

# GMDSS SYSTEM IOM MANUAL

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# SAILOR 7222 VHF DSC

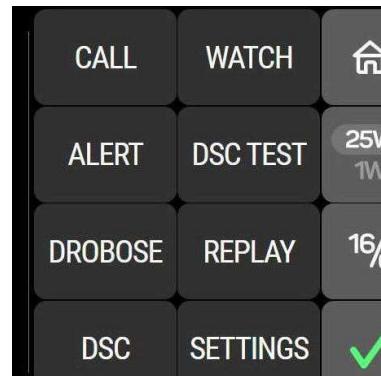
## User Manual



*Menu functions in display*

A number of functions of the SAILOR 7222 VHF DSC are accessed using the on-screen keys in the right side of the display.

The following on-screen key functions are available from top-level standby:



On-screen key	Function
CALL	Make DSC non-distress calls
ALERT	Make a distress call with assigned category
DROBOSE	Make a distress relay call on behalf of someone else
DSC	Manage DSC sessions
WATCH	Access the watch functions DW (Dual watch), TW (Triple watch) and Scan.
DSC TEST	Make a DSC test call, see <i>DSC self test</i> on page 53
REPLAY	Replay the latest voice message.
SETTINGS	Setup pages for <i>RADIO</i> , <i>CONTROLLER</i> , <i>CHANNELS</i> , <i>DSC</i> , <i>POWER SUPPLY</i> , <i>NMEA</i> , <i>NETWORK</i> , <i>SYSTEM</i> , <i>REMOTE CONTROL</i> and <i>ABOUT</i> .
Home	Return to the idle screen
1W/25W	Toggle transmit power between 1W and 25W.

On-screen key	Function
	16/C Shift to channel 16, the international calling and distress channel, no matter what state the radio is in.
  I,	Status/Alerts Status and alert list The icon changes when an alert message is reported in the Bridge Alert Management (BAM) system. Tap the icon to see the alert list.  In the first example (check mark), there are no active alerts. In the second example (exclamation mark), there is a Warning: Active acknowledged alert.  If there is a number on the icon, it shows the number of unread alerts.  For possible icons, see <i>List of alert icons</i> on page 55.

## Changing the display light, night view

Red text on black background is available for optimal night vision.

To **dim the display backlight**, e.g. to give comfortable night vision, push the channel selector knob briefly. The display shows a brightness bar. Turn the knob anti-clockwise to dim more. At the brightness value 45 the display changes to night view with red text on black background.

To **return to day vision** push the channel selector knob briefly and turn it clockwise until the display changes and it reaches the desired brightness.

The radio has four color themes: Dark, Light, Cobham and Night. To change the color theme see **SYSTEM** on page 49.

## Adjusting the squelch level

With the Squelch control you can manually adjust and suppress noise in order to optimize the quality of the received radio communication.



When hearing noise or an unwanted signal, push the Volume/ squelch button briefly, check that the squelch bar is visible on the display and turn the squelch button clockwise until the radio is muted.

### **Use with a SAILOR 6204 Control Speaker Microphone**

When a SAILOR 6204 Control Speaker Microphone is connected to the radio, you can operate the radio with the Control Speaker Microphone. An **OCCUPIED** message is shown in the radio's display. At any time you can take control over the VHF radio by touching the screen or pushing any button on the radio.

## Basic VHF operation

You can make VHF calls using the Handset or another speaker device.



A tap on the 16/C on-screen key always brings you to **channel 16**, the international calling and distress channel, no matter what state the radio is in.

16/c

### Quick guide to radio telephone calls

1. Push the PTT button on the speaker device. When the TX indicator is highlighted in the display, the transmission is active.



2. To enable reception of a radio signal release the PTT button.



Push PTT only when you are talking. Always say “Over” just before releasing the PTT button.

One transmission is limited to 5 **minutes** duration.

### Receiving a radio telephone call on channel 16

When you hear your call name in the loudspeaker, proceed as follows:

1. The symbol RX shows that the radio is receiving on the channel displayed.
2. Lift the Handset or take another speaker device.
3. Push the PTT button. The symbol TX shows that the radio is transmitting on the channel displayed.
4. Repeat the name of the station calling you and say: “This is [your ship's name]”.
5. Suggest a working channel other than 16 by saying: “Channel [suggested channel number]”.
6. Say: “Over.” and release the PTT button to allow the caller to confirm the suggested new channel.
7. Switch to the new channel using the on-screen keypad or by turning the channel selector knob to the agreed channel and begin your conversation. Push PTT only when you are talking.

## Making a radio telephone call on channel 16

To make a radio telephone call, proceed as follows:

1. Select channel 16.
2. Lift the Handset or take another speaker device.
3. Push the PTT button. The symbol TX shows that the VHF radio is transmitting on the working channel displayed.
4. Say the name of the station you are calling three times.
5. Say: "This is [your ship's name]".
6. Say: "Over." and release the PTT button to listen. The symbol RX shows that the radio is receiving on the working channel displayed
7. When answered, agree upon a working channel other than 16.
8. Switch to the new channel by entering the channel number to the agreed channel and begin your conversation.



## VHF channels

Enter the channel using the on-screen keypad or turn the channel selector knob to browse through all channels that are available in the selected channel table. Only valid channel numbers are accepted. When browsing channels they appear in the display in the following order:

- Primary channels
- Weather channels (if any)
- Private channels (if any)

When you tap and hold the 16/C key in the display the radio changes to the call channel (channel 16 for the channel tables INT and BI, and channel 9 for the channel tables US and CA, if no other channel is programmed in CHANNELS on page 42).

16/C

VHF channel table	Description
Primary channels (no prefix)	For details see <i>Maritime channels</i> on page 65. For instructions how to change a channel table see <i>CHANNELS</i> on page 42.
Weather (Wn)	Weather channels have the prefix W. (For US and CA channels only.)
Private (Pnn)	Private channels have the prefix P. Up to 100 user-defined private channels.

For more information on how to setup channels see *CHANNELS* on page 42. Contact your local dealer if you are interested in having private channels.

### Channel information always available in the display

For some functions and for setup pages, the channel and radio information has moved to the top right section of the display.

The channel number displayed in this section always reflects the communication channel to which the radio is tuned in for communication. If PTT is pushed the radio transmits on the

(Example) →



displayed channel. If a signal is received, it is received on the displayed channel.

### Engagement status

The radio is engaged when you push PTT. This is indicated with  in the display. Engagement protects the communication from being interrupted by incoming DSC calls.

## Reduced transmission power

Tap the on-screen key 1W/25W to toggle the transmit power between 1 W and 25 W.



## Watch

The SAILOR 7222 VHF DSC radio has a watch function with dual or triple watch. In dual watch, the working channel and channel 16 are watched. In triple watch the working channel, channel 16 and the programmed call channel are watched. You can select the working channel in any watch mode by turning the channel selector knob. If there is a signal in one of the watched channels, the display shows the channel in which the signal is received. For instructions how to set up TRIPLE WATCH see *RADIO* on page 40.

To start the watch function, tap the key WATCH and then DUAL WATCH or TRIPLE WATCH.

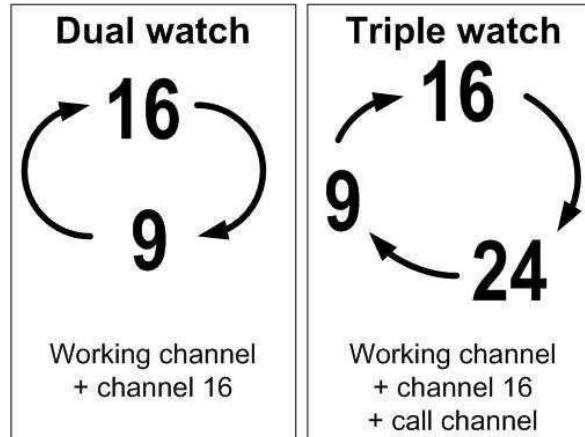
The radio enters the selected watch mode and the text WATCH with the channel numbers watched is shown below the current channel number.

An icon, at the top bar of the display shows dual watch (two dots) or triple watch (three dots) or scan (one dot and an M for Multi-scan).

To stop the watch function tap the WATCH key and

then STOP or PTT on the speaking device.

For details on the Scan function, see the next section.



## Scan

The radio has a scanning function for tagged voice channels. Any available voice channel, including weather and private channels, can be tagged and added to the scanning sequence. As default the radio scans with priority scanning of channel

16. If a signal is received while in any scanning mode, only channel 16 continues to be watched.

If there is a signal in one of the scanned channels, the display shows the channel in which the signal is received. If PTT is pushed while scanning, the scanning stops, the radio is tuned into the displayed channel and transmission starts immediately on the displayed working channel.

To start scanning tap WATCH and then SCAN.

To stop scanning tap WATCH and then STOP, or push PTT on the speaking device.

### To tag a channel for scanning:

1. Turn the channel selector knob until the wanted channel is in the display.
2. Tap WATCH and then TAG. The display shows the channel number and the word TAG at the right side of the display.

To remove a channel from the scanning sequence:

1. Turn the channel selector knob until the tagged channel is displayed.
2. Tap TAG to remove the tag.

To see only tagged channels tap WATCH and then FILTER and turn the channel selector knob. Tap FILTER again to leave the FILTER function. For details how to set up the scanning function see *RADIO* on page 40.



The displayed working channel is temporarily included in the scanning list (although no TAG icon is shown).

## DSC calls

In this section of the manual, you find information on:

- *View and manage DSC calls*
- *Send, acknowledge and cancel own distress*
- *DROBOSE — Distress Relay on behalf of someone else*
- *Receiving distress calls*
- *DSC calls for communication*

## View and manage DSC calls

### What is a DSC session

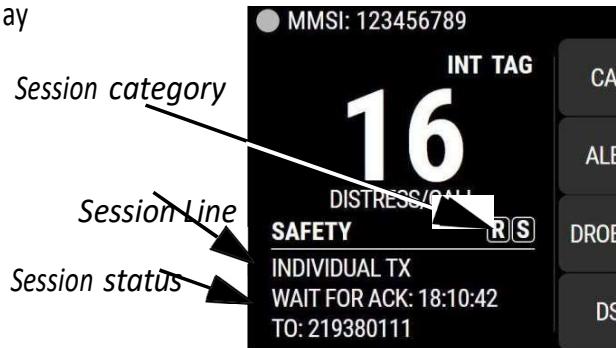
A DSC session is a collection of DSC calls (transmitted and/or received) that are related to the same event (e.g. a distress event) or established call (e.g. an individual call request followed by an acknowledgment).

A session can be either active or on hold. The active session has control over the radio transmitter. A session can have a purpose. For example if the purpose is to establish communication on a working channel.

The non-DSC VHF communication is considered as a session that can be active (engaged) or on hold (dis-engaged). See also *Engagement status* on page 19.

### Display for active DSC session

When a DSC session is active, the display shows the type of session, the current state, MMSI number of the other party and elapsed time since the reception of a call request or an acknowledgment.



#### Note

The session category text (in this example **DISTRESS**) is for the active call. The session category icons show the category of the other ongoing sessions

**Session line:**

The DSC Session line can be one of the following:

Session line	Explanation
OWN DISTRESS	The ship is in own distress. See also <i>To send a distress message</i> on page 28.
DISTRESS RX	You watch or participate in a distress communication for another station in distress
DISTRESS RX (MOB)	You watch or participate in an MOB distress event involving one or more MOB devices
RELAY calls (numerous)	You watch or participate in a distress communication for another station in distress
ALL SHIPS TX/RX	You have sent/ received an all ships call
GROUP TX/RX	You have sent/ received a group call
INDIVIDUALTX/RX	You have either sent a call request to a station to establish contact, or another station has made a call to you to establish contact. The call needs a reply.
TEST TX/RX	You have either sent a SAFETY TEST call or you have received a SAFETY TEST call from another station that needs to be replied to.
POSITION TX/RX	A position request was either sent or received.

**Session status:**

The session status can be one of the following:

Session status	Explanation
WAIT FOR ACKNOWLEDGE	You made an individual call to a station and are awaiting a reply to establish connection.
OCCUPIED	The DSC transmission mechanism waits until the DSC channel (70) is free.
TRANSMITTING	Transmission of a DSC message is ongoing.
LINK FOR COM	The communication has been established in a routine call.
ACKNOWLEDGED	The call has been acknowledged.

**Session category icons:**

Session category icons in the session view show the categories of all DSC call or Voice communication in the list:

- D — Distress
- O - Own distress
- U — Urgency
- S- Safety
- R — Routine
- 7 — Unknown category (error in message)
-  — Voice (VHF voice call, non-DSC)
-  — MOB Distress event (closed loop/open loop)

### On-screen keys to control DSC sessions

Call or session types vary in control options, and options may also change if a session changes its state.

The following table gives an overview of the DSC on-screen key commands available for a current session. Note that only a subset of these keys are available, depending on the session type, state etc.

On-screen key DSC session	—	Radio function
MORE		Available for all sessions. Under MORE you find SELF TEST ( <i>DSC self test</i> on page 53), CALL LOGS ( <i>DSC call logs</i> on page 36) and HISTORY ( <i>Distress call log</i> on page 33?).
QUIT		Terminates the DSC session
HOLD		Puts the DSC session hold if it is active (return to other non-DSC functions)
ACTIV.		Activates the DSC session
RESEND		Transmits an identical call if available
NEW CH		Replies with a new channel if an individual call is received with a communication channel specified which is not available in the radio, or the operator decides to change the channel.
UNABLE		Constructs a reply to the caller if an individual call is received which is not compatible with the radio modes.
SILENT		Silences alarms.
ACK		Acknowledges a received call request with the suggested parameters.
POSITION (Own Distress)		A shortcut to own position data information.

<b>On-screen key — DSC session</b>	<b>Radio function</b>
PAUSE (Own Distress)	Pauses the automatic repetition of distress transmissions
RESUME (Own Distress)	Resumes automatic repetition of distress transmissions (if paused)
ACK	Distress acknowledgment.
RELAY	Distress Relay on behalf of someone else.
CANCEL (Cancel Own Distress)	Cancels an inadvertently transmitted distress
CONFIRM (Cancel Own Distress)	Confirms action and proceed sequence, used in cancel distress procedure

### Access all DSC sessions

The SAILOR 7222 VHF DSC can control multiple DSC sessions simultaneously with a VHF communication session. All sessions can keep track of their session state and the communication channel used. They are handled in their respective sessions, in the order they are started up.

 Note that there is only one active session at a time. The active session controls the radio transmitter.

To see all DSC sessions, tap DSC in the display.

All sessions are listed in the left side of the display, with session category icon and MMSI number. The active session is marked ACT.

Blue arrow is outgoing call, green arrow is incoming call.

The center of the display shows details for the selected (highlighted) session in the list.



Outgoing call

You can toggle between the ongoing calls/sessions, that means that a call — or session — can be on hold or active.

The DSC sessions on hold can receive calls that are pertinent to the session, even when the session is not displayed.

The example on this page shows four sessions ongoing. Swipe vertically to scroll through all sessions. The selected session is highlighted, and the details for the selected session is shown in the center of the display.

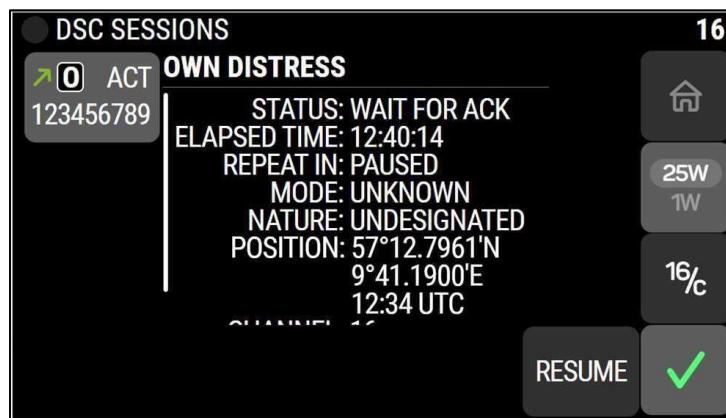
If engaged in a DSC session and if you want to engage in a non-DSC voice communication, tap HOLD on the active DSC session and then push PTT to engage.

Send, **acknowledge**, and cancel own distress

## To send a distress message

- Lift the cover of the red distress button and push and hold the distress button for longer than 3 seconds. For short step-by-step instructions how to proceed when sending a distress message see *Emergency calls* on page vi.

When the distress signal is sent, 70 and TX appear in the top line of the display. A two-second steady tone is heard.



- The radio watches for a DSC acknowledgment transmission on channel 70.
- To pause the automatic, resend procedure tap **PAUSE/ RESUME** in the display.
- To cancel the distress message tap **CANCEL**. See also *To cancel own distress* on page 30.
- When a distress acknowledgment is received, a pop-up window is displayed. The channel number falls back to 16. Start distress communication on channel 16 to inform about your distress situation.



If no distress acknowledgment is received within a period of 3,5 to 4,5 minutes, the distress message will automatically be retransmitted.

Having pushed the red distress button and sent the distress message, the following information is displayed:

- MMSI (at the top): Shows the MMSI number of the VHF radio.
- UTC time is shown at the top left
- Status: shows the status of the Distress process, e.g. "Waiting for ACK".

- Nature: shows the nature of distress, see also *ALERT: To send a distress message with specified nature.*
- LAT: and LON: shows the distress position data as transmitted.
- Elapsed time: Time elapsed after initiation of own distress.
- Resending in: Time to next repeat of sending own distress.

If you sent a distress message, the VHF radio is automatically set to channel 16, the channel reserved for international distress, safety and calling.

## **ALERT: To send a distress message with specified nature**

When sending distress messages you can include the distress nature in the message. To include the distress nature in the distress message do as follows:

1. From top-level standby tap ALERT.  
If the current position information is not correct, you can manually enter it by tapping **POSITION**.
2. Tap **NATURE OF DISTRESS**, then scroll in the display to select the relevant nature of distress:  
FIRE, EXPLOSION FLOODING  
COLLISION GROUNDING  
LISTING (in danger of capsizing)  
SINKING DISABLED (and adrift)  
UNDESIGNATED ABANDONING (ship)  
PIRACY (armed robbery attack)  
MAN OVERBOARD
3. Tap to accept the selected nature of distress.
4. Then lift the cover of the red distress button and push and hold the **Distress button** for 3 seconds.



## To receive acknowledgment of own distress

When the SAILOR 7222 VHF DSC receives an acknowledgment of distress from another vessel or station, a 2-tone alarm sounds. The display shows a pop-up window with the MMSI number of the station who sent the distress acknowledgment call.

- Tap **SILENT** to switch off the 2-tone alarm.
- Tap **HOME** to return to the working display.

If the same Distress call comes in more than once, the 2-tone alarm sounds briefly and terminates automatically.

## To cancel own distress

If you need to cancel a sent distress message do as follows:

1. The display shows that a distress message has been sent. Tap **CANCEL**. A pop-up window is displayed.
2. Tap **Yes** to go ahead with the canceling process. At this stage you have the option to tap **No** to return to distress sending procedure.
3. The SAILOR 7222 VHF DSC will send the self-cancellation call on channel 70 and the display automatically shows the message that you should say when canceling the distress with a radio message.
4. Tap **OK** to go to the acknowledged state. Own distress is canceled now.
5. Tap **CANCEL** to repeat the sending of the cancel DSC message.
6. Having finished the voice canceling, tap **QUIT** to quit the distress annulment procedure.

## Power failure while in distress

In case of a power failure or switch-off during the transmission of a Distress the SAILOR 7222 VHF DSC gives an audible warning after power-up and automatically resumes sending Distress 10 seconds after power up.

Within the 10 seconds you have the following options:

- Tap **QUIT** to terminate the active distress procedure (acknowledged or unacknowledged).
- Tap **CONFIRM** (or wait and do nothing) to resume the sending Distress. procedure.

## Sending a Distress from the SAILOR 6103 Multi Alarm Panel

The optional SAILOR 6103 Multi Alarm Panel will, when connected to the VHF radio, indicate in the SAILOR 6103 Multi Alarm Panel display that a Distress can be sent over VHF. To send a Distress alert from the SAILOR 6103 Multi Alarm Panel, do as follows:



1. Lift the cover of the Distress button marked VHF.
2. Push and hold the button until the light is steady, and the buzzer stops (more than 3 seconds).

The VHF radio is now in distress mode. Continue the distress traffic and procedures from the VHF radio front panel, if possible, in the same way as described for handling distress mode from the VHF radio.



Only undesignated distress messages can be initiated from the Alarm Panel.  
For further information see the Alarm Panel Installation and user manual.

## DROBOSE      Distress Relay on behalf of someone else

To send a distress message on behalf of someone else, do as follows:

1. From top-level standby tap **DROBOSE**.
2. Tap one line at a time and enter the necessary information using the on- screen keypad:

Relay items	Description
NPE	Select RELAY ALL or RELAY INDIV. If yo select RELAY INDIV., the field TO appears in the display.
DISTRESS MMSI	Enter the MMSI number of the vessel in distress, if known, or else Unknown.
TO	Enter the MMSI number of the coast station you send the relay to.
NATURE	Select the nature of distress: FIRE, EXPLOSION FLOODING COLLISION GROUNDING LISTING (in danger of capsizing) SINKING DISABLED (and adrift) UNDESIGNATED ABANDONING (ship) PIRACY (armed robbery attack) MAN OVERBOARD EPIRB
POSITION	Enter the longitude, latitude and time (UTC) information of the vessel in distress if known, or else Unknown.

3. Tap SEND.

## Receiving distress calls

When the radio receives a distress call, the 2-tone alarm sounds. Types of distress calls are DISTRESS, DISTRESS ACK, DISTRESS RELAY and DISTR. RELAY ACK.

1. To switch off the 2-tone alarm tap **SILENT**.
2. If engaged in other communications tap **ACTIVATE** to engage in the received DSC call.
3. Monitor channel 16 as a coast station may require your assistance. If the radio is not on channel 16, turn the channel selector knob or use the key 16/C to go to channel 16.
4. When the radio receives the first distress acknowledgment call a 2-tone alarm sounds again. To switch off the 2-tone alarm tap **SILENT**.
5. If you decide to acknowledge the Distress tap **ACK** in the display.

## Distress call with errors

If a distress call contains errors, it is still received.

Tap **OK** on the popup and tap **DSC** for more information. Errors are marked with underscores (\_).

## Distress call log

As long as you are part of a distress session, i.e. you have not tapped **QUIT**, you receive distress messages and can track all distress messages for the current distress event.

1. Tap **MORE**.
2. **HISTORY**.
3. Use the list in the left side to see details for the messages.
4. Tap < to leave the event history.

## *Receiving distress calls from Man Over Board devices*

The SAILOR 7222 VHF DSC supports specific handling of Man Over Board devices (MOB). The MOB device can operate in a closed loop configuration (sending distress relay calls) and/or open loop mode (sending distress calls).

A specific received distress session is initiated for MOB devices.

Any call which originates from a modern MOB device will be handled within a single procedure. You will be able to see the acknowledgment status of (up to 50) involved MOB devices in parallel.

Tap DSC and select the relevant session in the left side. At the top of the session details you can see the number of MOB sessions(in the example we are watching MOB session 1 out of 50).

Browse through all MOB devices using the < and > buttons.

The MOB distress relay calls (closed loop) can be relayed or individually acknowledged when the person is located or secured.

MOB distress calls (open loop) may be acknowledged only if permitted by a coast station.



## DSC calls for communication

With a DSC call you can establish a radio communication with one or several specific radios on a suggested VHF channel.

 VHF Radio A	1. Make a DSC call from Radio A to Radio B. <b>2. DSC acknowledge</b> from Radio B to Radio A. 3. Radio A + B go on the agreed VHF channel. 4. Press PTT and start talking.	 VHF Radio B
--	--	--

To make a DSC call, do as follows:

1. Tap CALL.
2. Tap TYPE and scroll and tap to select the call type.

Depending on the DSC call type you can enter category, MMSI number and channel for the following communication.



3. In the field CATEGORY: select a DSC call category, depending on the call type.

DSC call type	Cat.	To:	Ch.	Session icon	DSC call category
INDIVIDUAL (default)	X	X	X	U, S or R	Routine (default), urgency or safety calls, calls to a ship or a station
SAFETY TEST	—	X	—	S	Test call, check of safety equipment
POSITION	—	X	—	S	Safety
GROUP	—	X	X	R	Routine
ALL SHIPS	X	—	X	S or U	Safety (default) or urgency

4. In the field TO: enter the 9-digit MMSI number of the vessel you want to communicate with.

contact.

*DSC calls*

5. In the field CHANNEL: enter the suggested VHF channel for following communication.
6. Tap SEND to make the call.

### Receiving DSC calls

If the radio is in stand-by mode, i.e. not engaged in another session, and a DSC call is received the call details are shown on the display.

After having silenced the alarm you can acknowledge the call, put it on hold or display more information.

### DSC call logs

To access the call logs, tap MORE and then CALL LOGS.

DSC call log	Description
Received Distress	Shows a log of up to 100 received distress calls.
Transmitted Calls	Shows a log of up to 100 transmitted calls.
Received Calls	Shows a log of up to 100 received non-distress calls.

## **Replay function**

Replay allows the operator to playback received voice messages in the loudspeaker.

Recording is activated automatically when a chosen channel becomes active.

Recording is not possible during playback. Up to 60 tracks or 480 seconds can be handled. During a power cycle the recorded tracks are deleted.

The recorded channel is displayed. The message length is shown in seconds. The display shows how old the message is. If the 480 seconds storage limit is reached, the oldest data is overwritten.

**Note**

The replay function can be started even in a distress situation. If a DSC call is received the replay function continues the playback.

Acknowledgment of the DSC call immediately initiates and activates the DSC session. You can initiate replay again from any session afterwards.

### **Replaying recorded messages**

From the idle screen, tap the REPLAY button.

The latest message is repeated. Information about this message is shown in the display.

**To stop replaying** the message, tap STOP.

To rewind through the recorded messages tap REWIND.

If a signal is received while in replay mode the display shows RX at the top. You can now select whether to exit replay and listen to the active channel or wait for the channel to become inactive and then replay the latest track.

## Settings

The following settings pages are described in this section of the manual:

- RADIO
- CONTROLLER
- CHANNELS
- DSC
- POWER SUPPLY
- NMEA
- NETWORK
- SYSTEM
- REMOTE CONTROL
- ABOUT

### Accessing a settings page

To change a setting in one of the **SETTINGS** pages, do as follows

1. Tap **SETTINGS**. If it is not in the display, tap  and then **SETTINGS**
2. Tap the settings page you want to edit.

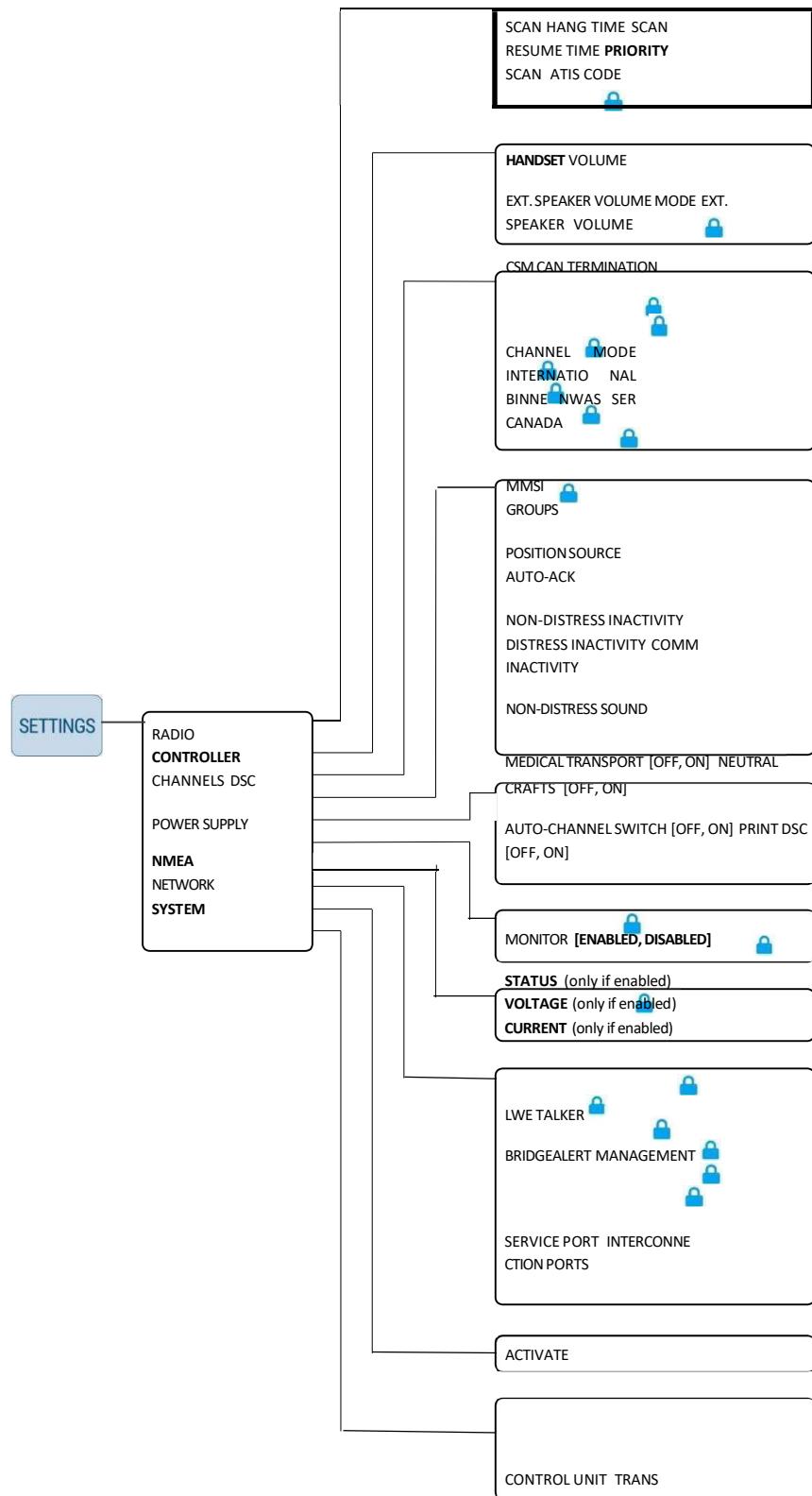
**Note**

Settings requiring a password are marked with a lock icon 

You can see these settings without a password, but you cannot edit them. For more detailed information on these settings, see the *SAILOR 7222 'VHF DSC, Installation manual*.

3. Tap  to go one step back, or  to return to normal radio operation.

## SETTINGS menu overview



## RADIO

Parameter	Description
SCAN HANG TIME	Scan hang time, in seconds on an active receiving working channel. The time is measured from the signal is detected. The radio remains on the channel for the set time interval, if a signal was detected.  OFF: Resumes scanning when signal disappears (default) 4, 6, 8, 10: Hang time in seconds.
SCAN RESUME TIME	Scan resume time, in seconds. When the programmed time of inactivity has elapsed, and when watch/scan has been aborted using a push on PTT, or after power-up, scan or watch is resumed.  OFF: Automatic resume is deactivated (default) 3, 6, 10, 15, 20, 25, 30: Resume time in seconds.
PRIORITY SCAN	ON: All channels tagged for scanning are scanned while monitoring channel 16. (default).  OFF: Only the channels tagged for scanning are scanned in sequence, not channel 16, unless it is tagged for scanning.
ATIS CODE	10 digit numerical (Default: not set, password protected if set)   The ATIS code is used for identification to marine coast and inland stations and its use is mandatory in a number of European inland waterways. The ATIS number is issued by the relevant authority.  For ships coming from states which are not member of the Regional Arrangement, the ATIS-Code is based on the MMSI with a 9 as the first digit. <sup>a</sup>

- a. The Committee RAINWAT in its 12. Meeting (October 2008) decided to change the building rules of the ATIS code for vessels coming from a country outside the RAINWAT arrangement.

**CONTROLLER**

Each of the controlling devices connected and powered has its own setting. The available settings may vary from controllers applied.

Parameter	Description
HANDSET VOLUME	Adjust earpiece volume for handset 1: ON, can be adjusted from OFF to 100, in steps of 5.
EXT. SPEAKER VOLUME MODE	FIXED: Fixed level is set for external speaker RELATIVE: Relative level following volume adjustment of the internal speaker
EXT. SPEAKER VOLUME	External speaker fixed volume: OFF, 5 to 100 in steps of 5
CSM CAN TERMINATION	Termination of the CAN interface in the VHF radio: ON or OFF
	

## CHANNELS

Parameter	Description								
<b>CHANNEL MODE</b>	Select CHANNEL MODE to select the channel table for the primary channel. Channel tables available: INT, BI, US, CA, ALT. See also <i>VHF channel table</i> on page 19.  Below CHANNEL MODE all the channel tables are listed								
<b>CALL CHANNEL</b>	The call channel for the selected channel table is displayed and can be changed at the top of each channel table.  Select the channel you want to use as a programmed call channel. This channel is used as one channel in triple watch and when you tap and hold the 16/C button.								
<b>INT. CHANNELS</b>	You can view and change the settings for each channel (change is password protected). Tap a channel to access the properties for the channel.								
<b>BI. CHANNELS</b>									
<b>US. CHANNELS</b>									
<b>CA CHANNELS</b>									
	 <table border="1"> <thead> <tr> <th>CALL CHANNEL</th> <th>16</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>TX: 156050 KHZ / RX: 160650 KHZ PORT-PUBLIC</td> </tr> <tr> <td>2</td> <td>TX: 156100 KHZ / RX: 160700 KHZ PORT-PUBLIC</td> </tr> <tr> <td>3</td> <td>TX: 156150 KHZ / RX: 160750 KHZ PORT-PUBLIC</td> </tr> </tbody> </table> <p>See the table on the next page for accessible properties for each channel table.</p> <p>Tap &lt; to return to CHANNELS.</p>	CALL CHANNEL	16	1	TX: 156050 KHZ / RX: 160650 KHZ PORT-PUBLIC	2	TX: 156100 KHZ / RX: 160700 KHZ PORT-PUBLIC	3	TX: 156150 KHZ / RX: 160750 KHZ PORT-PUBLIC
CALL CHANNEL	16								
1	TX: 156050 KHZ / RX: 160650 KHZ PORT-PUBLIC								
2	TX: 156100 KHZ / RX: 160700 KHZ PORT-PUBLIC								
3	TX: 156150 KHZ / RX: 160750 KHZ PORT-PUBLIC								
<b>ALT. CHANNELS</b>	As described above, plus add or delete channels.								
<b>PRIVATE CHANNELS</b>	As described above, plus add or delete channels.								
<b>AUX OUTPUT</b>	Configuration of the AUX port: MODE: OFF (default), Squelch Open, On Channel CHANNEL: Shows selected channel for AUX								

Editable properties for the channels in each channel table:

Property	INT	BI	CA	US	ALT	Private
DESIGNATOR					X	X
NAME	X	X	X	X	X	X
25 W ALLOWED	X		X	X	X	X
TX BLOCK	X	X	X	X	X	X
ATIS	X	X	X	X	X	X
AUX	X	X	X	X	X	X
PROPOSE FOR DSC	X	X	X	X	X	X
<b>RX</b> FREQUENCY					X	X
<b>TX</b> FREQUENCY					X	X
AVAILABILITY						X
Add or delete channel					X	X

## DSC

Parameter	Description
MMSI 	The MMSI of the radio. 9 digit numerical (Default: Not set, password protected if set). See the installation manual for a step- by-step description.
GROUPS	Shows DSC groups. You can add, edit and delete groups here. Each entry in a group consists of MMSI, name and enabled/disabled.
POSITION	<ul style="list-style-type: none"> <li>• SOURCE: GNSS (default) or MANUAL</li> <li>• GNSS INPUT PORT: <ul style="list-style-type: none"> <li>• AUTOMATIC: Automatically select position source with the best quality. In Automatic mode the position device transmitting sentences with the best quality indicator will be used as position source.</li> <li>• NMEA: NMEA 1 position input</li> <li>• NMEA HS: NMEA 2position input</li> <li>• LWE1: Specific LWE position input (see LWE Talkers below)</li> <li>• LWE2: Specific LWE position input (see LWE Talkers below)</li> <li>• LWE3: Specific LWE position input (see LWE Talkers below)</li> <li>• INM-C: SAILOR Inmarsat C position input <ul style="list-style-type: none"> <li>• CURRENT AUTOMATIC GNSS INPUT (if GNSS INPUT PORT is AUTOMATIC): NMEA, NMEA HS, LWE1, LWE2, LWE3 or INM-C (read only)</li> </ul> </li> <li>• CURRENT POSITION (editable if source is MANUAL): <ul style="list-style-type: none"> <li>• LATITUDE</li> <li>• LONGITUDE</li> <li>• UTC TIME</li> </ul> </li> <li>• LWE1: AUTO or specific Talker ID</li> <li>• LWE2: AUTO or specific Talker ID</li> <li>• LWE3: AUTO or specific Talker ID</li> </ul> </li> </ul>

Parameter	Description
AUTO-ACK	<p>Auto-acknowledgment:</p> <ul style="list-style-type: none"> <li>• Test: Auto-acknowledgment of test DSC messages. Disabled or Enabled (default)</li> <li>• Poll: Auto-acknowledgment of polling DSC messages. Disabled or Enabled (default)</li> <li>• Position: Auto-acknowledgment of position DSC messages. <b>Disabled</b> (default) or Enabled</li> <li>• Individual: Auto acknowledgment of individually addressed, non distress DSC messages with channel unavailable for communication. Disabled or Enabled (default)</li> </ul>
NON-DISTRESS <b>INACTIVITY</b>	<p>Inactivity time-out to exit non-distress functions (e.g. in setup) without automatic time-out: Range: OFF, 1 to 30 minutes, in 1 min. steps Default: 15min.</p>
DISTRESS <b>INACTIVITY</b>	<p>Inactivity time-out for received distress DSC automated procedures without automatic time-out: Range: OFF, 1 to 30 minutes, in 1 min. steps Default: OFF</p>
COMM <b>INACTIVITY</b>	<p>Inactivity time-out of non DSC communication (VHF). Range: 10 to 600 seconds, in 10 second steps Default: 30sec</p>
NON- <b>DISTRESS</b> SOUND	<p>Sound at non-distress DSC alarms:</p> <ul style="list-style-type: none"> <li>• OFF: Sound disabled</li> <li>• Single ring: Sound only once (default)</li> <li>• Repeated ring: Repeat sound cyclic</li> </ul>
MEDICAL <b>TRANSPORT</b>	<ul style="list-style-type: none"> <li>• ON: This option is available in DSC calls of the type Urgency.</li> <li>• OFF (default)</li> </ul>

Parameter	Description
<b>NEUTRAL CRAFTS</b>	<ul style="list-style-type: none"> <li>ON: This option is available in DSC calls of the type Urgency.</li> <li>OFF (default)</li> </ul>
<b>AUTO CHANNEL SWITCH</b>	<ul style="list-style-type: none"> <li>OFF: Automatic channel switching is disabled, icon LCK will be visible in stand-by mode.</li> <li>ON: Automatic channel switching is enabled (default)</li> </ul>
<b>PRINT DSC</b>	<p>For printing of DSC messages on a printer connected to the system.</p> <ul style="list-style-type: none"> <li>ON or</li> <li>OFF (default)</li> </ul>

## POWER SUPPLY

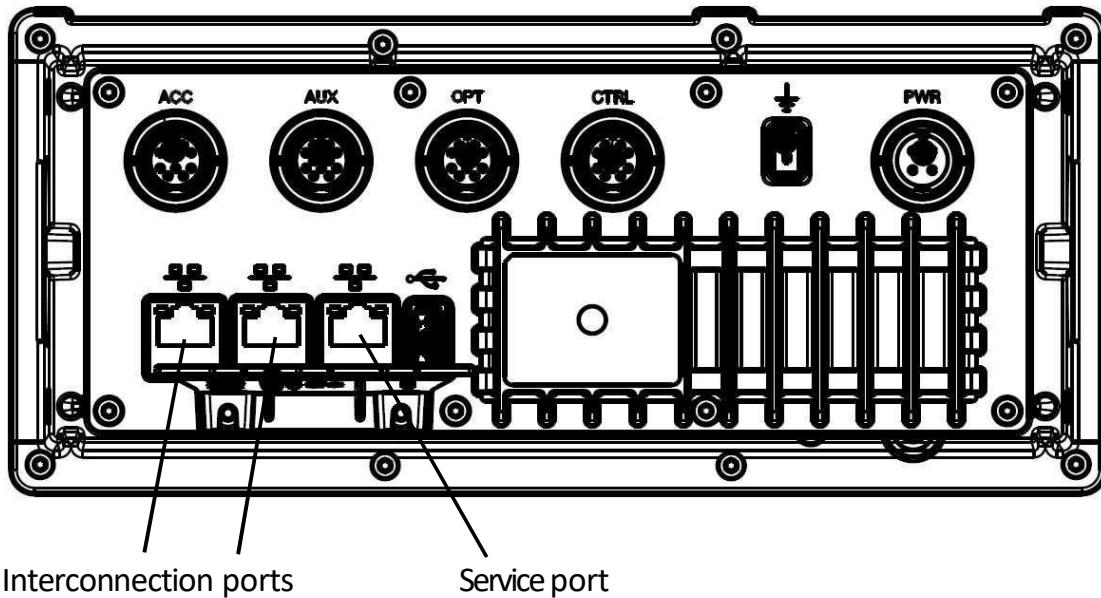
Parameter	Description
<b>MONITOR</b>	<p>Set this to <b>ENABLED</b> if the radio is connected to a TT-6081A Power Supply and Charger.</p> <p>Set this to <b>DISABLED</b> (default) for any other power supply.</p>
<b>STATUS</b>	If MONITOR enabled: Current status of the connected power supply.
<b>VOLTAGE</b>	If MONITOR enabled: Current voltage.
<b>CURRENT</b>	If MONITOR enabled: Current current.

**NMEA**

Parameter	Description
LWE TALKER	CVnnnn, default: Random generated ID  Use the on-screen keypad to type in the correct ID (typically done during installation)
BRIDGE ALERT	<ul style="list-style-type: none"><li>• LWE:</li></ul>
MANAGEMENT (BAM)	<ul style="list-style-type: none"><li>ON (default) or OFF</li><li>• Multicast group (if LWE=ON): BAM1 (default), BAM2, RCOM or USR1-8</li><li>• Cluster: NAV or COM (default)</li><li>• OPT: ON or OFF (default)</li></ul>

## NETWORK

There are 3 LAN connectors on the Control Unit. The LAN connector closest to the USB connector is the Service port, e.g. used for accessing the settings of the Control Unit and for connection to an external network, the two leftmost LAN connectors are for connecting other units in a local network.



Parameter	Description
<b>SERVICE PORT</b> 	Configuration of the Service port (LAN connector) <ul style="list-style-type: none"> <li>IP Mode: <b>DHCP Client</b> (default) or Static</li> <li>IP address (only editable if Static is selected)</li> <li>Netmask (only editable if Static is selected)</li> <li>Gateway (only editable if Static is selected)</li> </ul>
<b>INTER- CONNECTION</b>	<ul style="list-style-type: none"> <li>IP address (Read only)</li> <li><b>Netmask (Read only)</b> PORTS <ul style="list-style-type: none"> <li>Gateway (Read only)</li> </ul> </li> </ul> <p>If a DHCP server is not available, the interconnection ports automatically use zeroconf to obtain an IP address.</p>

## SYSTEM

Parameter	Description
<b>SOFTWARE UPDATE</b> 	<ul style="list-style-type: none"> <li>USB Mass Storage: Select a tiif file from a connected USB device.</li> <li>Upload: Select a tiif file from a connected PC.</li> </ul>
<b>PAIRING</b> 	<p>If not paired:</p> <ul style="list-style-type: none"> <li>Serial number</li> <li>pairingstatus (paired to another control unit (CU) or not)</li> <li>SW version</li> <li>Pairing button for pairing the CU to the TU If paired:</li> </ul> <p>Shows information on the TU that the CU is paired to:</p> <ul style="list-style-type: none"> <li>Serial number</li> <li>SW version and SW version compatibility</li> <li>Unpair button for unpairing the TU from the CU</li> </ul>
<b>FACTORY RESET</b> 	Resets the radio to factory defaults. Tap OK to confirm.
<b>SAVE CONFIGURATION</b> 	<ul style="list-style-type: none"> <li>USB Mass Storage: Save the configuration to a connected USB device.</li> <li>Download: Save the configuration to a connected PC.</li> </ul>
<b>LOAD CONFIGURATION</b> 	<ul style="list-style-type: none"> <li>USB Mass Storage: Select a configuration file from a connected USB device.</li> <li>Upload: Select a configuration file from a connected PC.</li> </ul>
<b>CHANGE PASSWORD</b> 	Change the password for accessing password-protected parts of the user interface.

Parameter	Description
PRINTER	Select a printer (if one or several printers are part of the system). Note whether there is immediate print upon DSC activity, You must set Print DSC to ON see <i>DSC</i> on page 44. Recommended commercially available printer-servers: SAILOR 6004 Control Panel
INACTIVITY TIMEOUT	Inactivity time-out to exit functions (e.g. in Settings) and return to the application. Range: 1 to 30 minutes, in 1 minute steps Default: 10 min.
THEME	Changes the display color: <ul style="list-style-type: none"> <li>• Light (default)</li> <li>• Dark</li> <li>• Cobham</li> <li>• Night</li> </ul>
REBOOT	Reboots the VHF radio

**REMOTE CONTROL**

When you activate Remote control, you can access the graphical user interface from any unit with a browser installed.

**Note**

If you access any of the controls on the physical Control Unit while remote control is used, the remote control is deactivated and you have to activate it again to be able to use it.

Parameter	Description
<b>ACTIVATE</b>	Opens the API and GUI for access through external LAN ports. A popup shows connection status and a button for deactivating.

To connect to the Control Unit after activating, do as follows:

1. Connect your device to one of the LAN connectors on the SAILOR 7224 Control Unit
2. Open your browser and type `http://<CU IP>`, where <CU IP> is the IP address of the Control Unit.

The web interface now opens and lets you control the system from your connected device instead of on the Control Unit display.

**ABOUT**

Parameter	Description (read only)
<b>CONTROL UNIT</b>	<ul style="list-style-type: none"> <li>• Serial number</li> <li>• Hardware Tracking Number</li> <li>• Software version</li> </ul>
<b>TRANSCEIVER UNIT</b>	<ul style="list-style-type: none"> <li>• Serial number</li> <li>• Hardware Tracking Number</li> <li>• Software version</li> </ul>
<b>APPROVALS</b>	List of approvals, e.g. FCC
<b>LICENSES</b>	List of licenses, e.g. GPL



## **Disposal**

Old electrical and electronic equipment marked with this symbol can contain substances hazardous to human beings and the environment. Never dispose these items together with unsorted municipal waste (household waste). In order to protect the environment and ensure the correct recycling of old equipment as well as the re-utilization of individual components, use either public



collection or private collection by the local distributor of old electrical and electronic equipment marked with this symbol.

Contact the local distributor for information about what type of return system to us

**Statussignaling**

**Information of alerts**

Errors and warning messages are shown in the display and are read-only.

**List of alert icons**

- ! Warning: Active acknowledged alert Caution: Alert
- Warning: Active transferred alert
- Warning: Active unacknowledged alert, silent Warning: Active unacknowledged alert Status OK, no active alerts
- Warning: Inactive unacknowledged alert, rectified

## List of alerts

The table below shows the alerts you may see in the Bridge Alert Management (BAM) system.

ID	Instance	Priority Category	Title	Description
3023	1	C	B	PS COMM Lost Power supply communication lost
3023	2	C	B	BATT VOLT Low Battery and charger. Voltage below limit
3023	3	C	B	BATT VOLT High Battery and charger. Voltage above limit
3078	1	W	B	Printer Status No connection to printer
3016	1	c	B	SAR-POSITION LOST No position available
3016	2	C	B	SAR-POSITION LOST No position available for 10 minutes
3013	1	C	B	POSN 4hrs Old Position more than 4 hrs old
3013	2	C	B	POSN 23,5hrs Old Position more than 23,5 hrs old
3122	Dynamic <sup>a</sup>	W	B	DISTRESS: RX Incoming distress
3122	Dynamic <sup>a</sup>	W	B	DISTRESS: RELAY Incoming distress relay
3122	Dynamic <sup>a</sup>	W	B	URGENCY: RX Incoming urgency call
3123	Dynamic <sup>a</sup>	C	B	SAFETY: COM Incoming safety call
3123	Dynamic <sup>a</sup>	C	B	SAFETY: POS Incoming safety pos. call
3123	Dynamic <sup>a</sup>	C	B	SAFETY: TEST Incoming safety test call
3123	Dynamic <sup>a</sup>	C	B	ROUTINE: COM Incoming routine call
3123	Dynamic <sup>a</sup>	C	B	ROUTINE: POLL Incoming routine poll
3123	Dynamic <sup>a</sup>	c	B	GROUP: RX Incoming group call
3008	1	w	B	TX POWER:INHIBIT Transmission inhibited
	1	w	B	TU Conn Lost TU connection lost. Verify connection

Table 4: List of alerts

- a. Alert instance is assigned according to IEC61162-1:2016, 8.3.13, 9).

All warnings are repeated as warnings for each 4 minutes, i.e. silent period will maximum be 4 minutes. Responsibility transfer can only occur for warning alert in BAM Category "B" and only via incoming NMEA command from e.g. a CAM.

## Replacing the fuse in the Transceiver Unit

One fuse is installed in the Transceiver Unit. If the fuse is blown, do as follows:

1. Track down why the fuse was blown and solve the problem.
2. Take out the old fuse.
3. Insert the new fuse. The fuse rating is 10 AT.



Figure 3: Replacing the fuse in the SAILOR 7226 VHF Transceiver Unit

Warranty and returning units for repair

Should your Cobham SATCOM product fail, contact your dealer or installer, or the nearest Cobham SATCOM partner. You will find the partner details on [www.cobhamsatcom.com/where-to-buy](http://www.cobhamsatcom.com/where-to-buy). You can also access [www.cobhamsatcom.com](http://www.cobhamsatcom.com) and select **COBHAM SYNC PARTNER PORTAL**, which may help you solve the problem. Your dealer, installer or Cobham SATCOM partner will assist you whether the need is user training, technical support, arranging on-site repair or sending the product for repair. Your dealer, installer or Cobham SATCOM partner will also take care of any warranty issue.

## **Rewraping for shipment**

Should you need to send the product for repair, please read the below information before packing the product.

The shipping carton has been carefully designed to protect the SAILOR 7222 VHF DSC and its accessories during shipment. This carton and its associated packing material should be used when repacking for shipment. Attach a tag indicating the type of service required, return address, part number and full serial number. Mark the carton FRAGILE to ensure careful handling.



Correct shipment is the customer's own responsibility.

If the original shipping carton is not available, the following general instructions should be used for repacking with commercially available material.

1. Wrap the defective unit in heavy paper or plastic. Attach a tag indicating the type of service required, return address, part number and full serial number.
2. Use a strong shipping container, e.g. a double walled carton.
3. Protect the front- and rear panel with cardboard and insert a layer of shock-absorbing material between all surfaces of the equipment and the sides of the container.
4. Seal the shipping container securely.
5. Mark the shipping container FRAGILE to ensure careful handling.

Failure to do so may invalidate the warranty.

**CDBUR**

# SAILOR 6110 mini-C GMDSS

Installation manual



# Service and maintenance

This chapter describes how to maintain and handle the units in the system and how to update software. This chapter has the following sections:

- *Update the software*
- *Generate a diagnostic report*
- *Maintenance guidelines*
- *Service and repair*
- *Available parts*

## 6.1 Update the software

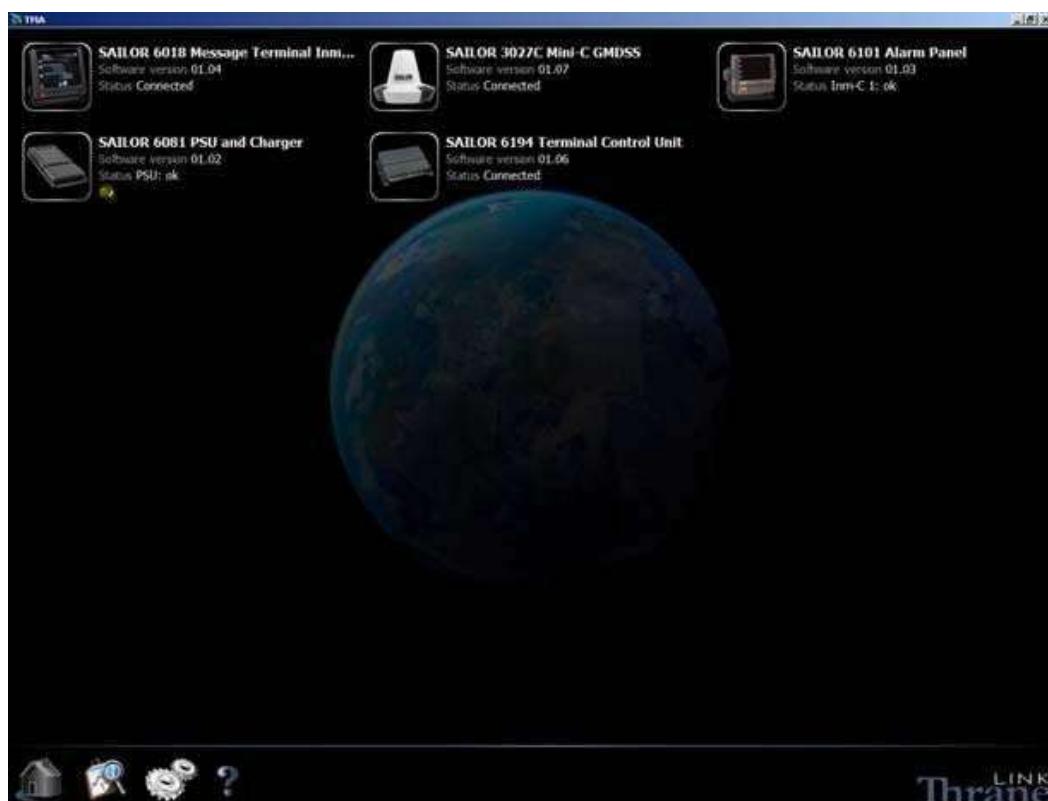
### 6.1.1 Before you update the software

#### 6.1.1.1 *Tool for software update*

To update software in the SAILOR 6110 system units (e.g. the SAILOR 3027, SAILOR 6101/03 and SAILOR 6194), use the TMA (Thrane LINK Management Application). For information on how to install the TMA, see the next sections.

#### 6.1.1.2 *The Thrane LINK Management Application*

The Thrane LINK Management Application (TMA) is a Windows program that provides monitoring and software update of connected Cobham SATCOM devices with Thrane LINK support. The devices must be on the same LAN.



### 6.1.1.3 Install the TMA

#### PC requirements

- Standard PC with Windows 7, 8, 10, Vista or XP, and Ethernet connection.
- Make sure that you have administrator rights for the PC.

#### Installation

To install the TMA, do as follows:

1. Go to [www.cobham.com/satcom](http://www.cobham.com/satcom).
2. Select **Cobham SYNC Partner Portal**.
3. Select **Downloads> Product software> Maritime**.
4. Locate the **Thrane LINK Management Application** software package and download it to your PC.
5. Extract the files from the zip file.
6. Click **setup.exe** to start the installation wizard.

On Windows Vista/7/8/ 10, when prompted, select **Yes** to allow the installation to make changes to the computer.

7. Follow the instructions in the wizard.

When the wizard is complete an icon appears on your PC desktop. You can also find the TMA under Programs> Thrane > TMA.



If you have problems with your Firewall settings, please refer to the TMA quick guide, available on the Self Service Center under **Downloads > Manuals > Maritime**.

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### 6.1.2 Update software with the TMA

To update software in a Thrane LINK product, do as follows:

1. Connect the PC to the LAN with the Thrane LINK products for which you want to update software.
2. Click the TMA icon on the PC's desktop. The program starts and displays the Thrane LINK products found on the network.

If a Windows Security Alert pops up click **Allow access** (Windows 7) or **Unblock** (Windows XP).

3. Insert a USB memory stick with the new software version (placed in the root) into a USB connector in the PC.<sup>1</sup>

The TMA automatically discovers the new software version(s) and a software update icon flashes next to the unit(s) for which the software can be installed.

4. From the main page of the TMA, select the product you want to update.
5. Select **Software update** at the bottom of the product page. Check that the new software version is correct.



1. If the new software is not automatically found, you can point to the location of the software. Select the tool icon in the **Software update** page, select **Search for software** and enter the location of the software.



6. Select **Update**.

The progress of the software update is shown in percent under the product icon. When installation is completed, a check mark appears instead.

**Note**

The installation is not complete until the SAILOR 3027 has rebooted. Check the new software version after reboot to verify that the installation is successfully completed.

## 6.2 Generate a diagnostic report

If the system is not working properly, the diagnostic report may help service personnel trouble shooting the system.

To generate a diagnostic report, do as follows:

1. Select **System** from the main menu of the Message Terminal.
2. Select **Advanced** at the bottom of the page.



3. Connect a USB memory stick to your SAILOR 6018.

**Note**

Do not save the file on the SAILOR 6018 itself; the file format is not supported. Use a USB memory stick instead.

4. Select **Generate diagnostic report**.
5. Choose the location on the USB memory stick where you want to save the file.

## 6.3 Maintenance guidelines

When properly installed the system needs no maintenance.

The life time of the clock battery in the SAILOR 6018 Message Terminal is 10 years. If the battery is no longer functional, the SAILOR 6018 is not able to keep the correct time when power is disconnected.

The clock battery in the SAILOR 6018 Message Terminal must be replaced by qualified personnel.

### 6.3.1 Precautions for handling the SAILOR 3027

- Do not expose the joints of the SAILOR 3027 GMDSS Terminal or the connector to high-pressure water jets.
- Do not expose the connector on the terminal to mechanical stress. Secure the cable with cable relief.
- Do not expose the terminal to chemicals containing alkalis. It may result in physical degradation of the terminal.
- Do not expose the terminal to acid curing silicone.
- Avoid contact with solvents.
- Painting the radome may result in degradation of the terminal. See *Painting the radome* on page 11.

## 6.4 Service and repair

Should your Cobham SATCOM product fail, please contact your dealer or installer, or the nearest Cobham SATCOM partner. You will find the Technical Service Partner list on [www.cobham.com/satcom](http://www.cobham.com/satcom) where you also find the Cobham SYNC Partner Portal, which may help you solve the problem. Your dealer, installer or Cobham SATCOM partner will assist you whether the need is user training, technical support, arranging on-site repair or sending the product for repair. Your dealer, installer or Cobham SATCOM partner will also take care of any warranty issue.

### 6.4.1 Repack for shipment

Should you need to send the product for repair, please read the below information before packing the product.

The shipping cartons for the SAILOR 6110 system units have been carefully designed to protect the equipment during shipment. The cartons and their associated packing material should be used when repacking for shipment. Attach a tag indicating the type of service required, return address, model number and full serial number. Mark the carton "FRAGILE" to ensure careful handling.

**Note**

Correct shipment is the customer's own responsibility.

## 6.5 Available parts

### 6.5.1 Cables and connectors

<b>Part number</b>	<b>Item</b>
406100-930	Mini/Micro NMEA 2000 T-Connector
406100-931	Micro NMEA 2000 T-Connector
406100-932	Inline Micro termination Connector
406100-933	Male Mini NMEA 2000 Field Connector
406100-934	Male Micro NMEA 2000 Field Connector
406100-940	6 m NMEA 2000 Micro Device Cable
406100-941	20 m NMEA 2000 Micro Device Cable
406100-943	6 m NMEA 2000 Power Cable
406100-944	30 m NMEA 2000 Mini Device Cable
406100-945	50 m NMEA 2000 Mini Device Cable
406208A	SAILOR 6208 Control Unit Connection Box

Table 17: Cables and connectors, part numbers

6.5.2 Adjustable pole/railing mount kit

<b>Part number</b>	<b>Item</b>
403027-103	Adjustable pole/railing mount kit for SAILOR 3027

Table 18: Adjustable pole/railing mount kit, part number

6.5.3 Plate washer for SAILOR 3027

<b>Part number</b>	<b>Item</b>
403027-921	Plate washer for SAILOR 3027

Table 19: Plate washer for SAILOR 3027, part number

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**COBHAM**

# SAILOR 6300 MF/HF DSC 150W/150W FCC/250W/500W

User manual



# Service and maintenance

This chapter describes how to maintain and handle the units in the system and how to update software. This chapter has the following sections:

- *Update the software*
- *Generate a diagnostic report*
- *Maintenance guidelines*
- *Service and repair*
- *Available parts*

## 6.6 Update the software

### 6.6.1 Before you update the software

#### 6.6.1.1 *Tool for software update*

To update software in the SAILOR 6110 system units (e.g. the SAILOR 3027, SAILOR 6101/03 and SAILOR 6194), use the TMA (Thrane LINK Management Application). For information on how to install the TMA, see the next sections.

#### 6.6.1.2 *The Thrane LINK Management Application*

The Thrane LINK Management Application (TMA) is a Windows program that provides monitoring and software update of connected Cobham SATCOM devices with Thrane LINK support. The devices must be on the same LAN.



### 6.6.1.3 Install the TMA

#### PC requirements

- Standard PC with Windows 7, 8, 10, Vista or XP, and Ethernet connection.
- Make sure that you have administrator rights for the PC.

#### Installation

To install the TMA, do as follows:

8. Go to [www.cobham.com/satcom](http://www.cobham.com/satcom).
9. Select **Cobham SYNC Partner Portal**.
10. Select **Downloads> Product software> Maritime**.
11. Locate the **Thrane LINK Management Application** software package and download it to your PC.
12. Extract the files from the zip file.
13. Click **setup.exe** to start the installation wizard.  
On Windows Vista/7/8/ 10, when prompted, select **Yes** to allow the installation to make changes to the computer.
14. Follow the instructions in the wizard.

When the wizard is complete an icon appears on your PC desktop. You can also find the TMA under Programs> Thrane > TMA.



If you have problems with your Firewall settings, please refer to the TMA quick guide, available on the Self Service Center under **Downloads > Manuals > Maritime**.

### 6.6.2 Update software with the TMA

To update software in a Thrane LINK product, do as follows:

7. Connect the PC to the LAN with the Thrane LINK products for which you want to update software.
8. Click the TMA icon on the PC's desktop. The program starts and displays the Thrane LINK products found on the network.

If a Windows Security Alert pops up click **Allow access** (Windows 7) or **Unblock** (Windows XP).

9. Insert a USB memory stick with the new software version (placed in the root) into a USB connector in the PC.<sup>1</sup>

The TMA automatically discovers the new software version(s) and a software update icon flashes next to the unit(s) for which the software can be installed.

10. From the main page of the TMA, select the product you want to update.
11. Select **Software update** at the bottom of the product page. Check that the new software version is correct.



1. If the new software is not automatically found, you can point to the location of the software. Select the tool icon in the **Software update** page, select **Search for software** and enter the location of the software.



12. Select **Update**.

The progress of the software update is shown in percent under the product icon. When installation is completed, a check mark appears instead.

**Note**

The installation is not complete until the SAILOR 3027 has rebooted. Check the new software version after reboot to verify that the installation is successfully completed.

## 6.7 Generate a diagnostic report

If the system is not working properly, the diagnostic report may help service personnel troubleshooting the system.

To generate a diagnostic report, do as follows:

6. Select **System** from the main menu of the Message Terminal.
7. Select **Advanced** at the bottom of the page.



8. Connect a USB memory stick to your SAILOR 6018.

**Note**

Do not save the file on the SAILOR 6018 itself; the file format is not supported. Use a USB memory stick instead.

9. Select **Generate diagnostic report**.

10. Choose the location on the USB memory stick where you want to save the file.

## 6.8 Maintenance guidelines

When properly installed the system needs no maintenance.

The life time of the clock battery in the SAILOR 6018 Message Terminal is 10 years. If the battery is no longer functional, the SAILOR 6018 is not able to keep the correct time when power is disconnected.

The clock battery in the SAILOR 6018 Message Terminal must be replaced by qualified personnel.

### 6.8.1 Precautions for handling the SAILOR 3027

- Do not expose the joints of the SAILOR 3027 GMDSS Terminal or the connector to high-pressure water jets.
- Do not expose the connector on the terminal to mechanical stress. Secure the cable with cable relief.
- Do not expose the terminal to chemicals containing alkalis. It may result in physical degradation of the terminal.
- Do not expose the terminal to acid curing silicone.
- Avoid contact with solvents.
- Painting the radome may result in degradation of the terminal. See *Painting the radome* on page 11.

## 6.9 Service and repair

Should your Cobham SATCOM product fail, please contact your dealer or installer, or the nearest Cobham SATCOM partner. You will find the Technical Service Partner list on [www.cobham.com/satcom](http://www.cobham.com/satcom) where you also find the Cobham SYNC Partner Portal, which may help you solve the problem. Your dealer, installer or Cobham SATCOM partner will assist you whether the need is user training, technical support, arranging on-site repair or sending the product for repair. Your dealer, installer or Cobham SATCOM partner will also take care of any warranty issue.

### 6.9.1 Repack for shipment

Should you need to send the product for repair, please read the below information before packing the product.

The shipping cartons for the SAILOR 6110 system units have been carefully designed to protect the equipment during shipment. The cartons and their associated packing material should be used when repacking for shipment. Attach a tag indicating the type of service required, return address, model number and full serial number. Mark the carton "FRAGILE" to ensure careful handling.

**Note**

Correct shipment is the customer's own responsibility.

