



# **SAILOR** SP3300 Operation Manual

# Introduction

The SAILOR Portable VHF SP3300 is approved to fulfil the GMDSS requirements for portable VHF radios for Safety at Sea and is waterproof to IP67 standard.

As part of the required safety equipment, the SAILOR SP3300 is to be used in an emergency situation. However, the best way to guarantee functionality in an emergency, is to use the radio in the daily communication onboard.

This is possible due to a unique battery concept. The primary emergency battery is to be stored for emergency situations and a secondary rechargeable battery can be used for daily communication. In this way you have at least 8 hours operation time.

The range of maritime communication products from SAILOR includes radios for the leisure market to equipment for fishing vessels and complete communication solutions for the deep sea sector. Everything is covered from basic VHF units to state-of-the-art satellite systems, Ship Security Alert Systems and complete compact GMDSS solutions. Please find your nearest SAILOR distributor on: [www.sailor.dk](http://www.sailor.dk)

SAILOR operate a policy of continual development and reserve the right to alter and improve the specification of our products without notice.

Thank you for choosing SAILOR.

## Please note

Any responsibility or liability for loss or damage in connection with the use of this product and the accompanying documentation is disclaimed. The information in this manual is furnished for informational use only, is subject to change without notice, may contain errors or inaccuracies, and represents no commitment whatsoever. This agreement is governed by the laws of Denmark.

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## Warranty Limitation

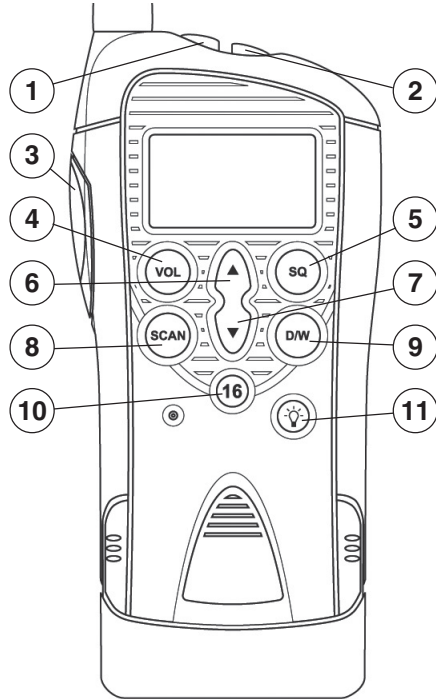
IMPORTANT - The radio is a sealed waterproof unit. To create and maintain its waterproof integrity it was assembled in a controlled environment using special equipment. The radio is not a user maintainable unit, and UNDER NO CIRCUMSTANCES should the unit be opened, except by authorised personnel. Unauthorised opening of the unit will invalidate the warranty.

# Operation

## Controls

The location of the controls for the radio

- | Function |   |
|----------|---|
| 1        | <b>On/off</b>                                   |
| 2        | <b>High/Low power / Keypad Lock</b>             |
| 3        | <b>PTT (Push To Talk)</b>                       |
| 4        | <b>Volume mode select</b>                       |
| 5        | <b>Squelch mode select</b>                      |
| 6        | <b>Up key</b>                                   |
| 7        | <b>Down key</b>                                 |
| 8        | <b>Scan mode</b>                                |
| 9        | <b>Dual /Tri watch</b>                          |
| 10       | <b>Select Priority / Personal channel</b>       |
| 11       | <b>Backlight on/off &amp; Light Mode select</b> |



Pressing and holding certain keys will access additional functions. These are indicated by a double beep, or a triple beep if held for longer (see table below).

Key	1 x Press	2 x Press	Press & Hold <i>Double Beep</i>	Press & Hold <i>Triple Beep</i>	Hold During Power Up
<b>VOL</b>	Select Volume Mode				* Select secondary channel set
<b>SQ</b>	Select Squelch Mode				Disable / Enable First Key Beep
▲ ▼	<b>Standard Mode</b> Channel Up / Down <b>Volume Mode</b> Volume Up / Down <b>Squelch Mode</b> Squelch Up / Down <b>Light Mode</b> Light level Up / Down				
<b>SCAN</b>	Memory Scan	Add / Delete channel from memory scan	Scan All Channels	Inhibit / Enable selected channel from scan	
<b>D/W</b>	Dual Watch		Tri Watch		
<b>16</b>	Select Channel 16		Select Personal Channel	Set Personal Channel	
💡	Select Light Mode Backlight On/Off				
<b>Hi/Lo</b>	Select 1 or 2.5 Watt		Engage / disable keypad lock		

\* If available

### On/Off (1)

Press  $\text{P}$  to turn the radio on. To turn off, press and hold the key for approximately 2 seconds. This is to avoid accidental power off.

