

**NRT-1000**

**SART**

**USER'S MANUAL**

**NEW SUNRISE**

NRT-1000 OM.C 20171124-03

## NOTICE TO USERS

- Thanks for your purchasing this product NRT-1000 SART.
- Please read this manual carefully to ensure proper use before installation and use of the NRT-1000.
- 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.
- NEW SUNRISE reserves the right of continuous improvement 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 for copying or reproducing the manual or part of the manual.
- 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 NRT-1000**

1. Take off NRT-1000 from the installation bracket.
2. Pull off the red pin and move the operation handle to ON.
3. Check the LED indicator. While LED on, NRT-1000 is ready to be triggered.
4. Keep NRT-1000 as high as possible by using the telescopic pole supplied or hanging NRT-1000 in the life raft by using the rope supplied.

### **WARNING:**

**Do not activate the NRT-1000 unless in case of emergency. If the NRT-1000 is activated for any reasons, the battery pack in NRT-1000 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.**

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## **PRODUCT OUTLINE**

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

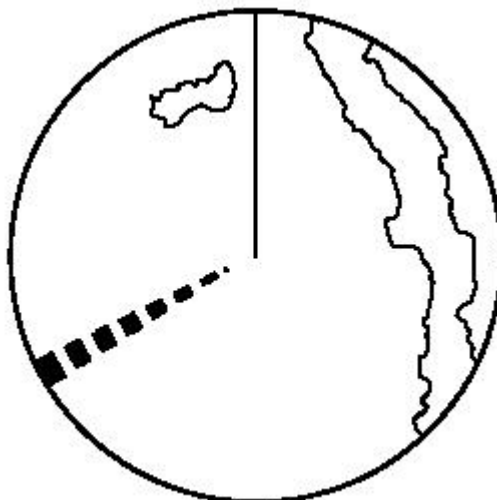
The fundamental function of the SART is to indicate its position by producing range and bearing information on any 9 GHz radar screen of any nearby ship, vessels and aircraft (with no modification).

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.

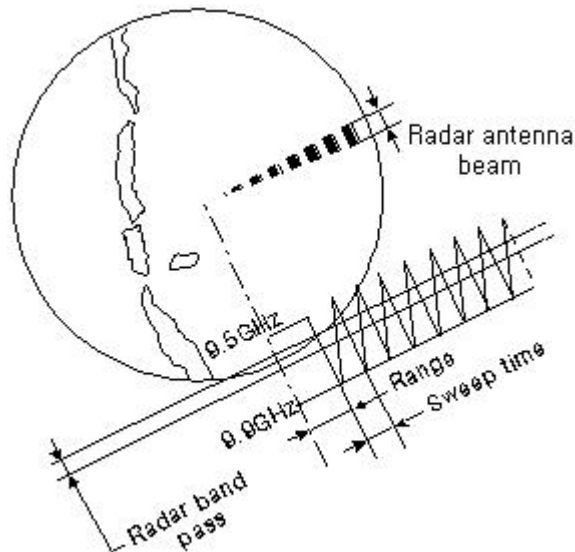
The series of dots represents a range of approximately 10 nautical miles. This indication is an internationally accepted signal for search and rescue operations.

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  $100 \mu\text{s}$  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.

## 1. HOW TO ACTIVATE



### 1.1 ON VESSEL

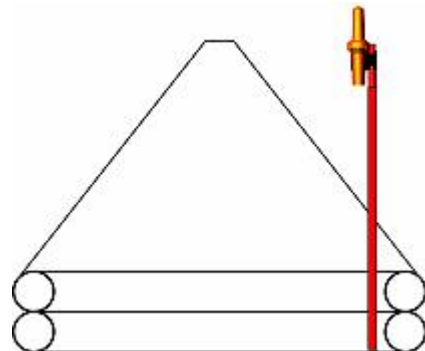
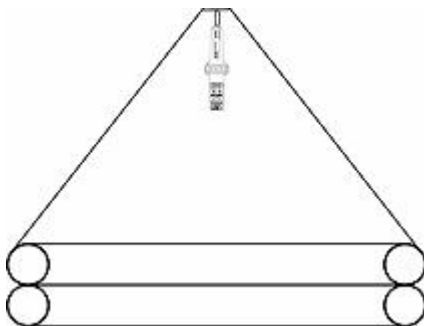
When still onboard the vessel, activate SART as below:

- Take off NRT-1000 from the installation bracket.
- Pull off the red pin and move the operation handle to ON.
- Check the LED indicator. While LED on, NRT-1000 is ready to be triggered.
- Keep NRT-1000 as high as possible by using the telescopic pole supplied.
- To close NRT-1000, move the operation handle to OFF.

## 1.2 IN LIFE RAFT

Activate SART in life raft as below:

- Keep NRT-1000 as high as possible by using the telescopic pole supplied or hanging NRT-1000 in the life raft by using the rope supplied.
- Pull off the red pin and move the operation handle to ON.
- Check the LED indicator. While LED on, SART is ready to be triggered.
- To close NRT-1000, move the operation handle to OFF.