## 6.10 Available parts

### 6.11 Cables and connectors

<b>Part number</b>	<b>Item</b>
406100-930	Mini/Micro NMEA 2000 T-Connector
406100-931	Micro NMEA 2000 T-Connector
406100-932	Inline Micro termination Connector
406100-933	Male Mini NMEA 2000 Field Connector
406100-934	Male Micro NMEA 2000 Field Connector
406100-940	6 m NMEA 2000 Micro Device Cable
406100-941	20 m NMEA 2000 Micro Device Cable
406100-943	6 m NMEA 2000 Power Cable
406100-944	30 m NMEA 2000 Mini Device Cable
406100-945	50 m NMEA 2000 Mini Device Cable
406208A	SAILOR 6208 Control Unit Connection Box

Table 17: Cables and connectors, part numbers

6.11.1 Adjustable pole/railing mount kit

<b>Part number</b>	<b>Item</b>
403027-103	Adjustable pole/railing mount kit for SAILOR 3027

Table 18: Adjustable pole/railing mount kit, part number

6.11.2 Plate washer for SAILOR 3027

<b>Part number</b>	<b>Item</b>
403027-921	Plate washer for SAILOR 3027

Table 19: Plate washer for SAILOR 3027, part number

Table 19: Plate washer for SAILOR 3027, part number



# Operation

This chapter has the following sections:

- *Operation - SAILOR 6004 Control Panel*
- *Operation with INS equipment*

## Operation - SAILOR 6004 Control Panel

As soon as DC power is provided the SAILOR 6390 Navtex Receiver is on.

To switch on the SAILOR 6004 Control Panel push the power button. Operate the SAILOR 6004 Control Panel by tapping the touch screen. To switch off the SAILOR 6004 Control Panel push and hold the power button for 2 seconds and follow the instructions on the screen.



**Note**

When the remote switch in the SAILOR 6004 Control Panel is wired and it is switched on, you can only use the Power button to reboot the SAILOR 6004 Control Panel, you cannot switch it off.

Tap the **Navtex** icon.



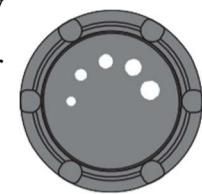
Figure 4: Navtex icon in SAILOR 6004 Control Panel

The icon **System** holds the application manager and settings for the SAILOR 6004 Control panel.

**COBHAM**

*Dim and night mode*

Turn the dim knob of the SAILOR 6004 Control Panel to increase or decrease the display brightness. The display goes into **night mode** either when turning the dim knob counterclockwise or when the internal light sensor detects the light level for changing to night mode<sup>1</sup>.



To dim to level zero push the power button once. If an alert appears while the display is in level zero, the display returns to the latest dim value and the alert is displayed.

## Navtex screen

The Navtex app has the following idle screen:



### 1. Top bar



- Current app, in this case Navtex
- Tabs for unread, tagged and all messages
- Menu icon for accessing further functions.

---

### 1. If dimming is set to AUTO.

## 2. Navtex app-specific area.

Details	Id	Type	▼Time	Freq
	JX97	Special (X)	07:24	490
	RB13	Met warning	07:24	490
	AA15	Nav warning	07:20	490
	CC49	Ice report	07:16	490
	PE98	Met forecast	07:14	490
	PK79	Other ENAS	07:13	490
	...	...	07:12	490

Each row represents a Navtex message.

- Closed envelope: The message has not been read and is newer than 24 hours.
- Open envelope: The message has been read or is older than 24 hours.
- Yellow flag: Nav or Met warning
- Red flag: SAR message

**Note**

Only messages filtered for **Display** are shown. For more details see *Filters for stations and message types* on page 11.

## 3. Bottom bar



- Icon for back function or for collapsing the on-screen keyboard.
- Icon for going to the start screen.
- Icon for the installed app<sup>1</sup>, including status information<sup>2</sup>.
- Icons for new messages (closed envelope). After 24 hours messages are automatically set to not new.
  - Yellow flag: Nav or Met warning.
  - Red flag: Unread SAR message.
- 3 indicators, from the top: 4209.5 kHz (local), 518 kHz (international, mandatory), 490 kHz (local). Green while receiving a message.
- Icon for notifications, e.g. new Navtex software available (i placed above UTC time).
- Time, e.g. UTC time received from the Navtex receiver via **GNSS** input.
- Icons for alerts (to the right)
  - For a list of alert icons, see *Icons for alerts* on page 29.

- 
1. Not visible in some cases, if configured not to be shown or if this is the third app on this SAILOR 6004 Control Panel.
  2. The letter A is shown if the filter for Display is set to Automatic Mode.

## Sorting the list of Navtex messages

To sort the list of Navtex messages tap the heading of the column. Tap it again to toggle the sorting order, ascending or descending. The default sorting is for Time, newest on top.

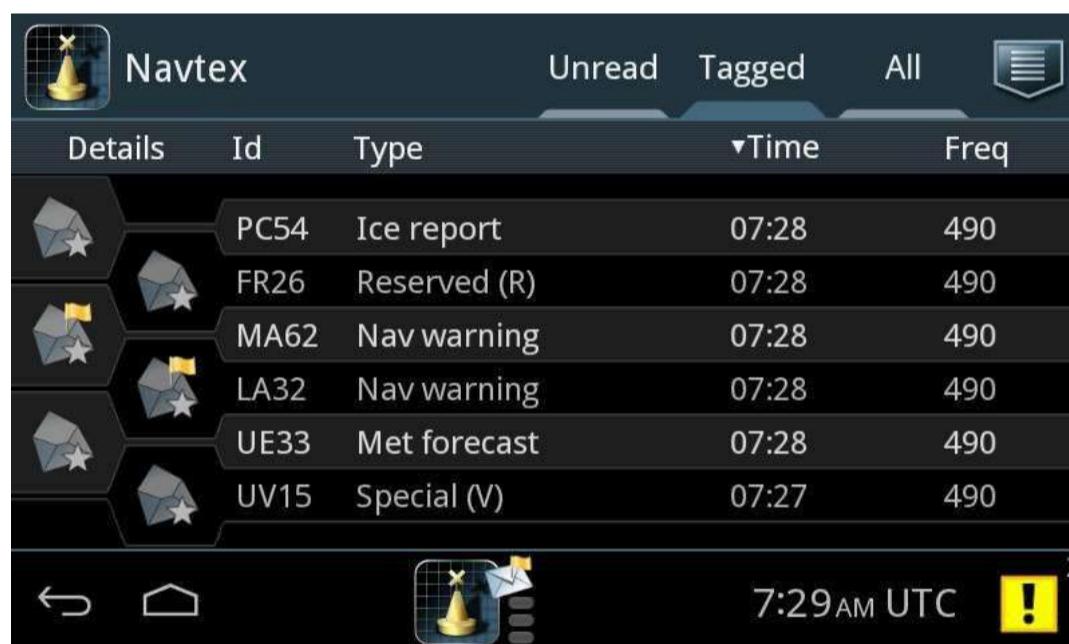


Figure 6: Sorting Navtex messages

## Tabs for Unread, Tagged and All

You can select which Navtex messages should be displayed: Unread, Tagged and All messages. To tag a message see *Navtex message in detail* on page 9.

*Tagged  
messages  
are marked  
with a star.*



*Navtex message in detail*

To view the full Navtex message, do as follows:

1. Tap the message. The first part of the message is the Navtex message, the second part of the message starting with **Station** gives some status information.



Figure 7: View Navtex message

2. To return to the list view press the arrow icon in the lower left corner.

*To tag or print a Navtex message*

You can tag or print an open Navtex message.

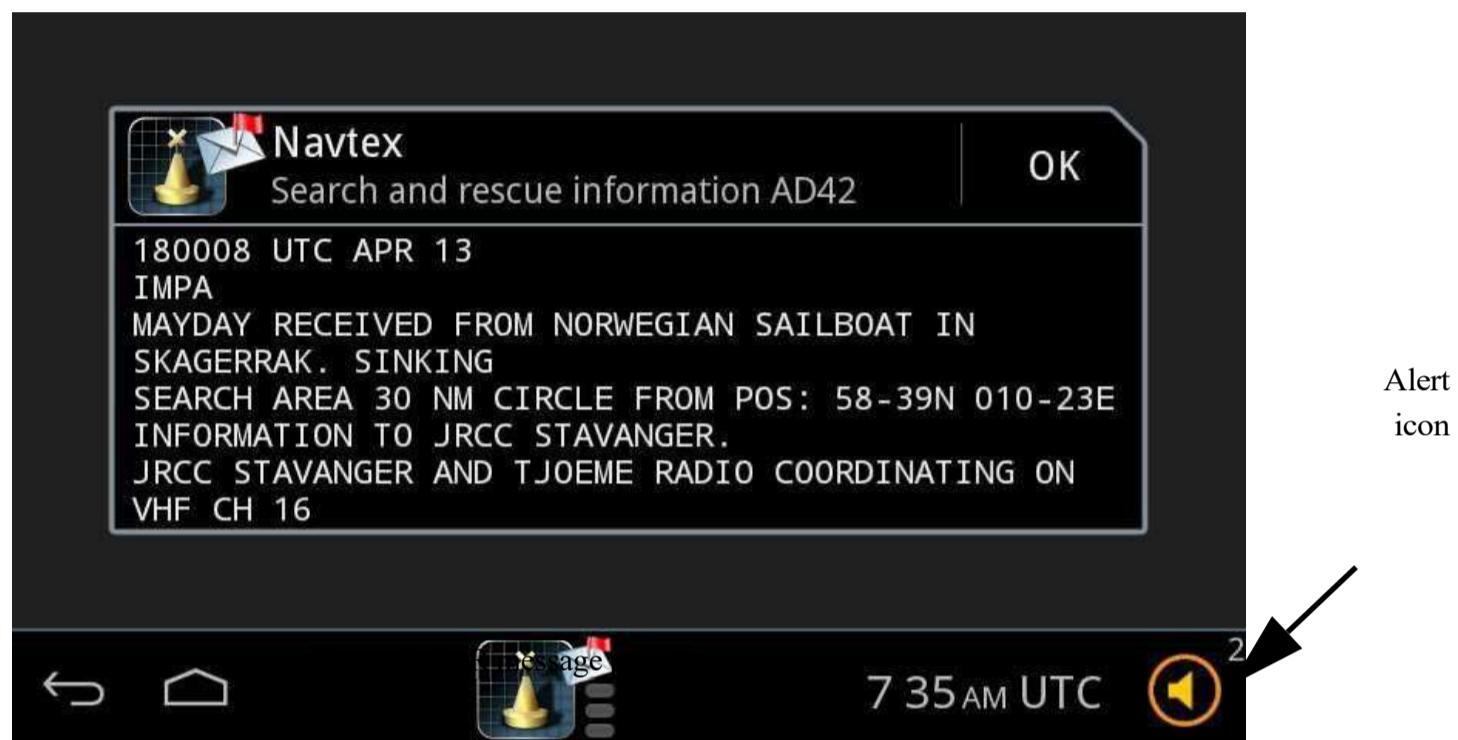
Action	How to
Tag	Tap the menu icon and <b>Tag message</b> . The envelope icon for this message is marked with a star and the message is not automatically deleted after 66 hours.
Untag	Tap the menu icon and then <b>Untag message</b> . If the message is older than 24 hours it is automatically deleted.
Print	Tap the menu icon and <b>Print</b> .

- a. Default value.

## SAR messages

When a SAR message (message type D, see page 13) is received, the SAILOR 6390 Navtex Receiver emits an audible signal and the message is displayed as a popup in the SAILOR 6004 Control Panel's display.

An unread SAR message triggers a warning alert, which is indicated in the bottom bar.



1. Tap OK.

The message is now marked as read instead of unread, and the alert icon changes state.

2. Tap the alert icon in the bottom right corner to bring up the alert list.

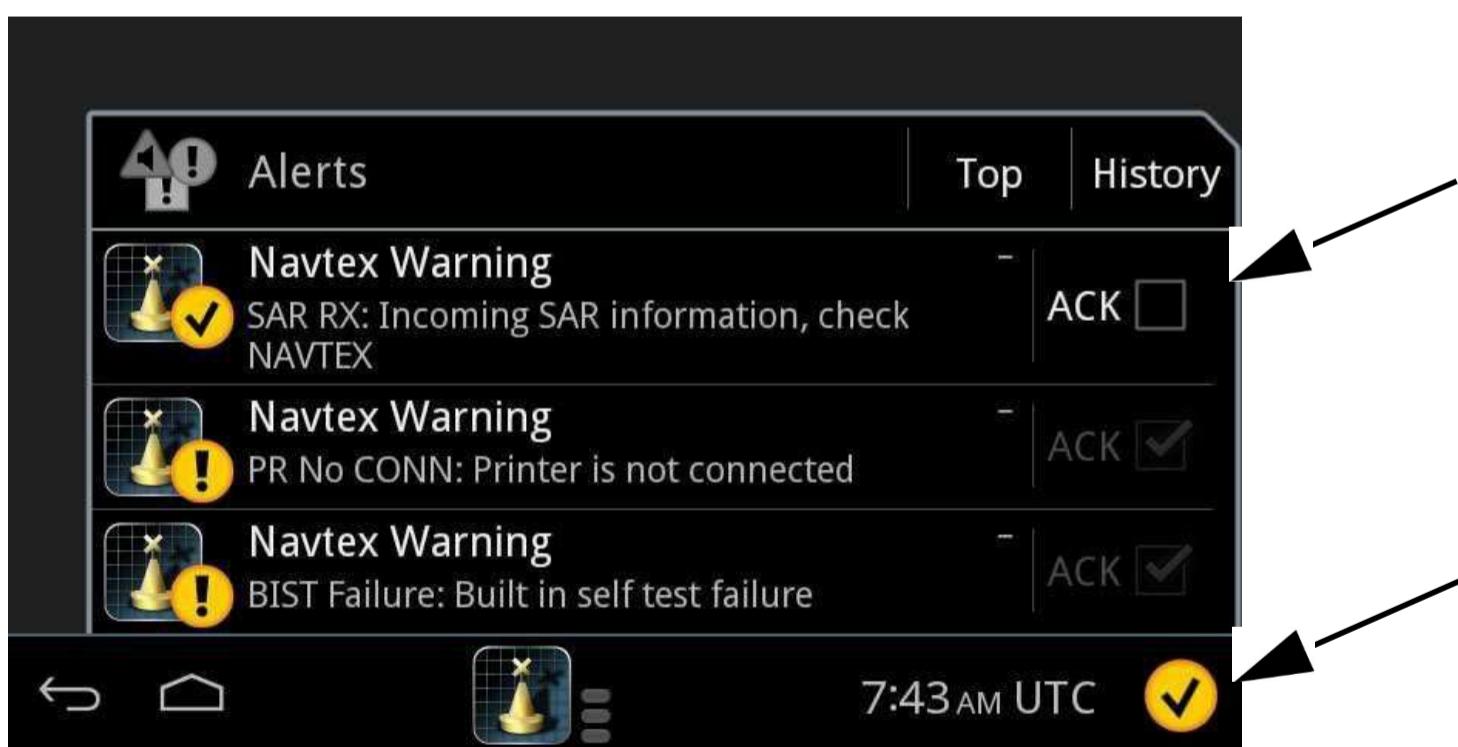


Figure 9: Alert list

3. Locate the Warning related to the SAR message in the list and tap next to ACK to acknowledge the warning.

The warning disappears from the alert list when it is rectified and acknowledged.

**Note**

The alert icon in the right side of the bottom bar always shows the alert with highest priority, so if other higher priority alerts are present you may see a different symbol in this area.

*Filters for stations and message types*

You can customize the SAILOR 6390 Navtex Receiver to receive Navtex messages of certain types and from selected coast stations. You can filter separately for printer output, SAILOR 6004 Control Panel (Display) and INS installations. You can set up a filter for each of the 3 receiver frequencies. The filters are not affected by a power cycle. Filter settings can be copied from one tab to the others, e.g. from **Display** to **Printer** or **INS**.

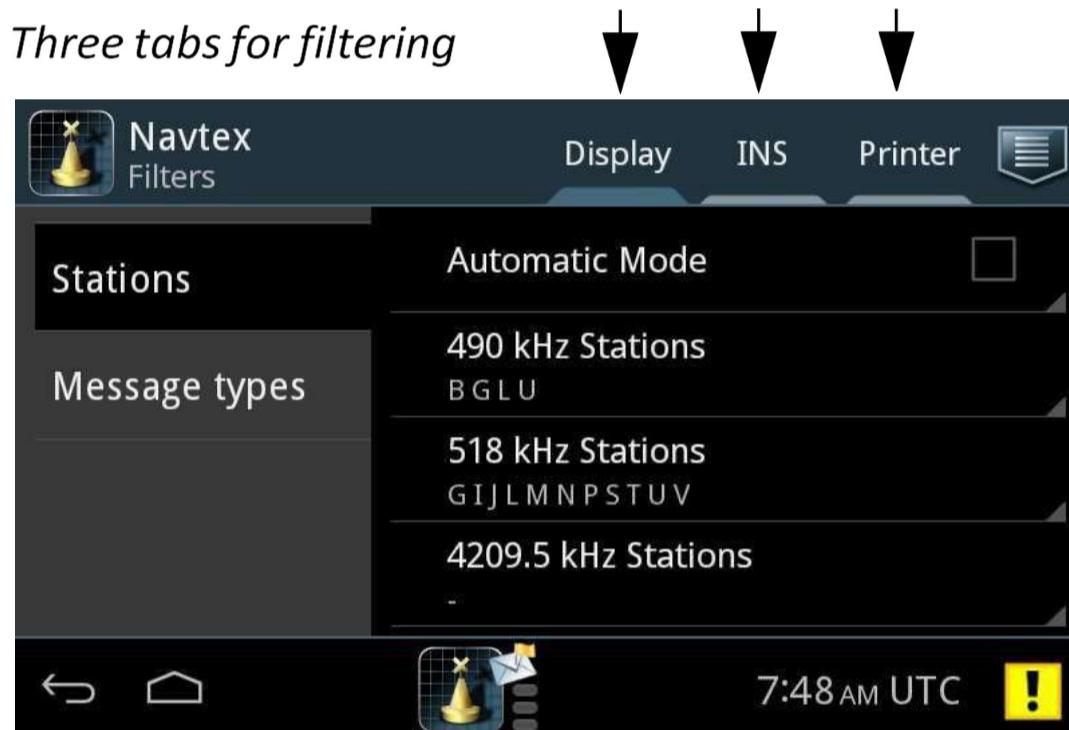


Figure 10: Filters for stations and message types

*Filters for stations*

The SAILOR 6390 Navtex Receiver can automatically filter messages from coast stations within a certain range of own position, measured in NM. It can also filter coast stations manually (default). For a list of stations see the Admiralty List of Radio Signals and ITU List of Coast stations and Special Service Stations (List IV) (<http://www.itu.int>).

To set up filters for stations do as follows:

1. From any list of messages (**Unread, Tagged or All**), tap the menu icon and then **Filters**.
2. Tap **Printer, Display** or **INS** to select the output for this filter.
3. For automatic filtering select **Automatic Mode**.

The coast stations within the currently set range are displayed.<sup>1</sup>



Figure 11: Filters for stations

4. For manual selection deselect **Automatic Mode** and tap the frequency you want to set up a filter for, e.g. **490 kHz Stations**. Swipe and select the stations you want to receive on this frequency.
5. Tap **Apply**. The selected stations are displayed directly below the frequency.

**Note**

Make sure that the stations for **Printer** are also included in the stations for **Display**. If not, SAR, Navor Met warnings sent only to the Printer cannot be displayed and read.

To change the **Range** and select Stations in **Automatic Mode**, do as follows:

1. From any list of messages (**Unread, Tagged or All**), tap the menu icon, and then **Settings**. The tab **Automatic Mode** is accessible.
2. Tap the field **Range**.
3. Swipe until the desired range (min. 50Nm) in Nautical Miles and tap **Apply**.
4. To include specific stations in Nav Areas, swipe and tap the respective Nav Area.
5. Swipe and select or deselect the stations to be included in Automatic Mode.

1. For Automatic Mode the SAILOR 6390 Navtex Receiver must have a valid GNSS input. Without a valid GNSS input it can only filter manually.

## **Filters for message types**

The SAILOR 6390 Navtex Receiver can filter selected message types. The following list shows the Navtex message types available.

**Note**

Message types A, B, D and L cannot be filtered out.

- **A - Navigational warnings**
- **B - Meteorological warnings**
- **C - Ice reports**
- **D - Search and rescue information (SAR), acts of piracy warnings, tsunamis, and other natural phenomena**
- E - Meteorological forecasts
- F - Pilot and VTS service messages
- G - AIS service messages (non-navigational aid)
- H - LORAN messages (Long Range Navigation)
- I - Reserved
- J - GNSS messages
- K - Other electronic navigational aid system messages
- **L - Other Navigational warnings**
- M, N,O,P,O,R,S,T,U - Reserved
- V, W,X,Y - Special
- Z - No Message

To filter message types do as follows:

1. From any list of messages (**Unread, Tagged or All**), tap the menu icon and then **Filters**.
2. Tap **Printer, Display**, or **INS** to select for which output you want to set up a filter.

3. Tap **Message types**.

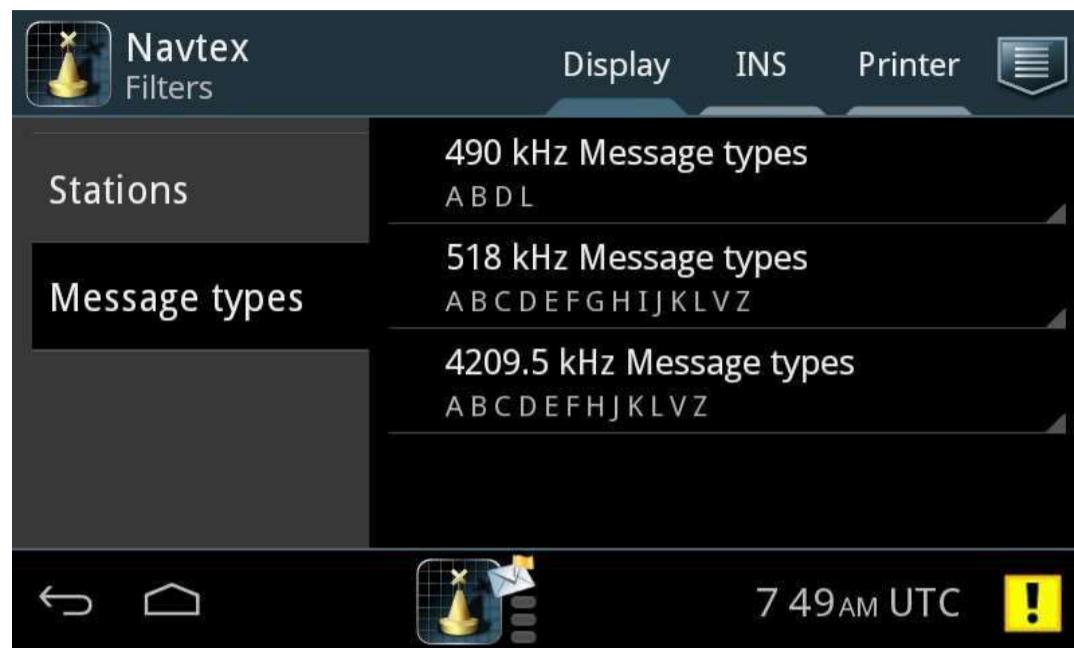


Figure 12: Filters for message types

4. Tap the frequency you want to set up a filter for, e.g. **490 kHz Message types**.
5. Swipe and select the message types you want to receive on this frequency. A, B, D and L are mandatory.
6. Tap **Apply**. The selected message types are displayed directly below the frequency.

### To copy filter settings

You can copy the filter settings from one output mode to another, e.g. from Display to INS and Printer

To copy filter settings do as follows:

1. While in the **Filter** mode tap the menu icon.
2. Tap **Copy to...**
3. Tap the filter you want to copy to, e.g. from **Printer to Display or INS**.



You cannot copy if the destination filter is set to **Automatic Mode**.

To print messages from the SAILOR 6004 Control Panel

A printer can be connected to one of the USB connectors of the SAILOR 6004 Control Panel. Every time a Navtex message is received and applies to the filtering set up for **Printer**, the message is output on the printer.

The SAILOR 6390 Navtex Receiver applies header and footer information to the printout, stating frequency, date and time of reception and serial number of the SAILOR 6390 Navtex Receiver. If the printed message line is longer than allowed on the printer, the printer inserts the sign *„* to indicate a forced line division and breaks the line.

You can also print a selected list. Do as follows:

1. From any list of messages (**Unread, Tagged or All**), tap the menu icon and **Print**.
2. Tap the list you want to print.

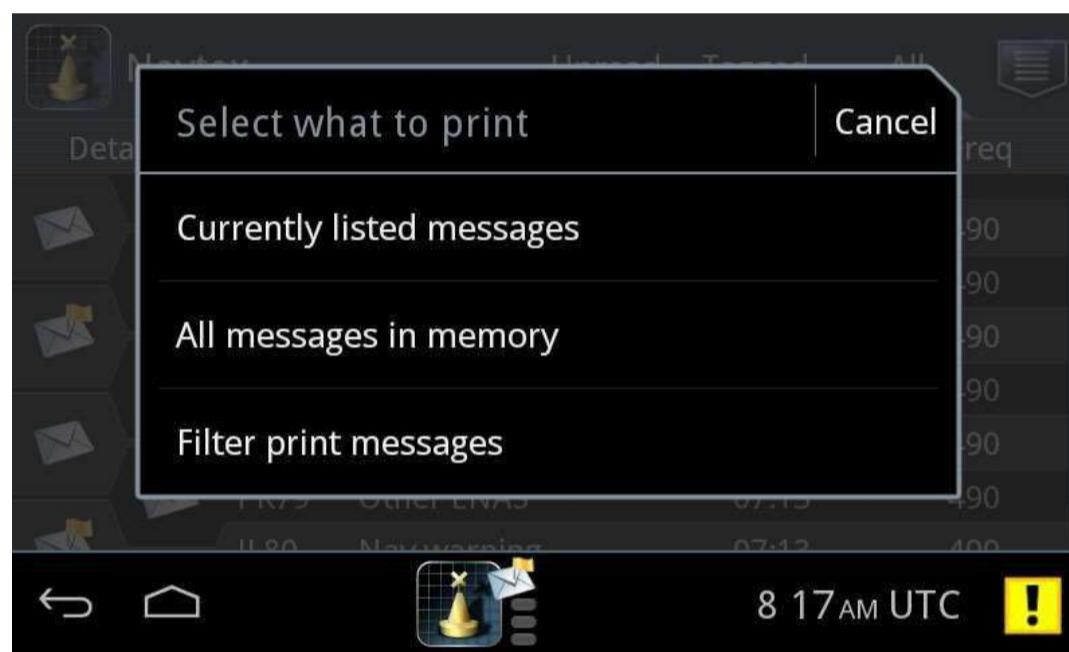


Figure 13: Print messages

## To store messages

You can store the message database with all messages on a USB storage device. Do as follows:

1. Insert a USB storage device in one of the USB connectors at the rear of the SAILOR 6004 Control Panel (only one storage device at a time).
2. From any list of messages (**Unread, Tagged or All**), tap the menu icon and then **Store Messages**.
3. If wanted, change the file name and location.
4. Tap OK.

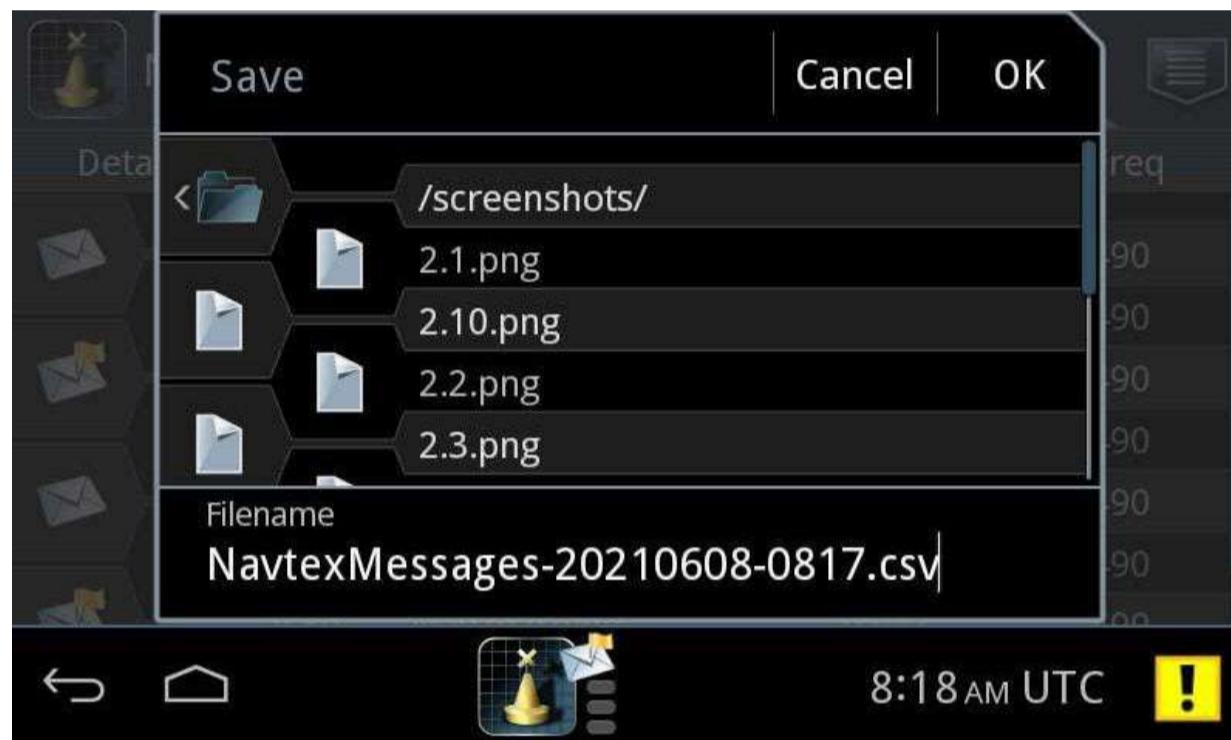


Figure 14: Store messages 1



Figure 15: Store messages 2

5. Tap Yes to confirm. The message database is copied to the USB storage device, the messages are exported in a comma separated file. The unit returns to the previous list view.
6. Remove the USB storage device.

The image below shows an example of a file with stored messages, the output file is opened in Microsoft Excel®.

	A	B	C	D	E	F	G	H
1	Station	Frequency	UtcTime	New	Tagged	ErrorPercentage	Expired	Message
2	LA13	490.0	18-07-2021 21:52	0	0	0	1	NCC-HAMBURG
3	EA86	490.0	19-07-2021 00:43	0	0	0	1	190040 UTC JAN 14
4	LA67	490.0	19-07-2021 13:56	0	0	0	1	NCC-HAMBURG
5	LE17	490.0	19-07-2021 17:45	0	0	0	1	191750 NAVTEX-HAMBURG (NCC)
6	LA36	490.0	20-07-2021 13:56	0	0	0	1	NCC-HAMBURG
7	LA77	490.0	20-07-2021 21:55	0	0	0	1	NCC-HAMBURG
8	LE22	490.0	20-07-2021 21:58	0	0	0	1	202150 NAVTEX-HAMBURG (NCC)
9	LB28	490.0	21-07-2021 02:13	0	0	1	1	210212 NAVTEX-HAMBURG (NCC)
10	LA33	490.0	21-07-2021 13:50	0	0	0	1	NCC-HAMBURG
11	LA08	490.0	21-07-2021 13:52	0	0	0	1	NCC-HAMBURG
12	LA87	490.0	21-07-2021 13:53	0	0	1	1	NCC-HAMBURG
13	LA69	490.0	21-07-2021 13:54	0	0	0	1	NCC-HAMBURG
14	LA06	490.0	21-07-2021 13:52	0	0	1	1	NCC-HAMBURG
15	LA38	490.0	22-07-2021 12:17	0	0	0	1	NAVTEX-HAMBURG (NCC)
16	LA37	490.0	23-07-2021 01:41	0	0	0	1	NCC-HAMBURG
17	LA76	518.0	23-07-2021 01:47	0	1	7	0	181421 UTC JAN 14
18	SE27	518.0	23-07-2021 02:58	0	1	0	0	230300 NAVTEX-HAMBURG (NCC)

Figure 16: File with stored messages

### Operation with INS equipment

Messages filtered out using the INS filter settings are sent to the INS equipment via NMEA. See the user documentation for the INS for further information how Navtex messages are displayed and printed.

# Service & maintenance

This chapter has the following sections:

- *Maintenance*
- *Alerts and notifications*
- *Troubleshooting guide*
- *Service and repair*

## Maintenance

Maintenance of the SAILOR 6390 Navtex Receiver can be reduced to a maintenance check at each visit of the service staff. Inspect the unit for mechanical damages, salt deposits, corrosion and any foreign material. Due to its robust construction and ruggedness the unit has a long lifetime. Anyway it must carefully be checked at intervals not longer than 12 months - dependent on the current working conditions.

### Contact for support

Contact an authorized dealer for technical service and support of the SAILOR 6390 Navtex Receiver. Before contacting the authorized dealer you can go through the troubleshooting guide to solve some of the most common operational problems.

## To access the Service Interface

All tasks related to installation, service and maintenance are described in the installation manual.

Only a service engineer should access the Service Interface directly from the display of the SAILOR 6004 Control Panel.

Do as follows:

1. Tap **System > Applications.**
2. Tap  > Device list.
3. Tap the device.
4. Tap 

5. Tap **Service Interface**. If you want to leave the service interface press the **HOME** symbol.

**Note** When you leave the service interface, the Navtex receiver will restart.

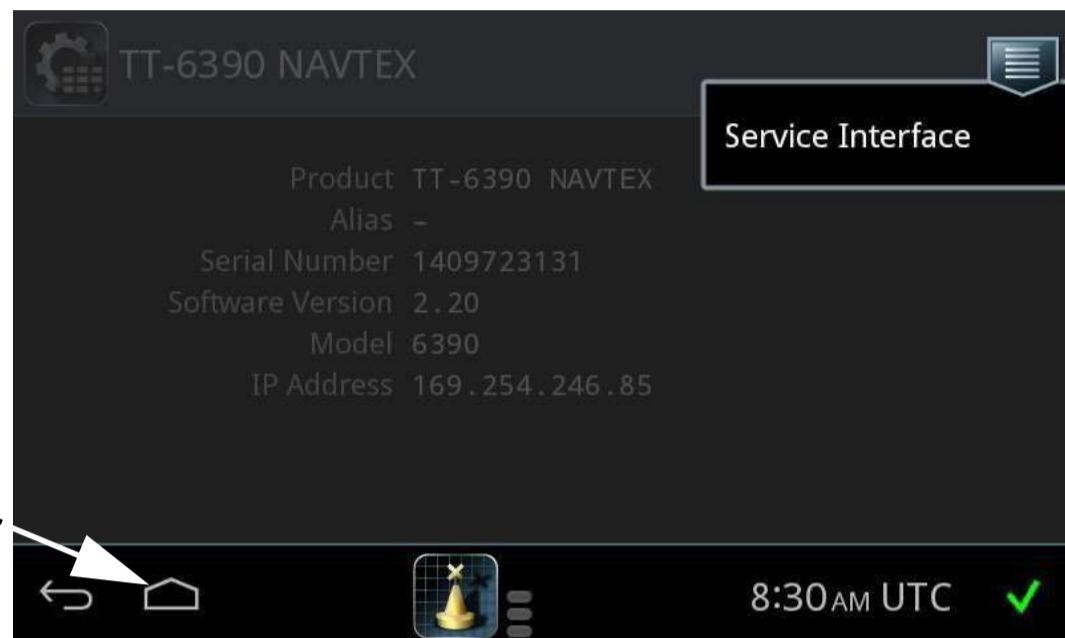


Figure 17: Service Interface

6. Tap **Show MENU**

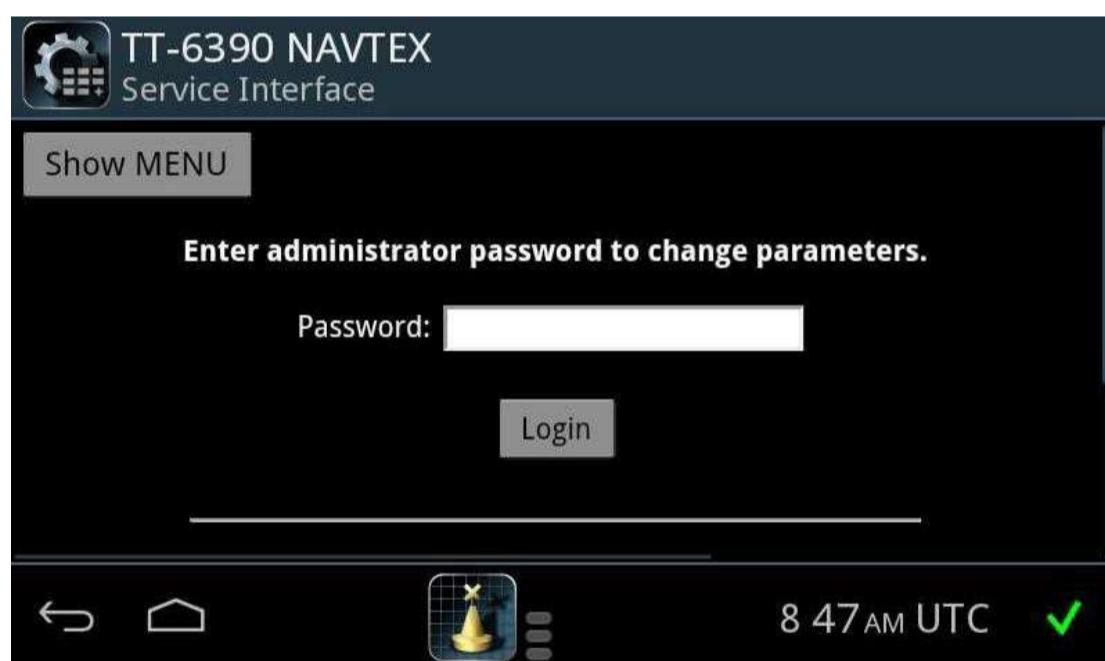


Figure 18: Service Interface, Show menu

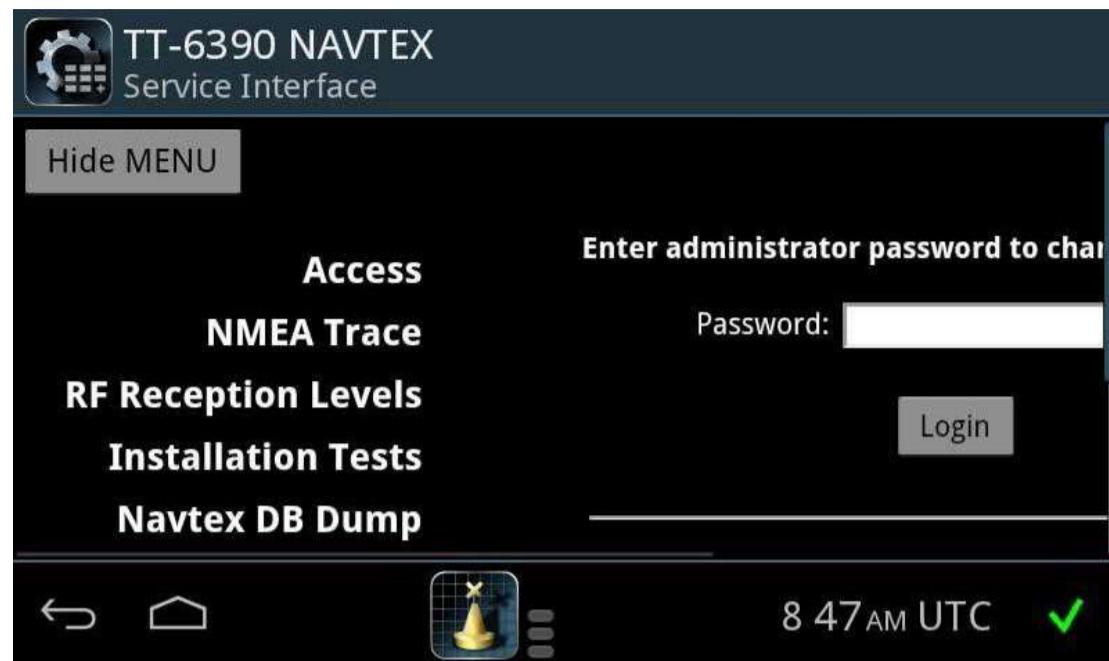


Figure 19: Service Interface, Hide menu

- NMEA Trace, more information in the next section.
- RF Reception Levels, more information on page 23.
- Installation Tests, more information on page 24.
- Navtex DB Dump, more information on page 26

## NMEA Trace tool

To verify the installation of NMEA devices to the SAILOR 6390 Navtex Receiver you can start the NMEA Trace tool to see whether the connected device on a selected port receives and sends correct NMEA information. The NMEA Trace verifies the electrical connection, it does not guarantee that the NMEA sentence is parsed correctly. The NMEA Trace tool runs independently from the Service Interface and you can access the SAILOR 6390 Navtex Receiver as in normal operation.

To start the NMEA Trace tool, do as follows:

1. Press **Show MENU**
2. Click **NMEA Trace**
3. In the drop down list select which port you want to run an NMEA trace on:

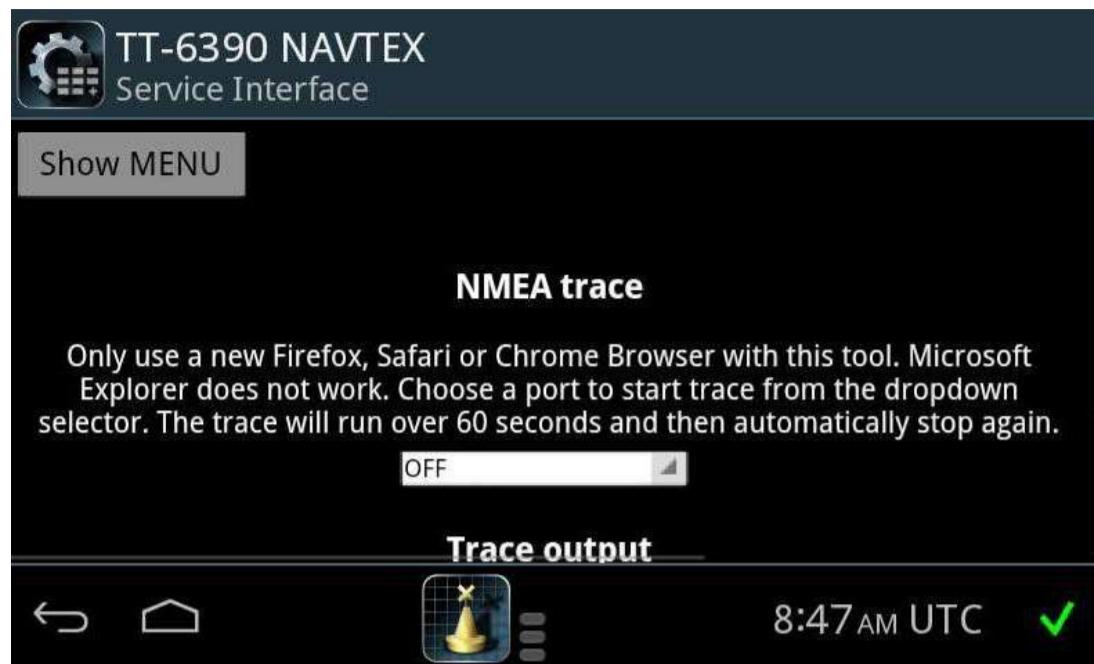


Figure 20: Service Interface, NMEA trace

A new window opens and the tracing starts automatically.



Figure 21: Service Interface, NMEA trace ongoing

In this window the current data to and from the port selected in the drop-down list are displayed. At the same time you can monitor alerts related to the connected devices and configure the connected devices in the display of the SAILOR 6004 Control Panel.

4. After ended tracing, you can download the NMEA trace log file to a USB storage device connected to SAILOR 6004 Control Panel.

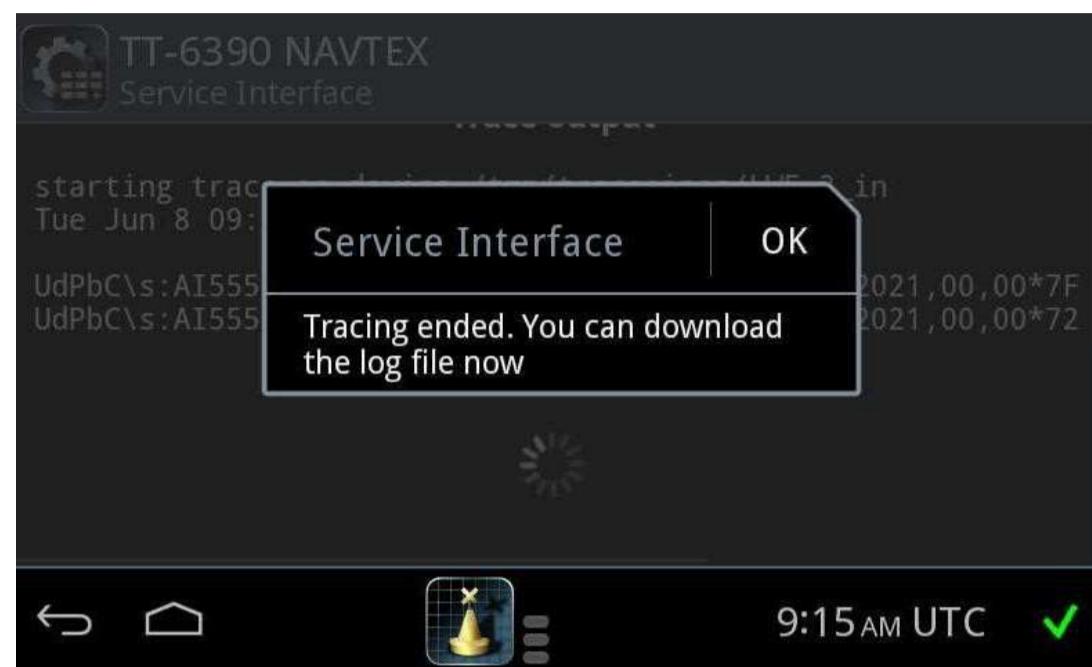


Figure 22: Service Interface, NMEA trace download

## Checking RF Reception Levels

To check RF reception levels, do as follows:

1. Press **Show MENU**.
2. Click **RF Reception Levels**.
3. Click the button **Get reception levels**. RF levels are measured and sent to the service interface.

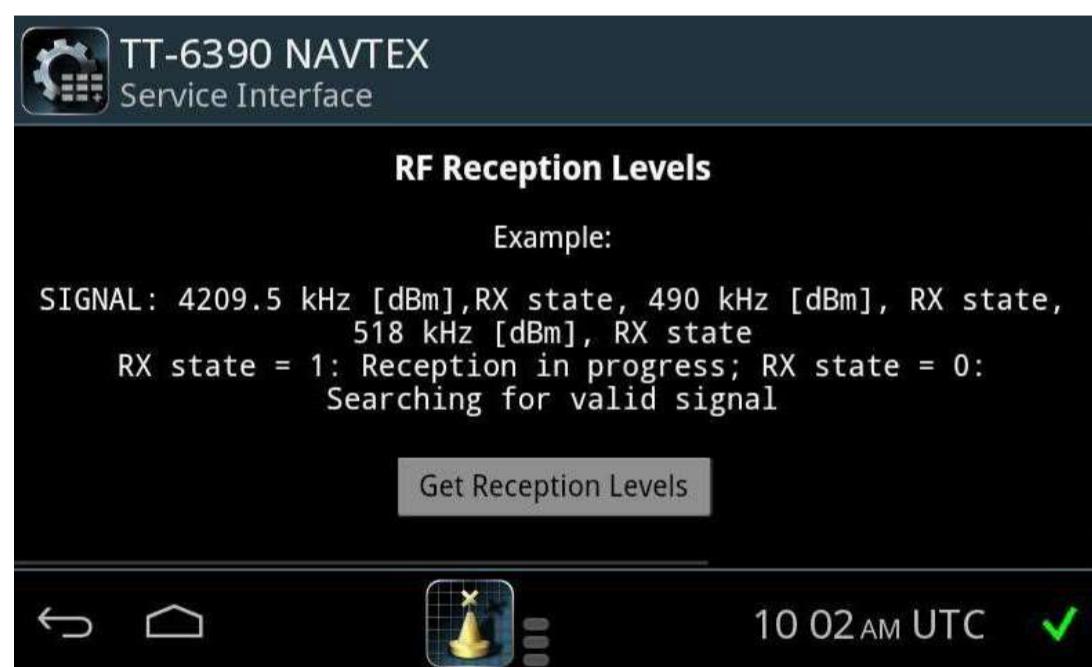


Figure 23: Service Interface, RF reception levels

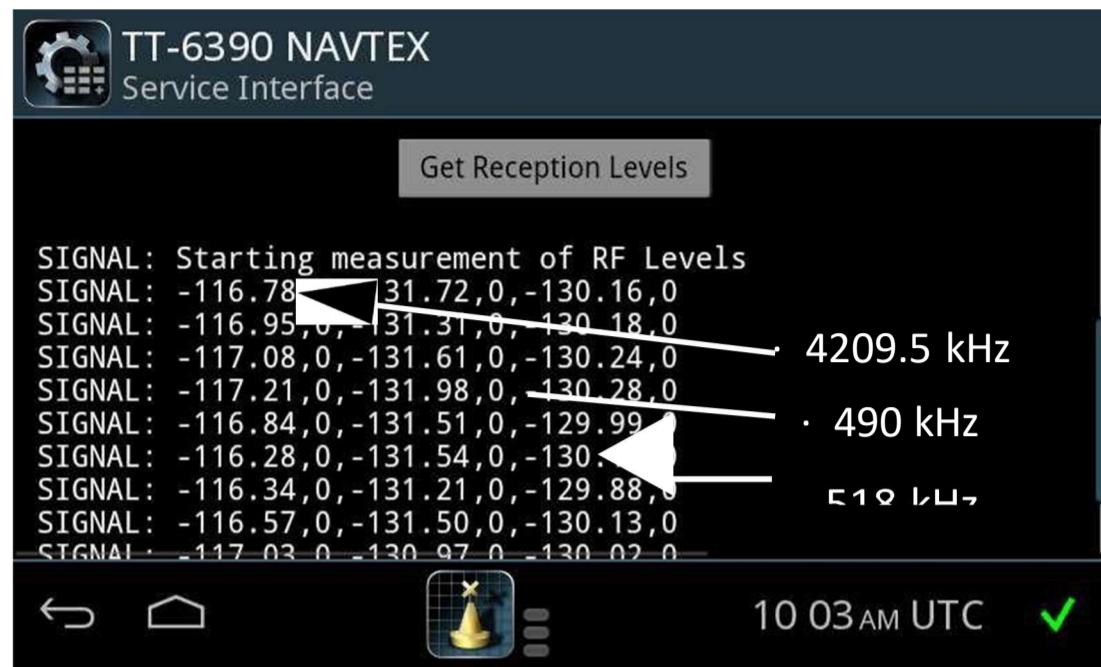


Figure 24: Service Interface, RF reception levels, ongoing

**Example:** **SIGNAL: -116.78,0,-131.72,0,-130.16,0**

4209.5 kHz signal: -116.78 dBm, Searching for valid signal 490 kHz signal: -131.72 dBm,  
Searching for valid signal 518 kHz signal: -130.16 dBm, Searching for valid signal

## Installation Tests

To run the available installation tests, do as follows:

1. Press **Show MENU**.
2. Click **Installation Tests**.
3. Click the button **Run Self Test** to run a Self Test of the SAILOR 6390 Navtex Receiver.

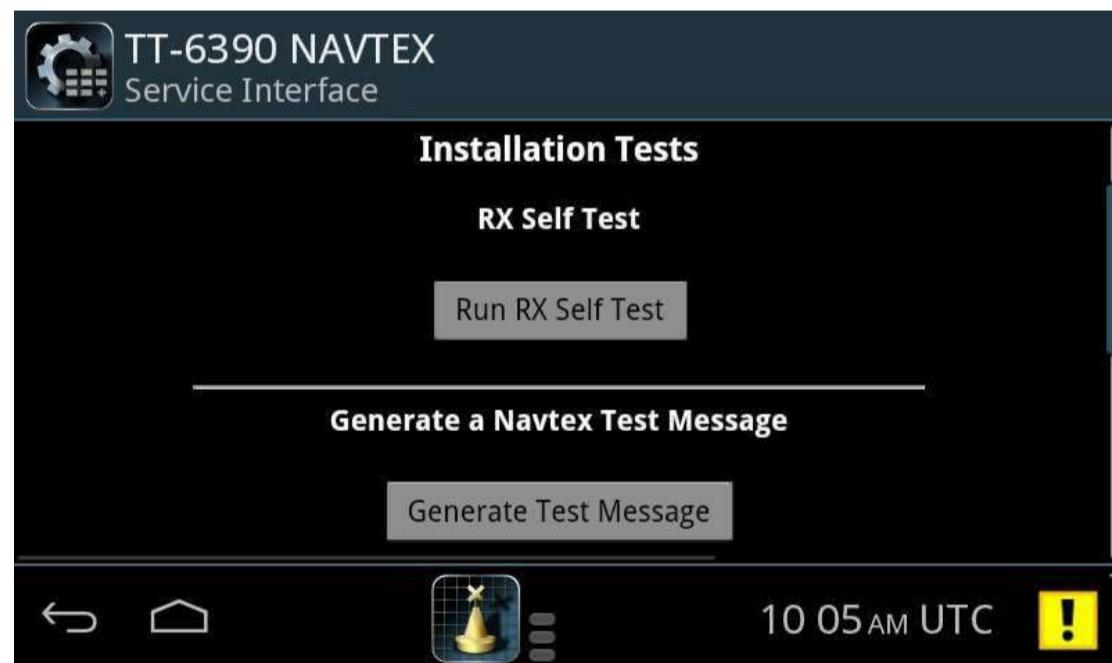


Figure 25: Service Interface, Installation tests

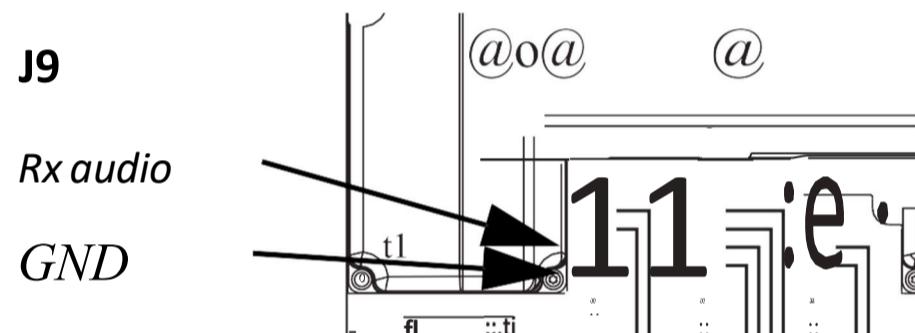
4. Click the button **Generate Test Message**. The test message is displayed in the SAILOR 6004 Control Panel.

**Note**

Make sure that the station Z for 490 kHz is selected for **Display**. (Tap on **Control Panel: Menu icon > Filters> Stations, Display**).

5. **Change audio source:** The demodulated signal (1700 Hz +/-85 Hz) received on 518 kHz is always present for debug on connector J9. If a receiver is not performing as expected, change the debug audio source to that receiver (490 kHz/518 kHz/4209.5 kHz) and listen for e.g. a constant tone, indicating a spurious on that receiver channel. The presence of a constant tone can then be compared to the RF reception level measurements (see page 23).

Note that changing the audio source is not saved to memory. After reboot the 518 kHz channel is always selected.



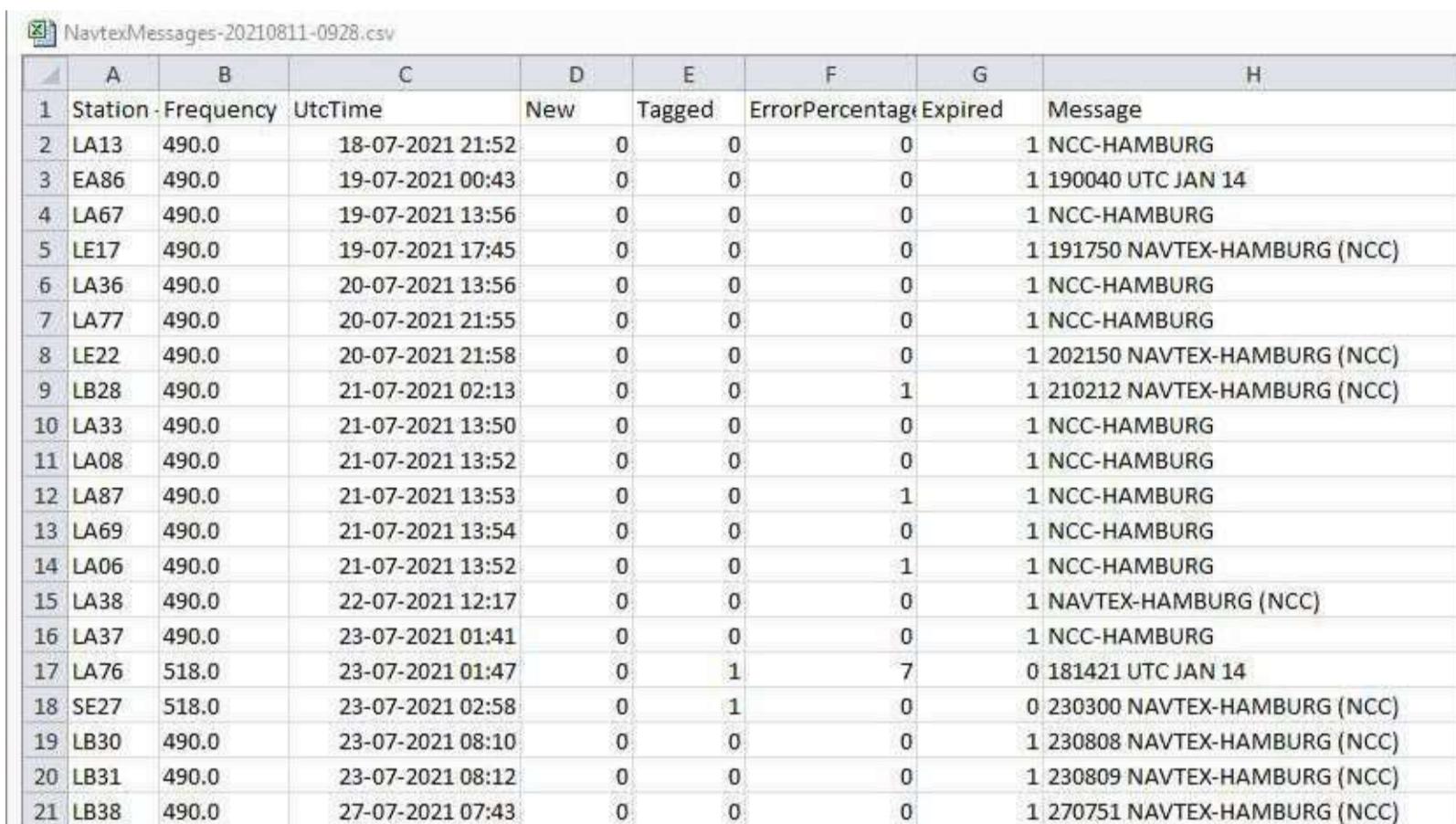
6. To toggle the Alarm Relay click **On** and **Off** to check the connected alarm system.



Figure 26: Service Interface, toggle alarm relay

## Navtex DB Dump

1. Press **Show MENU**.
2. Click **Navtex DB Dump**.
3. Click the button **Backup**. A pop up window opens, follow the on-screen instructions to open or save the file.
4. The messages are exported in a comma separated file.
5. The image below shows an example of a file with stored messages, the output file is opened in Microsoft Excel®.



The screenshot shows a Microsoft Excel spreadsheet with the following columns and data:

	A	B	C	D	E	F	G	H
1	Station	Frequency	UtcTime	New	Tagged	ErrorPercentage	Expired	Message
2	LA13	490.0	18-07-2021 21:52	0	0	0	0	1 NCC-HAMBURG
3	EA86	490.0	19-07-2021 00:43	0	0	0	0	1 190040 UTC JAN 14
4	LA67	490.0	19-07-2021 13:56	0	0	0	0	1 NCC-HAMBURG
5	LE17	490.0	19-07-2021 17:45	0	0	0	0	1 191750 NAVTEX-HAMBURG (NCC)
6	LA36	490.0	20-07-2021 13:56	0	0	0	0	1 NCC-HAMBURG
7	LA77	490.0	20-07-2021 21:55	0	0	0	0	1 NCC-HAMBURG
8	LE22	490.0	20-07-2021 21:58	0	0	0	0	1 202150 NAVTEX-HAMBURG (NCC)
9	LB28	490.0	21-07-2021 02:13	0	0	1	0	1 210212 NAVTEX-HAMBURG (NCC)
10	LA33	490.0	21-07-2021 13:50	0	0	0	0	1 NCC-HAMBURG
11	LA08	490.0	21-07-2021 13:52	0	0	0	0	1 NCC-HAMBURG
12	LA87	490.0	21-07-2021 13:53	0	0	1	0	1 NCC-HAMBURG
13	LA69	490.0	21-07-2021 13:54	0	0	0	0	1 NCC-HAMBURG
14	LA06	490.0	21-07-2021 13:52	0	0	1	0	1 NCC-HAMBURG
15	LA38	490.0	22-07-2021 12:17	0	0	0	0	1 NAVTEX-HAMBURG (NCC)
16	LA37	490.0	23-07-2021 01:41	0	0	0	0	1 NCC-HAMBURG
17	LA76	518.0	23-07-2021 01:47	0	1	7	0	0 181421 UTC JAN 14
18	SE27	518.0	23-07-2021 02:58	0	1	0	0	0 230300 NAVTEX-HAMBURG (NCC)
19	LB30	490.0	23-07-2021 08:10	0	0	0	0	1 230808 NAVTEX-HAMBURG (NCC)
20	LB31	490.0	23-07-2021 08:12	0	0	0	0	1 230809 NAVTEX-HAMBURG (NCC)
21	LB38	490.0	27-07-2021 07:43	0	0	0	0	1 270751 NAVTEX-HAMBURG (NCC)

Figure 27: Excel file with stored Navtex messages

## System LEDs

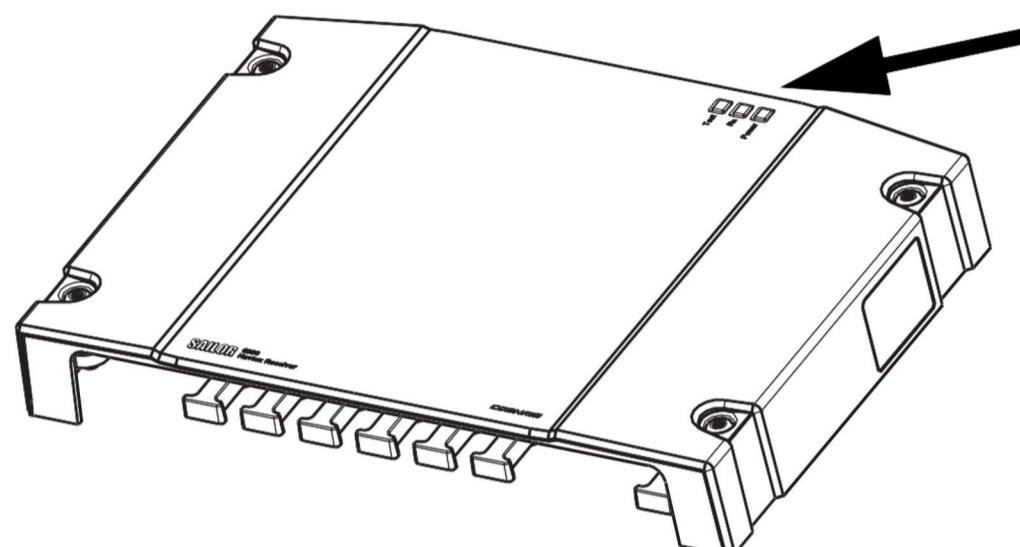


Figure 28: System LEDs

LED	Color	Description
Power	Green	Lit when the device is on.
Rx	Green	Flashing when receiving Navtex data on any active frequency.
Test	Green	Lit when the power-on-self-test is passed. Flashes if a fault is detected.

## Alerts and notifications

## Introduction to alerts and notifications

The SAILOR 6390 Navtex Receiver reports alerts of the type warning and caution, and complies with the requirements for Bridge Alert Management according to IEC-62923-1 (2018) and IEC-62923-2 (2018).

Alerts and notifications are reported and indicated in the bottom bar of the SAILOR 6004 Control Panel display.

Alert icons appear to the right and notifications just above the UTC time in the bottom bar as shown.



Figure 29: Icons for alerts and notifications

An alert is presented with an alert icon in the lower right side of the display. An alert can be of the type warning or caution. If a warning is not acknowledged the audible warning signal (2 beeps) is repeated every 4 minutes until it is acknowledged. The audible warning signal disappears when the alert changes state from the initial active unacknowledged state, e.g. when it is acknowledged or the alert is rectified.

You can display the current list of active alerts by tapping the lower right corner of the SAILOR 6004 Control Panel display where the alert icon is displayed.

The alert list is prioritized. The most important alert is an alarm, then warning and finally caution. The most important active alerts move to the top of the list, after

that the alerts with the same importance are sorted primarily by time of last change of state (see IEC62923-1 2018 section 6.4.2.1). To go to the top of the list of Alerts (highest priority), tap **Top**.

