



USER MANUAL

SART

NRT-1000

NOTICE TO USERS

- Thanks for purchasing this product NRT-1000 SART.
- Please read this manual carefully to ensure proper use before installation and use of the NRT-1000 SART.
- NEW SUNRISE will assume no responsibility for the damage caused by improper use or modification of the product or claims of loss of profit by a third party, and 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.
- NEW SUNRISE reserves the right to make continuous improvements on products both in software and in hardware without any prior notice.
- The copyright of this manual is owned by the manufacturer, NEW SUNRISE. Prior written permission is required to copy or reproduce the manual or part of the manual.
- 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.
- Please keep the manual for your future reference.

WARNING:

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

HOW TO ACTIVATE SART

1. Take off SART from the installation bracket.
2. Remove the black protector.
3. Pull off the red pin and rotate the operation handle to ON.
4. Check the LED indicator. While LED is on, SART is ready to be triggered.
5. Keep SART as high as possible by using the telescopic pole supplied or hanging SART in the life raft by using the rope supplied.

WARNING:

Do not activate the SART unless in case of emergency. If the SART is activated for any reasons, the battery pack in SART should be replaced to maintain enough life of batteries. The red pin should also be replaced because it cannot restore to its right state after being pulled off.

MODIFY RECORD

No.	Modify by	Date	Paragraph	Version	Reason
1	Q/A	2012/11/21		01	First edition.
2	Q/A	2014/09/01		02	Generally modified.
3	Q/A	2017/11/24	All	03	Wordings modified.
4	Q/A	2018/06/12	2, 3	04	Add a black protector.
5	Q/A	2018/12/28	All	05	Generally modified.
6	Q/A	2019/07/12	All	06	Generally modified.
7	Q/A	2023/07/20	2	07	Generally modified.
8	Q/A	2024/01/02	2, 3, 6, 7	08	Generally modified.
9	Q/A	2025/01/07	All	09	Generally modified.

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1. PRODUCT OUTLINE

The Search and Rescue Radar Transponder (SART) is a very simple 9 GHz receiver/transmitter that provides a position.

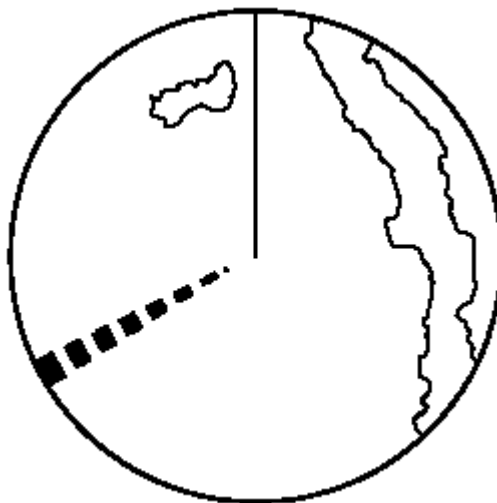
The fundamental function of the SART is to indicate its position by producing range and bearing information on any 9 GHz radar screen of any nearby ship, vessel and aircraft (with no modification).

When its RADAR receiver is triggered by an interrogating RADAR of 9 GHz band on a search and rescue ship or aircraft, the SART immediately transmits a coded response signal (a series of 12 dots).

The SART code displayed on the radar screen is a series of dots extending radially outwards from the location of the transponder.

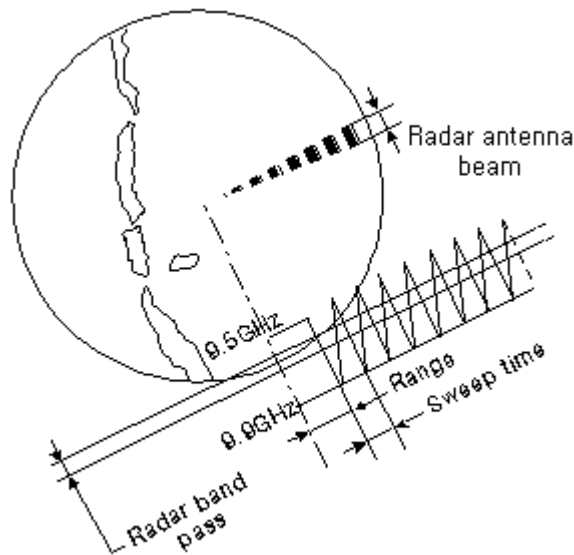
The series of dots represents a range of approximately 10 nautical miles. This indication is an internationally accepted signal for search and rescue operations.

In addition, the SART gives confidence to survivors by giving a loud signal and visual indication of the approach of assistance.



In operation, the SART responds automatically using a 9 GHz high-speed frequency sweeping signal with a pulse emission period of 100 μ s which is synchronous with any received scanning pulse.

The SART response signal scans all frequencies in the 9 GHz radar band.



To select the SART code only on the radar screen, use the "detuning of the radar receiver". This offset tuning erases all normal radar images caused by echoes with the same frequency as the radar transmission.

However, the SART code is not erased because the SART response signal scans all frequencies in the 9 GHz band.

