USER MANUAL

AIS EPIRB (COSPAS-SARSAT)

NEB-3000

NEB-3000 UM.E 20251117-05

SAFETY NOTICES

- ☑ Use this EPIRB only during situations of GRAVE and IMMINENT danger.
- ☑ Read this manual carefully before installation and use.
- ☑ NEW SUNRISE is devoted to publishing and maintaining this user manual. As we continue to improve our products to satisfy customers' needs, the information in this document is subject to change without prior notice.
- ☑ To prevent a FALSE ALERT, it is recommended that the user should be aware of and understand the basic use of this EPIRB. If any false alert occurs, SAR operations will be initiated, which may result in a penalty.
- ☑ Before you use this product, you need to register it with the appropriate national authority. You can visit the web page Beacon Registration Contacts to see where you can register your beacon (https://www.406registration.com/countriessupported.aspx).
- ☑ Lithium batteries are used in this product, which is not allowed to be modified, shorted or burned.
- ☑ This Product emits radio signal which is not harmful to human body. However, it is recommended not to touch the antenna of the EPIRB when it is activating.
- ☑ If the EPIRB is activated in a situation except an imminent danger, prompt action needs to be taken to deactivate it and inform the Local SAR Service to cancel the false alert.
- ☑ **Don't disassemble the equipment.** Access to the interior of the EPIRB should only be by a NSR certified technician.
- ☑ Please keep the original EPIRB packaging, since it may be needed if the EPIRB has to be shipped for repair (refer to UN38.3 requirements for shipping some batteries as hazardous goods).

MODIFY RECORD

No.	Modify by	Date	Paragraph	Version	Reason
1	Q/A	2022/11/1	all	01	First edition
2	Q/A	2024/07/12	1, 3, 4	02	Comments from COSPAS-SARSAT
3	Q/A	2024/12/17	1, 3, 4	03	Comments from COSPAS-SARSAT
4	Q/A	2025/1/10	all	04	Some Modification
5	Q/A	2025/11/17	all	05	Comments from DNV

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1. DESCRIPTION

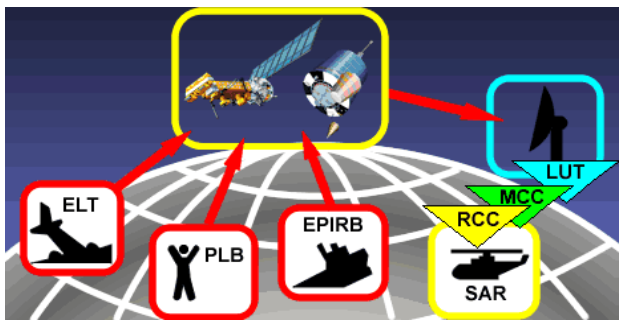
1.1 PRODUCT OVERVIEW

NEB-3000 AIS EPIRB (406MHz Satellite EPIRB) is used to transmit distress signals for alert search and rescue service at sea. This is designed to comply with IMO SOLAS requirements (GMDSS), Cospas-Sarsat technical standard (T.001) and IMO MSC.471 (101). This is a powerful self-contained distress transmitter.

NEB-3000 with a built-in GNSS receiver transmits distress signal including a position with accuracy of less than 10 meters. In distress, the signal is transferred to Rescue Coordination Center (RCC) without delay through Local User Terminal (LUT) so that Search and Rescue can be initiated immediately.

When vessel sinks, Hydrostatic Release Unit (NHR-100) releases the container cover automatically to eject the EPIRB to float to the surface of water. The EPIRB can also be manually operated while on board or in a life raft. The EPIRB transmits on 406MHz frequency with AIS signal on VHF and homing signal on 121.5MHz.

1.2 COSPAS-SARSAT SYSTEM OVERVIEW



The basic Cospas-Sarsat concept is illustrated in the above figure. The System is composed of:

- distress radiobeacons (ELTs for aviation use, EPIRBs for maritime use, and PLBs for personal use) which transmit signals during distress situations;
- instruments on board satellites in geostationary and low-altitude Earth orbits which detect the signals transmitted by distress radiobeacons;
- ground receiving stations, referred to as Local Users Terminals (LUTs), which receive and process the satellite downlink signal to generate distress alerts; and

- Mission Control Centers (MCCs) which receive alerts produced by LUTs and forward them to Rescue Coordination Centers (RCCs), Search and Rescue Points Of Contacts (SPOCs) or other MCCs.

The Cospas-Sarsat System includes two types of satellites:

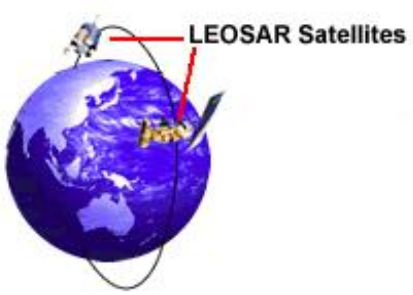
- satellites in low-altitude Earth orbit (LEO) which form the LEOSAR System
- satellites in geostationary Earth orbit (GEO) which form the GEOSAR System

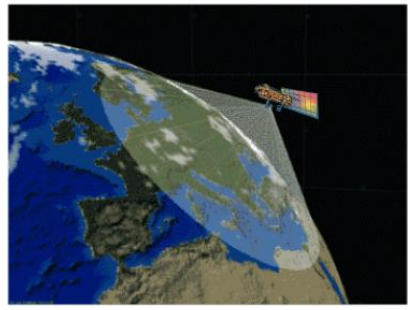
The future Cospas-Sarsat System will include a new type of satellite in the medium-altitude Earth orbit (MEO) which will form the MEOSAR System.

Additional information on the three satellite systems is provided below.

LEOSAR

Cospas-Sarsat has demonstrated that the detection and location of 406 MHz distress beacon signals can be greatly facilitated by global monitoring based on low-altitude spacecraft in near-polar orbits. Complete, yet non-continuous coverage of the Earth is achieved using simple emergency beacons operating on 406 MHz to signal a distress. The coverage is not continuous because polar orbiting satellites can only view a portion of the Earth at any given time (see the figures below). Consequently, the System cannot produce distress alerts until the satellite is in a position where it can "see" the distress beacon. However, since the satellite onboard 406 MHz processor includes a memory module, the satellite is able to store distress beacon information and rebroadcast it when the satellite comes within view of a LUT, thereby providing global coverage.





As described above, a single satellite, circling the Earth around the poles, eventually views the entire Earth surface. The "orbital plane", or path of the satellite, remains fixed, while the Earth rotates underneath it. At most, it takes only one-half rotation of the Earth (i.e. 12 hours) for any location to pass under the orbital plane. With a second satellite, having an orbital plane at right angles to the first, only one-quarter of a rotation is required, or 6 hours maximum. Similarly, as more satellites orbit the Earth

in different planes, the waiting time is further reduced. The Cospas-Sarsat System design constellation is four satellites which provide a typical waiting time of less than one hour at mid-latitudes.

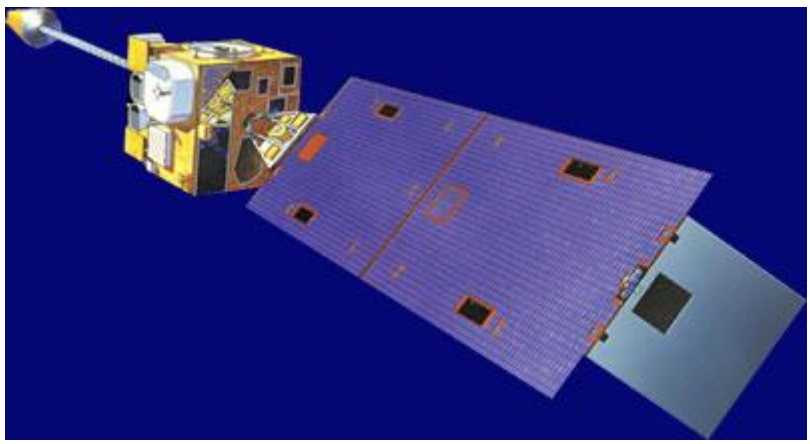
The LEOSAR system calculates the location of distress events using Doppler processing techniques. Doppler processing is based upon the principle that the frequency of the distress beacon, as "heard" by the satellite instrument, is affected by the relative velocity of the satellite with respect to the beacon. By monitoring the change of the beacon frequency of the received beacon signal and knowing the exact position of the satellite, the LUT is able to calculate the location of the beacon.

GEOSAR

The GEOSAR system consists of 406 MHz repeaters carried on board various geostationary satellites, and the associated ground facilities called GEOLUTs which process the satellite signal.

As a GEOSAR satellite remains fixed relative to the Earth, there is no Doppler effect on the received frequency and Doppler radio location positioning techniques cannot be used to locate distress beacons. To provide rescuers with beacon position information, such information must be either:

- acquired by the beacon through an internal or an external navigation receiver and encoded in the beacon message, or
- derived, with possible delays, from the LEOSAR System.



MEOSAR

Cospas-Sarsat is in the process of upgrading its satellite system by placing search-and-rescue receivers (i.e., repeaters or transponders) on new GPS satellites operated by the United States, navigation satellites of Russia (GLONASS) that began deployment last

year, and European GALILEO navigation satellites that began launching 12 October 2012. Once qualified as operational, this system augmentation will dramatically improve both the speed and location-accuracy for detecting beacons.