To display notifications, tap the notification icon above the UTC time in the bottom bar.

## Alerts

### *Icons for alerts*

The following table shows the icons for alerts with a description.

**Note** The SAILOR 6390 Navtex Receiver does not report alerts of the type of Alarm (red icon).

Icon	Name	Icon description
	Active - unacknowledged alarm	A flashing red triangle. A symbol of a loudspeaker in the middle of the triangle. This alert is accompanied by an audible alarm signal (3 beeps).  This icon is displayed when there is an active unacknowledged alarm.
	Active - silenced alarm	A flashing red triangle. A symbol of a loudspeaker with a prominent diagonal line through it.  This icon is displayed when there is an active silenced alarm.
	Active- acknowledged alarm	A red triangle. An exclamation mark in the middle of the triangle.  This icon is displayed as long as the alarm condition is present.
	Active - responsibility transferred alarm	A red triangle. An arrow pointing towards the right in the middle of the triangle.  This icon is displayed as long as the alarm condition is present.

Icon	Name	Icon description
	Rectified - unacknowledged alarm	A flashing red triangle. A tick mark in the middle of the triangle.  This icon is displayed when the alarm condition has been rectified but not yet acknowledged.
 	Warning: Active unacknowledged alert	A flashing yellow circle with a symbol of a loudspeaker in the middle of the circle. This alert is accompanied by an audible warning signal (2 beeps).  This icon is displayed when there is an active unacknowledged warning.
 	Warning: Active unacknowledged alert, silent	A flashing yellow circle. A symbol of a loudspeaker with a prominent diagonal line through it.  This icon is displayed when there is an active silenced warning.
	Warning: Active acknowledged alert	A yellow circle with an exclamation mark in the middle of the circle.  This icon is displayed as long at the warning condition is present.
	Warning: Active transferred alert	A yellow circle. An arrow pointing towards the right in the middle of the circle.  This icon is displayed as long at the warning condition is present.
 	Warning: Inactive unacknowledged alert, rectified	A flashing yellow circle with a tick mark in the middle of the circle. <sup>85</sup>  This icon is displayed when the warning condition has been rectified but not yet acknowledged.

**COBHAM**

# SAILOR H1252A/TT-3608A-220 Printer

# SAILOR H1252B/TT-3608A Printer

Technical manual



## 2 Maintenance/modification

This section is intended for use when modifying the printer to operate from DC supply instead of 220V AC supply.

### 2.1 Disassembling to remove the mains transformer

Remove the access cover by lifting up rear edge.

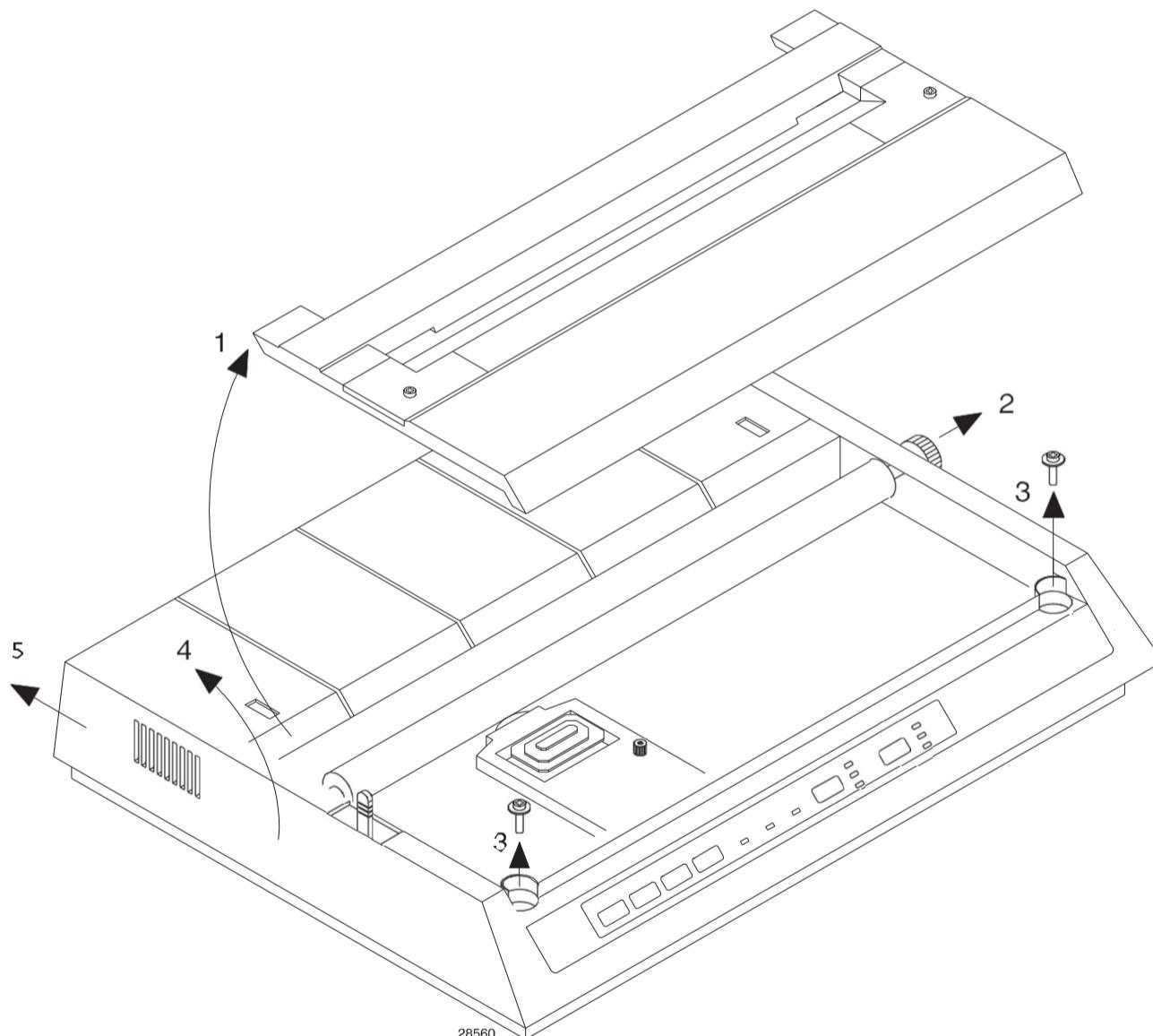
Pull out the platen knob. Remove the two screws.

Remove the top cover by lifting up the front and pushing it backward. Remove the transformer output cable from the printer Main Control Board. Remove the ground strap screw, but keep it for later use.

Remove the two screws, that fix the transformer, but keep them for later use.

Remove the transformer assembly with power PCB and AC cord receptacle by lifting upwards.

Remove the 220v~ label located at the panel cut out for the AC cord receptacle.



## 2.2 Disassembling and mounting of the ON-OFF switch

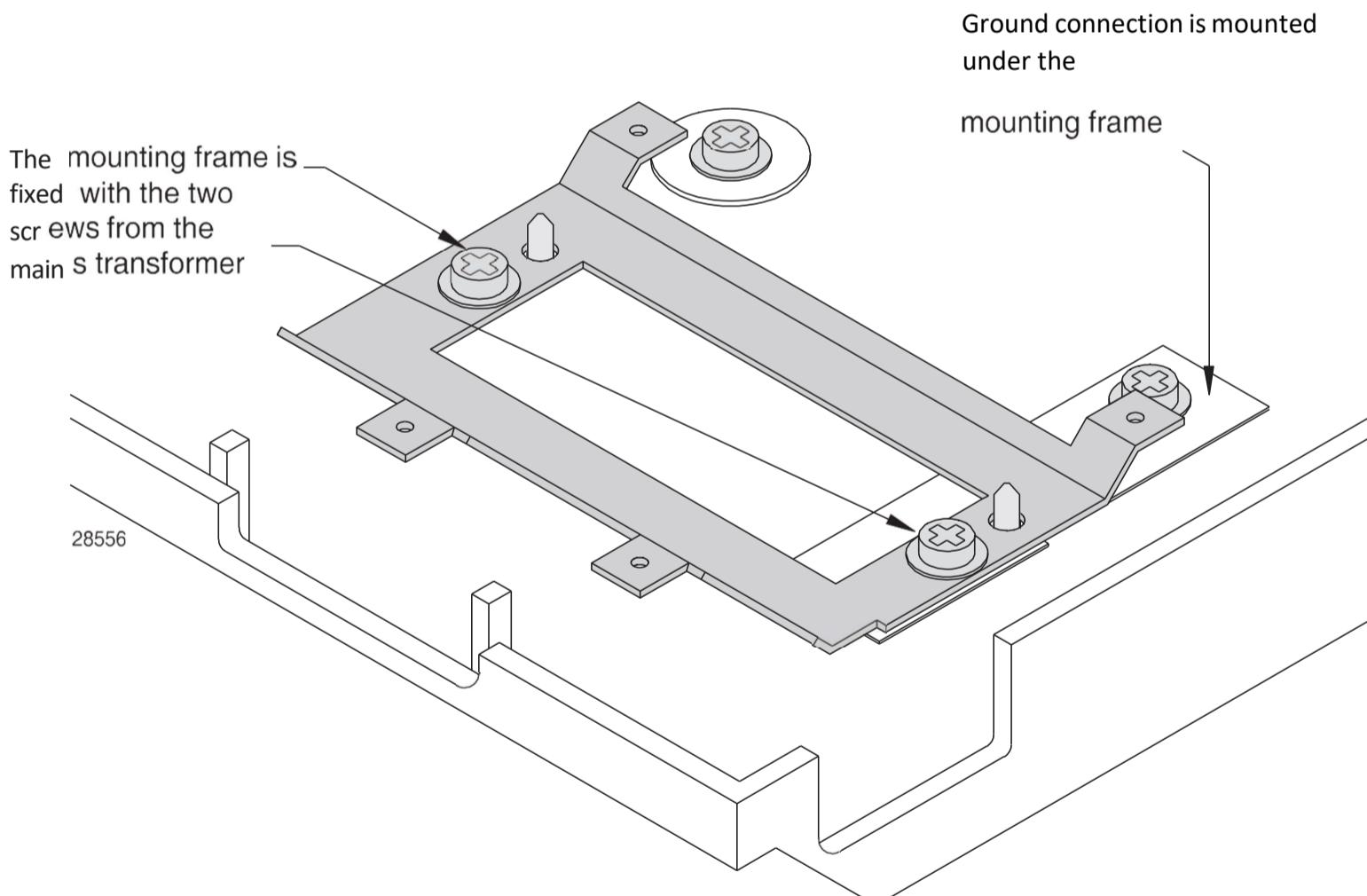
It is necessary to remove the ON-OFF switch from the transformer assembly to use it again on the DC power supply module.

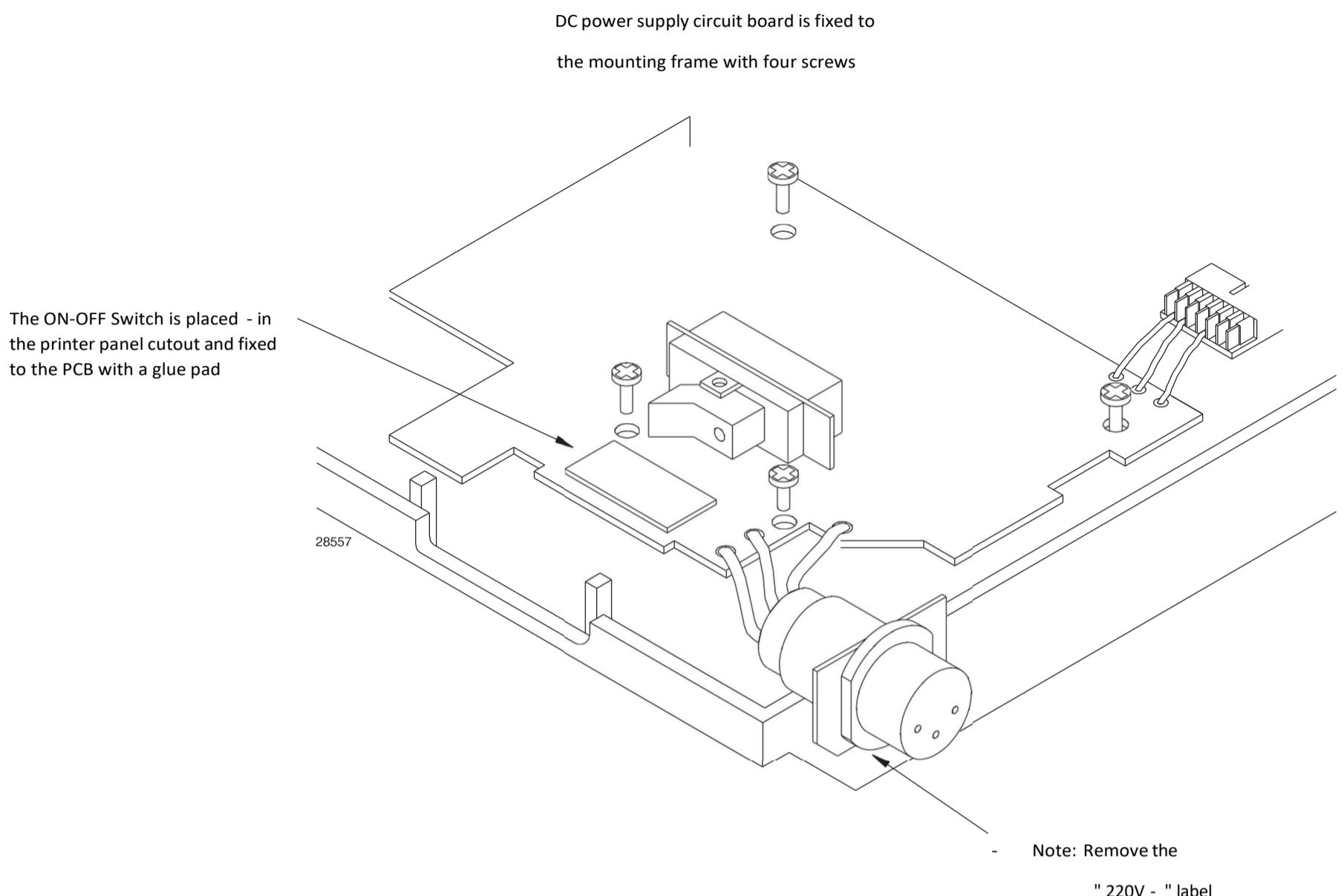
Remove the filter and switch board from the transformer by pulling it off. Unsolder the ON-OFF Switch.

Solder the switch to the two loose wires on the DC power supply module. Then twist the wires to the switch to suppress noise.

## 2.3 Mounting the DC power supply and reassembling

Remove the cover on the glue pad and when the power supply module is placed properly, the switch is placed in the slots in the cabinet and is pressed down to the glue pad.





### 2.3.1 Mounting of the DC power supply

Place the ground connection over the rear transformer hole, and fix it with the ground screw.

Place the mounting frame where the transformer was mounted, and fix it with the two screws from the transformer.

Then place the DC power supply module on the mounting frame, and fix it with four screws.

Be sure the power ON-OFF switch is correctly placed in the panel cut out slot.

Press the plate with the DC input connector in to the panel cut out the foremen  
cord receptacle.

AC

Connect the output cable to the printer Main Control Board.

### 2.3.2 Modification of the printer main control board

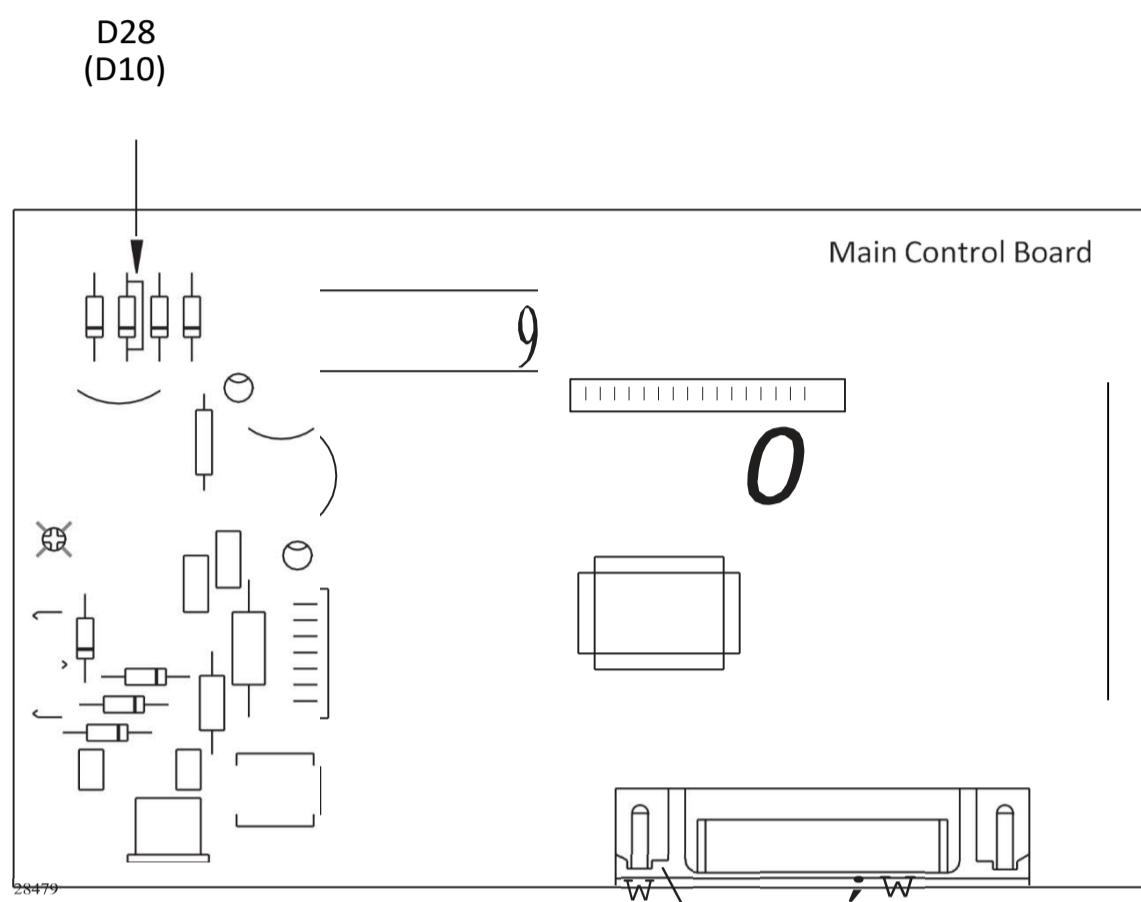
If the printer is equipped with a DC power supply module of other type than from ECI, it is necessary to modify the printer main board. As seen below, the diode D28 (D10) on the printer main board is short circuited.

If the printer is equipped with a DC power supply module from ECI, module no. 628471 it is **not** recommended to short circuit the diode D28 (D10) on the printer main board.

Run the printer selftest programme.

Switch on the ON-OFF switch and simultaneously press down the "line feed" button. After a few seconds (at low input voltage) the printer starts the selftest printing routine, which means that the DC power supply is OK.

Switch off the printer.

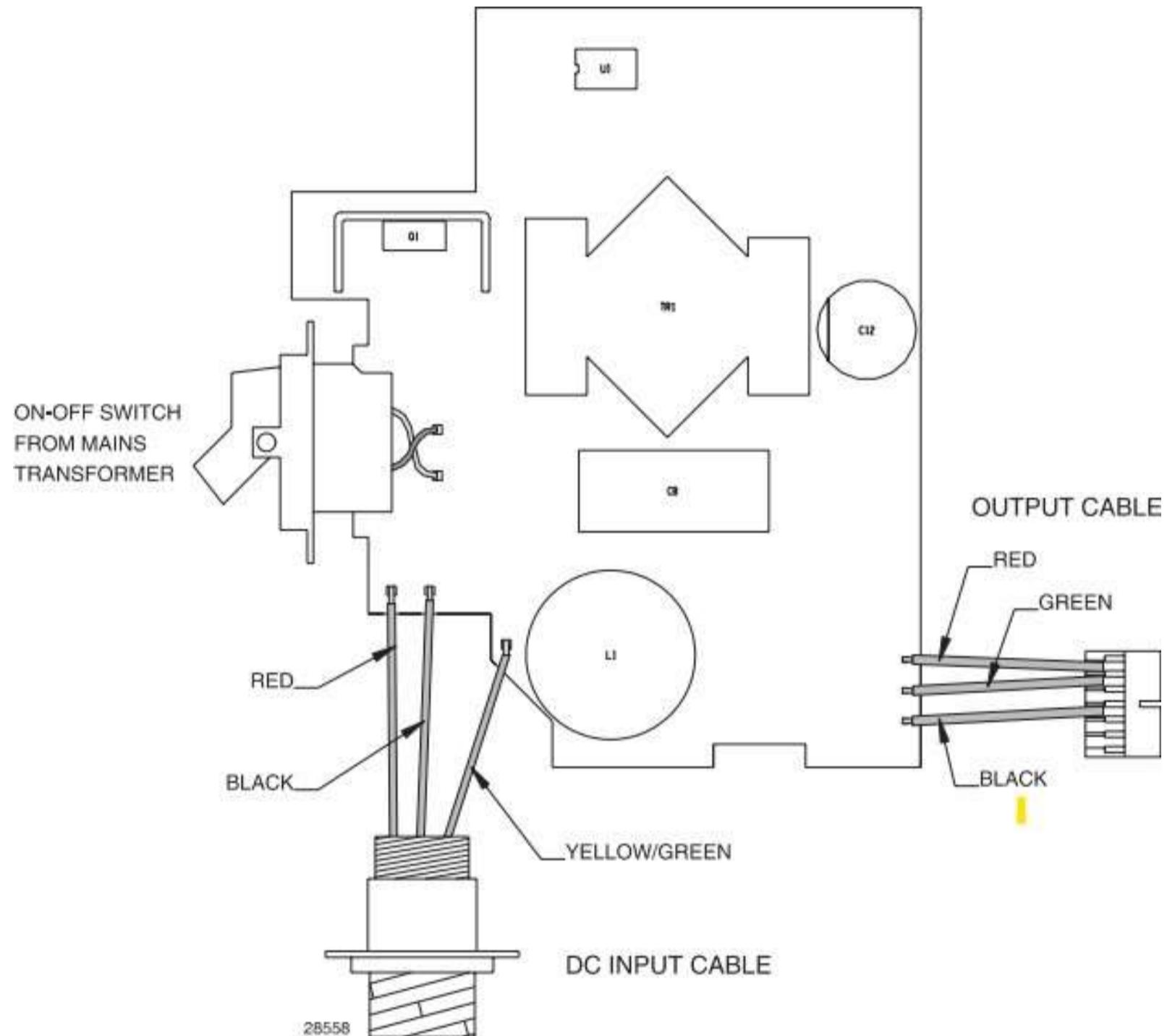


### 2.3.3 Reassembling of the printer

Place the top cover by lifting the front end and place holes in the rear end into the two small hooks in the bottom cabinet. To reassemble the printer, do the reverse procedure of the disassembling. Then run the selftest programme of the printer.

(See above)

## Electrical connections



# 3 Service

## 3.1 Printer self-test

To do a performance test of the DC power supply, a self-test programme in the printer can be used.

Connect a DC power source of 1a.SV to 32V to the DC input connector.

Switch on the ON-OFF switch and simultaneously press down the "line feed" button. After a few seconds (at low input voltage) the printer starts the self-test a printing routine, which means that the power supply is OK.

Switch off the printer.

## 3.2 Module check of the DC power supply

Connect a dummy load of 33Ω/3aW to 3aV output. Connect a dummy load of 33Ω/SW to 1av output.

Connect a DC power source of 1a.SV to the DC input connector.

Switch on the power supply module. The module has to start up within 4 seconds. Connect a voltmeter to the 3aV output and read 28+2V.

Connect a voltmeter to the 1av output and read 9V ±1V.

Connect a DC power source of 32V to the DC input connector.

Switch on the power supply module. The module has to start up within 1 second. Connect a voltmeter to the 3aV output and read 33V +2V.

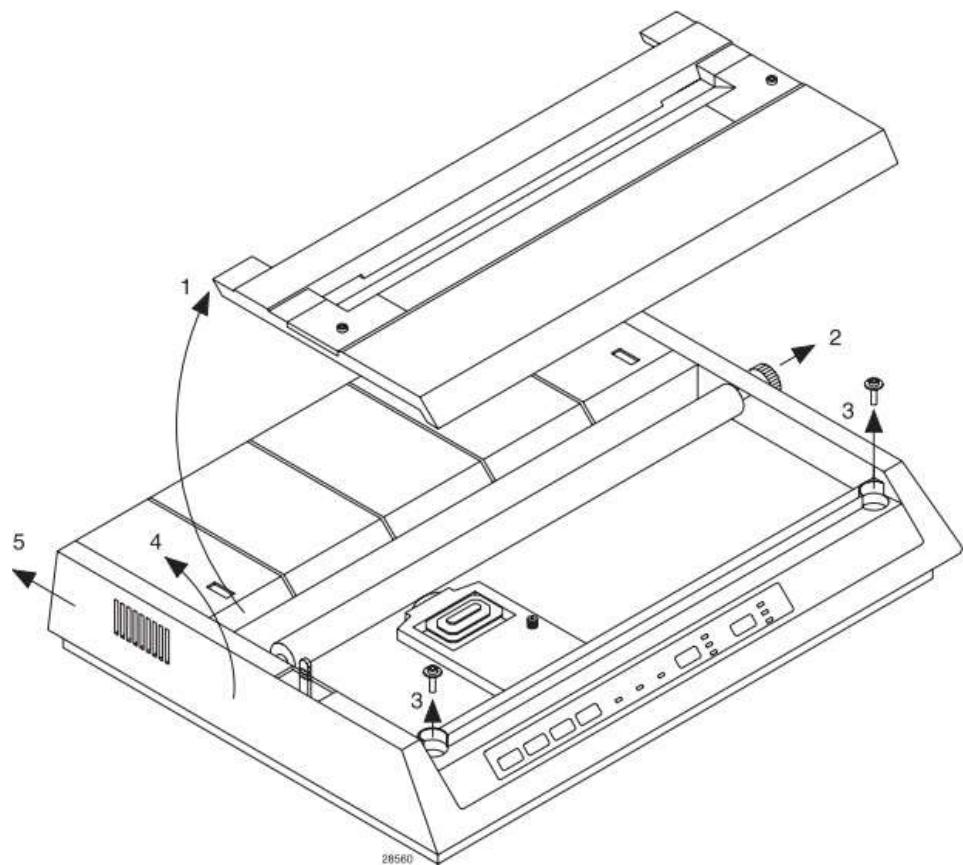
Connect a voltmeter to the 1av output and read 1av ±1V.

Disconnect the dummy load from the 3aV output and read the voltage to 39V +2V.

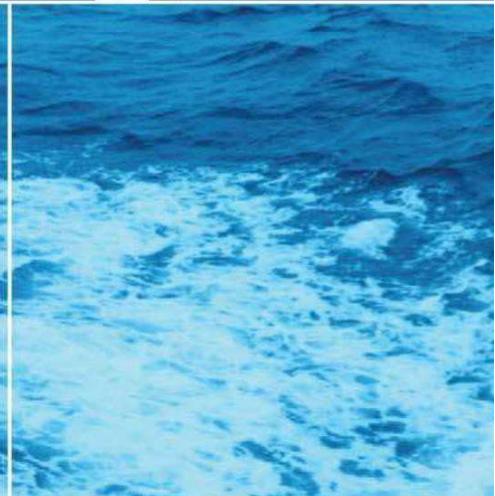
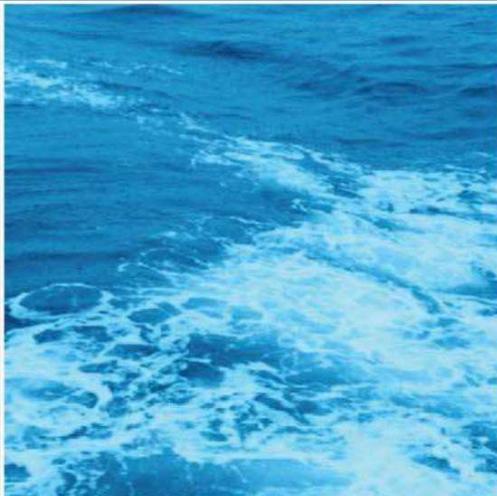
## 3.3 Check after repair

If any repair has occurred to the power supply module, then perform chapter 3.2 MODULE CHECK OF THE DC POWER SUPPLY.

## 4 Mechanical disassembling of printer



USERS MANUAL



Tron SART





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## 5 OPERATION INSTRUCTIONS

### 5.1 Activating the Tron SART

1. Break seal at switch.
2. Pull locking pin and make sure that the switch enters the "ON" position. An audible "BEEP" will be heard and the indicator led will start to flash.
3. Place (or hold) the transponder in a vertical position as high as possible. When the Tron SART is within range of an active 3 cm radar, the internal loudspeaker will be activated. A handheld VHF radio should now be used to establish contact with the approaching boat or helicopter.

### 5.2 Deactivating the Tron SART

1. Move the switch to the "OFF" position.
2. Replace the locking pin.

### 5.3 Test of the Tron SART

Test of the Tron SART is done using the ships own 3 cm radar. The radar display will show different patterns depending on the range to the transponder.

See Figure 2, Figure 3, and Figure 4 for details of the radar display. Note that the examples shown are typical and will vary with the radar performance (height, power output and sensitivity).

With the transponder located close to the radar the signals will appear as rings on the radar display. The rings may be broken in some sectors, depending on ship construction and other obstacles, and does not indicate an error in the transponder.

Placing it further away will reduce the signals to 12 dots on the radar display, showing the direction to the transponder.

1. Hold the switch on the Tron SART in the "TEST" position.
2. Simultaneously a person should observe the radar display to check for correct pattern.  
The radar should be set for a 10 nm range.
3. The test should preferably be done in open sea to avoid interference on the radar display from land echoes.
4. Alternatively, a radar of a nearby ship can be used to test the transponder. A ship to ship vhf channel should then be used to confirm operation.

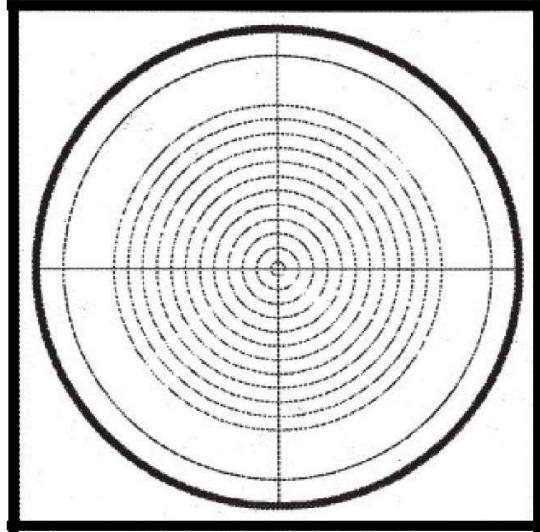


Figure 5.3a

Typical display when Tron SART is located near (<0.2 nm) the radar. Radar range is 10 nm. Rings are off.

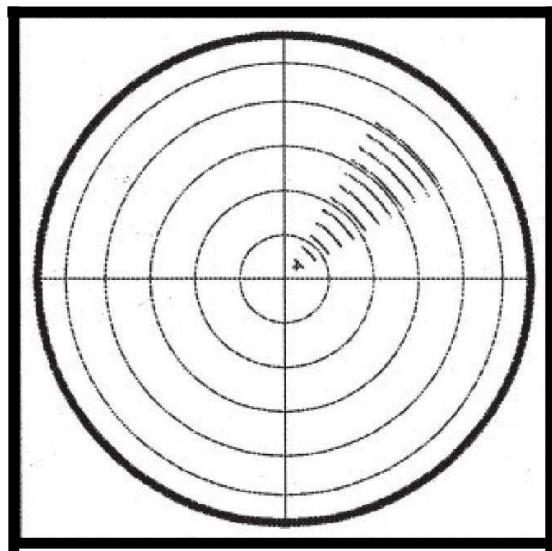


Figure 5.3b

Typical display when Tron SART is located close (1nm) to the radar. Radar range is 10 nm. Rings are at 2 nm.

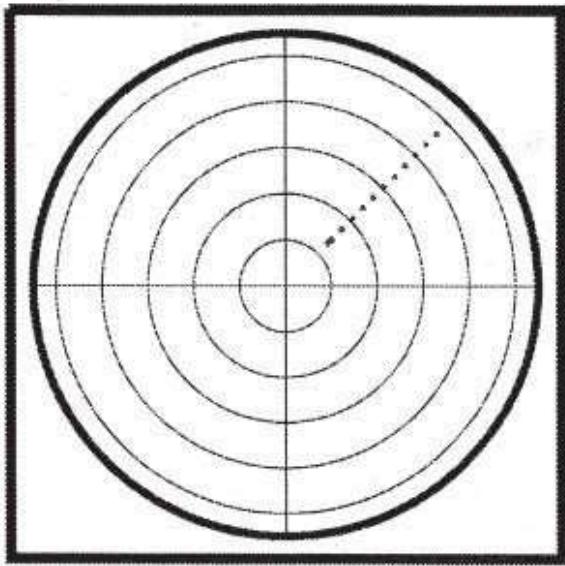


Figure 5.3c

Typical display when Tron SART is located away (>2 nm) from the radar.  
Radar range is 10 nm. Rings are at 2 nm.

**CAUTION!**

While the Tron SART is activated it will respond to any 3 cm  
radars within range. Tests must be made as short as possible (5 min) to  
avoid interference and to avoid wasting battery capacity.

## 6 MAINTENANCE AND TROUBLESHOOTING

### 7 MAINTENANCE

The Tron SART requires the following maintenance:

*Every 6. month.*

The transponder should be taken out of its bracket and tested against a radar, using the procedure in chapter 5.3. Either the ships own radar could be used or the radar of a nearby ship.

*Every 4. year.*

The battery unit must be replaced every 4. year. Storage of batteries over a long period of time will reduce their capacity. To ensure long and reliable operation the battery unit must be replaced every 4. year.

The battery replacement can be performed on board using the procedure in chapter 6.2.1.

#### 7.1 SERVICE

##### *Warranty Service*

The warranty of the equipment is not valid if the customer has tried to repair, modify or rebuilt the unit, deliberate or accidental damage, failure to follow Jotron instructions with respect to approved service agents or if the unit has been exposed to environmental conditions outside the specifications for the unit. As a standard Jotron AS warrants that this product will be free from defects in materials and workmanship for a period of 12 months from the date received by end user, limited to 18 months from purchase from Jotron AS.

If necessary to have the unit repaired, please return it carriage pre-paid to the agent where you did your purchase. Provided that the unit(s) returned for repair is found to be under warranty, man-hour cost and material cost will be covered by Jotron AS.

Additional costs not related to repair/replacement of the unit will not be covered.

##### *Out of Warranty Service*

For defects arising from normal wear and tear after 12 months of operation, limited to 18 months from Jotron AS, normal service conditions will apply. For details see: [www.jotron.com](http://www.jotron.com)

#### 7.1.1 REPLACING THE BATTERY MODULE

Refer to Figure 3.1 and do the following steps:

1. Open the transponder by turning the screw ring counter clockwise.
2. Remove the battery unit (lower half) of the transponder, by disconnecting the battery plug.
3. Make sure the o-ring is in place at the upper part of the transponder.
4. Please make sure that the enclosed silicagel bag is placed inside the Tron SART.
5. Please also fit the enclosed inti corrosion adhesive tape to the inside of the battery before assembly of the unit.
6. Connect the new battery unit and attach it to the upper part.
7. Tighten the screw ring by turning it clockwise.
8. Test the transponder according to procedure in chapter 5.3.

## 7.2 BATTERY DISPOSAL

Dispose in accordance with applicable regulations, which vary from country to country.(In most countries, the thrashing of used batteries is forbidden and the end-users are invited to dispose of them properly, eventually through non-profit organizations, mandated by local governments or organized on a voluntary basis by professionals).Lithium batteries should have their terminals insulated prior to disposal.

## 7.3 INCINERATION

Incineration should never be performed by battery users but eventually by trained professionals in authorized facilities with proper gas and fumes treatment.

## 7.4 LAND FILLING

Leachability regulations (mg/l)

Component	Leachability	EC limit	EPA	Other*
Iron	100			5
Nickel	100	500	2	0,5

\* Applicable to France

## 7.5 RECYCLING

Send to authorized recycling facilities, eventually through a licensed waste carrier.

**8 SERVICE AGENTS**

**Please look at [www.jotron.com](http://www.jotron.com) for Marine Service Agents.**

Jotron Group subsidiary companies:

Jotron UK Ltd.

Croslan Park, Off Crowhall Road Cramlington

Northumberland NE23 1LA United  
Kingdom

Tel +44 1670 712000

Fax +44 1670 590265

E-mail: [sales@jotron.co.uk](mailto:sales@jotron.co.uk)

Jotron Asia Pte. Ltd.  
Changi Logistics Center  
19 Loyang Way #04-26

Singapore 508724

Tel +65 65426350

Fax +65 65429415

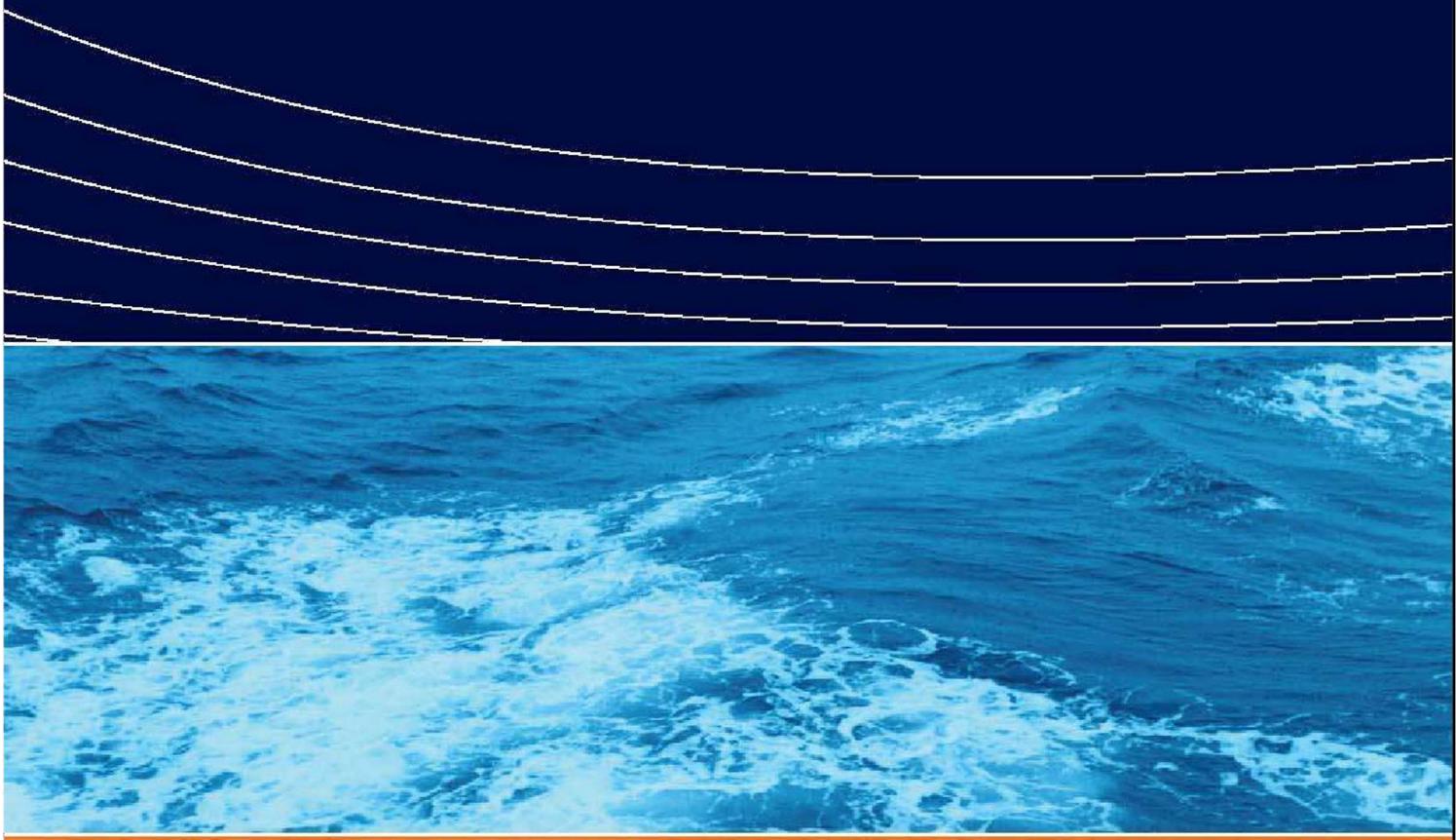
E-mail: [sales@jotron-asia.com](mailto:sales@jotron-asia.com)

Jotron USA, Inc.  
10645 Richmond Avenue, Suite 140  
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[www.jotron.com](http://www.jotron.com)

## 09. JOTRON EIPERB TRON 60S

## USERS MANUAL



Tron 60S  
Tron 60GPS



[www.jotron.com](http://www.jotron.com)

## 5 OPERATION INSTRUCTIONS

### WARNING

- USE ONLY DURING SITUATIONS OF GRAVE AND IMMINENT DANGER
- REPLACE THE BATTERY AFTER THE SATELLITE EPIRB IS OPERATED FOR ANY PURPOSE OTHER THAN A TEST

Tron 60S/GPS is designed to be operated either manually or automatically.

The EPIRB is always armed when located in the bracket. The EPIRB will automatically start to transmit when removed or ejected from the bracket and deployed into water. The EPIRB has an internal safety switch which prevents inadvertent activation through moisture, sea spray etc when located in the bracket.

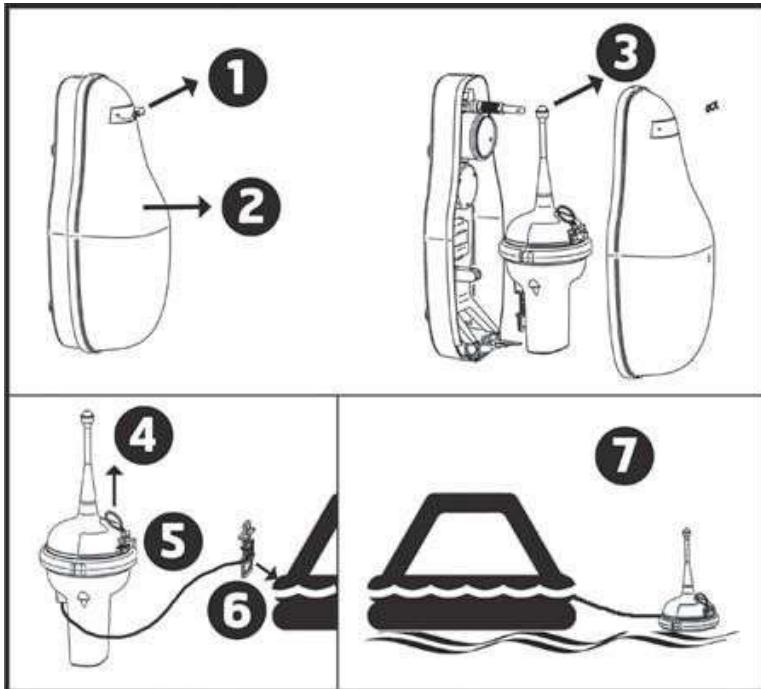
#### 5.1 MANUAL OPERATION

##### 5.1.1 OUT OF BRACKET



Regarding the 3 pictures above, follow instructions from 4-5 on page

### 5.1.2 FLOAT FREE BRACKET FB-60



For operation of the beacon in the bracket please follow instructions 1 to 7.

It is not recommended to operate the beacon inside a life raft or under a cover or canopy. Do NOT tie the lanyard to the ship in distress, as this will prevent the unit from functioning if the ship sinks.

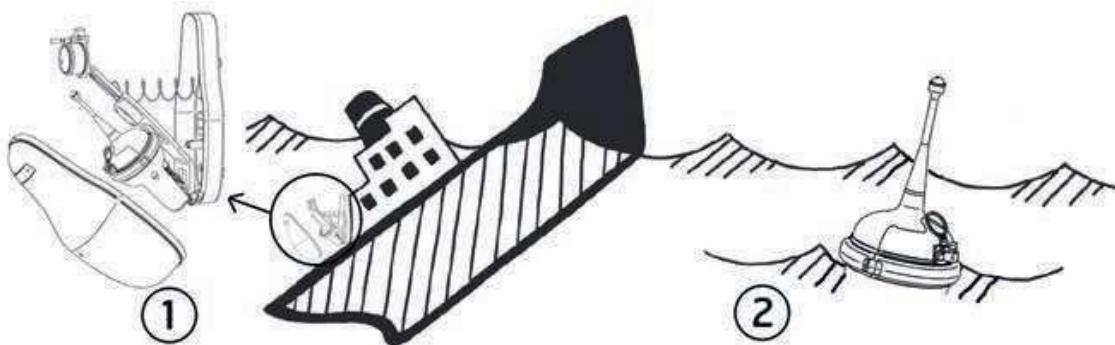
1. Remove the cotter pin from the bracket {FB-60}
2. Remove the FB-60 cover
3. Take out the EPIRB from the bracket
4. Pull the locking pin holding the main switch.
5. Move main switch to the left, to ON position. The LED indicator, located at the top of the antenna, will start to flash, indicating that the EPIRB is operating.
6. Tie the beacon lanyard to you or to the survival craft
7. If possible keep the EPIRB in an open area, away from any metal objects {ship construction etc.} that may limit the satellite coverage. This is especially important for Tron 60GPS, since it needs good reception to obtain a GPS position.

**NOTE: To stop transmission, move the main switch to READY position.**

#### WARNING

The EPIRB can drop out of the FB-60 bracket when releasing top cover

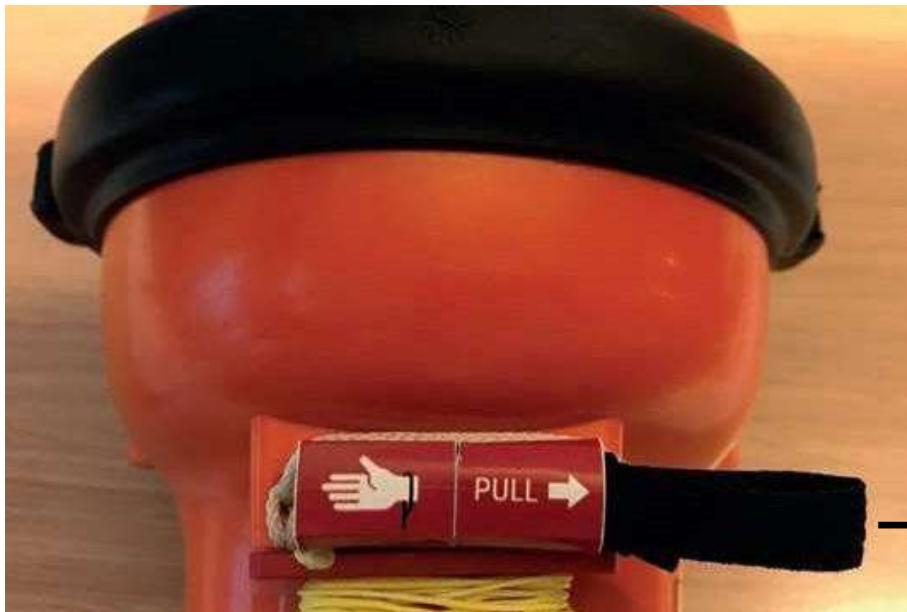
5.2 AUTOMATIC OPERATION - FLOAT FREE BRACKET FB-60



1. The Tron 60S/GPS will automatically release from the bracket, float to the surface and start to transmit when the EPIRB, in its bracket is deployed into water at a depth of app. 2-4 meters {6 - 13 feet}.
2. Transmission will continue until the EPIRB is lifted out of the water, and dried off. The transmission can also be stopped by placing the EPIRB in the bracket.

### 5.3 WRIST STRAP (IF PROVIDED)

In a distress situation the EPIRB can be carried by using the provided wrist strap, where it is necessary to have both arms free, e.g. when climbing a ladder. The wrist strap can be pulled out of the pocket and your arm can be placed through it. It is not possible to put the wrist strap back into the pocket after usage.



Pull the black wrist strap.

Only to be done in a distress a situation.



Open the wrist strap loop and place your arm through it.

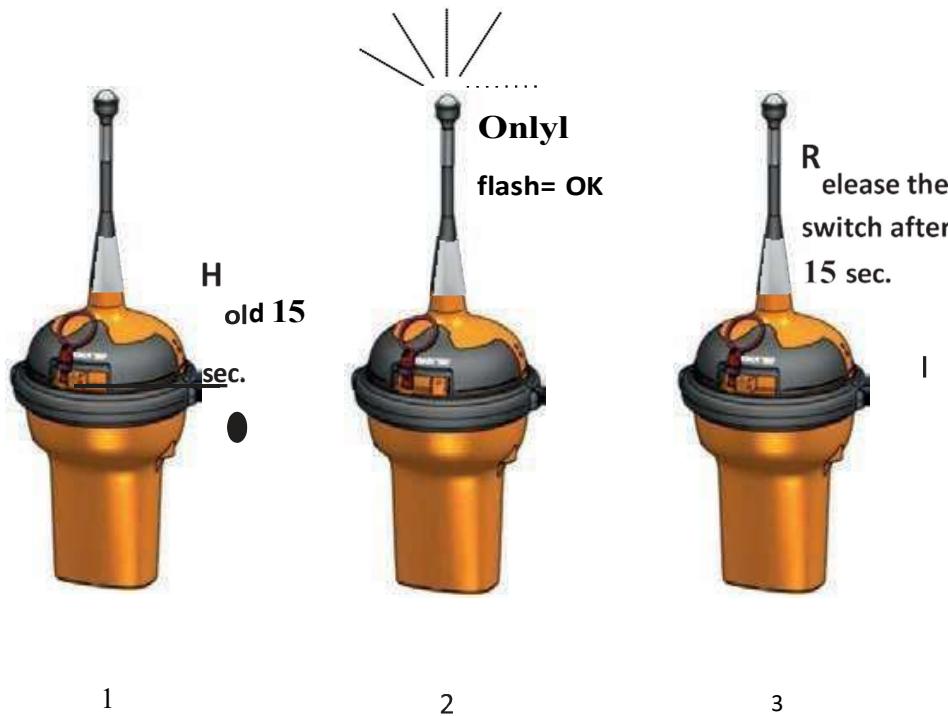
## 5.4 TEST

To perform the self-test, the EPIRB has to be removed from the bracket. FB-60 bracket: Release FB-60 top cover by removing the cotter pin.

## WARNING

THE EPIRB CAN DROP OUT OF THE FB-60 BRACKET WHEN RELEASING TOP COVER

1. Push and hold switch in TEST position for 15 seconds. Keep hands and other objects away from the antenna.
2. Test passed after one single flash only!
3. Release the switch and put the EPIRB back into the bracket



**Note:** Tests should be limited to the first five minutes of the hour, as the satellite EPIRB emits a 121,5 MHz signal during test.



## 5.5 GPS TEST

**NOTE: Limit this test to max. once/month as this test will reduce lifetime of EPIRB battery! The Tron60 GPS has maximum 60 GPS TESTs that can be performed during battery lifetime.**

1. Move Switch to TEST twice within 3 seconds and release
2. EPIRB will BEEP shortly every 3 seconds until GPS position acquired
3. OK= 2 BEEPS (see below description if Not OK)
4. Normal SELFTEST is performed after successful GPS TEST and position transmitted on 406.037 MHz. GPS position may be received on an EPIRB Tester for verification

There are two possible error conditions during this test:

- a) 5 BEEPS= Did not acquire GPS position
- b) 10 -" - = Number of GPS TEST above limit (>60)

## 5.5 EPIRB ERROR MESSAGES

If the self test detects a fault in the EPIRB module, one or more of the following indications are shown:

um ash :r of	Fault indication:
1	NONE
2	Low power on 406 MHz transmitter
3	Low battery voltage
4	Low power on 121.5 MHz transmitter
5	PLL on 406 MHz transmitter out of lock
6	PLL on 121.5 MHz transmitter out of lock
7	EPIRB module not programmed or programming not complete

**Note:** Tests should be limited to the first five minutes of the hour, as the satellite EPIRB emits a 121.5 MHz signal during self-test.



## 6 PERIODICAL CONTROL

### 6.1 EVERY MONTH:

- Test (see ch.5.3)  
What the self-test actually does is to send out a short test signal on 121,5 and 406,037MHz, testing the output of the transmitter. While transmitting the test signal, the battery voltage, output power and phase lock is tested. During the test of the 406MHz transmitter a test message is transmitted, this test message is coded with a special synchronization code and will not be recognized as real alert by the Cospas-Sarsat satellites.
- Visual Inspection
  - The Tron 60S/GPS should be easily removed and replaced in the Bracket
  - Check for defects on the EPIRB or brackets
  - Make sure that the Tron 60S/GPS and Bracket are not painted or otherwise covered with chemicals, oil, etc
  - Is the lanyard firmly attached to the Tron60S/GPS? (and not tied to the vessel)
- Check the expiry dates on:
  - EPIRB Battery
  - Hydrostatic Release Unit (HRU)

### 6.2 EVERY 12TH MONTH:

- Annual Test and Inspection  
Perform extended annual test according to IMO's MSC/Circ.1040 of 406 MHz satellite EPIRBs as required by SOLAS IV/15.9 (If required by SOLAS or national regulation)
- GPS Test (see ch. 5.3, last part)

### 6.3 EVERY 2NDYEAR:

- Replace Hydrostatic Release Unit (HRU) including Plastic Bolt (FB-60 only) (Check expiry date on label)

### 6.4 EVERY 5TH YEAR:

- Battery change
- SBM (see 7.1)



## 6.5 SERVICE PROCEDURE WARRANTY CLAIM

Warranty claims are valid until 5 years from delivery from our warehouse. The warranty is valid as long as service and battery replacement are carried out by authorized Jotron distributors or agents.

All products are warranted against workmanship and factory defect, in material. Any warranty claims must be sent to Jotron, in writing.

Jotron reserve the right to decide whether a defective unit is within warranty terms and conditions.

If Jotron make a decision of repairing a defective product, a written description of the claim and a Jotron RMA number, should follow the unit when returning it back to Jotron's factory.

Please be noted that un-protective electronics board MUST be packed in antistatic bag, before returning to Jotron's factory.

Any costs related to transportation and/or workmanship linked up to the return of the product being repaired shall be covered by the customer.

Jotron's obligations during warranty replacement;

- Replace defective unit, including any programming
- Delivery terms: DAP Incoterms 2010 by regular freight to "Place" (Airport)

Service agent's obligations during warranty claims:

- Supply replacement unit from own stock if available
- If agreed, return defective unit to Jotron
- Electronic units must be shipped in antistatic bags or covered with Jotron's plastic cover.

## SERVICE - NOT WARRANTY CLAIM

Service, such as testing, installation, programming, replacement, marking and battery exchange are provided by an authorized Jotron service agent. Jotron do not meet the cost for services mentioned above. Distributor or service agent should stock the most commonly needed spare parts.



## 7 MAINTENANCE

### 7.1 EPIRB MODULE/ BATTERY PACK

If the EPIRB is fitted on a vessel which requires GMDSS compliant equipment, the EPIRB shall be serviced, tested and approved as required by SOLAS regulation IV/15.9.2 of SOLAS 1974 as amended with, in accordance with MSC/Circ.1039 guidelines for shore-based maintenance of Satellite EPIRBs within 5 years, or by the date of battery expiry, whichever comes first.

#### 7.1.1 CHANGE OF BATTERY

The Tron 60S/GPS battery must be changed at Jotron SBM authorized workshop to be GMDSS compliant.

If your Tron 60S/GPS is not under any international or national regulations, battery can be change by authorized Jotron representatives/partners/dealers.

## 7.2 HYDROSTATIC RELEASE REPLACEMENT

### WARNING

**Only Jotron approved hydrostatic release is acceptable for use.**

#### 7.2 .1REPLACING THE RELEASE MECHANISM IN FB-60 BRACKET

1. Release and remove FB-60 top cover by removing the cotter pin (1). WARNING! The EPIRB can drop out of the FB-60 bracket when releasing the top cover. Remove the EPIRB from the bracket.
2. Press down the spring-loaded bracket plate and remove the hydrostatic unit by sliding it out of its locking slot. See arrow for direction.(2}.
3. Check the expiry date of the new hydrostatic release mechanism (3). The date should be approximately two years from the date of purchase.
4. Install a new hydrostatic unit by pressing down the spring loaded bracket plate and sliding the unit into its locking slot (4).
5. Refit the EPIRB and the FB-60 top cover. Be sure that the top cover is locked at the bottom end and that the top end are fixed at hydrostatic release mechanism rod. Replace the cotter pin (1).



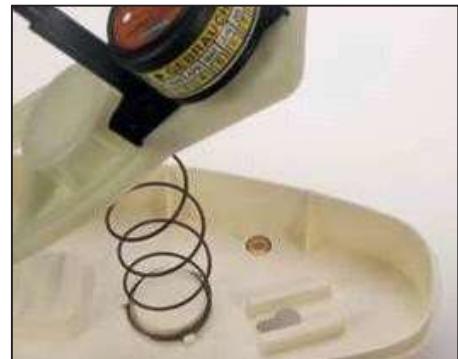
1



2



3



4





## 8 ~~SUPPLY~~ PARTS

- 86225 Battery Pack, Tron 60S/Tron 60GPS
- 86218 Hydrostatic Release Unit (HRU) w/Bolt FB-60
- 85621 FB-60, Float Free bracket
- 86559 MB-60, Manual Bracket

**NOTE: Keep the original satellite EPIRB packaging, since it may be needed if the EPIRB has to be shipped for servicing. UN requirements for shipping some batteries as hazardous goods require certain packaging standards and labelling.**

## 9 SERVICE AGENTS

Please look at [www.jotron.com](http://www.jotron.com) for Marine Service Agents. Jotron Group subsidiary companies:

Jotron UK Ltd.	Jotron Asia Pte. Ltd. Changi
Croslan Park	Logistics Center 19 Loyang
Cramlington	Way #04-26
NE23 1LA	Singapore 508724
United Kingdom	Tel: +65 65426350
Tel: +44 1670 712000	Fax: +65 65429415
Fax: +44 1670 590265	E-mail: <a href="mailto:sales@jotron.com">sales@jotron.com</a>
E-mail: <a href="mailto:sales@jotron.com">sales@jotron.com</a>	

### **Jotron USA, Inc.**

10645 Richmond Avenue, Suite 170

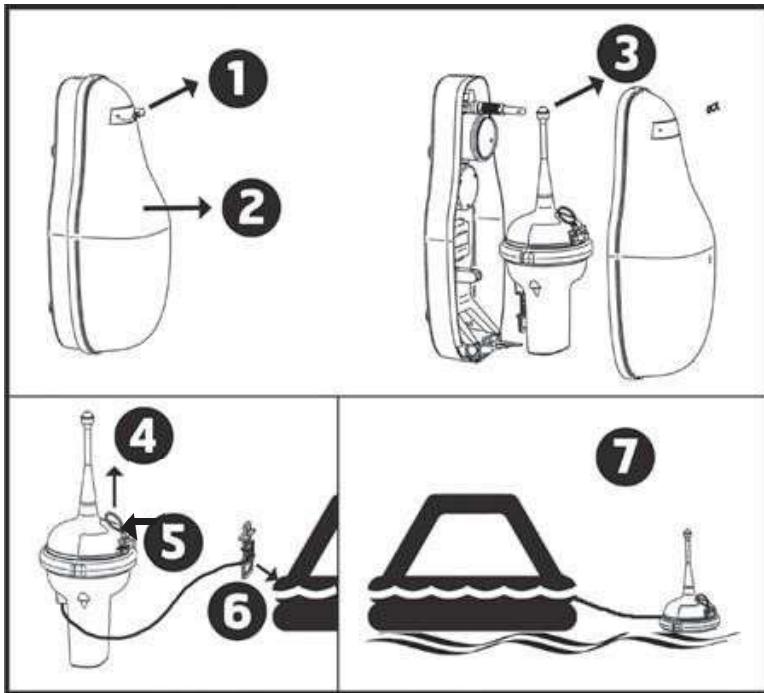
Houston, TX 77042 USA

Tel: +1 713 268 1061

Fax: +1 713 268 1062

E-mail: [sales@jotron.com](mailto:sales@jotron.com)

## MANUAL OPERATION AND ACTIVATION



For operation of the beacon in the bracket please follow instructions 1 to 7.

### WARNING

The EPIRB can drop out of the FB-60 bracket when releasing top cover

It is not recommended to operate the beacon inside a life raft or under a cover or canopy. Do NOT tie the lanyard to the ship in distress, as this will prevent the unit from functioning if the ship sinks.

1. Remove the cotter pin from the bracket {FB-60}
2. Remove the FB-60 cover
3. Take out the EPIRB from the bracket
4. Pull the locking pin holding the main switch.
5. Move main switch to the left, to ON position. The LED indicator, located at the top of the antenna, will start to flash, indicating that the EPIRB is operating.
6. Tie the beacon lanyard to you or to the survival craft
7. If possible keep the EPIRB in an open area, away from any metal objects {ship construction etc.} that may limit the satellite coverage. This is especially important for Tron 60GPS, since it needs good reception to obtain a GPS position.

**NOTE: To stop transmission, move the main switch to READY position.**



## CONTACT INFORMATION

### Jotron AS (HQ)

P.O.Box 54  
3281 Tjodalbyg  
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Tel: +47 33 13 97 00  
Fax: +47 33 12 67 80  
[sales@jotron.com](mailto:sales@jotron.com)

### Jotron AS

P.O.Box 23  
3195 Skoppum  
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Tel: +47 33 13 97 00  
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[sales@jotron.com](mailto:sales@jotron.com)

### Jotron AS

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3408 Tranby  
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### Jotron UK Ltd.

Croslan Park  
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NE23 1LA  
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Tel: +44 (0) 1670 712000  
Fax: +44 (0) 1670 590265  
[sales@jotron.com](mailto:sales@jotron.com)

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19 Loyang Way  
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Singapore 508724  
Tel: +65 65426350  
Fax: +65 65429415  
[sales@jotron.com](mailto:sales@jotron.com)

### Jotron USA, Inc.

10645 Richmond Avenue, Suite 170  
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[sales@jotron.com](mailto:sales@jotron.com)

## User & Installation Manual

### L -31,00S GMDSS Satellite Gom1munications System



**Thrane**  
LARS  
communication systems

## User Interface (UI)

The LT-3100S GMDSS system is controlled from the LT-3110S Control Unit, which is the interface for operating and configuring the system. The control unit has a 4.3" TFT-LCD display, supporting day and night modes. The layout of the display and buttons are illustrated in Figure 64.

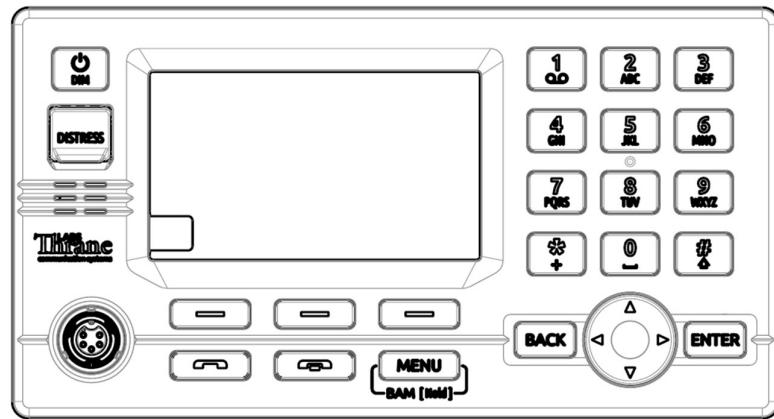


Figure 64: Control Unit (front view) - user interface display and buttons.

The control unit buttons, functions and features, are described in the following groups:

- Power & DIM button:** The power button can restart the system by pressing the button for 5 seconds. A pop-up box will show the action, and a counter will count down until the system is powered off. If the external power source to the system is re-powered, then the system will power on automatically. To activate the DIM functionality, short press the Power & DIM button. Short press ( $1 < s$ ); brightness level will change between 7 levels. Long press ( $\geq 1 s$ ); will change the display mode. The display brightness level and display mode can be changed from the menu as well (MENU -> Settings -> Display).
- DISTRESS button:** Lift the red lid and press the DISTRESS button for a minimum of 3 seconds to activate a Distress. A Distress Activated window will be visible as soon as a Distress has been activated via the DISTRESS button.
- Off-hook button:** The button is illustrated with a green colored handset. The function of the off-hook button is to activate a call, if the dialed number is available in the display or a contact is selected in the Contacts or Call History. The off-hook button can also be used to accept an incoming call. The alternative to use the off-hook button is to lift the handset out of the cradle. If the off-hook button is used and the handset remain in the cradle, the phone audio will be available in the control unit speaker. The microphone is muted, if the handset remains in the cradle - indicated with an icon in the status bar.
- On-hook button:** The button is illustrated with a red colored handset. Pressing the on-hook button will terminate an active call.
- MENU / BAM button:** The MENU button is used to open the main menu. The BACK, Navigation (arrows), and ENTER buttons are used to navigate in the menu. Press the MENU button to exit the menu from anywhere in the menu tree (instead of multiple BACK button presses). Long press ( $> 1 s$ ) the MENU / BAM button and the BAM Alert List will be shown.
- Soft keys buttons:** Three soft keys are available in the bottom of the display. The soft keys are used for different purposes and their functions will change in the operation modes of the system.

