

**COBHAM**

# SAILOR 6210 VHF

User and installation manual





# **SAILOR 6210 VHF**

## **User and installation manual**

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## Manufacturer

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## **Safety warning**

The following general safety precautions must be observed during all phases of operation, service and repair of this equipment. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture and intended use of the equipment. Thrane & Thrane assumes no liability for the customer's failure to comply with these requirements.

### **RF exposure hazards and instructions**

Your Thrane & Thrane radio set generates electromagnetic RF (radio frequency) energy when transmitting. To ensure that you and those around you are not exposed to excessive amounts of energy and thus to avoid health hazards from excessive exposure to RF energy, all persons must be at least 3ft (0.9 m) away from the antenna when the radio is transmitting.

### **Warranty limitation**

**IMPORTANT** - The radio is a sealed waterproof unit (classified IPX8). 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 authorized personnel. Unauthorized opening of the unit will invalidate the warranty.

### **Installation and service**

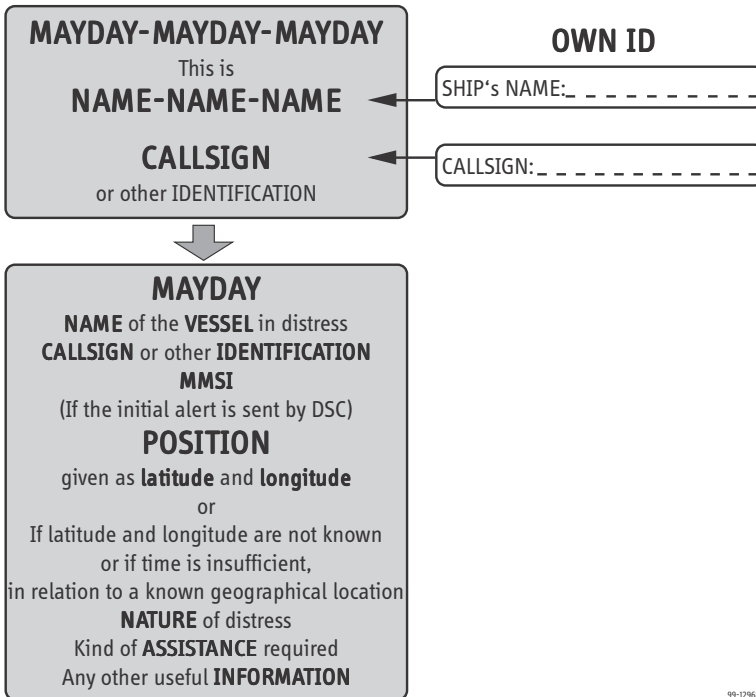
Installation and general service must be done by skilled service personnel.

## Emergency calls

Make sure your VHF Radio is on CH16



Use the **HANDMICROPHONE** for voice calling



99-129680

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# Preface

## Radio for occupational use

The SAILOR 6210 VHF fulfils the requirements of the Radio Equipment Directive (RED) 2014/53/EU and is intended for use in maritime environment.

SAILOR 6210 VHF is designed for *occupational use only* and must be operated by licensed personnel only.

SAILOR 6210 VHF is not intended for use in an uncontrolled environment by general public.

SAILOR 6210 VHF is designed for installation by a skilled service person.

## Manual overview

This manual has the following chapters:

- *Introduction* contains a description of the VHF radio.
- *Operation* explains how to make and receive voice calls over VHF, including how to use and set-up the channel scanning, the 2-way loudhailer, fog horn external loudspeaker.
- *Installation* explains how to mount the VHF radio and how to connect accessories and external equipment.
- *Service & maintenance* contains support information including lists of accessories and a troubleshooting guide.

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# Table of Contents

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<b>Chapter 1</b>	<b>Introduction</b>	
	VHF radio .....	1
<b>Chapter 2</b>	<b>Operation</b>	
	General use and navigation .....	6
	VHF radio communication .....	9
	HI/LO transmission power .....	15
	Watch .....	16
	Scan .....	17
	Radio setup .....	19
	Loudhailer with talk-back .....	22
	Automatic foghorn .....	23
	Hailer and Fog horn setup .....	25
	Replay function .....	26
<b>Chapter 3</b>	<b>Installation</b>	
	Unpacking the SAILOR 6210 VHF .....	27
	Installing the VHF radio .....	28
	Power, VHF antenna and external equipment .....	35
	System setup .....	42
	SAILOR 6201 Handset cradle (optional) .....	43
<b>Chapter 4</b>	<b>Service &amp; maintenance</b>	
	Contact for support .....	45
	Maintenance .....	45

	Equipment and accessories .....	48
	Warranty .....	48
<b>App. A</b>	<b>Technical specifications</b>	
<b>App. B</b>	<b>Maritime channels</b>	
	International channels (INT) .....	51
	US channels .....	52
	CA channels .....	53
	BI channels .....	54
	Alternative channels .....	55
	Private channels .....	56
<b>App. C</b>	<b>Declaration of Conformity</b>	
<b>Glossary</b>	.....	59
<b>Index</b>	.....	61

# Introduction

## VHF radio

SAILOR 6210 VHF is approved to Radio Equipment Directive (RED) and is waterproof to the IPx8 and IPx6 standard. As part of the safety equipment, use the SAILOR 6210 VHF in an emergency situation. However the best way to guarantee functionality in an emergency situation, is to use the radio in daily communication on board.



The VHF radio is a simplex/semi duplex VHF radio. It is designed with an easy-to-use menu-driven setup. You use the soft-keys to enter the desired functions, you browse and select a setting using the right selection wheel knob. The large display has red adjustable backlight which provides a good visibility even at night and protects your night vision.

The VHF radio can replay the last 90 s of received voice. This is a useful feature to minimize misunderstandings and to record messages when the radio is unattended.

The VHF radio connects easily to external equipment like a 2-way loudhailer and an external speaker. You can use the loudhailer as a 2-way on-board communicator. The loudhailer also functions as a fog horn. You can select from several programmed fog-horn patterns.

For a list of other accessories available for the SAILOR 6210 VHF check with your nearest distributor.

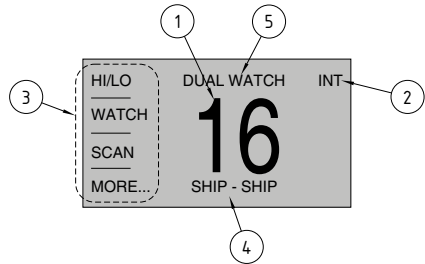
## Controls on the front plate



1. Loudspeaker.
2. Four soft keys with function title in the display.
3. Quick selection key for channel 16 and the programmed call channel.
4. Large display.
5. Connector for Handmicrophone or handset. If not used, put the cap from the ACC connector on the front connector to prevent water ingress.
6. Squelch control to mute background noise.
7. Replay button to play back up to 90 s voice message.
8. Volume wheel knob with key-press function for volume control and power on/off.
9. Selector wheel knob with key-press function for changing the working channel, navigating in menus in the display and backlight dimming.

## SAILOR 6210 VHF display

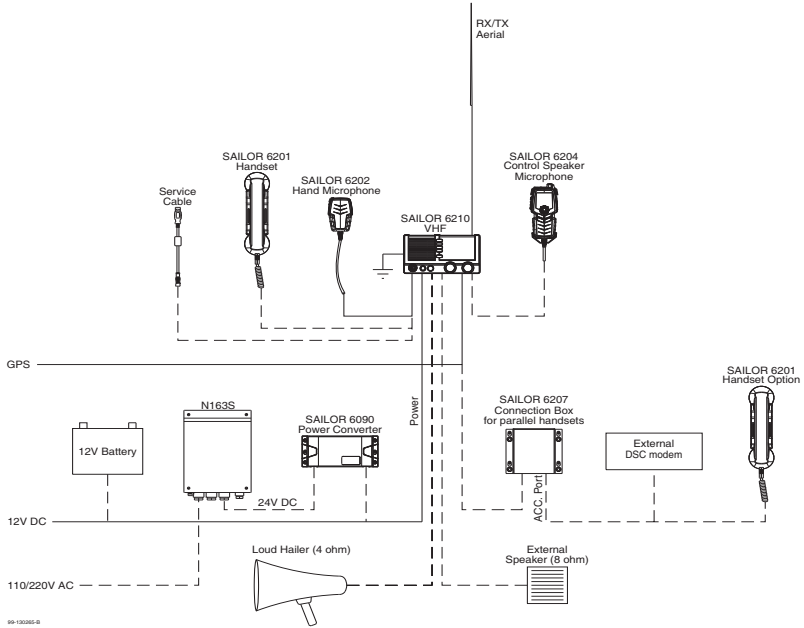
The picture shows the display after start-up. The display holds various fields of information, depending on the currently selected function.



1. Current working channel.
2. Functions you can select with the soft keys. If there are more than 4 functions in the list press the soft key **MORE** to display further functions.
3. Status and other values for the current state or VHF channel.
4. **Service line** containing current temporary information relevant for the current channel or function.
5. **Action line** containing current state or temporary information relevant for the currently selected function.

For a detailed description of the information shown for each of the functions available see the chapter *Operation* on page 5.

# System configuration - example



# Operation

**Note**

Before using the VHF radio make sure that the VHF antenna, power and other external equipment are connected properly. For instructions see chapter *Installation* on page 27.


In this chapter you find detailed instructions and guidelines for:

- *General use and navigation*
- *VHF radio communication*
- *HI/LO transmission power*
- *Watch*
- *Scan*
- *Radio setup*
- *Loudhailer with talk-back*
- *Automatic foghorn*
- *Replay function*

## General use and navigation

### Power on and speaker volume

The VHF radio has a dual-function on/off wheel knob for power on/off and volume control.

- To power on the VHF radio press the on/off wheel knob.
- To power off the VHF radio, press and hold the on/off wheel knob and follow the instructions in the display.
- To adjust the speaker volume, turn the volume wheel knob (clockwise = louder, counter clockwise = softer, until muted). When adjusted to the muted level  is shown in the display.