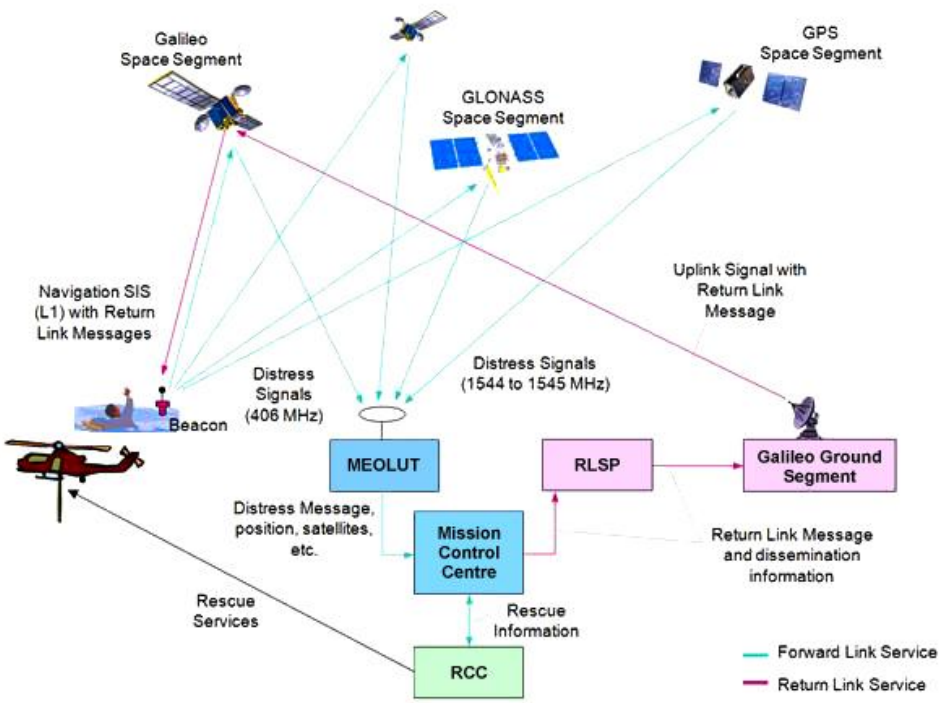
Those satellites orbit the Earth at an altitude between 19,000 and 24,000 km, a range considered as medium-altitude Earth orbit. Hence this component of Cospas-Sarsat is known as the Medium-altitude Earth Orbit Search and Rescue system or MEOSAR. It will complement the existing LEOSAR and GEOSAR systems.

The current LEOSAR and GEOSAR systems contribute respective advantages to the detection and location of distress beacons that have been activated. The GEOSAR system constantly covers the entire Earth except for the high-latitude (e.g., polar) regions. While the GEOSAR system can receive beacons distress messages across most of the globe, it cannot locate the beacon unless the location is encoded in the beacon's message from a local navigation receiver. The LEOSAR system can locate a beacon without the aid of a GPS or other navigation signal to the beacon, but the LEOSAR satellites have a view of only a small part of the Earth at any given time, so there may be a delay in receiving the distress signal over LEOSAR.

Once fully operational, the MEOSAR system will offer the advantages of both LEOSAR and GEOSAR systems without their current limitations by providing transmission of the distress message, and independent location of the beacon, with a near real-time worldwide coverage.

The MEOSAR system also will facilitate other planned enhancements for Cospas-Sarsat beacons, such as a return link transmission that will allow the beacon to provide the user a confirmation that the distress message has been received.

The large number of MEOSAR satellites that will be in orbit when the system is fully operational will allow each distress message to be relayed at the same time by several satellites to several ground antennas, improving the likelihood of detection and the accuracy of the location determination.



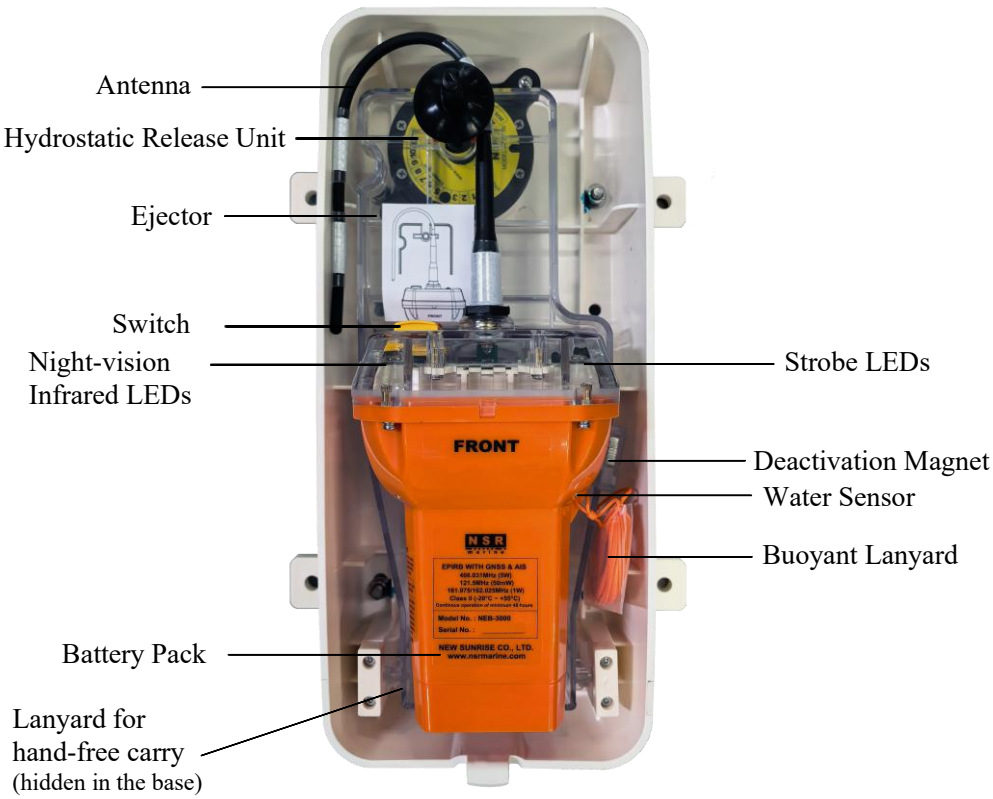
1.3 FEATURES AND COMPONENTS

1.3.1 FEATURES

- Built-in GNSS receiver.
- 406MHz transmission together with 121MHz homing & AIS transmitter.
- Highly efficient battery.
- Professional design, engineered, tested and built for years of abusive marine use.
- Self-protective device used to avoid possible false alerts.
- Self-test function applicable.
- Easily coding/reading user data with infrared communication.
- RLS function available.
- GMDSS compliant.
- Global distress alerting.
- Fully enclosed housing.
- Special lanyard for hands-free carry.
- New night-vision infrared LEDs.

1.3.2 EPIRB with float-free enclosure

Basically, NEB-3000 is composed of a container and EPIRB. The main components are described as follows:



a) **Antenna**: The antenna is a flexible stick that is used to transmit signal. When operating, it must be stick-up vertically.

b) **Ejector**: The ejector is to push the EPIRB out of the container when NEB-3000 is released at about 4m underwater.

c) **Strobe LEDs**: There are four strong strobe LEDs. When the EPIRB is activated, the bright LEDs will flash every 3 seconds which is visible through the clear lens dome.

d) **Night-vision Infrared LEDs**: There are four night-vision infrared LEDs (night-vision infrared emitting diodes). When activated, the EPIRB can be detected by all types of night vision devices for the operating lifetime of the EPIRB.

e) **Switch**: The slide switch is hidden under the yellow cover. When off, the switch is left in the middle position as READY. Press the TEST button to test the EPIRB. Slide to the ON position to manually activate the EPIRB.

f) **Water Sensor**: Two bare copper contacts form into the water sensor. In water, the contracts will be conducted to automatically activate the EPIRB.

NOTE:

The WATER SENSOR only operates when the EPIRB has escaped from the container. In the container, the EPIRB will never be activated even in water, as the deactivation magnet in the ejector will prevent the EPIRB from being activated.

g) **Buoyant Lanyard**: The 5-meter durable lanyard is used to tie the EPIRB when in the raft or in the sea. It can be used as a tether (to a life raft, lifeboat or person in the water but not to the ship).

h) **Lanyard for hand-free carry**: This lanyard is used as a hand-free carriage. (e.g. for transfer to a survival craft). It may be used to hang the EPIRB on the neck or around the shoulders, for example.

i) **Hydrostatic Release Unit (NHR-100)**: NHR-100 is used to close the bottom part and upper part (cover) of the container.

- When the EPIRB is immersed about 4 meters under water, the NHR-100 pole will be automatically pulled out. Then the upper cover of the container is open and the EPIRB will be ejected to float to the surface of the water.
- The lock pin can also be pulled out manually and the EPIRB can be taken out. In this case, the EPIRB can be manually activated.

j) **Battery Pack**: The battery pack is included in the bottom case of the EPIRB.

k) **Deactivation Magnet**: The magnet in the ejector will prevent the EPIRB from being activated, no matter whether the EPIRB is in water or not.

1.3.3 EPIRB with Manual Release Holder

NEB-3000 can also be installed with a manual release holder (Holder) for manual operation.

1.3.4 Summary of EPIRB control functions

Control position		EPIRB condition		EPIRB-mount or release mechanism status		Transmitter status	
ON	READY	WET*	DRY	OUT	IN	ON	OFF
√		√		√		√	
√		√			√	√	
√			√	√		√	
√			√		√	√	
	√	√		√		√	
	√	√			√		√
	√		√	√			√
	√		√		√		√
* Floating or immersed in water.							