- **Navigation buttons:** The navigation buttons (BACK, arrows, and ENTER) are used for navigation purposes in the menu layout. In context of user input or when making selections, the BACK button will erase input or cancel editing respectfully, the ENTER button will end input or apply selection respectfully.
- **Numeric Keypad buttons:** The numeric keypad buttons, the '\*' button, and the '+' button can be used for entering digits, letters and special characters. Depending on context, pressing one button in rapid succession (< 1s) will cycle through a selection of letters, digits and/or special characters (e.g. when entering a phone number, pressing the '\*' character twice in succession will result in one '+' character and not two '\*' characters).  
An icon in the status bar will show the current input mode, indicating which characters can be cycled - if any. In text mode, the '#' key is used to change between capital and lowercase letters. While the DIM / Brightness pop-up is visible it is possible to use the keypad buttons to adjust the brightness.

## Display

The display contains three sections as illustrated in Figure 65: Status bar, view area and soft keys.



Figure 65: LT-3110S Control Unit (display sections)

The essential system status and system notifications are shown in the status bar, which is always present.

The view area contains the active view. The active view is changed by navigating the UI using the MENU and navigation buttons. The text and function of the soft key's changes dynamically with the active view. The soft keys can also change without changing view depending on the activity in the active view.

The Recommended viewing distance is 68 cm, at which all data is readable under all light conditions.

The general level of the brightness can be varied through 7 steps from 5 cd/m<sup>2</sup> up to 560 cd/m<sup>2</sup> on white background in "Day mode". The display also has a "Night mode" (inverted graphics) with additional 7 steps.

It has been verified through measurements that dense text information areas on black background emits light equivalent to 1 cd/m<sup>2</sup>. All measurements through all light levels in the two modes demonstrate a minimum contrast level of 350:1.

The status bar has a dedicated section for presenting time and position and 7 slots for system status icons.

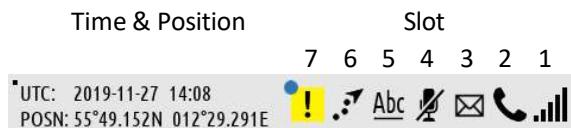


Figure 66: LT-3110S Control Unit (status bar)

**NOTE:** The status bar contains a flashing square in the upper left corner to verify that the display never freezes, see Figure 66 on page 57. The flashing square is always visible on the display. The square is not illustrated on other figures throughout this manual.

Each slot shows the status of one function or group of functions. If a group of functions in a slot has more than one active icon, the slot will continuously take turn showing one icon at a time for a few seconds before cycling to the icon of the next function.

Network Status - Slot 1	
	The LT-3100 system has no satellite signal and is not registered on the Iridium® Network.
	The LT-3100 system has satellite signal = 0 and is registered on the Iridium® Network.
	The LT-3100 system has satellite signal = 1 and is registered on the Iridium® Network.
	The LT-3100 system has satellite signal = 5 and is registered on the Iridium® Network.

Table 18: LT-3110S Control Unit - status bar (network status)

Iridium Service - Slot 2	
	Active voice call or off-hook mode.
	An external (SIP) phone is in an active voice call.
	Voice service unavailable due to an unspecified error
	There is an active data connection.

Table 19: LT-3110S Control Unit - status bar (Iridium service)

Notifications - Slot 3	
	There are one or more missed calls.
	There are one or more unread MSI messages, Safety Messages, SMS or E-mail messages.

Table 20: LT-3110S Control Unit - status bar (notifications)

Audio - Slot 4	
	The microphone on the handset is muted.

Table 21: LT-3110S Control Unit - status bar (audio)

Input Mode - Slot 5	
	The numeric keypad can be used to enter a phone number or numeric number.
	The numeric keypad can be used to enter text. The first letter of a sentence will be in upper case.
	The numeric keypad can be used to enter text. All letters will be in lower case.
	The numeric keypad can be used to enter text. All letters will be in upper case.

Table 22: LT-3110S Control Unit - status bar (input mode)

Miscellaneous Functions - Slot 6	
	The Tracking service is enabled and in periodic mode or enabled and in manual mode currently sending a report.

Table 23: LT-3110S Control Unit - status bar (miscellaneous functions)

BAM Status - Slot 7	
	Active - unacknowledged warning
	Active - silenced warning
	Active - acknowledged warning
	Active - responsibility transferred warning
	Rectified - unacknowledged warning
	Active caution

Table 24: LT-3110S Control Unit - status bar (BAM status)

## Menu System

The LT-3100S GMDSS system main menu is opened by pressing the MENU button on the keypad. The user will be presented with a layout as illustrated in Figure 67.

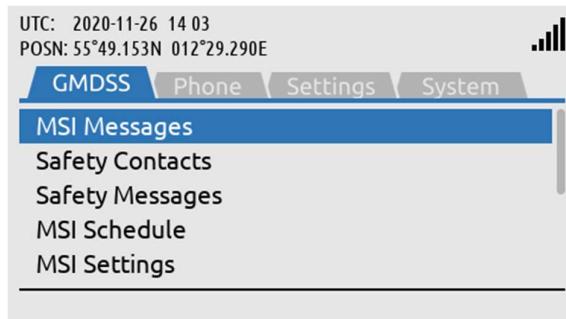


Figure 67: LT-3100S Control Unit (MENU layout)

MENU / Submenu Layout	
Submenus	Entries
GMDSS	MSI Messages Safety Contacts Safety Messages MSI Schedule MSI Settings Distress Settings Position Settings Printer Settings Location Information SES Information Terminal Test
Phone	Contacts SMS Call History Data History Phone Usage
Settings	Audio Display Date & Time Reset Options
System	BAM Alerts Network Tracking SIP Phones Position Status Subscription System Info Power Supply

Table 25: LT-3100S Control Unit (MENU and submenus)

The main menu is represented by four submenus: GMDSS, Phone, Settings, and System. The four submenus are listed in Table 25.

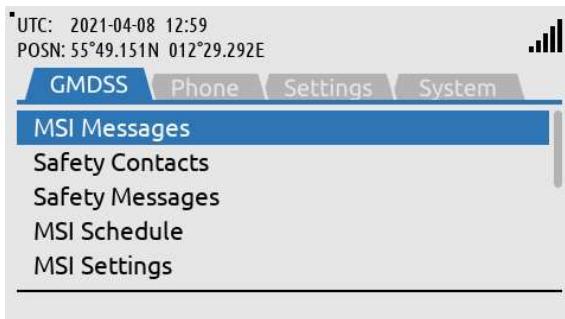


Figure 68: GMDSS submenu

GMDSS submenu:  
MENU -> GMDSS

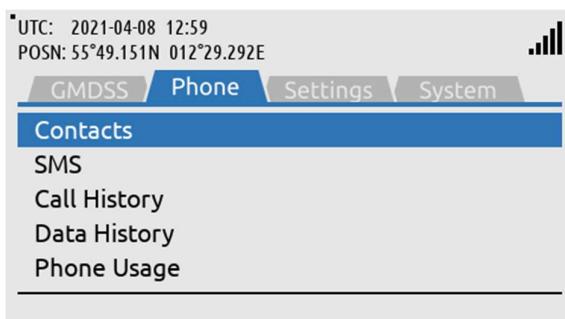
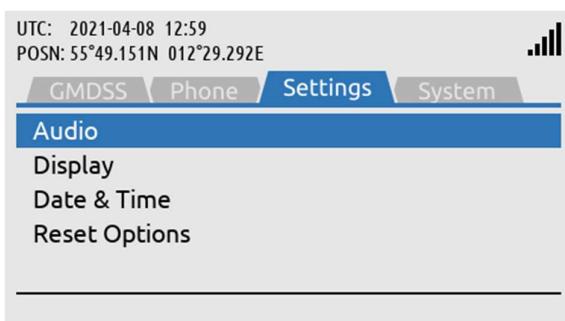


Figure 69: Phone submenu

Phone submenu:  
MENU -> Phone



Settings submenu:  
MENU -> Settings



System submenu:  
MENU -> System

Figure 71: System submenu

## Activating the System

A few things must be completed before you can have an operational LT-3100S GMDSS system on board your vessel. It is assumed that you have received the LT-3100S GMDSS system from the Lars Thrane A/S GMDSS certified partner - this could be directly or indirectly. The Lars Thrane A/S GMDSS certified partners have completed technical training and will be able to assist you with all the questions you might have to the product or service. The Lars Thrane A/S GMDSS certified partners are listed on the company's website: <https://www.thrane.eu>

The following steps are required for activating the LT-3100S GMDSS system:

- GMDSS SIM card
- Iridium Maritime Safety Service Activation Form (MSSAF)
- Completing the Installation Wizard
- Completing Radio Survey

The LT-3100S GMDSS system installation and mounting is described in the previous sections. The LT-3100S GMDSS system must complete an Iridium MSSAF form (list the ICCID of the GMDSS SIM card and IMEI number of the LT-3130 Antenna Unit) and all the vessel details, before the Installation Wizard can be started and then activate the system on the Iridium GMDSS System (IGS).

**IMPORTANT:** In order for the LT-3100S GMDSS system to be deemed operational and ready for continuous service: i) it must be correctly installed per the specifications in the User & Installation Manual of the LT-3100S GMDSS Satellite Communications System ("LT-3100S GMDSS User & Installation Manual"), ii) the LT-3100S Installation Wizard must have been completed successfully, and iii) the Iridium GMDSS SIM card, which serves to evidence that a terminal has been subscribed to Iridium's Network, has been secured and correctly installed. The Iridium GMDSS SIM card is at all times required for operation of the GMDSS equipment and is a critical and indispensable part of the LT-3100S GMDSS system. Without a valid Iridium GMDSS SIM card correctly installed and continuously maintained in the inserted position in the LT-3100S Control Unit, pursuant to the instructions in the LT-3100S GMDSS User & Installation Manual, the terminal is not an operational GMDSS terminal and not ready and available for continuous use on any vessel. Vessel operators are mandated by International Maritime Organization regulations to ensure the continued operation of any GMDSS terminal (whether a primary terminal or backup unit) installed on their vessels. The Iridium GMDSS SIM card is, as previously described, required at all times for the proper operation of the Iridium LT-3100S GMDSS system and is considered a critical component of the GMDSS equipment.

### Acquire a GMDSS SIM card

An Iridium GMDSS SIM card must be used for activating a LT-3100S GMDSS system. The GMDSS SIM card is described and illustrated in *GMDSS SIM card (SIM)* on page 36. The GMDSS SIM card may be acquired directly from your Lars Thrane A/S certified partner. The ICCID number (uniquely identifies the GMDSS SIM card) must be used for completing the Iridium MSSAF form. The GMDSS SIM card must be inserted in the LT-3110S Control Unit before powering up the system and starting the Installation Wizard. The Installation Wizard is described in *Installation Wizard* on page 65.

### Maritime Safety Service Activation Form (MSSAF)

To complete the Iridium Maritime Safety Service Activation Form (MSSAF), you must contact your Iridium GMDSS Service Provider (SP) or Lars Thrane A/S GMDSS certified partner. The Iridium website will have an up-to-date list of approved Iridium GMDSS Service Providers (SP):

<https://www.iridium.com/services/gmdss/>

Table 26 provides an overview of the details required in order to complete the MSSAF. The Iridium GMDSS Service provider (SP) might require further details, hereunder accounting.

Maritime Safety Service Activation Form (MSSAF)	
Vessel Information	Terminal Information
Vessel Name	SOLAS Vessel (yes or no)
Vessel Type	SES1 or SES2
Vessel Build Year	IMEI (system identification)
Vessel Tonnage	ICCID (GMDSS SIM Card)
Vessel Fleet Name	Type of Terminal
Vessel Nation Flag	
Vessel IMO No.	Emergency Contact Details:
Vessel MMSI	Company / Name (incl. address)
Vessel Call Sign	Emergency Contact Name
Vessel Port of Registry	Emergency Phone
Vessel Person Capacity	Emergency E-mail

Table 26: MSSAF (details required)

**IMPORTANT:** The person completing the MSSAF is fully responsible for the information provided - Vessel and Terminal Information must match the actual data.

**NOTE:** The Iridium GMDSS Service Provider (SP) might use another wording for the Iridium Maritime Safety Service Activation Form (MSSAF). However, it is recommended referring to the MSSAF when contacting your Iridium GMDSS Service Provider (SP) or Lars Thrane A/S GMDSS certified partner.

## Who's My Service Provider

Iridium has a website where they inform about the specific Service Provider (SP) who has activated the LT-3100S GMDSS system (or any other Iridium activated product).

Use the following link: <https://www.iridium.com/who-is-my-sp/>

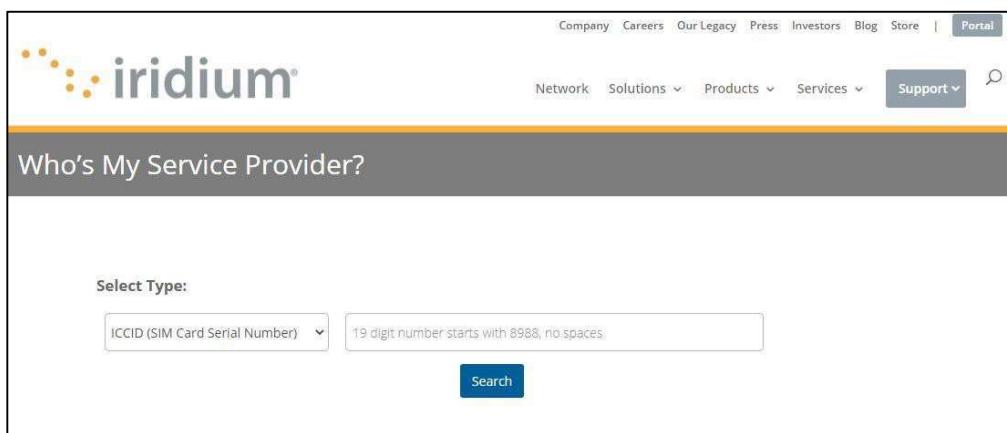


Figure 72: Iridium - Who's My Service Provider

You can use the following information:

- ICCID (GMDSS SIM card serial number)
- MSISDN (Mobile Subscriber ISDN number)

**NOTE:** The Iridium GMDSS Service Provider (SP) must be contacted for any changes to the GMDSS provisioning. 'Who's My Service Provider' will inform you where your LT-3100S GMDSS system is provisioned.

## Installation Wizard

The Installation Wizard must be completed after the installation has been finished and the LT-3100S GMDSS system is powered up for the first time. The Installation Wizard consist of the following steps: Detection of Wizard, MENU Key, System Settings, System Configuration, Download GMDSS Configuration, Select Distress RCC, System Verification, and System Activation, as illustrated in Table 27. The LT-3100S GMDSS system will only be fully functional and legal to operate when the Installation Wizard has been completed and the following text has been showed as an end of the Installation Wizard: 'The system is now ready for use.'

**NOTE:** The Iridium GMDSS System (IGS) may send the LT-3100S GMDSS system an updated GMDSS Configuration file as changes in the IGS requires this (e.g. new RCC added). The GMDSS Configuration file will automatically be pushed to the LT-3100S GMDSS system.

Installation vs. Service Wizard			
Steps	Installation Wizard	Service Wizard	Comments
Detection of Wizard	X	X	Installation or Service
MENU Key	X	-	Details available
System Settings	X	-	
System Configuration	X	X	
Download GMDSS Configuration	X	X	
Select Distress RCC	X	-	Automatic or Manual
System Verification	X	X	Distress Alert, Distress Call, MSI, Alarm Panels*and Printer*.
System Activation (OTA)	X	X	Over-the-Air (OTA)

Table 27: Installation vs. Service Wizard

**NOTE:** The LT-3100S GMDSS system must use a correct Iridium GMDSS SIM card, which is received and activated from a Iridium GMDSS Service Provider (SP) or a Lars Thrane A/S GMDSS certified partner. Make sure that the LT-3100S GMDSS system and the GMDSS SIM card is activated correctly prior to running the Installation Wizard, as described and illustrated in this section.

**NOTE:** Alarm Panels and Printer will only be verified if connected to the LT-3110S CU.

**IMPORTANT:** The LT-3100S GMDSS system will not be functional before the Installation Wizard has successfully been completed. Please contact your Iridium GMDSS Service Provider (SP) or Lars Thrane A/S GMDSS certified partner to handle any potential problem.

### Detection of Wizard



Figure 73: Installation Wizard (1 of 36)

The Installation Wizard will be displayed when powering up the system initially, and until activation completed.

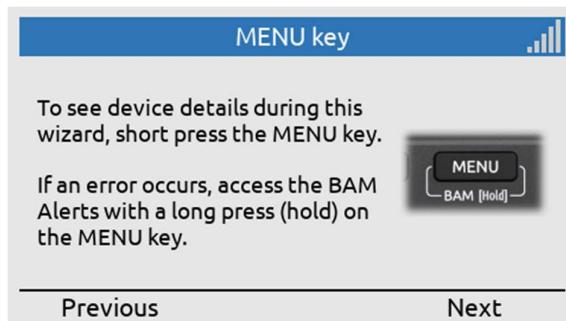
MENU Key

Figure 74: Installation Wizard (2 of 36)

The MENU key can be used to access details (short press) during completion of the Installation Wizard.

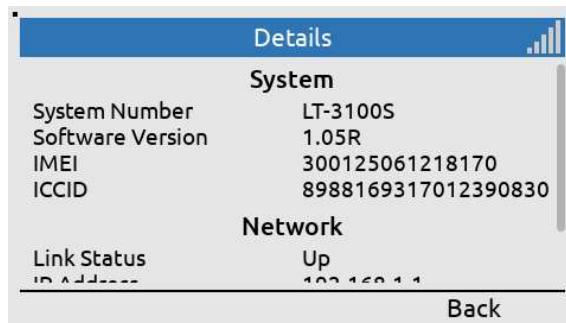


Figure 75: Installation Wizard (3 of 36)

Details information (part 1 of 2).

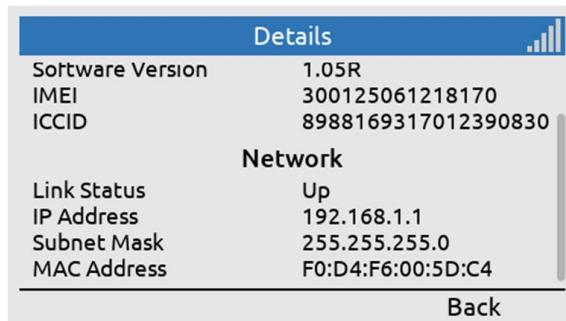
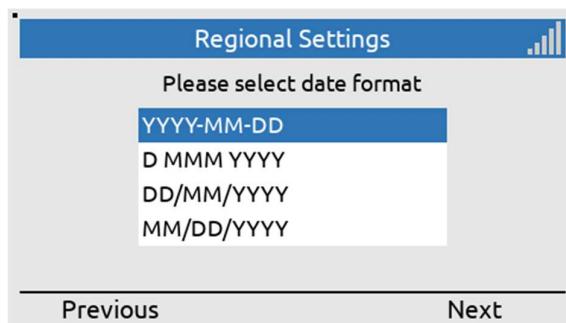


Figure 76: Installation Wizard (4 of 36)

Details information (part 2 of 2).

System Settings

Select date format.

Figure 77: Installation Wizard (5 of 36)

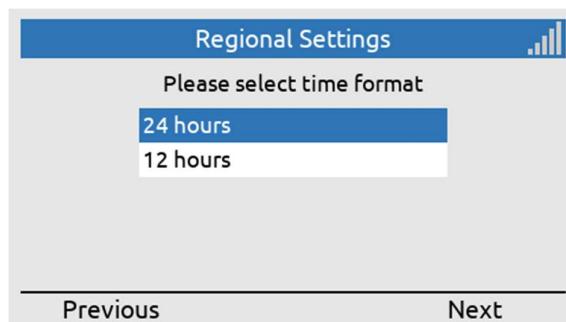


Figure 78: Installation Wizard (6 of 36)

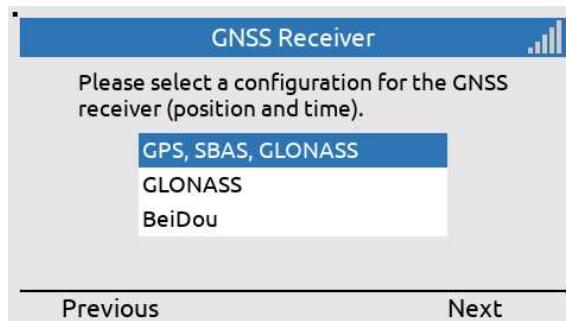


Figure 79: Installation Wizard (7 of 36)

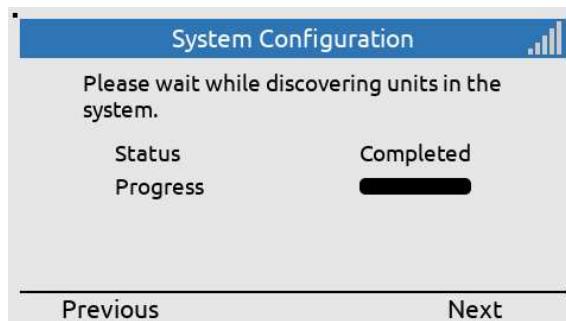
System Configuration

Figure 80: Installation Wizard (8 of 36)

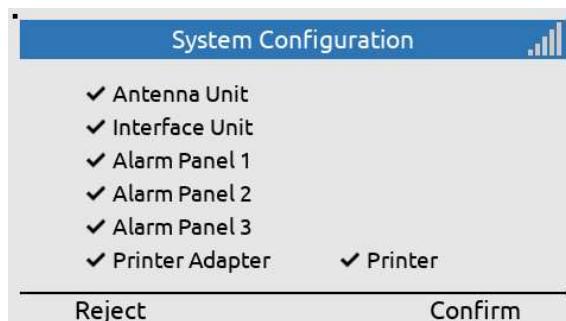


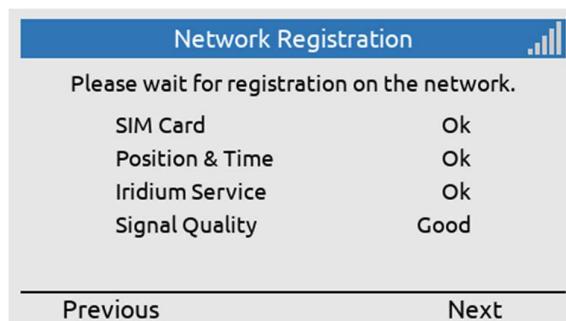
Figure 81: Installation Wizard (9 of 36)

Select time format.

Select GNSS receiver configuration (can be configured via the web server at another time).

The LT-3110S CU is searching for LT-3100S GMDSS system units part of the setup.

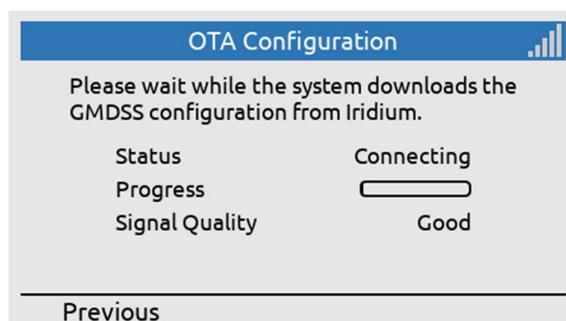
The LT-3110S CU has identified the following LT-3100S GMDSS system units, confirm to continue.



Check that everything is ready for starting the configuration of the LT-3100S GMDSS system towards the Iridium network.

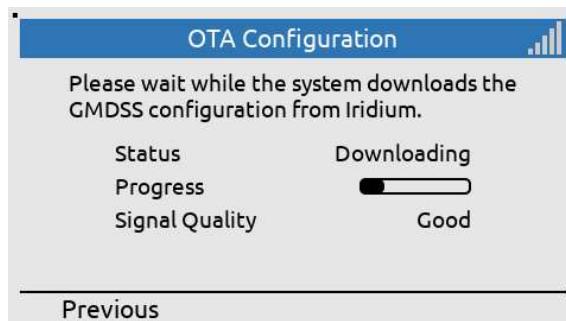
*Figure 82: Installation Wizard (10 of 36)*

#### Download GMDSS Configuration



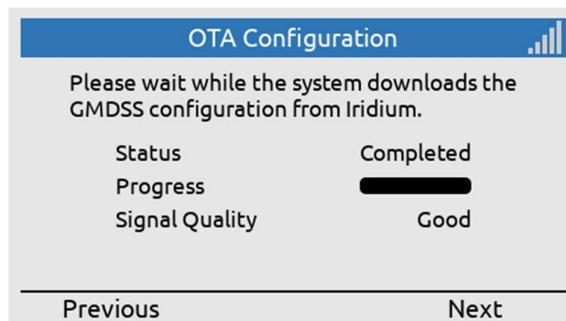
The LT-3100S GMDSS system is downloading the GMDSS Configuration file (connecting).

*Figure 83: Installation Wizard (11 of 36)*



The LT-3100S GMDSS system is downloading the GMDSS Configuration file (downloading).

*Figure 84: Installation Wizard (12 of 36)*



The LT-3100S GMDSS system has downloaded the GMDSS Configuration file (completed).

*Figure 85: Installation Wizard (13 of 36)*

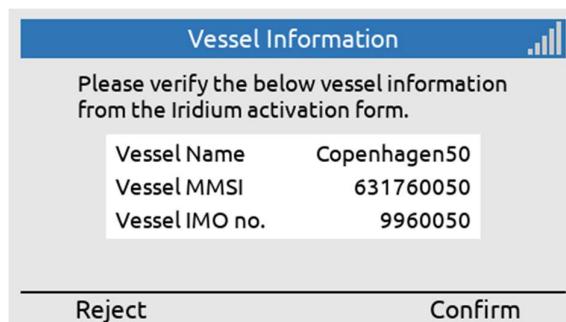


Figure 86: Installation Wizard (14 of 36)

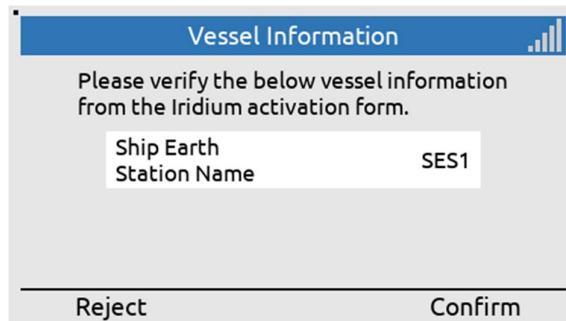


Figure 87: Installation Wizard (15 of 36)

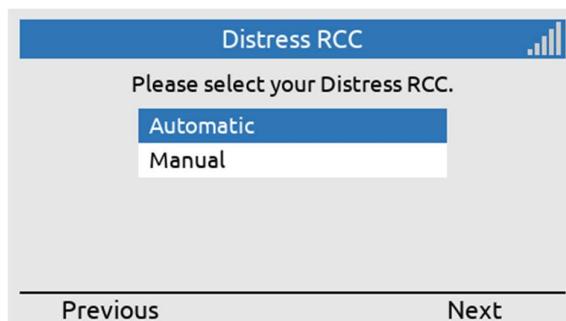
Select Distress RCC

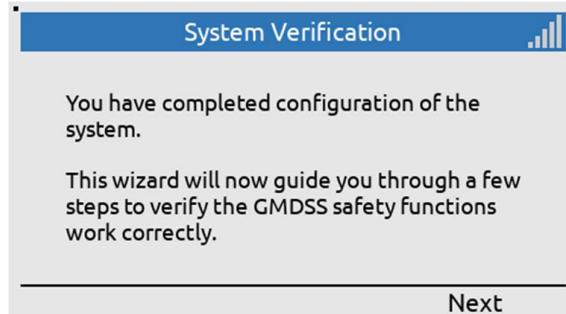
Figure 88: Installation Wizard (16 of 36)

Verify the vessel details, which are provided in the Maritime Safety Service Activation Form (MSSAF) 'Iridium activation form'.

Verify the Ship Earth Station Name (SES1 or SES2).

System Verification

Figure 89: Installation Wizard (17 of 36)



The  
configuration  
has been  
completed.

Now the  
GMDSS Safety  
Service  
functions  
must be  
verified.

**IMPORTANT:** The LT-3100S GMDSS system has now been configured. In order to verify that the LT-3100S GMDSS system GMDSS Safety Functions (Distress Alert, Distress Call, and MSI) are working correctly - these functions will now be tested. The LT-3100S GMDSS system is sending the Distress Alert in 'test mode'. The Distress Call will be connected to a voice prompt, reaching the Iridium GMDSS Server (IGS). A Rescue Coordination Center (RCC) will not be involved as part of the testing and verification.

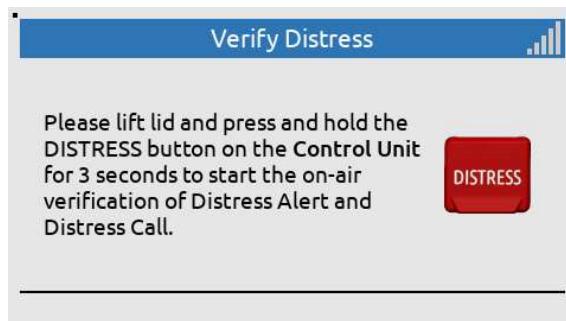


Figure 90: Installation Wizard (18 of 36)

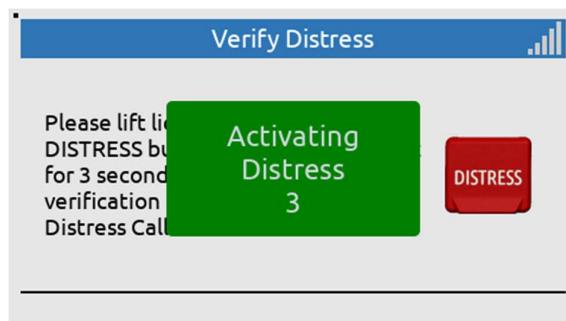


Figure 91: Installation Wizard (19 of 36)



Figure 92: Installation Wizard (20 of 36)

Lift the lid and press the DISTRESS button on the LT-3110S Control Unit.

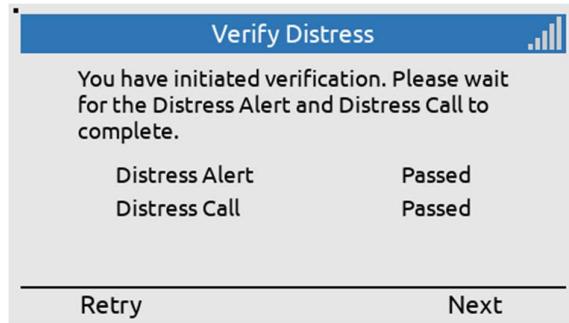
The DISTRESS button must be held for a minimum of 3 seconds to activate a Distress.

Verify Distress (CU):  
Distress Alert: In progress



Verify Distress (CU):  
Distress Alert: Passed  
Distress Call: In Progress  
(voice prompt available)

Figure 93: Installation Wizard (21 of 36)



Verify Distress (CU):  
Distress Alert: Passed  
Distress Call: Passed

Figure 94: Installation Wizard (22 of 36)



Verify MSI:  
MSI: In Progress

Figure 95: Installation Wizard (23 of 36)



Verify MSI:  
MSI: Passed

Figure 96: Installation Wizard (24 of 36)

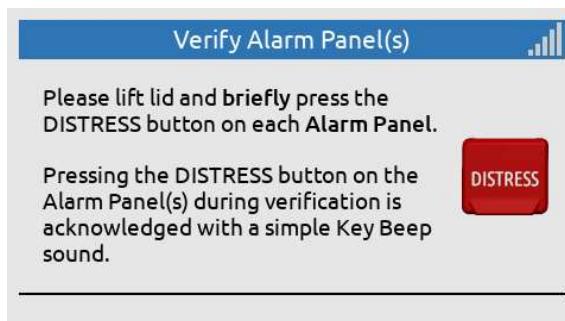
Verification of additional units

Figure 97: Installation Wizard (25 of 36)

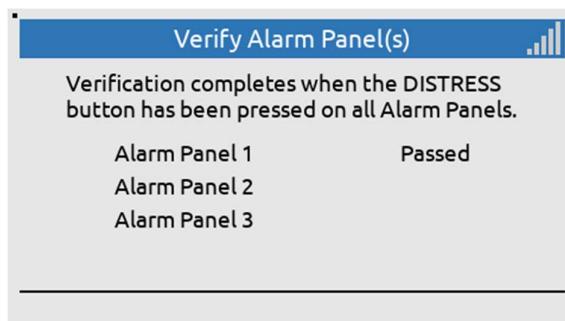


Figure 98: Installation Wizard (26 of 36)

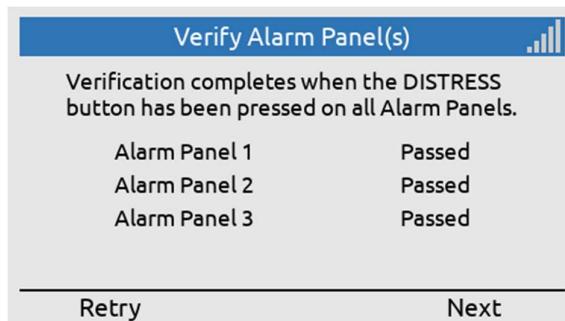


Figure 99: Installation Wizard (27 of 36)

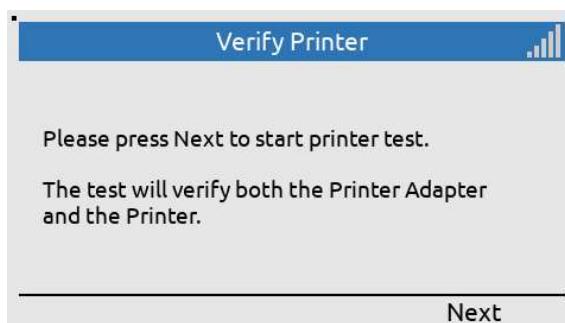


Figure 100: Installation Wizard (28 of 36)

Lift the lid and do a short press (< 3 sec) of the DISTRESS button on each connected Alarm Panel

Alarm Panel 1 has passed the test.  
Continue by short pressing DISTRESS on the other Alarm Panels

All Alarm Panels have passed the test, press Next to continue.

If a Printer is connected with a Printer Adaptor, the Printer is verified through the next steps

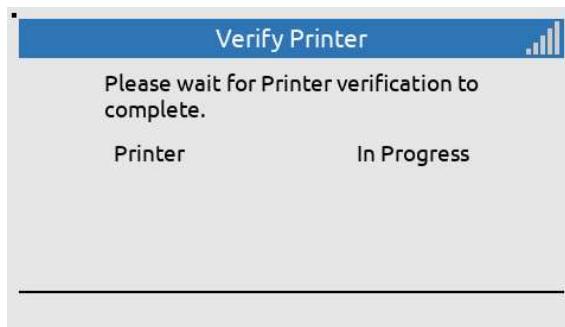


Figure 101: Installation Wizard (29 of 36)

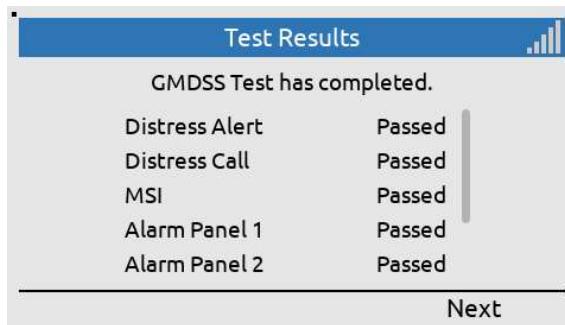
Test Results

Figure 102: Installation Wizard (30 of 36)

Printer verification in progress

The results of the system verification are listed in the Test Results screen  
Test Results (Top view)

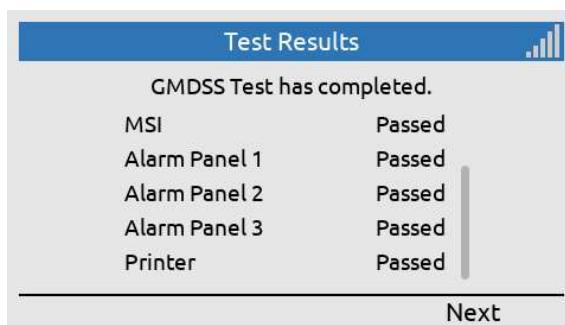


Figure 103: Installation Wizard (31 of 36)

Test Results (Bottom view)

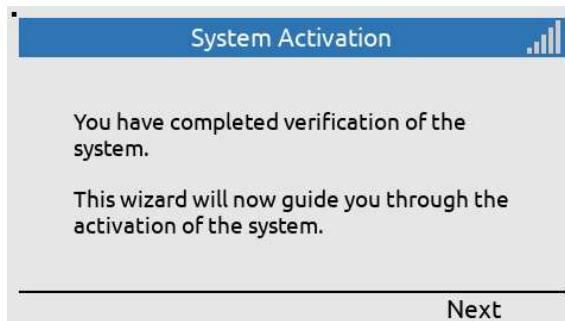
System Activation

Figure 104: Installation Wizard (32 of 36)

Verification of Distress  
GMDSS Safety Service  
functions have been  
completed successfully.

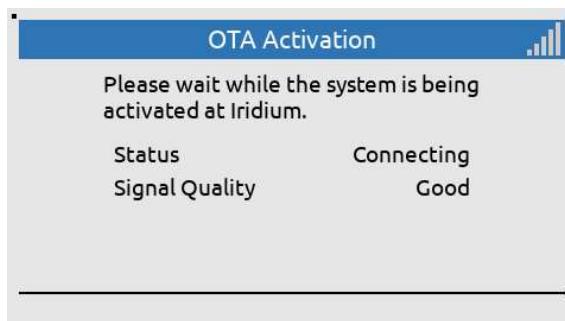


Figure 105: Installation Wizard (33 of 36)

OTA Activation:  
Status: Connecting  
(Over-The-Air)

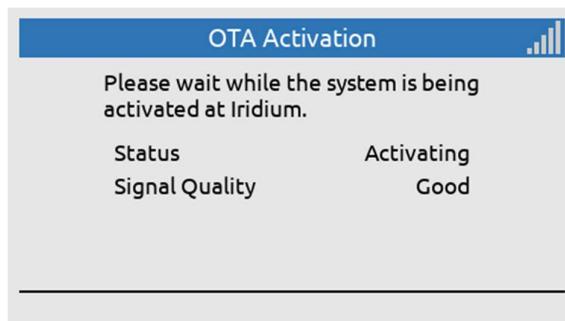


Figure 106: Installation Wizard (34 of 36)

OTA Activation:  
Status: Activating

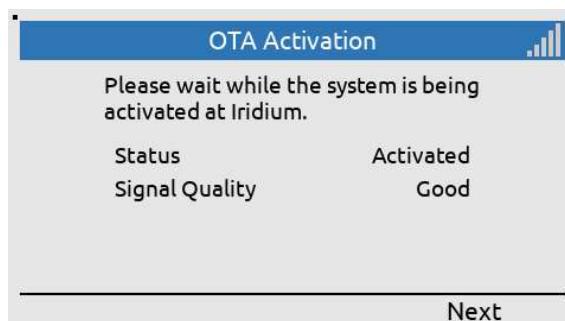


Figure 107: Installation Wizard (35 of 36)

OTA Activation:  
Status: Activated

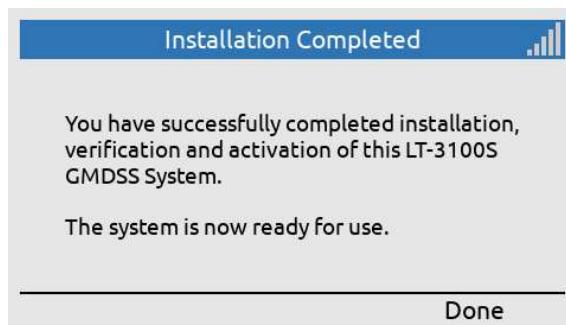


Figure 108: Installation Wizard (36 of 36)

The LT-3100S GMDSS system has now been successfully activated - the system is ready for use.

The Installation Wizard has now been completed successfully and the LT-3100S GMDSS System is now ready for use!

**NOTE:** The Installation Wizard will be displayed after powering up of the LT-3100S GMDSS system initially or if the system has been factory reset from the web server.

## Radio Survey

Once the LT-3100S GMDSS system has been physically installed, connected, and the Installation Wizard has been completed successfully, the system must be verified by conducting a GMDSS Radio Survey by an authorized person representing a Classification Society (e.g. DNV-GL). The GMDSS Radio Survey must be completed by a person who has received technical training directly or indirectly and understand the capabilities and services of the LT-3100S GMDSS system. National flag authorities and their regulations for radio survey must be followed.

**IMPORTANT:** The LT-3100S GMDSS system operational status cannot be considered seaworthy, before an official GMDSS Radio Survey has been completed successfully, according to the SOLAS IMO resolutions.

## Test of Distress Alert, Distress Call, and MSI

The LT-3100S GMDSS system support test of Distress Alert, Distress Call, and MSI (in test mode). These tests are performed as part of the following LT-3100S GMDSS system wizards:

- Installation Wizard (see *Installation Wizard* on page 65)
- Service Wizard (see *Service Wizard* on page 80)
- GMDSS Test Wizard (see *Terminal Test* on page 131) - can be activated by the user at any time

In test mode, the LT-3100S GMDSS system is verifying the Distress functions towards the Iridium GMDSS System (IGS), indicating test mode and therefore the Rescue Coordination Centers (RCC) will not be involved.

**NOTE:** In test mode, when activating the DISTRESS button, the pop-up window color is green to indicate that the LT-3100S GMDSS system is in test mode and therefore the RCCs will not be involved.

## Change of Hardware and Software

The LT-3100S GMDSS system will initially be configured, verified, and activated by guidance of the Installation Wizard, as described and illustrated in *Installation Wizard* on page 65. Hereafter, if system units are replaced or the LT-3100S GMDSS system is updated with new software, the Service Wizard will detect this and help the user with the configuration, verification, and re-activation. The Service Wizard is described and illustrated in *Service Wizard* on page 80.

Change of Hardware		
Hardware	Procedure	Comments
LT-3110S Control Unit	The LT-3110S CU can be replaced by swapping the hardware and running the Installation Wizard. Remember the GMDSS SIM card from the 'old' LT-3110S CU.	All user data (contacts, call history, SMS, and MSI) will be lost, since the LT-3110S CU is the 'master' of the system.
LT-3120 Handset	Change hardware.	Test the new hardware.
LT-3121 Cradle		
LT-3130 Antenna Unit	The LT-3130 AU can be replaced with a new LT-3130 AU, but the Iridium GMDSS Service Provider must be involved. The IMEI number of the new LT-3130 AU must be updated on the GMDSS provisioning before the new LT-3130 AU is connected to the LT-3110S CU and the system is powered up. The Service Wizard will detect the new LT-3130 AU and help the user with the configuration, verification, and re-activation on the Iridium GMDSS System (IGS). AU should show up in System -> System Info -> Unit Info	
LT-3140S Interface Unit	Remove DC input power and connect LT-3140S IU and peripherals. The units will automatically be detected and added. All units will be showed in the MENU layout (MENU -> System -> System Info -> Unit Info).	Activate the GMDSS Test Wizard 'Terminal Test' from the GMDSS submenu to test the added units.
LT-3150S Alarm Panel		
LT-3160S Printer Adapter		
GMDSS SIM Card	The GMDSS SIM card can be replaced with a new GMDSS SIM card, but the Iridium GMDSS Service Provider must be involved. The ICCID number of the new GMDSS SIM card must be updated on the GMDSS provisioning before the new GMDSS SIM card is inserted in the LT-3110S CU and the system is powered up. The Service Wizard will detect the new GMDSS SIM card and help the user with the configuration, verification, and re-activation on the Iridium GMDSS System (IGS).	Only a GMDSS SIM card can be used in the LT-3100S GMDSS system.

Table 28: Change of Hardware in the LT-3100S GMDSS system

## Change of Hardware

This section will provide some guidance on replacing system units and what the user of the LT-3100S GMDSS system should be aware of, see Table 28.

Always remove the DC input power to the LT-3100S GMDSS system when changing the hardware and system units. When changes hardware the responsible technician shall always verify the installation using the GMDSS Test wizard found in: MENU -> GMDSS -> Terminal Test.

**NOTE:** Changing the LT-3130 Antenna Unit or the GMDSS SIM card requires involving of the Iridium GMDSS Service Provider (SP) and GMDSS provisioning. For details of the Iridium GMDSS Service Provider (SP), see *Activating the System* on page 62.

**NOTE:** If moving a LT-3100S GMDSS system from one vessel to another vessel, then make sure to change all vessel and safety contact details in the GMDSS provisioning, i.e. in the Iridium Maritime Safety Service Activation Form (MSSAF). The MSSAF form is described in *Maritime Safety Service Activation Form (MSSAF)* on page 63.

**NOTE:** It is currently not possible to remove units from the system by unplugging and power cycling. A factory reset is required, followed by re-running the Installation Wizard.

**NOTE:** Successfully adding LT-3150S Alarm Panel(s) will result in Alarm Panel buttons being backlit. Pressing the MUTE button results in a key beep.

**NOTE:** Addition of only the LT-3160S Printer Adapter cannot be verified by the user. A printer is required for verification.

### Software update

The LT-3100S GMDSS system must be software updated by using the web server, configuration - software update, see *Software update* on page 216. Accessing the web server is described in *Accessing the built-in web server* on page 187. The software update procedure will automatically update all system units connected to the LT-3110S Control Unit. The Lars Thrane Image (LTI-file) e.g. LT-3100S-v1.0XR-00XX.lti will include all software components to all system units. All system units connected to the LT-3110S Control Unit will be upgraded or downgraded to be aligned with the LT-3110S Control Unit, which is the 'master' of the system. As soon as the software update procedure is started, the LT-3110S Control Unit window will indicate 'Software update in progress' as illustrated in Figure 109.

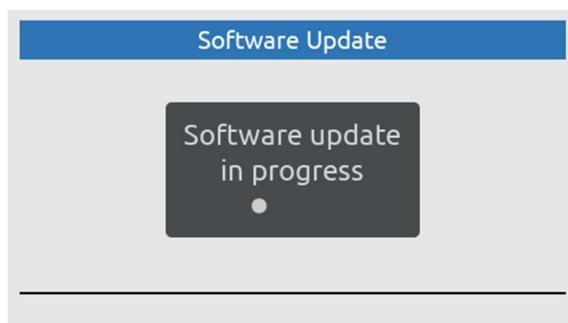


Figure 109: Software update

Once, the LT-3100S GMDSS system has finalized the software update, the system will reboot and startup showing the Service Wizard, as illustrated in Figure 110 on page 80. To finalize the software update, complete the Service Wizard.

**NOTE:** Please check the Lars Thrane A/S company website for newest available software for the LT-3100S GMDSS system.

## Service Wizard

The Service Wizard is a guidance tool to help the user of the LT-3100S GMDSS system to help complete hardware changes or software updates. The Service Wizard is very similar to the Installation Wizard, which is described in *Installation Wizard* on page 65. The Service Wizard is activated as defined in Table 29.

Service Wizard		
System change	Activated	Comments
New software	Yes	
New LT-3130 AU	Yes	IMEI must be changed for the GMDSS provisioning.
New GMDSS SIM card	Yes	ICCID must be changed for the GMDSS provisioning.

Table 29: Service Wizard

**NOTE:** The difference between the Installation and Service Wizard is illustrated in Table 27 on page 65. The Service Wizard is activated when system changes are made to the LT-3100S GMDSS system, where it is needed to check for a new GMDSS configuration file and re-activate the system on the Iridium GMDSS System (IGS).

Figure 110 is illustrating the activation of the Service Wizard due to a software update of the LT-3100S GMDSS system. Press the soft key 'Next' to start the Service Wizard. Figure 111 is illustrating the last window for completing the Service Wizard. Additional steps are illustrated in *Installation Wizard* on page 65.

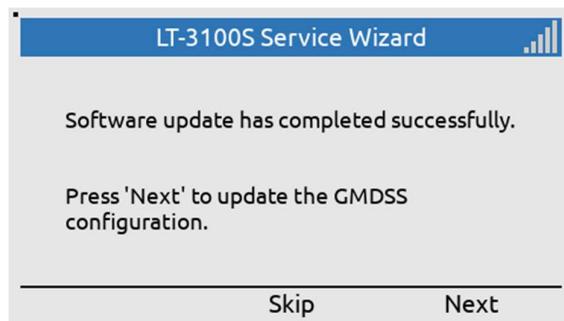


Figure 110: Service Wizard (software update)

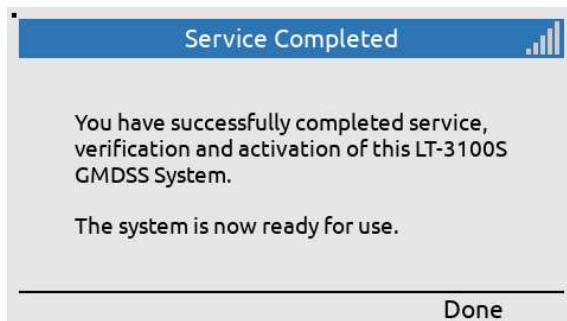


Figure 111: Service Wizard (completed)

## GMDSS Services

The LT-3100S GMDSS system support both GMDSS services, as well as non-GMDSS services. The GMDSS services supported by the LT-3100S GMDSS system are listed here:

- Distress Alert & Distress Call
- Distress Alert Relay
- Maritime Safety Information (MSI)
- Safety Calling
- Safety Messaging

The above listed GMDSS services are all described in further detail in this section. The non-GMDSS services are described in *System Services* on page 137.

Service	Direction	Priority			
		Distress	Urgency	Safety	Routine
Distress Alert	MO	X	-	-	-
MSI (Incl. Distress Alert Relay)	MT	X	X	X	-
Safety Calling	MO, MT	X	X	X	-
Safety Messaging	MO, MT	X	X	X	-
General Calling (Voice Call)	MO, MT	-	-	-	X
General Messaging (SMS)	MO, MT	-	-	-	X
E-mail	MO, MT	-	-	-	X

Table 30: LT-3100S GMDSS System Services and Priorities

**IMPORTANT:** A mobile originated (MO) Safety Call or Distress priority can only be initiated, if Distress is activated by using the DISTRESS button. This also applies to Safety Messaging.

The LT-3100S GMDSS and Non-GMDSS Services are listed in Table 30. For all the services, the supported priorities are shown (Distress, Urgency, Safety, and Routine). The LT-3100S GMDSS system support priority and preemption for Mobile Originated (MO) and Mobile Terminated (MT) services.

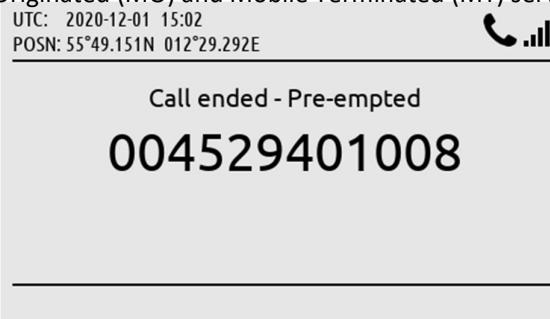


Figure 112: Voice Call (preempted)

If a service with higher priority is required, the service with lower priority will be preempted automatically by the LT-3100S GMDSS system or by the Iridium GMDSS System (IGS). An example of a voice call being preempted by the Iridium GMDSS System (IGS) is illustrated above in Figure 112.

## Distress Alert & Distress Call

The Distress can be activated using the DISTRESS button on the LT-3110S Control Unit or from the DISTRESS button on the LT-3150S Alarm Panel. The LT-3150S Alarm Panel shall be connected via the LT-3140S Interface Unit, up to 3 external LT-3150S Alarm Panels can be connected to the system.

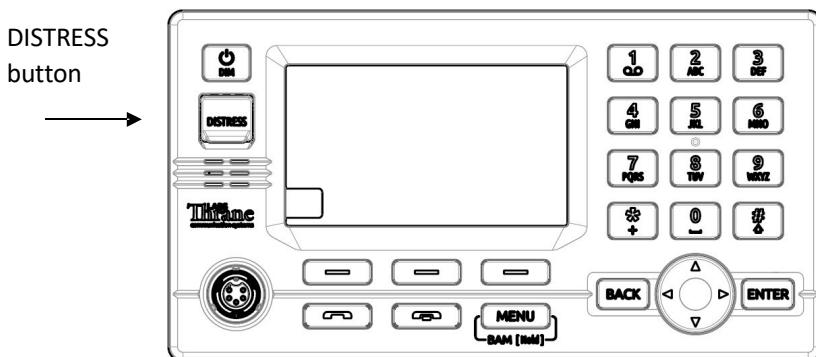


Figure 113: LT-3110S Control Unit (DISTRESS button)

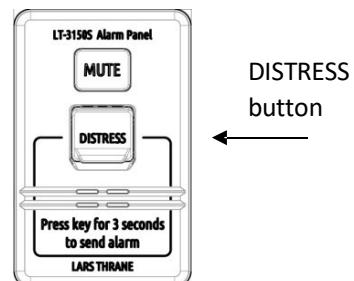


Figure 114: LT-3150S Alarm Panel (DISTRESS button)

The procedure for activating the Distress is the same for all DISTRESS buttons:

1. Lift the red lid marked DISTRESS
2. Press and hold the red DISTRESS button for a minimum 3 seconds  
(a distress tone will be played immediately when pushing the DISTRESS button)
3. The Distress will be activated in the LT-3100S GMDSS system after 3 seconds - indicated by distress tone stopping
4. Hereafter you can release the DISTRESS button  
(the light in the red button is now on maximum intensity)

**IMPORTANT:** After activating Distress from an external LT-3150S Alarm Panel, it is recommended to check the status of the Distress by verifying the display information on the LT-3110S Control Unit, where Distress delivery status will be presented (e.g. Distress Alert Status = Sending, Sent, Delivered, and Acknowledged).

The Distress will preempt any other service (voice or data), if needed.

**IMPORTANT:** By default, the LT-3100S GMDSS system is configured to complete a Distress Alert message followed by a Distress Call to a Rescue Coordination Center (RCC) after the DISTRESS button has been activated. A configuration of the LT-3100S GMDSS system is available, where the system will not automatically make the Distress Call to the RCC, when the DISTRESS button has been activated. If the LT-3100S GMDSS system has been configured not to automatically call the RCC, then this Distress Call can manually be initiated from a soft key after the Distress Alert has been delivered.

This section will illustrate and explain how to activate a Distress from the LT-3110S Control Unit. After the Distress has been activated (pushing the DISTRESS button for more than 3 seconds) status information will be available, i.e. providing Distress Alert Status delivery information.

The following Distress activities will be illustrated in this section:

- Activation of Distress (Distress Alert & Distress Call) - Distress Settings, Auto-dial = Enabled
- Select Nature of Distress
- Canceling Distress

**IMPORTANT:** It is possible to activate Distress from either the LT-3110S Control Unit or from the LT-3150S Alarm Panel (if any external LT-3150S Alarm Panels are part of the system configuration). The LT-3110S Control Unit is providing detailed information about the Distress Alert and Distress Call status and therefore it is recommended to check this unit after activation of Distress. Only from the LT-3110S Control Unit you will be able to get in contact with the Rescue Coordination Center (RCC) via the LT-3120 Handset.

#### Activation of Distress (Distress Alert & Distress Call)



LT-3110S Control Unit,  
default window.

Figure 115: Activating Distress (1 of 9)



Activation of Distress:  
DISTRESS button must  
be held for a minimum  
of 3 seconds to  
activate a Distress.

Figure 116: Activating Distress (2 of 9)

**NOTE:** In this example a test RCC has been used to illustrate the Distress (East\_TEST\_RCC).



Distress Alert Status =  
Sending.



Distress Alert Status =  
Sent.



Distress Alert Status =  
Delivered (Iridium GMDSS  
System has received the  
Distress Alert message).



Call Status = Connecting  
(if Auto-dial = Enabled,  
then a Distress Call will  
automatically be  
established to a RCC).

Figure 117: Activating Distress (3 of 9)

Figure 118: Activating Distress (4 of 9)

Figure 119: Activating Distress (5 of 9)

Figure 120: Activating Distress (6 of 9)



Figure 121: Activating Distress (7 of 9)



Figure 122: Activating Distress (8 of 9)



Figure 123: Activating Distress (9 of 9)

**IMPORTANT:**

After the Distress Alert message has been acknowledged by the Iridium GMDSS System (IGS), the system will automatically make a Distress Call to the configured RCC, if the “auto-dial” setting is enabled.

A Distress Call can be established to the RCC any time after the Distress Alert message has been acknowledged by the Iridium GMDSS System (IGS). If the “auto-dial” setting is enabled, a Distress Call is automatically established after acknowledgement has been received (~Delivered). To manually activate a Distress Call, press the soft key ‘Call RCC’ and lift the handset out of the cradle when the call is connected.

Call Status = Call active  
(Distress Call has now been established to the RCC).

Call Status = Ready  
(Distress Call has been disconnected to the RCC).  
Use soft key ‘Call RCC’ to activate a new Distress Call.

Distress Alert Status = Acknowledged  
(Distress Alert message has manually been acknowledged by the RCC).

Select Nature of Distress

Figure 124: Select Nature of Distress (1 of 4)

Use the soft key 'Select Nature' to send Nature of Distress information to the RCC.

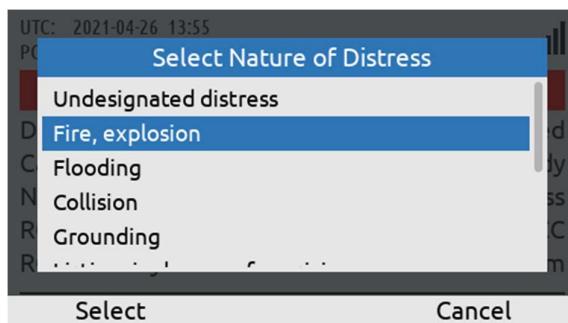


Figure 125: Select Nature of Distress (2 of 4)

Use the Navigation key (arrow up/down) to select the Nature of Distress and select.



Figure 126: Select Nature of Distress (3 of 4)

An updated Distress Alert message will now be sent to the RCC with the Nature of Distress information (e.g. Fire, explosion).



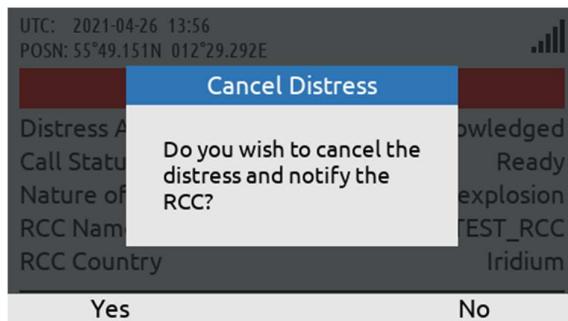
Updating will change to the selected Nature of Distress once the update has been received by the RCC.

Figure 127: Select Nature of Distress (4 of 4)

**NOTE:** The Nature of Distress can be selected before (MENU -> GMDSS -> Distress Settings: Nature of Distress) or after (soft key 'Select Nature' or 'Update Nature') activation of the Distress.

### Cancelling Distress

To cancel a Distress, press the soft key 'Cancel Distress' and confirm the decision. The LT-3100S GMDSS system will notify the RCC that the Distress has been cancelled.



To cancel a Distress, use the soft key 'Cancel Distress' and confirm.

Figure 128: Cancelling Distress (1 of 3)



A Distress Alert message indicating Cancelled will be sent to the Iridium GMDSS System (IGS) and the RCC.

Figure 129: Cancelling Distress (2 of 3)



The LT-3100S GMDSS system will now be back to the default window and operation.

Figure 130: Cancelling Distress (3 of 3)

## Distress Alert Relay

This section is illustrating the LT-3100S GMDSS system behavior when a Distress Alert Relay message is received from a Rescue Coordination Center (RCC). A Distress Alert Relay message is sent by an RCC to a predefined area (e.g. a circular area of radius 50 NM) when another vessel nearby has sent a Distress Alert message and assistance is required. The Distress Alert Relay message will contain information from the vessel in Distress. The Distress Alert Relay message will be available in the MSI (inbox). By pushing the soft key 'MSI(X)' the operator of the system will be directed to the MSI (inbox) for reading the incoming message. The following figures, Figure 131 to Figure 137, are illustrating the reception of a Distress Alert Relay message, sent from an RCC.



Figure 131: Distress Alert Relay (1 of 7)



Figure 132: Distress Alert Relay (2 of 7)

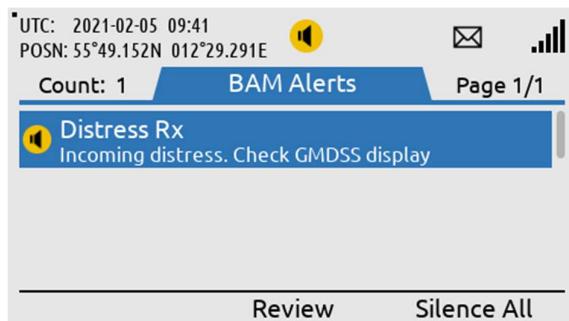


Figure 133: Distress Alert Relay (3 of 7)

The LT-3100S GMDSS System has received a new MSI message with priority of Urgency or Distress. The audible alarm can be muted by pressing 'Mute'

By pressing 'Mute' the system returns to the default screen. The BAM alert symbol and MSI(1) indicates that the priority message has not yet been read .

Long press on the MENU button, will direct the user to the BAM alerts list. If not already muted, the BAM alert can be muted by pressing the soft key 'Silence All'. Additional BAM alerts with audible alarms require another press of 'Silence All'

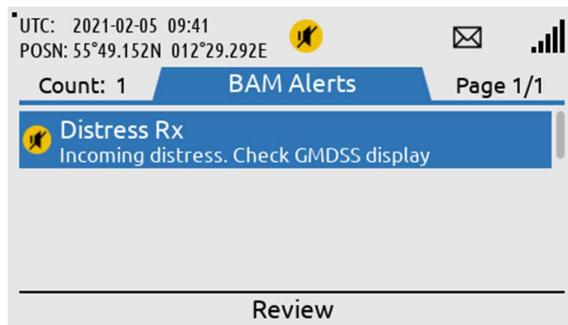


Figure 134: Distress Alert Relay (4 of 7)



Figure 135: Distress Alert Relay (5 of 7)



Figure 136: Distress Alert Relay (6 of 7)



Pressing the soft key 'Review' will direct the user to the specific MSI or Safety Message responsible for the BAM Alert. This can also be done from the default screen.

To go back to the default window press the 'Menu' button. By pressing the soft key 'MSI (1)' the user will be directed to the MSI window (1 unread MSI message).

The MSI message is a Distress Alert Relay message, Class SAR (Search and Rescue). The MSI message can be read by pressing the soft key 'Details'.

The Distress Alert Relay message has some attribute information listed in the beginning. Use the Navigation key to scroll down and read the body of the message.



The LT-3100S GMDSS system will generate visual and audio notifications, when a Distress Alert Relay message is received. The Distress Relay message will generate a BAM warning, which can be viewed by long press the MENU button for more > 1 s. As illustrated in Figure 133 and Figure 134, the BAM warning can be muted either via the soft key 'Mute' or via the soft key 'Silence All'. By pressing the soft key 'Review', you will be directed to the MSI Messages. The BAM warning cannot be acknowledged, and the visual and audio notification will only disappear, when the Distress Alert Relay message has been read in the MSI Messages.

A Distress Alert Relay message received by the LT-3100S GMDSS system is illustrated in Figure 138.

```
----- MSI MESSAGE 53 BEGIN -----
TYPE : DISTRESS ALERT RELAY
PRIORITY : DISTRESS
CREATED : 2020-11-27 09:52 UTC
RECEIVED : 2020-11-27 09:52 UTC
CANCEL BY : 2020-12-27 09:52 UTC
TARGET AREA : CIRCULAR
ADVISORY ID : 5FCOCC3B_643F
BODY LENGTH : 443 Characters
-----VESSEL IN DISTRESS-----
DISTRESS : ACTIVE
POSN : 55-45.634N 012-36.213E
TIME OF POSN : 2020-11-27 09:49 UTC
MMSI : 219022390
NAME : ARIZONA
-----MESSAGE BODY-----
DISTRESS ALERT: IRIDIUM
DISTRESS MESSAGE RECEIVED VIA IRIDIUM
VESSEL MMSI: 219022390
VESSEL NAME: Arizona
SES: SES1
DEVICE MSISDN: 881641700113
DISTRESS TYPE: undesignated distress
MESSAGE DATE: 2020-11-27
MESSAGE TIME: 09:49 UTC
MESSAGE TYPE: NEW
LATITUDE: 55.76057N
LONGITUDE: 12.60355E
POSITION RECORDED: 2020-11-27 09:49 UTC
POSITION TYPE: AUTOMATIC
POSITION UPDATED LAST 24 HRS: YES
HEADING: 12
SPEED: 0.0 KTS
RECEIVING GATEWAY: ARIZONA
<Optional text inserted by the RCC>
----- MSI MESSAGE 53 END -----
```

Figure 138: Distress Alert Relay (example)

**IMPORTANT:** A Distress Alert Relay message contains vital information about the vessel in Distress: Name, MMSI, Position, Nature of Distress, and MSISDN (if the Distress Alert message is initiated from an Iridium terminal). An example of a Distress Alert Relay message is illustrated in Figure 138. If your vessel is not being contacted directly by an RCC, after you have received a Distress Alert Relay message, then get back to the RCC and offer your assistance.