### Working channel, settings and dim function

The selector wheel knob has several functions:

- To select the **working channel**, turn the selector wheel knob.
- To browse and select **settings**, turn the selector wheel knob and press for accept.



To **dim the backlight** in the display until it is appropriate for the current situation, i.e. to give comfortable night vision, press, hold and turn the selector wheel knob (clockwise= more light).



## Speaker devices

The VHF radio can be equipped with the following speaking devices:

- SAILOR 6202 Handmicrophone with a PTT (Push To Talk) button.
- Handset with a microphone, ear piece and a PTT button. The volume in the ear piece can be adjusted, for details see *Controller setup* on page 8.
- Loudhailer.
- External speaker.

See *Controller setup* on page 8 for managing speaking devices.

## Adjusting the squelch

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, turn the squelch button clockwise until the speaker is muted.

## Functions

The following functions are available from top-level standby:

Soft key	Function
HI/LO	Transmitter power, high or low
WATCH	Dual or triple watch
SCAN	Scanning function
HAIL	Loudhailer
FOG	Fog horn
SETUP	Setup pages for RADIO, HAILER/FOG, SYSTEM, CONTROLLER

The functions of the SAILOR 6210 VHF are accessed and set using the four soft keys to the left of the display. The current function of a soft key is shown in the display next to the soft key. For some applications there are two control levels:

- A **top level** showing the current information and options for this application. This can be on one page, or on several pages.
- A **setup screen** showing the options you can configure for the specific application.



Use the soft key **MORE** to display further applications.

## Controller setup

In the CONTROLLER SETUP you set handset volume, external speakers and display contrast. You can view the Software version and serial number.

To change a setting in the **CONTROLLER SETUP**, do as follows:

1. Press the soft key **SETUP**. If it is not in the display, press the soft key **MORE** until **SETUP** appears.
2. Press the arrow soft key **➡** or **⬅** to advance to **CONTROLLER SETUP**.
3. Turn the selector wheel knob to go to a setting, then press the selector wheel knob to change the setting.
4. Press **EXIT** to return to normal radio operation.



Parameter	Description
<b>Handset 1 vol:</b>	Adjust earpiece volume for handset 1: OFF, 1 to 14 <b>Note:</b> Default setting is OFF. If a handset is connected to the front connector this value must be configured to a value (1-14).
<b>Handset 2 vol:</b>	Adjust earpiece volume for handset 2: OFF, 1 to 14 <b>Note:</b> Default setting is OFF. If a handset is connected to the rear connector this value must be configured to a value (1-14).
<b>Ext. speaker</b>	FIX: Fixed level is set for external speaker REL: Relative level following volume adjustment of the internal speaker
<b>Ext. fix/rel vol:</b>	External speaker fix or rel volume: rel: -5 to 5. Offset relative to internal speaker steps fix: OFF, 1 to 14
<b>Language</b>	English
<b>Contrast</b>	Display contrast, 1 to 5

## VHF radio communication

In this section of the manual you find information on

- *Basic VHF operation*
- *VHF channels*
- *Programming a call channel*
- *Naming a channel*

## Basic VHF operation

You can make VHF calls using the Handmicrophone or another speaking device.

**Note** A single, short press on the **16/C** key will always bring you to **channel 16**, the international calling and distress channel, no matter what menu the radio is in.



### Quick guide to radio telephone calls

1. Press the **PTT** button on the speaking device. When the TX indicator lights up in the display, the transmission is active.
2. To enable reception of a radio signal release the **PTT** button.



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

**Note** 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. An RX symbol shows that the radio is receiving on the channel displayed.
2. Lift the Handmicrophone or take the handset.
3. Press the **PTT** key. A TX symbol 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** key to allow the caller to confirm the suggested new channel.



- Switch to the new channel by turning the selector wheel knob to the agreed channel and begin your conversation. Press **PTT** only when you are talking.



## Making a radio telephone call on channel 16

To make a radio telephone call, proceed as follows:

- Select channel 16 by pressing the soft key **16/C** or by turning the selector wheel knob.
- Lift the handset or take the Handmicrophone.
- Press the **PTT** key. A TX symbol shows that the VHF radio is transmitting on the working channel displayed.
- Say the name of the station you are calling three times.
- Say: "This is [your ship's name]".
- Say: "Over." and release the PTT key to listen. An RX symbol shows that the radio is receiving on the working channel displayed.
- When answered, agree upon a working channel other than 16.
- Switch to the new channel by turning the selector wheel knob to the agreed channel and begin your conversation.

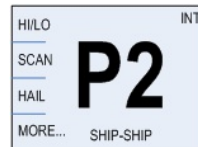
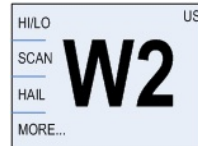


## VHF channels

You can change channels whenever the channel designator is displayed. Turn the selector wheel knob to browse through all channels that are available in the selected channel mode. The channels appear in the display in the following order:

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

**To quickly toggle** between these 3 channel groups make a long press and release the selector wheel knob. The VHF radio toggles between the last selected channels in the respective groups, i.e. the last selected weather channel, the last selected private channel or the last selected primary channel. If there are no channels defined in a group, none will be selected.



VHF channel table	Description
Primary channels (no prefix)	For details see <i>Maritime channels</i> on page 51. For instructions how to change a channel table see <i>Radio setup</i> on page 19.
Weather (WX)	Weather channels have the prefix <b>W</b> . (For US and CA channels only.)
Private (PRIV)	Up to 40 user-defined private channels. Contact your dealer for programming private channels.

## Programming a call channel

To program a call channel (or quick selection), do as follows:

1. Make an extra-long press (2.5 s duration) on the **16/C** key.
2. Press the soft key **CALL CH**. The channel designator is flashing.
3. Turn the selector wheel knob to select the desired channel.
4. Press the soft key **OK** to confirm the new call channel and leave edit mode.




## Naming a channel

To name a channel, do as follows:

1. Make an extra long press on the **16/C** key until **NAME** is shown in the display next to one of the soft keys.
2. Turn the selector wheel knob to select the channel you want to name.
3. Press the soft key **NAME**.
4. Turn and press the selector wheel knob to enter the name, letter by letter. Press **BACK** to move one character to the left. Press **CLEAR** to delete the current character and the following characters. A long press on **CLEAR** deletes all characters.
5. Press the soft key **OK** to confirm the entered value and to leave edit mode.
6. Press **EXIT** to return to return to the standard VHF display.




## Display for non-VHF applications

When the radio is used for functions other than VHF, the display is arranged differently. The large channel display moves to the bottom line along with selected icons.

The channel displayed in this line will always reflect the communication channel on which the radio is tuned into for communication.

If **PTT** is pressed the radio transmits on the displayed channel (not valid for hailer mode).

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



## HI/LO transmission power

Press the soft key **HI/LO** to toggle the transmit power between low (1 W) and high (25 W). If **LO** is not displayed, the transmit power is HI.

### US channels: Local mode, 10 dB attenuation

To attenuate to the incoming signal, do as follows:

1. Press the soft key **LOCAL** to add 10 dB attenuation. If it is not in the display, press the soft key **MORE** until **LOCAL** appears in the display.

**Note**

Local mode is automatically exited when using channel 16. If you want to use attenuation on channel 16 or a call channel, you must set it manually each time.

### US channels: Overriding LOW power for channels 13 and 67

When running in US mode you can override low power on the alternative call channels 13 and 67. Do as follows:

1. With the VHF radio set to 13 and 67, press **PTT** on the speaking device.
2. Press the soft key **OVERRIDE** to transmit with full power.

When you release the **PTT** button, the transmission power goes back to low.

## Watch

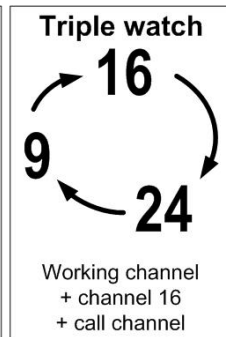
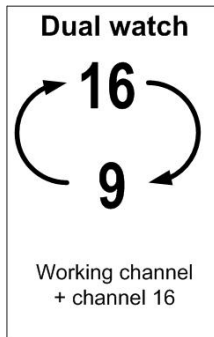
The SAILOR 6210 VHF radio can be set to dual watch or triple watch. In dual watch, the working channel and channel 16 are watched. In triple watch the working channel, channel 16 and the programmed call channel are watched.

You can select the working channel in any watch mode by turning the selector wheel

knob. The working channel that is displayed is the channel used for dual or triple watch. If there is a signal in one of the watched channels and squelch opens, the display shows the channel in which the signal is received.

**Note**

If PTT is operated during any watch mode, the **WATCH** function is terminated and you transmit on the displayed channel. Watch mode may be resumed after releasing the **PTT** button if the scan resume time is set up in **SETUP**, for instructions see *Radio setup* on page 19.



## Using WATCH

1. To start watch press the soft key **WATCH**. The radio enters the last watch mode. It is displayed in the action line.
2. To stop **WATCH** press **WATCH** again, or press **PTT** on the speaking device.



For instructions how to change between **DUAL** and **TRIPLE WATCH** see *Radio setup* on page 19.

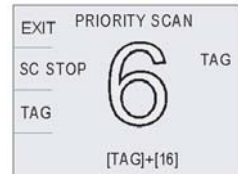
## Scan

The radio has a scanning function for tagged channels. Any available 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. Pressing PTT while a signal is received stops scanning and the radio is tuned into the displayed channel.

### Using SCAN

1. To start scanning press the soft key **SCAN**. The SCAN menu is shown. Press **START** to start scanning.
2. To stop **SCAN** press **SC STOP**, or press **PTT** on the speaking device.
3. To tag a channel in order to include it in the scanning sequence, turn the selector wheel knob until the wanted channel is in the display. Then press the soft key **TAG**. The display shows the channel number and the word **TAG** at the right side of the display.
4. To remove a channel from the scanning sequence, turn the selector wheel knob until the tagged channel is displayed. Then press the soft key **TAG** to remove the tag.



When scanning is activated the working channel is displayed in a different format (open, outline typeface). This indicates the radio is not tuned into the displayed channel. The displayed working channel is temporarily included in the scanning list (although no TAG icon is shown).

