

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 - Speed And S.H.P.S
Description	Control Lever System Refer to the Appendix for further details.
Trade Name	NORISYS LS4
Application	Marine applications for use in environmental categories ENV1, ENV2, ENV3 and ENV5 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 Degree of Protection: IP56 on front side
Additional Tests	Mechanical shock test: 15g, 11ms Number of load planes: 6 ($\pm X$, $\pm Y$ and $\pm Z$) Number of shocks per load plane: 3

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Other Conditions

Final functional arrangements are to comply with appropriate Lloyd's Register Rules and will be subject of the Plan Approval process, if applicable.
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: 15/20137

The Design Appraisal Document HTS/ETS 40940-21/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.

Appendix

TYPES	LS4①②③④⑤⑥⑦	Single lever
	LSN4①②③④⑤⑥⑦	Double lever for two demands, handled by one signal processing electronic
	LSD4①②③④⑤⑥⑦	Double lever for two demands, handled by separated signal processing electronic
	LT4①②③④⑤⑥⑦	Single lever
	LTD4①②③④⑤⑥⑦	Double lever for two demands, handled by separated signal processing electronic
① Scale Orientation:	-FWD	Forward oriented installation
	-AFT	Astern oriented installation
② Scale Design:	-0-10	
	-10-0-10	
	-L0-10 / R10-0-10	(not applicable for LT/LTD type)
	-L10-0-10 / R0-10	(not applicable for LT/LTD type)
③ Scale Subdesign:		free if no extra scale design
	-ORD1	Scale design with order steps (MAX. AHEAD, FULL AHEAD, HALF AHEAD, SLOW AHEAD, DEAD SLOW AHEAD, ZERO, DEAD SLOW ASTERN, SLOW ASTERN, HALF ASTERN, FULL ASTERN, MAX. ASTERN)
④ Signal Processing:	-E1	Signal processing electronic, 2 x CANbus, 2 x 4 ... 20 mA OUT, 2 x Digital IN, 1 x PWM IN, LED band
	-E2	Signal processing electronic, 2 x CANbus, 1x RS-485 1 x Digital IN, 1x Digital OUT, 1 x PWM IN, LED band
⑤ Illumination:	-IL1	Scale with backlight and position indicator (for E1 and E2 only)
⑥ Options:	-ESS	Electrical shaft system (with E1 and E2 only)
	-MLP	Mechanical lock points (not applicable with ESS option)
	-MHL	Mechanical handle linkage (with MLP only)
⑦ Lock Points:	n...	position of lock points (e.g. 20-0-20)
Software Version for all Levers:	2.05.00	