1.4 SPECIFICATIONS

General	Model	NEB-3000
	Material	ABS Plastic
	EPIRB Color	High visibility orange
	IP Grade	IP67
	Buoyant	Yes
	Deployment	Automatic hydrostatic release, Manual switch control
	Accessories	Hydrostatic Release Unit Buoyant lanyard Lanyard for hand-free carry
	Controls	Manual activation / Self-Test switches
Weight	EPIRB	730g
	Container	1.4 kg
	Holder	160g
Size	EPIRB	116.2 (W) × 491.0 (H) × 102.4 (D) mm
	Container	220.0 (W) × 363.4 (H) × 140.8 (D) mm
	Holder	123.0 (W) × 133.3 (H) × 118.4 (D) mm
406MHz Transmitter	Operating Frequency	406.031MHz±1kHz
	Power Output	5W
AIS Transmitter	Operating Frequency	AIS1(161.975MHz) /AIS2(162.025MHz)
	Power Output	1W
121.5MHz Homer	Operating Frequency	121.5MHz
	Power Output	50mW
GNSS Receiver	Type	u-Blox
	System Supported	GPS, BDS, Glonass, Galileo
Battery	Part No.	NBT400C
	Type	Lithium battery
	Total Voltage Rating	13.5 V
	Storage and replacement interval	Up to 10 years (See NOTE)
	Operating Life	More than 48hrs (-20℃)
Strobe light	Type	LED
	Color	White
	Flash Rate	20/min
Environment	Operating Temperature	-20°C to +55°C
	Storage Temperature	-40°C to +70°C
	Automatic Release Depth	About 4 meters max (13 feet)
	Compass Safe Distance	Standard Compass: 0.3m, Steering Compass: 0.2m

NOTE: *It's from the date of manufacture. 10 years consist of 1 year of shelf time and 9 years of onboard time. 5-year health check is recommended.*
The replacement should be done according to the requirements of local authorities, if any.

2. INSTALLATION

Before installing the EPIRB, find a suitable mounting position on the vessel. It should be mounted upright against a vertical bulkhead. It is critical that you choose a position where the released EPIRB will not get trapped by overhangs, even in case the vessel sinks.

Mount the EPIRB by the below rules:

- Consider easy access in an emergency.
- Mount on the outside of the vessel's structure.
- Mount close to the vessel's navigation position.
- Mount in an easily accessible position to facilitate manual operation and testing.
- Mount in a location that will provide as clear a view of the sky as is practical, orientated to facilitate satellite reception.
- Do not install or operate in a location subject to communication antennas.

NOTE:

If interference from a GMDSS-certified satellite communication system within 10 meters may affect positioning accuracy

Avoid the below position when the EPIRB is mounted:

- Position with insufficient space for ejection and maintenance.
- Position within 1 meter of any compass equipment.
- Position within 2 meters of any Radar antenna.
- Direct impact from waves.
- Exhaust fumes, chemical and oil sources.

2.1 MOUNTING WITH CONTAINER

The container can be installed horizontally or vertically.

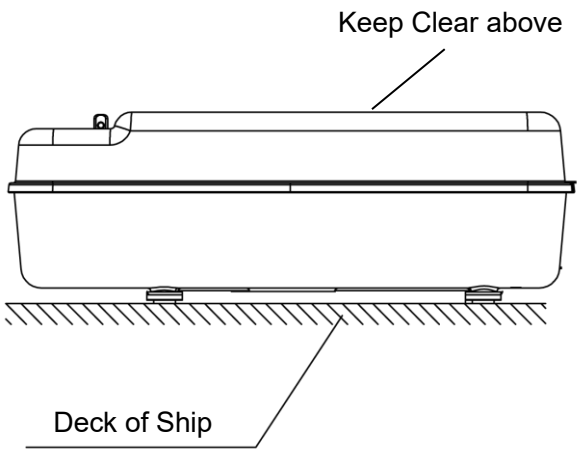


Fig. 1 Horizontal installation

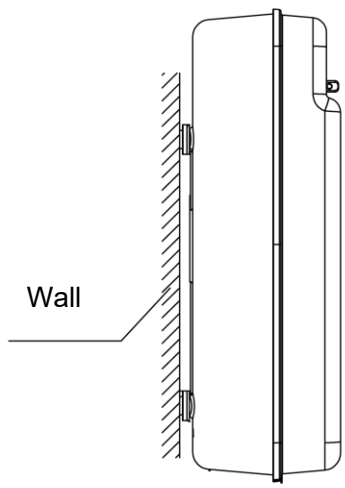


Fig. 2 Vertical installation

2.2 PLACING IN CONTAINER

Follow the below steps to place the EPIRB into the container.

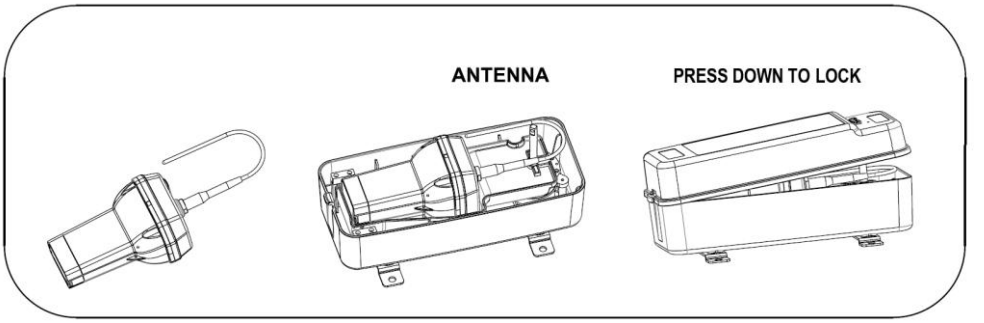
Step 1. Bend the antenna along the pole of NHR-100.

Step 2. Sit the EPIRB into the container.

Step 3. “FRONT” should face upwards.

Step 4. Press down the upper cover.

Step 5. Fix the lock pin into the hole of the NHR-100 pole.

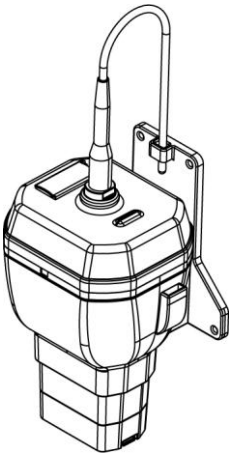


CAUTION:

When the EPIRB is placed into the container, make sure the right direction. The face printed with FRONT should be upside, while the EPIRB stays in the container. Otherwise, a false alert may easily occur.

2.3 MOUNTING WITH HOLDER

NEB-3000 can be installed with a manual release holder at the bridge.



2.4 PLACING IN HOLDER

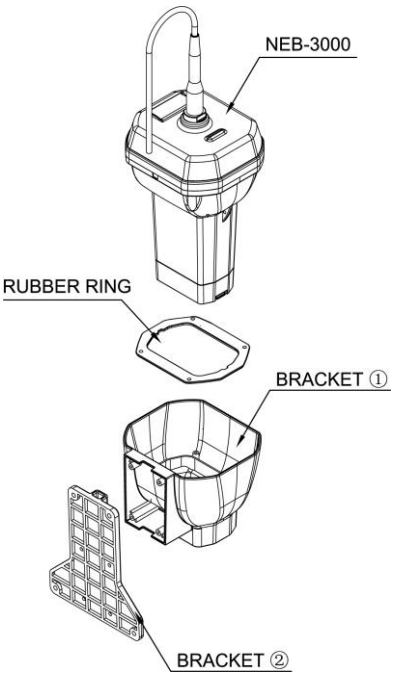
Follow the below steps to place the EPIRB into the manual release holder.

Step 1. Fix the bracket ② on the wall.

Step 2. Inset the bracket ①.

Step 3. Install the rubber ring.

Step 4. Install NEB-3000 and bend the antenna down through the hole.



3. OPERATION

3.1 ACTIVATION

The EPIRB can be activated by two processes: automatic activation and manual activation. When activated, the EPIRB will behave in the below steps.

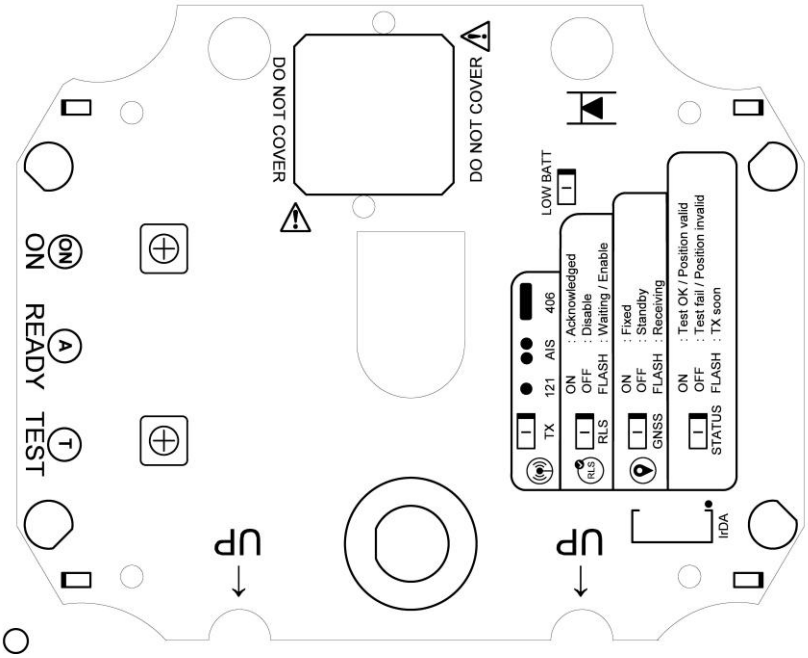
Step 1. All LED flickers once one by one.
Step 2. The strobe light flickers every 3 seconds.
Step 3. **GNSS** LED flickers while acquiring GNSS data.
Step 4. **RLS** LED flashes every 1 second after the first transmission on 406MHz. After the acknowledgement is received, the LED turns to ON. (Note: only when the RLS protocol is programmed)
Step 5. **TX** LED flashes long once while transmitting on 406MHz.
Step 6. **TX** LED flashes short once while transmitting on 121.5MHz.
Step 7. **TX** LED flashes short twice while transmitting on AIS1 or AIS2.

