System components

noriSys 4 LS4

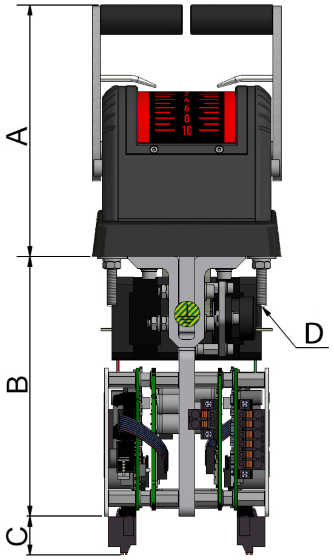
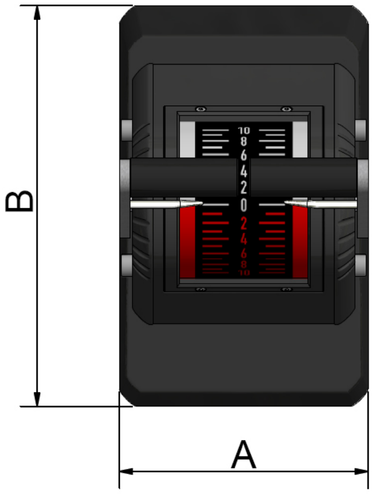
Control lever for propulsion drives

- Single lever and double lever setups available
- Various scales available for each handle
- Electric shaft function with lever coupling and force feedback
- Redundant integration via CANbus and/or integration via customised I/O solutions to many automation systems

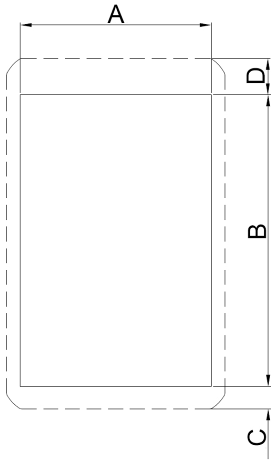
Technical Specifications	
Supply voltage	U_{nom} 24 VDC, 18 … 32 VDC
Digital interface	2x CANBus
Analog output	optional analogue output 4 … 20 mA available
Protection class	IP56 front side

Dimensions and drawings

Device dimensions

	**Explanation to the left illustration (side view)** A) Length 128 mm B) Length 153 mm C) Length 20 mm D) Thread M5, length 25 mm
	**Explanation to the left illustration (above view)** A) Length 96 mm B) Length 154 mm

Console cut-out

 	**Explanation to the left illustration** A) Length 84 mm B) Length 128 mm C) Length 10 mm D) Length 16 mm

Technical data

Connection	
Supply voltage	U_{nom} 24 VDC, 18 … 32 VDC
Current consumption	0.15 … 1.5 A according to level of equipment
Reverse voltage protection	Integrated
Over voltage protection	Integrated

Connectivity	
Digital interface	2x CANBus
Analog output (optional)	One per handle (4 … 20 mA)
Illumination regulation input	For conventional 24 VDC PWM dimmer

Environmental influences	
Operating temperature	DIN IEC 60068-2-2 and DIN IEC 60068-2-1: -25°C … +70°C
Climatic test	DIN IEC 60068-2-30 Db
Storage temperature	DIN IEC 60068-2: -40°C … +85°C
Vibration resistance	DIN IEC 60068-2-6 Fc: ±1.0 mm @ 2 … 13.2 Hz, ±0.7 g @ 13.2 … 100 Hz
Degree of protection	DIN EN 60529: IP56 front side
ESD	IEC 61000-4-2: ± 6 kV/Contact Discharge; ± 8 kV/Air Discharge
HF-interference immunity	IEC 61000-6-2; IEC 61000-4-3, -4-4, -4-5, -4-6
Interference emission	IEC 61000-6-4

Mechanical dimensions	
Material	Enclosure: PUR, AlMg3
Mounting	Console mounting
Installation position	None
Dimensions	96 x 154 x 301 mm (173 mm under floor)
Weight	1.8 kg - 2.4 kg according to level of equipment

Other	
ESS	Optional electrical shaft system with separate 24 VDC power supply
Approvals	CE, BV, DNV, LR, KR

Type code

Type code structure LS...							
	LSN4	-FWD	-L0-10 / R10-0-10	-ORD1	-E1	-IL1	-ESS
	Base type						
		Scale orientation					
			Scale design				
				Scale subdesign			
					Signal processing		
						Illumination	
							Options

Type code LS...		
Base type	**LS4**	Single lever
	LSN4	Double lever for two demands, handled by one signal processing electronic
	LSD4	Double lever for two demands, handled by separated signal processing electronic
Scale orientation	**-FWD**	Forward oriented installation
	-AFT	Astern oriented installation
Scale layout	**-0-10**	
	-10-0-10	
	-L0-10 / R10-0-10	
	-L10-0-10 / R0-10	
Scale customising		Without code: no custom design is used
	-ORD	Scale design with order steps (*)
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
Illumination	**-IL1**	Illuminated scale and position indicator
Options	**-ESS**	Electrical shaft system; lock points must be defined during order, custom configuration available
	-MLP	Mechanical lock points; lock points must be defined during order, custom configuration available
	-MHL	Mechanical handle coupling (with MLP only)
	-C	Customer Variant

	LSN4	-_ _ _	-_ _ __ _ _	-_ _ _	-_ _	-_ _ _	-_ _ _	**Example:** **LSN4-FWD-L0-10 / R10-0-10-E1-IL1-ESS**

* 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

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Errors and omissions excepted!