SEAMARK
SMART · RUGGED · ENDURING
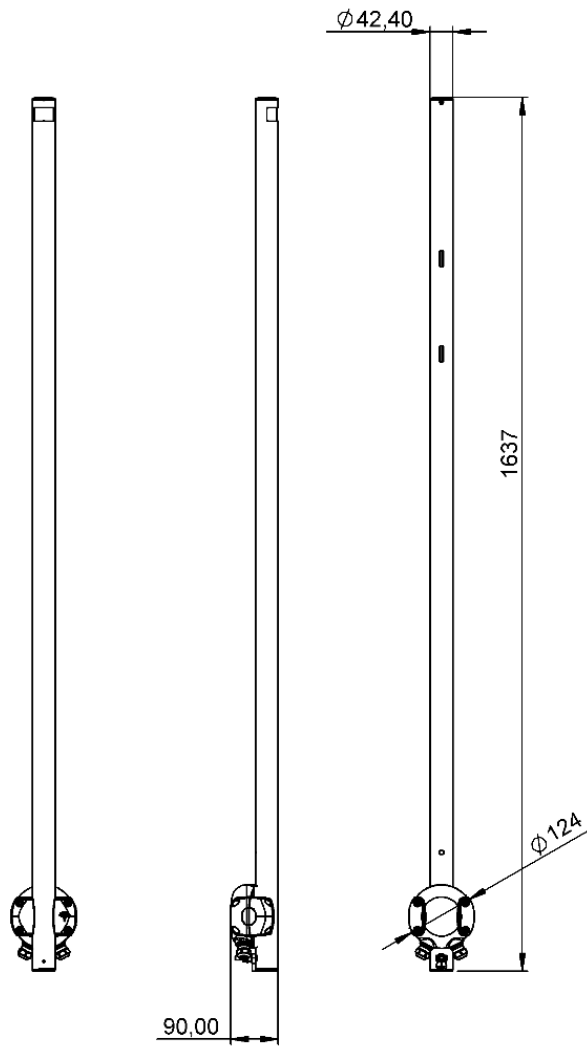
DATASHEET
SEAMARK ML02-NAI

- **2 nautical mile marine lantern for marking offshore wind turbines**

- **Smart photocell, levelling sensor, water ingress detection, optical feedback and LED monitoring**

- **Standard NAi bus interface for power supply and communication**

The SeaMark marine lantern is designed for signaling a yellow, special mark characteristic on offshore wind turbines to satisfy IALA recommendation O-139[A]. The ruggedized stainless-steel design integrates the optical head and mechanical support.

A smart photocell ensures accurate day to night switching by distinguishing between the light produced by the lantern and ambient light. An autonomous fall back solution is implemented so that in the case of interrupted bus communication, the light is switched on when the ambient light level falls below a minimum, pre-set, configurable level. An integrated GNSS (GPS primary, GLONASS secondary) unit ensures synchronized flash patterns independently from the network and day/night switching by calendar. A levelling sensor assures accurate installation whilst water ingress detection, optical feedback and LED monitoring allow for detailed monitoring and optimized maintenance.

[A] IALA Recommendations O-139, "The marking of man-made offshore structures"

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Datasheet: ML02-NAI
Revision 00 · 31.08.2020

Page 1 of 6

Dimensions & Weight

Diameter of junction Box	124 mm
Diameter of stainless-steel enclosure	42 mm
Height	1637 mm
Weight	4.62 kg

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Datasheet: ML02-NAI
Revision 00 · 31.08.2020

Page 2 of 6

Material

Tube	Stainless Steel 316 L / 1.4404
Housing Junction Box	LEXAN™ Resin EXL5689
Housing Optical Head	Makrolon® AL2647
Gasket	THERMOLAST® K TC3GPZ

Optical System

Light colour	Yellow (according to IALA Recommendation R0201 (E-200-1) Marine Signal Lights – Colours)
Mean light intensity (along the optical axis)	12 cd (± 6 %)
Beam angle (vertical)	5° FWHM
Beam angle (horizontal)	182° ±2°

Components

| 1.	Optical Head
2.	Stainless Steel Tube
3.	Earthing
4.	Junction Box
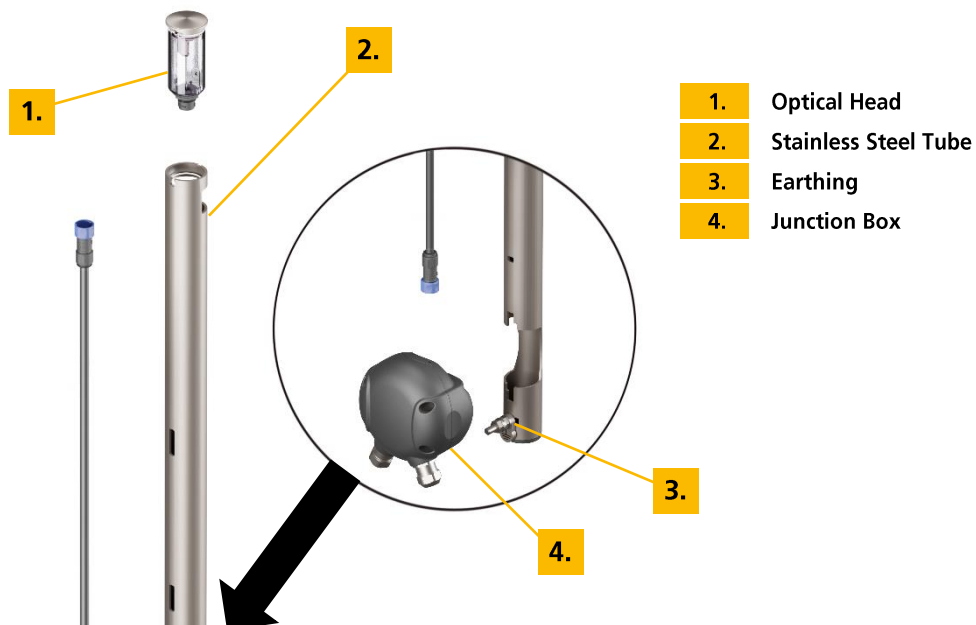
Note: All housing components including the cable glands satisfy the IP67 degree of protection requirements according to IEC 60529. During connection and assembly, ensure that no moisture or dirt penetrates into the open socket.

