USER MANUAL

AIS-SART

NAS-1000

NAS-1000 UM.E 20250709-12

NOTICE TO USERS

- ☑ Thanks for purchasing this product NAS-1000 AIS-SART.
- ☑ Please read this manual carefully to ensure proper use before installation and use of the NAS-1000.
- ☑ NEW SUNRISE will assume no responsibility for damage caused by improper use or modification of the product or claims of loss of profit by a third party.
- ☑ NEW SUNRISE reserves the right to make continuous improvements on products, both in software and hardware, without any prior notice.
- ☑ 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. NSR does not make any representations or warranties (implied or otherwise) regarding the accuracy and completeness of this document.
- ☑ The copyright of this manual is owned by the manufacturer, NEW SUNRISE. Prior written permission is required for copying or reproducing the manual or software and hardware without any prior notice.
- ☑ Lithium battery is used in this product, which is not allowed to be modified, shorted or burned.
- ☑ Please keep the manual for your future reference.

WARNING:

The battery should be replaced when the marked expiry date is reached.
Dispose of the lithium batteries carefully. The two poles of the battery pack should be insulated prior to disposal because the remaining power could cause severe harm to human beings. Local regulations should be followed when batteries are disposed of in order to protect your environment.

HOW TO ACTIVATE NAS-1000

1. Take off the AIS-SART from the mounting bracket.
2. Pull off the red pin and move the operation handle to ON.
3. Check the LED indicator. While the LED is flashing, AIS-SART is being activated, but the GNSS position is not available. While the LED is steadily on, the GNSS position is available.
4. Check the sound of the internal buzzer. Each audible beep suggests one message is being transmitted. Usually, a burst of eight short beeps can be heard per minute, which suggests eight messages are transmitted every minute.
5. Hold AIS-SART upright to maximize the transmitting efficiency.
6. Keep the AIS-SART as high as possible by using the telescopic pole supplied or hanging the AIS-SART in the life raft by using the rope supplied.

WARNING：

Do not activate the AIS-SART unless in case of emergency. If the AIS-SART is activated for any reason, except for short tests, the battery pack in the AIS-SART should be replaced to maintain enough life of batteries. The red pin should also be replaced because it cannot be restored to its original state after being pulled off.

MODIFY RECORD

No.	Modify by	Date	Paragraph	Version	Reason
1	Q/A	2010/9/6		01	First version
2	Q/A	2011/4/27		02	Some modification
3	Q/A	2012/4/9		03	Some modification
4	Q/A	2013/6/26		04	Some modification
5	Q/A	2017/9/20	all	05	Wordings modification
6	Q/A	2018/12/28	2, 3	06	Photos replacement
7	Q/A	2019/7/23	all	07	General modification
8	Q/A	2022/5/17	all	08	Minor modification
9	Q/A	2024/10/30	all	09	Some modification
10	Q/A	2024/12/31	all	10	Some modification
11	Q/A	2025/2/28	2	11	Section 2.3 addition
12	Q/A	2025/7/9	all	12	Some modification

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1. PRODUCT OUTLINE

The AIS-SART is an emergency device used for life rafts. When activated, the AIS-SART will transmit messages to indicate its position of the AIS-SART. The vessels and rescue planes nearby can receive the position reports sent by the AIS-SART to easily locate the life raft in distress.

NAS-1000 AIS-SART conforms to the requirements set in IMO IMSC 246 (83). As a part of GMDSS, the AIS-SART shares the same role as the RADAR-SART (search and rescue transponder).

The RADAR-SART is used to locate a target by the signal reflected to a radar. In this case, only the rough position is read on the radar screen with bearing.

However, the AIS-SART could provide an accurate position with a built-in GNSS receiver, which can facilitate the rescue work greatly.

The AIS-SART transmits on dual AIS channels, AIS 1 and AIS 2.

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

$A=2.5(\sqrt{H}+\sqrt{h})$ （nm）

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

As required, the AIS-SART should cover at least 5nm on the condition that the transmitting antenna at the life raft is 1m high and the receiving antenna 16m high, both above sea level.

