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Data Sheet

ALS 110 NAi Floodlight

- **maintenance-free LED technology for the uniform lighting of inverse inscriptions**
- **power supply and communication via standard NAi bus interface**
- **adjustable intensity**
- **protection class IP67**

The ALS 110 NAi floodlight conforms to the requirements in TF03[1] of the WSV[2] for the short-range marking of offshore installations. It is used for the illumination of inverse inscriptions during the night and for this purpose it is installed on an arm above the panel.

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

By means of the integrated daylight sensor, an autonomous fall-back solution is implemented so that in the case of an interrupted bus communication, the light is switched on when the environmental brightness falls below a minimum (configurable) level.

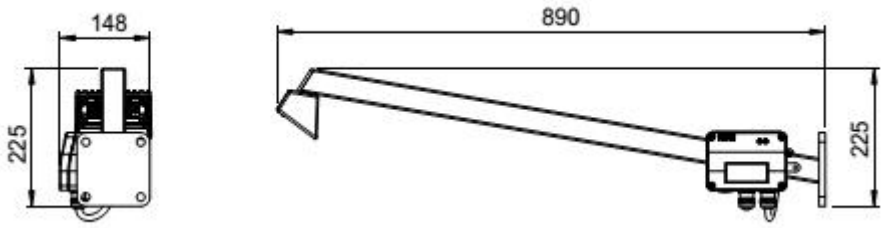
The integrated operational monitoring detects failure of LEDs, errors in the control electronics as well as supply voltage problems, excess temperature and interruptions in communication.

[1] The technical requirements in Annex I of "Rahmenvorgaben zur Gewährleistung der fachgerechten Umsetzung verkehrstechnischer Auflagen im Umfeld von Offshore-Anlagen, hier: Kennzeichnung" (=Outline requirements for ensuring the provision of the proper implementation of traffic-related requirements near off-shore installations, here: marking), as of 01 July 2014

