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1. Introduction

The S10 is a **Class-D** Digital Selective Calling (DSC) VHF marine transceiver. Comprised of a VHF marine radio and a DSC controller, it is very convenient and easy to use. The transceiver is a 1/25-watt, frequency modulated waterproof transmitter/receiver for operations on all currently allocated marine channels as well as 10 expansion channels.

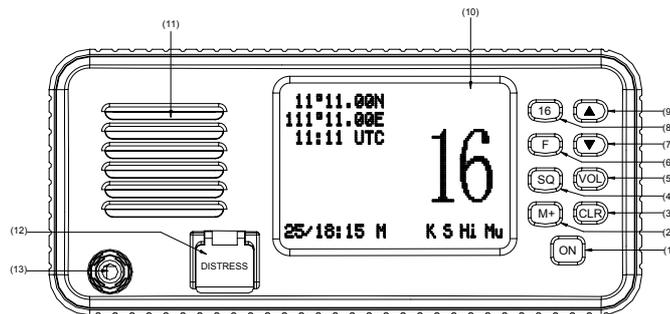
The S10 supports the latest GMDSS requirement for non-SOLAS vessels from the International Maritime Organization (IMO). When connected with a GPS, it will display the position and Universal Time Coordinate (UTC) of your vessel.

The S10 lets you make digitally selected calls, which are quicker and simpler to make compared with conventional voice calls using channel 16. Should a distress, urgency or safety situation occur, you can depend on the S10 to raise an alert quickly, thereby indicating your identity and position automatically through a distress communication on the emergency voice channel.

SILVA operates a policy of continual development and reserves the right to alter and improve the features/specification of their products without prior notice.

2. Panel Description

2.1 FRONT PANEL



1. POWER SWITCH (ON)

Press the **(ON)** button once to switch on the S10.

To switch off, press the **(ON)** button again.

2. CHANNEL MEMORY KEY (M+)

The function of this key is to add or delete the currently selected channel from the scan memory.

3. CLEAR KEY (CLR)

Stops current task and returns to the main screen.

4. SQUELCH MODE SELECTION KEY (SQ)

5. VOLUME CONTROL MODE SELECTION KEY (VOL)

6. FUNCTION SELECTION KEY (F)

Press this key once to enter the function selection mode; the LCD will display the function menu. The selectable functions are DUAL WATCH, FULL SCAN, MEMORY SCAN, H/L (high/low) POWER, DIM or SPEAKER CONTROL. Press the **(F)** key again to confirm the selected function.

7. DOWN KEY (▼)

Selects the desired channel, squelch control level or volume control level. Each press selects the next lower channel number or level. Hold down this key to scroll downwards through all selectable channels.

8. CHANNEL 16 KEY (16)

Press this key and return to channel 16 immediately from any channel or function.

9. UP KEY (▲)

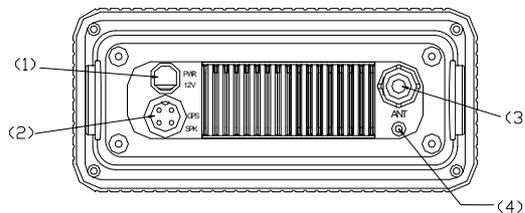
Selects the desired channel, squelch control level or volume control level. Each press selects the next higher channel, number or level. Hold down this key to scroll upward through all selectable channels.

10. LIQUID CRYSTAL DISPLAY (LCD)

Dot Matrix display, giving up to 8 lines of information.

11. SPEAKER**12. DISTRESS CALL BUTTON**

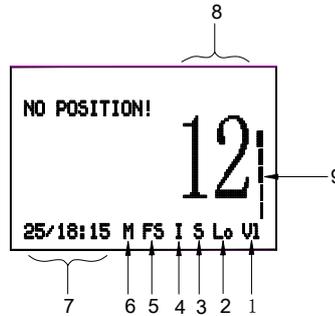
The distress button is located under a spring-loaded cover that must be lifted before the button can be pressed.

