



Data sheet

ALS 400 NAI Floodlight

- **Maintenance-free LED technology for uniform illumination of daylight markings**
- **Anodised, powder-coated aluminium housing**
- **Standard NAI bus interface for power supply and communication**
- **Suitable for series connection of multiple NAI components**
- **Integrated daylight sensor**

The ALS 400 floodlight is used for short-range marking on offshore wind turbine structures by illuminating the daylight marking during the night. It satisfies the wind turbine guidelines (WEA)¹ of the WSV² and the Technical Demands for close range markings on offshore structures (WSV document TF03).

The floodlight's integrated NAI bus interface is used to supply power and control the intensity and switching status and to transmit status and error messages to the central NAI Controller. The messages are then available to the central SCADA system.

Using the integrated daylight sensor, an autonomous fallback solution is possible so that in the case of interrupted bus communication, the light is switched on when the environmental brightness falls below a minimum brightness level (configurable).

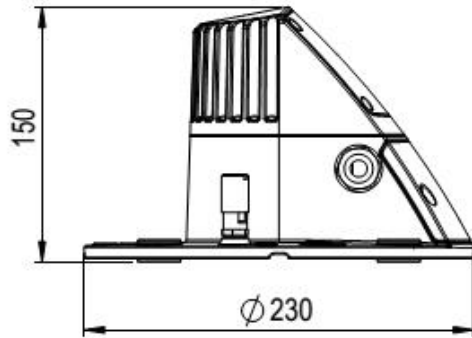
The integrated operational monitoring detects failure of LEDs, errors in the control electronics as well as supply voltage problems, excess temperature and interruptions in communication.

¹ Guidelines for the Design, Marking and Operation of Wind Generators in the Area of Responsibility of the Federal Water-ways and Shipping Directorates North-West and North to Guarantee the Safety and Efficiency of Vessel Traffic

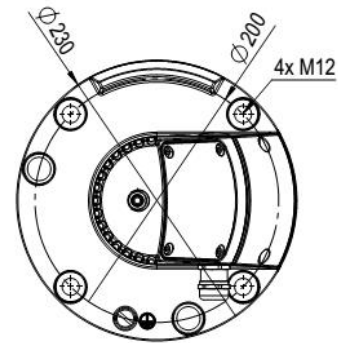
² German Federal Waterways and Shipping Administration

Technical Data

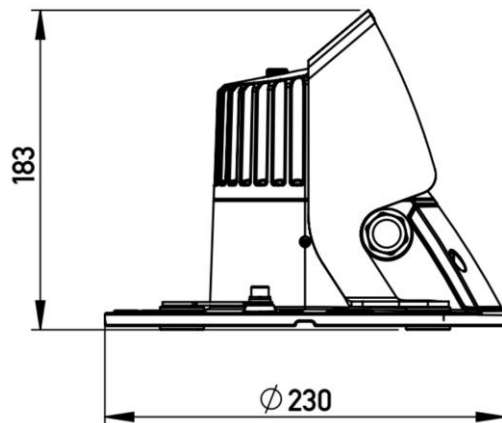
Dimensions, weight



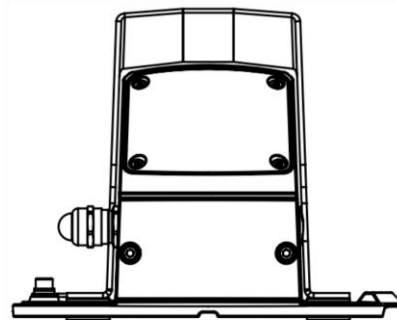
Dimensions ALS-400-NAI, ALS-400-NAI-MR, ALS-400-NAI-LR