A unique identifier (User ID) is used in the AIS-SART 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-SART is 970xxyyyy, where xx=manufacturer ID, as 26/28 for NSR; yyyy =s/n set by manufacturer. For example, 970280008, which is produced by NSR.

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

2. HOW TO ACTIVATE

2.1 On Vessel

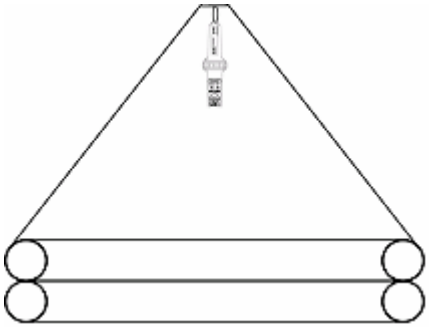
When still onboard the vessel, activate the AIS-SART in the steps below:

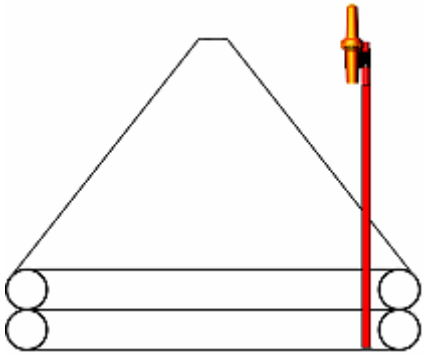
- Take off the AIS-SART from the mounting bracket.
- Remove the black protector.
- Pull off the red pin and rotate the operation handle to ON.
- Check the LED indicator. While the LED is flashing, the AIS-SART is being activated, but the GNSS position is not available. While the LED is steadily on, the GNSS position is available.
- Check the sound of the internal buzzer. Each audible beep suggests one message is being transmitted. Usually, a burst of eight short beeps can be heard per minute, which suggests eight messages are transmitted every minute.
- Hold the AIS-SART upright to maximize the transmitting efficiency.
- Keep the AIS-SART as high as possible by using the telescopic pole supplied.
- To deactivate the AIS-SART, rotate the operation handle to OFF. Insert the black protector.

2.2 In Life Raft

Activate the AIS-SART on the life raft in the steps below:

- Keep the AIS-SART as high as possible by using the telescopic pole supplied, or hang the AIS-SART in the life raft by using the rope supplied.
- Remove the black protector.
- Pull off the red pin and rotate the operation handle to ON.
- Check the LED indicator. While the LED is flashing, the transmitter is being activated, but the GNSS position is not available. While the LED is steadily on, GNSS position is available.
- Check the sound of the internal buzzer. Each audible beep suggests one message is being transmitted. Usually, a burst of eight short beeps can be heard per minute, which suggests eight messages are transmitted every minute.
- To deactivate the AIS-SART, rotate the operation handle to OFF. Insert the black protector.



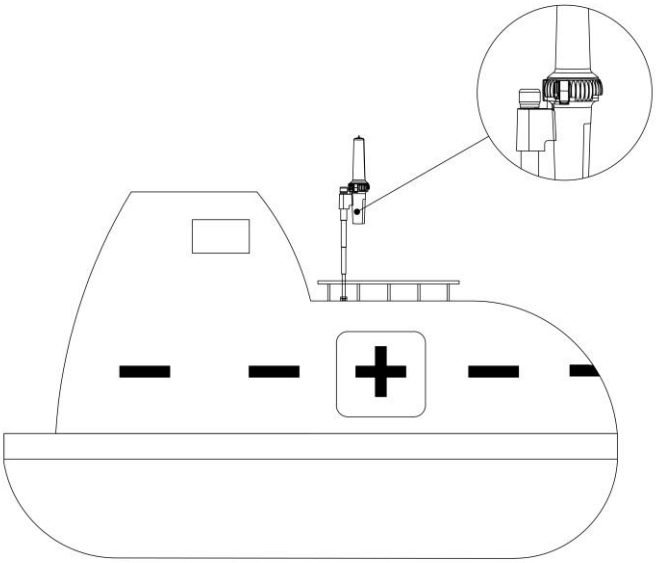


2.3 In Lifeboat

Activate the AIS-SART on the lifeboat in the steps below:

- Keep the AIS-SART as high as possible by using the telescopic pole supplied, with an unobstructed view of the sky.
- The pole should be fixed vertically.

