DNV·GL

Certificate No:
TAA00002GE

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Engine Safety, Control and Alarm System

with type designation(s)
MyNoris-N3500-xxxx (LOP)

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

is found to comply with

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Temperature	**B**
Humidity	**B**
Vibration	**B**
EMC	**A**
Enclosure	**Required protection according to DNV Rules**

Issued at **Hamburg** on **2019-12-04**
This Certificate is valid until **2024-12-03**.
DNV GL local station: **Shanghai**

for **DNV GL**

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.

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Job Id: **262.1-030717-1**
Certificate No: **TAA00002GE**

Product description

MyNoris-N3500-xxx (LOP) Local Operating Panel (Diesel engines Control, Alarm & safety protection) integrates in a cabinet:

- an independent N3000 SAP Safety System and
- N3500 I/O modules for control, monitoring and alarms

<table>
<tr><th colspan="3">MyNoris-N3500-xxxx (LOP_x_y_##) Hardware *)</th><th>Soft. Version</th></tr>
<tr><td>Caninet</td><td>IP66
NONSTONE
ES Series.
Single Door</td><td>All components are assembled in a cabinet. This system can be mounted on the engine skid or loose supply</td><td>n.a-</td></tr>
<tr><td>Start-Stop system and data acquisition with N3500 I/O modules</td><td>STM7-IN32
STM7-AinOut
STM7-I/V1
STM7-PT100</td><td>Alarm System & Remote Control

- Start/Stop
- data acquisition
- Start Interlock
- Automatic Load Reduction [Optional]
- MODBUS communication to alarm system</td><td>V1.01</td></tr>
<tr><td>Safety module</td><td>N3000-SAP-xxx</td><td>Independent safety system for
- Emergency stop
- Automatic Stop
- Overspeed Stop</td><td>SW1:
N3-SAP_110D
SW2: N3_sapf_123_MC</td></tr>
<tr><td>LCD display</td><td>N3521</td><td>Dialog unit N3521 for visual display of data from the functional groups, start-stop system as well as engine condition.</td><td>
<table>
<tr><th></th><th>Application</th><th>Software</th></tr>
<tr><td>1</td><td>Auxiliary Genset</td><td>AG_G_Rx</td></tr>
<tr><td>2</td><td>Bow Thruster</td><td>BT_E_Rx</td></tr>
<tr><td>3</td><td>Emergency Genset</td><td>EG_G_Rx</td></tr>
<tr><td>4</td><td>FiFi</td><td>FF_E_Rx</td></tr>
<tr><td>5</td><td>Harbour Genset</td><td>HG_G_Rx</td></tr>
<tr><td>6</td><td>Harbour/E. Genset</td><td>HE_G_Rx</td></tr>
<tr><td>7</td><td>Main Genset</td><td>MG_G_Rx</td></tr>
<tr><td>8</td><td>Main Propulsion</td><td>ME_E_Rx</td></tr>
<tr><td>9</td><td>Stern Thruster</td><td>ST_E_Rx</td></tr>
</table>
</td></tr>
</table>

**) Software nomenclature:*
*MyNoris-N3500-**xxx**: Engine type of panel delivery*
*MyNoris-N3500-xxx **(LOP_x_y_##) :***
"x": *P = Engine to be used for propulsion ; G = Auxiliary engines (generator application)*
"y": *S = analogue sensing for Prop. eng. or Aux. eng. (generator application) and E0 class notation*
B = binary signals for Prop. eng. or Aux. eng. (generator application) without E0 class notation
"##" *= Revision number of the software*

Place of manufacture

Noris Automation Far East PTE LTD
42 Toh Guan Road East
#01-80 Enterprise Hub
Singapore 608583

Approval conditions

The Type Approval covers hardware listed under Product description.

The following documentation is to be submitted for approval in each case where DNV classification applies:

- Reference to this Type Approval Certificate
- Engine type name and or reference to relevant engine type approval Certificates
- Software version number used in delivery
- List of installed software (firmware) versions (if different from those identified above)
- System block diagram
- Power supply arrangement (may be part of the System block diagram)
- List of controlled and monitored points (I/O list, incl. data transferred on communication links)
- Test program for certification

The responsible for the above submittal may be the maker of the module, the engine maker, the maker of the control panel or the yard.

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, preferably at the engine maker integrating control&monitoring and safety 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. Certification of modified functionality may be required for the particular vessel.

Application/Limitation

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

1. Electronic governor is not covered by this approval.
2. System is suitable to be used as engine safety, control and monitoring system for emergency, auxiliary and propulsion marine engines.
3. Sensors and actuators are not covered by this approval and must be presented to surveyor upon request to be verified against requirements in Pt.4 Ch.9 Sec.5B.
4. SA677-xxG Amplifier Relay with integrated wire break monitor will be supplied when the shutdown valve needs higher amounts of current that the N3000-SAP is capable of driving.
5. System is suitable to be used as engine safety, control and monitoring system for emergency, auxiliary and propulsion marine engines.

Type Approval documentation
Test Report: S292-ZD-2019, S292-DXN-2019, S292-SR-2019, S292-QY-2020, A19-012-WT

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

Marking of product
Manufacturer
Model number
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