NOTE:

Once the EPIRB is activated, the strobe light will be flashing immediately by every 3 seconds, however it won't transmit a distress alert in approximately 2 minutes. This gives you time to turn it off immediately in case of being activated by mistake.

When the EPIRB is activated, the guidance below will be helpful.

☑ The EPIRB should be kept upright. If possible, it would be better to be held.
☑ The EPIRB should be placed in the open place to the sky.
☑ There should be no overhangs above the EPIRB.
☑ Do not place the EPIRB close to any large structures.
☑ Do not lay down the EPIRB.
☑ In a life raft, hold the EPIRB up as high as possible.
☑ Let the EPIRB float in the sea when necessary.
☑ Do not touch the antenna with hand.



Summary of LED status in Activation

EPIRB State	LED LOW BATT	LED TX	LED GNSS	LED STATUS	LED RLS	Strobe Light
Normal	OFF	TX: Flash	--	--	--	Flash every 3 seconds
GNSS receiving	OFF	OFF	Flash	--	--	Flash every 3 seconds
GNSS fixed	OFF	OFF	ON	--	--	Flash every 3 seconds
GNSS standby	OFF	OFF	OFF	--	--	Flash every 3 seconds
Position valid	OFF	OFF	--	ON *Except at 406MHz TX soon*	--	Flash every 3 seconds
Position invalid	OFF	OFF	--	OFF	--	Flash every 3 seconds
406MHz TX soon	OFF	OFF	--	Flash 11 times	--	Flash every 3 seconds
406MHz TX	OFF	Long Flash Once	--	--	--	Flash every 3 seconds
AIS TX one message	OFF	Short Flash Twice	--	--	--	Flash every 3 seconds
121.5MHz TX	OFF	Short Flash Once	--	--	--	Flash every 3 seconds
TX failed	OFF	ON	--	--	--	Flash every 3 seconds
RLS enable/Waiting RLS	OFF	OFF	--	--	Flash	Flash every 3 seconds
RLS acknowledged	OFF	OFF	--	--	ON	Flash every 3 seconds
RLS disable	OFF	OFF	--	--	OFF	Flash every 3 seconds

NOTE:

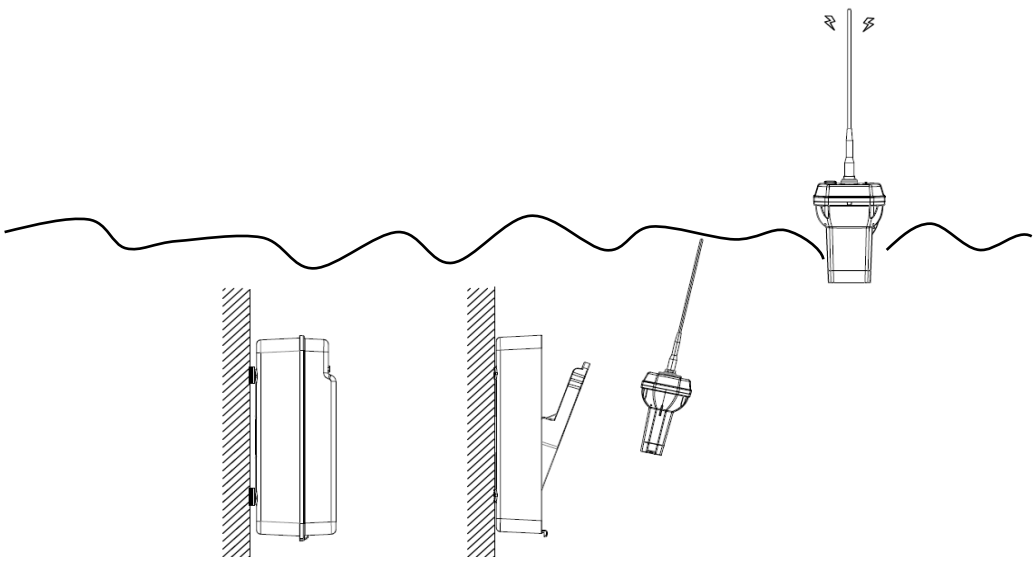
*The status "--" for LED of **GNSS**, **STATUS** or **RLS** can be "Flash", "ON" or "OFF" based on EPIRB state relative to the LED.*

If both states "Position valid" and "406MHz TX soon" occur simultaneously, the STATUS LED flashes 11 times for 1 second, then keeps ON for "Position valid".

AUTOMATIC ACTIVATION

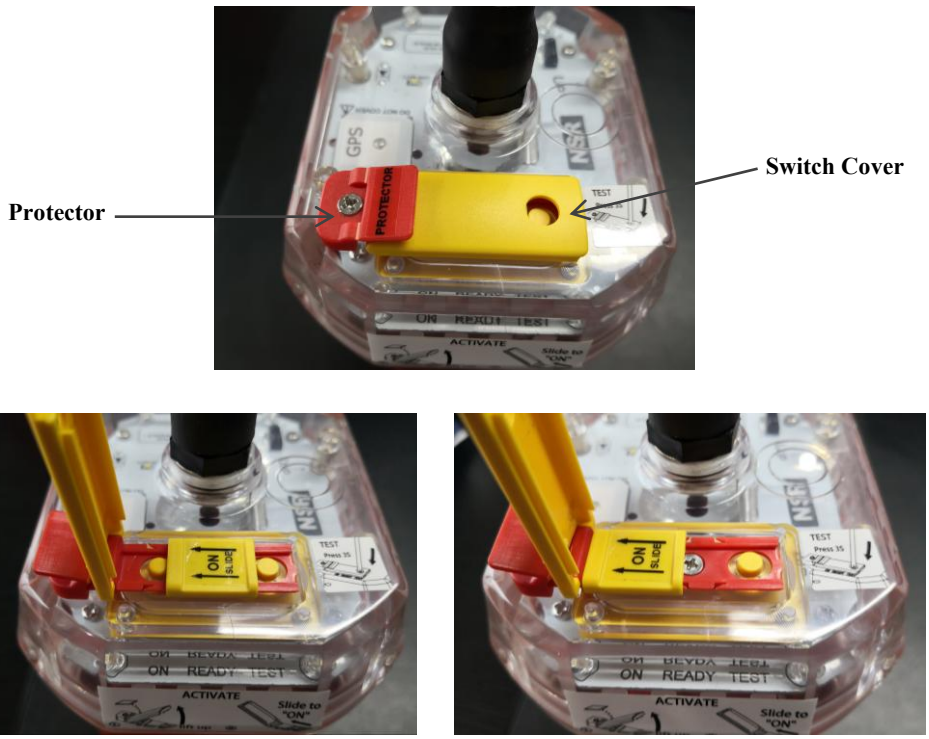
NEB-3000 is designed with float-free activation. It contains a spring-loaded ejector which automatically pushes the container cover off and releases the EPIRB, if a vessel sinks. This automatic ejection is controlled by Hydrostatic Release Unit (NHR-100). The plastic pole is pulled out before the container reaches about 4 meters depth. After the container cover is open, the EPIRB is ejected to float on the surface of the water and is switched on automatically by the water sensor.

1) When the vessel sinks, the container is filled with seawater. The NHR-100 will operate when the container sinks under about 4 meters depth from the surface of the water. The plastic pole of NHR-100 is pulled out while the internal coil spring is pressed by water pressure.
2) The ejector pushes the EPIRB out from the container.
3) As the EPIRB floats away from the magnet, its sea sensor activates automatically.
4) Floating on the surface of water, the EPIRB transmits distress signals.



MANUAL ACTIVATION

If there is enough time when in distress, the EPIRB can be taken out from the container or the holder and brought to the life raft. In such case, the EPIRB can be manually activated.



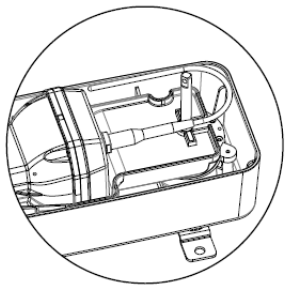
Please follow the instructions below.

1) Open the switch cover. The protector tab will be broken.
2) Slide the switch fully to the left side at the **ON** position.
3) The EPIRB is activated and transmits distress signals.
4) Hold or put the EPIRB on the surface as upright as possible, and it must have a clear view of the sky for proper operation.

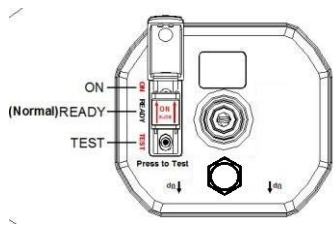
NOTE:

1. Do not break the protector tab or open the switch cover unless in distress;
2. If the EPIRB stays near a metal wall or is held by the antenna with hand, the transmission will be affected.