- Remove the black protector.
- Pull off the red pin and rotate the operation handle to ON.
- Check the LED indicator. While the LED is flashing, the transmitter is being activated, but the GNSS position is not available. While the LED is steadily on, GNSS position is available.
- Check the sound of the internal buzzer. Each audible beep suggests one message is being transmitted. Usually, a burst of eight short beeps can be heard per minute, which suggests eight messages are transmitted every minute.
- To deactivate the AIS-SART, rotate the operation handle to OFF. Insert the black protector.

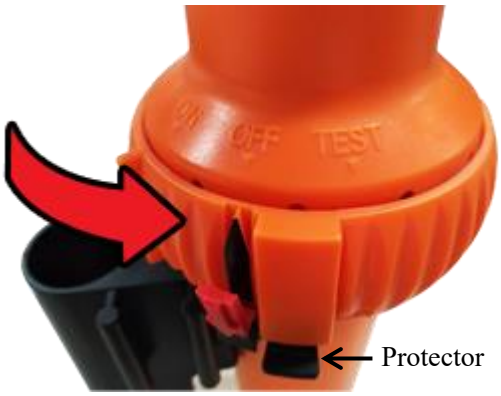


NOTE:

Operating the AIS-SART under the lifeboat canopy is not recommended if the canopy is made of materials that may obstruct the signals.

An outdoor lifeboat bracket may be used as an option. When mounted outside a free-fall lifeboat, NAS-1000 should not be stored permanently on the mounting bracket but should be moved to the bracket after the lifeboat is launched or in the water.

3. HOW TO TEST



- Take off the AIS-SART from the bracket.
- Hold the AIS-SART in an open space outdoors.
- Remove the black protector.
- Rotate the operation handle to TEST.
- Check the LED status. If the LED flashes, the GNSS position is not available. If the LED is steadily on, the GNSS position is available. Usually, the GNSS position can be available in one minute in an open space. If GNSS can not be available (LED flashes) after a long time, the AIS-SART may be faulty. In such a case, please contact the manufacturer or your local supplier for service.
- When the AIS-SART is transmitting, one burst of 8 short beeps can be heard, which suggests 8 messages are sent. Afterwards, one dash can be heard, which indicates that transmission is completed.
- **The AIS-SART will be powered off automatically after 8 short beeps when the GNSS position is available. Also, the AIS-SART will be powered off automatically if GNSS is not available for 15 minutes.**
- Rotate the operation handle back to OFF. Insert the black protector.
- Check whether the shipborne AIS MKD has received and displayed the message transmitted from the AIS-SART.
  - **Check the target list on MKD. There should be a target with the same MMSI as the USER ID of the AIS SART.**
  - **A safety-related message "SART TEST" should be received from the same MMSI as the USER ID of the AIS SART.**
- Place the AIS-SART back in the bracket.

Don't pull off the red pin when testing. The red pin can not be restored to its original status after being pulled off. Pull the pin only when activating the AIS-SART in an emergency.

CAUTION:

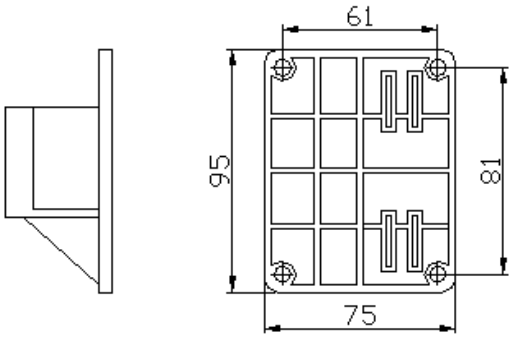
Even in low output power, NAS-1000's transmission can be well received by vessels nearby. Frequent tests should be avoided not only for interference but also for battery-saving.