If PTT is pressed while scanning, the scanning is stopped and transmission starts immediately on the displayed working channel.

## US channels: Watch alarms for NOAA Weather alerts

**Note**

NOAA weather channels are available in the waters of USA and Canada only.

You can turn on or off an independent watch alarm for a specific weather channel.

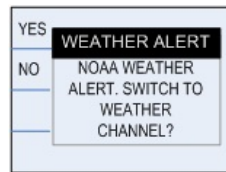
To turn on or off an independent NOAA weather alarm do as follows:

1. In the **SCAN** menu, turn the selector wheel knob to select a specific weather channel.
2. Press the soft key **WX** to tag this weather channel for NOAA weather alert.
3. On the display you can see that the selected weather channel alert watch is enabled. In this example it is [W2].



The weather channel set-up for the alarm is scanned frequently during scanning, watch or when the radio is not operated or receiving on a working channel.

4. If a NOAA weather alert is detected on a weather channel, beep tones are presented and a pop-up window is displayed. Press **YES** to switch to the weather channel.



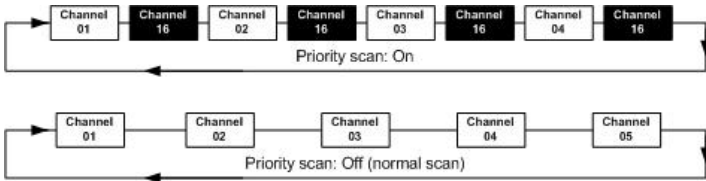
## Radio setup

In the RADIO SETUP you set scan and watch mode, select the channel table and can set and view the ATIS code. To change a setting in the **RADIO SETUP**, do as follows:

1. Press the soft key **SETUP**. If it is not in the display, press the soft key **MORE** until **SETUP** appears.
2. Press the arrow soft key **➡** or **⬅** to advance to **RADIO SETUP**.
3. Turn the selector wheel knob to go to a setting, then press the selector wheel knob to change the setting.
4. Press **EXIT** to return to normal radio operation.



Parameter	Description
<b>Scan Hang Time</b>	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. <b>OFF</b> : Resumes scanning when signal disappears (default) <b>4, 6, 8, 10</b> : Hang time in seconds.
<b>Scan/watch Resume</b>	Scan resume time, in seconds. When the programmed time of inactivity has elapsed, and when watch/scan has been aborted using a press on PTT, or after power-up, scan or watch is resumed. <b>OFF</b> : Automatic resume is deactivated (default) <b>3, 6, 10, 15, 20, 25, 30</b> : Resume time in seconds.
<b>Watch Mode</b>	<b>DUAL</b> : Dual watch monitoring the working channel and the priority channel (channel 16, default for international channels). <b>TRIPLE</b> : Triple watch. The working channel is watched with the priority channel (channel 16) and the programmed call channel (if any, otherwise dual watch).

Parameter	Description
<p><b>Priority Scan</b></p>	<p><b>ON:</b> All channels tagged for scanning are scanned while monitoring channel 16. (default).  <b>OFF:</b> Only the channels tagged for scanning are scanned in sequence, not channel 16, unless it is tagged for scanning.</p> 
<p><b>Channel Mode</b></p>	<p>To select the channel table for the primary channel. See also <i>VHF channel table</i> on page 12.</p>
<p><b>Bandwidth</b></p>	<p>Selection of the bandwidth for the fixed pre-programmed channels. This is recommended from Radio Regulations:</p> <p><b>Wide:</b> Wide band is 25kHz channel bandwidth (default)  <b>Narrow:</b> Narrow band defines a channel bandwidth of 12.5kHz</p>

Parameter	Description																																																																																				
<b>ATIS code</b>	<p>The ATIS code (Automatic Transmitter Identification System) is used for identification to marine coast and inland stations and its use is mandatory in a number of European inland waterways such as e.g. the river Rhine.</p> <p>Like the MMSI number the ATIS number is issued by the relevant authority.</p> <p>Enter the format of the programmed ATIS code according to the following call sign prefix conversion table:</p> <table border="1" data-bbox="292 592 986 866"> <thead> <tr> <th>Character</th> <th>Phonetic</th> <th>Value</th> <th>Character</th> <th>Phonetic</th> <th>Value</th> </tr> </thead> <tbody> <tr><td>A</td><td>Alpha</td><td>1</td><td>N</td><td>November</td><td>14</td></tr> <tr><td>B</td><td>Bravo</td><td>2</td><td>O</td><td>Oskar</td><td>15</td></tr> <tr><td>C</td><td>Charlie</td><td>3</td><td>P</td><td>Papa</td><td>16</td></tr> <tr><td>D</td><td>Delta</td><td>4</td><td>Q</td><td>Quebec</td><td>17</td></tr> <tr><td>E</td><td>Echo</td><td>5</td><td>R</td><td>Romeo</td><td>18</td></tr> <tr><td>F</td><td>Foxtrot</td><td>6</td><td>S</td><td>Sierra</td><td>19</td></tr> <tr><td>G</td><td>Golf</td><td>7</td><td>T</td><td>Tango</td><td>20</td></tr> <tr><td>H</td><td>Hotel</td><td>8</td><td>U</td><td>Uniform</td><td>21</td></tr> <tr><td>I</td><td>India</td><td>9</td><td>V</td><td>Victor</td><td>22</td></tr> <tr><td>J</td><td>Juliett</td><td>10</td><td>W</td><td>Whiskey</td><td>23</td></tr> <tr><td>K</td><td>Kilo</td><td>11</td><td>X</td><td>X-ray</td><td>24</td></tr> <tr><td>L</td><td>Lima</td><td>12</td><td>Y</td><td>Yankee</td><td>25</td></tr> <tr><td>M</td><td>Mike</td><td>13</td><td>Z</td><td>Zulu</td><td>26</td></tr> </tbody> </table> <p><b>Note:</b> The ATIS number can be programmed by the operator once. If a wrong number has been entered and stored, or if there is a requirement to change it, contact your authorized dealer.</p>	Character	Phonetic	Value	Character	Phonetic	Value	A	Alpha	1	N	November	14	B	Bravo	2	O	Oskar	15	C	Charlie	3	P	Papa	16	D	Delta	4	Q	Quebec	17	E	Echo	5	R	Romeo	18	F	Foxtrot	6	S	Sierra	19	G	Golf	7	T	Tango	20	H	Hotel	8	U	Uniform	21	I	India	9	V	Victor	22	J	Juliett	10	W	Whiskey	23	K	Kilo	11	X	X-ray	24	L	Lima	12	Y	Yankee	25	M	Mike	13	Z	Zulu	26
Character	Phonetic	Value	Character	Phonetic	Value																																																																																
A	Alpha	1	N	November	14																																																																																
B	Bravo	2	O	Oskar	15																																																																																
C	Charlie	3	P	Papa	16																																																																																
D	Delta	4	Q	Quebec	17																																																																																
E	Echo	5	R	Romeo	18																																																																																
F	Foxtrot	6	S	Sierra	19																																																																																
G	Golf	7	T	Tango	20																																																																																
H	Hotel	8	U	Uniform	21																																																																																
I	India	9	V	Victor	22																																																																																
J	Juliett	10	W	Whiskey	23																																																																																
K	Kilo	11	X	X-ray	24																																																																																
L	Lima	12	Y	Yankee	25																																																																																
M	Mike	13	Z	Zulu	26																																																																																



## Loudhailer with talk-back

The SAILOR 6210 VHF supports a loudhailer with a talk-back function.


**Important**

When the hailer is in talk-back mode and a radio signal is received, the radio signal has a higher priority and is heard in the loudspeaker.

To activate the loudhailer do as follows:

1. Press the soft key **HAIL**. If it is not in the display, press the soft key **MORE** until **HAIL** appears. 
2. Press **PTT** on the speaking device to activate the **HAILER**. 
3. To change the receiving radio channel, turn the selector wheel knob.
4. To adjust the HAIL volume press the **PTT** button and turn the volume knob.
5. Press the soft key **EXIT** to leave the hailer function.

## Using the hailer with talk-back

While in hailer mode the hailer can also be used as a microphone. For details how to set the talk-back mode see *Hailer and Fog horn setup* on page 25. Once set up talk-back is activated when you are in hailer mode and the PTT button is released. 

When talk-back is active your crew can talk to you via the loudhailer horn unit into the loudspeakers. The talk-back volume can be independently adjusted on the volume knob while talk-back is active (TB Volume). If a signal is received on the radio while in talk-back mode, the received radio signal will be heard in the speakers. The received radio signal will be reproduced with the normal volume level.



## Automatic foghorn

The SAILOR 6210 VHF has an automatic fog horn application with several foghorn patterns. Once started, it runs in the background while running any other application. The fog horn may be combined with the loudhailer talk-back mode. When the fog horn is activated, the text **FOG** is shown in the top right corner of the display.

### Important

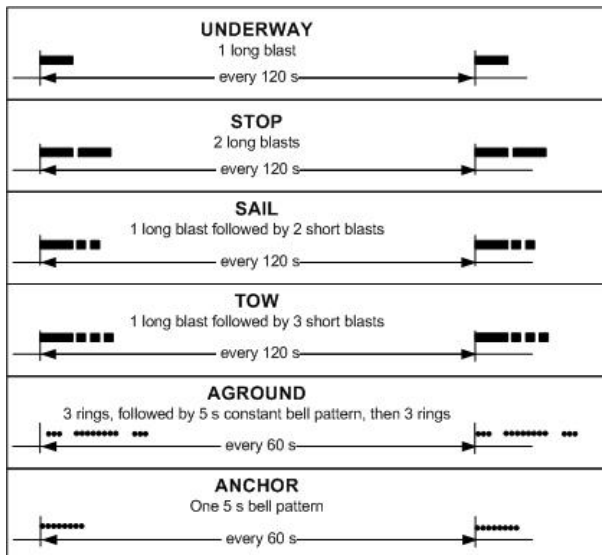
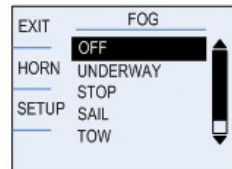
Loudhailer talk-back may be active between foghorn emissions. See *Hailer and Fog horn setup* on page 25.