### Hi/Lo (2)

Toggles between high and low transmit power (see specification section). Use the low setting over short ranges to preserve battery life.

### VOL - Volume (4)

#### SQ - Squelch (5)

Press to select Volume or Squelch mode then use the  $\blacktriangle$  and  $\blacktriangledown$  keys to adjust the level.

The display will show "VOL" or "SQL" for 3 seconds - if  $\blacktriangle$  /  $\blacktriangledown$  are not pressed within this time, their function will revert to channel select.

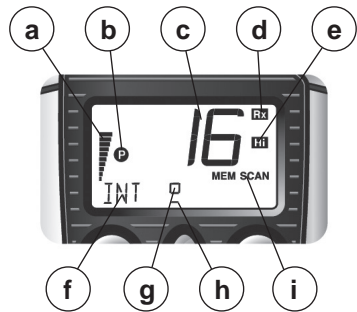
### $\blacktriangle$ / $\blacktriangledown$ (6 & 7)

These keys will change the selected channel. Pressing VOL, SQ or  $\text{P}$ , then  $\blacktriangle$  /  $\blacktriangledown$  within 3 seconds will adjust the volume, squelch or backlighting level respectively. The bargraph will indicate the level selected.

### SCAN mode (8)

Scans through the channels stored in the channel memory (display shows MEM SCAN).

- Select channel and press twice to add/delete to memory scan (display shows ENT or DEL respectively). The  $\square$  icon indicates that the selected channel is included in memory scan.
- Press and hold until double beep sounds to scan all channels (display shows SCAN).
- Press and hold until triple beep sounds to inhibit/enable selected channel from scan (display shows INH or ENA respectively). The  $\text{P}$  icon indicates the selected channel is inhibited



#### a. Bar graph -

Power up	Battery level
Standby	Battery level
Transmit	Battery level
Volume Mode	Volume level
Squelch Mode	Squelch level
$\text{P}$ pressed	Backlight level

#### b Personal Channel indicator

#### c Channel selected

#### e High or Low power indicator

#### f Function indicator

#### g Selected channel stored in memory

#### h Channel inhibited from scan

#### i Scan mode selected

### D/W - Dual Watch / Triwatch (9)

Press to select Dual Watch of selected channel and Ch16. Display shows D/W.

- Press and hold until double beep sounds for Triwatch - selected channel, personal channel and Ch16. Display shows T/W.

### 16 - Channel 16 / Personal Channel (10)

Press to select channel 16.

- Press and hold until double beep to select personal channel (display shows **P**)
- Press and hold for three beeps to set selected channel as the personal channel.



### ☼ - Backlight (11)

Press to turn on and off. Use ▲ / ▼ to adjust the backlighting level (5 levels available). The bargraph indicates the backlighting level selected.

- The battery save function turns off the backlighting if no key is pressed after 20 seconds. Press any key (except **P** or ☼) to turn light on again.

**Keep VOL held down**



## Disable/Enable Key Beep

The radio beeps every time a key is pressed to confirm operation. To disable key beep, press and hold **SQ** while turning the set on. Repeat this procedure to turn the key beep on again.

- Second level functions (such as All Channel Scan, Triwatch etc.) will still be indicated by a beep, even if the key beep is disabled.

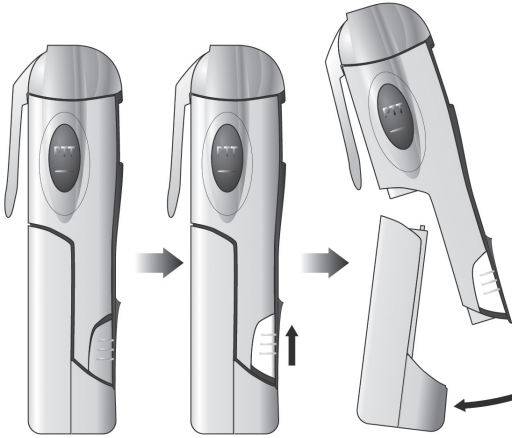
## Keypad Lock

The radio keypad can be locked to prevent accidentally pressing keys while in a pocket etc.

