

Sales Introduction

SAILOR 6300 MF/HF Series

COBHAM

The most important thing we build is trust



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1 Introduction

Cobham SATCOMs SAILOR 6300 MF/HF Series consists of 150W, 250W and 500W versions. These MF/HF systems are an integral part of the SAILOR 6000 Series of GMDSS products, which includes:

- SAILOR 6000 Consoles
- SAILOR 6006 Message Terminal
- SAILOR 6110 mini-C GMDSS
- SAILOR 6222 VHF DSC Class A
- SAILOR 6300 MF/HF
- Accessories including alarm panels and power supplies

The SAILOR 6000 Series has technologies and ground breaking features that reinforce Cobham SATCOMs position as the market leader in cost effective safety communications.

SAILOR 6300 MF/HF is a further development of the proven and successful SAILOR 5000 MF/HF systems. All three versions of the series offer a wide range of features and an intuitive MMI (Man Machine Interface), based upon the high quality and reliability users experience with the SAILOR 5000 MF/HF.

Part number	Version
406310A	SAILOR 6310 MF/HF 150W DSC Class A
406311A	SAILOR 6311 MF/HF 150W DSC Class A - FFC
406320A	SAILOR 6320 MF/HF 250W DSC Class A
406350A	SAILOR 6350 MF/HF 500W DSC Class A

2 Market

SAILOR MF/HF systems have proven to be highly successful in both the fishing and merchant marine markets, thanks to the combination of being the most reliable and powerful MF/HF in the market and having straightforward operation via the simple but efficient user interface.

Cobham SATCOM strongly believes that through high quality design and manufacturing, in addition to the new features and possibilities of SAILOR 6000, that the SAILOR 6300 MF/HF systems will secure an even stronger position and higher market share than we already have, gained through the success of the highly regarded previous generation MF/HF.

The SAILOR 6300 MF/HF is designed and developed to meet the tough requirements of professional mariners operating in everything from workboats and high seas fishing vessels through to merchant vessels of all kinds.

The SAILOR 6300 MF/HF offers much more than a way to meet mandatory requirements. It is a powerful, reliable and unique communication product in its own right, and is designed to be part of the daily communication in the harsh maritime environment.

2.1 Requirements

The SAILOR 6300 MF/HF DSC Class A versions comply with the requirements to MF/HF DSC

Class A, which are part of IMO SOLAS requirements, and in many national GMDSS requirements. Vessels that have to comply with the SOLAS requirements must sail with MF/HF DSC installed.

The below table shows a simplified overview of the GMDSS requirements to SOLAS vessels that the SAILOR product portfolio covers.

Product/Sea Area	Sea Area A1	Sea Area A2	Sea Area A3 TLX/Inm-C	Sea Area A3 Inm-C/Inm-C	Sea Area A4
Portable VHF*	3	3	3	3	3
VHF DSC Class A	1	2	2	2	2
MF/HF		1	1	1	2
MF/HF NBDP Radio telex			1		2
Inm-C			1	2	1*
Epirb	1	1	1	1	1
SART	2	2	2	2	2

*3 is needed in all installations above 500 gt

3 Strong features and Unique Selling Points (USP)

The SAILOR 6300 MF/HF Systems offer a wide range of strong and unique features, making it an attractive prospect to ship owners and users, whether it is a merchant vessel, fishing vessel or workboat. These strong features are also very attractive to the installer of the SAILOR 6300 MF/HF.

3.1 ThraneLINK

ThraneLINK is a sophisticated, uniform communication protocol that connects all the SAILOR products in a network; offering important new opportunities to all vessels.

ThraneLINK is a network protocol suite based upon standard internet technologies. All the products offering ThraneLINK can be connected in a network. Within the network, they can exchange data, such as GPS position etc. In addition, ThraneLINK offers automatic device discovery, which means the system automatically discovers new products on the network, making installation much easier.

