Vdc 16 DO Transistor Module
- NX2025: 24 Vdc 8 DO Monitored Module
- NX2020: 16 DO Relay Module

Special Modules

- NX4010: Redundancy Link Module

Racks

- NX9000: 8-Slot Backplane Rack
- NX9001: 12-Slot Backplane Rack
- NX9002: 16-Slot Backplane Rack
- NX9003: 24-Slot Backplane Rack
- NX9010: 8-Slot Backplane Rack (No Hot Swap)

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.

Application/Limitation

• Installation in metallic cabinet only.
• The 24 Vdc power supply port shall be equipped with a power filter TDK-Lambda model RSMN-2003 or equivalent (reference is made to the document TDK-Lambda RSMN Series 002-02/20081120/etl_rsmn)
• NX3008: Ferrites Würth No. 742 722 21 on communication cables inside the metallic cabinet to be installed
• For bridge installation the minimum compass safe distance of 5m to be ensured.

Type Approval documentation

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

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