2. HOW TO ACTIVATE



2.1 On Vessel

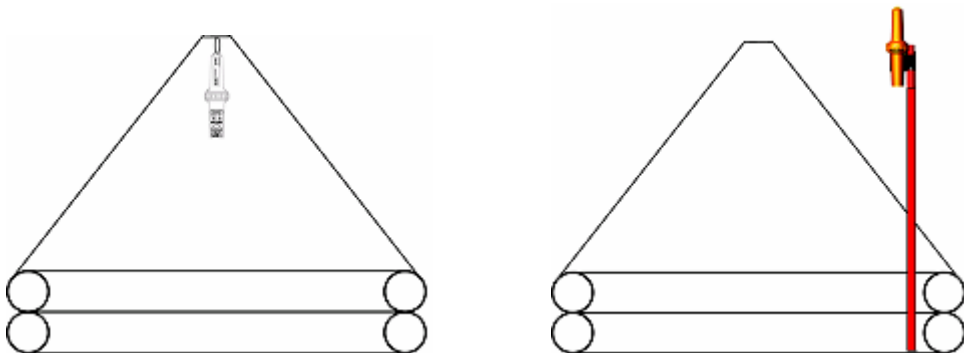
When still onboard the vessel, activate SART as below:

- Take off SART from the installation bracket.
- Remove the black protector.
- Pull off the red pin and rotate the operation handle to ON.
- Check the LED indicator. While LED flashes, SART is ready to be triggered. Once the radar signal is received, the LED indicator turns ON and the internal buzzer sounds "di,di...", which means it's transmitting.
- Keep SART as high as possible by using the telescopic pole supplied.
- To close SART, move the operation handle to OFF.

2.2 In Life Raft

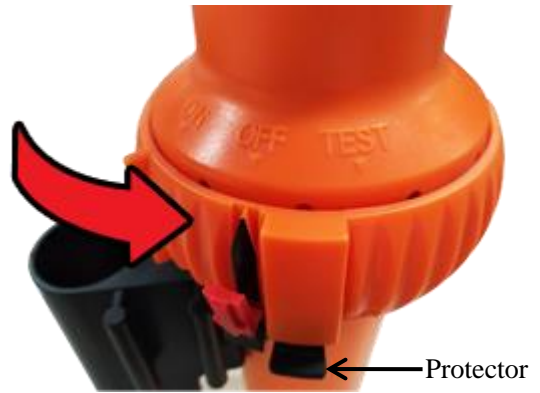
Activate SART in the life raft as below:

- Keep SART as high as possible by using the telescopic pole supplied or hanging 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 LED flashes, SART is ready to be triggered. Once the radar signal is received, the LED indicator turns on and the internal buzzer sounds "di, di..." , which means it's transmitting.
- To close SART, move the operation handle to OFF.



3. HOW TO TEST

- Take off SART from the bracket.
- Hold SART in an open space outdoors.
- Remove the black protector.
- Rotate the round operation handle to TEST.
- Check the LED status. If the LED flashes, the SART is ready to be triggered.
- When the receiver of SART is triggered by an interrogating RADAR signal of 9 GHz band on a search and rescue ship or aircraft, the SART immediately transmits a coded response signal (a series of 12 dots), which can be checked on the RADAR screen. The LED indicator turns on and the internal buzzer sounds "di, di...", which means it's transmitting.
- Rotate the round operation handle back to OFF and insert the black protector and then place SART back to the bracket.



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

CAUTION:

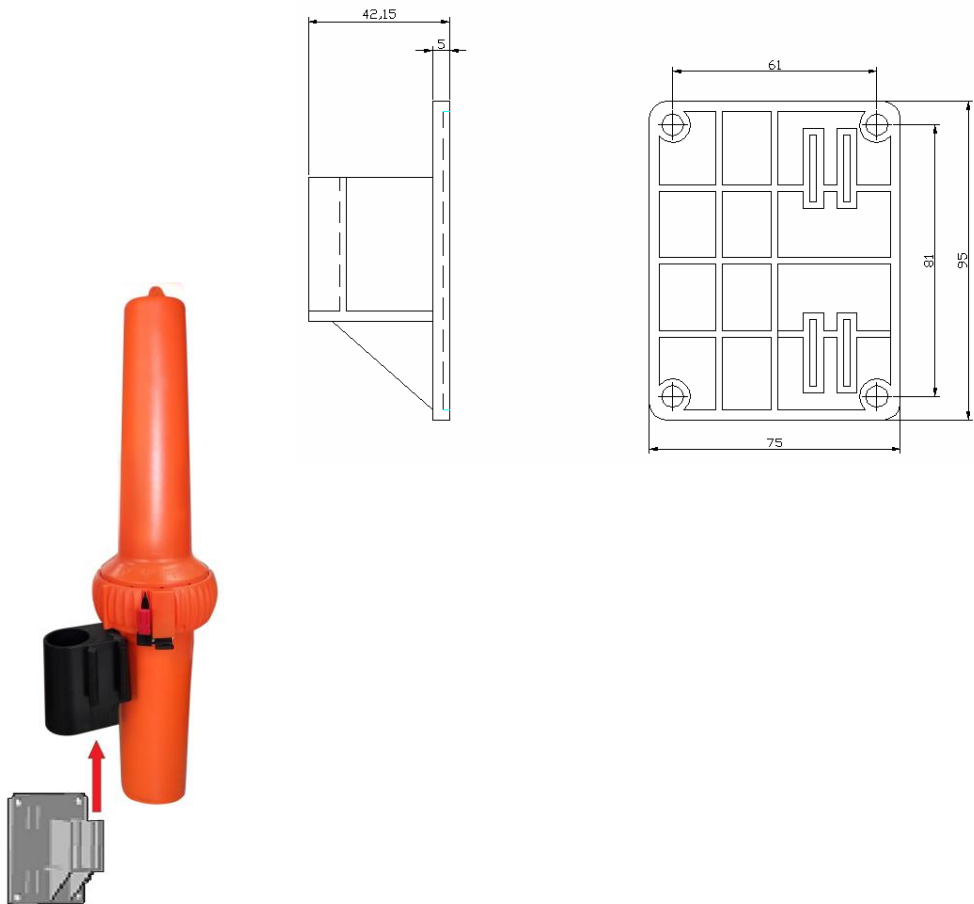
Even in low output power, SART transmission can be well received by vessels nearby. Frequent tests should be avoided not only for interference but also for battery-saving.

