DNV·GL

Certificate No:
TAA00000VD

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Control and Monitoring System

with type designation(s)
N3500

Issued to
Shanghai Noris-Sibo Automation Co., Ltd.
Shanghai 020, China

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.

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 **2018-01-19**
This Certificate is valid until **2023-01-18**.
DNV GL local station: **Shanghai CMC**

Approval Engineer: **Didier Girardin**

for **DNV GL**

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.

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Product description

N3500 is a modular and computer based Control, Alarm & Monitoring System for single or integrated automation application (IAMCS with redundant configuration including master & hot-standby station configuration)

The System consists of:

2	Gateway	GATEWAY
3	Binary measuring module	STM7-IN32
4	I/O module	STM7-INOUT
5	Integrated I/O module	STM7-AINOUT
6	Current/Voltage measuring module	STM7-I/V1
7	Thermal resistance measuring module	STM7-PT100
8	Thermocouple measuring module	STM7-MV1
9	Binary measuring module	STM7-SAFT
10	Analog output module	D/A
11	Extend Alarm panel	N3510/N3511
12	Color LCD display	N3520/N3521
13	Industrial computer	TANK-600
14	UPS	V-1000
15	TP-LINK	TL-SF1008+
16	Display	PHILIPS-17''
17	Printer	LQ-300K+II
18	Monitor Unit	N3500-MU-220-17
19	Monitor Unit	N3500-MU-220-19
20	Monitor Unit	N3500-MU-220-21
21	Monitor Unit	N3500-MU-220-23
22	Switch	N3500-HUB-SF1016D
23	Keyboard	N3500-KB-1

Application Software version: 2.1 00001.002

Approval conditions

The following documentation of the actual application is to be submitted for approval in each case:

- Reference to this Type Approval Certificate
- Reference to the Type Approval Certificates of the hardware components
- Functional description
- System block diagram/topology drawing
- Power supply arrangement (may be part of the system block diagram)
- List of controlled and monitored points (I/O list, including data transferred on communication links)
- Application software name/version (project related)
- For deliveries of integrated systems, Functional failure analysis documenting effects of single failures in the system and compliance with the requirements of redundancy and segregation
- Test program for certification

The Type Approval covers hardware and software listed under Product description.

When the type approved software is revised (affecting all future deliveries) DNV GL is to be informed by forwarding updated software version documentation. If the changes are judged to affect functionality for which rule requirements apply a new functional type test may be required and the certificate may have to be renewed to identify the new software version.

Product certificate
Each delivery of the application system **is to be certified** according to Pt.4 Ch.9 Sec.1. The certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. After the certification the clause for application software control will be put into force.

Application software control
All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV GL for evaluation and approval before implemented on board.

Type Approval documentation
See ANNEX

Tests carried out
Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

Marking of product
The products to be marked with:
- manufacturer name
- model name(s)
- serial number(s)

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

ANNEX