ThraneLINK provides "One point of contact" for service, and makes trouble shooting and diagnostics easier and faster than ever before. The service technician can access all the products from one location, instead of connecting to all the products individually and using different cables and software. With ThraneLINK the service technician simply connects his service PC to the network; for example, to the SAILOR 6197 EDS-205 Moxa Switch. Using the ThraneLINK Management Application the technician will be able to retrieve status on all the SAILOR products, Alarm logs, diagnostic reports etc. as well as upload software to all the products! In installations such as SAILOR 6006 Message Terminal (e.g. used for the mini-C GMDSS), a service PC is not even necessary as the SAILOR 6006 Message Terminal can be operated as service PC. The service technician can insert a SD Card with the latest software

packages to the SAILOR 6006 Message Terminal and the system automatically detects which products need new software, and starts the software upload process upon acceptance from the service technician.

Furthermore, ThraneLINK will offer remote diagnostics with the opportunity of performing diagnostic from shore. This will allow the maintenance partner to plan and prepare service before boarding the vessel, and ensure the technician is prepared and has the right tools and parts with him – cutting cost and time.

All this adds up to the fact that installation and maintenance of the SAILOR equipment is easier than ever seen before. A result of this might be that our partners will be able to offer optimized maintenance and lower cost of ownership to the ship owners since less time is needed for trouble shooting and general service.

But ThraneLINK is much more than this. In the future new services and products will be available. As ThraneLINK is based on open standards, products from other makers can be integrated into the network, and the benefits will be available for these products as well.

ThraneLINK is a uniform protocol suite that provides a future proof solution to all vessels.

3.2 GPS input

Instead of connecting the SAILOR 6300 MF/HF to an external GPS, the GPS input can be taken from the SAILOR 6110 Mini-C GMDSS Via the already connected ThraneLINK, Therefore, no additional cabling is needed.

3.3 USP List

- ThraneLINK
- Unique Man-Machine-Interface
 - Graphical display
 - Invert to optimize reading capabilities both day and night
 - Red backlight to protect night vision
 - Handset design
 - Ruggedized and durable design
 - Based on the legacy SAILOR handset
 - Ear piece:
 - Covers ear
 - Reduces noise
 - Powerful loudspeaker
 - Microphone:
 - Design reduces external noise
 - Large tactile buttons for easy operation
 - Radio telex MMI
 - New message terminal
 - Easy to use software
 - Modern design
- Replay – 240 seconds (First MF/HF ever to offer this feature!)

- Built in 6W loudspeaker
- Built in battery and supply voltage monitoring
- New modern design
- Alert Mute function – mutes both control units and alarm panels
- Menus in multiple languages
- Up to 2 control units connected
- Ruggedized and durable design:
 - o Convectional cooling on 150W and 250W

3.4 Features List

- Rugged and reliable design
- Full power range on all ITU channels:
 - o 150-250W systems:
 - 1.6-29 MHz
 - o 500W systems:
 - 4.0 – 29 MHz
 - 400W in 1.6 – 3.99 MHz
 - o +/- 1.5 db
- Full frequency range:
 - o 1.6 – 29 MHz
- Powerful transceiver
- Outdoor waterproof antenna tuning unit
- Power regulation ensures full power on all ITU channels
- Built in DSC
- 1 and 6 channel DSC versions (D1/D6) in same unit
- Intelligent Scanning programmes:
 - o Voice
 - o DSC
 - o Radio telex (controlled from the SAILOR 6006 Message Terminal)
- Radio telex
- 3 unit design
- Easy service:
 - o ThraneLINK- Straightforward Service interface: LAN port connected to PC with standard browser
 - o Modular/board design
 - o PCB replacement without adjustment
 - o Self-diagnostic system
- Easy and flexible installation
- Remote control
- Complies with GMDSS in A2, A3 and A4
- Fulfills latest GMDSS specification: ITU493-13

4 Product Description

The SAILOR 6300 MF/HF series includes the following versions:

Part Number	Version
406310A	SAILOR 6310 MF/HF 150W DSC Class A
406311A	SAILOR 6311 MF/HF 150W DSC Class A - FCC
406320A	SAILOR 6320 MF/HF 250W DSC Class A
406350A	SAILOR 6350 MF/HF 500W DSC Class A