4. HOW TO MOUNT

SART is mounted with the wall bracket in the bridge. The bracket should be mounted in a vertical position and in a place where SART is easily available in case of an emergency. SART is mounted in such a position to avoid direct sunshine and heating sources.

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

Before inserting SART, open the cap of the pipe, put the pipe into the black hole on SART from the upside, and then cover the cape on the pipe.



5. PERIODIC INSPECTION

Periodic inspection is very important to ensure 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 can be 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 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 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
- Two cells of batteries
- Red pin

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

NSR guarantees the quality of NRT-1000 SART only when the original NBT100 battery module is supplied by NSR.

6.2 Battery Disposal

Warning: 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.

7. TECHNICAL SPECIFICATIONS

(1) Work Frequency:	9.2 ~ 9.5GHz
(2) Carrier Power:	≥400mW
(3) Receiving Sensitivity:	≤-50dBm
(4) Communication Coverage:	≥5nm
(5) Temperature Range:	Operating: -20°C ~ +55°C Storage: -40°C ~ +70°C
(6) Size:	95 (d) ×377 (h) mm
(7) Weight:	750g
(8) Battery	
Voltage:	DC 9V
Operating time:	8 hours of continuous transmission (interrogated with a pulse repetition frequency of 1Hz) following 96 hours in standby condition.
(9) Battery storage:	5 years onboard (see Note 1)
(10) Watertight:	At a depth of 10m for at least 5 min

*Note 1:

The SART 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 18 months from the date of delivery (unless stated otherwise and confirmed in writing).

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.

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:

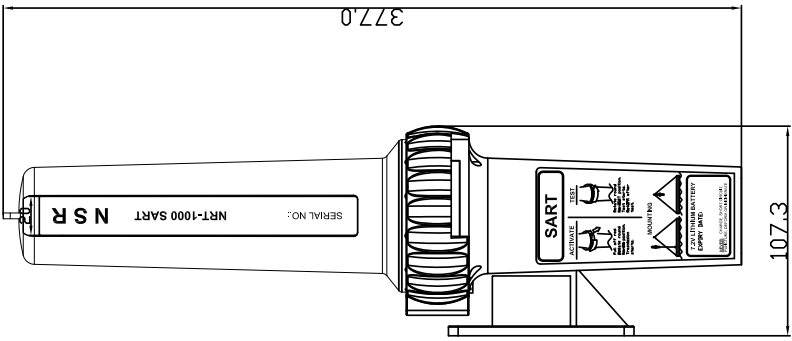
Signature and stamp:

MEMO

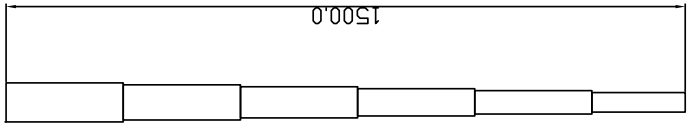
MEMO

APPENDIX SIZE DRAWING

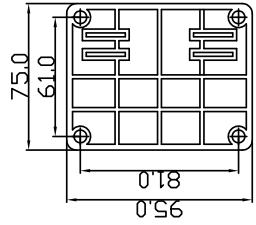
Total Length: 1500mm (fully pulled out)



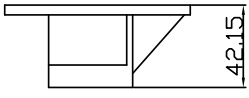
Transmitter



Tele-pole



Mounting Bracket



NO.	DATE	REVISION & DESCRIPTION	REVIEWED / CHECKED SIGNATURE

APPLICATION NRT-1000 SART SIZE DRAWING			
DATE	ITEM	NRT-1000 SART	SIZE A4
APPROVAL	SCALE	1:1	SCALE
CHECKED	DRAWING	NRT1000-IP-001	NEW SUNRISE CO., LTD.

IP Grade : IP67

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January, 2025