Thuraya SeaStar

INSTALLATION GUIDE

REGULATORY INFORMATION

EC Declaration of Conformity

Westone Communications co. ltd, be seated on YunHua Road No.333, Chengdu, Sichuan Province, China declares under our sole responsibility that the Product, brand name as Thuraya SeaStar and model: Is a voice/SMS/GmPRS Satellite terminal with a build in GPS tracking system, to which this declaration relates, is in conformity with the following standards and/or other normative documents:

IEC 60945/ EN 60945 edition 2008

> **WARNING**
>
> **This equipment shall not operate when mains power is lost.**

Safety Summary

For the sake of safety and protection, please read the user guide before you attempt to use the Thuraya SeaStar system. In particular, read this safety section carefully. Keep this safety information where you can refer to it if necessary.

The following general safety precautions must be observed during all phases of operation, service and repair of this equipment. Failure to comply with these precautions or with specific warnings elsewhere in this user guide violates safety standards of design, manufacture and intended use of the equipment.

Westone Communications co. ltd, assumes no liability for the customer's failure to comply with these requirements.

Antenna Radiation Warning

During transmission, the antenna in the system radiates high power levels of radio frequency. This radiation is considered health hazardous to any personnel that come very close to the antenna.

It is important to maintain a separation distance from the transmitting antenna to any personnel of at least 30cm.

Service

User access to the interior of the terminal is not allowed. Only qualified personnel authorized by its manufacturer may perform service. Failure to comply with this rule will result in the warranty being void.

Grounding and Antenna Cables

The terminal has a grounding stud to ground the terminal to the hull of the ship by using a ground cable.

The antenna cables are shielded and they should not be affected by any magnetic field. It is recommended to avoid the cables being installed in parallel with any AC wiring as it may possibly cause malfunction of the equipment.

Ship's Power Supply

The Thuraya SeaStar (including to the Terminal and the Active Antenna) standby power is only less than 10W, and the standard operation average power consumption is only 16W. When low signal strength, burst power may beyond 20W. For the steady operation, the input voltage for SeaStar System needs a 36W power supply (may be 12V DC@3A or 24V DC@1.5A). It is recommended to use a 24V DC power line, if available on the ship.

In case of unavailability of a 12V or 24V DC power line on the ship, on external AC/DC power supply (110/220V AC to 24V DC @ Min 1.5A) can be used, please

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contact the vendor when you need it.

Equipment Ventilation

To ensure adequate cooling of the terminal, 5cm of unobstructed space must be maintained around all sides of the unit except the bottom side. The ambient temperature range of the below decks terminal is: -15°C to +55°C.

The equipment should not be operated in the presence of flammable gases or fumes as well as any explosive atmosphere. Operation of any electrical equipment in such an environment constitutes a definite safety hazard.

Obtaining Licensing for Thuraya SeaStar System

Under rights given under ITU Radio Regulations, local telecommunications administrations establish and enforce national rules and regulations governing types of emissions, power levels, and other parameters that affect the purity of signal, which may be radiated in the various frequency bands of the radio spectrum.

To legally operate the Thuraya SeaStar system, it is necessary to obtain permission from the local telecommunications regulatory authorities of the country you are operating from. Using your equipment in any country without permission causes you to run the risk of confiscation of the equipment by the local authorities. The normal procedure to bring such equipment into another country is to apply for a license before travel. If a license has not been obtained before travel, the equipment may be put in to storage by local authorities until such time license is obtained.

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1. INTRODUCTION

The Thuraya SeaStar is a voice satellite terminal with a built-in GPS tracking system specially designed for reliable performance in the harsh maritime environment. This affordable, easy-to-install and user-friendly terminal enables users to make satellite voice calls to normal PSTN phones, mobile phones and other satellite phones through the Thuraya satellite network.