4.1 The Packages

A complete system containing Control Unit, Transceiver Unit and Antenna Tuning Unit is supplied when ordering a SAILOR 6300 MF/HF. The available packages include:

Part Number	Product Description
406310A	SAILOR 6310 MF/HF 150W Class A Includes: SAILOR 6301 Control Unit SAILOR 6360 MF/HF 150W Transceiver Unit SAILOR 6381 Antenna Tuning Unit
406311A	SAILOR 6311 MF/HF 150W Class A Includes: SAILOR 6301 Control Unit SAILOR 6360 MF/HF 150W Transceiver Unit - FCC SAILOR 6381 Antenna Tuning Unit
406310A	SAILOR 6320 MF/HF 250W Class A Includes: SAILOR 6301 Control Unit SAILOR 6363 MF/HF 250W Transceiver Unit SAILOR 6381 Antenna Tuning Unit
406311A	SAILOR 6311 MF/HF 150W Class A Includes: SAILOR 6301 Control Unit SAILOR 6360 MF/HF 150W Transceiver Unit - FCC SAILOR 6381 Antenna Tuning Unit

4.2 The Control Units – SAILOR 6301 and SAILOR 6302

The Control Units offer a unique Man-Machine-interface (MMI). The design is similar to the SAILOR 6222 VHF and provides a uniform look across the SAILOR 6000 series, signalling the strength of the SAILOR portfolio.

Part Number	Type Number	Product Description
406301A	SAILOR 6301	SAILOR 6301 Control Unit DSC Class A

The SAILOR 6301 is used for all versions of the SAILOR 6300 MF/HF systems. As the SAILOR 6301 is used for all systems; it will make it simpler for SAILOR distribution partners and dealers to keep extra units in stock for fast supply to customers.

The SAILOR 6300 Control Units are supplied with both U-bracket and flush mounting kit.



4.2.1 Display

It is important to the user to quickly and easily understand the text in the display in order to operate the MF/HF safely and efficiently. The 3.2" QVA graphical display (320x240 pixels) ensures the information on the display can be read regardless of the light conditions on the bridge – day or night. The text in the display can be displayed as white on black background, and as black on white background, to provide the optimal reading condition in daylight. For protection of night vision, the text can be displayed as red on black background. The backlight in the display is red for the same reason. Dimming control of the display is also available.



The graphical display has a contrast of > 1:300 and is so clear and detailed that it could even display pictures! It provides all text and numbers in large and easy-to-read fonts. This

type of display is also very easy to read even from very wide angles, which enables the user to read the displays even when occupied in another operation.

In addition to the standard operation, this very good display provides for even more advanced usage in the future.

4.2.2 Menus

The intuitive menu structure design is highly influenced by modern IT and Mobile phones. The same menu system is used for the SAILOR 6222 VHF's, making it easier for the user to operate the complete SAILOR 6000 package. The menus are standard in English.

4.2.3 Keypad and buttons

The keypad and large buttons offers easy and intuitive operation. The large tactile buttons and rotary knobs provide are identical to the buttons on the SAILOR 6222 VHF's making operation across the SAILOR 6000 package easier.

4.2.4 Handsets

The SAILOR 6201 handset is the same as used with the SAILOR 6200 VHF's.



The SAILOR 6201 Handset with cradle is delivered with the SAILOR 6300 Control Units as standard. Up to two handsets can be connected to each control unit.

Instead of the SAILOR 6201 Handset, a SAILOR 6202 Hand Microphone can be connected (optional). If a SAILOR 6202 Hand Microphone is connected there will be no priority between this and any other Handsets or Hand Microphones connected. The reason is that the Hand Microphone does not include a hook off switch in the cradle as the SAILOR 6201 Handset.

The new SAILOR 6203 Handset WP is the waterproof version of the SAILOR 6201 Handset. The SAILOR 6203 is waterproof to IPx6 and ideal for installations where the handset can be exposed to water. The Control Units is NOT waterproof.