13. FIST MICROPHONE/CONTROLLER CORD**2.2 BACK PANEL****1. POWER CORD****2. GPS and EXT.SP socket.****3. ANTENNA****4. Ventilation Hole**

Should the display show signs of misting up, remove this screw and ventilate the unit until the mist is cleared. Upon completion, insert the screw and tighten once again.

Note : To ensure your S10 maintains its water-proof integrity, please make sure the water-proof plastic washer is properly inserted before the screw; the screw should be fully tightened to prevent water ingress.

2.3 LCD DISPLAY



GROUP 1

- VL Volume control activated, the Bar (9) indicates the volume level.
- Sq Squelch control activated, the Bar (9) indicates the squelch level.
- Mu Appears when the squelch opens.
- RX The radio is in receptive state (RX) and when receiving a signal.
- TX The radio is transmitting (TX).

GROUP 2

- Hi Indicates Transmitter maximum output power is 25W.
- Lo Indicates Transmitter maximum output power is 1W.

GROUP 3

- S Indicates the displayed channel is a simplex channel.
- D Indicates the displayed channel is a duplex channel.

GROUP 4

- I Indicates the international channels are selected.
- K Indicates the international channels + UK M1 and M2 channels are selected.

GROUP 5

- DW Indicates dual watch is in operation.
- FS Indicates full scanning of every channel in current channel list is in operation.
- MS Indicates scanning of the selected memory channels is in operation.

GROUP 6

- M Indicates the displayed channel is a selected memory scanning channel.

GROUP 7

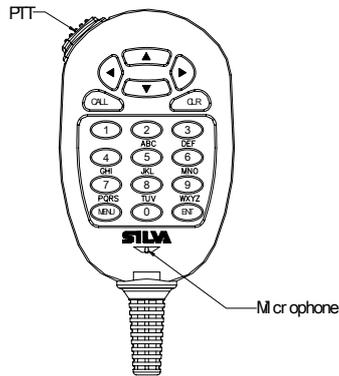
Date/hours: minutes

GROUP 8

- 00-88 Channel no selected
- P0-P9 When the channel is an expansion channel.

3. Fist Microphone/Controller

The fist mike/controller has the microphone, Push to Talk (PTT) switch and soft keypad as illustrated below:



3.1 SOFT KEYPAD (0 - 9)

The telephone style keypad ITU 0 – 9 / A - Z is used for entering numeric data. When required, the keys will automatically switch to character mode allowing letters, numbers and punctuation marks to be entered. Repeatedly pressing a key will cycle through the characters available on that key.

Number	1	2	3	4	5	6	7	8	9	0
1 press	—	A	D	G	J	M	P	T	W	0
2 press	,	B	E	H	K	N	Q	U	X	(
3 press	°	C	F	I	L	O	R	V	Y)
4 press	/	?	!	:	”	'	S	&	Z	%
5 press	1	2	3	4	5	6	7	8	9	0

ENTER KEY (ENT)

Confirms the action.

CLEAR KEY (CLR)

Stop tasks and returns to main screen or returns to the last screen.

◀ / ▶ Key

Used to select stored numbers and names as marked by the cursor, or to select through the call log.

▲ / ▼ KEY

Used to select working channel (Up or Down). Can also be used to select stored working channels and menu functions.

PTT BUTTON

Keys the transmitter allowing you to transmit a message.

(CALL) KEY.

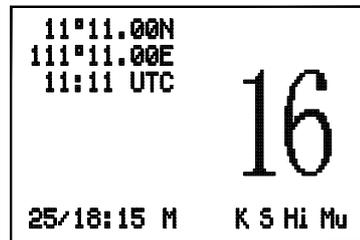
Activates "CALL" menu.

(MENU) KEY

Press to scroll through various settings such as MMSI, Call Logs, Position/UTC, Group ID, etc. For details, please refer to the relevant chapters.