## Maritime Safety Information (MSI)

Maritime Safety Information (MSI) is information sent by different maritime authorities to radio and satellite equipment on-board SOLAS vessels. The information can vary from weather forecast, navigation relevant information, reception of Distress Alert Relay, to SAR coordination information. The different maritime authorities providing the MSI messages are listed here:

- NAVAREA Coordinator (MSI Provider)
- METAREA Coordinator (MSI Provider)
- Rescue Coordination Center (SAR)

and further details describing the different MSI messages are showed in Table 31.

Maritime Safety Information (MSI) Supported by the IGS				
Message Type	Class	Authority	Geography	Priority
Navigational warning or bulletin	NAV	MSI Provider	Rectangular Circular NAVAREA COASTAL	Safety Urgency
Meteorological warning or forecast	MET	MSI Provider	Rectangular Circular METAREA COASTAL	Safety Urgency
Urgency & Safety Traffic	NAV SAR	MSI Provider RCC	NAVAREA	Safety Urgency
Shore to Ship Distress Alert Relay	SAR	RCC	Rectangular Circular	Distress
SAR Coordination Traffic	SAR	RCC	Rectangular Circular	Safety Urgency Distress
Piracy Situation Report	NAV (Piracy)	MSI Provider	Rectangular Circular NAVAREA COASTAL	Safety
Piracy Attack Warning	NAV (Piracy)	MSI Provider	Rectangular Circular NAVAREA COASTAL	Urgency

Table 31: Maritime Safety Information (MSI) supported by the Iridium GMDSS System (IGS)

**NOTE:** MSI message can be sent with the priorities: Distress, Urgency, or Safety. MSI message with priority: Distress, will be scheduled with immediately delivery. MSI message with priority: Urgency, will be scheduled with immediate or scheduled delivery. MSI message with priority: Safety, will be scheduled with scheduled delivery. Scheduled delivery is configured between two and four times a day, depending on the NAVAREA / METAREA. The scheduled delivery time is available in the MSI schedule and illustrated in Figure 140 on page 93.

The LT-3100S GMDSS system will always receive MSI messages from the current NAVAREA / METAREA and Coastal Warning Area, in which the LT-3100S GMDSS system is located. It is possible to configure the system, e.g. to receive MSI messages from other NAVAREA / METAREA and Coastal Warning Areas. MSI Settings are described in *MSI Settings* on page 111.

The figures, Figure 139 to Figure 142, illustrates how to read an MSI message. In this example the MSI message is a Navigational warning or forecast, sent from NAVAREA 1 (United Kingdom) with priority: Safety. The MSI message has been sent with scheduled delivery and received by the LT-3100S GMDSS system 2020-11-30 09:53 (UTC), see Figure 141 on page 94.



Figure 139: MSI Message (1 of 4)

The LT-3100S GMDSS system default window. When unread MSI messages are available, the soft key 'MSI' will change to 'MSI (X)', where X is the number of unread messages.

MSI - Active				18:09
Priority	Class	Area	Cancel By	
<input checked="" type="checkbox"/> SAFETY	NAV	1	2020-12-07 09:53	
SAFETY	NAV	1	2020-11-30 10:28	
SAFETY	NAV	1	2020-11-30 10:27	
SAFETY	MET	1	2020-11-30 21:25	
SAFETY	NAV	1	2020-12-07 03:41	

Details      Show Unread

Figure 140: MSI Message (2 of 4)

The MSI window will show Priority, Class, Area, and time of cancellation for the MSI messages. Read the MSI message by pressing soft 'Details'.

**NOTE:**

If there are any unread MSI messages available in the LT-3100S GMDSS system, then soft key 'MSI' will be changed to 'MSI(X)', where X is the number of unread MSI messages. Depending on the priority of the unread MSI messages available, BAM will generate an active caution or active - unacknowledged warning. By pressing the 'MSI' softkey the user will enter the MSI list, where the MSI Messages are listed in order of reception. When receiving multiple MSI messages of Safety priority, the terminal will only emit one audible notification.

**IMPORTANT:** All MSI messages received by the LT-3100S GMDSS system must be read as soon as practically possible. It is not acceptable to have unread MSI messages available in the system.

MSI messages can contain up to 15 KB. Figure 141 illustrates that the size of this Navigational MSI message is of 2202 Bytes. Standard characters use 1 Byte, where special characters uses > 1 Byte.

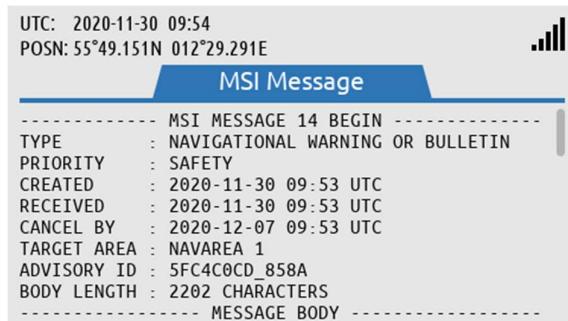


Figure 141: MSI Message (3 of 4)

The MSI message has some attribute information listed in the beginning. Use the Navigation key to scroll down and read the body of message.



Figure 142: MSI Message (4 of 4)

Body of the MSI message.  
Scroll down to read the entire MSI message.

If the MSI message obtains more space than a window, then a scroll bar will be available in the right side of the MSI message window, as shown on the figures above.

**NOTE:** It is also possible to read MSI messages via the Web Server. See *Authentication* on page 192.

#### Mute of MSI messages

A dialog box is shown in the display upon reception of an MSI message with priority Urgency or Distress, this is illustrated in Figure 143. Upon pressing the soft key 'Mute', the accompanying loud and continuous audible signal is muted.



Figure 143: MSI Message (illustration of 'Mute')

Coastal Warning / Subject Indicators

MSI messages (type: Coastal Warnings), will be related to a specific Coastal Warning Area (A - Z), e.g. 10-A, where A is the Coastal Warning Area, belonging to NAVAREA 10. One or more Coastal Warning Areas can be configured in the MSI Settings, Coastal Warning Areas. The Coastal Warnings will provide information, which is subcategories in Subject Indicators (SI). The Subject Indicators are listed in Table 32. The configuration of the Subject Indicators is described in *MSI Settings* starting on page 111, under Coastal Warning Services. The Subject Indicators are also referred as Coastal Warning Services. Be aware, that some of the Subject Indicators can be configured, others are mandatory.

<b>SI</b>	<b>Description</b>	<b>SI</b>	<b>Description</b>
A	Navigational warnings	H	LORAN messages
B	Meteorological warnings	I	Not used
C	Ice Reports	J	SATNAV messages
D	Search and rescue information, and acts of piracy warnings	K	Other electronic navaid messages
E	Meteorological forecast	L	Other navigational warnings
F	Pilot service messages	V, W, X, Y	Special service allocation by the International SafetyNET panel
G	AIS	Z	No messages on hand

Table 32: MSI Messages (coastal warning / subject indicators (SI))

**NOTE:** By default, the LT-3100S GMDSS system will only receive Coastal Warnings from the Coastal Warning Area, in which the system is located, and only mandatory Subject Indicators are received. If the user of the LT-3100S GMDSS system would like to receive Coastal Warnings from additional Coastal Warning Areas, including non-mandatory Subject Indicators, then configuration in MSI Settings is required.

## Safety Calling

Safety Calling is a GMDSS voice service supported between the LT-3100S GMDSS system and the Rescue Coordination Center (RCC). Safety Calling is not supported between two LT-3100S GMDSS systems. Safety Calling can be originated in both directions: 1) Mobile Originated (to RCC) and 2) Mobile Terminated (from RCC). Safety Calling is supported with priority: Distress, Urgency, and Safety.

**IMPORTANT:** Safety Calling (priority: Distress, also mentioned as Distress Call) can only be activated, if Distress has been activated by using the DISTRESS button. The section will focus on Safety Calling (priority: Urgency or Safety). Distress Call is described in *Distress Alert & Distress Call* on page 82.

### Mobile Originated (to RCC)

A Safety Call to an RCC can be activated in two ways:

- 1) Using soft key 'Safety Call' (available on the default window)
- 2) Navigate to the RCC Contacts (MENU -> GMDSS -> Safety Contacts)

**NOTE:** It is possible to make a Safety Call to all RCCs supported by Iridium. Using the soft key 'Safety Call' on the default window, will initiate a Safety Call to the RCC configured in Distress Settings, Distress RCC. If the user of the LT-3100S GMDSS system navigates to MENU -> GMDSS -> Safety Contacts, then all RCCs supported by Iridium can be chosen. Safety Contacts is described in *Safety Contacts* on page 107.

The following figures, Figure 144 to Figure 147, illustrates how the user of the LT-3100S GMDSS system initiates a Safety Call (priority: Urgency) to an RCC configured in Distress Settings, Distress RCC (Automatic or Manual mode).



LT-3110S Control Unit,  
default window. A Safety  
Call can be initiated by  
using the soft key 'Safety  
Call'.

Figure 144: Safety Call to RCC (1 of 4)

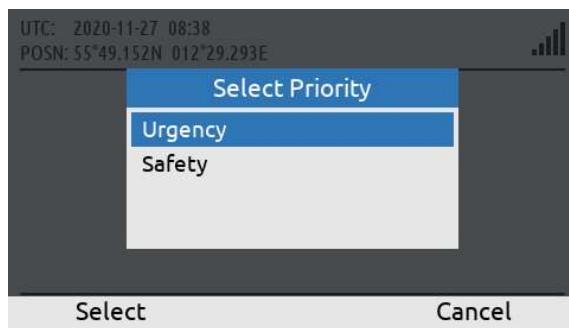


Figure 145: Safety Call to RCC (2 of 4)

Select priority: Urgency or Safety by using the Navigation key (arrows). Hereafter use the soft key 'Select'.

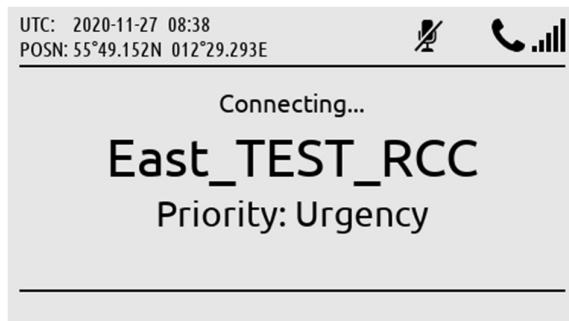


Figure 146: Safety Call to RCC (3 of 4)

The Safety Call is connecting to the RCC (in this example East\_TEST\_RCC).

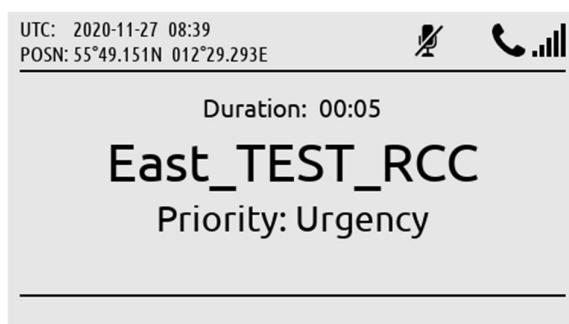


Figure 147: Safety Call to RCC (4 of 4)

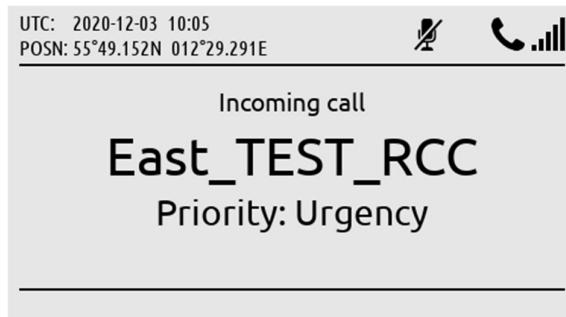
The Safety Call is connected (duration counter will start to count when the RCC has been connected).

During a Safety Call, the RCC name and the priority of the call, are both presented in the call window. As soon as the Safety Call is connected to the RCC, the duration counter will start to count in the call window. The handset must be off hooked to unmute the handset microphone. In Figure 147 above, the handset microphone mute symbol is illustrated, since the handset is placed in the cradle (on hooked).

**NOTE:** A Safety Call will always show the RCC name and priority in the call window. In Figure 147 above, the user of the LT-3100S GMDSS system has initiated a Safety Call to RCC East\_TEST\_RCC (priority: Urgency). The Safety Call has been established to the RCC (duration counter has started).

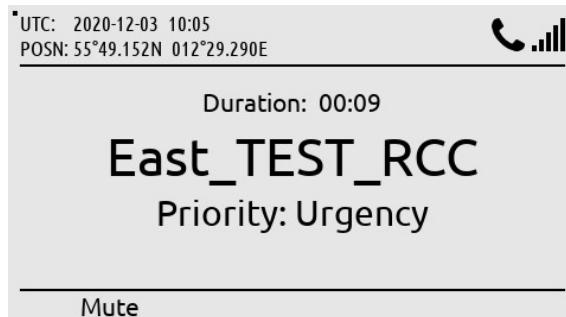
Mobile Terminated (from RCC)

A Safety Call from an RCC can be received with priority: Distress, Urgency, or Safety. The incoming Safety Call will show the RCC name and priority. The following figures, Figure 148 to Figure 149, illustrates the reception of an mobile terminated Safety Call from RCC (East\_TEST\_RCC), with priority: Urgency. The Safety Call can be connected by lifting the handset out of the cradle or by pressing the off-hook button on the front of the control unit.



An incoming Safety Call (priority: Urgency) is calling the system. The RCC name will be displayed.

Figure 148: Safety Call from RCC (1 of 2)



The Safety Call has been answered by lifting the handset out of the cradle.

Figure 149: Safety Call from RCC (2 of 2)

**NOTE:**

When receiving a Safety Voice call from an RCC, the priority of the incoming call is shown in the call window together with the name of the RCC. In the example above, East\_TEST\_RCC has been used as a test RCC for illustration.

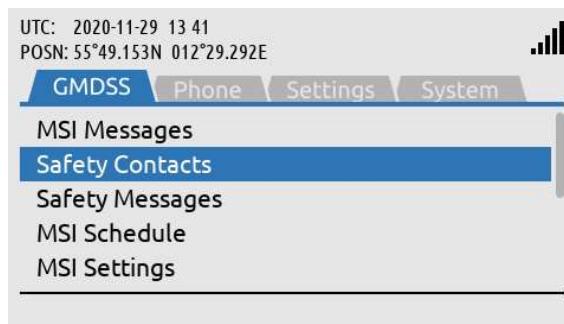
## Two-digit Codes

The LT-3100S GMDSS system support two-digit codes, which is handled as Safety Calling (priority = Safety). The two-digit codes with supported service by the Iridium GMDSS System (IGS) are listed in Table 33.

Two-digit Codes		
Service	Short code	Comments
Medical Advice	32	
Medical Assistance	38	
Maritime Assistance	39	
Shipment of Meteorological Data	41	Not supported by the Iridium GMDSS System (IGS).
Report Maritime Dangers	42	
Ship Report Definitions	43	Not supported by the Iridium GMDSS System (IGS).

Table 33: Two-digit Codes

The Two-digit Codes can be entered directly in the default window. Alternatively, the user can access the Safety Contacts, and select the soft key 'Show Next', where a complete list of Two-digit Codes supported by Iridium are listed (MENU -> GMDSS -> Safety Contacts). Figure 150 to Figure 153 illustrates the initiation of 'Medical Advice (32)'.



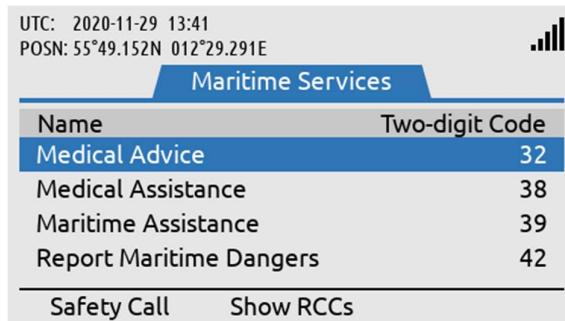
GMDSS submenu:  
Safety Contacts

Figure 150: Two-digit Codes (1 of 4)



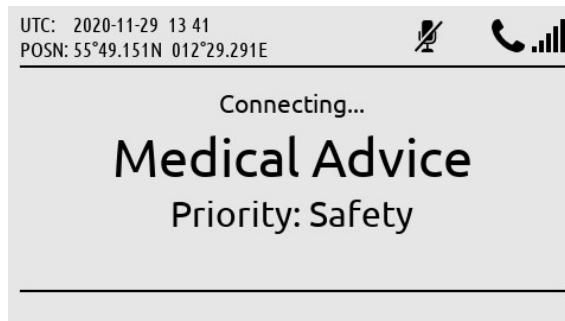
Press soft key 'Show  
Next' to access the  
Two-digit codes.

Figure 151: Two-digit Codes (2 of 4)



Select the Two-digit code (Maritime Service) and use the soft key 'Safety Call' to initiate the call.

Figure 152: Two-digit Codes (3 of 4)



Safety Call (Medical Advice, Two-digit code: 32) being established.

Figure 153: Two-digit Codes (4 of 4)

**NOTE:** Use the LT-3110S Control Unit off-hook button or the soft key 'Safety Call' when the Two-digit Code has been selected as illustrated in Figure 152.

## Safety Messaging

Safety Messaging is a GMDSS message service supported between the LT-3100S GMDSS system and the Rescue Coordination Center (RCC). Safety Messaging is not supported between two LT-3100S GMDSS systems. Safety Messaging can be originated in both directions: 1) Mobile Originated (to RCC) and 2) Mobile Terminated (from RCC). Safety Messaging is supported with priority: Distress, Urgency, and Safety.

### Mobile Originated (sending to RCC)

A Safety Message to RCC can be initiated in three ways:

- 1) Using soft key 'Safety Message' (available on the default window)
- 2) Navigate to Safety Contacts (MENU -> GMDSS -> Safety Contacts)
- 3) Navigate to Safety Messages (MENU -> GMDSS -> Safety Messages)

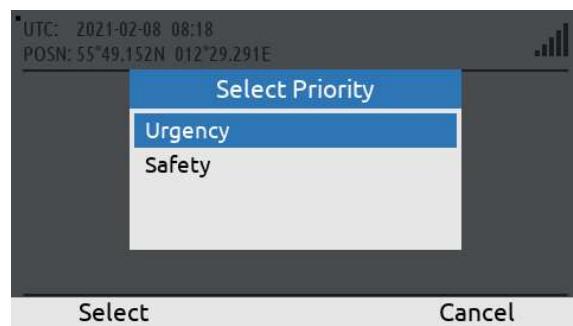
**NOTE:** It is possible to send a Safety Message to all RCCs supported by Iridium. Using the soft key 'Safety Message' on the default window will initiate a Safety Message to the RCC configured in Distress Settings, Distress RCC. If the user of the LT-3100S GMDSS system navigates to MENU -> GMDSS -> Safety Contacts, then all RCCs supported by Iridium can be selected. Safety Contacts is described in *Safety Contacts* on page 107.

The figures, Figure 154 to Figure 159, illustrates how the user of the LT-3100S GMDSS system initiates a Safety Message (priority: Urgency) to an RCC configured in Distress Settings, Distress RCC (Automatic or Manual mode).



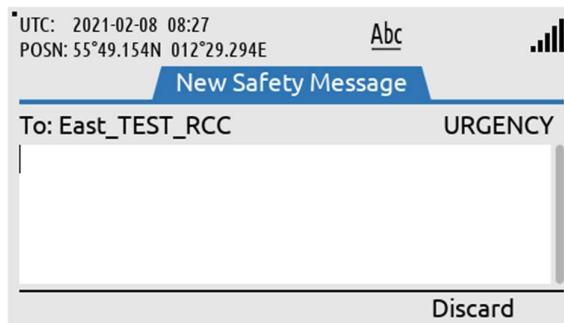
Figure 154: Safety Message to RCC (1 of 6)

LT-3110S Control Unit, default window. A Safety Message can be initiated by pressing the soft key 'Safety Message'.



Select priority:  
Urgency or Safety.

Figure 155: Safety Message to RCC (2 of 6)



Write the body text of the Safety Message.

Figure 156: Safety Message to RCC (3 of 6)



When the body text of the Safety Messages has been completed, then select soft key 'Send' and the Safety Message will be sent.

Figure 157: Safety Message to RCC (4 of 6)



Sending a Safety Message of Urgency priority generates an audible alert. Press the soft key 'Mute' to mute the audible alert

Figure 158: Safety Message to RCC (5 of 6)



The sending status of the Safety Messages will change from: Sending to Sent (re-try will be possible, if needed).

After the safety Message has been written the soft key 'Send' must be applied. The User of the LT-3100S GMDSS system will now see a window with all Safety Messages, with status information about the current transmission state: Sending, Sent or Failed. In Figure 159 on page 102 the Safety Message status is showing 'Sending', which means that the Safety Message has not been sent yet. As soon as the safety message has been sent from the LT-3100S GMDSS system, the status will change to from 'Sending' to 'Sent'. An audible signal is only generated while sending Safety Messages of priority: Urgency or Distress. Distress priority can only be used while a Distress is active.

**NOTE:** All Safety Messages received in the LT-3100S GMDSS system will be available in the Safety Messages (MENU -> GMDSS -> Safety Messages). It is possible to send Safety Messages up to 1000 characters.

#### Mobile Terminated (received from RCC)

A Safety Message from an RCC can be received with priority: Distress, Urgency, or Safety. An incoming Safety Message will be shown with the soft key Safety 'Msgs (1)' and with a BAM symbol in the status bar. A Safety Message with priority: Safety, will be indicated with the BAM active caution symbol, and Safety Messages with priority: Urgency or Distress will be indicated with the BAM active warning symbol. The figures, Figure 160 to Figure 165, illustrates the reception of an incoming Safety Message from East\_TEST\_RCC (priority: Urgency).



Receiving a Safety Message of Urgency or Distress priority generates an audible alert. Press the soft key 'Mute' to mute the audible alert

Figure 160: Safety Message from RCC (1 of 6)



Upon muting, the LT-3110S Control Unit returns to the default window. The Safety Message can be read by using the soft key 'Safety Msgs (1)'.

Figure 161: Safety Message from RCC (2 of 6)



Figure 162: Safety Message from RCC (3 of 6)



Figure 163: Safety Message from RCC (4 of 6)



Figure 164: Safety Message from RCC (5 of 6)



Figure 165: Safety Message from RCC (6 of 6)

Read the Safety Message by pressing the ENTER button or use the soft key 'Details'.

Use the Navigation key (arrow up/down) to read the entire Safety Message.

The Safety Message is now opened. The Safety Message contains a header and a message body.

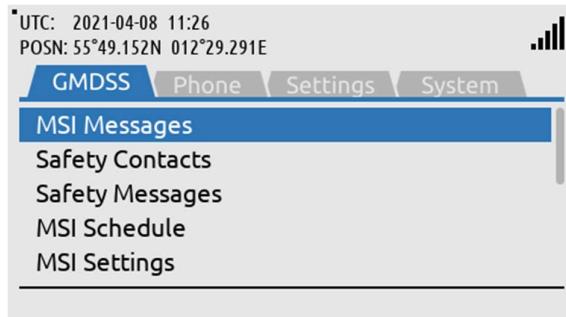
After the Safety Message has been opened (and read) the unread symbol and BAM alert will be removed.

**NOTE:** All Safety Messages received in the LT-3100S GMDSS system will be available in the Safety Messages (MENU -> GMDSS -> Safety Messages). It is possible to receive Safety Messages consisting of up to 1000 characters (equivalent to 1000 letters)

## GMDSS Submenu

This section will describe all relevant GMDSS settings and configurations. Some of the GMDSS submenus will only contain information/status about the LT-3100S GMDSS system.

The GMDSS submenus has the following menu path: MENU -> GMDSS



GMDSS submenu:  
MENU -> GMDSS

Figure 166: GMDSS submenu

The GMDSS submenu has the following entries:

- MSI Messages (see *Maritime Safety Information (MSI)* on page 92)
- Safety Contacts
- Safety Messages (see *Safety Messaging* on page 101)
- MSI Schedule
- Distress Settings
- Position Settings
- Printer Settings
- Location Information
- SES Information
- Terminal Test

MSI and Safety Messages are both described in the previous section *GMDSS Services*, and therefore not further described here.

**NOTE:** The GMDSS submenu contains all relevant GMDSS information and configuration settings and provides access to all GMDSS Safety Service functions. Safety Call, MSI, and Safety Message will be available via soft keys from the LT-3110S Control Unit default window.

**NOTE:** The Printer Settings submenu is only present if a printer adapter is installed.

## Safety Contacts

The Safety Contacts contains a list of all RCCs currently supported the Iridium GMDSS System (IGS). The Safety Contacts has the following menu path: MENU -> GMDSS -> Safety Contacts (~RCC Contacts)



Safety Contacts  
MENU -> GMDSS -> Safety  
Contacts (~RCC Contacts)

Figure 167: GMDSS submenu (Safety Contacts)

Each of the RCC Contacts (RCCs) available in the list can be contacted via a Safety Call or a Safety Message. When entering the RCC Contacts, all RCCs can be contacted with the following priority: Safety or Urgency (the East\_TEST\_RCC will not be present on a production system).

**NOTE:** If the user of the LT-3100S GMDSS system would like to get in contact with an RCC that is different from the RCC configured in Distress Settings, Distress RCC (Automatic or Manual mode), then the user of the system must navigate to the RCC Contacts window. E.g. if the LT-3100S GMDSS system is configured to Distress RCC (Automatic mode) and the operator of the system would like to make a Safety Call to an RCC in a different Sea Area. Otherwise, the soft keys 'Safety Call' or 'Safety Message' on the default window of the LT-3110S Control Unit can be used.

Safety Call is described in further details in *Safety Calling* on page 96. Safety Messaging is described in further details in *Safety Messaging* on page 101.

**IMPORTANT:** The number of RCC supported in the Iridium GMDSS System (IGS) and available in the LT-3100S GMDSS system (RCC Contacts) will increase over time. Each and all Sea Areas will always have a responsible RCC covering a specific Sea Area. A new GMDSS configuration file will automatically and occasionally be pushed to the LT-3100S GMDSS system containing an up to date RCC list. The number of RCCs supported in the Iridium GMDSS System (IGS) is listed on the Iridium GMDSS website: <https://www.iridium.com/gmdss-launch/>

## MSI Schedule

The LT-3100S GMDSS system support reception of MSI messages. The Maritime Safety Information (MSI) is described in *Maritime Safety Information (MSI)* on page 92. The MSI Schedule is providing an overview to the user about MSI messages: 1) from which NAV-/METAREAs and Coastal Warning Areas (CWA) the LT-3100S GMDSS system is receiving MSI messages from (default and optionally configured) and 2) at what time these MSI messages should be expected. MSI messages with high priority will typically be sent to the LT-3100S GMDSS system with no delay. The MSI Schedule is placed in the GMDSS submenu (MENU -> GMDSS -> MSI Schedule), see Figure 168 and Figure 169.

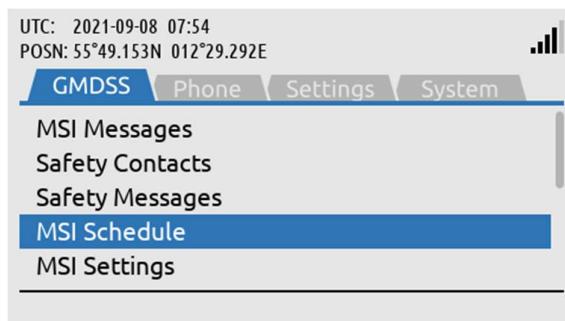


Figure 168: GMDSS submenu (MSI Schedule)

A screenshot of the 'MSI Schedule' table from the GMDSS submenu. The table header includes columns for 'Next', 'Area', 'Up To Date', and 'Update'. The data rows show the following information:

Next	Area	Up To Date	Update
08:00	NAV 1	Yes	Auto
17:30	MET 1	Yes	Auto
00:50	CWA 1+A	Yes	Auto

Figure 169: GMDSS submenu (MSI Schedule)

MSI Schedule:  
MENU -> GMDSS -> MSI  
Schedule

The MSI Schedule will show a list of the NAV-/METAREAs and Coastal Warning Areas receiving MSI information from.

### NOTE:

The MSI Schedule illustrated in Figure 169 shows a LT-3100S GMDSS system located in NAV-/METAREA 1 (~United Kingdom I). The entire list of NAV-/METAREAs is shown in Table 35 on page 127. The entire list of Coastal Warning Areas (CWA) is shown in Table 36 on page 128.

The column 'Next' is providing information about the next time when the LT-3100S GMDSS system will receive MSI information from the Iridium GMDSS System (IGS). This time will be offset randomly (up to XX minutes) to handle countless GMDSS terminals. The column 'Update' is indicating Auto, which informs that the MSI retrieve will happen automatically at the time specified.

### Manual Update

The user of the LT-3100S GMDSS system can use the soft key 'Update' to check and retrieve MSI messages. This is only possible for areas where the Update column displays 'Manual'. The manual update function is optional and not required to use at any time. The use of the manual update function is illustrated in Figure 170 and Figure 171.

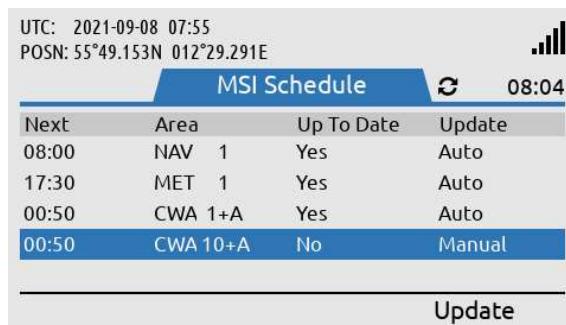


Figure 170: GMDSS submenu (MSI Schedule)

Manual 'Update' is available. If pressed the LT-3100S GMDSS system will check for MSI information

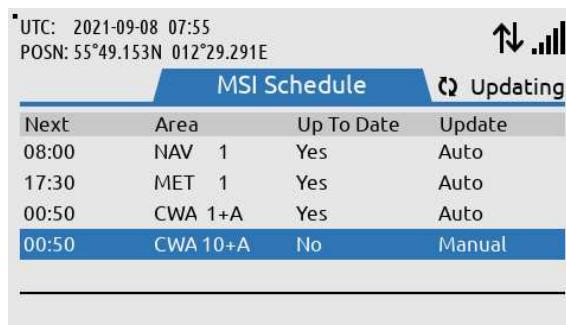


Figure 171: GMDSS submenu (MSI Schedule)

The soft key 'Update' has been used. The LT-3100S GMDSS system is now updating MSI information for the area. Here CWA 10+A

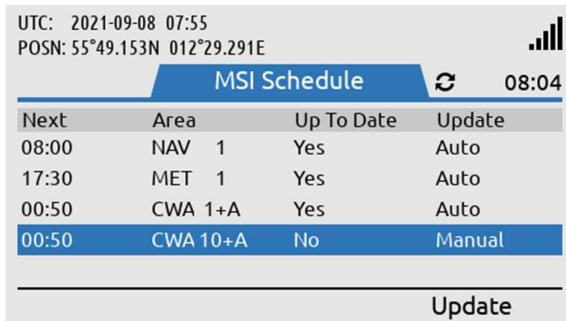


The Manual MSI Update is only allowed to be used once an hour (and user restricted).

Figure 172: GMDSS submenu (MSI Schedule)

Additional NAV-/METAREA or CWA

If the user of the LT-3100S GMDSS system has configured additional NAV-/METAREAs or Coastal Warning Areas (see *MSI Settings* on page 111), then these additional areas will be listed in the MSI Schedule, see Figure 173. The column ‘Update’ for the additional configured NAV-/METAREAs and Coastal Warning Areas (CWA) will be indicating Manual. The MSI messages from areas indicating Manual will be retrieved automatically at the ‘Next’ time from the areas indicating Auto. If the ‘Update’ column indicates Manual, It is possible to use the soft key ‘Update’ to check for all MSI messages valid for the LT-3100S GMDSS system configuration.



The screenshot shows the 'MSI Schedule' menu. At the top, it displays 'UTC: 2021-09-08 07:55' and 'POSN: 55°49.153N 012°29.291E'. Below this is a table with four columns: 'Next', 'Area', 'Up To Date', and 'Update'. The table contains the following data:

Next	Area	Up To Date	Update
08:00	NAV 1	Yes	Auto
17:30	MET 1	Yes	Auto
00:50	CWA 1+A	Yes	Auto
00:50	CWA 10+A	No	Manual

At the bottom of the menu is a blue 'Update' button.

This LT-3100S GMDSS system has been configured with NAV-/METAREA 19 (Norway) as an additional Sea Area to receive MSI information from.

Figure 173: GMDSS submenu (MSI Schedule)

**NOTE:**

All NAV-/METAREAs and Coastal Warning Areas (CWA) from where the LT-3100S GMDSS system periodically will receive MSI messages from (typically NAV and MET MSI providers) will be listed in the MSI Schedule. NAV-/METAREA and Coastal Warning Area (CWA) in which the LT-3100S GMDSS system is in and nearby, will always be shown in the MSI Schedule. For NAV-/METAREAs nearby is defined as 300 NM / for Coastal Warning Areas (CWA) nearby is defined as 100 NM.

## MSI Settings

The MSI Settings menu is handling all configuration options related to reception of Maritime Safety Information (MSI).

The MSI Settings window has the following menu path: MENU -> GMDSS -> MSI Settings

The MSI Settings has the following optional configuration items:

- NAVAREA / METAREA
- Coastal Warning Areas
- Coastal Warning Services
- Area By Fixed Position



MSI Settings:  
MENU -> GMDSS -> MSI  
Settings

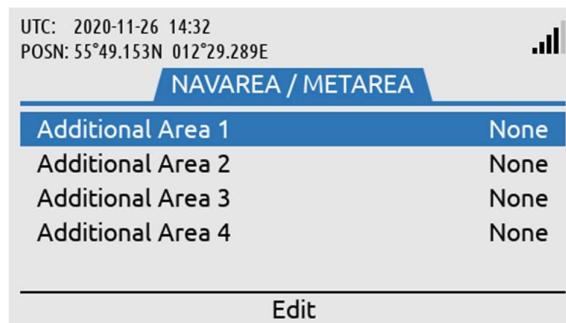
Figure 174: GMDSS submenu (MSI Settings)

**NOTE:**

The LT-3100S GMDSS system will always receive the mandatory MSI information, which are relevant for the current NAV- / METAREA and Coastal Warning Area, in which the terminal is located and nearby.

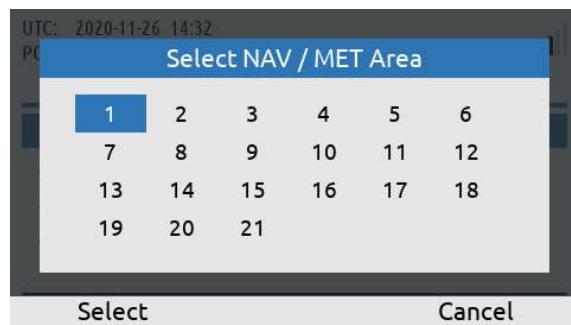
### NAVAREA / METAREA

The LT-3100S GMDSS system can be configured to receive MSI information from NAVAREA / METAREAS, in which the terminal is not located. The following figures, Figure 175 to Figure 178, illustrates how to add NAVAREA / METAREAs in order to receive MSI information from these areas.



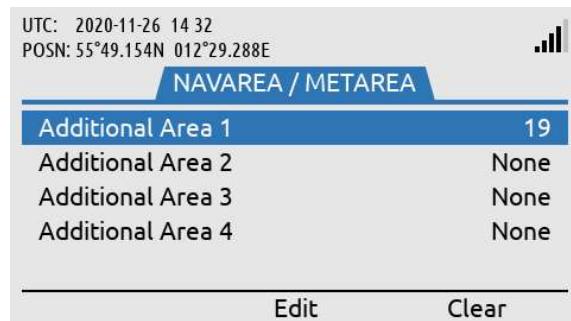
In the NAVAREA / METAREA additional Sea Areas can be added to receive MSI information from (up to 4).

Figure 175: MSI Settings, NAV-/METAREA (1 of 4)



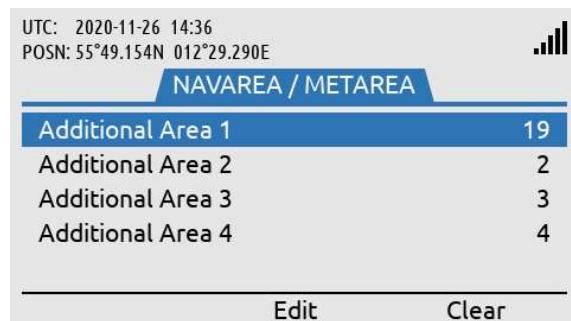
Select the NAV / MET Area to be added to the configuration.

Figure 176: MSI Settings, NAV-/METAREA (2 of 4)



NAV-/METAREA 19 (Norway) has been added to the configuration list.

Figure 177: MSI Settings, NAV-/METAREA (3 of 4)



Up to 4 additional NAV / MET Areas can be added to the configuration list.

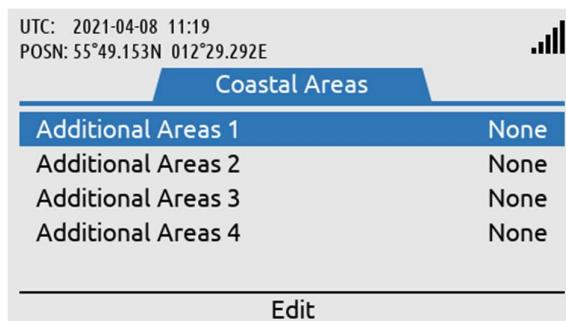
Figure 178: MSI Settings, NAV-/METAREA (4 of 4)

**NOTE:** It is possible to add up to four additional Sea Areas, from which you would like to receive MSI information from. The current Sea Area, in which you are currently located, can be added as one of the four additional Sea Areas. You will always receive MSI information from the Sea Area, in which you are currently located. In order to identify the sea area, in which you are currently located, see *Location Information* on page 126.

### Coastal Warning Areas

The LT-3100S GMDSS system can be configured to receive MSI information from Coastal Warning Areas, in which the terminal is not located. The MSI Settings configuration of the Coastal Warning Areas in this section has no impact on the MSI Settings configuration of the NAVAREA / METAREA in the previous section. Both MSI Settings will add geographical areas to the current Sea Area (and maybe Coastal Warning Area), in which the terminal is in and nearby, and will by default receive MSI Information from. The number of Coastal Warning Areas represented in each Sea Area is very different and can vary from 0 to A - Z.

The following figures, Figure 179 to Figure 183, illustrates how to add Coastal Warning Areas in order to receive MSI information from these areas.



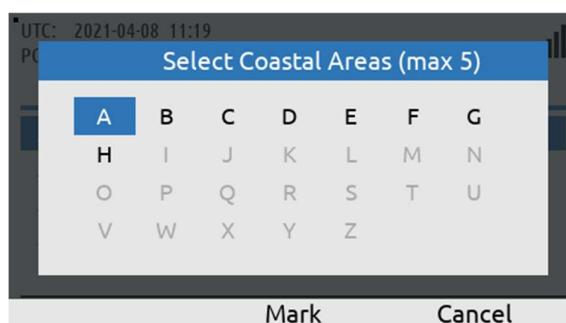
Coastal Warning Areas:  
MENU -> GMDSS -> MSI  
Settings -> Coastal Warning Areas

Figure 179: MSI Settings, Coastal Warning Areas (1 of 5)



Select NAVAREA responsible for the Coastal Warning Area/-s to be added to the configuration list.

Figure 180: MSI Settings, Coastal Warning Areas (2 of 5)



Mark Coastal Warning Areas to be added to the configuration list (can individually be marked or not).

Figure 181: MSI Settings, Coastal Warning Areas (3 of 5)

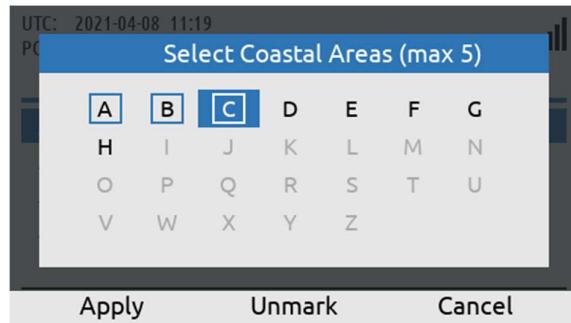


Figure 182: MSI Settings, Coastal Warning Areas (4 of 5)

On-going marking of the Costal Warning Areas to be added. Use the soft key 'Apply' when completed.

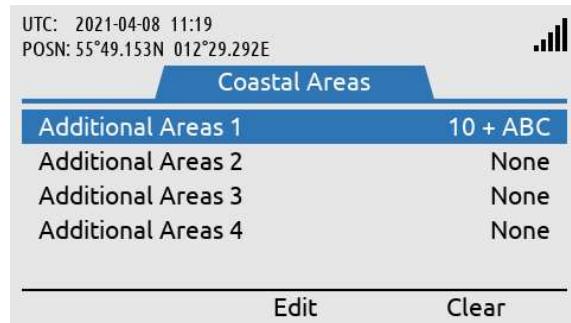


Figure 183: MSI Settings, Coastal Warning Areas (5 of 5)

Coastal Warning Areas: A, B, and C in NAVAREA 10 has been added to the list of areas, in which the system will now receive MSI information from.

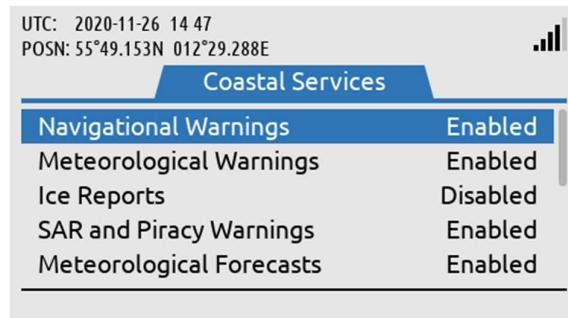
In the MSI Settings configuration of the Coastal Warning Areas, as illustrated in Figure 183 above, it is only the Coastal Warning Areas: A, B and C (located in NAVAREA 10) which are added to the MSI reception. If the user of the LT-3100S GMDSS system would like to receive MSI messages from NAVAREA / METAREA 10, then make sure to add this Sea Area in the MSI Settings as described in NAVAREA / METAREA and as illustrated in Figure 175 on page 111.

**NOTE:** It is possible to add up to four additional NAVAREA / Coastal Warning Areas (A-Z), in which you would like to receive MSI information from. The current Coastal Warning Area, in which you are currently in, can be added as one of the four additional Coastal Warning Areas (A-Z). You will always receive MSI information from the Coastal Warning Area, in which you are currently in (if located in a Coastal Warning Area). In order to identify the Coastal Warning Area, in which you are currently located, see *Location Information* on page 126.

**NOTE:** It is only possible to configure up to 5 Coastal Warning Areas for a given NAVAREA.

### Coastal Warning Services

The Coastal Warning Area in which you are located and the Coastal Warning Areas that you have configured optionally have some mandatory and optional services. The Coastal Area Services applied will be valid for all Coastal Warning Areas watched. The Coastal Warning Services are illustrated in Figure 184 and the complete list of services are available in Table 34.



Coastal Warning Services:  
MENU -> GMDSS -> MSI  
Settings -> Coastal  
Warning Services

Figure 184: MSI Settings, Coastal Warning Services (1 of 2)



Enabling of Ice Reports  
for all Coastal Warning  
Areas illustrated.

Figure 185: MSI Settings, Coastal Warning Services (2 of 2)

Coastal Warning Services		
Service	Default Settings	User Configurable
Navigational Warnings	Enabled	No
Meteorological Warnings	Enabled	No
Ice Reports	Disabled	Yes
SAR and Piracy Warnings	Enabled	No
Meteorological Forecasts	Enabled	No
Pilot Service Messages	Disabled	Yes
AIS	Disabled	Yes
LORAN Messages	Disabled	Yes
SATNAV Messages	Disabled	Yes
Other Navaids Messages	Disabled	Yes
Other NAV Warnings	Disabled	Yes

Table 34: MSI Settings, Coastal Warning Services

**NOTE:** In Figure 185 it is illustrated that Ice Reports has been enabled for Coastal Warning Areas. This setting will apply to all Coastal Warning Areas watched.

### Area By Fixed Position

As an alternative to configure MSI Settings for NAVAREA / METAREA and Coastal Warning Areas, Area By Fixed Position can be configured for receiving MSI information from a predefined position of interest. The user of the LT-3100S GMDSS system can configure a static position (latitude / longitude) with a fixed radius of 300 NM. All NAVAREA / METAREA and Coastal Warning Areas intercepted and included in this fixed circle will be added to the list of Sea Areas Sea Areas, in which the terminal will receive MSI information from.



Area By Fixed Position:  
MENU -> GMDSS -> MSI  
Settings -> Area By Fixed  
Position

Figure 186: MSI Settings, Area By Fixed Position (1 of 3)



Inserting position (latitude and longitude) in order to receive MSI information from this point of interest.

Figure 187: MSI Settings, Area By Fixed Position (2 of 3)



Position inserted and Area By Fixed Position activated.

Figure 188: MSI Settings, Area Fixed By Position (3 of 3)

**NOTE:** MSI Settings Area By Fixed Position is an alternative to configure NAVAREA / METAREA and Coastal Warning Areas in order to receive MSI information from a predefined position of interest.

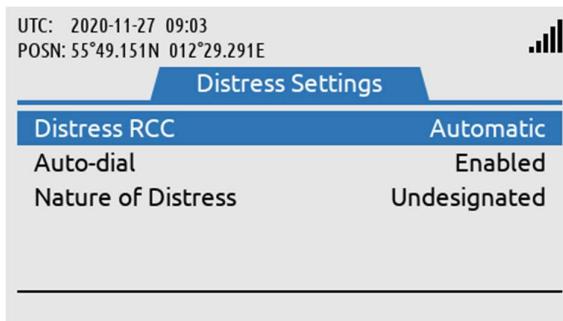
## Distress Settings

The LT-3100S GMDSS system has a submenu from where all relevant Distress Settings can be configured. The Distress Settings window has the following menu path: MENU -> GMDSS -> Distress Settings

The Distress Settings window consist of the following configuration items:

- Distress RCC
- Auto-dial
- Nature of Distress

The configuration items will be further described in the next sections.



Distress Settings:  
MENU -> GMDSS ->  
Distress Settings

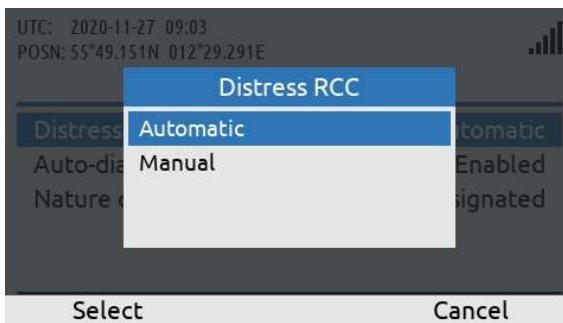
Figure 189: GMDSS submenu (Distress Settings)

### Distress RCC

The Distress Settings, Distress RCC can be configured to the following options:

- Automatic
- Manual

The Distress RCC recommended setting is Automatic. The Distress RCC has been configured during completion of the Installation Wizard, see *Installation Wizard* on page 65. In Automatic mode the Distress Alert, Distress Call, Safety Calling and Safety Messaging (Distress, Urgency, or Safety) will be routed to the RCC responsible for the Sea Area, in which the vessel is located. In Distress RCC Manual mode the specific RCC selected will be used for routing the Distress Alert, Distress Call, Safety Calling and Safety Messaging (Distress, Urgency, or Safety) regardless of where the vessel is located.



Use the Navigation key  
to select Automatic or  
Manual RCC.

Figure 190: Distress Settings, Distress RCC (1 of 3)

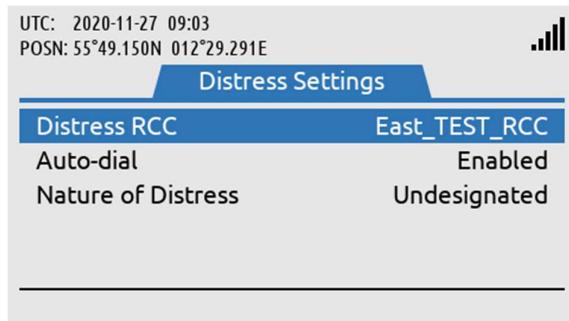
**NOTE:** The user of the LT-3100S GMDSS system can always enter the Distress Settings, RCC Settings and change the setting of the Distress RCC between Automatic and Manual mode.

The following figures, Figure 191 and Figure 192, illustrates how the user of the LT-3100S GMDSS system can change Distress RCC from Automatic to Manual mode. In Manual mode the specific Distress RCC selected will be displayed in the Distress Settings window. In this example: East\_TEST\_RCC has been configured.



If Distress RCC, Manual has been selected, then the user of the LT-3100S GMDSS system can select an RCC from a list.

Figure 191: Distress Settings, Distress RCC (2 of 3)



The Manual RCC selected will be shown in Distress Settings with its RCC name.

Figure 192: Distress Settings, Distress RCC (3 of 3)

**NOTE:** During completion of the Installation Wizard and whenever there are changes to the GMDSS configuration file received from the Iridium GMDSS System (IGS), the LT-3100S GMDSS system will get the latest version of the GMDSS configuration file, which may contain changes to e.g. the RCC Contacts. The user of the LT-3100S GMDSS system should expect that Iridium will add new RCCs frequently after introducing the Iridium GMDSS Service.

### Auto-dial

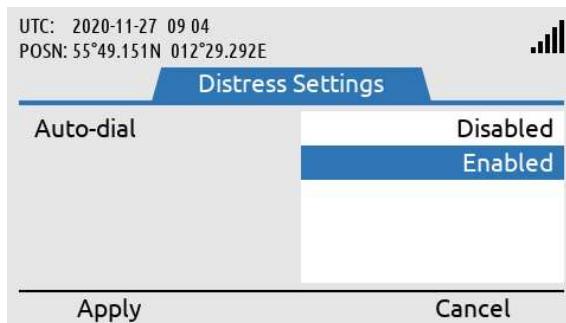
The Distress Settings, Auto-dial can be configured to the following options:

- Enabled
- Disabled

The default setting of the Auto-dial is Enabled. It is always possible to configure the Auto-dial setting at any time after the Installation Wizard has been completed.

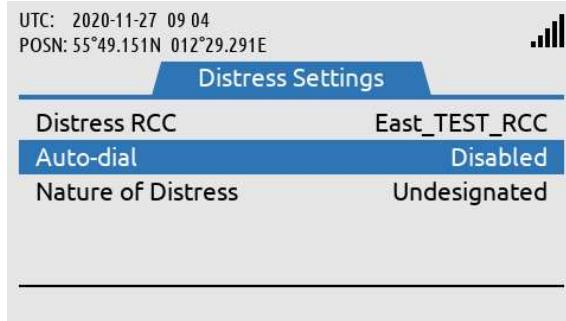
If the Auto-dial is configured to Enabled, then the LT-3100S GMDSS system will automatically call the RCC, if the DISTRESS button has been activated and once the Distress Alert messages has been delivered to the Iridium GMDSS System (IGS). The Distress Alert and Distress Call is described in further details in *Distress Alert & Distress Call* on page 82.

The following figures, Figure 193 and Figure 194, illustrates how the user of the LT-3100S GMDSS system can change Auto-dial from Enabled to Disabled.



Auto-dial:  
MENU -> GMDSS -> Distress  
Settings -> Auto-dial

Figure 193: Distress Settings, Auto-dial (1 of 2)



Auto-dial configured to  
Disabled (the LT-3100S  
GMDSS system will not  
automatically make a  
Distress Call to the RCC).

Figure 194: Distress Settings, Auto-dial (2 of 2)

#### **NOTE:**

The Auto-dial configuration is by default set to Enabled, which means that the LT-3100S GMDSS system automatically will call the RCC after a Distress Alert messages has successfully been delivered to the Iridium GMDSS System (IGS), after the DISTRESS button has been pushed and held for a minimum 3 seconds.

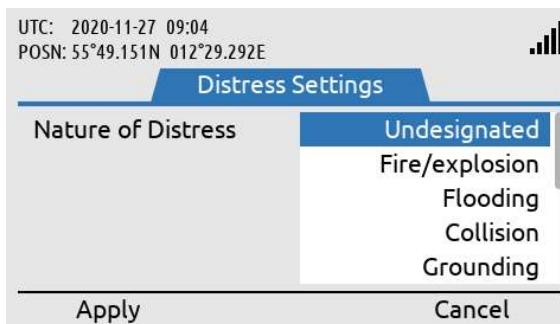
### Nature of Distress

The Distress Settings, Nature of Distress can be configured to the following options:

- Undesignated
- Fire/explosion
- Flooding
- Collision
- Grounding
- Listing
- Sinking
- Disabled and adrift
- Abandoning ship
- Piracy/armed attack
- Man overboard

There are two methods of configuring Nature of Distress when the user of the LT-3100S GMDSS system is sending a Distress Alert message to the RCC:

- 1) When the DISTRESS button has been activated an initial Distress Alert message will be sent to the RCC (Nature of Distress = Undesignated). Hereafter, the user of the system can use the soft key 'Select Nature', and an updated Distress Alert message will now be sent with the chosen Nature of Distress information. This method is illustrated and described in details in *Distress Alert & Distress Call* on page 82.
- 2) The user of the LT-3100S GMDSS system must navigate to MENU -> Distress Settings -> Nature of Distress and configure the Nature of Distress that must be informed to the RCC. Hereafter the operator of the system pushes the DISTRESS button and activates the Distress Alert message. The Initial Distress Alert message will contain the Nature of Distress information configured.



Nature of Distress:  
MENU -> GMDSS -> Distress  
Settings -> Nature of  
Distress

Figure 195: Distress Settings, Nature of Distress

**NOTE:**

By default, Nature of Distress is configured to Undesignated. It is always possible to send an updated Distress Alert message to the RCC, where the Nature of Distress information is provided or changed. If Distress Settings, Nature of Distress is not configured in the LT-3100S GMDSS system, then Undesignated will be sent in the initial Distress Alert message to the RCC.

## Position Settings

The LT-3100S GMDSS system is default configured to use the built-in GNSS receiver, Automatic (GNSS) mode, for determining the current position of the vessel. The position is primarily used for:

- Distress Alert sent to the RCC upon activation of a Distress
- Location information updates sent to the Iridium GMDSS System (IGS)

In case the built-in GNSS receiver has a malfunction or if the user for some other reason (e.g. GNSS spoofing) is required to manually enter the current position of the vessel, this can be done in Position Settings (MENU -> GMDSS -> Position Settings).

The following instruction will help you change Position Settings from Automatic to Manual mode:

1. Select Source of Position and press ENTER
2. Select Manual Input and press ENTER
3. Fill in the Latitude and Longitude fields
4. Fill in the Time of Position field with the time in UTC at which the vessel was at the position entered in the Latitude and Longitude fields (*note:* This may not be the current time)
5. The Course over Ground (COG) and Sped over Ground (SOG) are optional and can be set to zero if unknown
6. When all fields have been assigned a value, press the soft key 'Apply' to apply the manual position

**NOTE:** The LT-3100S GMDSS system is by default configured to Automatic (GNSS) position mode. The manual position mode should only be used, if the Automatic (GNSS) position mode is not providing valid information.

The Position Settings illustrated in Figure 196 shows the LT-3100S GMDSS system configured to Automatic (GNSS) position mode.

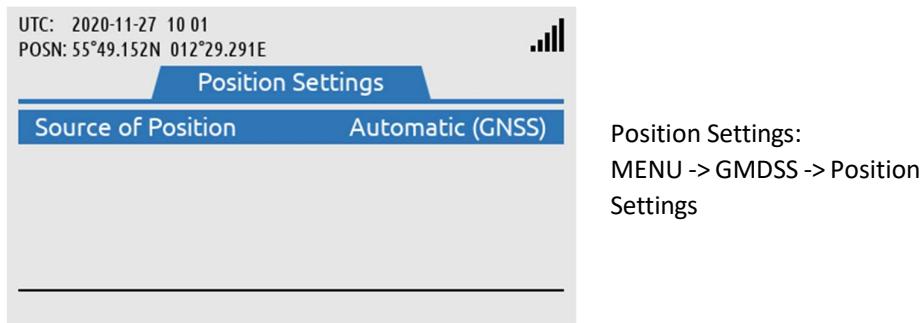
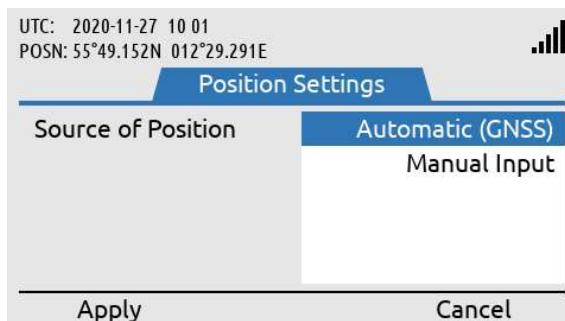


Figure 196: Position Settings, Manual Position (1 of 12)

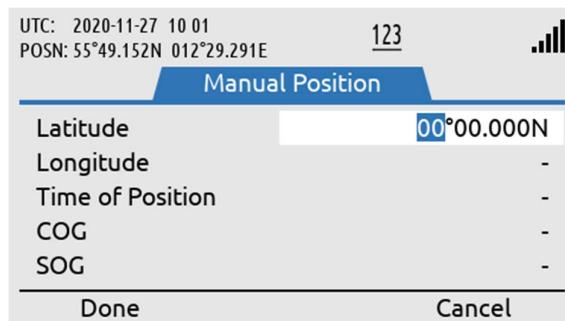
Figure 196 to Figure 207 illustrates how the Position Settings, Source of Position is changed from Automatic (GNSS) to Manual position mode.

**NOTE:** Please be aware that, if manual position mode is set, while the LT-3100S GMDSS system has no valid position from the GNSS receiver, the system will automatically switch to automatic mode, as soon as it gets a valid position (3D fix).

Manual Position

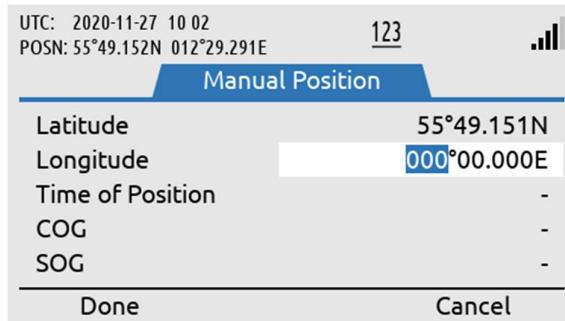
Source of Position is changed from Automatic (GNSS) to Manual Input. Use the soft key 'Apply'.

Figure 197: Position Settings, Manual Position (2 of 12)



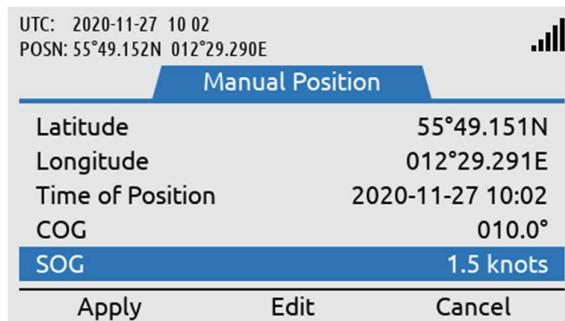
Latitude is configured. Use the soft key 'Done', when Latitude has been entered correctly.

Figure 198: Position Settings, Manual Position (3 of 12)



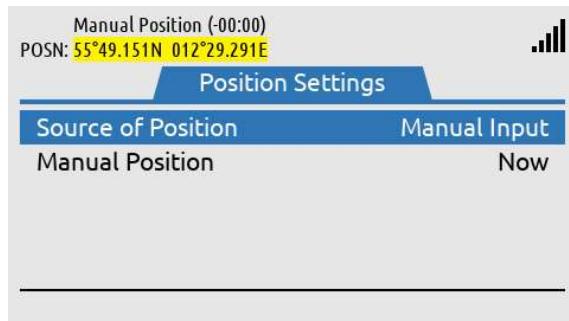
Longitude is configured. Use the soft key 'Done', when Longitude has been entered correctly.

Figure 199: Position Settings, Manual Position (4 of 12)



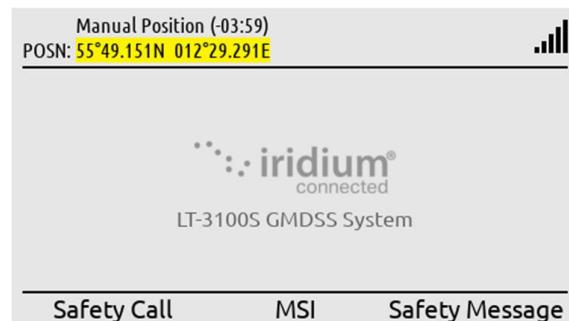
Time of Position, COG, and SOG must be entered. Use soft key 'Apply' when all inputs have been entered correctly.

Figure 200: Position Settings, Manual Position (5 of 12)



Manual Position is now being used as the position in the system. See information in the status bar (position is colored yellow to indicate low integrity).

Figure 201: Position Settings, Manual Position (6 of 12)



In the status bar the age of the Manual Position is shown. (-03:59) indicates that the position is three hours and 59 minutes old.

Figure 202: Position Settings, Manual Position (7 of 12)



When the Manual Position is more than 4 hours old, a BAM alert caution (doubtful pos) will be raised.

Figure 203: Position Settings, Manual Position (8 of 12)



The manual position will be colored orange to indicate invalid until it has been updated.

Figure 204: Position Settings, Manual Position (9 of 12)

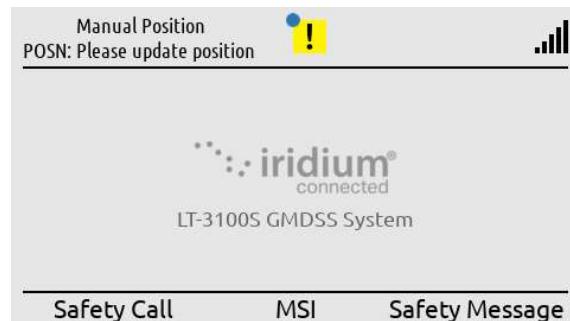
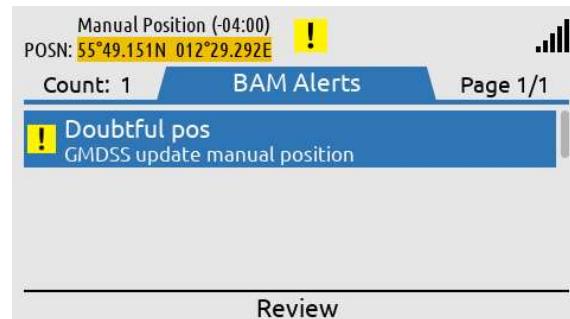


Figure 205: Position Settings, Manual Position (10 of 12)

When the Manual Position is older than 24 hours the status bar will indicate “POSN: Please update position”.

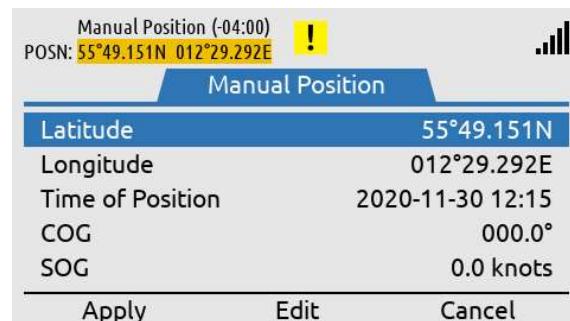
### Update Manual Position

In manual position mode the position must be updated every 4 hours. A BAM alert active caution (doubtful pos) will be activated when the manual position is older than 4 hours. The position will be colored yellow to indicate low integrity when in manual position mode and colored orange when the position is older than 4 hours to indicate invalid. Make a long press on the MENU button to access the BAM Alerts. Hereafter press the soft key ‘Review’ to update the manual position.



BAM alert active caution (doubtful pos) available since Manual Position is older than 4 hours.

Figure 206: Position Settings, Manual Position (11 of 12)



By pressing the soft key ‘Review’ it is possible to update the Manual Position.

Figure 207: Position Settings, Manual Position (12 of 12)

**NOTE:**

In manual position mode the position must be updated every 4 hours. A BAM alert active caution (Doubtful pos) will be shown after 4 hours. The user of the LT-3100S GMDSS system must enter a new up-to-date position (MENU -> GMDSS -> Position Settings).

## Printer Settings

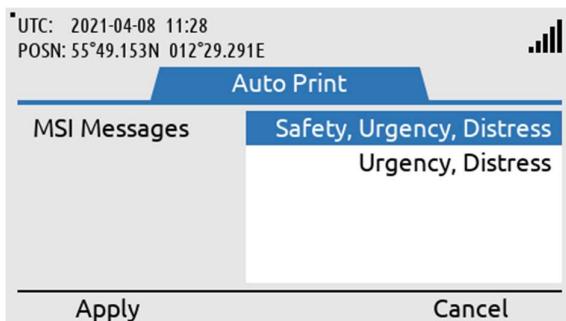
The Printer Settings submenu is a conditional submenu and will only be present if a LT-3160S Printer Adapter is installed on the LT-3100S GMDSS system. The Printer Settings conditional submenu is seen on Figure 208.



