



TYPE APPROVAL CERTIFICATE

Certificate No. : HMB27973-AC006 **Initial Approval** : 23rd June, 2017
Product : Engine Telegraph System
Manufacturer : NORIS Automation GmbH
Friedrich-Barnewitz Strasse 10, D-18119 Rostock, Germany

Product Description : Type : LS4, LSD4, LSN4, LT4 and LTD4 series

" See Appendix 1 "

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. Individual Product Certification is not required.

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, 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-AC006

Date of Issue :23rd June, 2017

Product Description:

Engine Telegraph System (Type: LS4, LSD4, LSN4, LT4 and LTD4 series)

LS4	Single propeller shaft lever
LS4-ESS	Single propeller shaft lever with electrical shaft option
LSD4	Twin propeller shaft lever
LSD4-ESS	Twin propeller shaft lever with electrical shaft option
LSN4	Single propeller shaft lever with 2 demands
LSN4-ESS	Single propeller shaft lever with 2 demands with electrical shaft option
LT4	Single thruster control lever
LT4-ESS	Single thruster control lever with electrical shaft option
LTD4	Twin thruster control lever
LTD4-ESS	Twin thruster control lever with electrical shaft option

1. Main Characteristics

- Power supply : 24V DC
- Interfaces : 1 CAN Bus, 1 CAN Bus/RS232/RS485
- Inputs : 2 DI, 1 scale illumination input (dimmer)
- Outputs : 2 AO (4...20mA)
- Degree of protection : IP56 on the front side

2. Documents and Drawings

- Drawings
092.004.03.118.A, 092.004.03.119.A, 092.004.03.120.A
092.004.03.121.A, 092.004.03.122.A, 092.004.03.123.A
092.004.03.124.A, 092.004.03.125.A, 092.004.03.410.A
092.004.03.411.A, 092.004.03.412.A
SAR45-e, SAR46-d, SAR60-e
- NAR-KD-0111-1-en_V117_NORISYS_Control_Lever_System_Manual
NAR-PD-0110-1-en_V101_NORISYS_4_Firmware_element_modbus_description
NAR-PD-0111-2-en_V100_NORISTAR_Control_Lever_Firmware_Description
NAR-PD-0111-8-en_V101_NORISTAR_LS4_Product_FMEA
NAR-RaD-0002-1-de_V101_NORIS_Products_Rededication_List

3. Test Reports

- NORIS Automation GmbH
- NAR-PB-0111-1-en Ver.1.06, TTBMP12-002_NAR Ver.01
- TREO - Labor fur Umweltsimulation GmbH
- 014-14 Ver.1, 018-14 Ver.1, 026-14 Ver.1,
027-14 Ver.1, 255-13 Ver.1, 288-13 Ver.1
- Teseq GmbH
- D/11/3863/09, D/11/3863/10

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