4. General Operation

The S10 is switched on by pressing the **(ON)** key once. If a GPS receiver has been connected to the S10, the MAIN screen will be as below:



Press the **(F)** key on the front panel once to enter the function selection mode. The FUNCTION SELECTION screen will be displayed as below:



Press the **▲** or **▼** key to move the cursor to the required function (DUAL WATCH, FULL SCAN, MEMORY SCAN, H/L POWER, DIM or SPEAKER CONTROL), then press **(F)** key to confirm. When the desired function is selected, the relevant screen will be displayed. Press **(F)** key again to restore normal operation, and press **(CLR)** key to change to the main screen.

4.1 DUAL WATCH (DW)

Dual watch enables the radio to scan between the selected channel and priority channel (normally CH16). In dual watch mode, the DW indicator will appear on the bottom line of the LCD.

Note that the radio will not transmit, nor will alternative channels be able to be selected while in dual watch mode. To restore normal operation press **(F)** key again or press channel **(16)** key.

4.2 FULL SCAN (FS)

This function scans through each channel sequentially until a signal is detected above the squelch level set. Once the signal ends or drops below the squelch level, the radio will continue scanning. Alternatively, you can instruct the S10 to continue scanning even if a signal has been detected on any particular channel by pressing the **▲** key once. When in Full Scan mode, FS will appear on the bottom line of LCD.

Note that the radio will not transmit, nor will alternative channels be able to be selected while in Full Scan mode. To restore normal operation press **(F)** key or press channel **(CH16)** key to go to back to the VHF screen.

4.3. MEMORY SCAN (MS)

The Memory Scan operates in the same way as the Full Scan, except that it will only scan channels that have been entered into the Scan Memory. If no channels have been entered into the memory then this function will not be available.

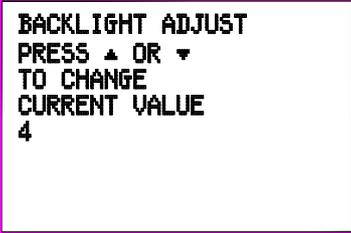
When in memory scan mode, “MS” will appear on the bottom line of the LCD.

4.4 HIGH/LOW RF OUTPUT POWER SELECTION

Press **▲** or **▼** key to move cursor on the FUNCTION SELECTION screen to required “H/L POWER” function, then press the **(ENT)** key to select between low or high power, and the “Hi” or “Lo” will appear on the bottom line of the LCD.

4.5 DIMMER

There are five brightness levels, which can be adjusted by pressing the ▲ or ▼ key on the FUNCTION SELECTION screen to select the required “DIM” function, then press (F) key to enter the BACKLIGHT ADJUST screen as below:

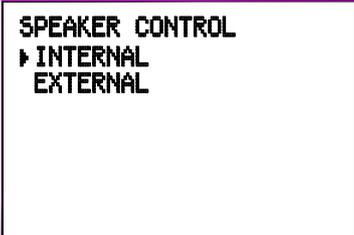


```
BACKLIGHT ADJUST  
PRESS ▲ OR ▼  
TO CHANGE  
CURRENT VALUE  
4
```

Press ▲ or ▼ key on the front panel to select brightness, then press (F) key to go back to the main screen.

4.6 SPEAKER CONTROL

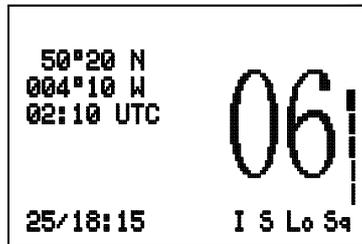
The S10 offers an internal or external speaker option. Select SPEAKER CONTROL on the FUNCTION SELECTION screen and confirm your selection by pressing (F) or (ENT) key.



```
SPEAKER CONTROL  
▶ INTERNAL  
EXTERNAL
```

4.7 SQUELCH CONTROL

When the (SQ) key on the front panel is pressed, the squelch level bar and “Sq” symbol will appear at the right side of the screen as below:

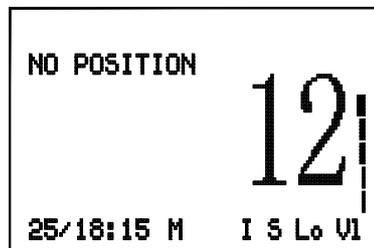


Then use ▲ and ▼ key on the front panel to adjust the receiver muting threshold (squelch) level.