The "TB" symbol is shown in the display if Foghorn talk-back is selected and the automatic foghorn is activated.

The foghorn patterns are fixed and sent out as whistle blasts or as a bell pattern. The tone frequency can be set in the foghorn setup menu.

To activate the foghorn do as follows:

1. Press the soft key **FOG**. If it is not in the display, press the soft key **MORE** until **FOG** appears.
2. Use the selector wheel knob to browse through the patterns available.



3. Press the selector wheel knob at the wanted pattern to accept the pattern.
4. To deactivate the foghorn, turn the selector wheel knob to browse to **OFF** and press the selector wheel knob.

### Foghorn test tone

To manually control that the foghorn produces a blast tone, do as follows:

The **HORN** key appears when no active fog pattern is emitted (OFF). Press and hold the soft key **HORN** to activate the blast tone and adjust the volume of the foghorn by turning the volume wheel knob.



## Hailer and Fog horn setup



To change a setting in the **HAILER/FOGHORN SETUP**, do as follows:

1. Press the soft key **SETUP**. If it is not in the display, press the soft key **MORE** until **SETUP** appears.
2. Press the arrow soft key **➡** or **⬅** to advance to **HAILER/FOGHORN SETUP**.
3. Turn the selector wheel knob to go to a setting, then press the selector wheel knob to change the setting.
4. Press **EXIT** to return to normal radio operation.



Parameter	Settings
Hailer Talk-back	<p><b>OFF</b> - Talk back is disabled (Default).</p> <p><b>ON</b> - Talk back is enabled when listening in the hailer PA mode.</p>
Foghorn Talk-back	<p><b>OFF</b> - Talk back is disabled if the periodic foghorn is activated.(Default)</p> <p><b>ON</b> - Talk back is enabled if the periodic foghorn is activated, talk back between horn emissions.</p>
Foghorn Freq.	Adjust the foghorn frequency, allowed range: 200-850 Hz.

## Replay function

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

Recording is activated automatically when a signal is received. Recording is not possible during playback. Up to 60 tracks or 90 seconds can be handled.

The recorded channel is displayed. The message length is shown in seconds. The display shows how old the message is. If the 90 s storage limit is reached, the oldest data is overwritten.

### Replaying recorded messages

To replay a message do as follows:

1. Press the Replay button (short press). The latest message (message) is repeated. Information about this message is shown in the display.
2. To stop replaying the message press the soft key **STOP**.
3. To play the current message again from the start press the Replay button (short press).
4. To track back the series of messages double-press the Replay button (short press) until the desired track is shown. The selected track is played.
5. To track back in time press and hold the Replay button until the desired point in time. All messages up to the newest will be played.



# Installation

In this chapter you find information and guidelines for:

- *Unpacking the SAILOR 6210 VHF*
- *Installing the VHF radio*
- *Power, VHF antenna and external equipment*

## Unpacking the SAILOR 6210 VHF

The following items are included in the delivery of a SAILOR 6210 VHF:

- SAILOR 6210 VHF
- SAILOR 6202 Handmicrophone with spiral cable
- User and installation manual (this manual)
- Installation guide
- Mounting bracket with two wheel knobs
- Connectors for cables
- Power cables, fittings and fuses
- Packaging material
- Sun screen (click-on) for front plate protection
- Kit for flush mount installation, including gasket

## Installing the VHF radio

You can mount the VHF radio as a desktop, overhead or flush-mounted unit integrated in the instrument panel.

Provide space enough to access the front panel connectors and for installing a cradle for the speaking device.

Provide **at least 120 mm space at the back** of the SAILOR 6210 VHF radio to allow free air circulation.

### Compass safe distance

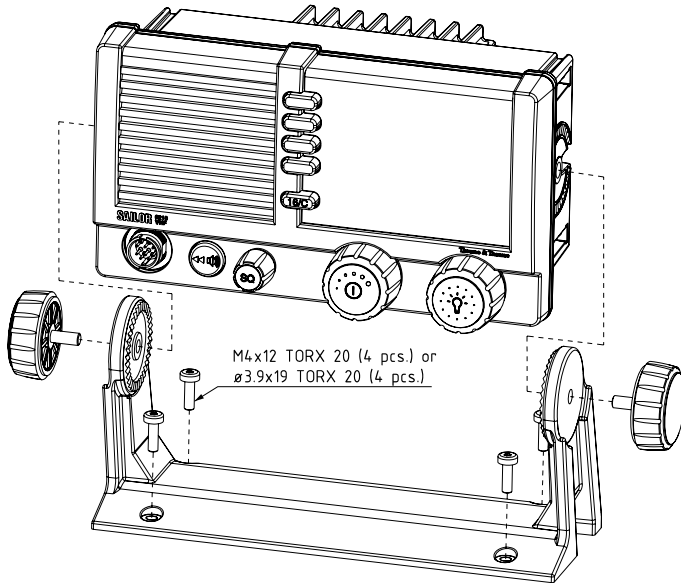
Make sure that the VHF radio is far enough from any magnetic compass to avoid influence of the loudspeaker magnet on the compass reading. See the following table for the safe distance after magnetization between the nearest point of the device and the centre of the compass at which it will produce a deviation of 0.3°.

Device	Safe distance
SAILOR 6210 VHF	1.0 m
SAILOR 6202 Handmicrophone	0.8 m
SAILOR 6209 Accessory Connection Box (optional)	0.6 m

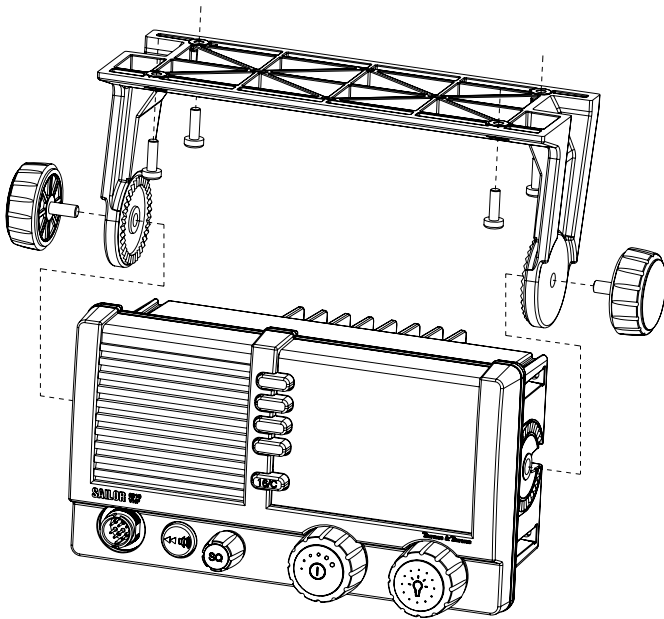
## SAILOR 6210 VHF with U mounting bracket

The mounting bracket and two knobs are included in the delivery.

### Desktop mounting



### Overhead mounting

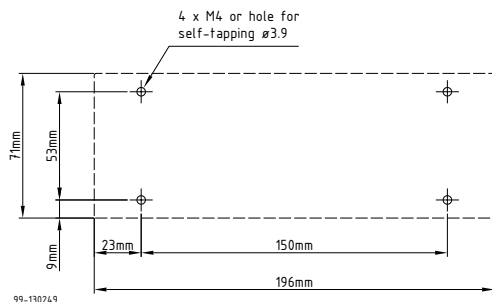
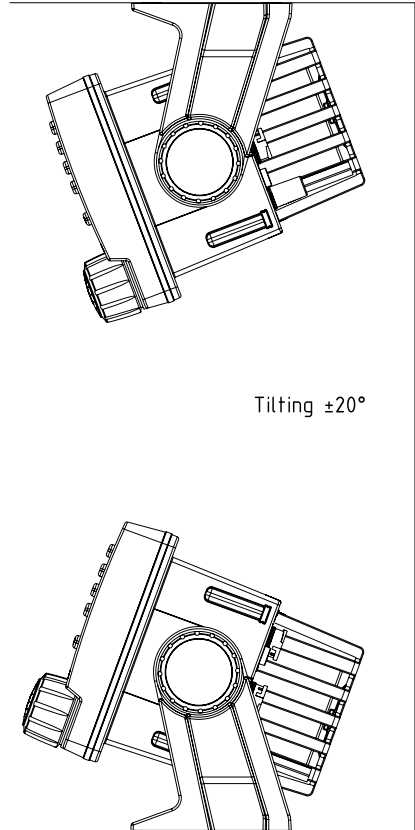




## Mounting with U mounting bracket

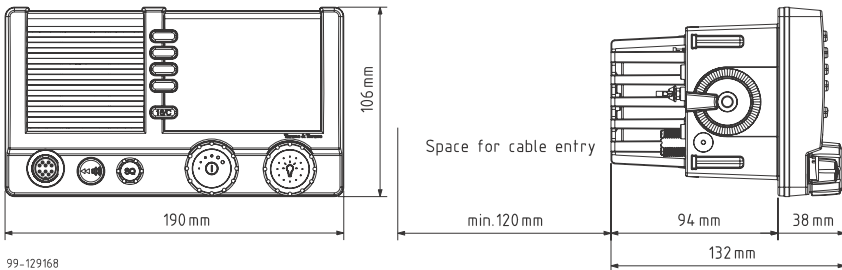
To mount the VHF radio as tabletop, do as follows:

1. Find a suitable location for the VHF radio. Check that the space is wide/deep enough to accommodate the VHF radio.
2. Fasten the bracket with 4 screws (included in the delivery.)
3. Insert the VHF radio in the bracket and fasten it with the two knobs.
4. The display of the VHF radio should be at an angle of approximately  $90^\circ$  to your line of sight when operating it.