Part Number	Type Number
406201A	SAILOR 6201 Handset
406202A	SAILOR 6202 Hand Microphone
406203A	SAILOR 6203 Hand set WP

The SAILOR 6201 Handset is the same design as the very popular HS5001 used on the SAILOR RT5022 VHF and SAILOR System 5000 MF/HF, but updated to interface to the SAILOR 6000 VHF and MF/HF. It is specially designed for the harsh environment at sea. The edges are rounded off to make it comfortable to hold, and the PTT switch is placed centrally in the handset in order to make it feel natural to activate when the operator wants to communicate.

The curvature of the handset is designed to suit the typical head contour, making it comfortable and natural to operate. The earpiece is designed to fit the ear comfortably, in order to reduce the level of outside noise noticeable to the operator. Moreover, the handset is also designed to reduce the impact of outside noise in the microphone – especially the noise of the wind, which often creates an unpleasant sound during transmission.

The SAILOR 6201 provides an integrated spiral cord connecting to the CU through a waterproof circular plug. The cradle supplied with the handset is rugged and ensures that the handset can be installed in any angle; a solid grip is necessary to lift the handset from the cradle. A built-in magnet switch activates the hook-off.

4.2.5 Replay

As the first MF/HF system in the world SAILOR 6300 MF/HF offer SAILOR Replay. The SAILOR Replay that was first introduced in the SAILOR RT5022 will also be available in the SAILOR 6300 MF/HF. The SAILOR Replay functionality is a unique tool that allows the user to listen to a message again. The incoming call is stored in the radio and the operator can simply press the button should they need to listen to the call again. This clearly enhances safety and ensures that calls to the vessel are never missed.

The Replay function in the SAILOR 6300 MF/HF records the latest 240 seconds of incoming communications. It improves on previous incarnations of the Replay functionality as it is supported by an improved menu structure that allows the user to scroll easier between the recorded messages.



The SAILOR VHF that include this feature, like the SAILOR 6222 VHF DSC, start the recording when the squelch opens. However the feature is much more advanced in the MF/HF. In order to provide this unique feature to the operators we have developed an advanced voice detector that separates data signals and noise from the voice. This is a very advanced solution that will provide the customer with special functionality compared to any other MF/HF on the market.

4.2.6 Loudspeaker

The very powerful 6W loudspeaker built into the control unit ensures excellent sound quality, even in the noisy environment of the bridge. The integration of the loudspeaker makes system installation easier and requires less space on the bridge because no external speaker is required (although one is available as an option).

4.2.7 Built In Battery and Supply Voltage Monitoring

The SAILOR 6300 MF/HF can monitor not only the supply voltage, but also the backup batteries, so there is no need for a Battery Panel. The operator can see the status and voltage of the batteries in the display of the SAILOR 6300 Control Unit.

The Power Supply and Charger, SAILOR 6081 has to be connected to the Transceiver Unit via the ThraneLINK/LAN port.

In addition to this, a low voltage alert monitoring is available on the Transceiver unit.

4.2.8 Multiple Control Units

The SAILOR 6300 MF/HF can have up to two Control Units connected to each Transceiver Unit, thus allowing for operation from two different positions.

In very special circumstances, if the installer is very concerned about power consumption in the total installation, it will be possible to connect up to three Control Units.

The Control Units are connected to the Transceiver Units via a 12 pin CAN bus and come with U-bracket and Flush Mounting kits in the package as standard.

5 Radio Telex

The new SAILOR Radio Telex software features a very user friendly, state-of-art MMI, making the functionality even more useable. The software is a modern up to date design and offers an interface like a modern PC program. The Radio Telex operation on the SAILOR 6300 MF/HF requires use of the SAILOR 6006 Message Terminal. The Radio Telex cannot run without this message terminal as it could in previous models, but this ensures users can take full benefit of the other great functionality that SAILOR 6000 series offers. The Radio Telex application is available in the SAILOR 6300 MF/HF and need no special code to activate.