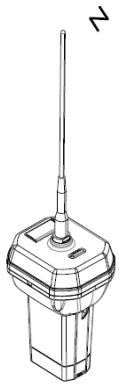
① **In the container.**



② **Take out of the container.**



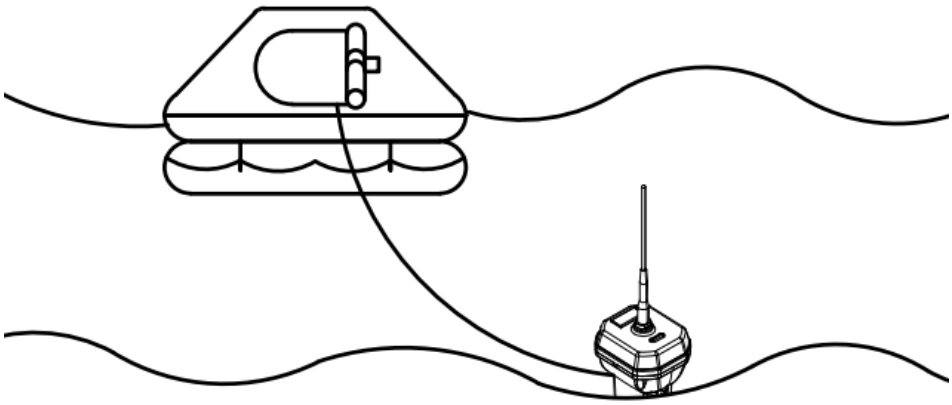
③ **Open Cover and Slide to ON.**



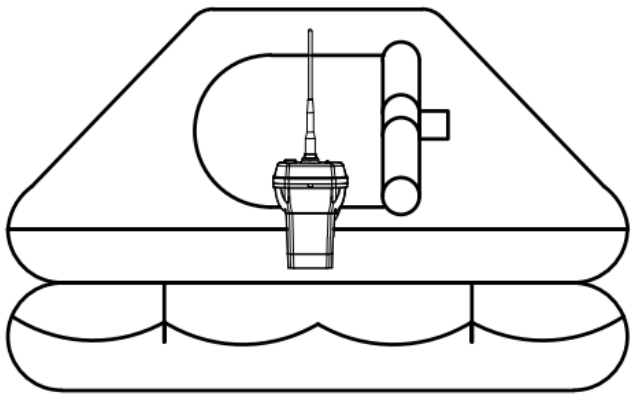
④ **Activated and Keep Upright.**

3.2 OPERATING SCENARIOS

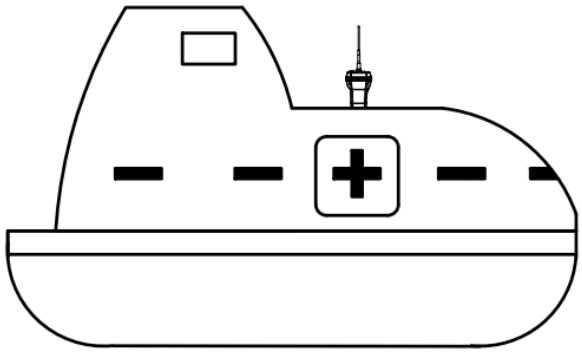
The EPIRB is designed to give the best distress signal performance when floating in the sea. And keep the EPIRB's view of the sky unobstructed.



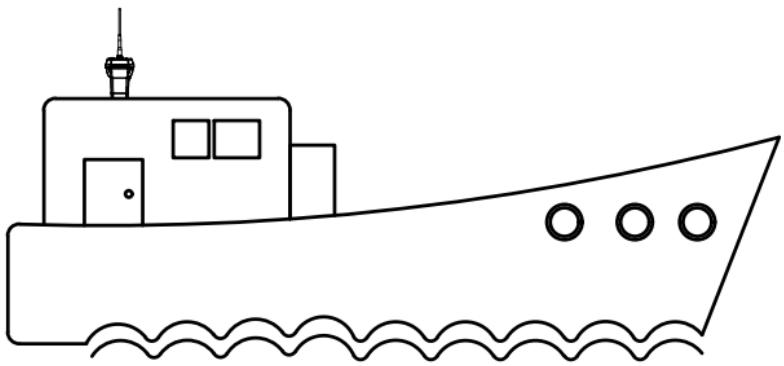
If the EPIRB is placed in the life raft, try to keep the EPIRB's view of the sky unobstructed and keep the antenna facing upwards. It is not recommended to operate the EPIRB under the life raft cover if it is made of materials that may obstruct the signals.



If the EPIRB is placed in a lifeboat, try to keep the EPIRB's view of the sky unobstructed and keep the antenna upwards. It is not recommended to operate the EPIRB under the lifeboat canopy if it is made of materials that may obstruct the signals.



If the EPIRB is placed onboard ship, keep the EPIRB in an open space and keep the antenna upwards. Do not place the EPIRB inside, under a roof or other overhead obstructions. Do not tie the lanyard to the ship.



3.3 TEST MODE

1) Take the EPIRB out of the container.
2) Through the hole on the switch cover, use a screwdriver or a pen to press the **TEST** button for 3 seconds and release the button.
3) The test operation begins and will last for about 30 seconds.
4) **STATUS** LED indicates the result of the Self-Test.
5) When the Self-Test ends, the EPIRB will be powered off automatically.

This action is of Self-Test by both the user and inspector. See the Section 4.1 Self-Test & Inspection for more details.

NOTE:

During the test, do not break the protector tab and do not open the switch cover.

3.4 DEACTIVATION

If the EPIRB has been activated, the battery pack needs to be replaced. Make sure that the EPIRB can continuously operate for at least 48 hours in an emergency. See Section 4.3 for battery replacement instructions.

If the EPIRB has been activated by mistake or the emergency ends, the EPIRB must be switched off by sliding the switch back to the READY position.

If the EPIRB has been automatically activated in the water, deactivate the EPIRB by taking it out of the water and drying it for about 10 seconds.

4. MAINTAINANCE

4.1 REGULAR CHECK

As an important part of GMDSS, EPIRB should be checked regularly. NEB-3000 has a built-in test capability that can check the situation of the battery, strobe light, and both 406MHz and AIS/121.5MHz distress transmitters.
Checklists are provided at the back of this book, and you should check the EPIRB regularly using the forms.
The check intervals are listed below.

Every 2 months	Conducting the Self-Test
Every year	Annual inspection by authorized radio companies
Every 2 years	HRU replacement
Every 5 years	Shore-based maintenance by authorized radio companies
Every 9 years	Battery pack replacement (see NOTE)

NOTE:

The replacement should be done according to the requirements of local authorities, if any.

If this Beacon is kept above room temperature for prolonged periods of time then the Battery Capacity will be degraded and either the Battery should be replaced earlier than the date stated on the beacon, or the quoted 48 hour operating life of the beacon may be reduced. The effect is more pronounced as the temperature increases.

4.2 SELF-TEST

It is recommended that the Self-Test should be taken every two months.

To perform the Self-Test, through the hole on the switch cover, use a tool to press and hold the **TEST** button for 3s, and then release the button. During the Self-Test, the transmitting messages won't be regarded as distress alert even received by satellite.

Check the LED status below:

Step 1. All LED flickers once one by one.
Step 2. The strobe light fast flickers twice to indicate the self-test mode.
Step 3. The strobe light flickers every 3 seconds during the self-test.
Step 4. Sending a 121.5 MHz test homing signal to check the power and frequency.
- **TX** LED flashes short once.

Step 5. Sending two AIS test messages to check the power and frequency.

- **TX** LED flashes short twice on each message.

Step 6. Sending a 406MHz test message to check the power and frequency.

- **TX** LED flashes long once.

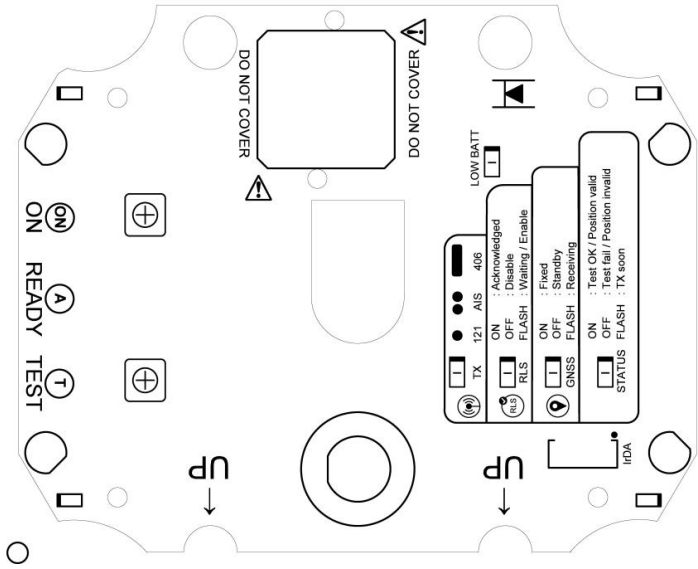
Step 7. If the RLS protocol is programmed, **RLS** LED flashes (ON for 0.5s, OFF for 0.5s) every 1 second after sending 406MHz test message, otherwise **RLS** LED keeps OFF.

Step 8. The self-test ends.

The Self-Test lasts for 32 seconds. The last 5 seconds is to indicate the test result.

- If passed, **STATUS** LED keeps ON.
- If failed, **TX** LED keeps ON.
- If PIE, **LOW BAT** LED keeps ON.

After 32 seconds, the Self-Test ends and the EPIRB is powered off automatically.



Summary of LED status in Self-test

EPIRB STATE	LOW BATT	TX	GNSS	STATUS	RLS*	Strobe Light
Self-Test OK	OFF	OFF	OFF	ON	Flash	Flash every 3s
Normal	OFF	Flash	OFF	OFF	Flash	Flash every 3s
Self-Test failed	OFF	ON	OFF	OFF	OFF	Flash every 3s
Insufficient Battery Energy	ON	OFF	OFF	OFF	OFF	Flash every 3s

*: Only when the RLS protocol is programmed.

