



Certificate No:
TAA0000304

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Anti-Heeling Control System

with type designation(s)
Anti-Heeling Control System NORDIC-AHS

Issued to
Nordic Flow Control Pte. Ltd.
SINGAPORE, Singapore

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.
Note: Location class according valid type approval certificates as listed under product description

Issued at **Hamburg** on **2021-05-24**

This Certificate is valid until **2026-05-23**.

for **DNV**

DNV local station: **Certification of Materials - Singapore**

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 2

Product description

Manual or automatic mode of operation
Suitable for use without supervision

Main components:

Operator Interface: GP4000 / SP5000 series TFT Touch Panel
PLC based I/O-System: WAGO 750: CPU (WAGO 750-891), SUPPLY FILTER MODULE (750-626), DIGITAL INPUT (750-430), DIGITAL OUTPUT (750-530), ANALOG INPUT (750-453), TERMINATION MODULE (750-600)

Equipment provided based on valid type approval certificates: TAA000002W, TAA00001A3, TAA0000194

Application/Limitation

The Type Approval covers hardware and software 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.

Note 1): Compliancy to IACS E10 rev. 07 to be confirmed for equipment to be installed in vessel projects contracted by 01.01.2022

Type Approval documentation

Test reports: Functionality Test Report Rev. 1.1; Software Assessment Report HMI1.1, Software Assessment Report AHA1.1 (Rev. 1.1)

Documents: (AHS Rev. 1.1) Functionality Manual, Hardware Report, Software

Tests carried out

According valid type approval certificates as listed under product description

Marking of product

The products to be marked with: Nordic Flow Control Pte Ltd name plate and contain

- 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