To lock the keypad, press and hold the **Hi/Lo** key. The radio will beep twice and any key pressed will not function - **LOCK** will appear in the display.

To disengage keypad lock, press and hold **Hi/Lo** again.

Note that the PTT key will still function when the keypad lock is on, allowing transmission and receiving as normal.



**Battery pack removal**

## Removing and Attaching Battery

The radio has two battery options - an 850mAh NiCa or a non rechargeable Lithium battery that is capable of providing sufficient power for the specified 8 hours according to regulations.

To remove the battery, lift the two locking clips holding the battery pack in place. When reattaching, ensure the three locating pegs on the top of the battery are located into the slots in the radio and that the two locking clips have both engaged.

The set is fully waterproof even with the battery removed, but it is recommended that any moisture on the top of the battery or in the battery compartment is wiped clear before attaching to prevent the water creating a conductive path between the contacts and reducing battery life.



**Battery charger**

## Charger Options

The radio can be supplied with a 12V standard charger that will accept the whole radio, or the battery alone. The standard charger runs from a standard 12V supply (10.5V-16V), or from AC mains with an appropriate optional adapter / power supply. Charging with the standard charger takes approximately 14-16 hours. There is also a fast charger available which will charge the battery within 1 1/2 hours.

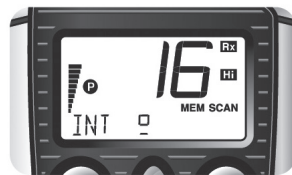
## Charging of Batteries

To charge the NiCa battery pack, insert the battery or radio into the charger ensuring that excess moisture is wiped clear from the contacts on the back of the battery pack. The standard charger will trickle charge the battery to full capacity. The fast charger will rapidly charge the battery until it is fully charged and will then automatically switch to maintenance charge.

- Batteries are supplied uncharged.
- Fully charge the battery when not in use, although it may lose some of its charge after several months of storage.
- Do not charge at temperatures below 0°C or above 40°C.
- Turn off radio if charging battery while fitted.
- Regularly discharge the battery completely - repeated recharging of the battery while it is partly discharged may create a 'memory effect', preventing the battery reaching full charge.
- Dispose of used batteries carefully. The contents of the batteries could be harmful to the environment.
- Never expose to a naked flame.
- **IMPORTANT: The Lithium battery is not rechargeable, and under no circumstances should any attempt be made to recharge it. Replacement lithium batteries can be re-ordered from your local reseller.**



Charging options



Battery level indicator

## Battery Level Indicator

Except when adjusting the Volume or Squelch, the bar graph on the display shows the battery charge level. This indicates the voltage at the battery terminals, not necessarily the charge stored. Ten or nine bars indicate a fully charged battery, three or four bars mean the battery is almost drained.

- When using a lithium battery pack, the low level battery indicator may flash under transmit conditions. This does not necessarily reflect the charge level remaining in the battery, as it is due to the different voltage characteristics of a Lithium battery pack under load.

# General

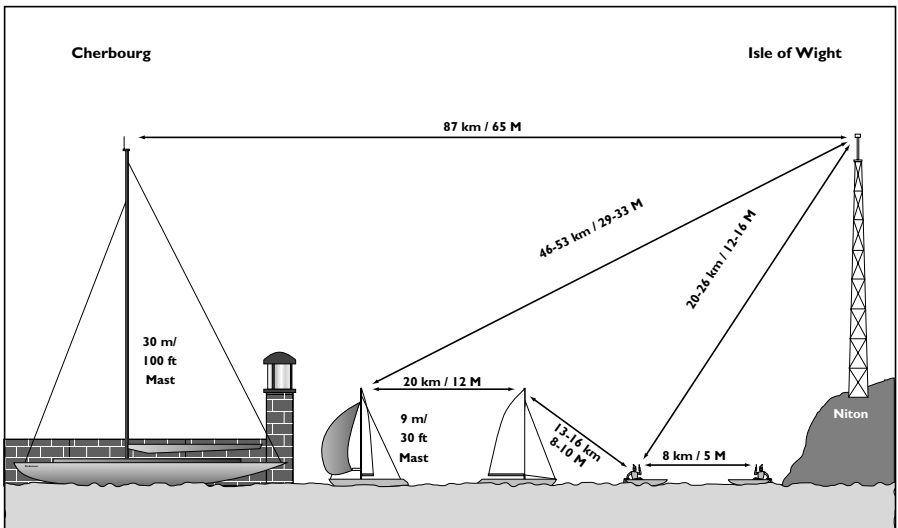
## Antenna

The antenna for the radio is fitted to the unit via a robust screw fitting to an M6 threaded socket on the top of the radio. This system is more rugged than a traditional BNC connector, so the radio's drop-proof integrity is not compromised by the antenna fixing.