[2] German Federal Waterways and Shipping Administration

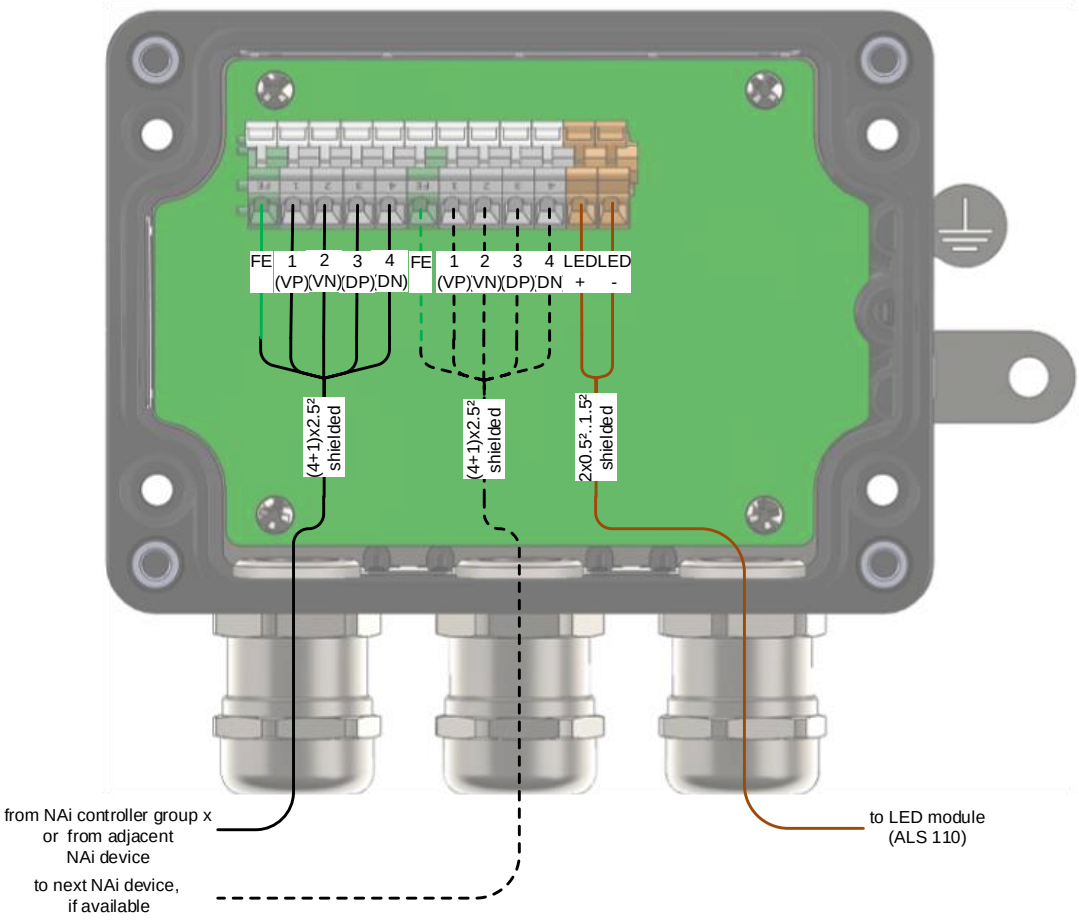
Technical Data

Dimensions, weight



Dimensions (width x height x length)	148 mm × 225 mm × 890 mm
Weight (complete device including driver)	4.8 kg

Electrical connection



Electrical connection	Spring terminal block, max. 2.5 mm²
Operating voltage V_{IN}	19 to 36 V DC
Power consumption (V_{IN} = 24 V DC - max. intensity)	4 W

Optical system

Light colour	3850 K
Uniformity [E_{min}/E_{max}]	Better than 1:10

Reliability

MTBF of the electronics	2 130 000 h
Minimum service life of the LEDs	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 % according to IEC 60945
Atmospheric pressure (operation / storage / transport)	80 kPa to 108 kPa
Degree of protection (acc. to IEC 60529)	IP67
Protection class	III

Mechanical requirements

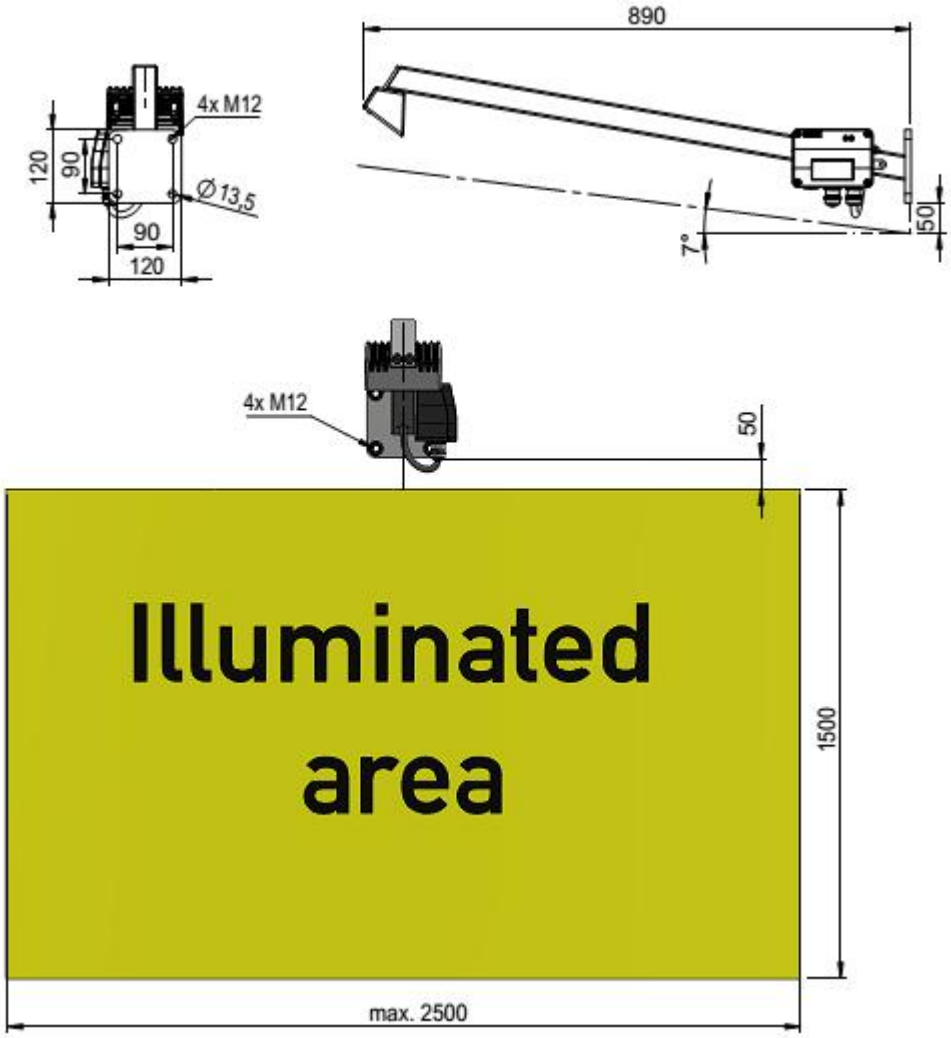
Vibration testing sinusoidal vibrations	According to IEC 60945

