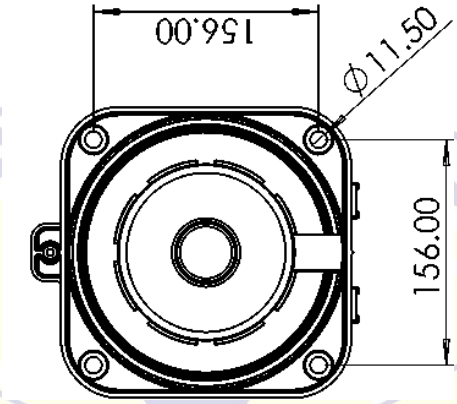
NAVIGATION LIGHT SEABEE USER MANUAL

CONTENTS

MOUNTING INSTRUCTIONS



All dimensions are in mm

- The function of the navigation lights can only be assured and be in accordance with the regulations if the following points are adhered to: For correct positioning of the navigation lights on board the COLREG's have to be followed.
- The housing cap must be removed for assembly. Fasten the previously cabled assembly mounting rear panel on the side of the ship with two screws.
- The mounting plate for navigation lights should be at least 5 mm thick and should not exceed a parallelism of // 00,5.
- The housing cap must be removed for assembly. Fasten the previously cabled assembly mounting rear panel on the side of the ship with two screws.

Important !

- Do not paint or use any other chemical for the lanterns, clean only with fresh water.

Navigation Lights

1. GENERAL:

- Unless expressly required otherwise, NLs should appear steady and non-flashing.
- Lenses of NLs should be produced in a robust, non-corroding material, which should ensure long-term durability for the optical qualities of the lens.
- A masthead light, sidelights, and a stern light installed on board a ship not less than 50 m in length should be duplicated or be fitted with duplicate lamps.
- Only lamps specified by the manufacturer should be used in each particular NL to avoid reduction of NL's performance due to unsuitable lamps.
- A sufficient number of spare lamps for NLs should be carried onboard, taking into account the duplication of NLs or lamps, as appropriate.

1.1 Luminous Intensity Distribution:

- In the horizontal directions where decrease of luminous intensity to "practical cut-off" is required by section 9 of Annex I to COLREGs, the luminous intensity should be no more than 10% of the average luminous intensity within the prescribed sector for vessels not less than 12 m in length.
- Within the prescribed sector in which the minimum luminous intensity is required by section 9 of Annex I to COLREGs, the horizontal intensity distribution of the light should be uniform in such a way that the measured minimum and maximum luminous intensity values (in candelas) do not differ by more than a factor of 1.5, to avoid luminous intensity changes which may result in the appearance of a flashing light for vessels not less than 12 m in length.
- Within the prescribed sector in which the minimum luminous intensity is required by section 10 of Annex I to COLREGs, the vertical intensity distribution of the light should be uniform in such a way that the measured minimum and maximum luminous intensity values (in candelas) do not differ by more than a factor of 1.5, to avoid luminous intensity changes which may result in the appearance of a flashing light for vessels not less than 12 m in length.

1.2 Special requirements for lights using LEDs:

The luminous intensity of LEDs gradually decreases while the electricity consumption remains unchanged. The rate of decrease of luminous intensity depends on the output of LEDs and their temperatures. To prevent shortage of luminous intensity of LEDs:

a. An alarm function should be activated to notify the Officer of the Watch that the luminous intensity of the light reduces below the level required by COLREGs;
or

b. LEDs should only be used within the lifespan (practical term of validity) specified by the manufacturer to maintain the necessary luminous intensity of LEDs. The lifespan of LEDs should be determined and clearly notified by the manufacturer based on the appropriate test results on the decrease of luminous intensity of the LEDs under various temperature conditions and the temperature condition of LEDs in the light during operation, taking the appropriate margin into account.

2 OPERATION:

2.1 Navigation Light Controller:

- An NLC should facilitate ON/OFF controls of individual NLs.
- An NLC should provide visual indications of the "ON"/"OFF" status of NLs.
- Pre-programmed NL group settings may be provided.
- An NLC on board a ship not less than 50 m in length should provide the alarm for:

a. failure of power supply to NLs; and

b. failure, including short circuit, of a lamp which is switched ON.

- An NLC on board a ship not less than 50 m in length should present the status of all NLs in a logical presentation, meeting the requirements set out in resolution MSC.191(79), e.g., by symbol marks on a display.
- All indicators of an NLC should be dimmable to ensure easy reading without disturbing the night vision of the Officer of the Watch. The brightness of a display, if fitted, of an NLC should be controllable.
- An NLC should support the use of standardized serial interfaces for marine navigation and communication systems.
- The NLC should have a bi-directional interface to transfer alarms to external systems and receive acknowledgments of alarms from external systems. The interface should comply with the relevant international standards

2.2 Marking Each NL should be marked with:

a. the manufacturer's name or symbol, and designation of type;
b. the type/category of the NL under COLREGs;
c. serial and certificate number;
d. head line directions;
e. range in nautical miles;
f. nominal wattage of the light source in watts, if different values lead to different ranges.