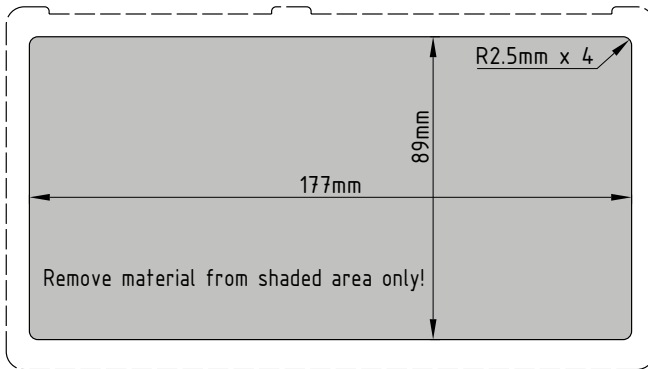


## SAILOR 6210 VHF for flush mount

You can mount the VHF radio to a flat surface, e.g. an instrument panel. The flush mount installation kit is included in the delivery.



99-129168

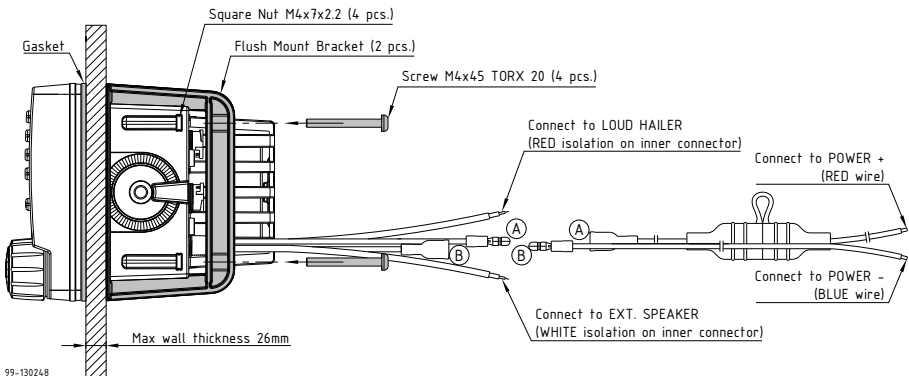


**Important**

The scaling in the above drawing is not 1:1. Consequently do not attempt to use a print or copy of this page without checking the dimensions.

1. Find a suitable location for the VHF radio. Check that the space is deep enough to accommodate the VHF radio and an additional min. 120 mm space for cable entry.
2. Keep free distance to allow free air circulation around the VHF radio and to allow sufficient space for access to cables, see the drawing on this page.
3. Cut out the hole for the VHF radio where you want to mount it. Use the cutting template in the installation guide.
4. Mount the 4 square nuts M4 in the cabinet, ensure that they are placed correctly so it is possible to screw in the M4x45 screws.
5. Ensure that the flush mount gasket is placed correctly on the VHF radio.
6. Before mounting the VHF radio be aware that the surface is plane and rigid. If the surface is not plane and/or rigid (stiff) remove the gasket and seal with silicone sealant between the VHF radio and the surface.
7. Slide the VHF radio in the cut-out. Place the flush mount bracket and fasten it with the 4 screws M4x45. Make sure the torque does not exceed 1Nm when fastening the screws.

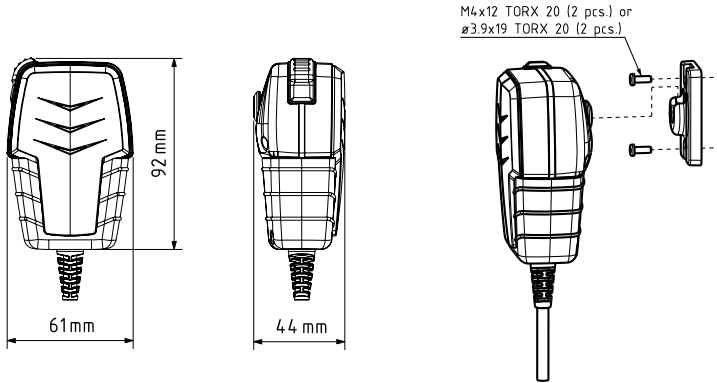
**Note** | Only use screws supplied with the kit for flush mounting.



**Note** | Firmly tie back and secure any wires not used to avoid the possibility for mutual shorting or shorting to ground.

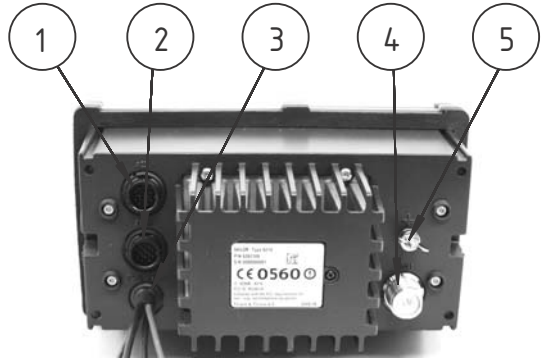
## SAILOR 6202 Handmicrophone

Handmicrophone with spiral cable and PTT button.



## Power, VHF antenna and external equipment

1. ACC connector for accessories
2. CTRL connector for control speaker microphone
3. Power, Loudhailer, foghorn and external speaker
4. VHF antenna
5. Ground stud



### ACC connector

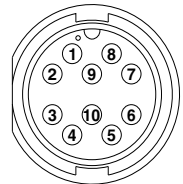
Use the connector marked **ACC** to connect GPS input.

The interface for GPS is NMEA 0183 (EN61 162-1 NMEA0183/ EN61 162-2 NMEA0183 Highspeed).

**Connector type:** Circular connector, 10pin.

Connection cable with plug, part number 406209-941.

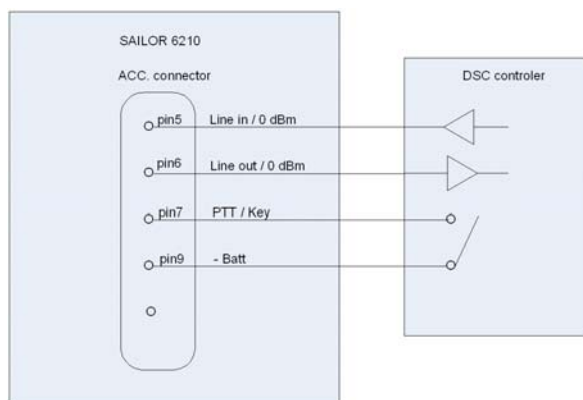
Pin assignment: Connector front view on the VHF radio



Pin	Description	Wire color
1	NMEA in+	Brown
2	NMEA in-	Blue
3	NMEA out-	White

Pin	Description	Wire color
4	NMEA out+	Green
5	Mike 2 / Line in	Yellow
6	EAR 2 / Line out	Grey
7	Hook_PTT	Pink
8	Battery supply when radio is on	Red
9	Internal GND = - Battery	Black
10	Internal GND = - Battery	Orange — SCREEN (Drain)

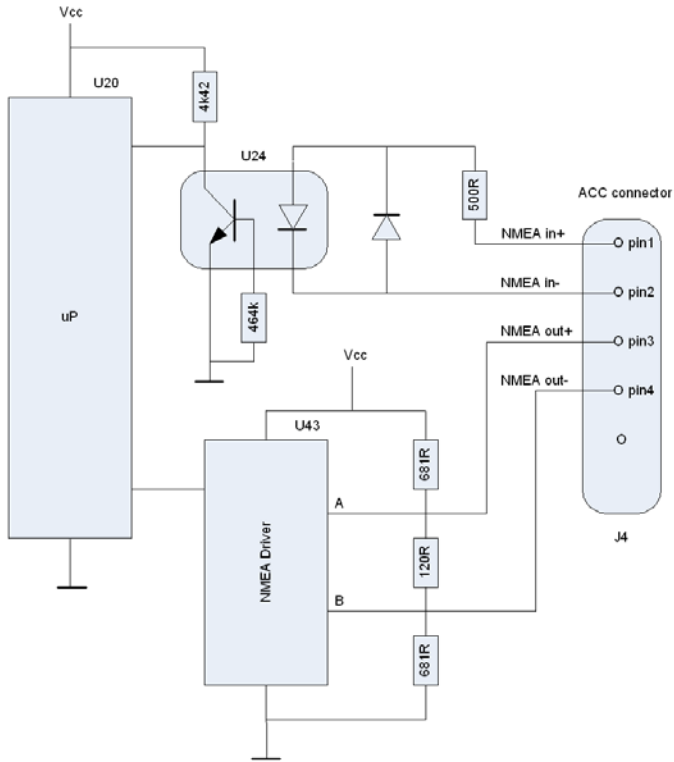
### External DSC controller



**Note**

To achieve the 0dBm signal level on the Line Out pin the Handset 2 earpiece volume must be configured to level 14 (max). See also *Controller setup* on page 8.

## NMEA interface description



NMEA interface	Specifications
NMEA input:	Impedance: 600 Ohm Max. 2mA at min. level of 2V
NMEA output	Load Impedance: > 60 Ohm Drive load: < 35 mA

The NMEA interface supports NMEA 0183 v2.0, v2.1 and v2.3.

The following sentences are supported:

- FSI: All fields are decoded.
- GGA: UTC, "Position", "quality indicator" (indicators 1-5). All other fields are unused.
- GLL: UTC, "Position", "Status" and "mode" (indicators A and D). All other fields are unused.
- GNS: UTC, "Position" and "mode" (indicators A and D). All other fields are unused.
- RMC: UTC, "Position", "Status", "Date" and "mode" (indicators A and D). All other fields are unused.
- ZDA: UTC, "Day", "Month", and "Year". All other fields are unused.

In accordance with the standard EN61162-1:2008.

Received NMEA sentences except for FSI can be forwarded to NMEA output. As talker the sentences are streamed when received (with no intervals).

HW revision: 57-127367-D.02

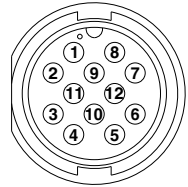
SW revision: 2.00.01



## CTRL connector for control speaker microphone

**Connector type:** Circular connector, 12pin.

**Pin assignment:** Connector front view on the VHF radio:



Pin	Description	Pin	Description
1	GND for cable screen	7	Internal GND = - Battery
2	Internal GND = - Battery	8	not used
3	Battery supply when radio is on	9	RX out +
4	Battery supply when radio is on	10	RX out -
5	CAN+	11	TX in +
6	CAN-	12	TX in -

## Power, Loudhailer, foghorn and external speaker

Use the connector marked **PWR/EXT** to connect power, loudhailer and an external speaker. The cable for this connector is part of the delivery.