	Size	For cable diameter	Key width
EMC Cable Gland	M20 x 1.5	8.0 – 15.0 mm	24 mm

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Datasheet: ML02-NAI
Revision 00 · 31.08.2020

Page 3 of 6

Electrical Connection

Electrical connection	Spring terminal block, max. 2.5 mm^2
Operating voltage V_{IN}	DC 24.0 V (-25 % / +25 %)
Power consumption (Peak, V_{IN} = DC 24 V)	1.6 W
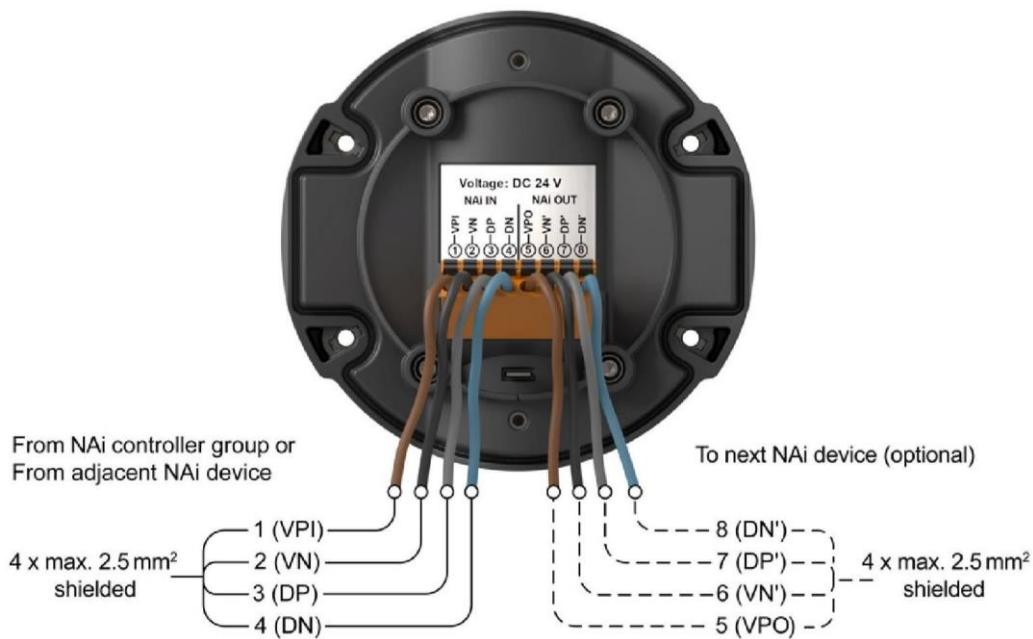
1	VPI	Power supply input (Positive)
2	VN	Power supply input (Negative)
3	DP	NAi data (Positive)
4	DN	NAi data (Negative)
5	VPO	Power supply output (Positive – to next device)
6	VN'	Power supply output (Negative – to next device)
7	DP'	NAi data (Positive – to next device)
8	DN'	NAi data (Negative – to next device)

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Datasheet: ML02-NAI
Revision 00 · 31.08.2020

Page 4 of 6

Environmental Conditions

Ambient temperature (operation)	-25 °C to 55 °C
Ambient temperature (storage / transport)	-40 °C to 70 °C
Humidity (operation / storage / transport)	95 % r.h. up to 45 °C 70 % r.h. for T > 45 °C
Atmospheric pressure (operation / storage / transport)	80 kPa to 108 kPa
Degree of protection (acc. to IEC 60529)	IP67
Luminaire classification (acc. to EN 60598-1:2018)	Rough service luminaire
Impact protection (acc. to IEC 62262-1:2018)	IK08
Lightning protection zone (acc. to IEC 62305-4:2010)	LPZ0$_B$

Electrical Safety and Health

Protection class	Class III
Overvoltage protection	Class III
Pollution degree	3

Reliability

IALA Category	1[B] (assumed MTTR of 96 h)
Minimum LED lifetime	100 000 h

[B] IALA Recommendation O-130-Categorisation and Availability Objectives for Short Range AtoN

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Datasheet: ML02-NAI
Revision 00 · 31.08.2020

Page 5 of 6

Compliance

Electromagnetic Compatibility	**EN 60945:2002, category "exposed"** **EN 55015 :2013** **EN 61547:2009** **EN 61000-6-2:2005** **EN 61000-6-4:2007 + A1:2011**
Environmental	**EN 60945:2002, category "exposed"** **IEC 61892-1:2019** **EN 60598-1:2015 + A1:2008**
Product Safety	**EN 60598-1:2015 + A1:2018**
Health	**EN 62471:2008**
Mechanical	**EN 60945:2002, category "exposed"** **EN 60598-1:2015 + A1:2018** **IEC 61892-1:2019** **IEC 61892-3:2019**

Ordering Information

Item Number	Product ID	Option Name	Details
30 29 14 00	**ML02-NAI**	**SeaMark Marine Lantern without UPS**	**No UPS**

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Datasheet: ML02-NAI
Revision 00 · 31.08.2020

Page 6 of 6