Printer Settings / Auto Print:  
MENU -> GMDSS -> Printer  
Settings

Figure 208: Printer Settings

It is possible to configure which MSI Messages and Safety Messages are automatically printed - this is only possible if a certified printer is connected via the printer adapter. By default, the LT-3100S GMDSS system will print both MSI Messages and Safety Messages of Safety, Urgency or Distress priority. The user can configure the system to only print Urgency or Distress priority. This is configurable for both MSI Messages and Safety Messages, See Figure 208 to Figure 210.



Use the navigation keys and  
the soft keys to change  
printing configuration

Figure 209: Printer Settings



Separate printer configuration  
of MSI Messages and Safety  
Messages

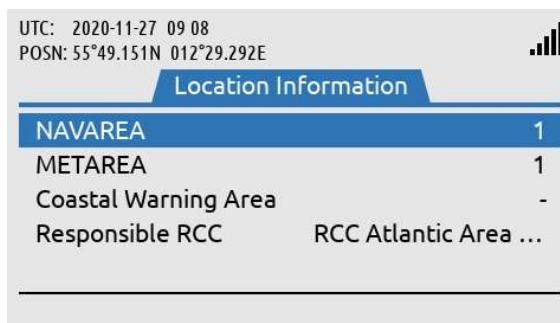
Figure 210: Printer Settings

### Location Information

The LT-3100S GMDSS system has a window, where it is possible to read out details about the Sea Area and responsible RCC, in which the terminal is located:

- NAVAREA
- METAREA
- Coastal Warning Area
- Responsible RCC

Location Information has the following menu path: MENU -> GMDSS -> Location Information



Location Information:  
MENU -> GMDSS ->  
Location Information

Figure 211: GMDSS submenu (Location Information)

**NOTE:** Location Information is read-only and is dependent on the 'Source of Position' user setting.

NAVAREA

The world is divided into 21 geographical Sea Areas identified as NAVigational AREAs (NAVAREAs) ranging from NAVAREA 1 (United Kingdom) to 21 (Russian Federation). The NAVAREAs are listed in Table 35. The NAVAREAs are used to coordinate the communication of navigational hazards to mariners.

NAVAREAs	
NAVAREA No.	Coordinator
1	United Kingdom
2	France
3	Spain
4	United States of America (East)
5	Brazil
6	Argentina
7	South Africa
8	India
9	Pakistan
10	Australia
11	Japan
12	United States of America (West)
13	Russia
14	New Zealand
15	Chile
16	Peru
17	Canada
18	Canada
19	Norway
20	Russian Federation
21	Russian Federation

Table 35: NAVAREAs

**NOTE:**

The NAVAREAs and METAREAS MSI providers supporting the Iridium GMDSS System (IGS) and Iridium SafetyCast service are updated on the Iridium website:  
<https://www.iridium.com/gmdss-launch/>

METAREA

METrological AREAs (METAREAs) are identical to the geographical NAVAREAs defined above. The METAREAs are used for the purpose of sending metrological information to mariners.

Coastal Warning Area (CWA)

Coastal Warning Areas are defined in geographical areas, where the NAV/METAREAs are not sufficient to split the coastal warning areas into well-defined areas for transmission of navigational and metrological information. It is possible to configure Coastal Warning Areas in the system, in which it is desirable to receive information from, although you are not in this specific area.

Coastal Warning Areas (CWA)		
NAVAREA No.	Area	Sub-areas
10	Australia	A, B, C, D, E, F, G, and H
14	New Zealand	Z

*Table 36: Coastal Warning Areas*

**NOTE:**

The Coastal Warning Areas (CWA) listed in Table 36 is reflecting the Coastal Warning Areas supported by the Iridium GMDSS system (IGS) by Commercial Service Introduction (CSI). The list of Coastal Warning Areas should be expected to change over time and more Coastal Warning Areas can dynamically be added by Iridium and will automatically be pushed to the LT-3100S GMDSS system without any user interaction.

Responsible RCC

For each NAV/METAREA there will be at least one responsible Rescue Coordination Center (RCC). All responsible RCCs supporting the Iridium GMDSS Service will automatically be ‘pushed’ to the LT-3100S GMDSS system via the GMDSS configuration file.

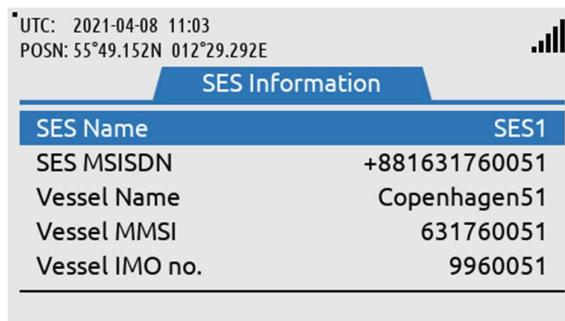
## SES Information

The LT-3100S GMDSS System has a window, which contains registration information about the Ship Earth Station (SES). The SES Information is received from the Iridium GMDSS System (IGS), where information has been registered during commissioning of the system via an Iridium GMDSS Service Provider (SP), see *Maritime Safety Service Activation Form (MSSAF) on page 63* for further details. If information is incorrect please contact your Service Provider.

During completion of the Installation Wizard the SES Information is verified and confirmed. The SES Information is read-only. The SES Information has the following menu path: MENU -> GMDSS -> SES Information.

The SES Information contains the following information:

- SES Name
- SES MSISDN
- Vessel Name
- Vessel MMSI
- Vessel IMO No.



SES Information:  
MENU -> GMDSS -> SES  
Information

Figure 212: GMDSS submenu (SES Information)

### SES Name

SES Name can be configured to either SES1 or SES2, when completing the Iridium Maritime Safety Service Activation Form (MSSAF). Vessels with requirement for only one LT-3100S GMDSS system shall use SES Name = SES1. If the vessel has a requirement for dual GMDSS systems, then SES Name = SES1 and SES Name = SES2 must be registered for the two GMDSS systems onboard.

### SES MSISDN

SES MSISDN is an abbreviation for SES Mobile Station International Subscriber Directory Number (MSISDN) and is a unique number identifying the satellite telephone and related to the GMDSS SIM card. It is the MSISDN number which shall be used for incoming non-priority voice calls to the LT-3100S GMDSS system. The MSISDN number is also used as calling party for outgoing non-priority voice calls.

Vessel Name

Vessel Name must be used which is registered with the local flag state and maritime registration authorities.

Vessel MMSI

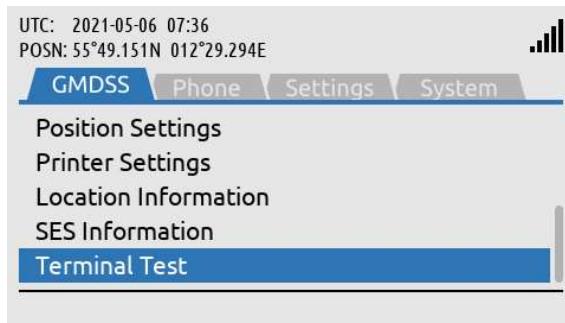
MMSI is an abbreviation for Maritime Mobile Service Identity and is a 9-digit unique number used to identify vessels. The MMSI number is assigned by the local maritime authorities.

Vessel IMO No.

IMO No. is abbreviation for International Maritime Organization Number and is a unique identification number for a vessel, which must follow the ship throughout its lifetime, also by rebuilding and renaming. The IMO No. consist of the letters *IMO* followed by 7-digits.

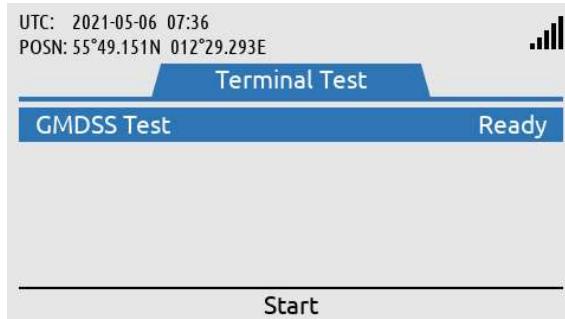
## Terminal Test

The LT-3100S GMDSS system support a 'Terminal Test' function, which is testing the satellite link to the Iridium GMDSS System (IGS) and performing the following individual tests: Distress Alert, Distress Call, and Maritime Safety Information (MSI). Also, LT-3150S Alarm Panel(s) and LT-3160S Printer Adapter connected via the LT-3140S Interface Unit may be tested as part of the Terminal Test. The Terminal Test function can be activated from the GMDSS submenu (MENU -> GMDSS -> Terminal Test). Figure 213 to Figure 230 illustrates the Terminal Test function.



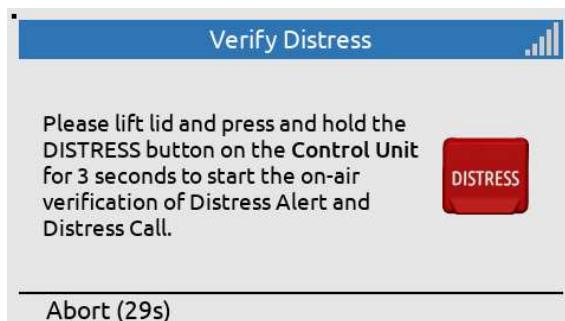
Terminal Test:  
MENU -> GMDSS ->  
Terminal Test

Figure 213: Terminal Test (1 of 18)



Start the Terminal Test by using the soft key 'Start'.

Figure 214: Terminal Test (2 of 18)

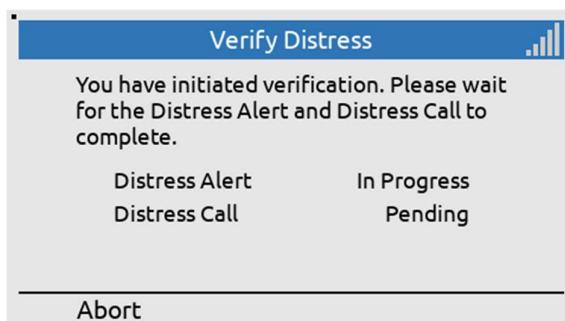


The DISTRESS button on the LT-3110S Control Unit must be used to activate the Terminal Test.

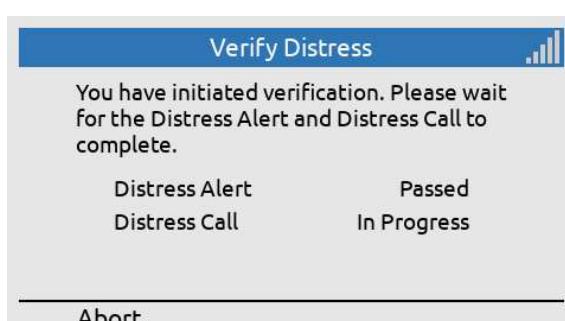
Figure 215: Terminal Test (3 of 18)



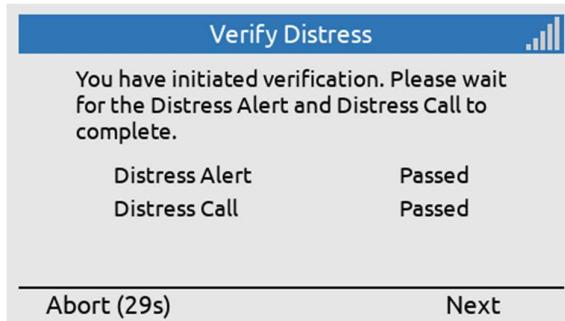
Lift the lid to the DISTRESS button and push the button for a minimum of three seconds (colored green to indicate test).



Distress Alert = In Progress  
Distress Call = Pending



Distress Alert = Passed  
Distress Call = In Progress  
(voice prompt available)



Distress Alert = Passed  
Distress Call = Passed  
Press the soft key 'Next' to continue.

Figure 219: Terminal Test (7 of 18)



Figure 220: Terminal Test (8 of 18)



Figure 221: Terminal Test (9 of 18)

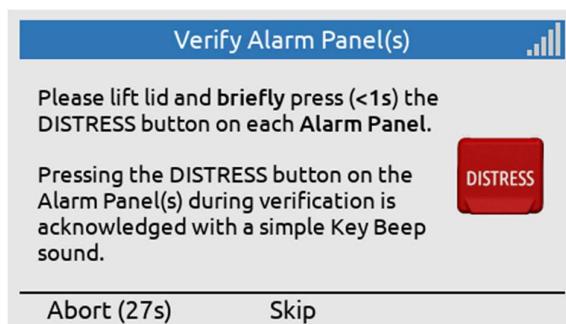


Figure 222: Terminal Test (10 of 18)

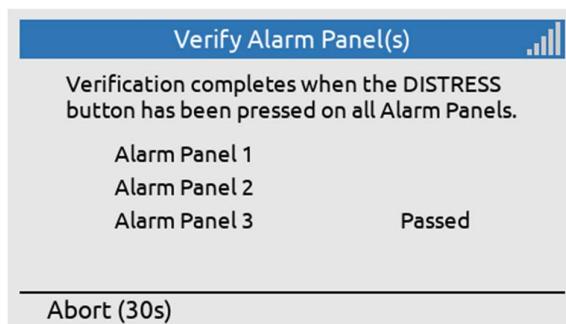


Figure 223: Terminal Test (11 of 18)

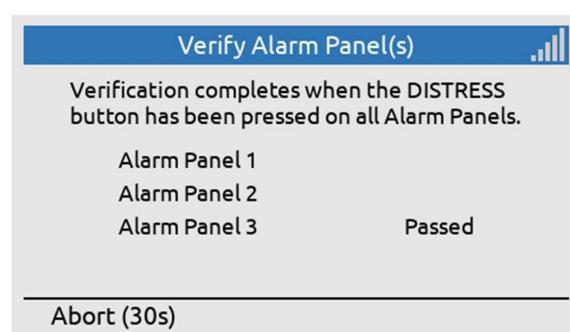


Figure 223: Terminal Test (11 of 18)

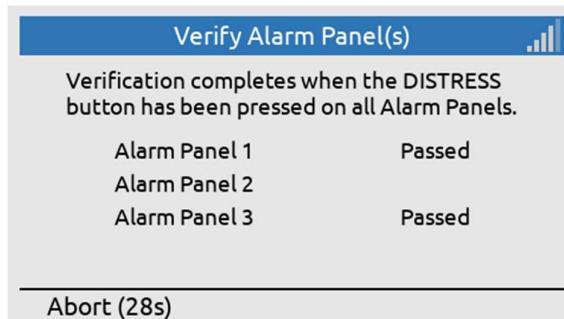


Figure 224: Terminal Test (12 of 18)

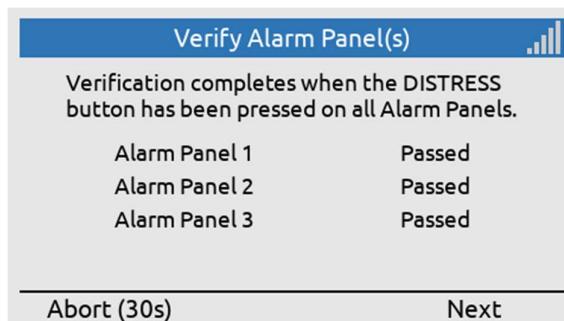


Figure 225: Terminal Test (13 of 18)

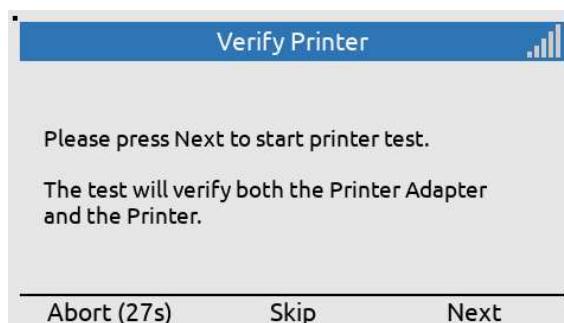


Figure 226: Terminal Test (14 of 18)

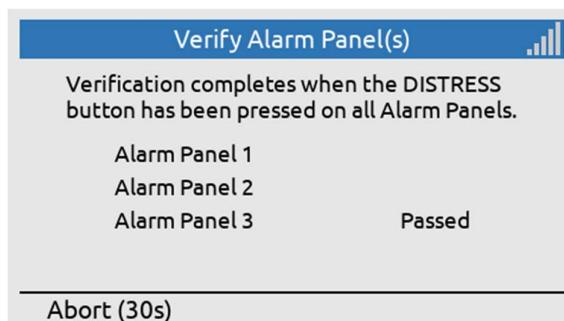


Figure 223: Terminal Test (11 of 18)

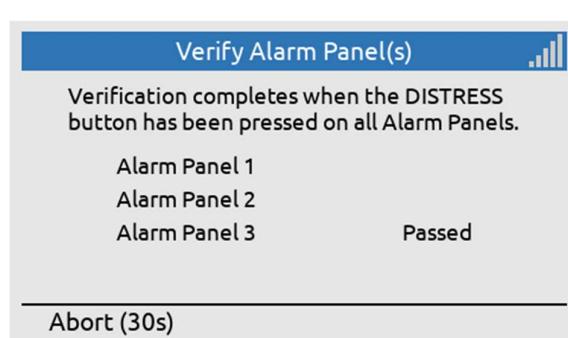


Figure 223: Terminal Test (11 of 18)

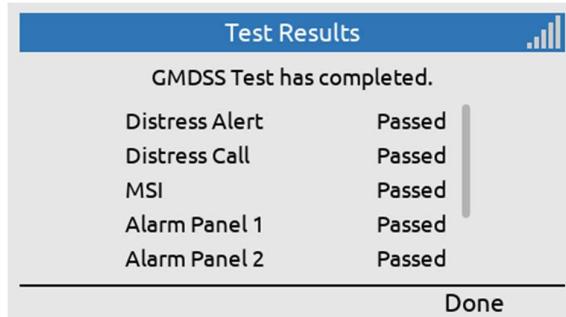


Figure 228: Terminal Test (16 of 18)

Upon finalizing the Terminal Test, the Test Results will be displayed.

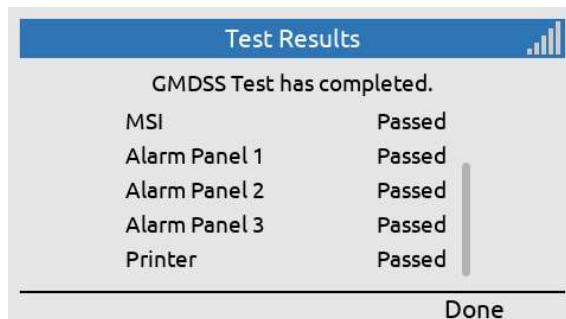


Figure 229: Terminal Test (17 of 18)

Upon pressing the 'Done' soft key, The LT-3100S GMDSS system will revert back to the default window and operation.



Figure 230: Terminal Test (18 of 18)

The LT-3100S GMDSS system is back in the default window.

**NOTE:** After 30 seconds of user inactivity, while a test is waiting for user input, the test will fail. When the result of a test is presented, the user has 30 seconds to continue with the next test or the Terminal Test will exit and revert to default window and operation as illustrated in Figure 230.

**NOTE:** When testing external LT-3150S Alarm Panel(s) as part of the Terminal Test function, then only press the DISTRESS button with a short press (< 1 s). The short press on the DISTRESS button will be acknowledged with a key beep sound from the LT-3150S Alarm Panel. On the LT-3110S Control Unit display the LT-3150S Alarm Panel will be marked with Passed in the Terminal Test and you can continue with the verification of any additional LT-3150S Alarm Panel(s) if more LT-3150S Alarm Panels are part of the system configuration.

**NOTE:** The Terminal Test function will be completed when the MSI test has passed. By pressing the soft key 'Done' the user will be redirected to the default window as illustrated in Figure 228.

## System Services

### General Calling

The LT-3100S GMDSS system support General Calling (voice call) outgoing and incoming from phone numbers (incl. Satcom). The voice call is a non-GMDSS service (priority = Routine). The voice service must be activated by the Iridium GMDSS Service Provider in order to work, see System Submenus, *System* on page 165 (Subscription) for status: Voice Service = Subscribed or Not Subscribed. Every voice call will generate a record in the Call History placed in the Phone submenu (MENU -> Phone -> Call History), see *Phone* on page 157.

**NOTE:** Verify that the LT-3100S GMDSS system is ready to make or receive a voice call. Check the network registration status, as illustrated in Table 18 on page 57 (Network Status - Slot 1), which is presenting the signal level and network registration status.

**NOTE:** Always, make sure to have a LT-3120 Handset and LT-3121 Cradle properly installed and connected to the LT-3110S Control Unit. LT-3110S Control Unit handset connector is illustrated in Figure 2 on page 7. The LT-3100S GMDSS system will generate a BAM alert, if the LT-3120 Handset is not connected to the LT-3110S Control Unit (Lost handset).

**NOTE:** The LT-3100S GMDSS system is supporting connection of external SIP phones. The connection of external SIP phones is described in *External SIP Phones* on page 148.

The LT-3100S GMDSS system is supporting Mobile Originated (MO) outgoing and Mobile Terminated (MT) incoming voice calls. The following sub sections will describe and illustrate the outgoing and incoming voice calls.

#### Mobile Originated (MO) - Outgoing

An outgoing voice call can be established as described in Table 37.

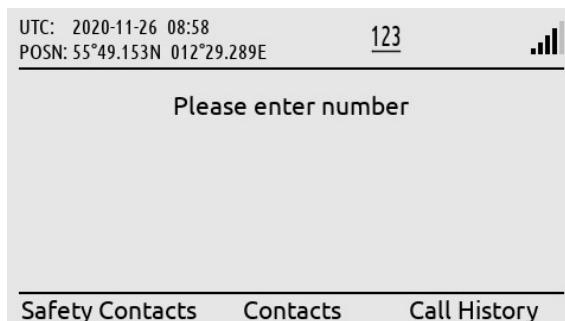
Mode	Position of Handset	Description
on-hook	Handset placed in cradle until voice established	Type the number and use the off-hook button.
		Use the off-hook button and select the soft key 'Contacts' or 'Call History'. Select the entry and use the off-hook button to initiate the voice call.
		Navigate to Contacts or Call History by using the MENU button (MENU -> Phone -> Contacts or Call History) and use the off-hook button when the entry has been selected. The voice call will now be established.
off-hook	Handset lifted out of cradle initially	Lift the handset out of the cradle (ready tone is available). Type the number and wait 10 seconds or use the # key to initiate the voice call.

Table 37: Initiate Mobile Originated (MO) Voice Call

The voice call (on-hook and off-hook mode) will be described and illustrated on the following pages.

### On-hook mode:

In on-hook mode the user can either type in the number directly in the display or use the Contacts or Call History to identify the number to be called while the handset is still placed in the cradle. Once the voice call has been established (duration starts to count) the user can lift the handset out of the cradle. The example in this section shows how to use the off-hook button, identifying an entry in the Contacts, and initiate the voice call by pressing the off-hook button.



Press the off-hook button (colored green) on the LT-3100S Control Unit.  
Hereafter press the soft key 'Contacts'.

Figure 231: Outgoing Voice Call, on-hook mode (1 of 5)



Use the Navigation key and select the contact to be dialed. Press the off-hook button to start connecting the call.

Figure 232: Outgoing Voice Call, on-hook mode (2 of 5)



The LT-3100S GMDSS system is connecting a voice call to the contact 'Thrane Test' (004529401008).

Figure 233: Outgoing Voice Call, on-hook mode (3 of 5)

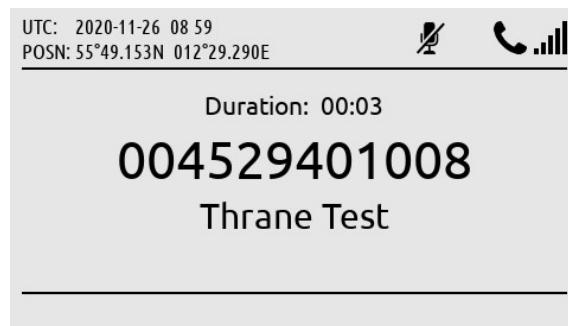


Figure 234: Outgoing Voice Call, on-hook mode (4 of 5)



Figure 235: Outgoing Voice Call, on-hook mode (5 of 5)

The LT-3100S GMDSS system has established a voice call to 'Thrane Test' (Duration: 00:03).

The voice call can be terminated by placing the handset in the cradle or use the on-hook button (colored red).

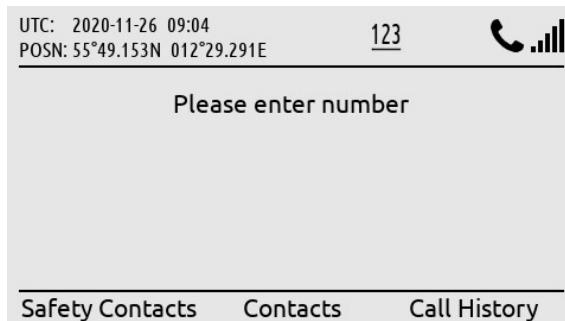
The mute symbol illustrated in Figure 234 in the status bar will disappear as soon as the handset is lifted out of the cradle. The handset will always be muted when placed in the cradle. The voice from the connected party will be available in the LT-3100S Control Unit speaker, until the handset is lifted out of the cradle. It is always possible to mute and unmute the microphone in the handset from the LT-3100S Control Unit (soft key 'Mute' and 'Unmute') when having an active call and the handset is lifted out of the cradle.

**NOTE:**

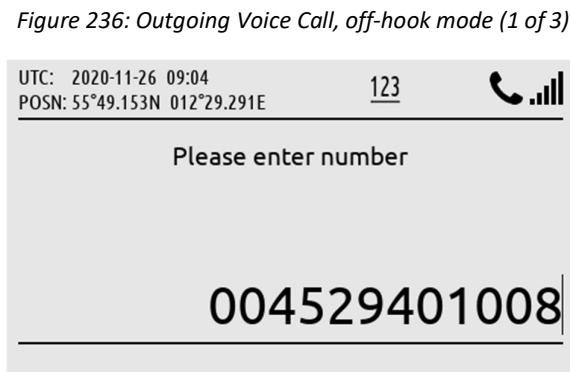
Adding a new entry in the Contacts (MENU -> Phone -> Contacts) is described and illustrated in *Phone* on page 157.

### Off-hook mode:

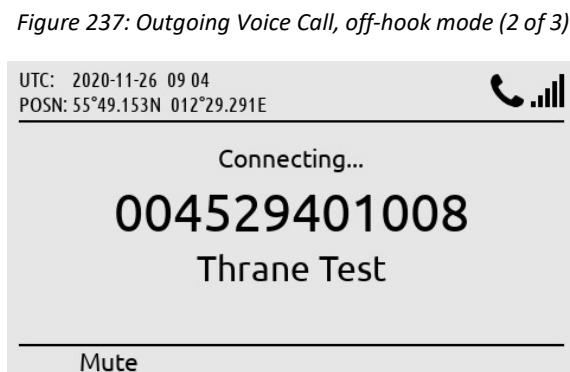
The off-hook mode can be activated by lifting the handset out of the cradle. In off-hook mode, the user will be met by a *ready tone* and the help text “Please enter number” - hereafter, the called number can be entered, using the numeric keypad. It is not possible to regret, if one or more wrong digits are typed in, for the dialed number. In this case, the user must on-hook the phone, and dial the correct number again. The example below shows how to establish the voice call (the other part of the voice call is identical to the on-hook mode described in the previous section).



Lift the handset out of the cradle and a ‘ready tone’ will be available in the handset speaker.



Type the number in the display by using the numeric keypad (it is not possible to regret).



Use the off-hook button, # key, or wait 10 seconds for the LT-3100S GMDSS system to start connecting the voice call.

Figure 238: Outgoing Voice Call, off-hook mode (3 of 3)

### NOTE:

The LT-3100S GMDSS system will provide the user with information, while connecting and throughout the voice call. In case of problems with the satellite network or connection to the called party (far-end), the user will be informed through a voice prompt, and by status cause codes, that will be presented on the display (e.g. “Temporary link failure”).

Mobile Terminating (MT) - Incoming

The LT-3100S GMDSS system support receiving an incoming voice call. The calling party must use the LT-3100S GMDSS system MSISDN number. The LT-3100S GMDSS system MSISDN number is identified in the GMDSS submenu (MENU -> GMDSS -> SES Information), see *SES Information* on page 129. The LT-3100S GMDSS system will check the calling number up against the Contacts entries, if a match exists, the name of the contact will be showed for the incoming voice call.



Figure 239: Incoming Voice Call (1 of 3)



Figure 240: Incoming Voice Call (2 of 3)



Figure 241: Incoming Voice Call (3 of 3)

**NOTE:** The General Calling (priority = routine) voice call must be activated by the Iridium GMDSS Service Provider (SP) in order to work. Check subscription status in the System submenu (MENU -> System -> Subscription Status), see *System* on page 165.

An incoming missed voice call is illustrated in the following figures: Figure 242 to Figure 244. By pressing the soft key 'Missed Calls(1)' the user will be redirected to the Call History (filter: Missed Calls). By pressing the soft key 'Show All', all Call History records will be shown (all incoming and outgoing calls).

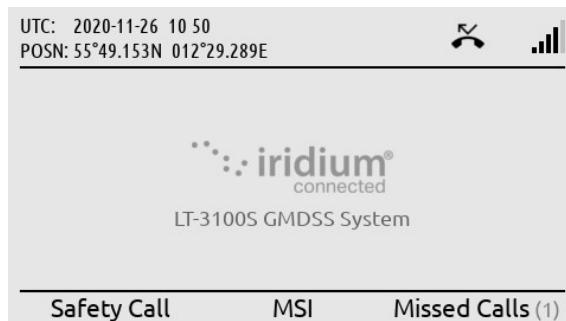


Figure 242: Incoming Voice Call, missed (1 of 3)

A missed voice call is illustrated in the display (symbol in status bar and soft key showing 'Missed Calls(1)').

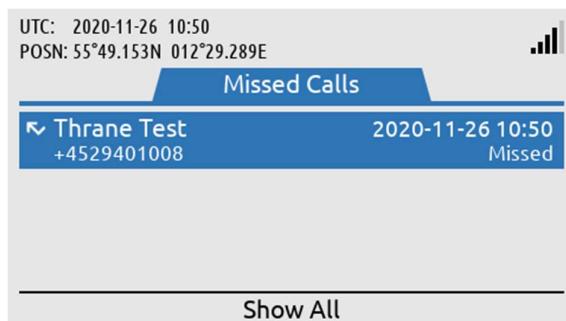
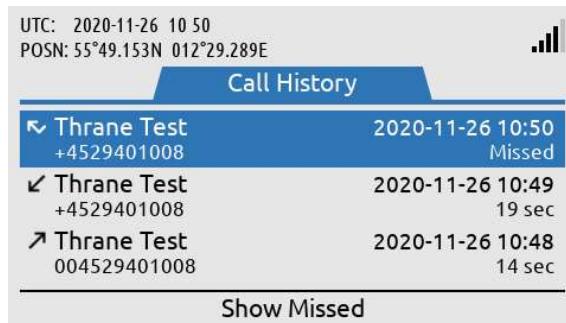


Figure 243: Incoming Voice Call, missed (2 of 3)

By pressing the soft key 'Missed Calls(1)' the user will be directed to the Call History (Missed Calls).



Press the soft key 'Show All' and the normal view of the Call History will be shown.

Figure 244: Incoming Voice Call, missed (3 of 3)

**NOTE:**

An incoming missed voice call is illustrated in the above figures. By highlighting the missed call in the Call History and press the off-hook button, the LT-3100S GMDSS system will start establishing a voice call to the party.

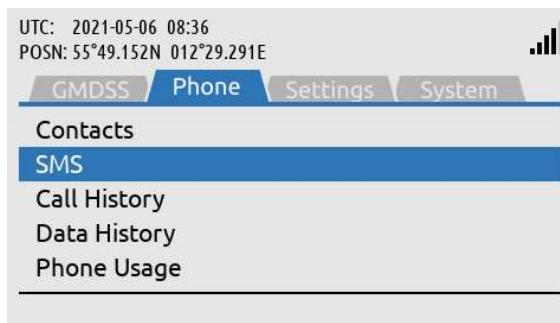
## General Messaging (SMS)

The LT-3100S GMDSS system supports General Messaging (SMS) sending and receiving from traditionally phone numbers (incl. Satcom) and E-mail addresses. SMS is a non-GMDSS service (priority = Routine). The SMS service must be activated by the Iridium GMDSS Service Provider in order to work, see *System Submenus, System* on page 165 (Subscription) for status: SMS Service = Subscribed or Not Subscribed.

The LT-3100S GMDSS system supports sending and receiving concatenating SMS (SMS' consisting of multiple instances). A standard SMS (single instance) is consisting of 160 characters. If an SMS is sent with a character count >160 characters, then only the first 160 characters will be delivered. The rest will be cut. Should the user want to send a longer message then multiple SMS would have to be sent. If a concatenated SMS is received in the LT-3100S GMDSS system it will be displayed correctly, even if the character count is >160.

Sending an E-mail from the LT-3100S GMDSS system is handled similar to sending a SMS, although it is needed manually to insert the E-mail address in the 'To:' field (use the # key to toggle between numbers and letters). If sending an E-mail to the LT-3100S GMDSS system, then leave the Subject-field empty. Please note that all text larger than an SMS (160 characters) is truncated and that the length of the E-mail address + one character is deducted from the payload text. When sending an E-mail to the LT-3100S GMDSS system, then the MSISDN number must be used (e.g. [88163XXXXXX@msg.iridium.com](mailto:88163XXXXXX@msg.iridium.com)). Don't use international prefix ('+' or '00' in front of the MSISDN number).

The SMS Service is located in the Phone submenu (MENU -> Phone -> SMS), as illustrated in Figure 245.



General Messaging (~SMS):  
MENU -> Phone -> SMS

Figure 245: Phone submenu (General Messaging ~SMS)

**NOTE:** The LT-3100S GMDSS system support SMS sending and receiving from traditionally phone numbers (incl. Satcom) and E-mail addresses. The SMS Service must be activated with the Iridium GMDSS Service Provider (SP).

**NOTE:** The LT-3100S GMDSS system can store minimum 500 SMS' in total (sent and received). An individual SMS or SMS conversations can be deleted from the SMS window. To delete all SMS' at once, navigate to the Settings submenu (MENU -> Settings -> Reset Options: Delete SMS Messages).

Sending SMS

To send a SMS, the user of the LT-3100S GMDSS system must access the Phone submenu (MENU -> Phone -> SMS). In the SMS window all sent and received SMS are visible. In Figure 246 the SMS window is illustrated with 'No Messages'. Press the soft key 'New' to prepare a new SMS. It is possible to reply to an existing conversation (phoner number, E-mail address) when entries are available. Figure 246 to Figure 252. illustrates sending a new SMS (to a normal phone number).



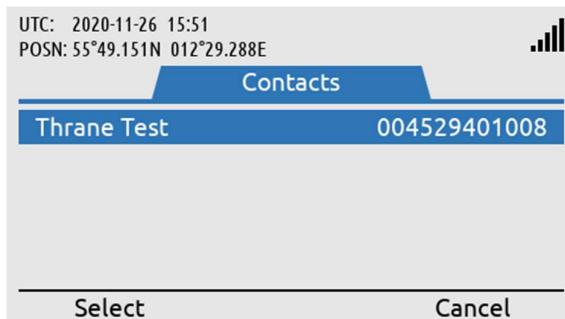
No SMS' are available in the LT-3100S GMDSS system (sent or received). Use soft 'New' to prepare a new SMS.

Figure 246: Sending SMS (1 of 7)



Use soft key 'Contacts' or enter the number directly in the To-field.

Figure 247: Sending SMS (2 of 7)

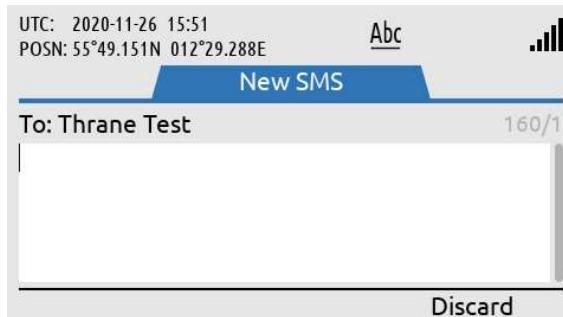


If Contacts has been chosen, then select the contact by using the Navigation key and the soft key 'Select'.

Figure 248: Sending SMS (3 of 7)

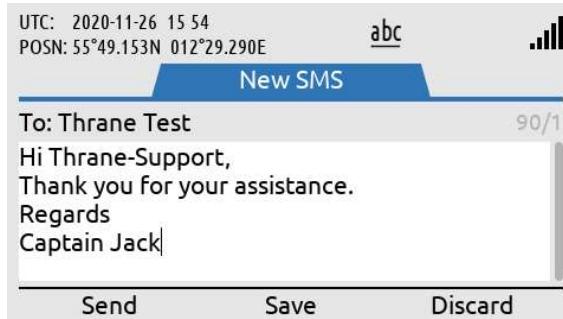
**NOTE:** Use the # key to toggle between numbers and letters in the 'To:' field (needed when sending to an E-mail address destination).

Press the soft key 'Send' when the destination address and body text have been completed. The SMS service will indicate the transmitting status, which will change from 'Sending' to 'Sent' when the SMS has successfully been sent from the LT-3100S GMDSS system, see Figure 251 and Figure 252.



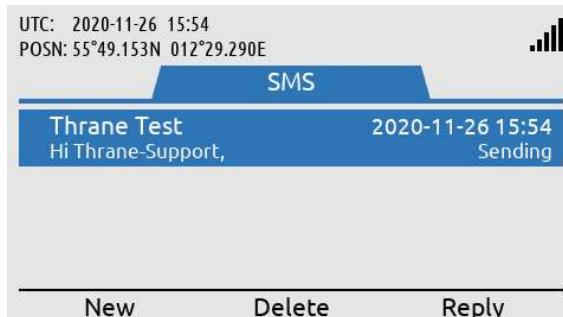
Write the SMS text.

Figure 249: Sending SMS (4 of 7)



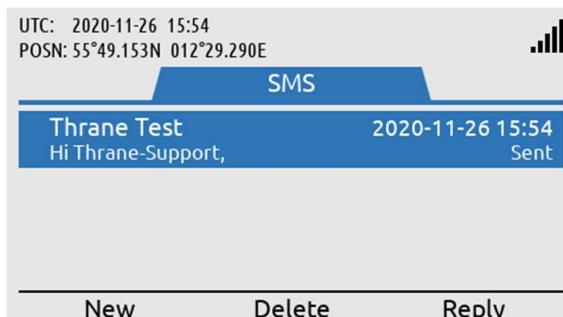
When the SMS is ready to be sent use the soft key 'Send'.

Figure 250: Sending SMS (5 of 7)



The SMS will change status from Sending to Sent when the SMS has successfully been sent.

Figure 251: Sending SMS (6 of 7)



The SMS has successfully been sent. Otherwise, retry option is available.

Figure 252: Sending SMS (7 of 7)

**NOTE:** If sending the SMS is failing (the SMS window will indicate ‘Failed’), then a ‘Resend’ soft key will be available for the user to make another try. A successful SMS sending will be indicated by ‘Sent’ - this information will be replaced by ‘Now’ and hereafter the time since the SMS was successfully sent (e.g. ‘19 hours ago’ and so forth).

### Receiving SMS

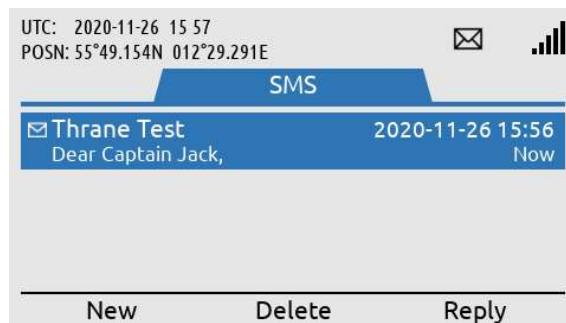
A received SMS will be indicated by the unread symbol in the status bar, a notification tone, and the soft key 'SMS(1)' will be shown as illustrated in Figure 253 (if no unread Safety Messages are available).



The LT-3100S GMDSS system has received a SMS, see symbol in status bar and soft key 'SMS(1)'.

Figure 253: Receiving SMS (1 of 3)

To read the incoming SMS, press the softkey 'SMS(1)' or navigate to the Phone submenu (MENU -> Phone -> SMS). The unread symbol will be removed as soon as the SMS has been read. Open the individual SMS or SMS conversation by pressing the ENTER button. Use the soft key 'Reply' to reply to a sent or received SMS.



Press the soft key 'SMS(1)' and the user will be directed to the SMS window.

Figure 254: Receiving SMS (2 of 3)



Use the ENTER button to open the received SMS.

Figure 255: Receiving SMS (3 of 3)

**NOTE:** The LT-3100S GMDSS system is handling SMS conversions, which is grouped based on the recipient's address.

## External SIP Phones

The LT-3100S GMDSS system is supporting connection of external SIP phones, up to 8 external SIP phones. The configuration of the SIP phones must be completed via the web server, see *Telephony* on page 204. Figure 256 is illustrating the connection of the external SIP phones. Connect the SIP phones directly to the LT-3110S Control Unit Ethernet (LAN port) or via the LT-3140S Interface Unit (use the spare LAN ports).

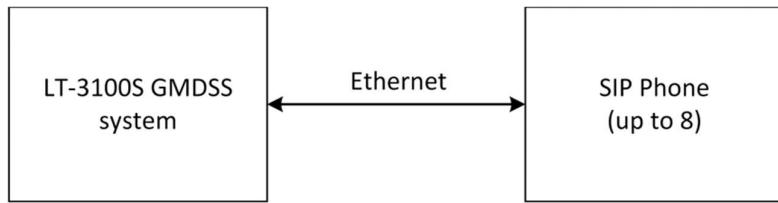


Figure 256: SIP phones

**NOTE:** The SIP phone might require a DHCP Server to get an IP address assigned. Depending on network setup, it might be needed to configure DHCP Server mode in the LT-3100S GMDSS system.

The LT-3110S Control Unit UI display (MENU -> System -> SIP Phones) will provide a ‘live’ registration status of the SIP phones configured from the web server.

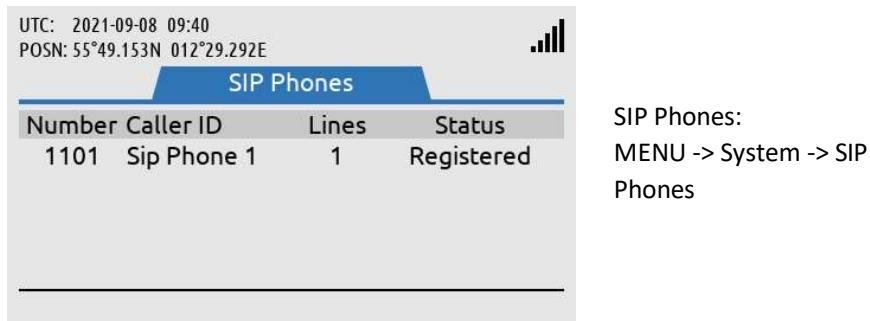
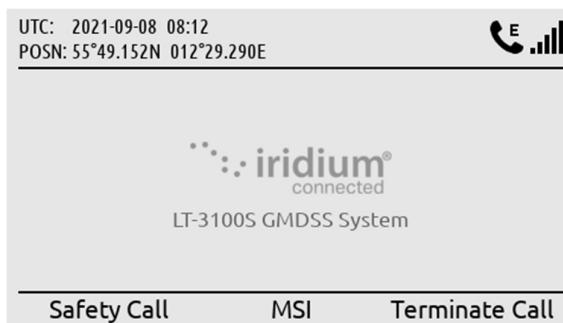


Figure 257: System Submenu (SIP Phones)

An active voice call to/from a SIP phone will be presented in the Status bar with the symbol showed in Figure 258. External SIP phones can only use the General Calling (priority = Routine).



External SIP voice call is using the satellite connection. Can be terminated by using the soft key ‘Terminate Call’.

Figure 258: External SIP Voice Call

By using the soft key 'Terminate Call', the external voice call from the SIP phone will be terminated. A voice call from an external SIP phone will automatically be preempted, if a service with higher priority (Safety, Urgency, or Distress) is presented.

An incoming voice call taken by the SIP phone cannot be forwarded. Once a voice call has been taken by any of the 'lines' the voice call is locked to this user.

The LT-3100S GMDSS system is supporting local calling between the SIP phones and the LT-3120 Handset. The number plan is illustrated in Table 38. The Caller ID is defined by the user, when configuring the SIP phones.

LT-3100S GMDSS System Number Plan (local calls)		
Number	Caller ID	Comments
1000	LT-3100S User	LT-3120 Handset
1100	SIP Phone 1	
1101	SIP Phone 2	
1102	SIP Phone 3	
1103	SIP Phone 4	
1104	SIP Phone 5	
1105	SIP Phone 6	
1106	SIP Phone 7	
1107	SIP Phone 8	

Table 38: Number Plan (local calls)

**NOTE:** The LT-3100S GMDSS system is only supporting one outgoing satellite voice connection. A local call between two local users will not busy the Satellite voice connection.

## Analogue Phone Adapter

The LT-3100S GMDSS system is supporting connection of an external Analogue Phone Adapter (e.g. Grandstream). The number of POTS' phones (Plain Old Telephone System), which can be connected to the Analogue Phone Adapter, must be configured as SIP phones in the LT-3100S GMDSS system, see configuration of SIP phones in *Telephony* on page 204. Connect the SIP phones directly to the LT-3110S Control Unit Ethernet (LAN port) or via the LT-3140S Interface Unit (use the spare LAN ports).

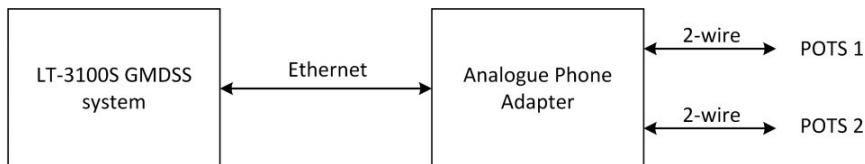


Figure 259: Analogue Phone Adapter

**NOTE:** The Analogue Phone Adapter might require a DHCP Server to get an IP address assigned. Depending on network setup, it might be needed to configure DHCP Server mode in the LT-3100S GMDSS system.

The Analogue Phone Adapter (POTS phones) will be handled as SIP phones in the LT-3100S GMDSS system. Therefore, carefully read the section describing the SIP phones in section *External SIP Phones* on page 148.

In order to provide some guidance for configuration of an Analogue Phone Adapter, the following description will outline some important steps for configuring an Analogue Phone Adapter.

### Configuration of Grandstream HT802 Adapter (example):

*If you would like to connect the Analogue Phone Adapter directly to the LT-3100S GMDSS system, then it might help you to insert a passive switch between the LT-3100S GMDSS system and the Analogue Phone Adapter, while completing the setup (to allow for an extra LAN port during configuration).*

Step 1: Connect the LT-3100S GMDSS system, Analogue Phone Adapter, and PC using a passive switch

Step 2: Login to the LT-3100S GMDSS system web server. The IP address can be read from the display (MENU -> System -> Network: IP address)

Step 3: Configure the LT-3100S GMDSS system to 'DHCP Server' mode (depending on network setup) and configure the SIP phones (Password, and Caller ID)

Step 4: The Analogue Phone Adapter will now have an IP address assigned. Connect a POTS phone to the Analogue Phone Adapter and use the IVR menu to read out the IP address (off hook handset and type '\*\*\*' followed by '02'). Check the instructions provided for the Analogue Phone Adapter

Step 5: Log in to the Analogue Phone Adapter and configure FXS PORT 1 and PORT 2 (Primary SIP Server, SIP User ID, Authenticate ID, Password, and Name)

Step 6: The POTS phones should now be registered and ready to use (the passive switch can be removed)

## Data (Modem Data & SMS)

The LT-3100S GMDSS System is supporting a serial asynchronous automatic dialing and control interface (V250). The interface makes it possible for external equipment (DTE) to use the Iridium 2.4 kbps Modem Data (Direct Internet and RUDICS) service. Also, the Iridium SMS service is available over this serial interface.

The Modem Data ‘Direct Internet’ service is used for Dial-up Networking, whereas the Modem Data ‘RUDICS’ service is commonly used for Iridium Service Providers e.g. to support e-mail programs.

The LT-3110S Control Unit offers a virtual serial RS-232 interface (DCE) supporting data, control, and status signals. The serial interface is based on the Telnet Com Port Control Option network protocol (RFC 2217) and is available at the Ethernet (LAN) interface (RJ45 connector).

Access to the serial interface from a PC requires a virtual COM (or tty) port driver supporting RFC 2217 e.g., the Serial Port Redirector (from Fabulatech) on Windows and ttynvt on Mac and Linux. The virtual COM (or tty) port might be used directly by applications running on the PC (e.g., e-mail applications) or by the operating system to establish a dial-up connection to the Internet (dial-up networking).

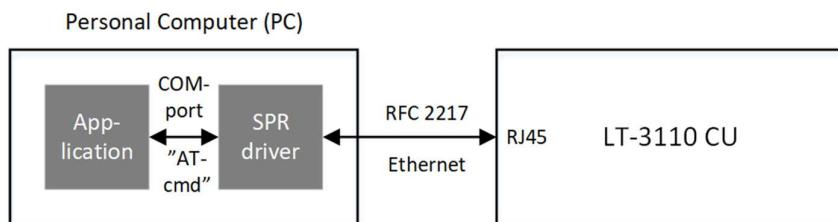


Figure 260: LT-3100S GMDSS system is supporting RFC 2217 (Serial over Ethernet)

The serial interface can be accessed by connecting to the IP address (port 5020) of the LT-3110S Control Unit. The IP address can be read out from the MENU -> System -> Network, see *System Submenus, System* on page 165. The serial interface is by default disabled and must be activated from the built-in web server, see *Configuration, Data* on page 203.

**NOTE:** The serial interface (port 5020) must be enabled from the LT-3100S GMDSS System built-in web server to be available by any external application, see *Configuration, Data* on page 203. By default, port 5020 is blocked by the built-in LT-3110S Control Unit Firewall.

The Modem Data service has priority = Routine (non-GMDSS). The Modem Data service will be preempted by the LT-3100S GMDSS system or by the Iridium GMDSS System, if a GMDSS Service (priority = Distress, Urgency, or Safety) requires this.

The LT-3110S Control Unit display will indicate, if the Modem Data service is active by showing the data symbol in the status bar and the soft key 'Terminate Data', see Figure 261.

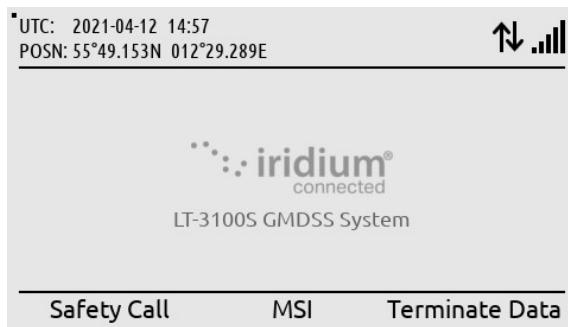


Figure 261: Modem Data service active

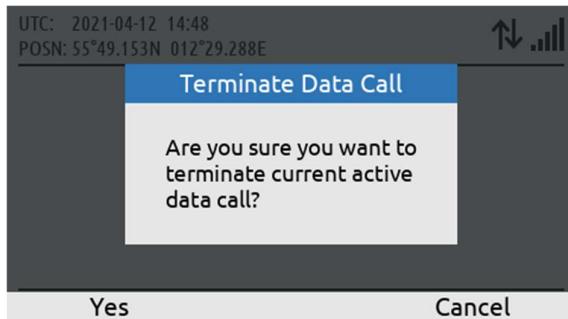


Figure 262: Modem Data service terminate

By pressing the soft key 'Terminate Data' the user of the LT-3100S GMDSS system can manually terminate the Modem Data connection. The user of the LT-3100S GMDSS system must confirm the termination of the Modem Data connection by pressing the soft key 'Yes'.

**NOTE:** The Modem Data connection may be preempted by a GMDSS Service if this is required for a service with higher priority to be delivered. Also, the Modem Data connection can manually be disconnected by pressing the soft key 'Terminate Data'.

The LT-3100S GMDSS system is supporting most of the AT-command set supported by the Iridium 9523N module. The Iridium 9523N AT-commands are available in the Iridium document: ISU AT Command Reference.

Modem Data Services & Numbers	
Service	Number
Direct Internet	008816000025
Direct Internet (Russia)	007954107030
RUDICS	Check with Iridium Service Provider or Application

Table 39: Iridium Modem Data Numbers

Installation of the Serial Port Redirector (virtual COM port) and Windows Dial-up Networking is further described in the following Lars Thrane A/S LT-3100 Tech Notes, which can be downloaded from our company website:

- LT-3100 Serial Port Redirector Tech Notes
- LT-3100 Windows Dial-up Networking Tech Notes

**IMPORTANT:** If the Modem Data service (Direct Internet) Windows Dial-up Networking is established to provide an IP data connection, then it is important to emphasize that no Firewall protection is supported by the LT-3100S GMDSS system. Firewall rules must be setup and configured in the PC to provide the required protection.

#### E-mail programs

External e-mail programs can be installed on a PC and use the Serial over Ethernet (RFC 2217) e.g., SPR Virtual COM port to establish a Modem Data connection (RUDICS) to a dedicated RUDICS server. Table 40 list several e-mail programs and companies, which can be used over an Iridium Modem Data (RUDICS) connection. Additional e-mail programs may be compatible with the LT-3100S GMDSS system and the Iridium Modem Data service.

External E-mail Programs	
SkyFile Mail	Marlink
OnSatMail	AST
GTSeaMail	GTMaritime
SpeedMail	SpeedCast
Iridium Mail & Web (RedPort Optimizer)	Pivotal (Global Marine Network)

Table 40: External E-mail programs

**NOTE:** It is important to validate the correct Modem Data (RUDICS) Dial-up number with the Iridium Service Provider or the respective company used. Also, make sure that the Modem Data connection is setup with the correct Modem Data service (+CBST - Select Bearer Service Type, default value: 9600 bps V.32). Further details for the AT-command set is available in the Iridium document: ISU AT Command Reference.

## Tracking

The LT-3100S GMDSS system is supporting tracking functionality. The periodic tracking functionality must be configured from the LT-3100S GMDSS system web server, see Configuration - Tracking in *Tracking* on page 205. The LT-3100S GMDSS system tracking functionality is a non-GMDSS functionality, which the user of the system can configure and use for any private purpose.

The LT-3100S GMDSS system is supporting the following tracking formats:

Transport Types & Report Formats	
Transport Type	Report Format
SMS	Thrane (text) Human readable
E-mail	Thrane (text) Human readable
SBD	<i>Not supported</i>

Table 41: Tracking Transport Types & Report Format

If periodic tracking reports have been configured by the user of the LT-3100S GMDSS system in the web server, then a tracking symbol will be shown in the status bar of the LT-3110S Control Unit display. Also, this is to inform the user that tracking reports will be sent periodically.

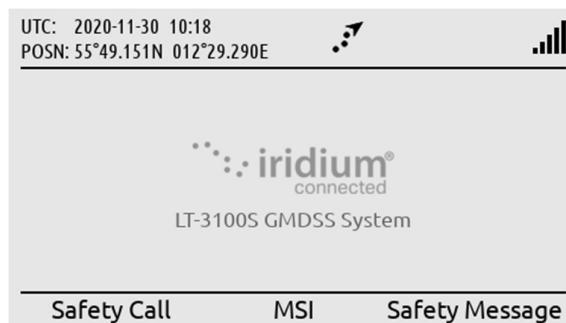


Figure 263: Periodic Tracking Activated

The user of the LT-3100S GMDSS system can access the Tracking window (MENU -> System -> Tracking) to get some details about the periodic tracking configuration and reports. See Figure 264 on page 155 for the layout of the Tracking window.

The Tracking window shown in Figure 264 illustrates the following periodic tracking configuration:

- Time trigger: Enabled, Timer interval = 12:00 (HH:MM)
- Distance trigger: Enabled, Distance interval = 50.0 (NM), Minimum time interval = 04:00 (HH:MM)

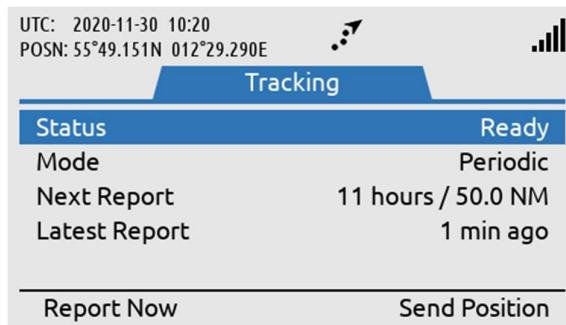


Figure 264: Tracking submenu

Last Report is indicating '1 min ago' because the soft key 'Report Now' button has been used. The soft key 'Report Now' can be used to send additional tracking reports, if tracking has been configured in the web server. Otherwise for this configuration, periodic tracking reports are to be sent every 12 hours / 50 NM (minimum time interval: 4 hours), whatever is first triggered, time or distance.

If Time and/or Distance trigger have been enabled, then Mode is set to Periodic. If none of these trigger conditions have been enabled, then Mode is set to Manual. If the Mode is configured to Manual, then only tracking configuration Options 'Send report on power-on' (configuration parameter from the web server) or the soft key 'Report Now' can activate a tracking report.

If selecting the Last Report using the Navigation key, then you will see the details of this last tracking report sent, as illustrated in Figure 265.

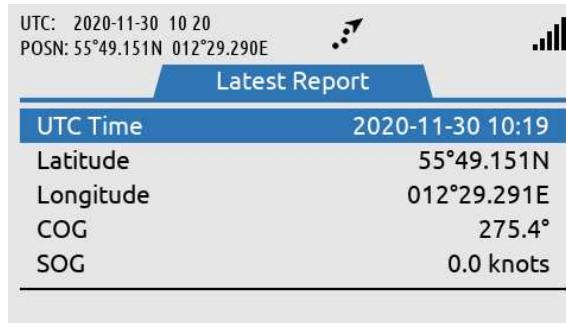


Figure 265: Tracking (Last Report)

**NOTE:**

The LT-3100S GMDSS system support configuration of periodic tracking reports using different transport types and formats. The periodic tracking reports must be configured using the web server, see Configuration - Tracking in *Tracking* on page 205.

Instead of using the periodic tracking report, it is possible without any configuration, to send a tracking report using the Tracking window (MENU -> System -> Tracking). Use the soft key 'Send Position' as illustrated in Figure 264 on page 155.

The LT-3100S GMDSS system will preformat a tracking report using the SMS functionality and layout, where the user optionally can select between a regular subscriber number and an E-mail address. Use the hash '#' key to toggle between numbers and letters in the 'To:' field. It is possible edit the body text with optionally information to the recipient of the tracking report. Whenever the recipient address and body text are completed, use the Navigation key to enter the body text field and the soft key 'Send' will appear. Press the soft key 'Send' and status about transmitting the SMS will be available to the user. The functionality is illustrated in Figure 266 and in Figure 267.

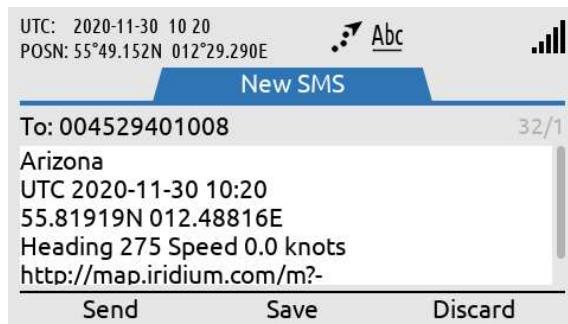


Figure 266: Tracking (Send Position)

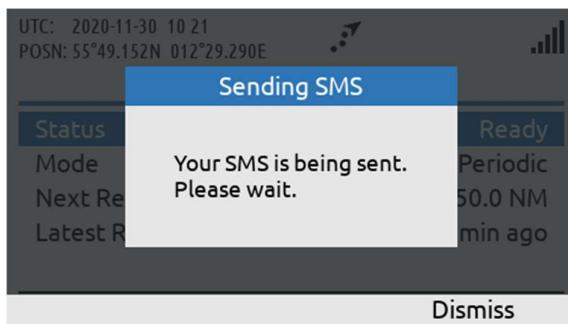


Figure 267: Tracking (Send Position)

**NOTE:** The LT-3100S GMDSS system can send preformatted tracking reports from the Tracking window without any preceding configuration. Enter the Tracking window (MENU -> System -> Tracking) and press the soft key 'Send' to activate this functionality and select between regular subscriber number and E-mail recipient address.

## System Submenus

This section describes and illustrates all the non-GMDSS submenus: Phone, Settings, and System. The submenus are accessed by pressing the MENU button.

### Phone

The Phone submenu contains the following entries: Contacts, SMS, and Call History. See Figure 268 for the layout of the Phone submenu.

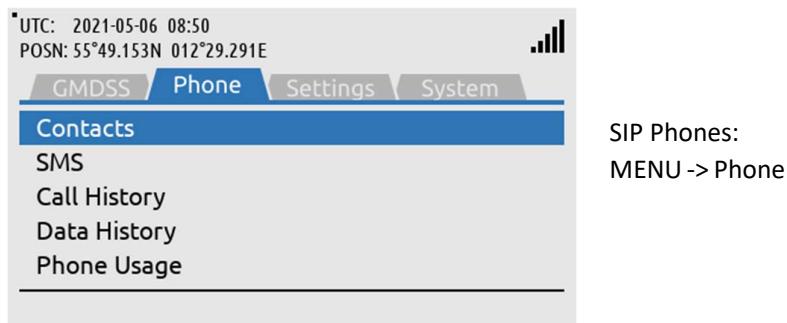


Figure 268: Phone submenu

### Contacts

The Contacts provides a list of contacts created by the user. Create a new contact by pressing the soft key 'New' and add phone number and name. The phone number is limited to numbers (e.g. 004529401008). It is currently not possible to add E-mail addresses under contacts. The Contact list can contain 100 contacts. Use international number prefix, either '+' or '00XX' in front of the number. A contact can be deleted from the list by pressing the soft key 'Delete' and confirm this.

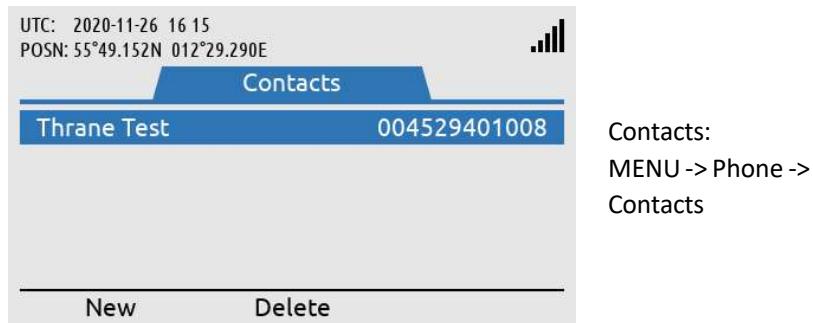


Figure 269: Phone submenu (Contacts)

**NOTE:** The user can select an entry from the Contacts (e.g. Thrane Test) and use the Off-hook button to establish a voice call to the contact.

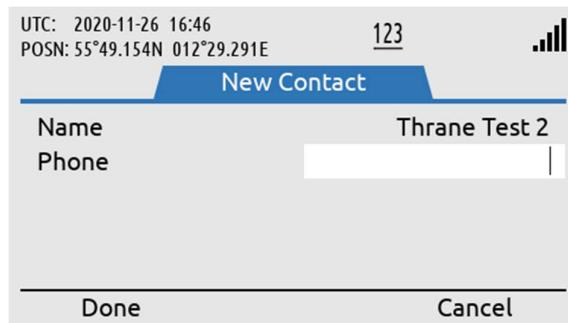


Figure 270: Contacts (New Contact)

## SMS

The SMS Service is described and illustrated *General Messaging (SMS)* on page 143.

## Call History

The Call History provides a complete list of all voice calls (Safety and General Calling): outgoing, incoming, and missed calls, as illustrated in Figure 271. ‘Unknown’ entries in the Call History will show the soft key ‘New Contact’ to help creating the ‘Unknown’ contacts in the Contact list. Use the soft key ‘Show Missed’ to filter for incoming missed calls.

The screenshot shows the 'Call History' submenu. At the top, it displays the date and time: UTC: 2020-11-26 10:50 and position: POSN: 55°49.153N 012°29.289E. There is a signal strength icon with 123 bars. Below this, a blue bar labeled 'Call History' is visible. The main area lists three calls:

Call Type	From	Date	Duration
Outgoing	Thrane Test +4529401008	2020-11-26 10:50	Missed
Incoming	Thrane Test +4529401008	2020-11-26 10:49	19 sec
Outgoing	Thrane Test 004529401008	2020-11-26 10:48	14 sec

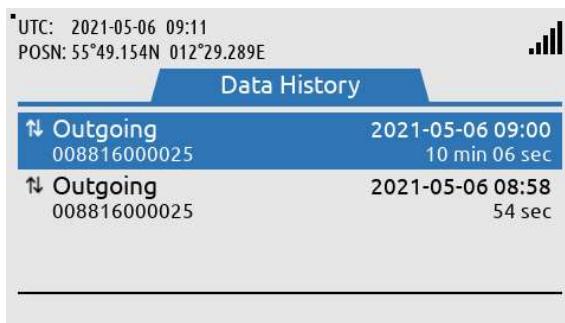
At the bottom, there is a 'Show Missed' button.

Call History:  
MENU -> Phone -> Call History

Figure 271: Phone submenu (Call History)

Date History:

The Data History provides a complete list of all Modem Data connections (Direct Internet and RUDICS): outgoing and incoming connections will be listed. The Data History is illustrated in Figure 272. The Modem Data is further described in *Data (Modem Data & SMS)* on page 151.