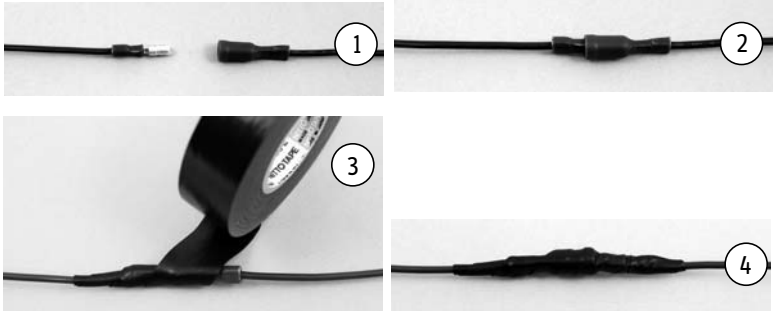
1. Blue wire: Power -
2. Red isolation on inner connector: loudhailer
3. White isolation on inner connector: external speaker
4. Red wire: Power +



## Protection against water ingress

### Important

You must protect the cable connection with rubber vulcanizing tape as shown in the pictures below. This protection prevents water seeping into the VHF radio, cable and connectors.



## VHF antenna

Use the connector marked **ANT** to connect the VHF antenna to the radio with a 50 Ohm coaxial cable with low loss, e.g. RG214. Install a PL259 plug at the cable end.

Place the antenna as high and clear of obstructions as possible. Make sure that the horizontal distance to metal parts is minimum 1.5 m (5 ft).

**Connector type:** female SO239 for PL259 plug.

## Ground stud

To ground the radio connect a ground wire from the ground stud of the radio to a suitable grounding point. Use an appropriately sized wire. The ground stud is located above the VHF antenna connector.



## System setup

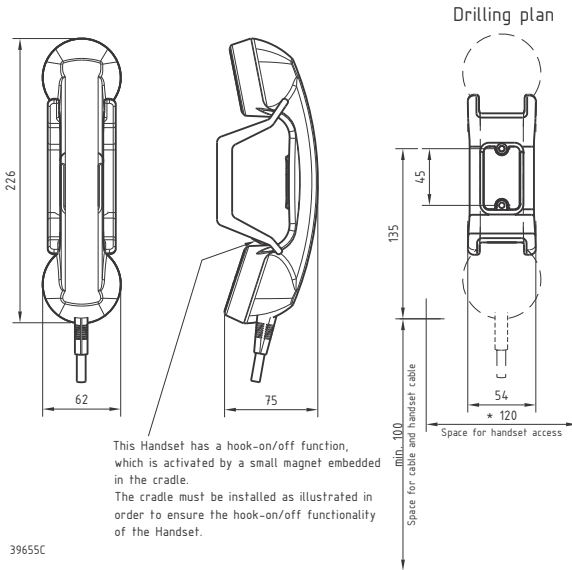
To change a setting in the **SYSTEM SETUP**, do as follows:

1. Press the soft key **SETUP**. If it is not in the display, press the soft key **MORE** until **SETUP** appears.
2. Press the arrow soft key **➔** or **➜** to advance to **SYSTEM SETUP**.
3. Turn the selector wheel knob to go to a setting, then press the selector wheel knob to change the setting.
4. Press **EXIT** to return to normal radio operation



SYSTEM SETUP	Description
Inactivity timeout	Inactivity time-out to exit functions (e.g. in setup) and return to the application. Range: 1 to 30 minutes, in 1 minute steps Default: 10 min.
NMEA input (baud rate)	4800
Factory Defaults	Resets the radio to factory defaults.
SW version	Software version of the radio
S/N	Serial number of the radio
Password	If you need to change the identity of the radio (MMSI number or ATIS code), contact your local dealer.

## SAILOR 6201 Handset cradle (optional)





# Service & maintenance

## Contact for support

Contact your authorized dealer for technical service and support of the VHF radio. Before contacting your authorized dealer you can go through the troubleshooting guide to solve some of the most common operational problems.

## Maintenance

### Preventive maintenance

Maintenance of the SAILOR 6210 VHF can be reduced to a maintenance check at each visit of the service staff. Inspect the radio for mechanical damages, salt deposits, corrosion and any foreign material. Due to its robust construction and ruggedness the radio has a long lifetime. Anyway it must carefully be checked at intervals not longer than 12 months - dependent on the current working conditions.

### Salt deposits

In case the equipment has been exposed to sea water there is a risk of salt crystallization on the keys and wheel knobs and they may become inoperable. Clean the VHF radio and speaker microphones with fresh water.

### Error messages and warnings

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

## Troubleshooting guide

Action	Symptom	Remedy
The radio will not turn on	The display is empty.	<p>Check if power is present.</p> <p>Check fuse which is placed in the + supply wire.</p> <p>Check performance of power supply if connected to one.</p>
No communication	The loudspeaker is mute.	<p>Check the antenna installation.</p> <p>Check antenna cable.</p> <p>Check handset/Handmicrophone and cable.</p>
Handset configuration	No sound in earpiece	<p>The earpiece volume may be configured to OFF. See section <i>Controller setup</i> on page 8 on how to adjust the earpiece volume of the handset.</p>
Device failure		<p>If any of the checks and tests described in this section do not assist in resolving the difficulties experienced in the operation and/or performance of the VHF installation, a fault may have developed in the VHF radio itself.</p> <p>When contacting an authorized Thrane &amp; Thrane representative be sure to provide as much information as possible describing the observed behavior - also including the type of the VHF radio, its serial number, and software release version (both found in the setup menu Controller Setup).</p>



## Replacing the fuse in the red wire (Power +)

One fuse is installed in the supplied DC cable. If the fuse is blown, track down why the fuse was blown and solve the problem. To replace the fuse, do as follows:

1. Hold both ends of the fuse holder and pull it apart.
2. Take out the old fuse.
3. Insert the new fuse. The fuse rating is 10 A T.
4. Make sure that the fuse is tightly fixed on the metal contact inside the fuse holder.
5. Put together the fuse holder.

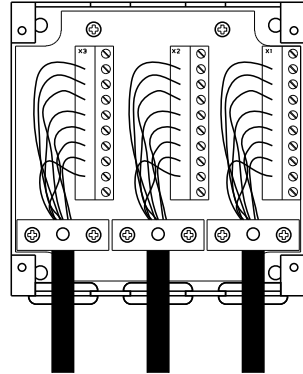


## Equipment and accessories

### SAILOR 6209 Accessory connection box

You can use the SAILOR 6209 Accessory Connection Box to combine DSC modem and the SAILOR 6201 Handset option.

The wire terminal blocks are connected in parallel.



.36090

## Warranty

For repair or replacement of the VHF radio within terms of warranty, contact your local dealer.

# Technical specifications

Item	Specification
Weight SAILOR 6210 VHF	approx. 1.2 kg
Weight SAILOR 6210 VHF and Handmicrophone	approx. 1,5 kg including SAILOR 6202 Handmicrophone and mounting bracket
Dimensions	<p><b>Height:</b> Outer dimension 106 mm, hole height for flush mount 89 mm</p> <p><b>Width:</b> Outer dimension 190 mm, hole width for flush mount 177 mm</p> <p><b>Depth:</b> Outer dimension from front of wheel knobs 132 mm, depth for flush mount 94 mm</p>
Operating temperature	-15°C to 55°C
Storage temperature	-30°C to 80°C
Power supply	12 VDC Nominal (10,8– 15,6 VDC)
Current consumption	Max. 7 A
Frequency range	TX 156,000-161,450, RX 156,000-163.425 MHz
Channel spacing	12,5 kHz and 25 kHz, all international maritime channels

Appendix A: Technical specifications

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Item	Specification
Number of P channels	The radio may be programmed with up to 40 private channels that can be managed in all channel modes.
Transmit power	Hi/Lo: 25 W and <1 W
RF output power	25 W +0 dB / - 1.5 dB 1 W +0 dB / - 1.5 dB
RF output power, Canada	21 W ±0.75 dB / 0.8 W ±0.75 dB
Modulation 25 kHz 12.5 kHz	16K0G3E 8K05G3E
LF power	Built-in loudspeaker: 6 W External loudspeaker: 6 W / 8 Ohm Loudhailer: 30 W / 4 Ohm (when the unit is not transmitting)
Receiver sensitivity	< -119 dBm typically @ 20 dB SINAD CCITT weighted
Antenna	50 Ohm antenna, 50 Ohm female SO239 for PL259 plug
Water ingress	IPx8 and IPx6 all over. For flush-mount installations a sealing gasket is included in the delivery.