To cut out weaker signals, press ▲ key to increase the squelch until the background interference noise disappears. To receive weaker signals press ▼ key to decrease the squelch.

4.8 VOLUME CONTROL (VOL)

Press the **(VOL)** key on the front panel, the volume control screen will be displayed. The level bar and character “V” will appear on the right side of the screen as below:



Press ▲ key to increase the volume. Press ▼ key to reduce the volume.

4.9 CHANNEL 16 (16)

Pressing the **(16)** key will automatically select channel 16 on high power. Any active function (Dual watch scanning, DSC setting, log view etc) will be cancelled.

4.10 CHANNEL SELECTION (▲/▼)

Press ▲ key to go up through the channels. Press ▼ key to go down through the channels.

Channel Selection Shortcut:

Select the desired channel directly from the main screen by pressing the channel number on the fist microphone/controller.

4.11 STORED CHANNEL SETTING (M+)

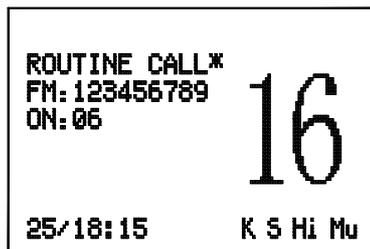
Pressing the “M+” key will add the currently selected channel into the scan memory; doing this when the S10 is in VHF receiver mode will activate a “M” marking on the bottom-right corner of the screen, indicating the channel has been entered into scan memory. If the relevant channel is already in scan memory, pressing the “M+” key will remove the “M” marking on the screen, indicating the channel has been removed from memory.

5. Receiving A DSC Call

When a DSC call is received, the radio will switch to the call log screen to display the details of the call and ring or sound the alarm depending on the nature of the call. The procedures that follow describe how to handle the types of calls that can be received.

5.1 ROUTINE CALLS

When a Routine Call is received, an alarm will sound and the screen will show the details of the call, where it is from and the working channel, as below:



Press the **(ENT)** key on the fist/mike keypad, an acknowledgement will be sent to the caller and the radio will be automatically switched to working channel for normal voice communication. The "*" will disappear when the call has been acknowledged.

5.2 URGENCY AND SAFETY CALLS

The procedures for Urgency and Safety Calls are very similar. An urgency call will sound the distress alarm and switch the radio to Channel 16. A safety call will sound a normal ring and switch the radio to the specified working channel as below:



Press the **(ENT)** key to stop the alarm (or ringing), and then listen for the voice message.

5.3 GROUP CALLS

When a Group Call is received, the radio will ring and display the details of the call, indicating whom it is from and the working channel as below:



Press **(ENT)** key to stop the ringing, then listen for the voice message or begin speaking.

5.4 DISTRESS ALERT

If a Distress Alert or a Distress Relay is received from another vessel, an alarm will sound and the Radio will switch to channel 16. The screen will show the details of the Distress Alert or Distress Relay, the MMSI of the vessel, the nature of the distress, its position and time, Mute the alarm by pressing **(ENT)** key and maintain a listening watch on channel 16 for the distress messages. Press **(CLR)** key to clear the display.

DISTRESS ALM FM: 123456789	16
MAN OVERBOARD 52°02N001°30E 12:35 UTC 25/18:15	
	K S Hi Mu

DISTRESS RELAY FM: 112233445 ID: 111111111	16
MAN OVERBOARD 52°02N001°30E 12:35 UTC 25/18:15	
	K S Hi Mu

6. Sending A DSC Call

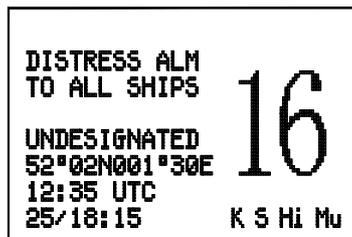
Making a DSC Call is very simple. First choose the call type (Routine, Safety, Urgency, Group or Distress Alert). If required, enter the destination and working channel and then send the call by pressing **(ENT)** key on the fist microphone/controller. The digital signal will be sent out in under a second, containing the vessel's ID and the call type.

