



TYPE APPROVAL CERTIFICATE

Certificate No. : HMB27973-AC002 **Initial Approval** : 23rd June, 2017

Product : Remote control system for propulsion plant

Manufacturer : NORIS Automation GmbH
Friedrich-Barnewitz Strasse 10, D-18119 Rostock, Germany

Product Description : Type : NORISTAR 4
Intended for Main Propulsion and Lateral Thrust Propeller Application

" See Appendix 1 & 2 "

Approval Condition : " See Appendix 2 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows and entered in the "List of Approved Manufacturers and Type Approved Equipment".

Pt. 6, Ch. 2, Art. 301 of the Rules for Classification of Steel Ships.

This Certificate is valid until 22nd June, 2022

Issued at Busan, Korea on 23rd June, 2017



KOREAN REGISTER OF SHIPPING

*General Manager of
Marine & Ocean Equipment Team*

- Note : 1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.*

Appendix 1

Product Description and/or Approval Condition

Certificate No : HMB27973-AC002

Date of Issue :23rd June, 2017

A. Product Description ;

NORISYS 4 Remote Control System can be applied for

- Type F: Fixed Pitch Propeller control with reverse gear control and engine speed setting
- Type C: Controllable Pitch Propeller control with engine start/stop, clutch control, engine load control
- Type A: Azimuth/POD/Rudder-propeller control with additional FPP or CPP functionality
- Type J: Waterjet/Pumpjet control as sub series of A
- Type T: Thruster (Stern/Bow) control as sub series of F and C

1. This system may consist of the following components.

- 1) NORISYS 4 Programmable Logic Controller System (HMB27973-AC003)
- 2) NORISYS 4 Control Panel System : Master panel, Slave panel (HMB27973-AC004)
- 3) NORISYS 4 Control Lever System : LS4, LT4 (with optional ESS) (HMB27973-AC006)
- 4) NORISYS 4 Control Lever System : LA4 (with optional ESS) (HMB27973-AC005)
- 5) Servo Controller : SG2000 (HMB27973-AC001)
- 6) Signal Converter : SA502-3G (HMB27973-AE001)
- 7) Measuring Converter : NORISPEED (HMB27973-AE002)
- 8) Resistive Angular Positioning Sensor : DWA90-xx (*)
- 9) Indicator : NIQ2-0xx, NIQD2-0xx (*)
- 10) Micro Panel : XV-112-DB-70TWR-70 (*)
- 11) Speed Sensor : FAJ11- (*)

2. Main characteristics

- 1) Power supply : 24V DC
- 2) Software version : PLC_PRG Vb2.0
Base Library : 1.13
Function Library : 5.01

3. Documentation

- 1) Documents
 - NAR-KD-0104-10-en_V117_NORISTAR_4_Remote_Control_System_Description,
 - NAR-I-0083-en_V100_NORISTAR_4_list_of_actual_routines,
 - NAR-I-0084-en_V100_NORISTAR_4_program_structure
 - 3440_Technical_Description_472-050A_V2.0,
 - 3441_Technical_Description_472-050B_V2.0,
 - 3442_Technical_Description_472-050C_V2.0
 - Datasheet DB-DWA-EN_V01.01
 - Datasheet DB-NIQ(D)2
 - Catalog Article No. 172909 (2016-07-22)
 - Datasheet DB-FAJ11_en V02.00 (02/2012)
- 2) Drawings
 - 3440_NORISTAR_4_472-050A_Rev(A), 3441_NORISTAR_4_472-050B_Rev(A),
 - 3442_NORISTAR_4_472-050C_Rev(A)
 - 43.100.01, 43.100.02
- 3) Test reports
Noris Automation GmbH:
 - Test_Schedule_CPP_System_Drawing_No_472.050A.00
 - Test_Schedule_FPP_System_Drawing_No_472.050B.00
 - Test_Schedule_AZIMUTH_System_Drawing_No_472.050C.00
 - Product Test Report dated 2004-03-25
 - Climatic Test dated 2003-11-26 to 2003-11-27
 - Temperature Test Report No. TTbmp 14-001 Ver.01 dated 2014-02-12
LGA QualiTest GmbH
 - E 2.766 part A/B dated 2004-01-16
 - E 4.057 dated 2007-02-06
 - E 4.654 part A/B dated 2008-09-15

< to be continued >

Appendix 2

Product Description and/or Approval Condition

Certificate No : HMB27973-AC002

Date of Issue : 23rd June, 2017

I2PS

- 2013-02018-1 dated 2013-08-05
- 2013-02035-4 dated 2013-08-21

Bureau Veritas Consumer Products Services Germany GmbH

- 14-010 Ver. 02 dated 2014-07-14
- 14-017 Ver. 01 dated 2014-04-01

B. Approval Condition

1. This approval is granted on the basis of the approved documentation and test reports.
2. The product or packing is to be marked with the manufacturer's name and type designation on a suitable position.
3. The components (except (*) marked ones) of this system are to be separately type approved by this society according to Pt. 6, Ch. 2, Art. 301 of the Rules for Classification, Steel Ships.
4. This certificate is valid on condition that Type Approval of the components (except (*) marked ones) for this system are to be maintained separately from this Approval.
5. In case where this system is installed on board, the system drawings for individual vessel are to be approved by this society.
6. The manufacturer should inform this Society of all kinds of revisions of the approved software. If the changes are recognized to affect functionality of the approved product, Type Test to confirm the reliability of the revised software may be performed in the presence of our surveyor.
7. Individual Product Certification is required.

< The End >