The SeaStar supports SMS services through its easy-to-use menu on the large color LCD screen on the terminal. An Alert button is available to notify pre-configured contacts during an emergency. When the Alert button is activated, the SeaStar will send a pre-determined SOS message which includes the time-stamped GPS coordinates of the position to a maximum of five preset contacts for emergency response. The terminal has a RJ11 socket for connecting to an analogue phone or PBX. A RJ45 socket is available to provide GmPRS data via LAN cable to a laptop or PC to give access to the internet.

Features

Base Terminal

● Supports basic telephony functions, Calling Line Identification Presentation (CLIP) and Short Message Services (SMS), network function and link to circuit switch phone or PBX function.

● Phone book retrieval from the terminal, storage 3000 contacts max.

● Call log: last missed, received and dialed calls each with date and time stamps, storage 100 call log max.

● Menu-driven graphical user interface with 65K colors, 320 x 240 pixels, 2.4 inch TFT LCD screen

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● MMI Language in English.

● Back-lit keypad

● Desk and wall mounting

● Alert button for triggering an emergency alert to pre-configured contacts via SMS

● External Alert button input port

● External loudspeaker plays incoming ring and SMS notification ring

● 3.5mm port is use for output the ring or voice in calling

● Configuration to support
 ● Automatic Position Reports (APR)
 ● Polling for an on demand position report base on GPS Tracking
 ● Geo-fencing. Up to 5 areas (circular or rectangular) can be configured. Sends an SMS alert when the vessel enters or leaves an area

● RJ45 port for GmPRS LAN connection

● RJ11 port for analogue phone connection

Antenna Unit

Active Antenna

● Omni-directional active Thuraya satellite antenna with inbuilt active GPS antenna

● Up to 75 meters of LMR400 (or equivalent) co-axial satellite antenna cable
 ● Standard cable 25m for longer cable contact supplier

Recommended Cable lengths for Active antenna

SAT & GPS Cables

Cable Type	Loss@1.6GHz (dB/m)	Max Cable Length (m)	Recommendation Cable Length(m)	Min Cable Length (m)
LMR400	0.174	75	67	52
LMR240	0.335	40	36	28
LMR195	0.493	28	25	20

Operating Environment

Antenna Unit (ADU)	
Operating Temperature	-25°C to +55°C
Storage Temperature	-40°C to +80°C

Base Terminal (BDU)	
Operating Temperature	-15°C to +55°C
Storage Temperature	-20°C to +70°C

Thuraya SeaStar

System	
Power Supply	10.8 to 31.2V
Standby / Working Average Power Consumption	10W / 16W
Operating Humidity	Up to 95% (non-condensing) at 40°C

General specifications

Thuraya Approved
Compliant to CE, RoHS, WEEE, REACH, IEC60945

Packing list

Base Terminal	
Active Antenna	

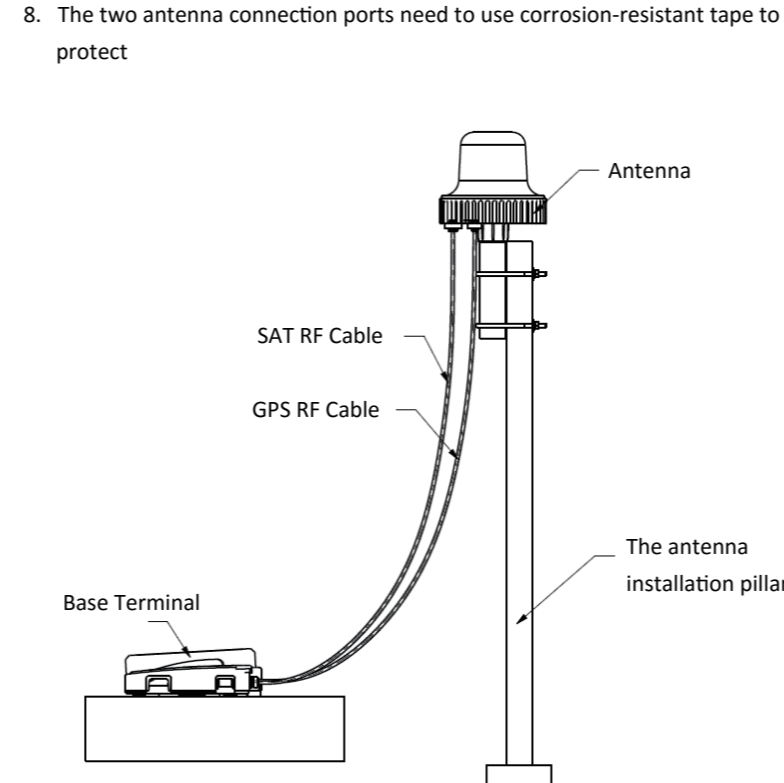| Antenna Mounting Kit	
GPS RF Cable (25 meters with double N-type Male connectors)	
SAT RF Cable (25 meters with double TNC Male connectors)	
Power Cable	
USB OTG Cable (For upgrading the SeaStar's firmware)	