While the radio is drop-proof and very robust, damage to the antenna such as bending or kinking may adversely affect the transmission efficiency of the unit, which may lead to overloading of the power module. Damaged antenna should be replaced immediately.

## Transmission Range

Because VHF signals travel in a straight line and are not reflected back off the ionosphere as lower frequency signals are, the range of VHF signals is limited to 'line of sight', beyond which the other vessel passes behind the curve of the Earth. Therefore, the range will increase greatly the higher above sea level the antenna is, as illustrated (assuming maximum transmission power is used):



Replacement antenna and other spare parts can be purchased from your local reseller. Please refer to section Spare Parts & Accessories.

Therefore, the typical range of a hand-held radio such as this one used at sea level will be approximately 8 Km (5 Miles). This will increase as height above sea level increases, or if the other radio user's antenna is at a greater height - note that the range between the yacht with the antenna mounted on a 9 M (30 Ft) mast and the hand-held user increases to 13-16 Km (8-10 Miles).

# Frequency of Channels

Channel Designator	Tx	Rx	
6	156.300	156.300	
8	156.400	156.400	
9	156.450	156.450	
10	156.500	156.500	
11	156.550	156.550	
12	156.600	156.600	
13	156.650	156.650	
14	156.700	156.700	
15	156.750	156.750	1W only
16	156.800	156.800	
17	156.850	156.850	1W only
67	156.375	156.375	
68	156.425	156.425	
69	156.475	156.475	
70	156.525	156.525	
71	156.575		
72	156.625		
73	156.675		
74	156.725		
77	156.875		

The radio is fitted with simplex channels only.

Channel 70 is restricted for DSC (Digital Selective Calling) use only and is therefore not available on the radio.

# Battery Life Guidelines

- New batteries should be fully charged and fully discharged several times to achieve full capacity.

To a large extent, the battery life will depend on the usage, or Duty Cycle of the radio - i.e. the battery will be drained much quicker if the radio is transmitting continually than if it is just receiving. Additionally, if the radio is set to High Power (2.5Watts\*), the power drain will be considerably greater than if transmitting on Low Power (1Watt\*)

\* Standard power settings.

Values predicted from calculation –

Battery Pack	Typical Life of fully charged pack at 25° C		
	Duty Cycle Ai	Duty Cycle Aii	Duty Circle B
850mAh NiCa	9.2 hrs	13.5	5.1 hrs

**Ai** Based on - 5% Transmit at 2.5W setting of r.f. output power (1.4Amp)  
5% Receive at 200mW Audio (0.15Amps)  
90% Receiver squelched (0.02Amps)

**Aii** Based on - 5% Transmit at 1W setting of r.f. output power (0.8Amp)  
5% Receive at 200mW Audio (0.15Amps)  
90% Receiver squelched (0.02Amps)

**B** Based on - 10% Transmit at 2.5W setting of r.f. output power (1.4Amp)  
10% Receive at 250mW Audio (0.15Amps)  
80% Receiver squelched (0.02Amps)

## Charge Held While Stored

The Following Data is Approximate:

Battery Pack		Duration	
		At 25°C	At 45°C
850mAh NiCa	Up to 50% Charge	4-6 Months	4 Weeks