## 2. HOW TO TEST

- Take off NRT-1000 from the bracket.
- Hold NRT-1000 in open space outdoor.
- Rotate the round operation handle to TEST.
- Check LED status. If LED on, 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 RADAR screen.
- Rotate the round operation handle back to OFF and place NRT-1000 back to the bracket.



**Don't pull the red pin when test. The red pin can not be restored to its original status after pulled. Pull the pin only when activate NRT-1000 in emergency.**

### **CAUTION:**

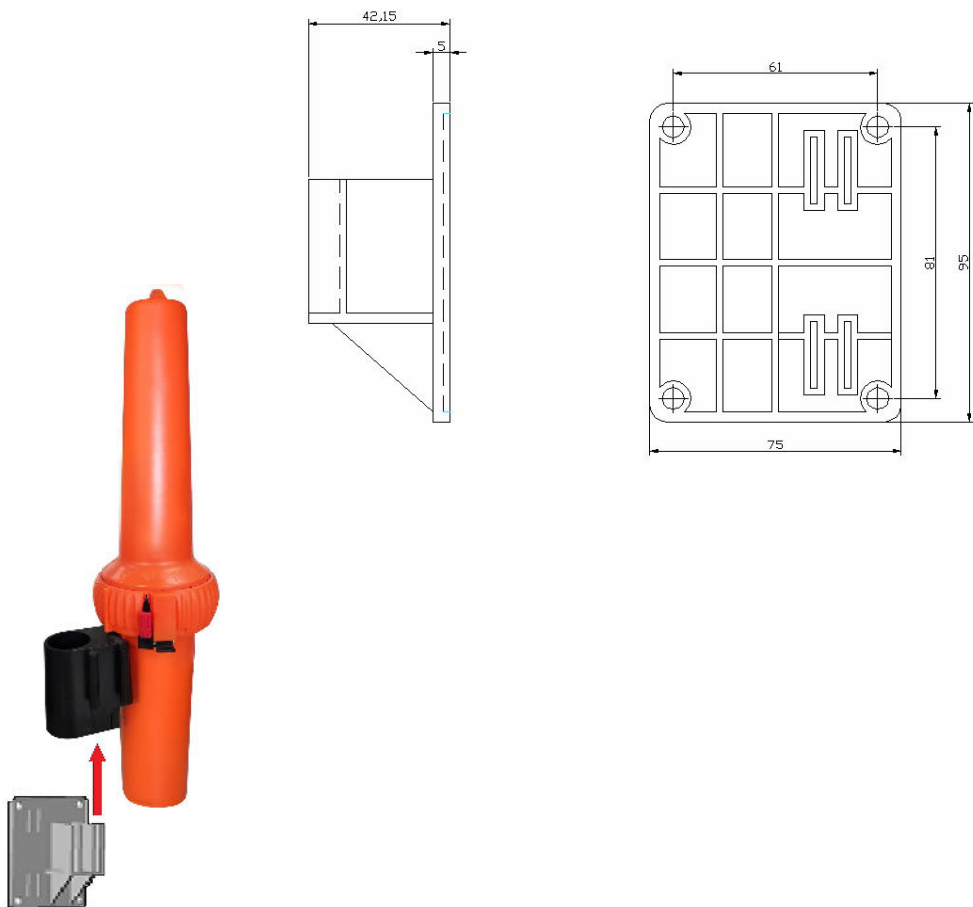
Even in low output power, NRT-1000's transmission can be well received by vessels nearby. Frequent tests should be avoided not only for interference but also for battery-saving.

### 3. HOW TO MOUNT

NRT-1000 is mounted with the wall bracket in the bridge. The bracket should be mounted in a vertical position and in a place where NRT-1000 is easily available in case of an emergency. NRT-1000 is mounted in such a position to avoid direct sunshine and heating source.

Fit the black bracket on the wall using four screws supplied, and then insert the NRT-1000 into the bracket.

Before inserting NRT-1000, OPEN the cap of the pipe, put the pipe into the black hole on NRT-1000 from upside and then cover the cape on the pipe.



## **4. PERIODIC INSPECTION**

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

### **4.1 Every six months**

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

- Carry out 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.

### **4.2 Every five years**

The inspection every five years should be carried out by 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.

## **5. HOW TO REPLACE BATTERY**

### **5.1 Battery Replacement**

The expiry date of the batteries is marked on the case of NRT-1000. The batteries should be replaced before the expiry date.

The following items are to be replaced together:

- Radome case of batteries (with operation instruction printed on the case)
- Case cover
- Colorless indicator cover
- Gasket
- Two cells of batteries

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

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

### **5.2 Battery Disposal**

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

**6. TECHNICAL SPECIFICATIONS**

(1) <b>Work Frequency:</b>	9.2 ~ 9.5GHz
(2) <b>Carrier Power:</b>	≥400mW
(3) <b>Receiving Sensitivity:</b>	≤-50dBm
(4) <b>Communication Coverage:</b>	≥5nm
(5) <b>Temperature range:</b>	Operating: -20°C ~ +55°C Storage: -30°C ~ +65°C
(6) <b>Size:</b>	95 (d) ×377 (h) mm
(7) <b>Weight:</b>	Abt. 900g
(8) <b>Battery:</b>	7.2VDC 8 hours of continuous operation following 96 hours of standby 5 years storage

**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 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**