4. HOW TO MOUNT

The AIS-SART is mounted with the wall bracket in the bridge. The bracket should be mounted upright and placed where the AIS-SART is easily accessible in case of an emergency. The AIS-SART is mounted in such a position to avoid direct sunshine and heating sources.

Fit the black bracket on the wall by using four screws supplied, and then insert the AIS-SART into the bracket.

Before inserting the AIS-SART, open the cap of the pole, put the pole into the hole on the AIS-SART from the upside and then cover the cap on the pole.



5. PERIODIC INSPECTION

Periodic inspection is very important to ensure that the AIS-SART is in good condition. Each test should be executed in a short time because any test could reduce the life of the batteries.

5.1 Every Six Months

The inspection every six months should be carried out by operators on board. The inspection should cover the following items:

- Carry out the test procedure by following HOW TO TEST.
- Check whether any damage is viewed.
- Check the expiry date of the batteries.
- Record the inspection result.

5.2 Every Five Years

The inspection every five years should be carried out by the manufacturer or authorized dealers. The inspection should cover the following items:

- Replace the battery pack together with the case and gasket.
- Check the watertightness of the case.
- Carry out a complete performance test.
- Record the inspection result.

6. HOW TO REPLACE BATTERY

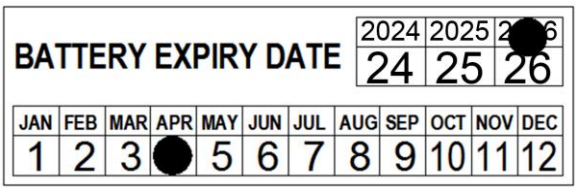
6.1 Battery Replacement

The expiry date of the batteries is marked on the case of the AIS-SART. The batteries should be replaced before the expiry date.

The following items are to be replaced together:

- Radome case of batteries (with operation instructions printed on the case)
- Case cover
- Colorless indicator cover
- Gasket
- Batteries
- Red pin

All the above items are combined into a battery module, **NBT100**.



For example, the above sticker is punched as the expiry date of April 2026.

It's very important to replace with battery pack originally supplied/made by NSR, when the battery is expiry. NSR guarantees the quality of NSR products only when original NSR battery pack is used. When the product was tested and type approved, NSR battery pack was **an integral part** of the product. If a counterfeit battery pack is used on NSR product, the product will automatically lose the guarantee of all type approval certificates, and then, NSR will be exempted from the responsibility of warranty and other service guarantees. The counterfeit battery pack will affect NSR product from operating properly.

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

The following instructions need to be observed:

- It is strictly prohibited for any personnel to attempt to pry open the battery cover.
- Do not charge the battery or throw it into a fire.
- Do not expose the battery to an environment with a temperature higher than 70°C.

- Short-circuiting the positive and negative poles is strictly prohibited, and the poles should be well insulated with tape after the battery is replaced.

6.2 Battery Disposal

Warning: *Two poles of the battery pack should be insulated* prior to disposal because the remained power could cause severe harm to human beings. Local regulations should be followed when batteries are disposed of in order to protect your environment.

6.3 Battery Transportation

The transportation of the battery pack must strictly comply with regulations on the transportation of lithium batteries. Before transportation, the positive and negative poles of the battery should be well insulated with tape to prevent exposure.

7. TECHNICAL SPECIFICATIONS

⑴ **TX Frequency:**	AIS 1: 161.975MHz
	AIS 2: 162.025MHz
⑵ **Carrier Power:**	1W
⑶ **Frequency Error:**	≤0.5kHz
⑷ **Communication Coverage:**	≥5nm
⑸ **Temperature Range:**	Operating: -20℃～+55℃
	Storage: -40℃～+70℃
⑹ **Size:**	95（D）×377（H）mm
⑺ **Weight:**	abt. 900g
⑻ **Battery:**	Voltage: DC 7.2V
	Operating time: 96 hours of operation in activation mode
	Storage: 5 years onboard (see note 1)
⑼ **GNSS Receiver:**	Type: Built-in GNSS antenna
	System supported: GPS, BDS, Glonass
	GNSS fixing time: ≤1 minute
⑽ **Floating Type:**	Floatable
⑾ **Watertight:**	At a depth of 10m for at least 5 min

Note1:

The battery pack can be stored at the dealer/agent max 1 year since purchased, and it should be replaced within 5 years after being supplied to a vessel.