If any failure is found in the Self-Test, it MUST be serviced by a qualified technician.

NOTE:

1. The GNSS receiver inside of the EPIRB is powered off when doing the Self-Test. So ***GNSS*** *LED status does not mean the GNSS position is locked or not at the Self-Test.*

2. During the test, do not break the protection tab and do not open the switch cover.

3. PIE: Potentially Insufficient Battery Energy, when total the self-test times exceed 54.

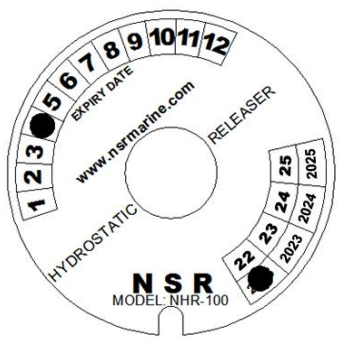
IMPORTANT NOTICE

a. The water sensor switch has two contacts exposed in the air. The unexpected seawater or rainstorm at sea may make two contacts conducting. Even though, the magnetic bar on the ejector will keep the EPIRB from being activated. So, it's very important to place the EPIRB in the container in the proper direction and keep the container closed always, except for regular test or maintenance.

b. If a false alert is activated, please carry out the following procedures to cancel:
   - Inform the nearest rescue organizations, as soon as possible, to stop all rescue service, if any.
   - Open the switch cover and slide the switch to the READY position to turn off the EPIRB.
   - In case the EPIRB can't be turned off, remove or bend the antenna and put the EPIRB into a sealed metal case for more than 7 days until the battery is exhausted. Consult the local agent for service.

4.3 REPLACE HYDROSTATIC RELEASE UNIT

NHR-100 hydrostatic release unit should be replaced every 2 years. An expiry NHR-100 may result in failure in operation and the EPIRB may be mis-released. The expiry date is marked on the NHR-100's body so as to be checked regularly.



For example, the above sticker shows the expiry date of April 2022.

4.4 REPLACE BATTERY PACK

The expiry date is marked on the EPIRB, and it should be checked regularly.

The battery pack should be replaced when one of the below cases happens:

- The EPIRB has been used in an emergency situation.
- A false activation.
- The expiry date has been reached.
- **LOW BAT** LED keeps ON.

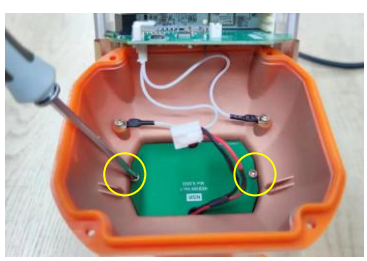
Follow the below steps for NBT400C replacement:

Step 1. Open the cover of the beacon by unscrewing the four bolts.
Step 2. Take off the cover, and pull out the connector of battery pack.
Step 3. Unscrew the bolts to remove the plate cover of the battery pack.
Step 4. Take out the old battery pack, and put in the new battery pack.
Step 5. Reinstall the plate cover for the new battery pack.
Step 6. Reinstall the connector of battery pack. Put the cover onto the case.
Step 7. Fasten four bolts with the torque of 1 N*m to fix the cover.
Step 8. Punch or mark the expiry date and adhere the sticker on the beacon case.

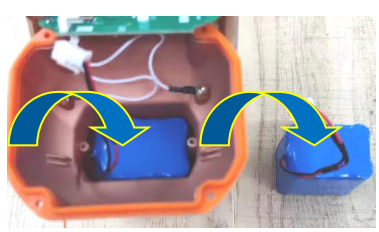
①

②

③



④

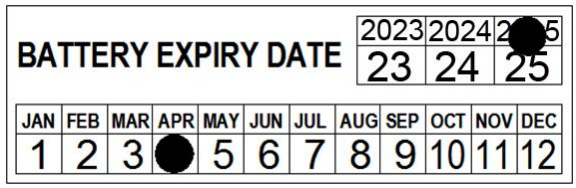


⑤

⑥

⑦

⑧



For example, the above sticker shows the expiry date of April 2025.

It's very important to replace with NBT400C battery pack originally supplied/made by NSR, when it is expiry. **NSR guarantees the quality of NEB-3000 only when the original NSR battery pack (NSR NBT400C) is used.**

When NEB-3000 was tested and type approved, NSR NBT400C was an integral part of the EPIRB. If a counterfeit battery pack is used, this EPIRB will automatically lose the guarantee of all type approval certificates unless all tests needed for type approvals have been done again for the unit installed with the counterfeit battery pack. Those tests usually take one year and the cost shall be borne by the supplier or buyer of the counterfeit battery.

If a counterfeit battery pack is used on NEB-3000, NSR will be exempted from the responsibility of warranty and other service guarantees. The counterfeit battery pack will affect the EPIRB from operating properly when the EPIRB is activated in an emergency.

The battery pack replacement should be performed by NSR, or a NSR-authorized EPIRB maintenance facility, or a NSR-authorized, trained and certified person.

NOTE：

Lithium batteries should have two terminals insulated prior to disposal because the remained power could cause severe harm to human beings. Local regulations should be followed when batteries are disposed in order to protect your environment.

4.5 AIS TRANSMITTER IN EPIRB

AIS transmitter can provide an accurate position with a built-in GNSS receiver, which can facilitate the rescue work greatly. It transmits on dual AIS channels, AIS 1 and AIS 2.

The maximum communication range depends on both the heights of the transmitting antenna and the receiving antenna.

$A=2.5(\sqrt{H}+\sqrt{h})$ （nm）

H and **h** refer to the heights in meters of antennas above the sea.

AIS transmitting can cover at least 5nm on the condition that the transmitting antenna at the life raft is 1m high and the receiving antenna 16m high on the rescue vessel, both above sea level.

A unique identifier (User ID) is used in AIS EPIRB to ensure the integrity of the VHF data link. The ID is programmed during production and marked on the case. The ID can not be changed after being programmed unless done by the manufacturer.

The ID for an AIS EPIRB is 974xxyyyy, where xx=manufacturer ID, as 26/28 for NSR; yyyy =s/n set by the manufacturer. For example, 974280008, which is produced by NSR.

When a position report is received with such a MMSI, together with the safety message “EPIRB ACTIVE”, it should be transmitted from an AIS EPIRB.

During the self-test, AIS message transmitted by AIS EPIRB can be received by

shipborne AIS and displayed on its MKD.

- **Check the target list on MKD. There should be a target with the same MMSI as the USER ID of the AIS EPIRB.**
- **A safety-related message "EPIRB TEST" should be received from the same MMSI as the USER ID of the AIS EPIRB.**

NOTE：
If the above messages are not displayed on AIS MKD, please check the settings of the AIS MKD. Usually, test messages are muted on AIS MKD, but can be set in the menu by following the manufacturer's instructions.

4.6 RETURN LINK SERVICE (RLS)

RLS SYSTEM

The EPIRB, when activated, transmits the RLS status together with the distress signal on 406MHz. When the earth station receives this message, an acknowledgment can be returned to the EPIRB through the Galileo system (only operational system for time being). Then the EPIRB receives this acknowledgment by its GNSS module. In this way, the user can be notified that a distress signal has been received and located.

To enable RLS function, the EPIRB needs configuring with the Cospas-Sarsat RLS protocol. You can check your 15-digital HEX code on this webpage http://www.cospas-sarsat.int/en/pro and look for the link "Beacon Message Decoder Program" to check if your EPIRB has been programmed with RLS protocol.

RLS function is designed to send an acknowledgment to the user within 30 minutes of EPIRB activation (actual acknowledgement times are typically much quicker). The transmission of a distress alert to SAR authorities is independent of (and may have occurred before) the RLS acknowledgment indication on the EPIRB. The specification is described in the Galileo SAR Service Definition Document:
https://www.gsc-europa.eu/sites/default/files/sites/all/files/Galileo-SAR-SDD.pdf

RLS function is an option and may not be allowed in all countries or all EPIRB types. You can visit the webpage "Countries Allowing RLS Beacons" for the latest information about countries/regions supporting RLS:
https://cospas-sarsat.int/en/beacon-ownership/rls-enabled-beacon-purchase

RLS FUNCTION

RLS function is an indication to the user that confirms the distress signal has been received and is being transferred to the responsible Search and Rescue authority (SAR). It does not mean that a rescue has been organized/launched. It just means that the distress signal has been received and transferred to the appropriate SAR.

NEB-3000 is able to use the RLS function which is available in the Galileo satellite navigation system.

To enable RLS function, NEB-3000 needs programming with RLS protocol by its coding software.

5. REGISTRATION

5.1 REGISTRATION

Before you use this product, you need to register it with the appropriate national authority. This ensures that any distress alert will be correctly linked to the vessel and its responsible contacts. You can visit the following web page Beacon Registration Contacts to see where you can register your beacon.

https://www.406registration.com/countriessupported.aspx.

5.2 RE-REGISTRATION/RE-CODING

When the EPIRB is transferred to a new owner or installed on a different vessel, it must be re-registered (owner information) and, if required by local regulations, re-coded (MMSI / call sign / vessel details). This ensures that any distress alert will be correctly linked to the new vessel and its responsible contacts.

Re-registration is done through the local national authority responsible for beacon registration (e.g., NOAA in USA, MCA in UK, AMSA in Australia, MSA in China).

Please visit the official EPIRB registration website of your national authority.

Some countries require the EPIRB to be re-coded to match the new MMSI or call sign. This process must be performed by an authorized agent.

Please contact NSR or its local agent.

NOTE:
Do not attempt to re-code the EPIRB by yourself.

6. DISPOSAL

When the EPIRB reaches the end of its service life or is permanently taken out of use, it must be disposed of safely.