Diameter ALS 400 NAI

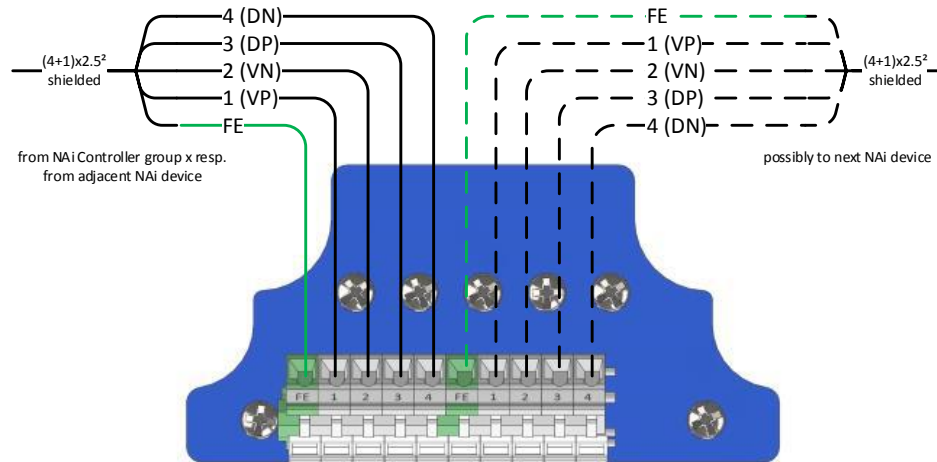


Dimensions ALS-400-NAI-OH, ALS-400-NAI-MR-OH, ALS-400-NAI-LR-OH



ALS 400 NAI variant	Dimensions, (diameter x height)	Weight
ALS-400-NAI, ALS-400-NAI-MR, ALS-400-NAI-LR	230 mm x 150 mm	2,1 kg
ALS-400-NAI-OH, ALS-400-NAI-MR-OH, ALS-400-NAI-LR-OH	230 mm x 183 mm	2,6 kg

Electrical connection



Electrical connection	Spring terminal block, max. 2,5 mm ²
Operating voltage V_{IN}	19 bis 36 V DC
Power consumption (V_{IN}=24 V DC - max. intensity)	
ALS-400-NAI, ALS-400-NAI-OH	15 W
ALS-400-NAI-MR, ALS-400-NAI-MR-OH	13 W
ALS-400-NAI-LR, ALS-400-NAI-LR-OH	13 W

Optical system

Light colour	3800 K
Uniformity [E_{min} : E_{max}]	≥ 1 : 10

Reliability

MTBF (Electronics and LEDs) (acc. To SN 29500-1)	780 000 h
Minimum LED Lifetime	60 000 h

Environmental conditions

Regulations	IEC 60945, device type 'exposed'
Ambient temperature (operation)	-40 to 55 °C
Ambient temperature (storage / transport)	-40 to 70 °C
Humidity (operation / storage / transport)	max. 95 % acc. to IEC 60945
Atmospheric pressure (operation / storage / transport)	80 kPa to 108 kPa
Degree of protection (acc. to IEC 60529)	IP67
Protection class	Class III

Mechanical requirements

Vibration testing sinusoidal vibrations	acc. to IEC 60945
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EMC compliance

EMC requirements		Applied Standard
Emission	Radiated emission	EN 60945:2002
Interference immunity	Electrostatic discharge (ESD) Electromagnetic fields Fast transients (burst) Conducted disturbances	EN 60945:2002
	High energy transients (surge)	EN 61000-6-2:2005

ALS 400 NAI variants

Item number	Type	Distance to the surface to be illuminated
30261000	ALS-400-NAI	1250 – 1500 mm
30265000	ALS-400-NAI-OH	1250 – 1500 mm
30264100	ALS-400-NAI-MR	1700 – 2200 mm
30264000	ALS-400-NAI-MR-OH	1700 – 2200 mm
30262000	ALS-400-NAI-LR	2300 – 2800 mm
30263000	ALS-400-NAI-LR-OH	2300 – 2800 mm