The SAILOR 6001 Keyboard is used for the Radio Telex operation. The keyboard has a built in track-ball and is connected directly to the SAILOR 6006 Message Terminal.

Radio Telex has to be enabled in the SAILOR 6310/6311 and SAILOR 6320. This is done by entering a PIN code ordered (406300-001). Radio Telex is standard the SAILOR 6350. Radio Telex is not available in the SAILOR 6312 MF/HF 150W R&TTE.

Radio Telex can be programmed to other frequencies via the Service interface.

6 Transceiver Units

The SAILOR 6300 MF/HF offer only four TU versions, but still provides a complete range of features to the market:

Type Number	Product Description
SAILOR 6360	SAILOR 6360 MF/HF 150W Transceiver DSC Class A
SAILOR 6361	SAILOR 6361 MF/HF 150W Transceiver DSC Class A - FCC
SAILOR 6363	SAILOR 6363 MF/HF 250W Transceiver DSC Class A
SAILOR 6364	SAILOR 6364 MF/HF 500W Transceiver DSC Class A

The SAILOR 6361 MF/HF 150W Transceiver Unit FCC is designed to fulfill very special requirements in the US market.



150W and 250W Transceiver



500W Transceiver

Each of the transceiver units comprises a transmitter and a full-band receiver, in addition to the integrated dedicated DSC watch keeping receiver with a DSC encoder/decoder. The transceiver units has a built-in DC power supply - all in one integrated unit.

The SAILOR 6300 MF/HF Transceiver Units are designed to meet the harsh maritime environment and are proven to be extremely reliable and durable. The 150W and 250W

transceivers are cooled by natural convection, a principle that has proved to increase the reliability as no fans or air filters have been used in the design. To ensure constant and powerful output power and to handle the heat dissipation, the cabinet is made from diecast aluminum and designed to function as a highly efficient heat sink for the power amplifier.

6.1.1 D1 (1 Channel) or D6 (6 Channel) Watch Receiver

The SAILOR 6300 MF/HF transceivers all come as standard with D1 (1 channel DSC watch receiver). However, all versions can be upgraded to D6 by entering a simple PIN code into the Control Unit at the installation or any later stage.

The PIN code may be ordered together with the system or at a later stage. This helps to limit the number of MF/HF systems the distributor needs to stock in order to fulfill all their customers' requirements. The code is unique to each individual system, and customers need to provide the serial number of the transceiver unit in order for the Order Office to supply it.

6.1.2 Transmitting and receiving

The transceiver includes a highly efficient power amplifier with control hardware, which ensures high performance and reliable communication in the marine bands from 1.6 to 30 MHz in TX mode, and ensures constant and full output power on all ITU channels.

The highly sensitive receiver, covering the frequency range from 150 kHz to 30 MHz, ensures that long distance communication is no problem. The DSC watch keeping receiver is completely separate, which enables watch keeping on the distress frequencies, also when the transceiver is in use for voice or telex operation.

The design of the cabinet, with a base bolted to the bulkhead and a hinged cover, ensures good separation of the hardware, efficient cooling and easy access for service.

6.1.3 Scanning

The SAILOR 6300 offers four intelligent scanning programs, which combine scanning on both SSB and DSC channels:

- Scanning of up to 6 user-programmed DSC frequencies
- Dual-Watch of one DSC frequency and the active voice communication
- Multi-watch of one DSC frequency and up to 10 user-programmed voice channels
- More than 10 user-programmed voice frequencies

In addition, scanning for radio telex is available. This is controlled from the SAILOR 6006 Message Terminal. Watch keeping on the distress frequencies is always maintained, irrespective of which of the above scanning functions is in use.

7 Antenna Tuning Units

The ATU cabinet is made from polycarbonate, which increases the reliability of outdoor installations in the harsh maritime environment.

The design ensures high output power across all frequencies, even on short antennas, when compared with other antenna tuning units available. The improved efficiency is particularly noticeable on low frequencies, making the MF/HF system very efficient for installations on smaller vessels.