8. WARRANTY

All goods manufactured by NSR are warranted to be free from defects in workmanship and material for the period of 24 months since the date of installation on the vessel.

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 circumstances be liable for consequential damages.

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

NOTE:
The above warranty is subject to adjustment by the latest **Warranty Terms for NSR Products**.

CHECK LIST BEFORE DELIVERY

☒ Battery：

Expiry date：

☒ Watertightness verification：

☒ Mounting bracket：

☒ Transmission test：

☒ General operation：

☒ USER ID：

.....

NEXT INSPECTION DUE ON：

.....

Date：

Signature and stamp：

INSPECTION RECORDS （every 6 months）

NO	DATE	INSPECTION RESULT	INSPECTOR

INSPECTION RECORDS （every 6 months）

NO	DATE	INSPECTION RESULT	INSPECTOR

INSPECTION RECORDS （every 5 years）

☒ Battery replacement：

Battery supplier：

Model number：

New battery expiry date：

Old battery disposal：

☒ Gasket replacement：

☒ Performance test：

.....

NEXT INSPECTION DUE ON：

.....

Date：

Signature and stamp：

INSPECTION RECORDS （every 5 years）

☒ Battery replacement：

Battery supplier：

Model number：

New battery expiry date：

Old battery disposal：

☒ Gasket replacement：

☒ Performance test：

.....

NEXT INSPECTION DUE ON：

.....

Date：

Signature and stamp：

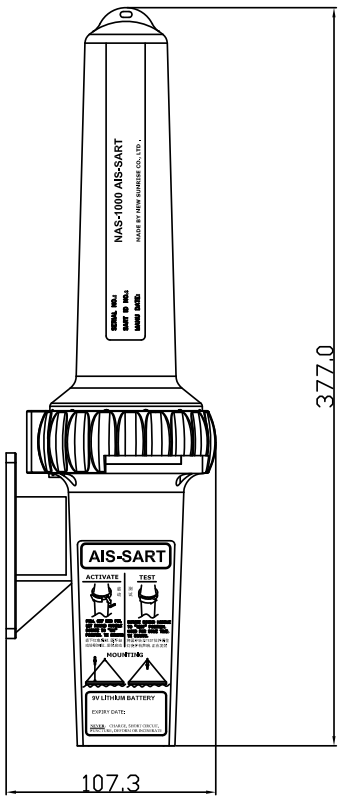
MEMO

MEMO

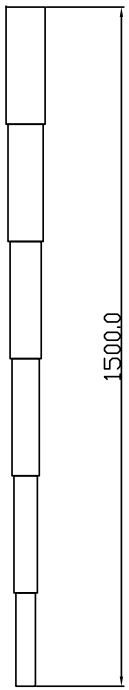
APPENDIX SIZE DRAWING

NO.	DATE	REVISION & DESCRIPTION	REVIEWED	CHECKED
⚠			SIGNATURE	

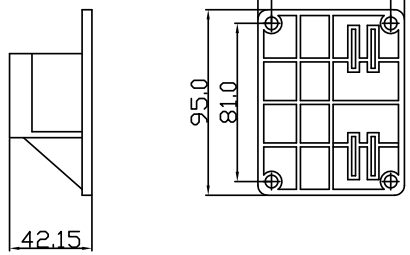
Total Length：1500mm (fully pulled out)



Transmitter



Tele-pole



Mounting Bracket

IP Grade： IP67

APPLICATION	NAS-1000 AIS-SART SIZE DRAWING						
DATE		ITEM	NAS-1000 AIS-SART			SIZE	A4
APPROVAL		SCALE	N/S	UNIT	mm	PROJECTION	▽▽▽0.8S ▽▽6.3S ▽12S ▽100S
CHECKED		NSR marine	NEW SUNRISE CO., LTD.				
DRAWING							
DWG NO.	NAS1000-ID-001						

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July, 2025