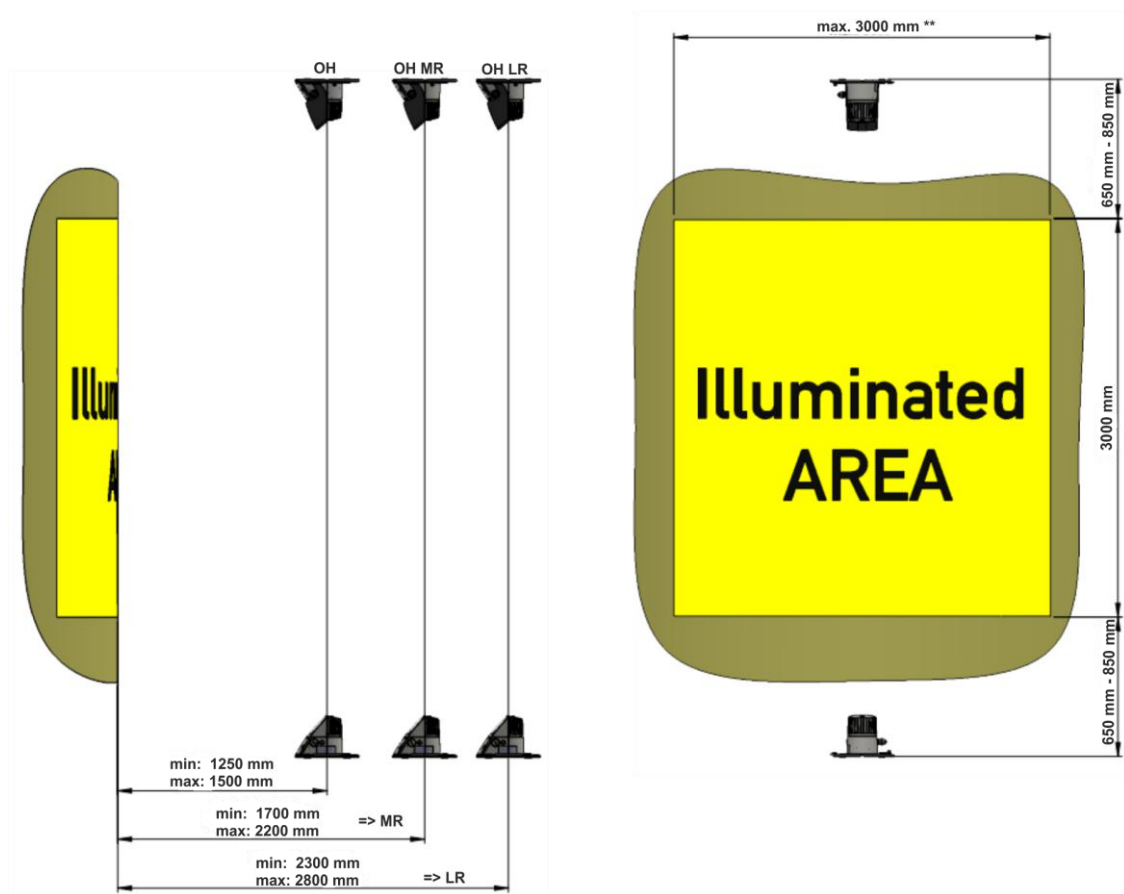
Assembly

The floodlight is mounted above or below the surface to be illuminated.

For mounting above the area to be illuminated, the overhead (OH) variants are provided, which are equipped with shield and drainage hole.

The following drawing shows the alignment of the ALS 400 NAI with the daytime marking. The positions are determined depending on the tower geometry and the area to be illuminated. Accordingly, the floodlight variant for the respective distance is to be selected.

This specification must be strictly observed in order to guarantee homogeneous illumination according to the guideline for wind turbines. The floodlight is aligned to be perpendicular to the tower using elongated holes in the retainer, or the mounting plate of the ALS 400 NAI.



Alignment of the ALS 400 NAI with the daytime marking (variants)

Components



1. Device head with LED insert
2. Light shielding visor (shield); (for OH variants only)
3. Indicator LED, light sensor
4. Second cable gland M20 or blanking plug
5. Housing cover for socket with spring terminal block
6. Cable gland M20
7. Device foot with integrated socket and third cable gland M20 or blanking plug on the bottom side
8. Earthing connection
9. Sealing screw or bird spike (not with overhead variants)

Note: The light shielding visor (shield) (figure <components>/2) delivered with the OH floodlights (floodlight for overhead mounting) prevents unwanted stray light and thus glare for the vessel traffic.

Note: All housing components including the cable glands satisfy the IP67 degree of protection requirements according to IEC 60529. During connection and assembly, ensure that no moisture or dirt penetrates into the open socket.

EMC cable gland¹⁾	Size	for cable diameter	Key width
	M20 x 1.5	7.5-14.0 mm	24 mm

¹⁾ Typ: HELUTOP® MS-EP4

Material

Housing (Device foot, head, cover for socket)	Anodised, powder-coated aluminium (AlSi12)
Lens	PMMA
Cover LED insert	MAKROLON® (PC)
Cable gland	Nickel-plated brass
Earthing connection	Stainless steel 1.4571
Cover indicator LED	MAKROLON® (PC)
Insulation sleeve	PA
Seals	TPE, injection-molded
Pressure compensation valve for socket and housing	PTFE membrane
Shield (OH variants only)	Stainless steel 1.4571, powder-coated