Type Number	Product Description
SAILOR 6381	SAILOR 6381 Antenna Tuning Unit, for: - SAILOR 6310 MF/HF 150W - SAILOR 6311 MF/HF 150W - SAILOR 6320 MF/HF 250W
SAILOR 6383	SAILOR 6383 Antenna Tuning Unit, for - SAILOR 6350 MF/HF 500W

As the SAILOR 6381 Antenna Tuning is used for almost all 150W and 250W versions the requirement to maintain stock of units for spare parts for both distributors and dealers is reduced.



SAILOR 6383 Antenna Tuning Unit



SAILOR 6381 Antenna Tuning Unit

For easier installation and grounding of the SAILOR Antenna Tuning Units two sets of mounting kit are available:

Part Number	Product Description
737588	Mounting plate kit for ATU
737589	Mounting plate kit and fittings for mast for ATU

To make installation very easy, only one cable is required between the Transceiver Unit and the Antenna Tuning Unit.

Unlike some other manufacturers, Cobham SATCOM measures the output power on the antenna tuning unit – not on the transceiver. This means that the real-life performance of the MF/HF transmission will be much more powerful and the SAILOR 6300 MF/HFs are designed to keep their high output power!

7.1.1 Antennas

The high performance Antenna Tuning Units ensure efficient tuning with 8-18 meters wire or whip antennas. However, 12-18 meters length aerials are recommended to maximize radiated power also at low frequencies. It is possible to obtain 8 meters by using e.g. an antenna with an electric length of 7.6 meters and a 0.4 meter feeder wire.

8 Peripheral equipment and accessories

8.1.1 SAILOR 6270 External loudspeaker

The SAILOR 6270 Loudspeaker (406270A) can be connected to the Control Unit if needed. This high quality external loudspeaker is 8 ohm and provides 6W.

8.1.2 SAILOR 6006 Message Terminal

The SAILOR 6006 Message Terminal is used for Radio Telex and can be connected to the Control Units of the SAILOR 6300 MF/HF systems.



8.1.3 SAILOR 6103 GMDSS Alarm Panel

The SAILOR 6103 GMDSS Alarm Panel provides means of activating the GMDSS Distress Alarms in the products it is connected to. The SAILOR 6103 GMDSS Alarm Panel can be connected to:

- 2 SAILOR 6110 Inmarsat C GMDSS
- 2 SAILOR 6222 VHF DSC Class A
- 2 SAILOR 6300 MF/HF



The new SAILOR 6103 GMDSS Alarm Panel is connected to the SAILOR 6300 MF/HF via the LAN port in (ThraneLINK). As the SAILOR 6103 GMDSS Alarm Panel is also connected to the SAILOR 6110 Mini-C GMDSS and the SAILOR 6222 VHF, the Moxa Switch must be used.

Part Number	Product Description
406197A	SAILOR 6197 EDS-205 Moxa Switch - 5 port



The SAILOR 6103 GMDSS Alarm Panel only requires connection to the ThraneLink and power cables, which is very simple installation and cabling compared to traditional alarm panels, where there has to be one cable per product connected to the alarm panel.

8.1.4 SAILOR H1252B Printer

The SAILOR H1252B Printer is used for Radio Telex printing and is connected directly to the SAILOR 6006 Message Terminal via the USB port.

8.1.5 SAILOR 6001 Keyboard

The SAILOR 6001 Keyboard with built-in trackball is used for Radio Telex. The overview of short keys is shown in the display of the SAILOR 6006, making a (53.987) NSBD label unnecessary.

8.1.6 SAILOR 6208 Control Unit Connection box

The SAILOR 6208 Control Unit Connection Box is used for easy installation of multiple Control Units and external loudspeakers. This is the same Connection Box used for the SAILOR 6200 VHF's.

8.1.7 SAILOR 6209 Accessory Connection box

The SAILOR 6209 is used for easy installation of accessories and interface to external equipment such as GPS.

8.1.8 Power requirement

The new SAILOR 608x Power Supplies and Chargers are designed to power the SAILOR 6000 series.