The EPIRB contains lithium batteries that must be disposed of properly. Local regulations should be followed when batteries are disposed to protect the environment.

6.1 PREVENTING FALSE ALERTS

False alerts are relatively common during disposal, especially when batteries still hold charge. Before transporting or discarding the device, perform the following steps:

① Make sure the EPIRB is OFF (the switch is left in the middle position as READY).

② Pack the EPIRB well:

– Place it in a sturdy box.

– Add padding (foam or cloth) to prevent movement.

– Cover the activation switch with tape to avoid accidental activation.

③ Do not crush, drill, or open the EPIRB, this may activate the beacon or expose dangerous batteries.

④ Avoid exposing the EPIRB to heat, fire, or water during transport.

NOTE:

If an accidental activation happens, immediately contact the local maritime authority or RCC to report a false alert.

6.2 DEREGISTRATION

The EPIRB must be removed from national registration databases when permanently disposed.

Please go to your national EPIRB registration authority's website to deregister the EPIRB.

NOTE: *Leaving the old EPIRB registered may cause confusion if a false alert occurs later.*

7. TRANSPORTATION

The EPIRB contains lithium batteries. The transportation of the battery pack must strictly comply with regulations on the transportation of lithium batteries. Before transportation, the positive and negative terminals of the battery should be well insulated to prevent exposure and The EPIRB must be packed to prevent short-circuit, crushing, or activation.

NSR can provide MSDS as transport document if required, please contact NSR or local agent.

8. WARRANTY

All goods manufactured by NSR are warranted to be free from defects in workmanship and material for the period of 18 months from the date of delivery (unless stated otherwise and confirmed in writings), or 12 months from the date of installation, whichever comes first.

PROVIDED:

(a) NSR is given full particulars in writing of any claim prior to the expiration of such a period and within fourteen days of the discovery of the alleged defect.

(b) The goods have been stored, installed, maintained and used properly, having regard in particular to this manual.

(c) Liability shall be limited at NSR to replacement or repair or to a sum not exceeding the net invoice value of the defective goods.

(d) Upon request the alleged faulty goods are returned to NSR at the Buyer's expense.

(e) Unless expressly stipulated in the acceptance of the order NSR gives no warranty or guarantee of the fitness or suitability of the goods for any purpose whether disclosed or otherwise.

(f) All other warranties or conditions expressed or implied are hereby excluded and NSR shall in no event be liable for any loss of profit or any commercial damage, including but not limited to special, incidental, consequential, or other damage.

For details, please refer to NSR's official warranty policy.

PRE-DELIVERY INSPECTION LOG

☑ Battery pack:

Batch date: .....

Replacement date: .....

☑ Hydrostatic Release Unit:

Batch date: .....

Replacement date: .....

☑ Housing inspection: .....

☑ Watertight verification: .....

☑ 121.5MHz transmission: .....

☑ 406MHz transmission: .....

☑ AIS transmission: .....

☑ Frequency: .....

☑ General operation: .....

☑ Next Inspection due on: .....

☑ Remark: .....

.....

☑ Inspection service: .....

Date: .....

Signature and Stamp:

PERIODIC INSPECTION LOG

☑ Battery pack:

Batch date: .....

Replacement date: .....

☑ Hydrostatic Release Unit:

Batch date: ….....

Replacement date: .....

☑ Housing inspection: .....

☑ Watertight verification: ….....

☑ 121.5MHz transmission: .....

☑ 406MHz transmission: .....

☑ AIS transmission: .....

☑ Frequency adjustment: .....

☑ General operation: .....

☑ Next inspection due on: .....

☑ Remark: .....

.....

☑ Inspection service: .....

Date: .....

Signature and Stamp:

PERIODIC INSPECTION LOG

☑ Battery pack:

Batch date: .....

Replacement date: .....

☑ Hydrostatic Release Unit:

Batch date: ….....

Replacement date: .....

☑ Housing inspection: .....

☑ Watertight verification: .....

☑ 121.5MHz transmission: .....

☑ 406MHz transmission: .....

☑ AIS transmission: .....

☑ Frequency adjustment: .....

☑ General operation: .....

☑ Next inspection due on: .....

☑ Remark: .....

.....

☑ Inspection service: .....

Date: .....

Signature and Stamp:

PERIODIC INSPECTION LOG

☑ Battery pack:

Batch date: .....

Replacement date: .....

☑ Hydrostatic Release Unit:

Batch date: ….....

Replacement date: .....

☑ Housing inspection: .....

☑ Watertight verification: .....

☑ 121.5MHz transmission: .....

☑ 406MHz transmission: .....

☑ AIS transmission: .....

☑ Frequency adjustment : .....

☑ General operation: .....

☑ Next inspection due on: .....

☑ Remark: .....

.....

☑ Inspection service: .....

Date: .....

Signature and Stamp:

PERIODIC INSPECTION LOG

☑ Battery pack:

Batch date: .....

Replacement date: .....

☑ Hydrostatic Release Unit:

Batch date: ….....

Replacement date: .....

☑ Housing inspection: .....

☑ Watertight verification: .....

☑ 121.5MHz transmission: .....

☑ 406MHz transmission: .....

☑ AIS transmission: .....

☑ Frequency adjustment: .....

☑ General operation: .....

☑ Next inspection due on: .....

☑ Remark: .....

.....

☑ Inspection service: .....

Date: .....

Signature and Stamp:

EPIRB LOCATION LOG

☑ Vessel Name: .....

☑ ID No. : .....

☑ Port of Registry: .....

☑ Installation Date: .....

☑ Registration Date: .....

Inspection Stamp:

Date, Signature:

EPIRB LOCATION LOG

☑ Vessel Name: .....

☑ ID No. : .....

☑ Port of Registry: .....

☑ Installation Date: .....

☑ Registration Date : .....

Inspection Stamp:

Date, Signature:

EPIRB LOCATION LOG

☑ Vessel Name: .....

☑ ID No. : .....

☑ Port of Registry: .....

☑ Installation Date: .....

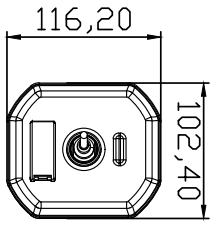
☑ Registration Date: .....

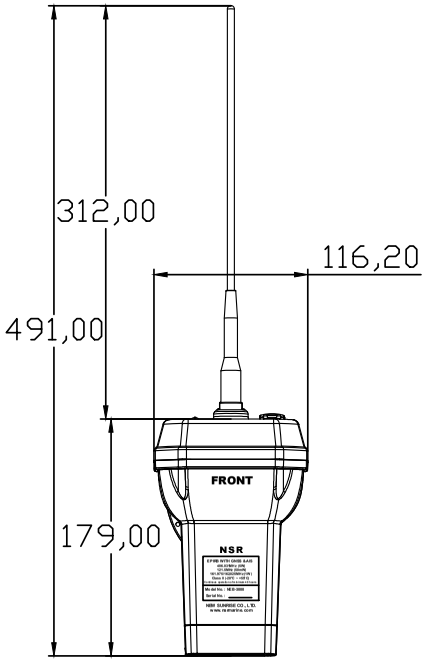
Inspection Stamp:

Date, Signature:

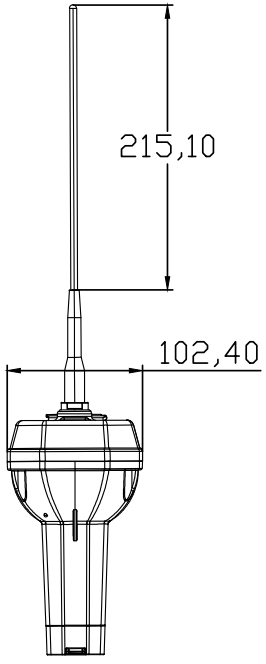
APPENDIX DRAWINGS

NO.	DATE	REVISION & DESCRIPTION	REVIEWED	CHECKED
0			SIGNATURE	

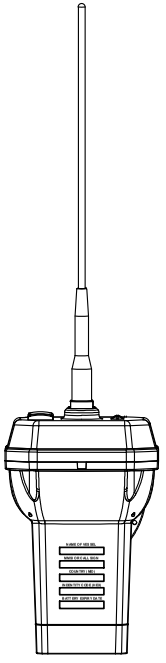




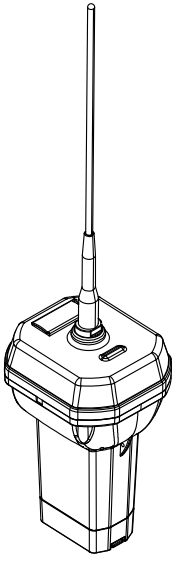
FRONT VIEW

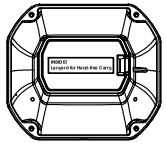


SIDE VIEW



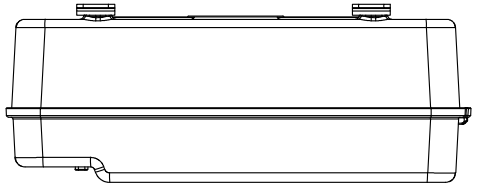
REAR VIEW

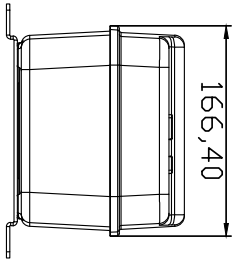


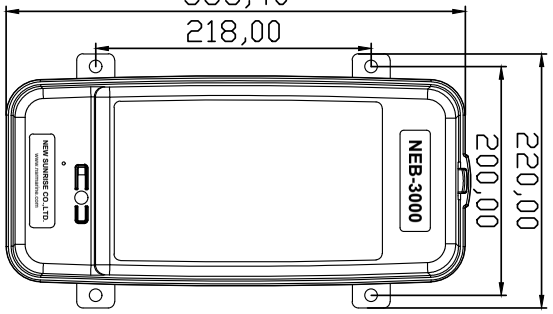


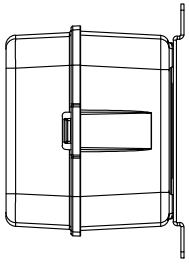
APPLICATION	NEB-3000 SIZE DRAWING								
DATE		ITEM						SIZE	A4
APPROVAL		SCALE	N/S	UNIT		PRO-JECTION			
CHECKED									
DRAWING		NSR marine NEW SUNRISE CO., LTD.							
DWG NO.	NEB3000-ID-001								