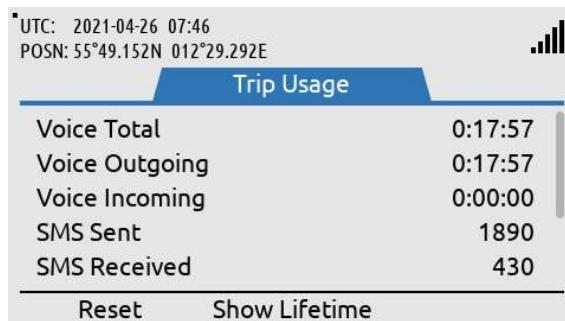


Data History:  
MENU -> Phone -> Data History

Figure 272: Phone submenu (Data History)

Phone Usage

The Phone Usage submenu lists Trip and Lifetime terminal usage. To switch between Trip and Lifetime usage, press the softkey titled 'Show Lifetime/Trip'. The lists include Voice totals, SMS totals and Data totals. Figure 273 to Figure 276.



Phone Usage:  
MENU -> Phone -> Phone Usage  
(Trip usage)

Figure 273: Phone submenu (Phone Usage)

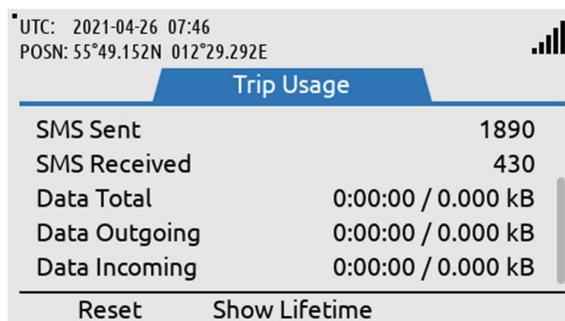
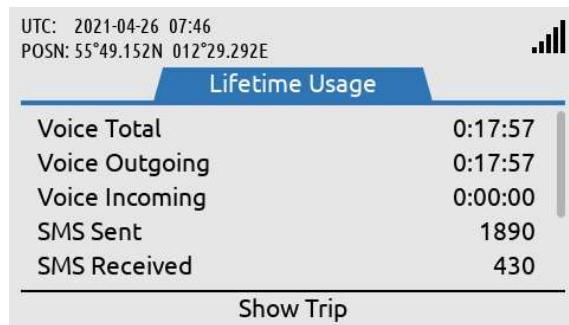


Figure 274: Phone submenu (Phone Usage)



Phone Usage:  
MENU -> Phone -> Phone  
Usage  
(Lifetime usage)

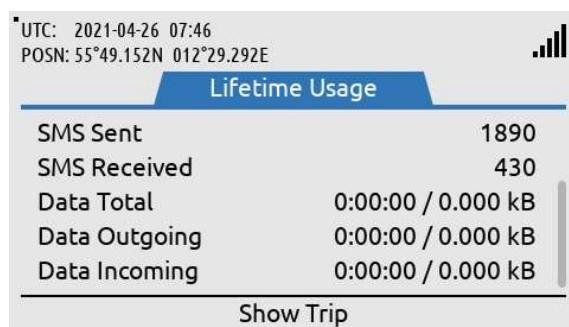
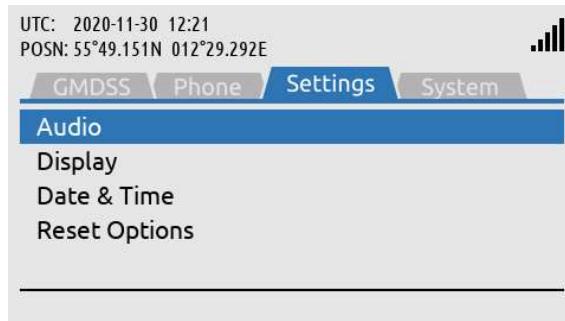


Figure 275: Phone submenu (Phone Usage)

Figure 276: Phone submenu (Phone Usage)

## Settings

The Settings submenu contains the following entries: Audio, Display, Date & Time, and Reset Options. See Figure 277 for the layout of the Settings submenu.



Settings:  
MENU -> Settings

Figure 277: Settings submenu

## Audio

The Audio settings handles all audio levels and notifications. All audio levels are adjustable in ten levels. Here is a short description of the audio settings and their functionality in the LT-3100S GMDSS system (see Figure 278 for layout):

- Speaker Volume* adjusts the output level of the LT-3110S Control Unit speaker (located below the DISTRESS button). The Speaker Volume setting is primarily used when operating the system with the LT-3120 Handset placed in LT-3121 Cradle (e.g. making a voice call). The Navigation key (arrows up/down) can be used to control the Speaker Volume output level, when audio is directed to control unit speaker.
- Handset Volume* adjusts the output level of the LT-3120 Handset speaker (user audio). The user can adjust the Handset Volume during a voice call by using the LT-3120 Handset volume button (up/down) on the side of the handset.
- Ringer Volume* adjusts the output level of the ringer, when an incoming voice call is presented in the LT-3100S GMDSS system. The Ringer output will be directed to the LT-3120 Handset (integrated ringer speaker on the back side) when placed in the LT-3121 Cradle. Otherwise, the LT-3110S Control Unit speaker is used for indicating an incoming voice call.
- Key Beep* adjusts the output level of the audio feedback when using the LT-3110S Control Unit keypad. Can be configured to 'Off' if desired.

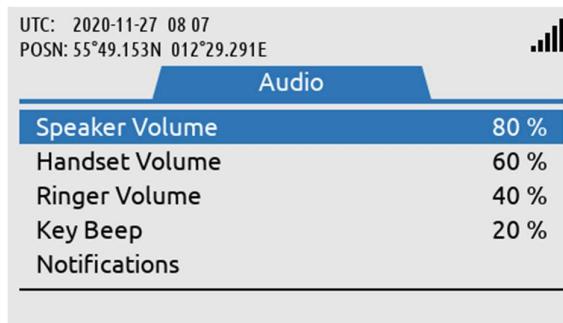


Figure 278: Settings submenu (Audio)

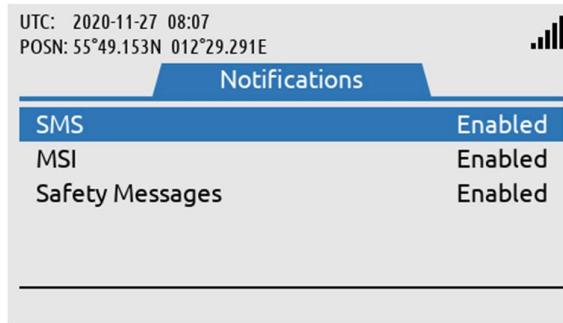


Figure 279: Settings Submenu (Notifications)

**NOTE:** Audio notifications can be disabled for SMS, MSI, and Safety Messages. For MSI and Safety Messages the audio notification configuration is only valid for priority = Safety. The unread symbol in the status bar will still be shown if audio notifications are disabled.

Display

The Display settings handles all display settings: mode (day or night time) and brightness.



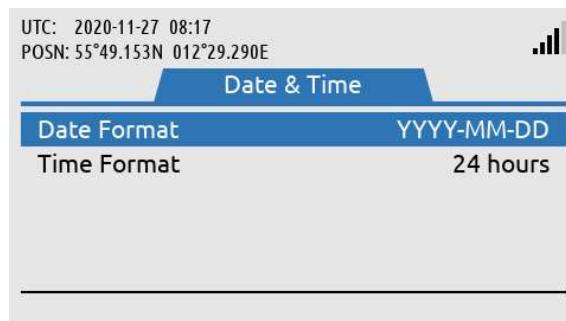
Display:  
MENU -> Settings ->  
Display

Figure 280: Settings submenu (Display)

**NOTE:** The display settings can also be configured using the ‘Power & DIM’ button. Short press on the ‘Power & DIM’ button changes the brightness, whereas long press on the ‘Power & DIM’ button changes between day and night time.

Date & Time

Date & Time settings provides the user with a possibility to change formats after completing the Installation Wizard. The LT-3100S GMDSS system support the following date formats: YYYY-MM-DD, D MMM YYYY, DD/MM/YYYY, and MM/DD/YYYY. The time format can be configured to either 24 or 12 hours.



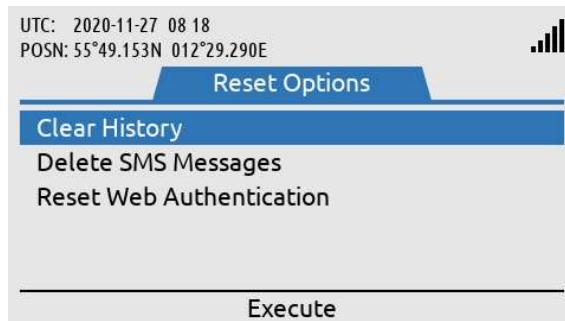
Date & Time:  
MENU -> Settings -> Date  
& Time

Figure 281: Settings submenu (Date & Time)

**NOTE:** The Date & Time format will be configured initially when completing the Installation Wizard. The Installation Wizard is described and illustrated in *Installation Wizard* on page 65.

### Reset Options

The Reset Options handles the reset of the following user records and configurations: Call History, SMS, and Web Server Authentication. Use the soft key 'Execute' or the 'ENTER' button to activate the reset, when the correct Reset Option has been selected by the 'Navigation' key (arrow up/down). The user of the LT-3100S GMDSS system will have to confirm the reset, see Figure 282 and Figure 283.



Reset Options:  
MENU -> Settings ->  
Reset Options

Figure 282: Settings submenu (Reset Options)

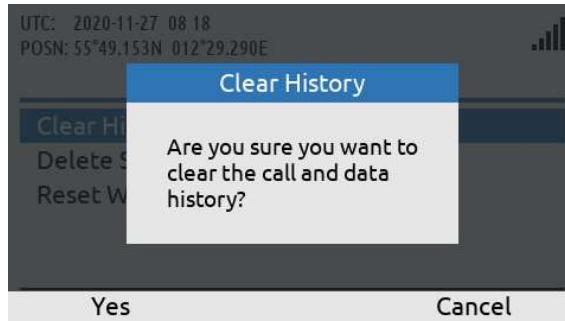


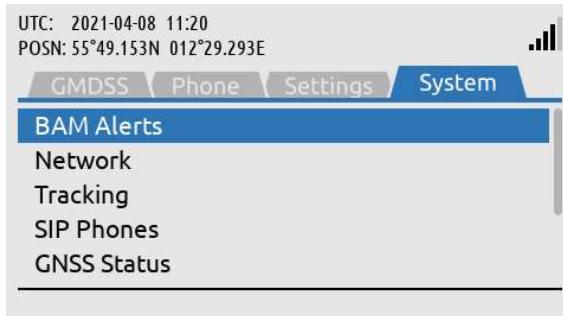
Figure 283: Settings submenu (Reset Options)

### **NOTE:**

The reset of the web server authentication can be managed from the Settings submenu for the user to get access to the web server in the situation, where the user cannot find the changed password. To avoid unwanted access to the web server via the network interface, it is highly recommended to change the web server authentication password at any time. The web server authentication is described and illustrated in *Authentication* on page 192.

## System

The System submenu contains the following entries: BAM Alert, Network, Tracking, SIP Phones, GNSS Status, Subscription, System Info, and Power Supply. See Figure 284 and Figure 285 for the layout of the System submenu.



System:  
MENU -> System  
(upper view)



System:  
MENU -> System  
(lower view)

Figure 284: System submenu

### BAM Alerts

BAM Alerts provides an overview of the active alerts in the LT-3100S GMDSS system. The Bridge Alert Management (BAM) is described and illustrated in detail in *Bridge Alert Management (BAM)* on page 173.



BAM Alerts:  
MENU -> System -> BAM  
Alerts (or long press on  
the MENU button)

Figure 286: System submenu (BAM Alerts)

**NOTE:** The BAM Alerts list illustrated in Figure 286 should under normal conditions be empty (No Alerts). Make sure to read the alerts carefully and take appropriate action.

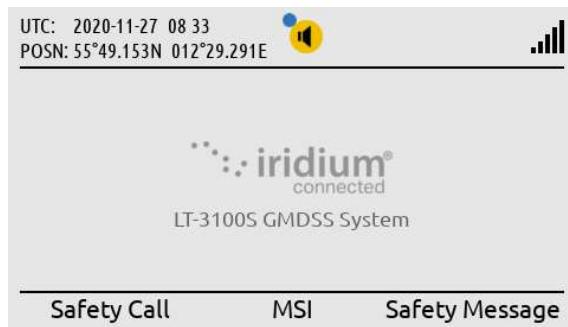


Figure 287: BAM Alerts (1 of 4)



Figure 288: BAM Alerts (2 of 4)



Figure 289: BAM Alerts (3 of 4)



Figure 290: BAM Alerts (4 of 4)

BAM alert shown in the status bar (active warning). The blue dot indicates a change in the BAM Alerts, after the user has last been in the list.

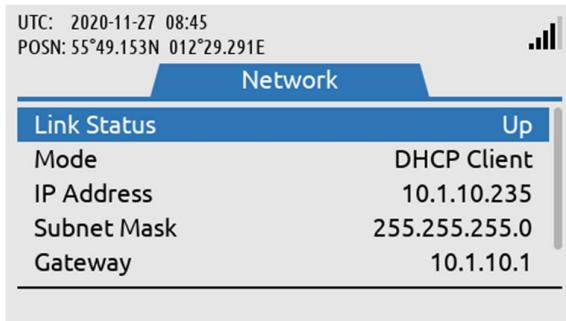
Long press on the MENU button to access the BAM Alerts (Lost Handset).

Press the soft key 'Silence All' to mute the audible alarm for 30 seconds.

Press the soft key 'ACK Alert' acknowledge the BAM alert.

## Network

The Network provides an overview for the user of the LT-3100S GMDSS system of the IP network configuration and setup. The LT-3100S GMDSS system can be configured to: DHCP Client, DHCP Server, and Static IP address. The link status will provide the user with information about and whether an IP connection is established to the LT-3110S Control Unit. The IP address of the LT-3110S Control Unit is provided under the IP Address parameter illustrated in Figure 291.



Network:  
MENU -> System ->  
Network

Figure 291: System submenu (Network)

**NOTE:** Use the IP Address to access the built-in web server. Instructions to access the built-in web server is provided in *Accessing the built-in web server* on page 187.

## Tracking

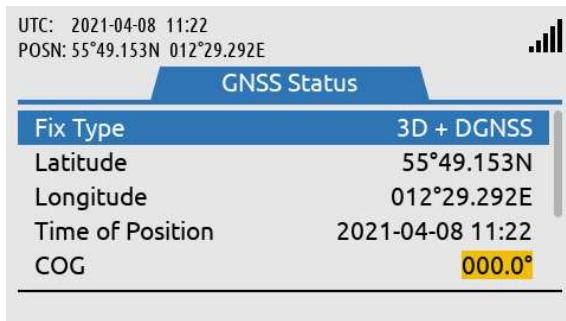
The Tracking functionality is described and illustrated in *Tracking* on page 154.

## SIP Phones

The SIP Phones functionality is described and illustrated in *External SIP Phones* on page 148.

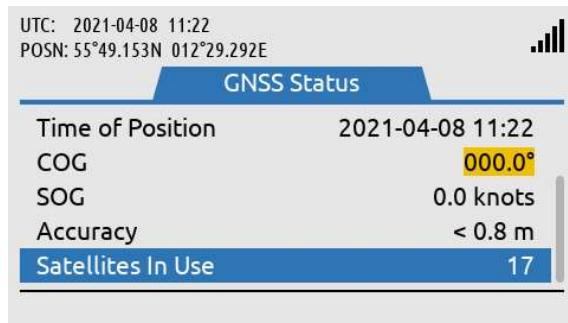
## GNSS Status

The GNSS Status provides an overview for the user of the LT-3100S GMDSS system built-in GNSS receiver. The GNSS receiver can be configured from the web server, see *GNSS, BAM and MSI* on page 211.



Position Status:  
MENU -> System -> Position  
Status  
(upper view)

Figure 292: System submenu (Position Status)



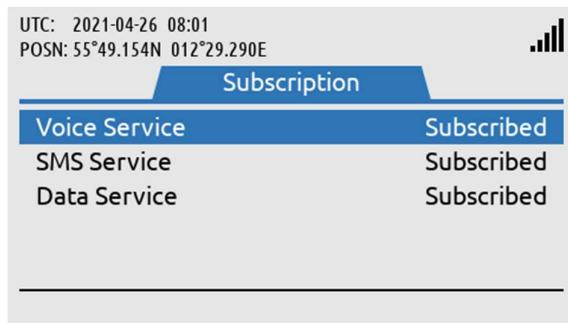
Position Status:  
MENU -> System -> Position  
Status  
(lower view)

Figure 293: System submenu (Position Status)

**NOTE:** The GNSS Status window shows the GNSS receiver status (in Automatic GNSS mode). The Manual Position input will not be shown in the GNSS Status window. The GNSS Status (Automatic GNSS) integrity states are further described and illustrated in *App. G - GNSS Receiver Integrity States (Automatic GNSS)* on page 237.

### Subscription

The LT-3100S GMDSS system supports both General Calling (priority = Routine) and General Messaging (priority = Routine), also mentioned as Voice Call and SMS. The Voice and SMS Service must be activated with the Iridium GMDSS Service Provider (SP) in order to be available as a service for the LT-3100S GMDSS system. The LT-3100S GMDSS System is also supporting the Iridium 2.4 kbps Modem Data (Direct Internet and RUDICS), for more information see *Data* on page 151. The Subscription status will provide the user with information whether the Voice, SMS and Data Services are activated or not.



Subscription:  
MENU -> System ->  
Subscription

Figure 294: System submenu (Subscription)

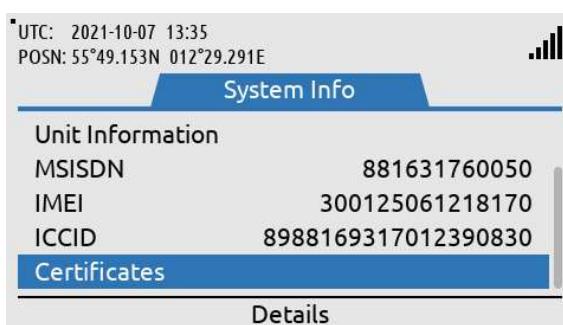
**NOTE:** The Voice and SMS Service must be activated with the Iridium GMDSS Service Provider (SP). in order to be available as a service for the LT-3100S GMDSS system.

System Info

The System Info provides details about the LT-3100S GMDSS system software and hardware. In addition, the following numbers are available: MSISDN (~satellite phone number), IMEI (~mobile equipment number), and ICCID (~SIM card number). The System Info is illustrated in Figure 295 and in Figure 296.



System Info:  
MENU -> System -> System  
Info  
(upper view)

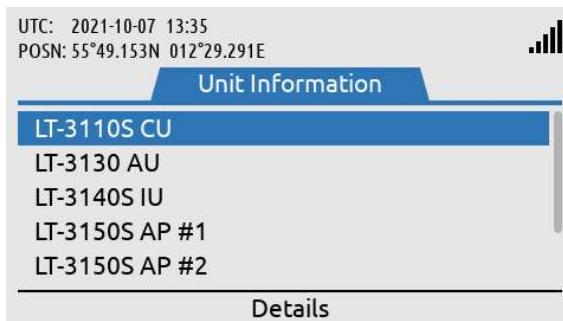


System Info:  
MENU -> System -> System  
Info  
(lower view)

Figure 295: System Submenu (System Info)

Figure 296: System submenu (System Info)

To review information about configured units enter the Unit Information submenu. All configured units in the system will be displayed. The Unit information submenu is seen on Figure 297. By pressing the 'Details' Soft key, more information is available, see Figure 297 to Figure 300.



Unit Info:  
MENU -> System -> System  
Info-> Unit Info  
(top view)

Figure 297: System submenu (System Info-> Unit Info)

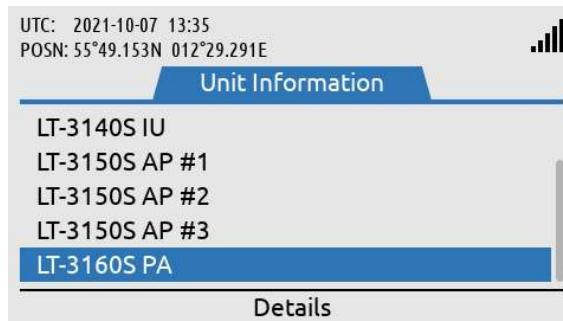


Figure 298: System submenu (System Info-&gt; Unit Info)

Unit Info:  
MENU -> System -> System  
Info-> Unit Info  
(lower view)

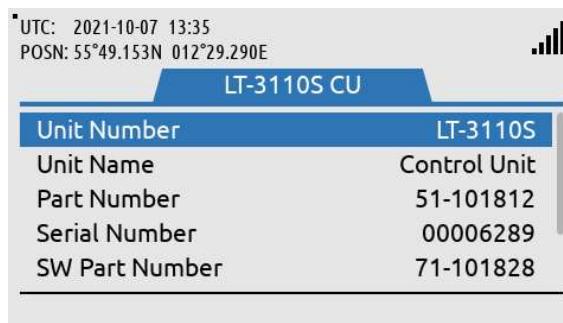
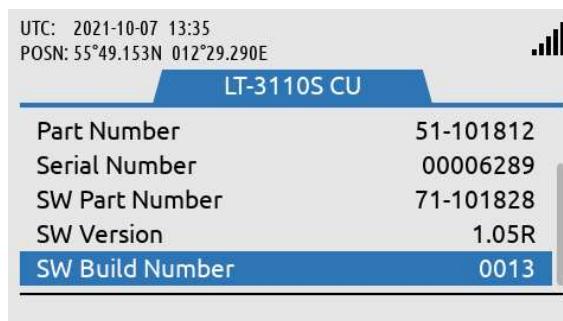


Figure 299: System submenu (Unit Info-&gt; LT-3110S CU)

Information about the  
LT-3110S CU  
(Top view)



Information about the  
LT-3110S CU  
(Bottom view)

Figure 300: System submenu (Unit Info -&gt; LT-3110S CU)

**NOTE:**

The LT-3140S IU will only be present in the Unit Info submenu if a LT-3140S Interface Unit is configured for the system.

### Certificates

LT-3100S GMDSS System certificates can be found by entering the 'Certificates' submenu. This is seen on Figure 301.

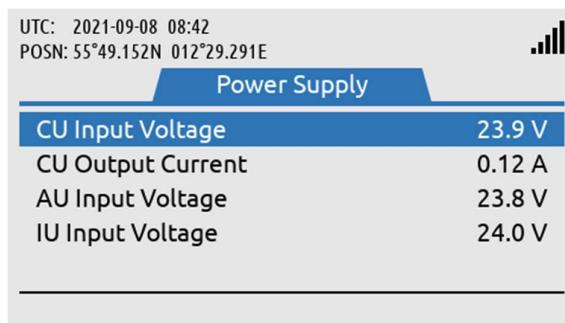


System Info:  
MENU -> System -> System  
Info-> Certificates

Figure 301: System submenu (System Info-> Certificates)

### Power Supply

The Power Supply provides details about the DC input voltage on the LT-3110S Control Unit, LT-3130 Antenna Unit and LT-3140S IU. The output current is also displayed for the LT-3110S Control Unit.



Power Supply:  
MENU -> System -> Power  
Supply

Figure 302: System submenu (Power Supply)

**NOTE:** IU Input Power is only present if an LT 3140S Interface Unit has been configured for the system.

## Bridge Alert Management (BAM)

Bridge Alert Management (BAM) is the IMO defined overall concept for the harmonized management, distribution, handling and presentation of alerts on the bridge, to enable the bridge team to devote full attention to the safe operation of the ship and to immediately identify any alert situation requiring action to maintain the safe operation of the ship. The LT-3110S GMDSS system implements the BAM concept in compliance with the relevant standards (IEC 62923-1 and IEC 62923-2 Bridge Alert Management).

### BAM status

The LT-3100S GMDSS system continuously monitor for fault conditions (e.g. no satellite signal) and other events (e.g. received distress communication) that requires the attention of the bridge team and raises relevant alerts. The user can, at any time, check for the presence of alerts without performing any action: if there are one or more active alerts, a BAM icon representing the alert with the highest priority is shown in the status bar (see Figure 303). The exact icon shown depends on the priority and state of the alert with the highest priority (see Table 42 on page 174). It is not possible to hide or suppress the BAM icon in the status bar.

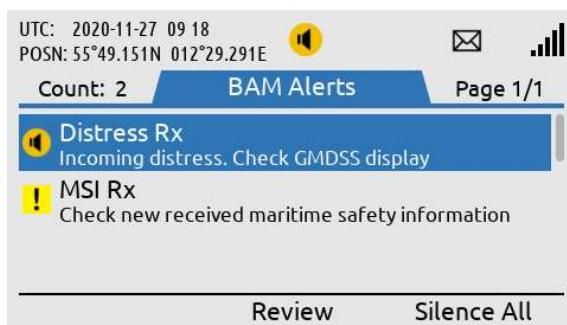


Figure 303: LT-3110S Control Unit (BAM status)

### Alert list

Once the user has become aware an alert has been raised, the user can navigate to the alert list (MENU -> System -> BAM Alerts) to find further information about the alert conditions.

**NOTE:** For quick access to the alert list, long press ( $\geq 1$  s) the MENU button at any time.



If MSI or a Safety Message is responsible for the BAM Alert, pressing the soft key 'Review' will direct the user to the specific MSI or Safety Message.

Figure 304: LT-3110S Control Unit (BAM Alert list)

See App. B - Bridge Alert Management (BAM) on page 221 for the full list of alerts that can be raised by the LT-3100S GMDSS system.

### Alert priority and state

The **priority** of an alert indicates its severity. The BAM concept defines 4 priorities: Emergency Alarm, Alarm, Warning and Caution. The LT-3100S GMSDS system can raise alerts of the following priorities:

- Warning:** Condition requiring immediate attention, but no immediate action by the bridge team. Warnings are presented for precautionary reasons to make the bridge team aware of changed conditions which are not immediately hazardous but may become so if no action is taken.
- Caution:** Lowest priority of an alert. Awareness of a condition which does not warrant an alarm or warning condition, but still requires attention out of the ordinary consideration of the situation or of given information.

The shape and color of the BAM icon indicates the priority of the alert and the symbol inside indicates its state as per Table 42 below.

BAM Alert Icons, Priority and State				
Priority	Icon	State	Condition	Audible signal
Warning		Active – unacknowledged	Alert condition present. Alert not acknowledged.	Yes
		Active – silenced	Alert condition present. Alert not acknowledged, but audible signal has been silenced by the operator.	No
		Active – acknowledged	Alert condition present. Alert acknowledged by the operator.	No
		Active – responsibility transferred	Alert condition present. A function of the BAM compliant equipment with additional system knowledge has taken over.	No
		Rectified – unacknowledged	Alert condition rectified. Alert still unacknowledged.	No
	None	Normal	No alert condition present.	No
Caution		Active	Alert condition present.	No
	None	Normal	No alert condition present.	No

Table 42: BAM Alert Icons, Priority and State

### Temporary silence

Active unacknowledged alerts cause a short but periodically repeated audible signal. To temporarily silence all alerts (and thus the audible signal), press the “Silence All” soft key. The temporary silence period expires after 30 s, after which active silenced alerts become active unacknowledged alerts again, causing the audible signal to resume.

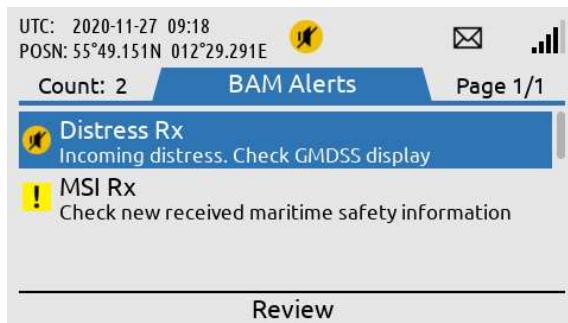


Figure 305: LT-3110S Control Unit (BAM Alerts)

**NOTE:** Active unacknowledged alerts cause a short but periodically repeated audible signal, which can be temporary silenced (for 30 s) by pressing the soft key ‘Silence All’. This temporary silence has been illustrated in Figure 305. In this example, the active unacknowledged BAM alert can be cleared when the distress alert relay message has been read in the MSI Messages (e.g. by pressing the soft key ‘Review’).

### Alert acknowledgement

Alerts of priority warning must be acknowledged by the user. To acknowledge an alert, press the “ACK Alert” soft key.

Some alerts cannot be acknowledged by the user, in which case the “ACK Alert” soft key will be absent. This applies to alerts for which the alert text and alert description is not enough for decision support.

When an alert is both acknowledged and rectified it disappears from the alert list. Cautions cannot be acknowledged and thus disappear as soon as they are rectified.

### Aggregation

The BAM concept defines aggregation as a means for an alert source to combine multiple individual alerts of the same kind into a single aggregated header alert to reduce the risk that the number of individual alerts obscures the display of equally important additional alerts, for example due to the active alert list length exceeding the maximum display capability of the alert source UI.

**NOTE:** The LT-3100S GMDSS system currently does not define any alerts that can be aggregated.

### Responsibility transfer

The BAM concept defines the Central Alert Management (CAM) system as equipment used for centralizing management, handling and presentation of alerts on the bridge. A CAM system may be standalone or combined with other equipment, for example in the case of an Integrated Navigation System (INS).

A CAM system connects to multiple alert sources (such as the LT-3100S GMDSS system) in order to manage and present their alerts on the CAM UI. An alert will thus be presented in the alert list of both the alert source and the CAM system.

To reduce the number of high-priority audible alerts for one situation that requires attention, if the CAM system has additional knowledge regarding an alert situation, which caused the LT-3100S GMDSS system to raise an alert, the CAM system may apply responsibility transfer and raising a new alert with, if practicable, a lower priority.

**NOTE:** Alerts of priority caution are not audible and therefore cannot have their responsibility transferred.

**NOTE:** The LT-3100S GMDSS will reject the request for responsibility transfer if no HBT sentence (indicating good status) has been received from the CAM system within the last 90 s.

### Time synchronization

The LT-3100S GMDSS system can supply the UTC time of alert state changes to the CAM system due to the built-in GNSS receiver.

**NOTE:** If the alert state change occurs before the built-in GNSS receiver has obtained the UTC time or in case of GNSS receiver malfunctioning, the LT-3100S GMDSS system will not supply the UTC time.

## Serial Interface (RS-422)

### GNSS sentences

The LT-3100S GMDSS system support outputting of GNSS sentences encoded as NMEA 0183 via an RS-422 interface from the LT-3100S GMDSS system, as illustrated in Figure 306. The LT-3100S GMDSS system has a built-in GNSS receiver in the LT-3130 Antenna Unit.

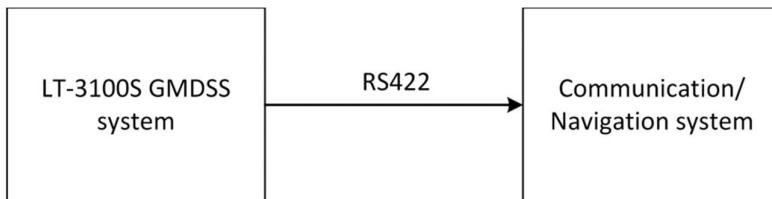


Figure 306: GNSS sentences

Table 43 presents the supported GNSS sentences by the LT-3100S GMDSS system. The configuration of the GNSS sentences are illustrated and described in *GNSS, BAM and MSI* on page 211.

Sentence	GNSS Sentences		
	Baud Rate		
	4.800	9.600	38.400
DTM	X	X	X
GGA	X	X	X
GLL	X	X	X
GSA	X	X	X
GSV	-	X	X
RMC	X	X	X
VTG	X	X	X
ZDA	X	X	X

Table 43: GNSS sentences

**IMPORTANT:** The GNSS receiver of the LT-3100S GMDSS system is not certified according to IMO performance standards for GNSS receivers. The LT-3100S GMDSS system shall not be connected to equipment where the GNSS receiver interface must be certified.

The GNSS sentences and decoding of these are further documented in *App. D - GNSS sentences on page 231*.

## BAM sentences

The LT-3100S GMDSS system support connection to an external Central Alert Management (CAM) system via an RS-422 interface from the LT-3100S GMDSS system, as illustrated in Figure 307. The CAM system can receive BAM information (e.g. warning and cautions) from the bridge equipment and centralize and present this information to the user, which can be acknowledged to the BAM equipment (here the LT-3100S GMDSS system).



Figure 307: CAM/BAM system

Table 44 presents the supported BAM sentences by the LT-3100S GMDSS system. The configuration of the BAM sentences are illustrated and described in *GNSS, BAM and MSI* on page 211.

Sentences Received by SES		
Sentence	Name	Comment
ACN	Alert Command	Alert command for instance acknowledge
HBT	Heartbeat	Support reliable alert related communication
Sentences Transmitted by SES		
Sentence	Name	Comment
ARC, ALC, ALF	Alert information	

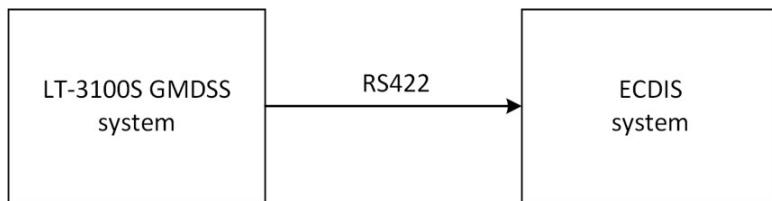
Table 44: BAM sentences

**NOTE:** The encoding of BAM sentences is defined in IEC 61162-1 (Edition 5.0, 2016-08), the encoding is similar to NMEA 0183.

The BAM sentences and decoding of these are further documented in App. E - BAM sentences *on page 233*.

### MSI sentences

The LT-3100S GMDSS system supports connection to an external ECDIS system via an RS-422 interface from the LT-3100S GMDSS system, as illustrated in Figure 308. The MSI sentences are transmitted from the LT-3100S GMDSS system as ‘information only’. The MSI messages transmitted from the Iridium GMDSS System (IGS) must always be read via the LT-3110S Control Unit UI display (MSI messages cannot be marked/acknowledged via the external ECDIS system receiving these MSI messages).



*Figure 308: MSI sentences*

Table 45 presents the supported MSI sentences by the LT-3100S GMDSS system. The configuration of the MSI sentences are illustrated and described in *GNSS, BAM and MSI* on page 211.

Sentences Transmitted by the SES		
Sentence	Name	Comment
SM1, SM2, SM3, SM4, SMB, SMV	Maritime Safety Information (MSI)	

*Table 45: MSI sentences*

**NOTE:** The encoding of MSI sentences is defined in the IEC-61097-16 (Edition 1.0 2019-07) standard, the encoding is similar to NMEA 0183.

The MSI sentences and decoding of these are further documented in *APP. F - MSI sentences on page 235*.

## GMDSS Printers

The LT-3100S GMDSS system support connection of an external GMDSS printer. The GMDSS printer must be connected via the LT-3140S Interface Unit and use the proprietary LT-3160S Printer Adapter from Lars Thrane A/S. The LT-3160S Printer Adapter is connecting to the GMDSS printer via a Centronics interface, 36 pins (IEEE Std 1284-2000, 1284-B receptacle connector). The LT-3160S Printer Adapter is connected to the LT-3140S Interface Unit, using the interface marked 'Printer'. The LT-3160S Printer Adapter is powered from the LT-3140S Interface Unit.

The LT-3100S GMDSS system can print the International Reference Alphabet (IRA) character set (also known as IA5 or T.50).

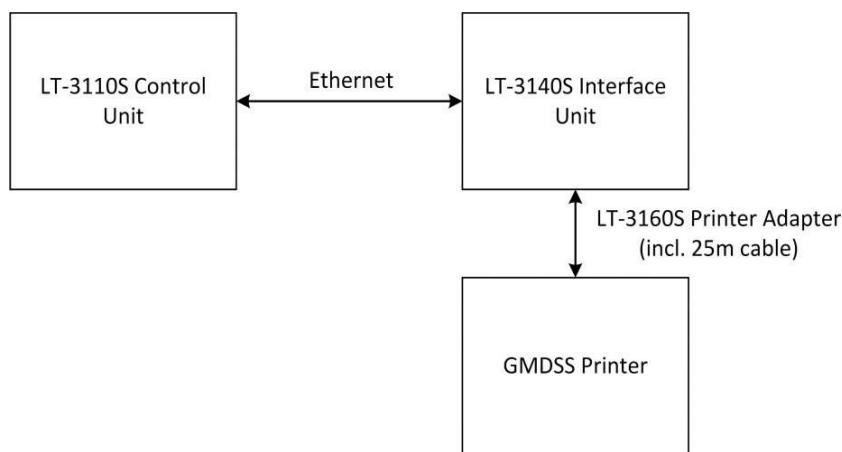


Figure 309: Connect a GMDSS Printer

The GMDSS printer will be detected when running the Installation Wizard, see *Installation Wizard* on page 65. If the GMDSS printer is added after completion of the Installation Wizard, then the Service Wizard will detect the GMDSS printer and complete the setup.

The LT-3100S GMDSS system is supporting the GMDSS printers listed in Table 46.

GMDSS Printers	
Manufacturer	Model No.
Furuno	PP-520
JRC	NKG-900
Cobham / SAILOR	H1252B/TT-3608A

Table 46: GMDSS Printers Supported

**NOTE:** The LT-3100S GMDSS system will generate a BAM alert, if the GMDSS printer is running out of paper, see BAM alerts in *App. B - Bridge Alert Management (BAM)* on page 221.

**NOTE:** Accordingly, to the new GMDSS standard IEC 61097-16, it is no longer a requirement to have a GMDSS printer as part of the GMDSS Satcom installation.

## Ship Security Alert System (SSAS)

The LT-3100S GMDSS System is supporting SSAS functionality and is compliant with the IMO requirements for SOLAS vessels. This section will in details describe the SSAS system architecture and functionality.

This manual describes the following SSAS details:

- Installation of the SSAS Alert and Test buttons, see *SSAS Alert & Test Buttons* on page 24
- Wiring and button layout, see *SSAS (SSAS Alarm 1 to 3 & SSAS Test)* on page 47
- SSAS functionality (*this section*)
- Web server configuration of SSAS, see *SSAS* on page 196

A high-level SSAS system architecture overview is available in Figure 310. The illustration shows the LT-3100S GMDSS System units, which must be present to offer the SSAS functionality. The recipient options are described in *Recipients* on page 182. All configuration options are performed via the built-in web server, see *SSAS* on page 196.

### System Setup

Figure 310 illustrates the LT-3100S GMDSS System with 3 x SSAS Alert buttons and 1 x SSAS Test button connected to the LT-3110S Control Unit via the LT-3140S Interface Unit.

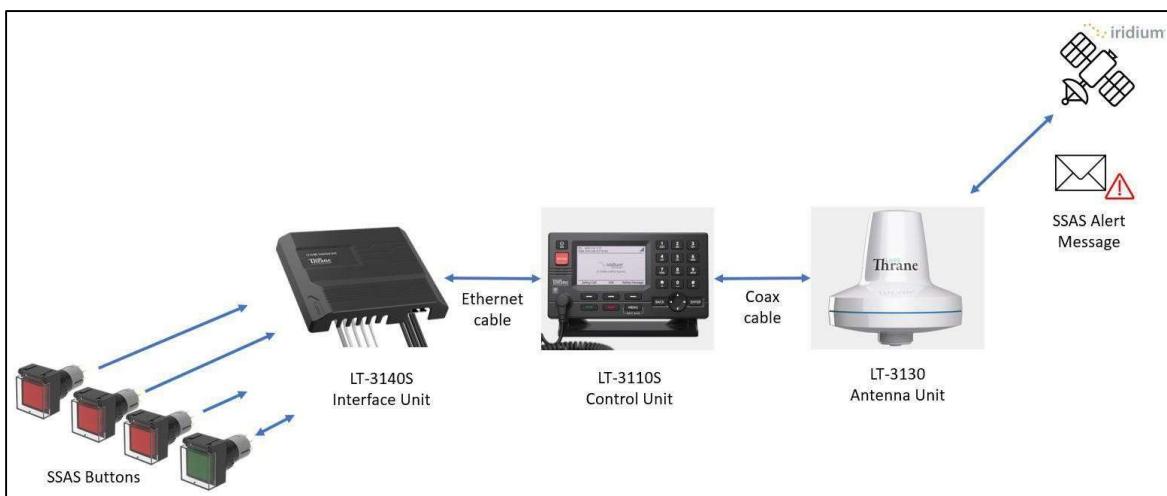


Figure 310: SSAS System Setup (end-to-end)

The SSAS Alert button (incl. 50m cable) and SSAS Test button (incl. 50m cable) can be ordered separately or as a SSAS Kit, where the LT-3140S Interface Unit is included. For SSAS ordering details, see *SSAS parts* on page 4.

Activation of SSAS Alert button(s) or SSAS Test button will trigger the transmission of covert messages, which will be sent to the recipients configured via the built-in web server. The recipient configuration options are described in *Recipients* on page 182. Activating of the SSAS Alert and SSAS Test are described in *Activation of Alert and Test* on page 183.

## Recipients

This section describes the configuration options of the recipients for the SSAS Alert and SSAS Test messages. As illustrated in Figure 311 the recipients for SSAS can be configured to the following options:

- SSAS Provider
- E-mail
- SMS

It is possible to configure up to six recipients. The recipient configuration options are listed in the web server configuration of SSAS, see SSAS on page 196.

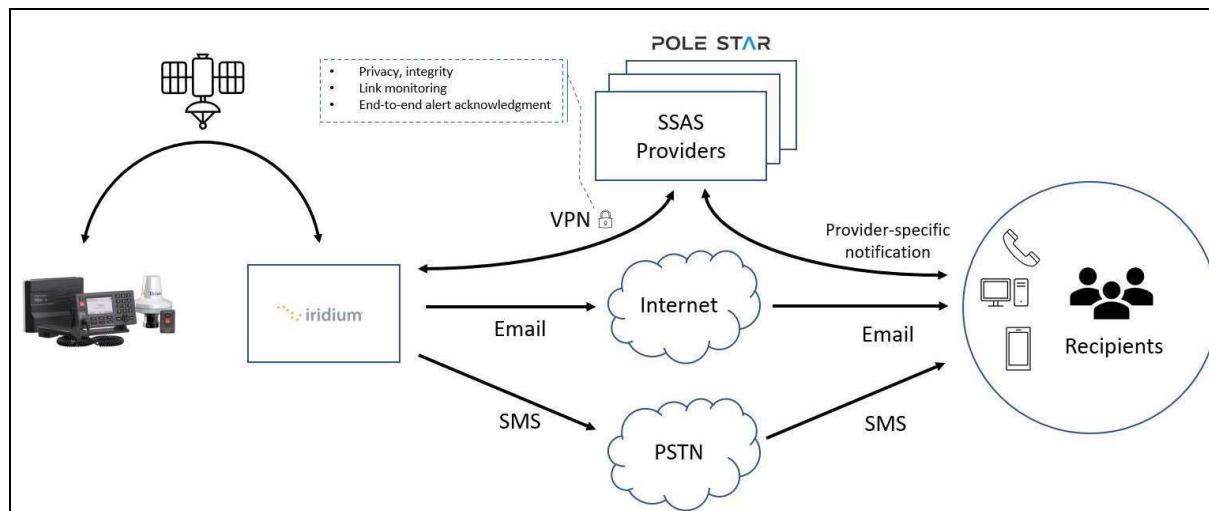


Figure 311: SSAS Recipients (E-mail, SMS, and SSAS Provider)

The SSAS Providers option will add Privacy, Link Monitoring, and Acknowledgement between Iridium and the SSAS Provider. The SSAS Provider recipient configuration option requires a subscription directly with the SSAS Provider to receive the SSAS Alert and SSAS Test messages. The end customer must contact the SSAS Provider if the SSAS Provider option is required and configured.

**NOTE:**

The LT-3100S GMDSS System must have Voice and SMS activated if SSAS functionality is required. The Voice and SMS subscription (priority routine) is activated via the Iridium GMDSS Service Provider using the Maritime Safety Service Activation Form (MSSAF). The LT-3100S GMDSS System Voice and SMS subscription status can be verified in the GUI (MENU -> System -> Subscription).

## Activation of Alert and Test

This section will explain how to activate an SSAS Alert and SSAS Test. The web server configuration will determine which SSAS recipients will receive the SSAS Alert and SSAS Test messages. For further details of the SSAS configuration, see web server configuration SSAS on page 196.

**NOTE:** The SSAS Alert button (red) will click and hold its position when activated. The SSAS Test button (green) cannot hold the active position and must be pressed manually to be activated. A cover will protect both SSAS buttons for a faulty activation.

### Activate SSAS Alert

The following procedure must be followed to activate the SSAS Alert:



1. Press and activate at least one of the SSAS Alert buttons (red)
2. After 30 seconds, the SSAS Alert message will be sent to all the SSAS Alert recipients
3. An updated SSAS Alert message will be sent to all the SSAS Alert recipients after 30 minutes (default value). This procedure will continue until the SSAS Alert has been cancelled

### Cancel SSAS Alert

The following procedure must be followed to cancel an active SSAS Alert:

4. Release all pressed SSAS Alert buttons (red) to cancel the SSAS Alert
5. An SSAS Cancel message will be sent to all the SSAS Alert recipients

### Activate SSAS Test

The following procedure must be followed to activate an SSAS Test:



1. Press and hold the SSAS Test button (green)
2. While the SSAS Test button (green) is pressed, activate at least one SSAS Alert button (red). Upon entering SSAS Test mode, the SSAS Test button (green) will start flashing (on/off in a 250ms pattern)
3. Keep the SSAS Test button (green) pressed in. After 30 seconds the SSAS Test button (green) will start flashing faster (on/off in a 100ms pattern). This flashing indicates that the SSAS Test button (green) no longer needs to be kept pressed and that an SSAS Test message is being sent to the SSAS Test recipients

### Exit SSAS Test

The following procedure must be followed to exit the SSAS Test mode:

4. Release all pressed SSAS Alert buttons (red) to cancel the SSAS Test

### Interpretation of the SSAS Test button light

Table 47 shows the interpretation of the SSAS Test button light (LED).

SSAS Test button light state/pattern	
Light state	Description
Off	SSAS is not functional -> check system and configuration
On	SSAS ready
250ms flashing (on/off)	SSAS Test mode activated
100ms flashing (on/off)	SSAS Test messages is being sent

Table 47: SSAS Test button (green) lightning pattern

The following requirements must be fulfilled for the SSAS Test button to lit:

- The LT-3110S Control Unit must contain an activated GMDSS SIM card
- LT-3140S Interface Unit must be connected to the LT-3110S Control Unit
- The LT-3100S GMDSS system must be registered on the Iridium Network
- Installation and Service Wizard must be completed
- SSAS functionality must be enabled via the web server
- At least one SSAS recipient must be configured
- A minimum of two SSAS Alert buttons must be functional

**NOTE:** In case the SSAS Test button LED is not turned on (lit), please check the SSAS web server configuration for any error information. The SSAS Test button LED may be damaged, this may be indicated on the SSAS configuration webserver. Due to covert operation SSAS information cannot be displayed in the LT-3110S Control Unit.

### Layout of messages

Examples on the SSAS Alert, SSAS Cancel, and SSAS Test messages sent as E-mail are illustrated in Figure 312.

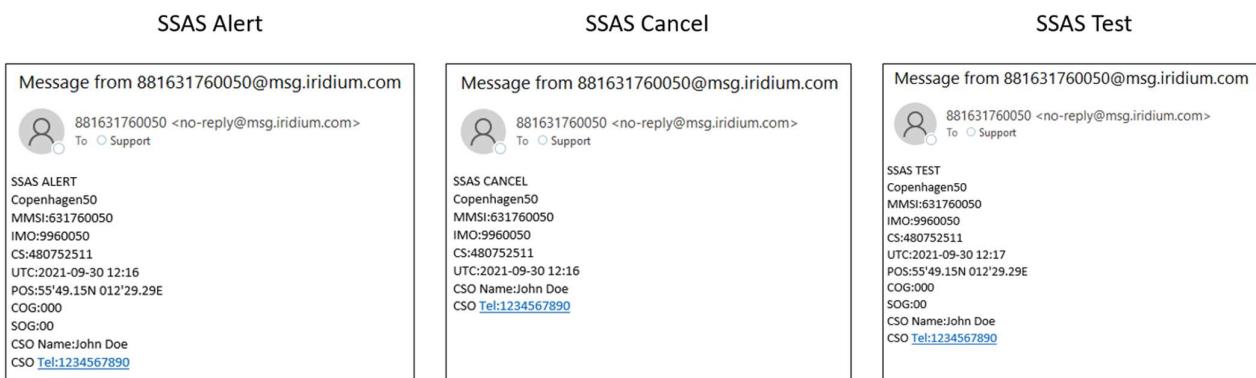


Figure 312: Layout of SSAS messages

**NOTE:** Using SMS as destination may split up the messages into 2 separate messages: SMS (1/2) and SMS (2/2) - this is clearly indicated in the received SMS' (the MMSI number is listed in both SMS (1/2) and in SMS (2/2) to show their relationship).

**NOTE:** The SSSA Cancel message is only sent when SSAS Alert is deactivated/released.

**Service and cost**

The SSAS functionality is only operational, if the Voice and SMS Service is available for the LT-3100S GMDSS System. The Voice and SMS Service must be activated via the Iridium GMDSS Service Provider. The Maritime Safety Service Activation Form (MSSAF) must reflect the activation of the Voice and SMS Service. The LT-3100S GMDSS System menu layout is showing the status of the Voice and SMS Service, see MENU -> System -> Subscription. This is illustrated in *System Submenus, System* on page 165.

**NOTE:**

The end customer will be charged per message sent from the LT-3100S GMDSS System. Activating SSAS Alert or SSAS Test will result in sending up to 2 messages multiplied by the recipients for either Alert or Test. An SSAS Alert or SSAS Test message will be sent every 30 minutes per default in activated Alert or Test state.

## Web server

The LT-3110S Control Unit has a built-in webserver, which can be accessed from the Ethernet (RJ45) interface from the back side of the control unit. A PC must be connected to the control unit, either directly by connecting an Ethernet cable between a PC and the LT-3110S Control Unit, or by connecting the LT-3110S Control Unit to a Local Area Network (LAN), to where the PC is connected.

**NOTE:** The IP address allocated to the LT-3110S Control Unit, is shown in the GUI (Menu -> System -> Network: IP Address).

The screenshot shows the 'System dashboard' page of the LT-3100S web interface. On the left is a dark sidebar menu with the following items:

- LT-3100S System
- Dashboard
- Messages
- Configuration
- Software update
- Diagnostics
- Legal notice
- Log out
- Disable login timeout

The main content area is titled 'System dashboard' and displays a table of system components:

Unit Number	Unit Name	Part Number	Serial Number	Software Version
LT-3110S	Control Unit	51-101812	00006292	1.05R-0013
LT-3130	Antenna Unit	51-100989	00006312	1.05R-0013
LT-3140S	Interface Unit	51-101814	99990003	1.05R-0013

Figure 313: Web server (System dashboard)

The functionality of all web pages is described in further detail in the following sections. Some of the sections will refer to other sections in this User & Installation Manual, e.g. hardware interfaces.

**NOTE:** All web pages functionality will be described in detail for the LT-3100S GMDSS system. It is the intention that the web pages should be used during the installation and configuration of the system. During normal operation of the system, it shouldn't be necessary to access the web pages.

## Accessing the built-in web server

To access the built-in web server of the LT-3100S GMDSS system, please complete the following steps:

1. Connect the LT-3110S Control Unit directly to a PC using an Ethernet cable, or connect the LT-3110S Control Unit to a Local Area Network (LAN), where a PC is connected. If the LT-3140S Interface Unit is connected to the LT-3110S Control Unit, then use one of the spare Ethernet ports on the LT-3140S Interface Unit, which will behave as a Layer 2 Ethernet (network) Switch.
2. Identify the IP address that is assigned to the LT-3110S Control Unit. The IP address can be read out from the display (MENU -> System -> Network: IP Address). The IP address is valid if the 'Link Status' is showing 'Up'. The IP address is assigned dynamically by a DHCP server.
3. From the PC, start a browser (e.g. Microsoft Edge, Explorer, Chrome, etc.) and type in the IP address, which was identified in the LT-3110S Control Unit (e.g. 169.254.1.1).
4. The browser might show you a warning about an invalid web server certificate, as illustrated in Figure 314. Make sure, that you have typed in the correct IP address.
5. Press 'Details' and you will be presented for an extended page view (including a link), which will direct you to the LT-3100S GMDSS system dashboard 'Go on to the webpage (Not recommended)'.
6. You will now see the LT-3100S GMDSS system dashboard.

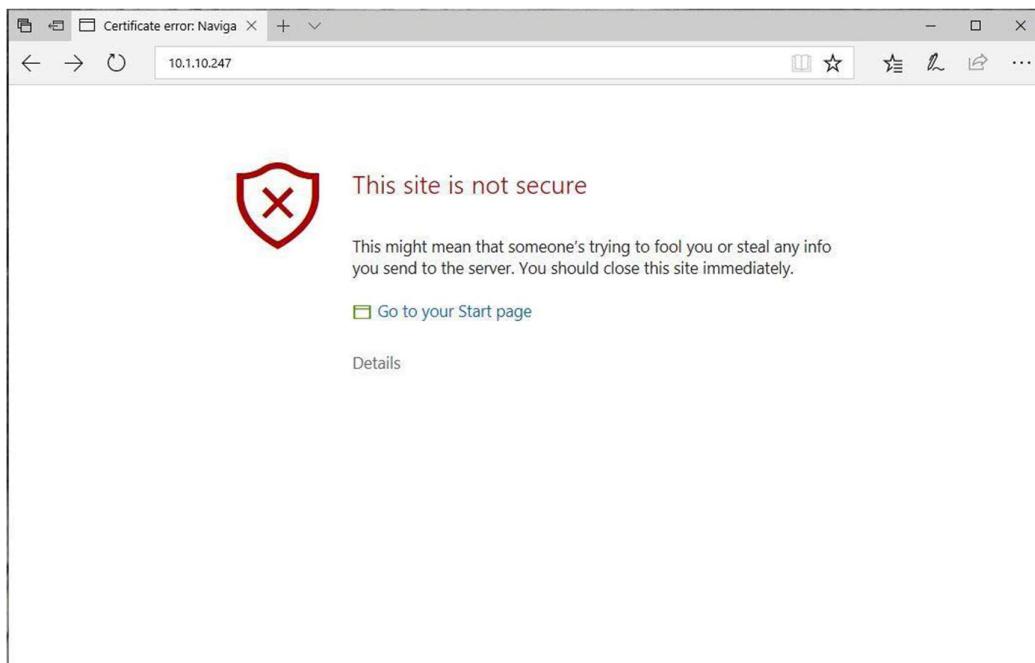


Figure 314: Accessing the built-in web server ("This site is not secure").

## Dashboard

The dashboard is showing details about the main units, which forms the satcom system: the LT-3110S Control Unit, LT-3130 Antenna Unit, LT-3140S Interface Unit, LT-3150S Alarm Panel, and LT-3160S Printer Adapter. If the units are connected correctly to the control unit, then the units will be visible on the web server dashboard, as illustrated in Figure 315. Otherwise, only the control unit will be visible. For each unit, the following information will be available: unit number, unit name, unit part number, unit serial number, and software version. The antenna unit, interface unit, alarm panels, and printer adapter will automatically be updated with the software installed in the control unit.

Unit Number	Unit Name	Part Number	Serial Number	Software Version
LT-3110S	Control Unit	51-101812	00006292	1.05R-0013
LT-3130	Antenna Unit	51-100989	00006312	1.05R-0013
LT-3140S	Interface Unit	51-101814	99990003	1.05R-0013

Figure 315: Web server (System dashboard)

The web server has the following webpages:

- Dashboard
- Messages (MSI)
- Configuration (*contains subpages*)
- Software update
- Diagnostics
- Legal notice
- Log out
- Disable login timeout

## Messages

### MSI

The LT-3100S GMDSS system is supporting Maritime Safety Information (MSI), which is described in *Maritime Safety Information (MSI)* on page 92. The LT-3100S GMDSS system is offering ‘read-only’ access of the MSI messages via the web server as illustrated in Figure 316. By clicking on the individual MSI messages the message will expand and the user can read the content of the message.

No.	Priority	Class	Area	Cancel By	Advisory ID
8	SAFETY	MET	1	2021-09-23 21:25	614c47fd_f407
7	SAFETY	MET	1	2021-09-23 09:25	614b9f3c_92c5
6	SAFETY	NAV	1	2021-09-27 05:00	6147dc78_f58a
5	SAFETY	NAV	1	2021-09-24 09:59	614454b4_9068
4	SAFETY	NAV	1	2021-10-22 18:00	613c19d5_d02f
3	SAFETY	NAV	1	2021-10-08 06:00	61291126_7d7f
2	SAFETY	NAV	1	2021-10-06 18:00	6126b2cc_f5bc
1	SAFETY	NAV	1	2021-09-26 08:10	6118c416_c6f4

Figure 316: Web server (Maritime Safety Information (MSI))

**NOTE:**

The MSI messages ‘read-only’ access on the web server is for information only and will list all received MSI messages. The user of the LT-3100S GMDSS system cannot see whether the MSI messages has been read from the LT-3110S Control Unit display or not. It is a requirement that the user of the LT-3100S GMDSS system reads and understand all MSI messages received from the Iridium GMDSS System. The Bridge Alert Management (BAM) supported in the LT-3100S GMDSS system will clearly show (e.g. in the status bar), if there are unread MSI messages, which must be read.

It is possible to create a MSI login to the web server, which only gives permissions to read MSI messages. The MSI login access is described in *Authentication* on page 192.

## SMS

The LT-3100S GMDSS system is supporting short message service (SMS), which is described in *General Messaging (SMS)* on page 143. The LT-3100S GMDSS system is offering the ability to read compose and send SMS via the web server as illustrated in Figure 317. By clicking on the individual SMS the message will expand and the user can read the content of the message. Reading an SMS on the Web server will clear the SMS notification on the LT-3110S Control Unit.

The screenshot shows the LT-3100S System web interface. On the left, a dark sidebar menu includes 'Dashboard', 'Messages' (which is expanded to show 'MSI', 'SMS', 'Diagnostics', 'Legal notice', 'Log out', and 'Disable login timeout'), and other options like 'Compose SMS'. The main right panel is titled 'SMS' and lists four received messages:

Peer	Date	Status	Reply	Delete
+4529401008	2021-09-29 08:44	UNREAD		
+4529401008	2021-09-29 08:43	READ		
+4529401008	2021-09-29 08:43	READ		
+4529401008	2021-09-29 08:42	READ		

Figure 317: Web server (SMS)

To compose an SMS either click the “Compose SMS” field or reply to a specific SMS by clicking the “Reply” arrow next to the SMS. To compose an SMS input the receiving phone number and the SMS text. This is illustrated on Figure 318.

The screenshot shows the LT-3100S System web interface. The sidebar is identical to Figure 317. The main panel is titled 'SMS' and shows a composition form. The 'To:' field contains '+4529401008'. The message text area contains:

```

Hello friend,
How is everything at home? We are on our way across the Atlantic Ocean
and we will be arriving at around December 20th
Best regards
Captain John

```

At the bottom, there are 'Send' and 'Cancel' buttons, and a character count indicator 'Left: 0'.

Figure 318: Web server (SMS)

**NOTE:** The SMS text can be 160 characters long. This includes spaces, symbols, letters, and paragraph changes.

## Configuration

The LT-3100S GMDSS system is initially configured and fully operational after the Installation Wizard has been completed. The Installation Wizard is described and illustrated in *Installation Wizard* on page 65. Additionally, the GMDSS settings can be configured via the GMDSS submenu, as described in *GMDSS Submenu* on page 106. In this section there will be a description of system settings, which is not covered by the Installation Wizard and the LT-3110S Control Unit display menu layout.

Unit Number	Unit Name	Part Number	Serial Number	Software Version
LT-3110S	Control Unit	51-101812	00006292	1.05R-0013
LT-3130	Antenna Unit	51-100989	00006312	1.05R-0013
LT-3140S	Interface Unit	51-101814	99990003	1.05R-0013

Figure 319: Web server (Configuration)

Under Configuration, the following webpages are available:

- Authentication
- SSAS
- Network
- Data
- Telephony
- Tracking
- External I/O
- GNSS, BAM and MSI
- Reset

## Authentication

The LT-3100S GMDSS system support configuration of authentication on the web server.

The default password for the User = admin and Password = admin. The LT-3100S GMDSS system will always be delivered from Lars Thrane A/S with the default password configured.

**NOTE:** It is highly recommended that the installer of the LT-3100S GMDSS system changes the default password during the installation of the system, so that a random user on the network does not have access to the web server.

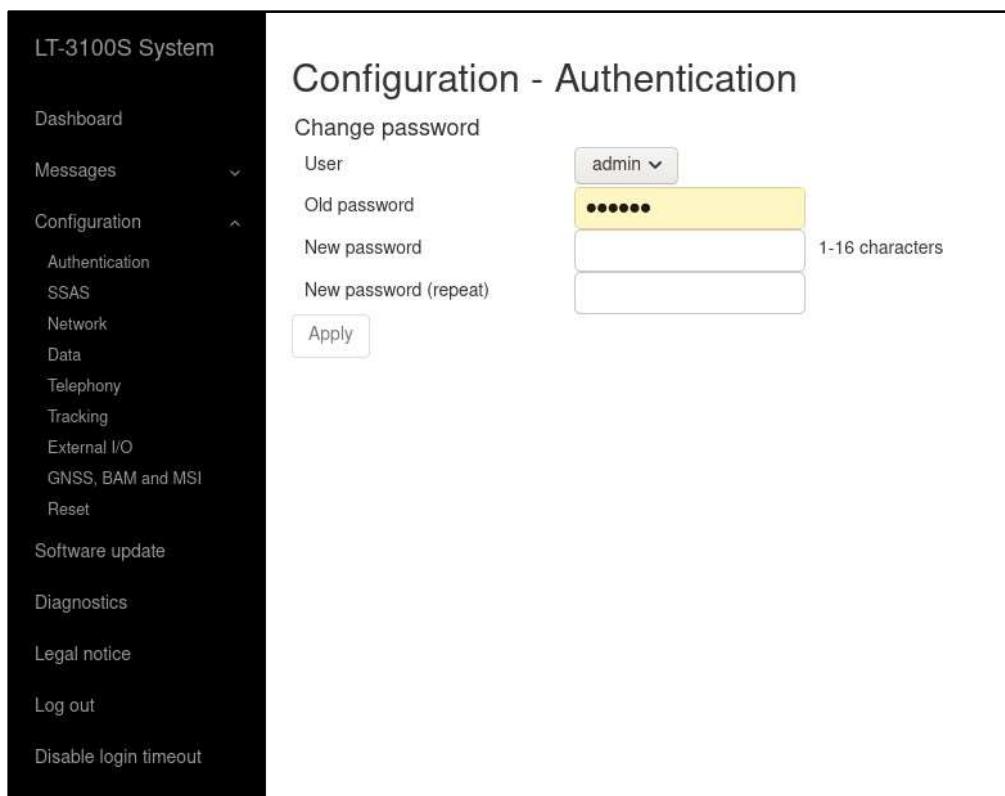


Figure 320: Web server (Authentication)

If the authentication password is changed from default and forgotten, then the authentication password can be reset from the display (MENU -> Settings -> Reset Options: Reset Web Authentication). Remember to change the authentication password away from the default password, as soon as it has been possible to re-enter the web server. The Reset Web Authentication is further described and illustrated in *Settings* on page 161.

MSI login

The LT-3100S GMDSS system supports configuration of a separate web server login for the purpose of reading MSI. Upon selecting the MSI profile, the operator is prompted to create a new password for logging in as the MSI user, this is displayed on Figure 321.

The screenshot shows the 'Configuration - Authentication' page of the LT-3100S System. On the left, a sidebar lists various system configurations like Dashboard, Messages, Configuration (with Authentication selected), SSAS, Network, Data, Telephony, Tracking, External I/O, GNSS, BAM and MSI, Reset, Software update, Diagnostics, Legal notice, Log out, and Disable login timeout. The main area is titled 'Configuration - Authentication' and contains a 'Change password' section. It includes fields for 'User' (set to 'msi'), 'Old password', 'New password' (with a note '1-16 characters'), 'New password (repeat)', and an 'Apply' button.

*Figure 321: Web server (MSI login)*

The screenshot shows the 'GMDSS' page under the 'MSI' section of the LT-3100S System. The title is 'Maritime Safety Information'. Below it is a table with columns: ID, Priority, Class, Area, Cancel By, and Advisory ID. The table lists 10 entries, all of which are 'SAFETY' type messages from 1970-01-01 00:00, canceling by '6076c250\_276d' or '6076c120\_276c'. The entries are:

ID	Priority	Class	Area	Cancel By	Advisory ID
193	SAFETY	MET	4	1970-01-01 00:00	6076c250_276d
192	SAFETY	MET	4	1970-01-01 00:00	6076c120_276c
191	SAFETY	MET	4	1970-01-01 00:00	6076b692_276b
190	SAFETY	MET	4	1970-01-01 00:00	6076b67b_276a
189	SAFETY	MET	4	1970-01-01 00:00	606dae66_2769
188	SAFETY	MET	3	1970-01-01 00:00	606dae65_2768
187	SAFETY	MET	2	1970-01-01 00:00	606dae64_2767
185	SAFETY	MET	3	1970-01-01 00:00	606dad5_2765
186	SAFETY	MET	4	1970-01-01 00:00	606dad5_2766

*Figure 322: Web server (MSI login)*

When logging in using the MSI profile, only the MSI tab will be available. From here MSI can be read, this is displayed in Figure 322.