In order for the radio to function, your MMSI (Maritime Mobile Service Identifier) number will need to be entered. This number can be obtained from your local radio communications authority. For group calls, the group ID will need to be entered also.

6.1 DISTRESS CALLS

This call should only be made if the vessel is in a distress situation, and lives are in danger.

Making a Distress Alert call is very simple. Lift the protective cover and press **(DIST)** key on the front panel. The Distress Alert screen will be displayed as below:



If time permits, press the ▲ or ▼ key to select the nature of the distress. There are 10 categories recognized as Distress Alert situations, which are: ***fire, flooding, collision, grounding, listing, sinking, adrift, abandoning, piracy and man overboard.*** There is also a default ***undesigned*** category, which is used if no category is selected here.

Press and hold the **(DIST)** key for about five seconds. A countdown to the transmission will be displayed then an alarm will sound.

The Distress Alert transmission contains the following data:

1. The vessel's MMSI;
2. The vessel's position (either from the NMEA0183 input, or manually entered);
3. The time (from NMEA or Manual input);
4. The nature of the distress.

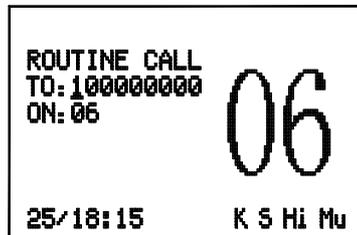
After the Distress Alert has been sent, the Radio will automatically tune to channel 16 and the Radio will repeat the Alert approximately every four minutes until either an acknowledgement is received, or **(CLR)** key is pressed (it is not recommended that the Distress Alert is cancelled manually by pressing **(CLR)** key unless you are requested to do so by the rescue authorities).

While the Distress Alert remains active, an intermittent alarm will continue to sound approximately once every 25 seconds.

When an acknowledgement is received from the Rescue Co-ordination Centre, this will cancel the Distress Alert transmission from the Radio and automatically switch the Radio to the required working channel. The subsequent Rescue Co-ordination will be performed using the voice-working channel.

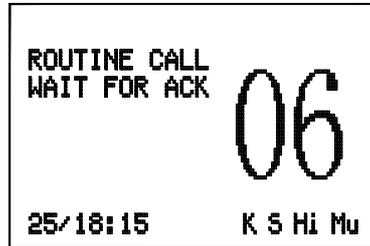
6.2 ROUTINE CALLS

To make a Routine Call, press **(CALL)** key on the fist microphone/-controller to select Routine Call. The screen as below:



Then enter the corresponding MMSI number with the keypad and select a working channel by pressing the ▲ or ▼ key on the keypad from the channel list.

Press **(ENT)** key and the Radio will send a Routine Call; the radio will change to the following screen as you wait reply.



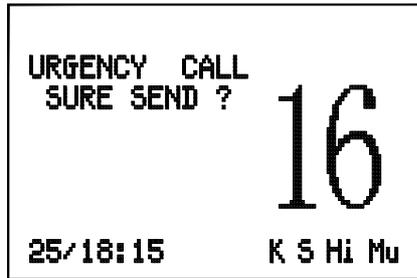
When a reply is received, the radio will sound a tone and automatically switch to the specified working channel. A voice call can then be made in the normal way.

6.3 URGENCY AND SAFETY CALLS

Press **(CALL)** key on the fist microphone/controller keypad to select Safety Call or Urgency Call as below:



Press **(ENT)** key, and the screen will change to the following:

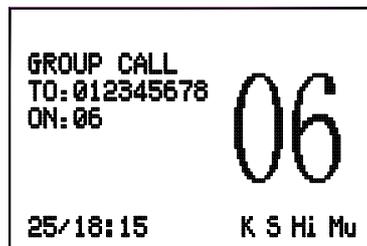


Press the **(ENT)** key again to make the call, or press **(CLR)** to cancel. When the call is sent, the radio will be set to the working channel. Allow a few seconds for the stations receiving the call to switch to the working channel. Then make a normal voice call on the selected working channel.