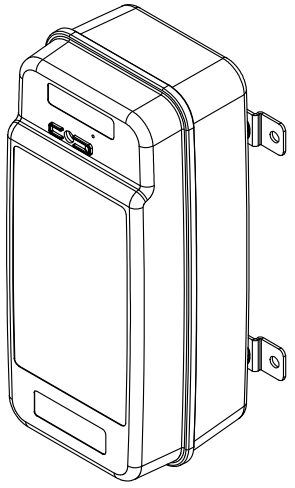
NO.	DATE	REVISION & DESCRIPTION	REVIEWED	CHECKED
1			SIGNATURE	

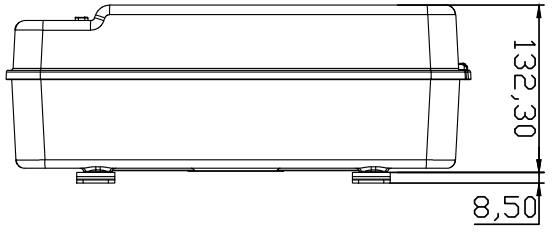


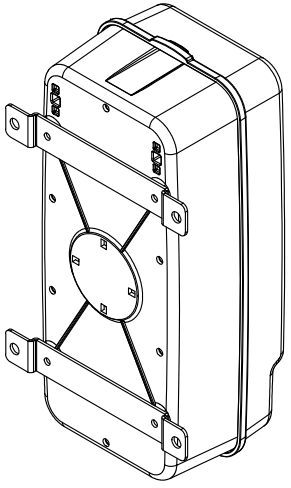


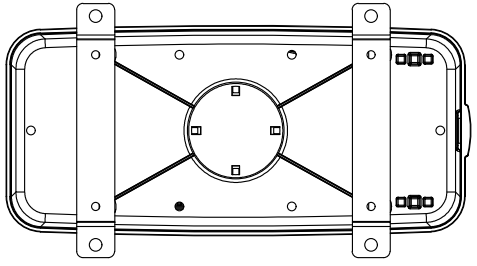






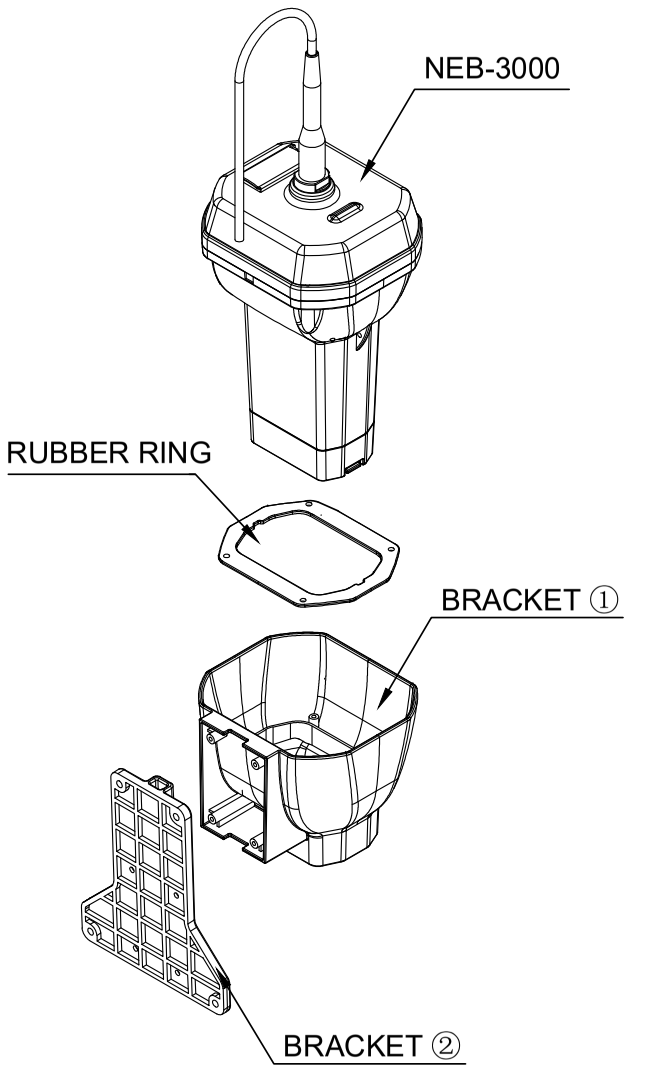


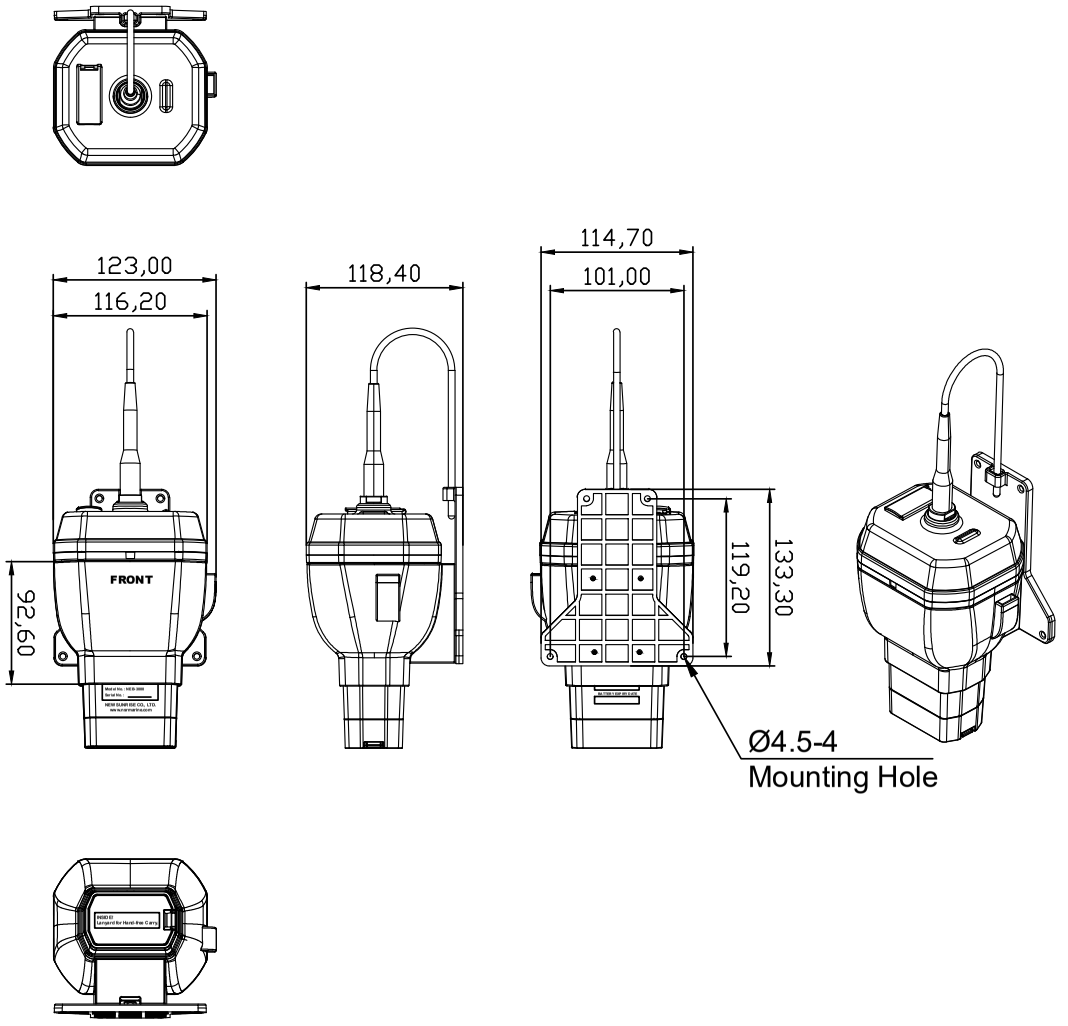




APPLICATION	NEB-3000 CONTAINER SIZE DRAWING								
DATE		ITEM						SIZE	A4
APPROVAL		SCALE	N/S	UNIT		PRO-JECTION			
CHECKED									
DRAWING		NSR marine	NEW SUNRISE CO., LTD.						
DWG NO.	NEB3000-ID-002								

NO.	DATE	REVISION & DESCRIPTION	REVIEWED / CHECKED SIGNATURE
0			





APPLICATION	NEB-3000 MOUNTING DRAWING		
DATE		ITEM	SIZE A4
APPROVAL		SCALE N/S UNIT PRO-JECTION	▽▽▽▽1.6S ▽▽▽6.3S ▽▽12S ▽100S
CHECKED		NSR NEW SUNRISE CO., LTD.	
DRAWING			
DWG NO.	NEB3000-ID-003		

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November, 2025