**NMEA data rates and formats**

Item	Value
61162-1	4800,8,n,1 (in/out)

# Maritime channels

## International channels (INT)

Channels	TX MHz	RX MHz	SIMPLEX		DUPLEX	
			Intership	Port	Port	Public
1	156,050	160,650			●	●
2	156,100	160,700			●	●
3	156,150	160,750			●	●
4	156,200	160,800			●	●
5	156,250	160,850			●	●
6	156,300	156,300	●			
7	156,350	160,950			●	●
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		●		
16	156,800	156,800		●		
17	156,850	156,850	●	●		
18	156,900	161,500			●	●
19	156,950	161,550			●	●
1019 ***)	156,950	156,950				
2019 ***)		161,550		● (RX)		
20	157,000	161,600			●	●
1020 ***)	157,000	157,000		●		
2020 ***)		161,600		● (RX)		
21 **)	157,050	161,650				
22 **)	157,100	161,700				
23 **)	157,150	161,750				
24 **)	157,200	161,800				
25 **)	157,250	161,850				
26 **)	157,300	161,900				
27	157,350	161,950			●	●
1027 ***)	157,350	157,350		●		
28	157,400	162,000			●	●
1028 ***)	157,400	157,400		●		

Channels	TX MHz	RX MHz	SIMPLEX		DUPLEX	
			Intership	Port	Port	Public
60	156,025	160,625			●	●
61	156,075	160,675			●	●
62	156,125	160,725			●	●
63	156,175	160,775			●	●
64	156,225	160,825			●	●
65	156,275	160,875			●	●
66	156,325	160,925			●	●
67	156,375	156,375	●	●		
68	156,425	156,425		●		
69	156,475	156,475	●	●		
70	156,525	156,525	DSC	DSC		
71	156,575	156,575		●		
72	156,625	156,625	●	●		
73	156,675	156,675		●		
74	156,725	156,725		●		
75	156,775	156,775		● (L)		
76	156,825	156,825		● (L)		
77	156,875	156,875	●	●		
78	156,925	161,525			●	●
1078 ***)	156,925	156,925				
2078 ***)		161,525		● (RX)		
79	156,975	161,575			●	●
1079 ***)	156,975	156,975		●		
2079 ***)		161,575		● (RX)		
80 **)	157,025	161,625				
81 **)	157,075	161,675				
82 **)	157,125	161,725				
83 **)	157,175	161,775				
84 **)	157,225	161,825				
85 **)	157,275	161,875				
86 **)	157,325	161,925				
87	157,375	157,375		● *)		
88	157,425	157,425		● *)		

L) 1 W TX power

RX) Only RX: Transmission is blocked.

\*) Channel 87 and 88 became simplex channels following the introduction of AIS1 at 161.975 MHz and AIS2 on 162.025 MHz.

\*\*\*) According to Radio Regulations Final Acts WRC-15 Appendix 18 these channels are repurposed and must be default disabled as of January 1st 2017.

\*\*\*\*) According to Radio Regulations Final Acts WRC-15 Appendix 18 these channels must be default enabled as of January 1st 2017.

These are the default channels. Additional narrowband channels can be enabled, see *Radio setup* on page 19

# US channels

Channels	TX MHz	RX MHz	SIMPLEX	DUPLEX
1A	156,050	156,050	●	
2				B)
3				B)
4				B)
5A	156,250	156,250	●	
6	156,300	156,300	●	
7A	156,350	156,350	●	
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	● L)	
14	156,700	156,700	●	
15		156,750	● RX)	
16	156,800	156,800	Distress and calling	
17	156,850	156,850	●	
18A	156,900	156,900	●	
19A	156,950	156,950	●	
20	157,000	161,600		●
20A	157,000	157,000	●	
21A	157,050	157,050	● I)	
22A	157,100	157,100	● I)	
23A	157,150	157,150	● I)	
24	157,200	161,800		●
25	157,250	161,850		●
26	157,300	161,900		●
27	157,350	161,950		●
28	157,400	162,000		●

Channels	TX MHz	RX MHz	SIMPLEX	DUPLEX
60				B)
61				B)
62				B)
63A	156,175	156,175	●	
64				B)
65A	156,275	156,275	●	
66A	156,325	156,325	●	
67	156,375	156,375	● L)	
68	156,425	156,425	●	
69	156,475	156,475	●	
70	156,525	156,525	DSC	
71	156,575	156,575	● L)	
72	156,625	156,625	●	
73	156,675	156,675	●	
74	156,725	156,725	●	
75				B)
76				B)
77	156,875	156,875	●	
78A	156,925	156,925	●	
79A	156,975	156,975	●	
80A	157,025	157,025	●	
81A	157,075	157,075	● I)	
82A	157,125	157,125	● I)	
83A	157,175	157,175	● I)	
84	157,225	161,825		●
85	157,275	161,875		●
86	157,325	161,925		●
87A	157,375	157,375	● *)	
88A	157,425	157,425	● *)	

Channels	RX MHz
W1	162,550
W2	162,400
W3	162,475
W4	162,425
W5	162,450
W6	162,500
W7	162,525

- L) 1 W TX power. Channels 13, 67 and 71 are limited to low transmission power.
- B) Channels 2, 3, 4, 60, 61, 62, 64, 75 and 76 cannot be selected in US mode.
- I) Channels 21A, 22A, 23A, 81A, 82A and 83A may be legally used in some circumstances but not by the general public in US waters.
- RX) Only RX: transmissions are blocked.
- \*) Channels 87 and 88 became simplex channels following the introduction of AIS1 at 161.975 MHz and AIS2 on 162.025 MHz.

These are the default channels. Additional narrowband channels can be enabled, see *Radio setup* on page 19.

## CA channels

Channels	TX MHz	RX MHz	SIMPLEX	DUPLEX
1	156,050	160,650		●
2	156,100	160,700		●
3	156,150	160,750		●
4A	156,200	156,200	● J)	
5A	156,250	156,250	●	
6	156,300	156,300	● J)	
7A	156,350	156,350	●	
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	● L)	
16	156,800	156,800	Distress and calling	
17	156,850	156,850	● L)	
18A	156,900	156,900	●	
19A	156,950	156,950	● J)	
20	157,000	161,600		● L)
21A	157,050	157,050	● J)	
21B	161,650	161,650	● RX)	
22A	157,100	157,100	● J)	
23	157,150	161,750		●
24	157,200	161,800		●
25	157,250	161,850		●
26	157,300	161,900		●
27	157,350	161,950		●
28	157,400	162,000		●

Channels	TX MHz	RX MHz	SIMPLEX	DUPLEX
60	156,025	160,625		●
61A	156,075	156,075	● J)	
62A	156,125	156,125	● J)	
63A	156,175	156,175	● J)	
64	156,225	160,825		●
64A	156,225	156,225	●	
65A	156,275	156,275	● L)	
66A	156,325	156,325	● L)	
67	156,375	156,375	● J)	
68	156,425	156,425	●	
69	156,475	156,475	●	
70	156,525	156,525	DSC	
71	156,575	156,575	●	
72	156,625	156,625	● J)	
73	156,675	156,675	● J)	
74	156,725	156,725	●	
75	156,775	156,775	● L)	
76	156,825	156,825	● L)	
77	156,875	156,875	● L)	
78A	156,925	156,925	●	
79A	156,975	156,975	●	
80A	157,025	157,025	●	
81A	157,075	157,075	● J)	
82A	157,125	157,125	● J)	
83A	157,175	157,175	● J)	
83B		161,775	● RX)	
84	157,225	161,825		●
85	157,275	161,875		●
86	157,325	161,925		●
87	157,375	157,375	● *)	
88	157,425	157,425	● *)	

Channels	RX MHz
W1	162,550
W2	162,400
W3	162,475
W4	162,425
W5	162,450
W6	162,500
W7	162,525

- L) 1 W TX power. Channels 15, 17, 20, 65, 66, 75, 76 and 77 are limited to 1 W transmission power.
- J) Channels 4A, 6, 19A, 21A, 22A, 61A, 62A, 63A, 67, 72, 73, 81A, 82A and 83A may be legally used in some circumstances but not by the general public in CA waters.
- RX) Only RX: transmission is blocked.
- \*) Channels 87 and 88 became simplex channels following the introduction of AIS1 at 161.975 MHz and AIS2 on 162.025 MHz.

These are the default channels. Additional narrowband channels can be enabled, see *Radio setup* on page 19.

# BI channels

Channels	TX MHz	RX MHz	SIMPLEX		DUPLEX	
			Intership	Port	Port	Public
1	156,050	160,650			●	●
2	156,100	160,700			●	●
3	156,150	160,750			●	●
4	156,200	160,800			●	●
5	156,250	160,850			●	●
6	156,300	156,300	● L)			
7	156,350	160,950			●	●
8	156,400	156,400	● L)			
9	156,450	156,450	●	●		
10	156,500	156,500	● L)	● L)		
11	156,550	156,550	● L)	● L)		
12	156,600	156,600		● L)		
13	156,650	156,650	● L)	● L)		
14	156,700	156,700		● L)		
15	156,750	156,750	● L)	● L)		
16	156,800	156,800	Distress and calling			
17	156,850	156,850	● L)	● L)		
18	156,900	161,500			●	●
19	156,950	161,550			●	●
1019 ***)	156,950	156,950				
2019 ***)	161,550	161,550		●RX)		
20	157,000	161,600			●	●
1020 ***)	157,000	157,000		●		
2020 ***)	161,600	161,600		●RX)		
21 **)	157,050	161,650				
22 **)	157,100	161,700				
23 **)	157,150	161,750				
24 **)	157,200	161,800				
25 **)	157,250	161,850				
26 **)	157,300	161,900				
27	157,350	161,950			●	●
1027 ***)	157,350	157,350		●		
28	157,400	162,000			●	●
1028 ***)	157,400	157,400		●		

Channels	TX MHz	RX MHz	SIMPLEX		DUPLEX	
			Intership	Port	Port	Public
60	156,025	160,625			●	●
61	156,075	160,675			●	●
62	156,125	160,725			●	●
63	156,175	160,775			●	●
64	156,225	160,825			●	●
65	156,275	160,875			●	●
66	156,325	160,925			●	●
67	156,375	156,375	●	●		
68	156,425	156,425		●		
69	156,475	156,475	●	●		
70	156,525	156,525		DSC	DSC	
71	156,575	156,575		● L)		
72	156,625	156,625	● L)			
73	156,675	156,675	●	●		
74	156,725	156,725		● L)		
75	156,775	156,775		● L)		
76	156,825	156,825		● L)		
77	156,875	156,875	● L)			
78	156,925	161,525			●	●
1078 ***)	156,925	156,925		●		
2078 ***)	161,525	161,525		●RX)		
79	156,975	161,575			●	●
1079 ***)	156,975	156,975		●		
2079 ***)	161,575	161,575		●RX)		
80 **)	157,025	161,625				
81 **)	157,075	161,675				
82 **)	157,125	161,725				
83 **)	157,175	161,775				
84 **)	157,225	161,825				
85 **)	157,275	161,875				
86 **)	157,325	161,925				
87	157,375	157,375		● *)		
88	157,425	157,425		● *)		

L) 1 W TX power on channels 6, 8, 10, 11, 12, 13, 14, 15, 17, 71, 72, 74, 75, 76 and 77.