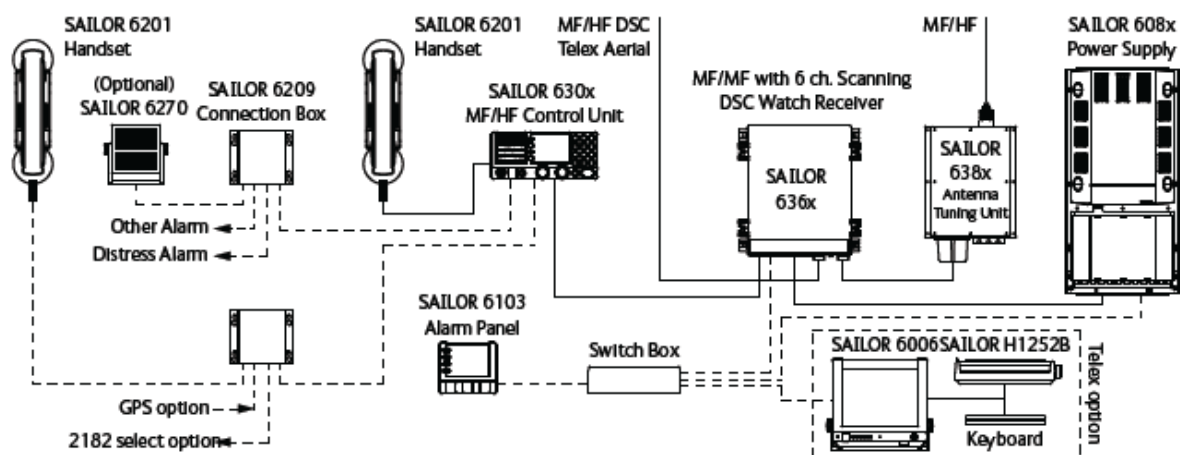
9 Installation

The SAILOR 6300 is very easy to install. It requires fewer resources to install when compared to other systems, mainly due to the reduced cabling requirements and the fact that the Control Units have a built-in loudspeaker.

The concept provides high flexibility in terms of installation with an integrated transceiver control unit (CU) and a black box transceiver unit (TU) with no controls. The CU and TU are connected via 12 POL CAN Bus. The maximum distance between CU and TU, or CU and Connection Box (SAILOR 6209) or T-plug is 6 meters. The maximum distance between the TU and Connection box (SAILOR 6209) is 100M.

The cable between the TU and the ATU may be up to 100 meters.

System diagram



10 Remote control

As a completely new feature the SAILOR 6300 MF/HF allows for remote control/operation. This can be done via the ThraneLink/LAN interface. It provides the operator with full access and control of the SAILOR 6300 MF/HF system. It will require development of control software by the installer, but the access is available.

11 Type Approvals

The SAILOR 6300 MF/HF has all the relevant MED (wheel mark), FCC and other national approvals.

12 Technical Specifications

SPECIFICATIONS

Operating Modes	Simplex and semi-duplex SSB telephony and DSC, TELEX AM broadcast reception																			
Operating temperature range	-15 °C to +55 °C																			
Supply voltage	Nominal 24V DC floating with optional external AC power supply: 115/230V AC 50/60 Hz, automatic changeover to DC in the absence of AC supply																			
Power consumption	Rx, 60W (approx. at 24V DC) <table><tr><td></td><td>150W</td><td>250W</td><td>500W</td></tr><tr><td>Tx, SSB speech:</td><td>175W</td><td>300W</td><td>600W</td></tr><tr><td>Tx, SSB two-tone:</td><td>300W</td><td>550W</td><td>1100W</td></tr><tr><td>Tx, DSC/TELEX:</td><td>420W</td><td>600W</td><td>1000W</td></tr></table>					150W	250W	500W	Tx, SSB speech:	175W	300W	600W	Tx, SSB two-tone:	300W	550W	1100W	Tx, DSC/TELEX:	420W	600W	1000W
	150W	250W	500W																	
Tx, SSB speech:	175W	300W	600W																	
Tx, SSB two-tone:	300W	550W	1100W																	
Tx, DSC/TELEX:	420W	600W	1000W																	
User-programmable channels	199 frequency pairs with mode (1-199)																			
User-programmable stations	40 stations with name, MMSI and station channel																			