2. INSTALLATION

Overview of Installation of Antenna Unit and Base Terminal

Installation of Antenna unit (As shown in next page figure)

1. Select an ideal location above the deck where you desire to place your Antenna unit. It is recommended to install it at a point where no surrounding obstacles should obstruct the open sky view to the antenna, this includes when the satellites are near the horizon on all bearings. The Antenna unit is designed to operate within a temperature range from -25°C to +55°C

2. Care should be taken to avoid close proximity to other RF sources such as radars and other satellite equipment

3. Find a pillar which is suitable for antenna installation

4. Screw the stainless steel pillar into antenna's stand port, clamp the first U-bolt to the pillar and then fasten the first fixing piece on the U-bolt. Screw the round pad, washer and hex nut into the U-bolt. Screw the stainless steel pillar and adjust the antenna feeder port to the appropriate position and tighten the hex nut

5. As mentioned in the step 3, install the second U-bolt

6. Run the cables between the antenna and the below deck unit. Ensure that minimum bend radius is maintained in the cable, standard cable is (22.2mm). If going through bulk heads use grommets or glands to protect the cable and maintain water tightness as required

7. Connect the SAT cable between the SAT ports of the Antenna unit and the Base Terminal. The SMA connector must be connected to the Antenna unit, and the TNC connector must be connected to the GPS port of the Base Terminal. Make sure the connections are securely fastened

8. The two antenna connection ports need to use corrosion-resistant tape to protect

Antenna

SAT RF Cable

GPS RF Cable

Base Terminal

The antenna installation pillars

Installation of Base Terminal

1. Select an ideal location inside the wheelhouse or the cabin room where you desire to place your Base Terminal. The Base Terminal is designed to operate in rooms with a temperature range from -15°C to +55°C

2. Mount your Base Terminal onto a wall or place it on a desk or a tabletop

3. After the Base Terminal is mounted on a wall, fix a locking screw to secure the Terminal in place (Screw type: φ5mm*20mm stainless steel tapping screw)

Locking screw

Wall mounting screw

Top View (Unit: mm)
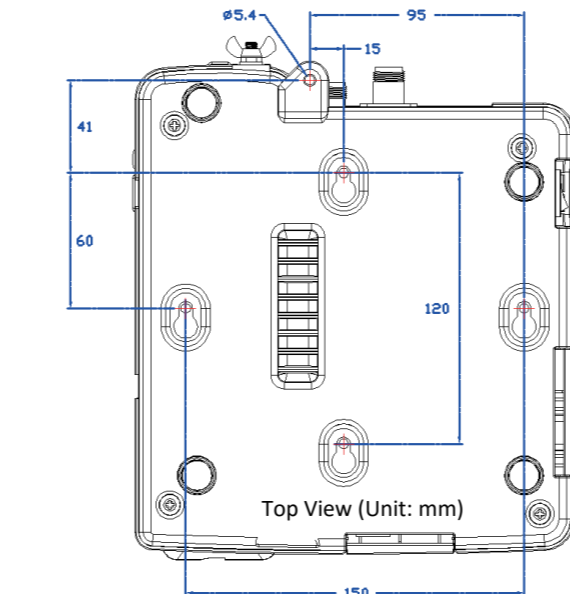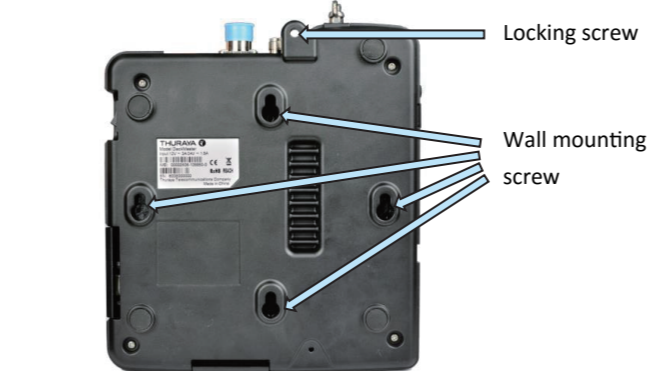
Getting Started