RX) Only RX) Transmission is blocked.

\*) Channels 87 and 88 became simplex channels following the introduction of AIS1 at 161.975 MHz and AIS2 on 162.025 MHz.

\*\*\*) According to Radio Regulations Final Acts WRC-15 Appendix 18 these channels are repurposed and must be default disabled as of January 1st 2017.

\*\*\*) According to Radio Regulations Final Acts WRC-15 Appendix 18 these channels must be default enabled as of January 1st 2017.

NB! The ATIS function is enabled on all channels.  
Dual Watch & Scanning modes are disabled.



## Alternative channels

If the radio is used in regions where neither of the four described standard channels are allowed, an alternative channel table with international channel designators and frequencies can be made. Contact your local dealer for programming or alteration of the alternative channels.

The following table lists the default programmed alternative channels (RR18 before WRC15)

Channels	TX MHz	RX MHz	SIMPLEX		DUPLEX	
			Intership	Port	Port	Public
1	156,050	160,850			●	●
2	156,100	160,700			●	●
3	156,150	160,750			●	●
4	156,200	160,800			●	●
5	156,250	160,850			●	●
6	156,300	156,300	●			
7	156,350	160,950			●	●
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	●	●		
16	156,800	156,800	Distress and calling			
17	156,850	156,850	●	●		
18	156,900	161,500			●	●
19	156,950	161,550			●	●
20	157,000	161,600			●	●
21	157,050	161,650			●	●
22	157,100	161,700			●	●
23	157,150	161,750			●	●
24	157,200	161,800			●	●
25	157,250	161,850			●	●
26	157,300	161,900			●	●
27	157,350	161,950			●	●
28	157,400	162,000			●	●

Channels	TX MHz	RX MHz	SIMPLEX		DUPLEX	
			Intership	Port	Port	Public
60	156,025	160,625			●	●
61	156,075	160,675			●	●
62	156,125	160,725			●	●
63	156,175	160,775			●	●
64	156,225	160,825			●	●
65	156,275	160,875			●	●
66	156,325	160,925			●	●
67	156,375	156,375		●		
68	156,425	156,425		●		
69	156,475	156,475	●	●		
70	156,525	156,525	DSC	DSC		
71	156,575	156,575		●		
72	156,625	156,625	●	●		
73	156,675	156,675		●		
74	156,725	156,725		●		
75	156,775	156,775		● L)		
76	156,825	156,825		● L)		
77	156,875	156,875	●			
78	156,925	161,525			●	●
79	156,975	161,575			●	●
80	157,025	161,625			●	●
81	157,075	161,675			●	●
82	157,125	161,725			●	●
83	157,175	161,775			●	●
84	157,225	161,825			●	●
85	157,275	161,875			●	●
86	157,325	161,925			●	●
87	157,375	157,375		● *)		
88	157,425	157,425		● *)		

L) 1 W TX power

\*) Channel 87 and 88 became simplex channels following the introduction of AIS1 at 161.975 MHz and AIS2 on 162.025 MHz.

## Private channels

Up to 40 licensed private channels may be specified. For programming the private channels contact your local dealer.

# Declaration of Conformity

## EU Declaration of Conformity

Thrane & Thrane A/S declares that the equipment complies with the specifications of the Radio Equipment Directive (RED) 2014/53/EU. The full text of the EU Declaration of Conformity is available at the internet address: <https://sync.cobham.com/satcom/products/marine>



## A

ACC Accessories

AIS Automatic Identification System, a short range coastal tracking system used on ships and by Vessel Traffic Services for identifying and locating vessels by electronically exchanging data with other nearby ships. ,

ATIS Automatic Transmission Identification System

## C

CTRL Control

## E

EXT External

## G

GGA NMEA sentence, essential fix data which provide 3D location and accuracy data.

GLL NMEA sentence, Geographic Latitude and Longitude

GNS NMEA sentence,

## N

NMEA National Marine Electronics Association, specification for communication between marine electronic devices

## P

PTT Push To Talk

## Glossary

---

PWR            Power

### **R**

RMC            NMEA sentence, version of essential gps position, velocity, time data.

### **V**

VHF            Very High Frequency

### **Z**

ZDA            NMEA sentence, date and time.

## Numerics

- 16/C, 10
- 90 s replay, 26

## A

- ACC connector, 35
- accessories, 48
- activate
  - foghorn, 23
  - scan resume, 19
  - scanning, 17
  - watch, 16
- adjust
  - squelch, 7
- adjusting
  - speaker volume, 6
- ALT, 55
- ANT connector, 41
- ATIS code, 21
  - change, 42
- attenuation control, 15

## B

- backlight, 1
  - dim, 6
- Bi, 54
- Bi channels, 54
- browse channels, 6

## C

- CA channels, 53
- cable for VHF antenna, 41
- call channel, program, 13

- change
  - dual and triple watch, 16
- channel
  - add to scan, 17
  - naming, 13
  - program, 13
  - remove from scan, 17
  - select, 6
  - working, 6
- channel table
  - ALT, 55
  - Bi, 54
  - CA, 53
  - INT, 51, 56
  - PRIV, 56
  - US, 52
- channels
  - Bi, 54
  - CA, 53
  - international, 51, 56
  - primary, 12
  - private, 12
  - US, 52
  - weather, 12
- compass safe distance, 28
- configuration
  - system example, 4
- connector
  - ACC, 35
  - ANT, 41
  - CTRL, 39
  - external speaker, 40
  - foghorn, 40
  - loudhailer, 40
  - VHF antenna, 41
- contact, 45
- controls, front plate, 2
- cradle for 6201, installation, 43
- CTRL connector, 39

## D

- data rate
  - NMEA, 50
- deactivate, 24
  - foghorn, 24
  - watch, 16
- default reset, 22
- delivery, items included, 27
- dim, 6
- display, 3
- document number, this manual, i
- DSC controller
  - external, 36
- dual watch, 19
  - change to triple, 16

## E

- emergency calls, iv
- error messages, 45
- external speaker
  - cabling, 40
  - connector, 40

## F

- factory defaults, 42
- flush mount, 32
- FOG, 23
- foghorn, 1, 23, 24
  - activate, 23
  - connector, 40
  - patterns, 1
  - test tone, 24
- foghorn frequency, setup, 25
- frequency range, VHF, 49
- front plate, controls, 2
- fuses, how to replace, 47

## G

- GPS input, 35, 48

## H

- HAIL, 22
- hand microphone
  - installing, 34
- Handmicrophone, 7
- handset cradle
  - installation, 43
- hang time, 19
- HORN, 24

## I

- input
  - GPS, 48
  - handset, 48
  - NMEA, 42
- installation
  - cradle for 6201, 43
  - desktop, 29
  - flush mount, 32
  - handset cradle, 43
  - mounting bracket, 31
  - overhead, 30
- INT, 51, 56
- IP rating, 50

## K

- key 16/C, 10
- keys on front plate, 2



**L**

- LO/HI, 15
- LOCAL, 15
- loud hailer, 22
  - cabling, 40
- louder, volume, 6
- loudhailer, 1
  - connector, 40
  - receiving radio channel, 22
- low power
  - override, 15
- low power, overriding, 15

**M**

- manual, document number, i
- maritime channels, 51, 56
- MAYDAY, iv
- message
  - replay, 26
- MMSI
  - change, 42
- MORE, 8
- mounting, 28
  - flush mount, 32
  - with mounting bracket, 31
- mute
  - speaker, 7

**N**

- NAME, 13
- name a call channel, 13
- night vision, how to dim, 6
- NMEA, 35
  - data rate, 50
- NMEA input, 42
- NMEA interface, 37

NMEA output, 37

**O**

overriding low power, 15

**P**

- PA
  - talk-back, 22
- password, 42
- power
  - cabling, 40
  - fuse, 47
  - off, 6
  - on, 6
- primary channel, program, 13
- priority scan, 20
- PRIV, 56
- private channels, 12
- program, call channel, 13
- PTT button, 10

**R**

- radio call
  - making, 11
  - receiving, 10
- radio channel, loudhailer, 22
- replay, 1, 26
  - button, 2
- reset to default, 42
- resume time, 19
- RF exposure hazards, iii

## S

safety summary, iii  
salt deposits, 45  
scan  
    add channel, 17  
    hang time, 19  
    priority, 20  
    remove channel, 17  
    resume time, 19  
    resume, activate, 19  
scanning  
    start, 17  
selector wheel knob, 2, 6  
semi duplex, 1  
serial number, 42  
service line, display, 3  
setup  
    controller, 8  
    foghorn frequency, 25  
    Radio, 19  
    system, 42  
    watch, 19  
simplex, 1  
soft key  
    FOG, 23  
    HAIL, 22  
    HORN, 24  
    LOCAL, 15  
    MORE, 8  
    NAME, 13  
    OVERRIDE, 15  
    STOP, 26  
    TAG, 17  
    WATCH, 16  
    WX, 18  
soft keys, 7  
softer, volume, 6  
Software version, 42

speaker volume, 6  
speaking devices, 7  
specifications, 49  
squelch, 7  
squelch control, 2, 7  
STOP, 26  
stop  
    replaying a message, 26  
    watch or scan, 16, 17  
support, 45  
SW version, 42  
system configuration  
    example, 4  
system setup, 42

## T

TAG, 17  
    remove, 17  
talk back, 25  
technical data, 49  
temperature  
    operational, 49  
    storage, 49  
testing, foghorn, 24  
timeout, 42  
triple watch, 19  
    change to dual, 16

## U

US, 52  
US channel table, 52

**V**

## VHF

- antenna cable, 41
  - antenna connector, 41
  - channels, 12
  - frequency range, 49
- volume
- louder, 6
  - softer, 6
  - speaker, 6
- Volume wheel knob, 2

**W**

- warnings, 45
- warranty, 48
- limitation, iii
- WATCH, 16, 17
- watch
- dual and triple, 16
  - dual or triple, 19
  - setup, 19
  - start, 16
  - stop, 16
- water ingress, 50
- weather channels, 12
- weight, 49
- wheel knob
- selector, 2
  - volume, 2
- working channel, 6
- WX, 18