**NOTE:** It is recommended that the installer of the LT-3100S GMDSS system sets the MSI profile password during the installation of the system. It is highly recommended to keep the MSI profile password different from the admin and the User profile password.

### User login

The LT-3100S GMDSS system supports configuration of a separate web server login named User for the purpose of reading and sending SMS and reading MSI. The User profile is also able to download the diagnostics file. The operator needs to login using the Admin profile to set a password for the User profile, this is displayed on Figure 323.

Figure 323: Web server (User login)

After setting the User profile password using the Admin profile, the User profile can be accessed. When logging in using the User profile, only the SMS and MSI tabs will be available. From here SMS can be sent and read and MSI can be read, this is displayed in Figure 324.

GMDSS						
Maritime Safety Information						
Messages	No.	Priority	Class	Area	Cancel By	Advisory ID
MSI	8	SAFETY	MET	1	2021-09-23 21:25	614c47fd_f407
SMS	7	SAFETY	MET	1	2021-09-23 09:25	614b9f3c_92c5
Diagnostics	6	SAFETY	NAV	1	2021-09-27 05:00	6147dc78_f58a
Legal notice	5	SAFETY	NAV	1	2021-09-24 09:59	614454b4_9068
Log out	4	SAFETY	NAV	1	2021-10-22 18:00	613c19d5_d02f
Disable login timeout	3	SAFETY	NAV	1	2021-10-08 06:00	61291126_7d7f
	2	SAFETY	NAV	1	2021-10-06 18:00	6126b2cc_f5bc
	1	SAFETY	NAV	1	2021-09-26 08:10	6118c416_c6f4

Figure 324: Web server (User login)

**NOTE:** It is recommended that the installer of the LT-3100S GMDSS system sets the User profile password during the installation of the system. It is highly recommended to keep the User profile password different from the admin, and the MSI profile password.

## SSAS

The LT-3100S GMDSS System is supporting Ship Security Alert System (SSAS). To enable the SSAS functionality, the LT-3100S GMDSS System must include the LT-3140S Interface Unit, SSAS Alert buttons, and SSAS Test button. The web server configuration of SSAS is illustrated in Figure 325.

**Configuration - SSAS**

**Buttons**

Enable	Button	Location (optional)	Notes
<input checked="" type="checkbox"/>	Test	Location of button	Button not tested
<input checked="" type="checkbox"/>	Alert 1	Location of button	Button not tested
<input checked="" type="checkbox"/>	Alert 2	Location of button	Button not tested
<input checked="" type="checkbox"/>	Alert 3	Location of button	Button not tested

**Recipients**

Enable	Priority	Description (optional)	Destination	Alert	Test
<input type="checkbox"/>	1	Description of recipient	-	<input checked="" type="checkbox"/>	<input type="checkbox"/> Recipient not enabled
<input type="checkbox"/>	2	Description of recipient	-	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	3	Description of recipient	-	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	4	Description of recipient	-	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	5	Description of recipient	-	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	6	Description of recipient	-	<input type="checkbox"/>	<input type="checkbox"/>

**General**

Alert update interval: 30 (up/down arrows) 10-60 minutes

**Supplementary Information**

Vessel Name	TESTSHORE - Lars Thrane Alpha
Vessel IMO	0000300
Vessel MMSI	000000300
Vessel Call Sign	Vessel Call Sign
CSO Name	Name (optional, may be required by some authorities)
CSO Phone number	Phone number (optional, may be required by some authorities)

**Buttons**

Apply Cancel

Figure 325: Web server (SSAS)

SSAS and Test Status information

The SSAS and Test Status information will clearly inform the user about the current state of the SSAS. The following information must be displayed for the SSAS to be fully operational and verified:

- SSAS Status Ready
- Test Status SSAS Tested at DD-MM-YYYY HH:MM:SS UTC

**NOTE:** The SSAS functionality can be tested by sending the SSAS Alert or SSAS Test message. The activation of SSAS Alert and SSAS Test is described in *Activation of Alert and Test* on page 183.

**IMPORTANT:** The SSAS is fully operational, if the SSAS Test button (colored green) is constantly lit.

Buttons

The following SSAS buttons can be connected to the LT-3100S GMDSS System via the LT-3140S Interface Unit:

- 3 x SSAS Alert buttons
- 1 x SSAS Test button.

The SSAS Alert and Test buttons will be delivered with 50m cable attached to the button.

The LT-3100S GMDSS System will automatically detect whether a SSAS Alert and SSAS Test button is connected. The installer must enable the individual SSAS Alert and Test buttons.

Table 48 provides an overview of the SSAS button status information. If text is present for the specific button, then action is required to verify or resolve a potential problem, which may impact the SSAS functionality. In case <no text> is present, the SSAS Alert and Test buttons are fully functional.

SSAS Buttons Status Info		
Text	Description	Action
<no text>	Everything ok	None
Button not tested	Button must be tested by activating a SSAS Alert or SSAS Test	Required
Button not detected	Incorrect wiring or damaged button	Required
Available button not enabled	Button detected, but not enabled	Required
Active button not enabled	Button detected (and activated), but not enabled	Required
Button fault	Button cannot be detected and/or incorrect wiring	Required

Table 48: SSAS Button status info

**NOTE:** It is an IMO requirement to have at least two activation points (SSAS Alert buttons), where one of these must be hidden on the navigational bridge. The SSAS Test button should be placed next to one of the SSAS Alert buttons for easy testing.

## Recipients

Up to six recipients can be configured (priority 1 to 6). For each recipient the 'Destination' must be selected. The 'Destination' settings can be configured accordingly to the details listed in Table 49.

SSAS Recipients Destination	
Settings	Description
Custom (E-mail)	Up to 64 characters
Custom (SMS)	Up to 32 characters (including country code, e.g., +45 for Denmark)
Pole Star	LT Proprietary protocol

Table 49: SSAS Recipients Destination

**NOTE:** It is recommended that the user configures a minimum of two SSAS Recipients preferably with different destinations e.g. one with E-mail and one with SMS.

**NOTE:** If selecting the SSAS Provider: Pole Star, then you must contact the SSAS Provider and complete a test to verify end-to-end functionality. The number of SSAS Providers may change over time.

For each recipient it is possible to select SSAS Alert and/or SSAS Test message (marked: 'Alert' and 'Test'). For Priority 1 'Alert' is always enabled. The priority 1 recipient must be activated when using the SSAS functionality. When activating the SSAS Alert or SSAS Test, the recipients will be executed one by one in priority, until all recipients have been completed. The SSAS Alert and SSAS Test activation and messages are described in *Ship Security Alert System (SSAS)* on page 181.

**NOTE:** Check with the Flag or Classification authority what recipient requirements are mandatory for the specific vessel and installation.

Table 50 provides an overview of the SSAS recipients status information.

SSAS Recipients Status Info		
Text	Description	Action
<no text>	Everything ok	None
Sending	Alert, Cancel or Test message are being transmitted to recipient	None
Alert and test are disabled	Alert and/or Test message must be enabled	Required
Recipient not tested	The recipient must be tested by activating SSAS Alert or SSAS Test	Required
Recipient not enabled	Destination applied, but the recipient is not enabled	Required

Table 50: SSAS Recipients Status Info

**IMPORTANT:** All SSAS recipients should be tested regularly. Make sure to inform SSAS recipient authorities before sending an SSAS Alert or SSAS Test messages.

General

The Alert update interval is default set to 30 minutes. The Alert update interval can be configured in the interval from 10 to 60 minutes. The Alert update interval defines the dwell time until the recipients list (Priority 1 to 6) will be executed again and an updated SSAS Alert or SSAS Test message will be sent one-by-one to all the recipients. The SSAS Alert or SSAS Test message will continuously be transmitted with the Alert update interval until all SSAS Alert buttons are released.

Supplementary Information

The Supplementary information contains details, which are already known by the LT-3100S GMDSS System (received automatically via the GMDSS configuration file), as part of the activation of the GMDSS system. These details are the Vessel name, IMO no., MMSI no., and Call Sign. If the Call Sign is not received by the GMDSS configuration file, then it must be completed manually during the SSAS configuration.

The Chief Safety Officer (CSO) Name and Phone Number is optionally to complete. Some Flag or Classification authorities and shipping companies requires that the CSO Name and Phone Number are listed as part of the message.

The 'Supplementary Information' settings can be configured accordingly to the details listed in Table 51.

SSAS Recipient Supplementary Information	
Settings	Description
Vessel Name	GMDSS config. File
Vessel IMO	GMDSS config. File
Vessel MMSI	GMDSS config. File
Vessel Call Sign	GMDSS config. file or manual input (up to 7 characters)
CSO Name	Manual input (up to 32 characters)
CSO Phone Number	Manual input (up to 32 characters)

Table 51: SSAS Recipients Supplementary Information

**NOTE:** Remember to manually fill out the Vessel Call Sign if this information has not been received automatically via the GMDSS configuration file (the GMDSS configuration file will be received automatically when completing the Installation Wizard). Also, complete the CSO Name and Phone Number, if required by the authorities or shipping company.

## Network

The LT-3100S GMDSS system is supporting the most common network configurations for Local Area Network (LAN). The LT-3100S GMDSS system has one Ethernet (RJ45) interface, which is described in *Ethernet RJ45 (LAN)* on page 37.

The following network configuration modes will be described in this section:

- DHCP client
- DHCP server
- Static

The default network configuration mode for the Ethernet interface is DHCP client.

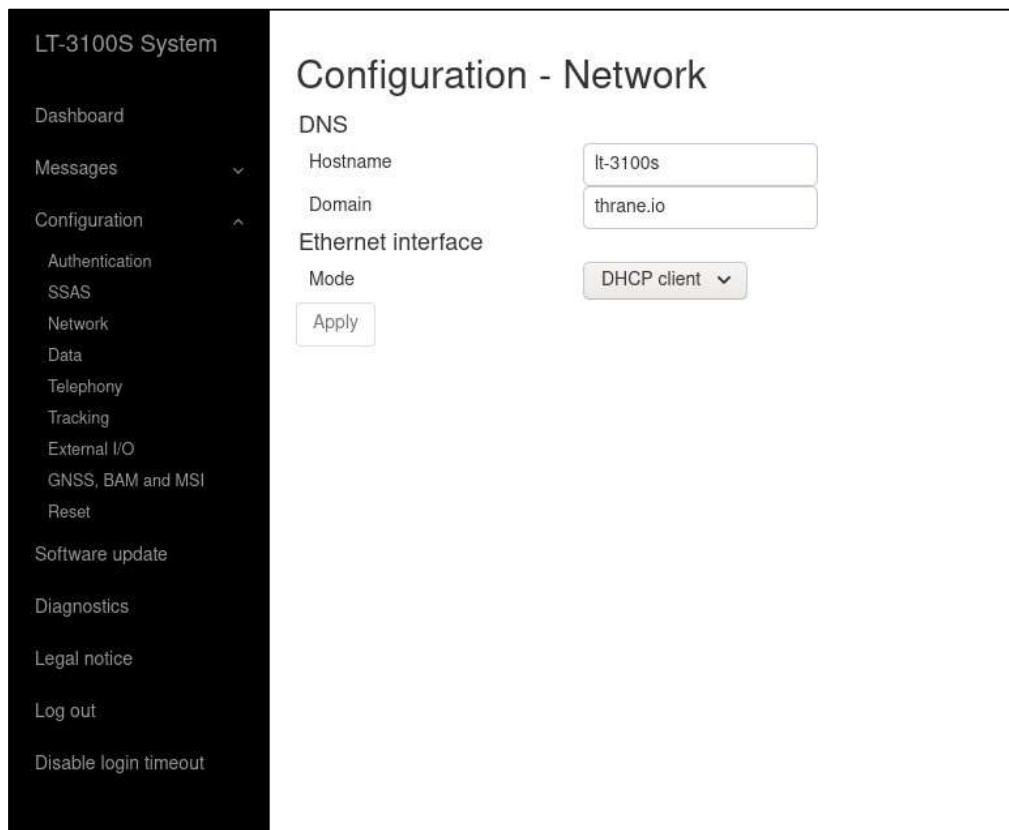


Figure 326: Web server (Network - DHCP client)

**NOTE:** In DHCP client mode, Link-local is supported, in order to connect another ‘passive’ IP-device (e.g. a PC) directly to the LT-3110S Control Unit. Expect the LT-3110S Control Unit to get the IP-address: 169.254.1.1.

**NOTE:** The IP-address of the LT-3110S Control Unit is always available from the display (MENU -> System -> Network), see details in *System* on page 165. If the LT-3110S Control Unit is starting up showing the Installation Wizard, then make a short press on the MENU button and details will be available (incl. the IP Address of the control unit).

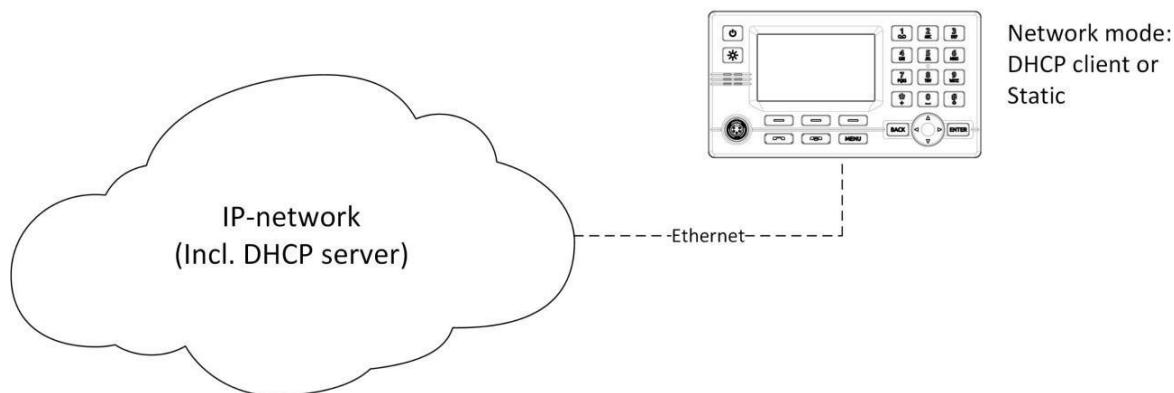


Figure 327: LT-3100S GMDSS System and IP Network

If the LT-3100S GMDSS system is connected to a local network as illustrated in Figure 327, where a DHCP server is already available, then the LT-3100S GMDSS system must be configured to either DHCP client or Static mode. The Static mode can be used, if it is required that the IP-address of the LT-3110S Control Unit must never change.

The LT-3100S GMDSS system has two reserved network ranges, which are documented in Table 52.

Reserved Network Ranges	
Reserved	Sub-nets
Reserved External	192.168.255.0/24 - i.e. 192.168.255.0 netmask 255.255.255.0
Reserved Internal	172.27.0.0/16 - i.e. 172.27.0.0 netmask 255.255.0.0

Table 52 Reserved Network Ranges

**NOTE:** The LT-3140S Interface Unit contains a 4-port Layer 2 Ethernet (network) Switch. When an LT-3140S Interface Unit is connected to the LT-3110S Control Unit, then it is possible to use one of the three remaining Ethernet (RJ45) ports to connect to an external IP network. The LT-3140S Interface Unit will behave as a passive network switch between the LT-3110S Control Unit and the external IP network.

**IMPORTANT:** Do not connect the LT-3100S GMDSS System to any external IP networks, which are not trusted. The LT-3110S Control Unit and LT-3140S Interface Unit both have Firewall rules configured on all Ethernet ports to avoid unwanted IP traffic.

#### DHCP client

The DHCP client mode is the configuration of the LT-3110S Control Unit from the factory. The DHCP client mode must be used, if the IP network already has a DHCP server available.

## DHCP Server

The DHCP server mode must be used when connecting the LT-3110S Control Unit directly to another IP-device or local network, where no DHCP server is offered, and where it is required that a DHCP server is offered for assigning IP addresses to network clients. The web server DHCP server mode setting is illustrated in Figure 328.

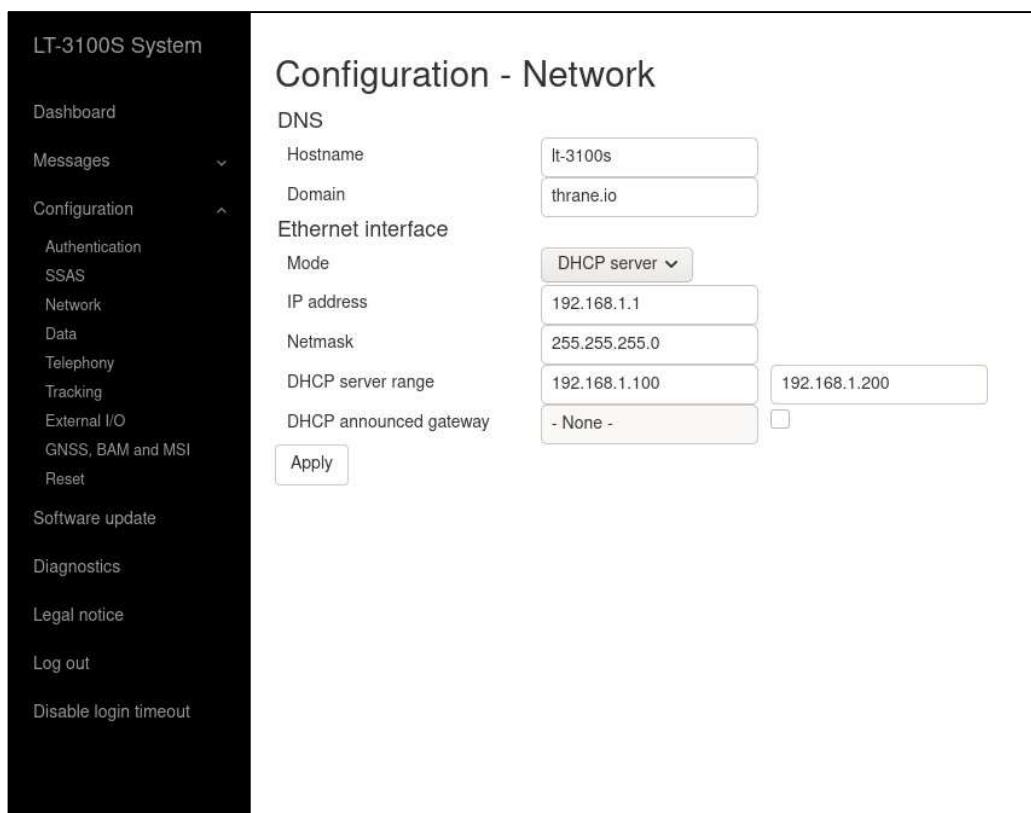


Figure 328: Web server (Network - DHCP server)

**NOTE:** A user scenario for configuration the DHCP server mode is when e.g. connecting IP-based communication devices: Analogue Phone Adapter or SIP Phones directly to the LT-3110 Control Unit via the Ethernet interface. Connecting an Analogue Phone Adapter is further described in *Analogue Phone Adapter* on page 150.

## Static

The Static mode must be used when the IP address of the LT-3110 Control Unit must never change. Typically used, if connecting the LT-3110 Control Unit to an IP network, where a DHCP server is already available, and where it is important that the IP address assigned for the LT-3110 Control Unit is never changed.

**Data**

The LT-3100S GMDSS system is supporting Modem Data (Direct Internet and RUDICS) services via Serial over Ethernet on the Ethernet (RJ45) interface, which is described in *Ethernet RJ45 (LAN)* on page 37. The Modem Data services are described in *Data* on page 151.

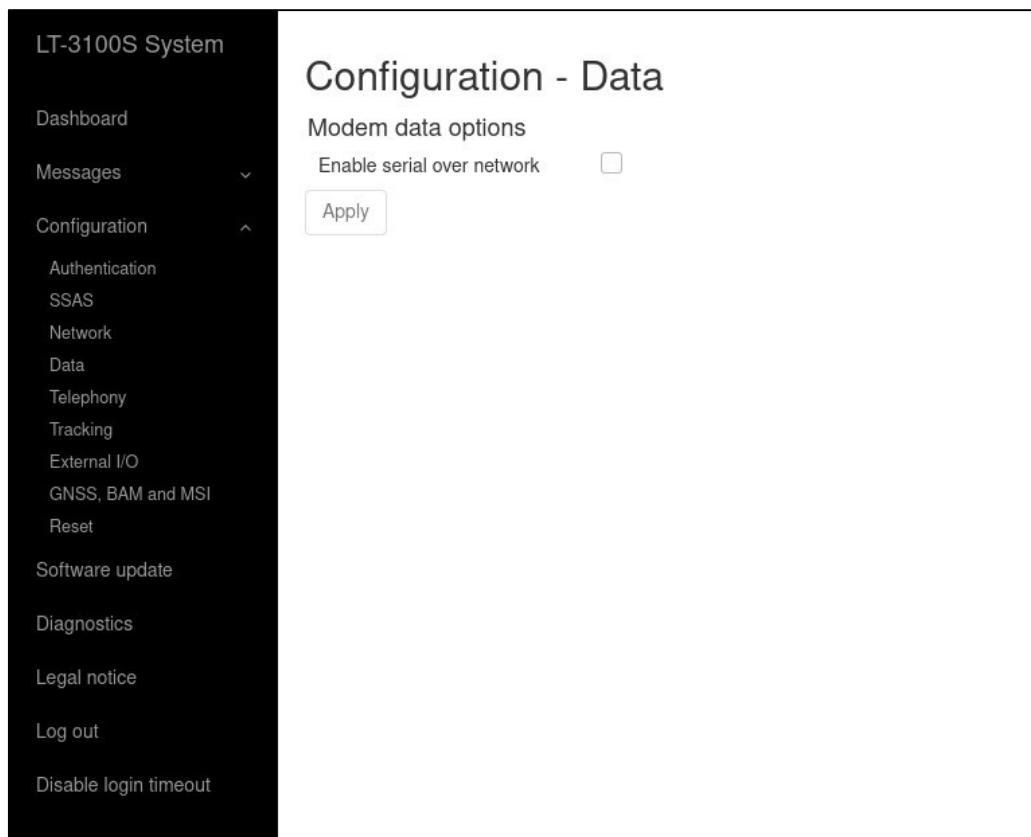


Figure 329: Web server (Data)

By activating 'Enable serial over network' the LT-3110S Control Unit will give access to the AT-command interface (port 5020) on the IP-address. The LT-3100S GMDSS System is supporting Serial over Ethernet (RFC 2217), incl. all the hardware control signals, emulated over the Ethernet interface. It may be required to install a Virtual COM port (e.g., the Serial Port Redirector license) to have an external application work properly utilizing the Modem Data services.

## Telephony

The LT-3100 System has a built-in PBX trunk (SIP), which support internal and external satellite calling. The LT-3100 system only supports 1 x Iridium satellite voice channel. The PBX trunk (SIP) can be accessed via Ethernet, RJ45. Up to 8 external SIP devices can be registered in the PBX trunk. The web server, Configuration - SIP is illustrated in Figure 330.

Line	Type	Number	Enable	Type	Username/Number	Password	Caller ID	Lines	MSG	Registered
1	post-paid	881641700055								
1100	SIP	1100	<input type="checkbox"/>	SIP				<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1101	SIP	1101	<input type="checkbox"/>	SIP				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1102	SIP	1102	<input type="checkbox"/>	SIP				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1103	SIP	1103	<input type="checkbox"/>	SIP				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1104	SIP	1104	<input type="checkbox"/>	SIP				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1105	SIP	1105	<input type="checkbox"/>	SIP				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1106	SIP	1106	<input type="checkbox"/>	SIP				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1107	SIP	1107	<input type="checkbox"/>	SIP				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 330: Web server (SIP)

In the LT-3110S Control Unit display (MENU -> System -> Telephony) it is possible to get an actual status of the number of SIP devices and their registration status. This is further illustrated and described in *System* on page 165.

The following external applications requires a SIP configuration:

- Connection of ships PBX
- External SIP Phones
- External Analogue Phone Adapter
- SIP Softphones via external Wi-Fi Access Point (WAP)

**NOTE:** External SIP phones and registered SIP devices can only initiate and receive voice calls (priority = routine). If an external SIP phone is in an active voice call, then a dedicated symbol will be shown in the status bar (see Table 19 on page 57). A Safety Call will always preempt the voice call (priority = routine).

An incoming voice call (priority = routine) to the LT-3100S GMDSS system, will be signaled to all external SIP devices. The first SIP devices or LT-3120 Handset answering the incoming voice call will be connected. The LT-3100S GMDSS system is currently not supporting call forwarding.

## Tracking

The LT-3100S GMDSS system is supporting tracking (position reporting) using different transport types and report formats. This section will briefly describe the different Tracking configurations options. For more details on Lars Thrane A/S tracking protocol supported in the LT-3100S GMDSS system, please get in contact with Lars Thrane A/S. Figure 331 is illustrating the web server, configuration - tracking.

**LT-3100S System**

- Dashboard
- Messages
- Configuration
- Authentication
- SSAS
- Network
- Data
- Telephony
- Tracking
- External I/O
- GNSS, BAM and MSI
- Reset
- Software update
- Diagnostics
- Legal notice
- Log out
- Disable login timeout

**Configuration - Tracking**

**Remote management**

Enable

**Apply**

**Tracking messages**

Enable

**Transport**

Type

Phone number

**Report**

Format

Include vessel ID

Vessel ID

**Time trigger**

Enable

Time interval  HH:MM

**Distance trigger**

Enable

Distance interval  NM

Minimum time interval  HH:MM

**Options**

Send report on power-on

**Test**

**Apply**

**Send report now**

Figure 331: Web server (Tracking)

The tracking transport types, and report formats currently supported in the LT-3100S GMDSS system are summarized in Table 53.

Transport Types & Report Formats		
Transport Type	Report Format	Comments
SMS	Thrane (text)	Text format to be used for machine reading and decoding
	Human readable	Text format to be used for human reading
E-mail	Thrane (text)	Text format to be used for machine reading and decoding
	Human readable	Text format to be used for human reading

Table 53: Web server - Tracking (transport types and report formats)

**NOTE:** Lars Thrane A/S has an Interface Control Document (ICD) with details describing the following content: binary and text formats, remote management (configuration, requesting position report, and trigger position report). In order to support the Thrane (binary) format it is a requirement to get access to this ICD. The SBD binary format is not supported in the LT-3100S GMDSS system.

The trigger configuration options and intervals are summarized in Table 54.

Trigger Configurations			
Trigger	Format	Interval	Comments
<b>Time</b>			
Time interval	HH:MM	0:01 to 168:00	Time can be configured from 0.01 (1 minute) to 168:00 (up to 7 days)
<b>Distance</b>			
Distance interval	NM	0.1 to 999	Distance can be configured from 0.1 to 999 NM
Minimum time interval	HH:MM	0:01 to 168:00	Minimum time can be configured from 0.01 (1 minute) to 168:00 (up to 7 days)

Table 54: Web server (Tracking - trigger configurations)

The time and distance trigger conditions can be configured individually. A tracking report will be sent, when a trigger condition has been met - time and/or distance. The trigger algorithm will 'reset' every time a tracking report has been sent.

The time trigger condition can be configured from 1 minute (0:01) and up to 7 days (168:00). The distance trigger condition can be configured from 0.1 NM and up to 999.0 NM. For the distance trigger condition, it is possible to configure a Minimum time interval, which has the purpose to make sure that not too many tracking reports are sent.

Example: If the distance interval is configured to 5.0 NM and Minimum time interval is configured to 01:00 hour, then position reports will be sent, when both requirements have been met (maximum every 1 hour). If the speed over ground is < than 5 knots, then a tracking report will be sent every 5.0 NM. If the speed over ground is > 5 knots, then a tracking report will be sent every 1 hour.

Under Options - Send report on power-on it is possible to configure the LT-3100S GMDSS system to send a tracking report every time the terminal is powered on.

Use the button 'Send report now', illustrated in Figure 331 on page 205, to overwrite the tracking algorithm and send a tracking report instantly. Also, use the button to test the format of the tracking reports after tracking configurations have been applied.

**NOTE:** The LT-3110S Control Unit display has a tracking window (MENU -> System -> Tracking), providing tracking status overview. From this tracking window, it is possible to initiate a periodic tracking report (if configured) or initiate a tracking message, which will be sent to either an SMS or E-mail destination. For further details see *Tracking* on page 154.

SMS

The LT-3100S GMDSS system supports SMS as transport type for tracking reports, see configuration options in Figure 332. The SMS tracking is supporting two formats: 'Thrane (text)' and 'Human readable'.

The screenshot shows the 'Configuration - Tracking' section of the LT-3100S GMDSS Web server. The left sidebar lists various system configurations. The main panel is titled 'Configuration - Tracking' and contains the following settings:

- Remote management:** Enable checkbox is unchecked, with an 'Apply' button below it.
- Tracking messages:** Enable checkbox is checked.
- Transport:** Type dropdown is set to 'SMS'. Below it is a 'Phone number' input field containing '004529401008'.
- Report:**
  - Format dropdown is set to 'Thrane (text)'.
  - Include vessel ID checkbox is checked.
  - Vessel ID input field contains 'ATLANTICA'.
- Time trigger:** Enable checkbox is checked. Below it is a 'Time interval' input field showing '04:00 HH:MM'.
- Distance trigger:** Enable checkbox is checked. Below it are 'Distance interval' (input field '10.0 NM') and 'Minimum time interval' (input field '01:00 HH:MM').
- Options:** Send report on power-on checkbox is unchecked.
- Test:** Contains a 'Send report now' button.

Figure 332: Web server (Tracking - SMS)

The format of a tracking report 'Human readable' sent to e.g. a smartphone is illustrated in Figure 333.

```
ATLANTICA
UTC 2020-11-30 10:20
55.81922N 012.48819E
Heading 000 Speed 0.0 knots
http://map.iridium.com/m?lat=55.81922&lon=12.48819
```

Figure 333: Tracking Report (SMS - Human Readable)

E-mail

The LT-3100S GMDSS system supports E-mail as transport type for tracking reports, see configuration options in Figure 334. The E-mail tracking is supporting two formats: 'Thrane (text)' and 'Human readable'.

Figure 334: Web server (Tracking - E-mail)

The format of a tracking report 'Thrane (text)' sent to an E-mail address is illustrated in Figure 335.

```
SMS from 88XXXXXXXXXX@msg.iridium.com
88XXXXXXXXXX@iridium.com
To: tracking@shipping.com
LT=T;M=P;D=1603985517,0,55.81921,12.48818,39.6,0.0;VI=ATLANTICA
```

Figure 335: Tracking Report (E-mail - Thrane (text))

### Remote management

The LT-3100S GMDSS system supports Remote Management for the tracking application. In order for Remote Management to work, the Remote Management must be enabled by the user and a password must be chosen as illustrated on Figure 336. The Remote Management is using the General Messaging (~SMS) service as communication layer.

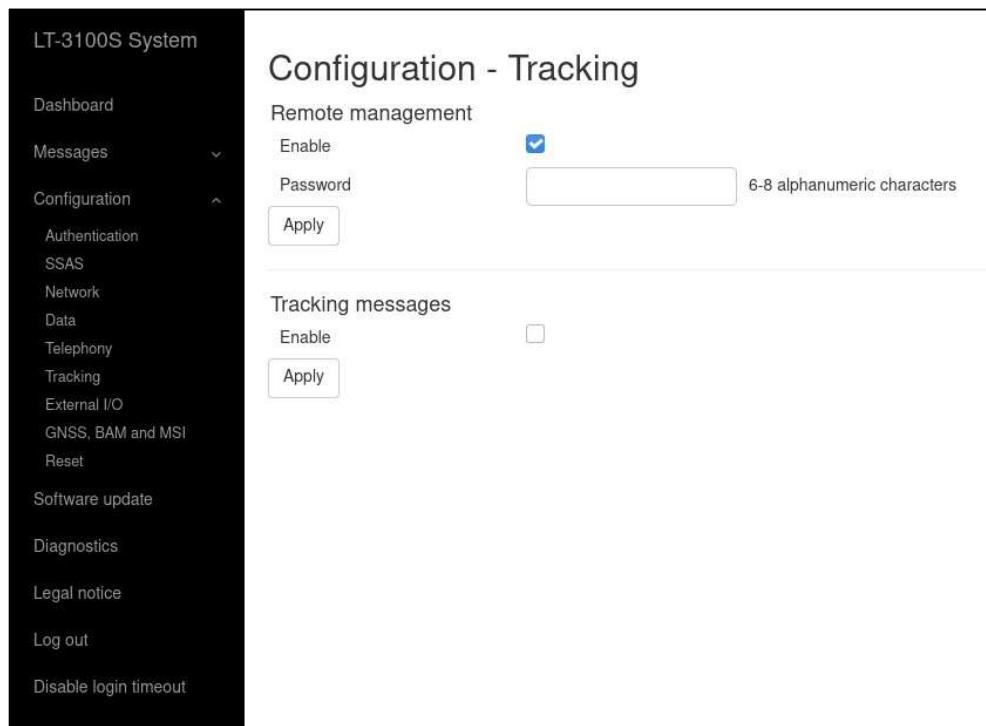


Figure 336: Web server (Tracking - Remote Management)

The Tracking Remote Management functionality is supporting:

- Request Position Report
- Trigger Position Report
- Change Tracking Configuration

**NOTE:** For further details about the Remote Management functionality, please contact Lars Thrane A/S.

## External I/O

The LT-3100S GMDSS system supports configuration of External I/O. The LT-3100S GMDSS system has one input and one output supported in the AUX connector. The AUX connector is described in *Auxiliary (AUX)* on page 38. Figure 337 is illustrating the configuration of the External I/O.

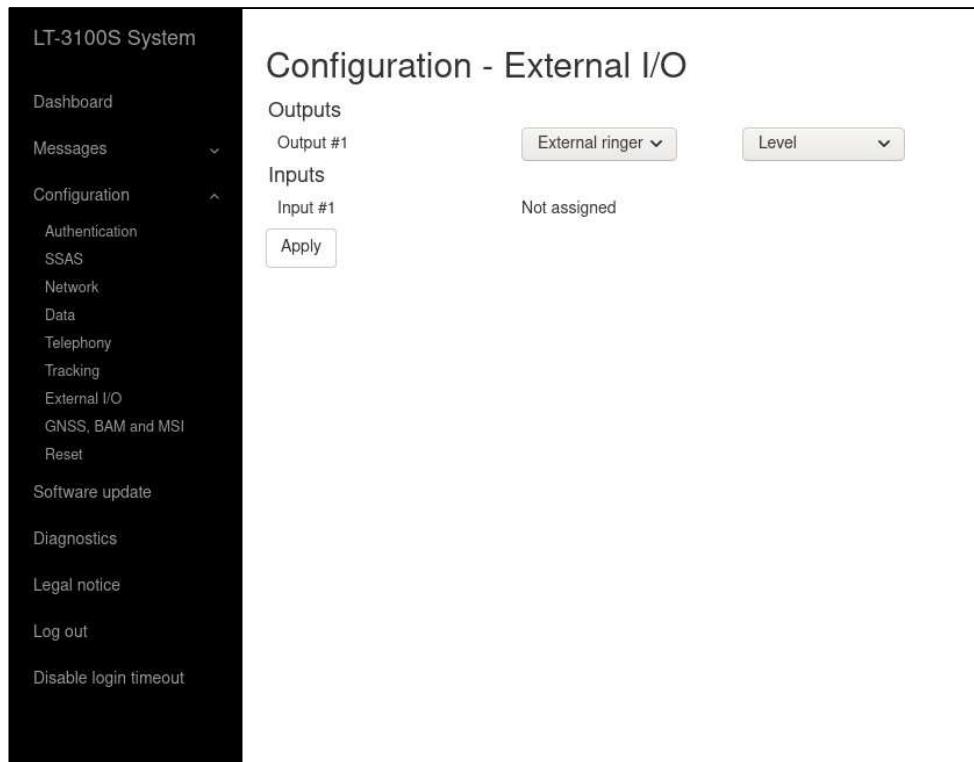


Figure 337: Web server (External I/O)

## Output

The External I/O output configuration options are listed in Table 55.

External I/O - Output Configuration	
Not assigned	default
External ringer	Level
	Pulse @ 0.5 Hz
	Pulse @ 1 Hz
	Pulse @ 2 Hz

Table 55: External I/O (Output)

## Input

The LT-3100S GMDSS system is currently not supporting any functionality for the External I/O input.

## GNSS, BAM and MSI

The LT-3100S GMDSS system has a built-in GNSS receiver located in the LT-3130 Antenna Unit. The GNSS receiver is used for time, date, and position of the LT-3100S GMDSS system, for example used for position reporting in connection with sending a Distress Alert message or used by the tracking application. The GNSS receiver can be configured to operate on different satellite systems (e.g., GPS only) - this can be managed under the GNSS module, as illustrated in Figure 338.

It is possible to configure the following functionality: GNSS, BAM and MSI on the LT-3110S Control Unit (CU - AUX) and LT-3140S Interface Unit (IU - Port 1 and IU - Port 2) interfaces, respectively.

This section describes the following configuration options:

- GNSS module
- GNSS (output of NMEA 0183 sentences)
- Bridge Alert Management (BAM)
- Maritime Safety Information (MSI)

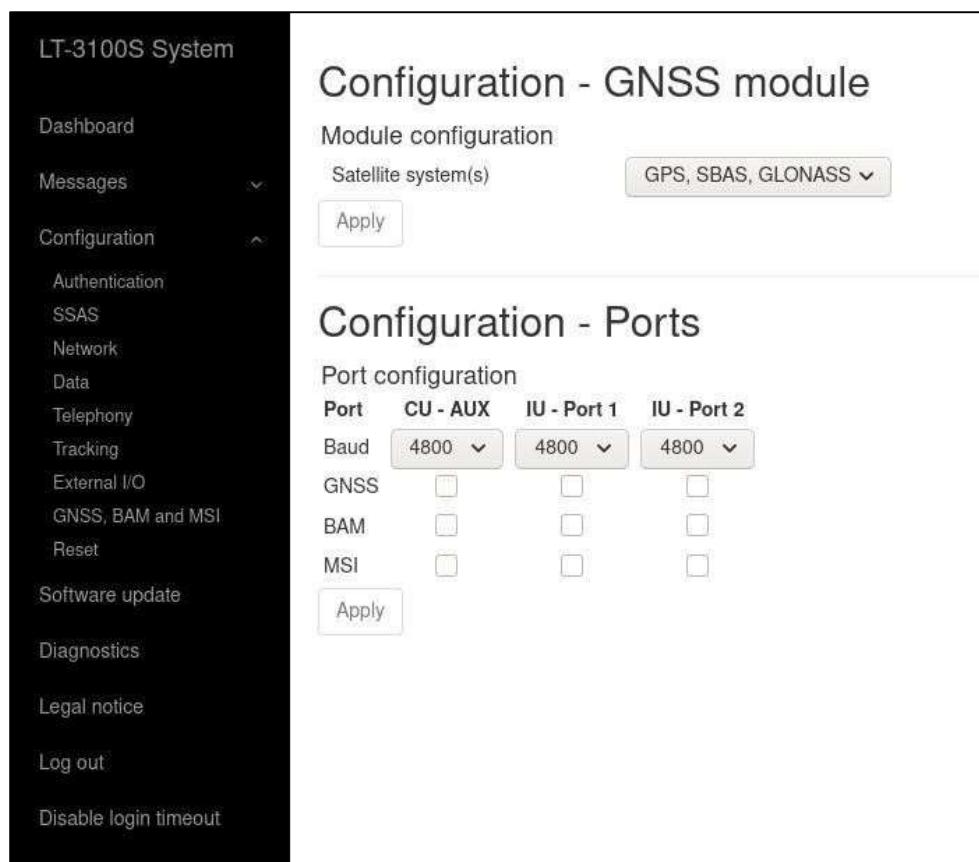


Figure 338: Web server (GNSS, BAM and MSI)

**NOTE:**

The Port configuration illustrated above in Figure 338 for GNSS, BAM and MSI supports the following baud rates: 4800, 9600, and 38400. The baud rate can be configured individually per port. The ports are all bi-directional RS-422. Only BAM can receive data.

GNSS module

The GNSS receiver used in the LT-3130 Antenna Unit is a 72 ch. receiver with SBAS reception. The GNSS receiver performance is listed in Table 56.

GNSS receiver performance			
Data	Accuracy	Resolution	Comments
Position	GNSS: < 2.5 m SBAS: < 2 m	0.1 m	CEP, 50%, 24 hours static, -130 dBm, > 6 SVs By default, the GNSS receiver is configured for GPS, SBAS, GLONASS reception Time-To-First-Fix (cold acquisition): 26 s.
SOG	0.1 knot	0.1 knot	0 to 195 knots

Table 56: GNSS receiver performance

The GNSS receiver can be configured to the options listed in Table 57. The GPS, SBAS, GLONASS configuration is the recommended configuration.

GNSS Receiver configuration	
GNSS Receiver	Talker ID
GPS, SBAS, GLONASS	GN
GPS, SBAS, BeiDou	GN
GPS, SBAS	GP
GPS	GP
GLONASS	GL
BeiDou	GB

Table 57: GNSS receiver configuration

The horizontal position accuracy (static) has been measured for different configurations of the GNSS receiver, see Figure 339.

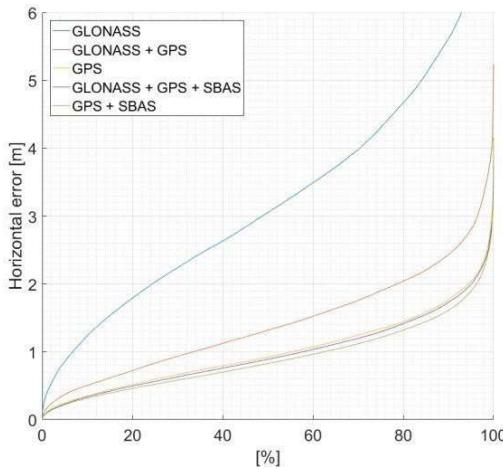


Figure 339: GNSS receiver horizontal position error

**IMPORTANT:** The installation of the LT-3130 Antenna Unit will affect the performance of the GNSS receiver. If line-of-sight to the GNSS satellites are disturbing the quality of the signal received by the GNSS receiver, then degraded performance must be accepted.

GNSS

The LT-3100S GMDSS system supports outputting of GNSS NMEA 0183 sentences via the LT-3110S Control Unit AUX (RS-422) or via the LT-3140S Interface Unit RS-422 (Port 1 or Port 2) interface. The AUX connector is described in detail in *Auxiliary (AUX)* on page 38. The GNSS output must be enabled via the web server, under Configuration - GNSS, BAM and MSI. The baud rate can be configured to 4.800, 9.600, or 38.400 baud. The output rate of the NMEA 0183 sentences is 1 Hz. Figure 340 below shows the NMEA 0183 sentences supported by the LT-3100S GMDSS system.

The screenshot shows the LT-3100S GMDSS web server interface. On the left is a sidebar with various configuration options. The main area is divided into two sections: 'Configuration - GNSS module' and 'Configuration - Ports'.

**Configuration - GNSS module:** This section includes a dropdown for 'Satellite system(s)' set to 'GPS, SBAS, GLONASS' with an 'Apply' button.

**Configuration - Ports:** This section shows port configuration for CU-AUX and IU-Port 1/2 at 4800 baud. It includes checkboxes for GNSS, BAM, and MSI.

**GNSS NMEA Sentences:** A list of supported sentences with checkboxes. DTM, GGA, GLL, GSA, RMC, VTG, and ZDA are checked. GSV is unchecked and highlighted with a grey background.

An 'Apply' button is located at the bottom of the configuration sections.

Figure 340: Web server (GNSS - NMEA 0183 sentences)

The GSV sentence is not supported for the 4.800 and 9.600 baud configuration.

**NOTE:** Changing the GNSS receiver configuration (default: GPS, SBAS, GLONASS) might affect the NMEA 0183 Talker ID. The Talker ID for the different configurations of the GNSS receiver is listed in Table 57 on page 212.

BAM and MSI

The LT-3100S GMDSS system supports BAM and MSI via the LT-3110S Control Unit AUX (RS-422) or via the LT-3140S Interface Unit RS-422 (Port 1 or Port 2) interface. The AUX connector is described in detail in *Auxiliary (AUX)* on page 38. BAM and MSI must be enabled via the web server, under Configuration - GNSS, BAM and MSI. The baud rate can be configured to 4.800, 9.600, or 38.400 baud. The BAM and MSI functions must be enabled individually on separate interfaces, see Figure 341 below.

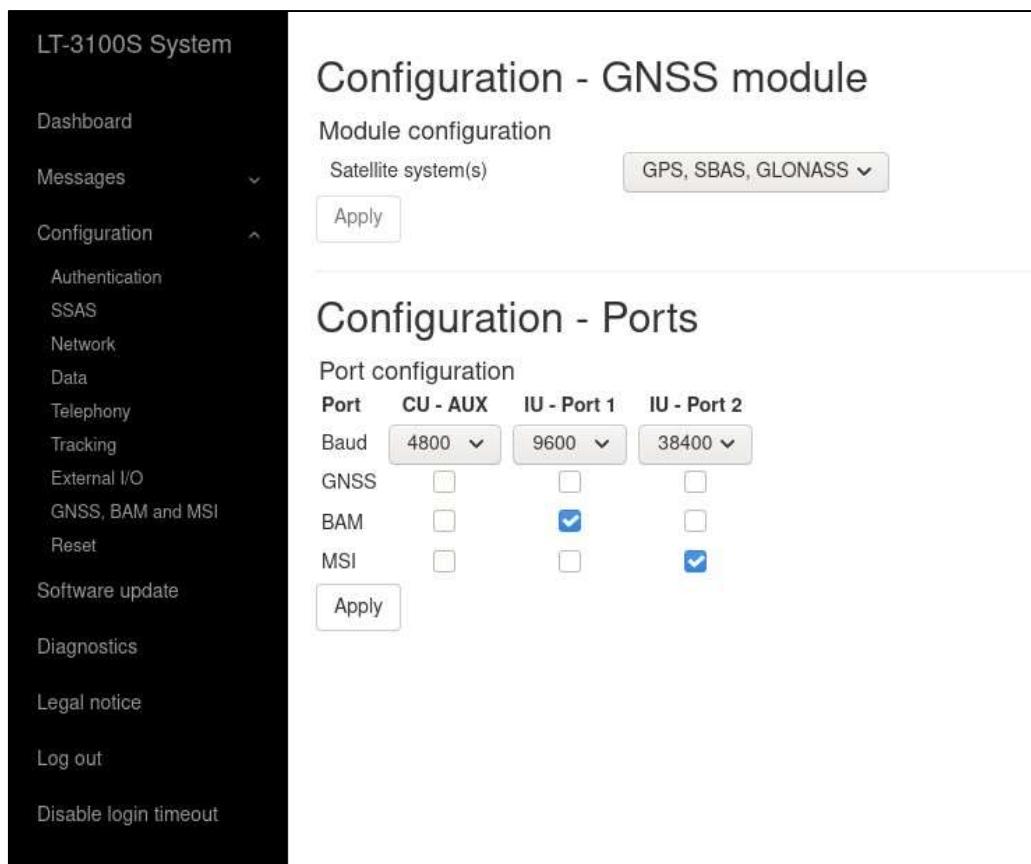


Figure 341: Web server (BAM and MSI)

**NOTE:**

The LT-3110S Control Unit AUX connector is providing one bi-directional RS-422 interface.

The LT-3140S Interface Unit RS-422 (Port 1 and 2) is providing two bi-directional RS-422 interfaces.

The Supported BAM sentences are described in *BAM sentences* on page 178. The Supported MSI sentences are described in *MSI sentences* on page 179.

### Reset to factory default

The LT-3100S GMDSS system support a reset to factory default. This reset functionality is only available via the web server, see Figure 342. By pressing 'Reset to factory default' and acknowledging this reset, the LT-3100S GMDSS system will configure all settings to default and remove all user data (e.g., Contact List, Call History, SMS, Safety Messages, Safety Calls, MSI, etc.). The LT-3100S GMDSS system will reboot once the factory reset has been affected and start up again showing the Installation Wizard in the display. The Installation Wizard must be completed again before the system is operational. The Installation Wizard is described and illustrated in *Installation Wizard* on page 65.

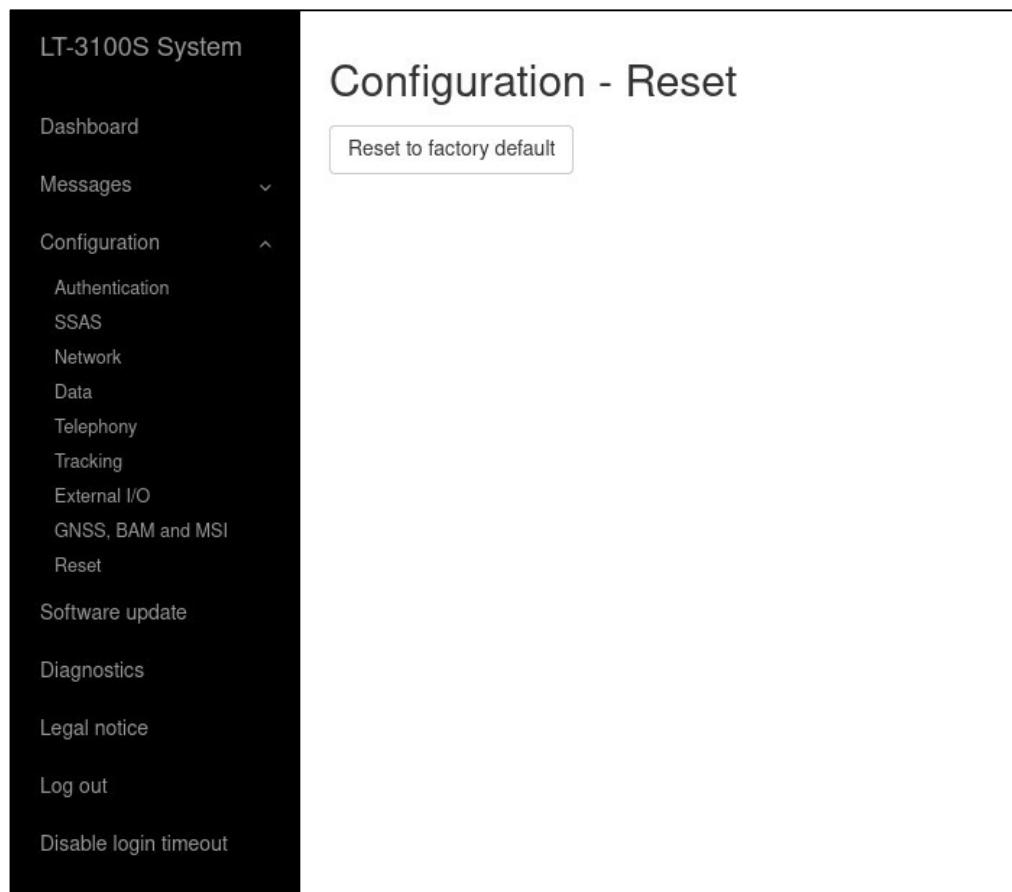


Figure 342: Web server (Reset to Factory Default)

**NOTE:** By 'Reset to factory default' the LT-3100S GMDSS system will lose all settings configured and user data will be lost. The system will be operational again once the Installation Wizard has been completed.

**NOTE:** A factory default reset will configure the following display and audio settings:  
Display:Mode = Day time and Brightness = 70%.  
Audio: Speaker Volume = 80%, handset Volume = 60%, Ringer Volume = 80%, and  
Key Beep = 40%.

## Software update

Carefully read the software release note, provided by Lars Thrane A/S, before software updating the LT-3100S GMDSS system.

Access the web server of the LT-3100S GMDSS system, by follow the instructions in *Accessing the built-in web server* on page 187. Select the ‘Software update’ web page and click the ‘Choose File’ button to select the LT-3100S GMDSS system file, which must be uploaded to the system. The software image has the following filename (example): LT-3100S-v1.0XR-00XX.iti - the software image and release documentation will be available on the official company website: <https://www.thrane.eu>, under the specific product or in the Partner Area. Click the ‘Upload’ button to start the upload of the new software image. The upload and installation of the software image will take a few minutes. Progress indication bars can be monitored on the Software update webpage, while the software update is on-going. The LT-3100S GMDSS system will reboot once the software image is installed safely in all units. The LT-3100S GMDSS system will start up showing the Service Wizard, when the system has been software updated, see *Service Wizard* on page 80.

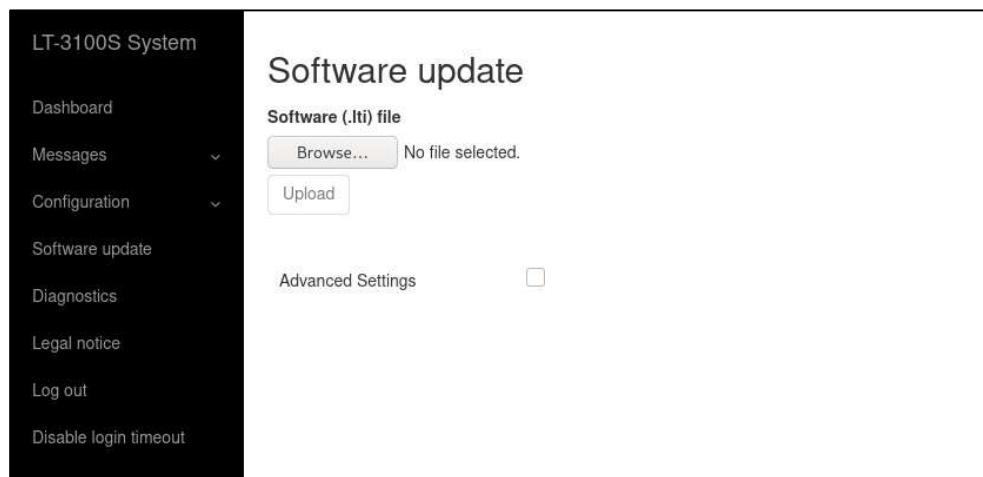


Figure 343: Web server (Software update)

**NOTE:**

The LT-3110S Control Unit, LT-3130 Antenna Unit, and LT-3140S Interface Unit must be operated with the same software version. The software update will happen automatically, if the control unit identifies that the software version in the other units is different. Check or verify the web server Dashboard for software versions in each of the LT-3100S GMDSS system units, see *Dashboard* on page 188.

**IMPORTANT:** Do not remove power from the control unit or interface unit while the software update is on-going. Also, do not disconnect the antenna cable between the control unit and the antenna unit, while the software update is on-going.

**IMPORTANT:** The Advanced Settings shall not be used under normal circumstances. Do not use this function unless specifically instructed by Lars Thrane A/S or by GMDSS certified partner.

## Diagnostic

A diagnostic report can be downloaded from the webpage ‘Diagnostics’. Navigate to the webpage and press the ‘Download diagnostics report’ button. A file with the following filename (example): LT-3100S\_00000061\_191115-152149.tar.gz will be downloaded to a location selected by the user. The Diagnostics Report can be sent back to Lars Thrane A/S in case of required support and assistance. The Diagnostics Report contains data describing the current state of the system and historical events. The data can be used by support to identify issues and determine their cause.

To help identifying a potential problem with the LT-3100S GMDSS system it is very important that the Diagnostic Report is sent back to Lars Thrane A/S.

The Diagnostics Report contains data describing the current state of the system and historical events. The data can be used by support to identify issues and determine their cause.

**Notice!**

The Diagnostics Report may contain sensitive data, including:

- Contacts
- Call history (both voice and data)
- Messages (e.g. SMS, E-mail, Safety Message)
- Current and historical GNSS positions
- Vessel identification

The Diagnostics report is encrypted and can only be read by Lars Thrane A/S. Lars Thrane A/S does not share the data in the diagnostics report with any third party.

By downloading the Diagnostics Report you attest to having read, understood, and agreed to the conditions stated above.

[Download diagnostics report](#)

Figure 344: Web server (download diagnostics report)

**NOTE:**

The diagnostic report is encrypted and can only be read by Lars Thrane A/S. Lars Thrane A/S does not share the data in the diagnostics report with any third party. By downloading and sending the diagnostic report to Lars Thrane A/S you attest to having read, understood, and agreed to the conditions stated under the Notice! (highlighted in Figure 344 above).

## Legal notice

The LT-3100S GMDSS system contains Open Source software components. The Open Source software components used and related license information can be viewed by pressing the link ‘here’ under the Legal notice webpage, see Figure 345.

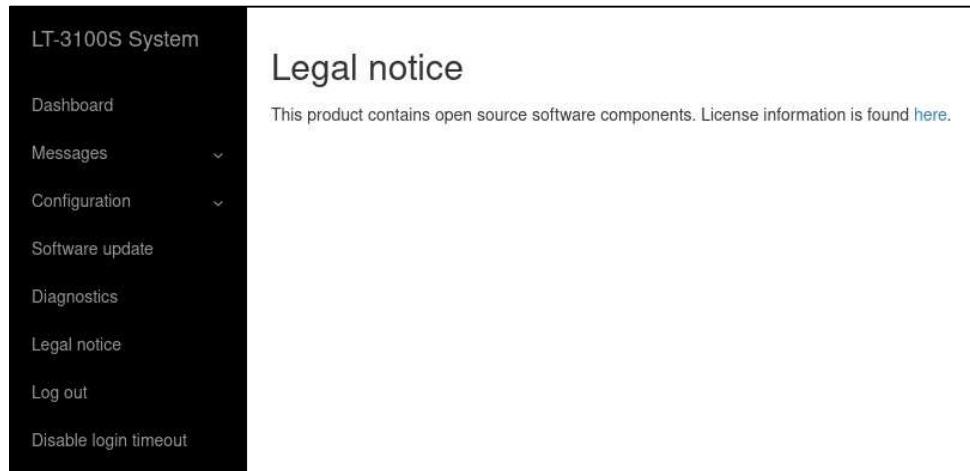


Figure 345: Web server (legal notice)

## Log out

By pressing the ‘Log out’ webpage the web server will redirect you to the Authentication login, where it is required to use the Username and Password to re-enter the web server again. The Authentication is described in *Authentication* on page 192.

## Disable login timeout

The web server will automatically logout after 5 minutes without activity. The user can disable this automatic logout by pressing the ‘Disable login timeout’ webpage, which then will change to a red color and text: ‘Enable login timeout’. The user must manually remove this configuration by pressing the webpage to go back to default settings and automatically logout.

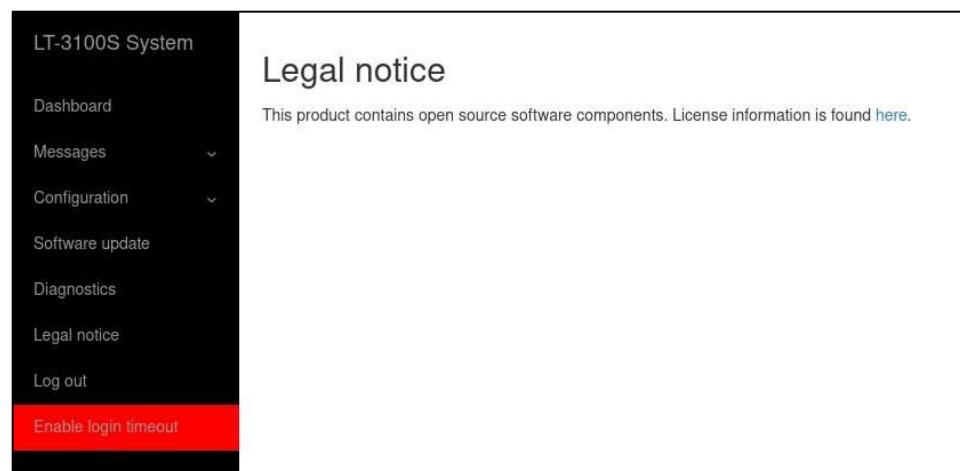


Figure 346: Web server (disable login timeout)

**COBHRm**

# SAILOR 6101 and 6103 Alarm Panel

Installation and user manual



## Using the Alarm Panel

This chapter provides a description of how to use the Alarm Panel. It has the following sections:

- *Starting up the Alarm Panel*
- *Sending a Distress alert*
- *Receiving Distress or Urgency messages*
- *Displaying faults*
- *General functions*

For information on how to install the Alarm Panel, see *Installing the Alarm Panel* on page 13.

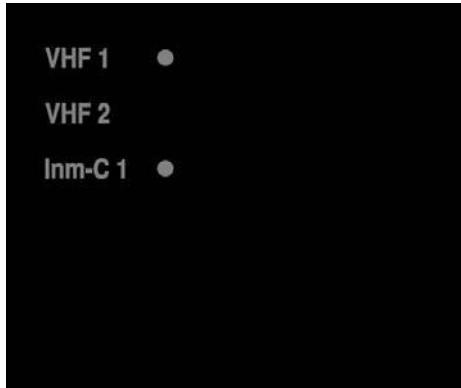
## Starting up the Alarm Panel

To start up the Alarm Panel, do as follows:

1. Switch on the Alarm Panel.

Use the remote on/off switch, if installed. otherwise, the Alarm Panel is automatically powered with the system.

2. The first column of the display shows which systems are connected to the Alarm Panel. A marker next to a system shows that it is the primary system for sending distress alerts or distress calls.



In the example above, two VHF radios and one Inmarsat C system are connected to the Alarm Panel. VHF 1 and Inm-C 1 can be used for sending a distress call/alert.

- On the SAILOR 6101 you can connect two Inmarsat C systems.
- On the SAILOR 6103 you can connect two VHF systems, two Inmarsat C systems and two MF/HF systems.

## Sending a Distress alert

**Important**

Never send a Distress alert if you are not in distress!

**To send a Distress alert**, do as follows:

1. Open the cover for the Distress button you want to use (VHF, Inm C or MF/HF).
2. Press and hold the button until the light is steady and the buzzer stops (more than 3 seconds).



Behaviour	Meaning
Button light flashes, buzzer sounds. Marker in the display flashes with the button light.	The Distress button is pressed. Hold until light and sound changes (more than 3 seconds).
Button light constant, buzzer is silent	The Distress alert is being sent (normally within 10 to 30 seconds)
Button light shortly off every 15 seconds	In Inmarsat C systems: The Distress alert is confirmed

For further details, see the user manual for the system you are using (VHF, Mini-C GMDSS or MF/HF).

## Receiving Distress or Urgency messages

When a Distress or Urgency message is received, the display of the Alarm Panel shows a flashing Distress text and the buzzer sounds periodically. The Distress text is shown next to the system on which the message was received.



Check the connected system to see the contents of the message. In the example above check the Message Terminal in your Inmarsat C system to see the message.

## Displaying faults

The display of the Alarm Panel can show faults in the connected VHF, Inmarsat C or MF/HF equipment.



Using the Alarm

Check the connected equipment for the cause of the fault. In the example above, you should check MF/HF radio number 1.

**Note** If the defective system is configured to be the primary system for sending distress, the other system of the same type (if any) is automatically selected instead. In the example above, MF/HF 2 is automatically selected because MF/HF 1 is defective.

## General functions

### Buttons in front panel

Apart from the Distress button(s) described in *Sending a Distress alert* on page 7, the front panel has four other buttons: Test, Mute, Dim ↑ and Dim ↓

### Testing the Alarm Panel

**Note** This test only verifies the function of the Alarm Panel itself, not of any connected equipment or the total system. For information on how to test the system, refer to the manual for the individual system (Inmarsat C, VHF or MF/HF).

To test the light and sound indicators in the Alarm Panel, do as follows:

1. Press and hold the **Test** button.

Verify that all light indicators and alarm buttons are flashing.

2. While holding the **Test** button, push and hold any other button, including the Distress button.

The buzzer starts to sound intermittently with increasing strength to indicate that the pushed button and the buzzer is working.

### Muting the alarm sound

To mute the alarm sound while it is on, press the **Mute** button.

**Note** Alarm sounds are muted on all connected units until they are activated by a new event.

### Adjusting the light

To increase the light intensity, press and hold the Dim  $\uparrow$  button.

To decrease the light intensity, press and hold the Dim  $\downarrow$  button.

**Note**

The light always goes to full intensity if there is an event such as a Distress message, a fault or the Test button is pressed.

You can always use the Dim buttons to dim the light again if you want to.

## Service and repair

This chapter describes what to do with defective units, including how to pack them for shipment if they are to be returned.

### Introduction

The Alarm Panel is designed to operate without preventive routine maintenance.

Although the Alarm Panel is designed and built very service friendly, we strongly recommend that any acting service technician is trained specifically on the product. Repair or repair attempts performed by unqualified personnel may limit the warranty. The warranty on the system is defined and outlined by the distributor that supplied the system.

We do not recommend repairing the Alarm Panel on board the ship. Replace the defective unit and have it repaired at a qualified workshop on shore.

For further information on warranty and service, you may also visit [www.cobham.com/SATCOM](http://www.cobham.com/SATCOM)

### Returning units

Should your Cobham SATCOM product fail, please contact your dealer or installer, or the nearest Cobham SATCOM partner. You will find the partner details on [www.cobham.com/satcom](http://www.cobham.com/satcom) where you also find the Cobham SATCOM Self Service Center web-portal, which may help you solve the problem.

Your dealer, installer or Cobham SATCOM partner will assist you whether the need is user training, technical support, arranging on-site repair or sending the product for repair.

Your dealer, installer or Cobham SATCOM partner will also take care of any warranty issue.

## Rewrapping for shipment

The shipping carton has been carefully designed to protect the Alarm Panel and its accessories during shipment. This carton and its associated packing material should be used when repacking for shipment. Attach a tag indicating the type of service required, return address, model number and full serial number. Mark the carton FRAGILE to ensure careful handling.

**Note**

Correct shipment is the customer's own responsibility.