

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer	NORIS Automation GmbH
Address	Friedrich-Barnewitz-Strasse 10, Rostock, 18109, Germany
Type	Control Systems
Description	Remote Control System for Main Propulsion and Lateral Propeller Application With the following Type Arrangements: NORISTAR 4 F: Fixed Pitch Propeller Control with Reverse Gear Control NORISTAR 4 C: Controllable Pitch Propeller Control NORISTAR 4 A: Azimuth, Podded Propulsion or Rudder Propeller Control NORISTAR 4 J: Water Jet or Pump Jet Control (drive control as sub type of Type A) NORISTAR 4 T: Thruster Control (auxiliary drive control as sub type of Type F or Type C)
Trade Name	NORISTAR 4
Application	Marine applications for use in environmental categories ENV1, ENV2, ENV3 and ENV5 for: - NORISYSLS4 - NORISYSLA4 - NORISYS 4 MP - NORISYS 4 SP Marine applications for use in environmental categories ENV1, ENV2, ENV3 and ENV4 for: - NORISYS 4

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Type Approval Certificate

- SA502-3G
- NORISPEED FMN6-1-11-K
Marine applications for use in environmental categories ENV1, ENV2, and ENV3
for:
- SAR45 Kit
- SG 2000
as defined in Lloyd's Register's Type Approval System, Test Specification
Number 1– 2002.

Specified Standard	Manufacturer's specification
Ratings	Supply voltage: 24 VDC Software Versions: Main PLC: PLC_PRG Vb2.0 Base Library Main PLC: 1.16 Function Library Main PLC: 5.04
Additional Tests	Referring to Lloyd's Register Type Approval Certificates for the individual Components as listed under "Other Conditions".
Other Conditions	This Certificate is based on Lloyd's Register Type Approval Certificates for the following components issued to NORIS Automation GmbH: - Programmable Logic Controller System - Type NORISYS 4: LR2114340TA-02 - Control Lever System - Type NORISYS LS4: LR2110649TA - Control Lever System Azimuth - Type NORISYS LA4: LR2110442TA - Remote Control Panel System - Type NORISYS 4 MP: LR2114159TA - Remote Control Panel System - Type NORISYS 4 SP: LR2114159TA - Measurement Transducer for Converting Potentiometer Signal into Electrical Norm Signal - Type SA502-3G: LR2112381TA - Multifunction Device for Speed Measurement and Signal

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Processing, Direction of Rotation Detection, Slip Measurement or Offset Measurement- Type NORISPEED FMN6-1-11-K: LR2110365TA
- Signal Processing Electronic Card for the Control of Lever and Joystick Applications - Type SAR45 Kit: LR2110365TA
- Servo Controller – Type SG 2000: LR2110365TA

Final functional arrangements are to comply with appropriate Lloyd's Register Rules and will be subject of the project related Plan Approval Process.
Equipment has to comply with IACS E10 Rev.7 when intended to be installed on ships contracted for construction on or after 1 January 2022.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

Previous Version: 15/20135

The Design Appraisal Document HTS/ETS 40943 -21/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.