# Fault Finding

Symptom	Possible Cause	Remedy
Unit will not switch on	<ul style="list-style-type: none"> <li>Battery not charged</li> <li>Battery not attached correctly to radio</li> </ul>	<ul style="list-style-type: none"> <li>Re-charge battery</li> <li>Ensure battery is fully engaged (see section 2.5)</li> </ul>
Scan or Memory Scan is locking on a channel without a signal	<ul style="list-style-type: none"> <li>Noise on the channel is holding the scan</li> </ul>	<ul style="list-style-type: none"> <li>Increase squelch level</li> <li>Inhibit channel from scan</li> </ul>
Dual Watch not being entered	<ul style="list-style-type: none"> <li>Priority channel selected (normally Ch16)</li> </ul>	<ul style="list-style-type: none"> <li>Select a working channel</li> </ul>
Cannot change channel	<ul style="list-style-type: none"> <li>Dual Watch (D/W) engaged</li> </ul>	<ul style="list-style-type: none"> <li>Exit Dual Watch</li> </ul>
Certain channel numbers are not obtainable	<ul style="list-style-type: none"> <li>Some channels are restricted and programmed out depending on country of purchase</li> </ul>	<ul style="list-style-type: none"> <li>Consult your national authority for permitted channels in your region</li> </ul>
Will not transmit	<ul style="list-style-type: none"> <li>Scanning or D/W function</li> </ul>	<ul style="list-style-type: none"> <li>Exit D/W or Scan</li> </ul>
Will not transmit on 2.5W but OK on 1W	<ul style="list-style-type: none"> <li>Low voltage when full transmitting current is drawn</li> </ul>	<ul style="list-style-type: none"> <li>Battery charge low - recharge the battery</li> <li>Consult your national authority</li> </ul>
Transmissions persistently weak	<ul style="list-style-type: none"> <li>Damaged antenna</li> </ul>	<ul style="list-style-type: none"> <li>Replace antenna</li> </ul>

These simple checks should be carried out before seeking technical assistance and may save time and expense.

Before contacting your servicing agent please obtain the radio's serial number and the software iteration - this is shown in the large digits on the display for 2 seconds after the radio is turned on.

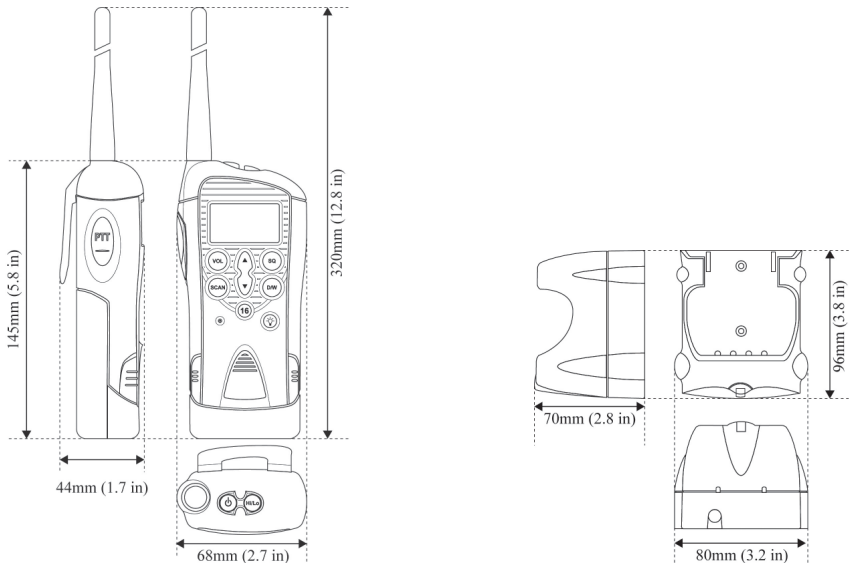
# Technical Specification

## Electrical

Channel Capability	GMDSS sets have simplex channels only - 06, 08-17, 67-69, 71-74, 77
Frequency Range	155-163Mhz
Operating Temperature Range	-20°C - +60°C
Output Power	1 & 2.5W
Harmonic and Spurious Emissions	<.25µW Tx, <1nW Rx
Sensitivity	0.5µV for 20 dB SINAD
Selectivity	70 dB (±25 kHz)
Intermodulation	70 dB
Channel Spacing	25kHz
Blocking	90dB
Spurious Response	70dB
Audio Output Power	Max 0.4W
Current Consumption	Squelched <25mA Receive typically 125mA Transmit 2.5W 0.95A 1W 0.6A
Weight	400g including battery pack

## Environmental

Waterproof	To a depth of 1m fully submersed, including a 45°C thermal shock.
Drop Resistance	Will withstand petrol, diesel and other fuel oils. Will withstand a drop from 1m on to a hard surface on any face.





# Spare Parts & Accessories

For your convenience the following parts can be ordered at your local reseller

<b>Item</b>	<b>Part Number</b>
VHF Radio	8033000008
Antenna	55.367
NiCa Battery	55.359
Lithium Battery	55.360
Standard charger	8033210001
Fast charger	8033220001
Mains Adapter for standard charger	55.357
Mains Adapter for fast charger	55.358
Lanyard	55.366
Leather Holster	55.365



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