Before proceeding, please refer to chapter 2 and install the Thuraya SeaStar system and connect all the cables according

Installing the SIM card

The Thuraya SeaStar system requires a valid SIM card to access the satellite network and configure the settings of the Base Terminal

Follow these steps to install the SIM card:

1. Flip down the SIM card cover

2. With the SIM card's gold contact facing down, position the card as indicated and slide it into the slot

3. Ensure that the SIM card is correctly located

4. Close the SIM card cover

Connecting Antenna Unit

Two RF cables (25 meters each) are provided for connecting Antenna unit and Base Terminal.

Follow these steps to connect the antenna cables to the Base Terminal:

1. Plug the two RF cables to the RF cable connectors on the Base Terminal

2. Lock the connector till it is properly secured to the Base Terminal

3. The two antenna connection ports need to use corrosion-resistant tape to protect

Connecting to DC Power Source

Follow these steps to connect the SeaStar Base Terminal to the ship's power source:

1. Insert the power cable plug to the Base Terminal DC power socket

DC Power Socket

Power Cable Plug
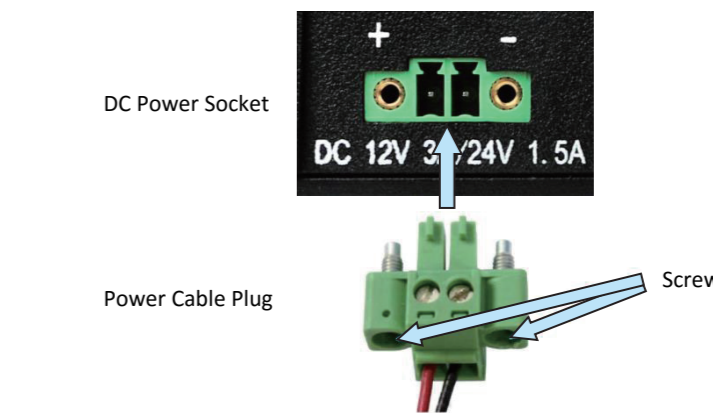
Screws

2. Tighten the two screws indicated in the above figure to securely fasten the cable to Base Terminal

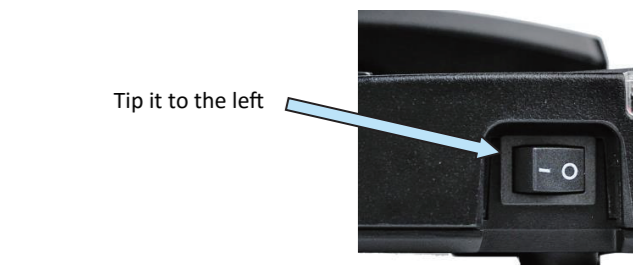3. Connect the power cable to a DC power source (10.8V- 31.2V)

> **WARNING:**
> RED wire: Positive DC Supply
> BLACK wire : Negative DC Supply

Power Up the SeaStar

Follow these steps to power up the SeaStar

● Tip the Power On/Off Switch to the left.

Tip it to the left

> **Note:**
> For further information, refer to the User Manual