EMC compliance

EMC requirements		**Applied standard**	**Test standard / Test criteria**
EMC emission	**Radiated interference emission**	EN 60945:2002	IEC/CISPR 16-2-3:2010 Measuring distance 3 m
EMC immunity	**Electrostatic discharge (ESD)**	EN 60945:2002	IEC 61000-4-2:2008 Criterion B 8 kV air discharge 6 kV contact discharge
	Electromagnetic fields	EN 60945:2002	IEC 61000-4-3:2010 Criterion A Field strength 10 V/m
	Fast transients (burst)	EN 60945:2002	IEC 61000-4-4:2012 Criterion B All connections: Test voltage 1 kV
	High energy transients (surge)	EN 61000-6-2:2005	IEC 61000-4-5:2005 1 kV on NAi bus line (shield)
	Conducted interference	EN 60945:2002	IEC 61000-4-6:2008 Criterion A All connections: Test voltage 10 kV

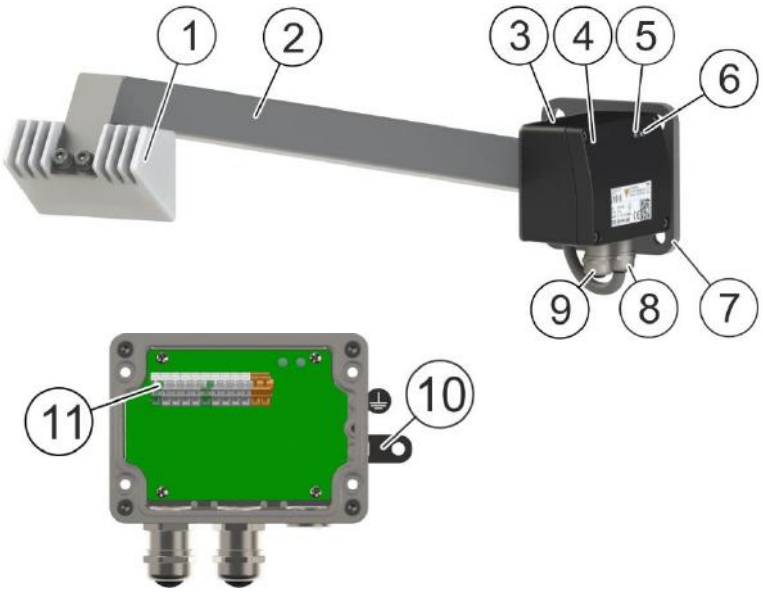
Assembly

The floodlight is installed above or below the area to be illuminated (max. 2000 mm × 1500 mm). The following drawings show the installation data including the position and optimum distance.



Position of the ALS 110 NAi for daytime ID marking

Components



1. Device head with LED insert
2. Arm
3. Connection socket with NAi driver, spring terminal block and EMC cable glands
4. Covering of the connection socket
5. Indicator LED
6. Light sensor
7. Installation plate with holes (4x M12)
8. EMC cable gland M20
9. Second EMC cable gland M20 or blanking plug
10. Grounding lug
11. Terminal block in the open housing

Note: All housing components including the cable glands correspond to the requirements for protection class IP67 according to IEC 60529. During installation and assembly, care has to be taken that no humidity or dirt can enter the open connection socket.

EMC cable gland[1)]	Dimensions M20 x 1.5	For cable diameters from 7.5 mm to 14.0 mm	Width across flats 24 mm

[1)] Type: HELUTOP® MS-EP4

Material

Device head	Anodised and powder coated aluminium (AlSi12)
Lenses	PMMA
Cover pane and signal window	Polycarbonate (PC)
Arm and installation plate	Stainless steel 1.4404 (316L)
Drive housing (connection socket)	PC/ABS
Cable gland	Nickel-plated brass
Earthing connection	Stainless steel 1.4404 (316L)
Seals	TPE
Pressure compensation valve for the connection box and LED insert	PTFE membrane