RECEIVER

Frequency range	150 kHz to 30 MHz
Aerial impedance	50Ω automatically matched by the aerial tuning unit
Sensitivity	Aerial input for 10 dB SINAD, 50Ω aerial: SSB tel.: 0.7 μV AM tel.: 4 μV DSC/Telex: 0.7 μV Complies with ETSI 300-373 / 300 338
Audio output power	Aerial input for 10 dB SINAD, 50Ω aerial: SSB tel.: 0.7 μV AM tel.: 4 μV DSC/Telex: 0.7 μV Complies with ETSI 300-373 / 300 338

TRANSMITTER

Output power	150W PEP +/-1.4 dB into 50Ω voice. Reduction to 80W when continuously keyed single tone, with duty cycle greater than 55% during 1 min. Automatic power recovery after 1 min.
	250W PEP +/-1.4 dB into 50Ω voice. Reduction to 100W when continuously keyed single tone, with duty cycle greater than 55% during 1 min. Automatic power recovery after 1 min.
	500W 1.6 to 3.999 MHz 400W PEP +/-1.4 dB into 50Ω voice. 4.0 to 29.999 MHz 500W PEP +/- into 50Ω voice. 3 dB reduction when continuously keyed single tone, with duty cycle greater than 55% during 1 min. Automatic power recover after 1 min.
Power reduction	Low approx.: 10W
Frequency range	ITU marine bands from 1605 kHz to 30 MHz

DSC-TELEX MODEM

DSC Equipment class	Class A
Protocols	DSC: ITU-R M. 493-13, and M. 541-6 Telex: ITU-R M. 625-2 (incl. M. 476-4), M. 490, M. 491-1, and 492-5 NBDP telex in ARQ, FEC and SEL FEC modes
Ship's identity	DSC: 9-digit identity number Telex: 5- and/or 9-digit identity numbers
Interfaces	Alarm: DSC distress alarm interface NMEA: NMEA 0183 interface for GPS equipment Industrial ethernet Line, Key: Transceiver AF line input/output and external key interface. -10 to +10 dBm, 600Ω AUX alarm 2: Telex and non-distress/urgency DSC alarm output

DSC WATCH RECEIVER

Frequency range	Scanning: 2187.5 KHz, 4207.5 kHz, 6312.0 KHz, 8414.5 kHz,
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	12577.0 KHz, 16804.5 kHz
Aerial impedance	50Ω Complies with ETSI 300-373 or better.

ANTENNA TUNING UNIT

Frequency range	1.6 MHz - 27.5 MHz
Aerial requirements	8-18 m wire and/or whip aerial
Aerial tuning	Fully automatic with no presetting
Tuning speed	0.1 - 8 sec Typical
Power capability	150W/250W: 330W PEP in 50Ω 500W: 600W PEP in 50Ω

DIMENSIONS AND WEIGHT

		150W/250W	500W
Transceiver Unit	Width:	392 mm (15.4")	392 mm (15.4")
	Height:	445 mm (17.5")	507 mm (20")
	Depth:	127 mm (5")	217 mm (8.5")
	Weight:	19 Kg (41.9 lbs)	28 Kg (61.7")
Antenna Tuning Unit	Width:	290 mm (11.4")	401 mm (15.3")
	Height:	500 mm (19.7")	617 mm (24.3")
	Depth:	80 mm (3.1")	356 mm (14")
	Weight:	3.3 Kg (7.3 lbs)	17 mm (37.5")
Control Unit	Width:	240 mm (9.5")	240 mm (9.5")
	Height:	105 mm (4.1")	105mm (4.1")
	Depth:	100 mm (3.7")	100mm (3.7")
	Weight:	3.3 Kg (7.3 lbs)	3.3 Kg (7.3 lbs)