2.3 Installation of navigation lights and associated equipment:

In addition to the relevant requirements of COLREGs, the installation of NLs and associated equipment should comply with the following requirements:

a. The manufacturer of NLs should provide guidance on the installation of NLs and the design and installation of screens for sidelights, as required by COLREGs;
b. NLs should be installed in such a way to prevent navigation watchkeeping personnel from direct or reflected undue glare;
c. NLs should be installed in such a way as to ensure that the light shows over the required arcs of visibility, and should satisfy the required vertical separation and location requirements in all normal operating trim conditions; and
d. Equipment for the operation of the maneuvering light, mounted following COLREGs, should be located at the conning position. The equipment may be located near the steering wheel or the autopilot/track control.

2.4 Power supply and fallback arrangements:

- Each NL should be connected, via separate circuits, to an NLC located on the bridge to avoid any NL failure, including a short circuit, that affects any other NLs connected to the NLC. An NLC may only be additionally connected to special signal lights such as lights required by canal authorities. 2 Refer to IEC 61162 series.
- It should be possible to operate the NLC and NLs when supplied by an emergency source of electrical power in accordance with the appropriate requirements of chapter II-1 of the 1974 SOLAS Convention, as amended.
- Automatic switch over to the alternative source of power is permitted.

2.5 Associated equipment

Screens for sidelight may be a part of a ship's structure. All associated equipment should be produced in a robust, non-corroding material, which should ensure long-term durability for the relevant operation.

3 Scope:

These performance standards apply to Navigation Lights (NLs), Navigation Light Controllers (NLCs) and associated equipment to be fitted onboard vessels under COLREGs. These equipment should be designed, tested, installed, and maintained based on these standards, taking into account that the purpose of Navigation Lights is to identify ships and to notify their intentions at sea and that the purpose of a Navigation Lights Controller is to provide means of control and monitoring of the status of navigation lights onboard the vessel to the Officer of the Watch (OOW).

3.1 Application:

In addition to the general requirements set out in resolution A.694(17), navigation lights, navigation lights controllers, and associated equipment should meet the requirements of these standards.

4 Definitions:

- Associated equipment means equipment necessary for the operation of NLs and NLCs.
- COLREGs means Convention on the International Regulations for Preventing Collisions at Sea, 1972, including their annexes.
- Lamp means a light source, including incandescent sources like Light Emitting Diodes (LED) and other non-incandescent sources.
- Length means the length overall.
- Navigation Light (NL) means the following lights:

a. Masterhead light, sidelights, stern light, towing light, all-round light, flashing light as defined in Rule 21 of COLREGs;
b. All-round flashing yellow light required for air-cushion vessels by Rule 23 of COLREGs; and
c. Maneuvering light required by Rule 34(b) of COLREGs.

- The light source includes lamps, their housing, placing, and means for delimiting the angle of lighting.
- Navigation Light Controller (NLC) means a device enabling operational control of a Navigation Light.
- SOLAS means the International Convention for the Safety of Life at Sea, 1974, as amended.

4.1 Maintenance:

- NLs should be so designed that the lamp specified by the manufacturer can be efficiently and readily replaced, without elaborate recalibration or readjustment.
- NLs, NLCs, and associated equipment should be so constructed and installed, as necessary, that they are readily accessible for inspection and maintenance purposes.

4.2 Features:

a. Easy to Install and replace the bulb with a leakage hole at the bottom.
b. The shell is made of Stainless Steel
c. The shade is made of polycarbonate, UV Resistance, and non-discoloring color.

4.3 Material:

•Shell: Plastics
•Lampshade: PC

4.4 Adopt Standards:

a. Confirm to the international regulation for preventing collision at sea, 1972 and grade entry norms for steel ships.
b. Confirm to the International Standard IEC60598-1-2008.
c. Confirm to the standard of marine electric signal light's technical condition GB/T 3028-2012
d. Conform to performance standard of requirement about IMORes.MSC.253(83)

4.5 Product Characteristics:

a. The shell is made of high-strength engineering plastic PA+GF, the lampshade adopts injection of PC, lens hood adopts good quality stainless steel.
b. The signal lights have the whole seal structure, it is waterproof under harsh conditions.
c. The connection of the signal light's lamp holder and the base adopt a plug-in type, and can replace the up and down bulb by opening the lid.
d. The signal lights adopt the signal light’s bulb which conforms to the ship norm, and the average life is not lower than 700h
e. The signal lights can work normally under the temperature -30℃~55℃.

4.6 <u>Certificate:</u>

- **Wheelmark (MED Certificate)**
- **Protection Class; IP56**
- **Passed the European Union (CE) certification.**

Specification

Name	Type	Visibility	Level Arc.	Lamp Holder	Voltage/Power	Color	Protection Class
Starboard Light	-	2 Nm	112.5°	P28S/E27/B22	24V/60W 110V/65W 220V/65W	Green	IP56
Port Light	-	2 Nm	112.5°	P28S/E27/B22	24V/60W 110V/65W 220V/65W	Red	IP56
Masthead Light	-	5 Nm	225°	P28S/E27/B22	24V/60W 110V/65W 220V/65W	Transparent	IP56
Stern Light	-	2 Nm	135°	P28S/E27/B22	24V/60W 110V/65W 220V/65W	Transparent Yellow	IP56
All-Around Light	-	2 Nm	360°	P28S/E27/B22	24V/60W 110V/65W 220V/65W	Transparent Red Green	IP56