6.4 GROUP CALLS

If a group ID has been set up for the called Radio. A call can be made to other members of the group.

Press the **(CALL)** key on the keypad to select the GROUP CALL screen as below:



Select a working channel from the channel list by pressing the **▲** or **▼** key on the keypad.

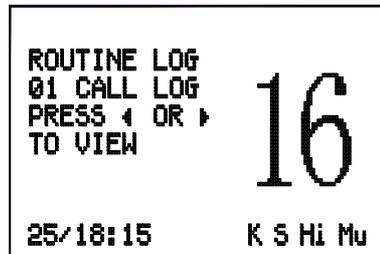
Press **(ENT)** key to send the call. Allow a few seconds for the other members of the group to reach their radios (all VHF radios in the group should automatically switch to selected working channel upon acknowledgement), then make a normal voice call.

7. LOG VIEW

7.1 ROUTINE LOG REVIEW

The routine log can be used to look back through the last 20 calls that have been received, the most recent call first.

Press **(MENU)** key on the mike keypad to select the ROUTINE LOG screen as below:



If there are any general calls in the routine log press the ◀ or ▶ key to move back and forth through the log, the ROUTINE LOG screen as below:



If there is a "*" symbol on the screen, you can press **(ENT)** KEY to send an acknowledgement directly to the caller. After acknowledgement, the "*" symbol will disappear.

Press **(CLR)** key to exit the call screen.

7.2 DISTRESS LOG REVIEW

The distress log can be used to look back through the previous 20 distress calls that have been received, the most recent call first.

Press **(MENU)** key on the mike keypad to select the DISTRESS LOG screen as below:

```

DISTRESS LOG
01 CALL LOGS
PRESS ◀ OR ▶
TO VIEW
16
25/18:15      K S Hi Mu
  
```

If there are any distress calls in the distress log screen, press the ◀ or ▶ key to move back and forth through the DISTRESS LOG screen. The DISTRESS LOG screen as below:

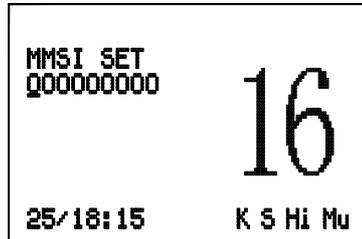
<pre> DISTRESS ALM FM: 123456789 MAN OVERBOARD 52°02N001°30E 12:35 UTC 25/18:15 16 K S Hi Mu </pre>	<pre> DISTRESS RELAY FM: 112233445 ID: 111111111 MAN OVERBOARD 52°02N001°30E 12:35 UTC 25/18:15 16 K S Hi Mu </pre>
---	---

Press **(CLR)** key to exit the call log screen.

8. DSC Settings

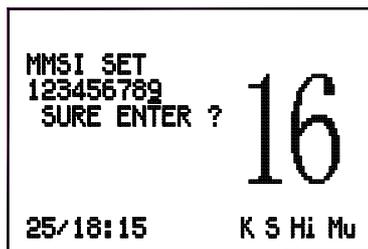
8.1 MMSI SETTING/VIEW

If a MMSI No. has not been entered into the S10, the MMSI SET screen will appear on the display every time the unit is switched on, as below:



If no MMSI number is entered, you can use the unit with the default MMSI set as 000000000, and every time the S10 is switched on, it will ask you to enter the MMSI number.

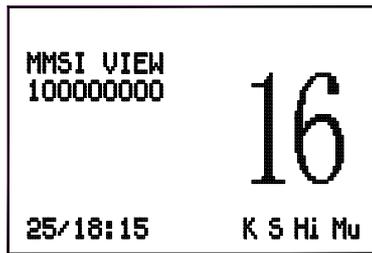
Switch ON the unit, then press numeric soft key on the microphone to enter the MMSI number (9-digit). This number can be obtained from your local radio communications authority. If a mistake is made, use the ◀ or ▶ key to move back and edit the error. Then press (ENT) key, the Radio will ask for verification as below:



It is important that the MMSI entered is checked carefully, as it can only be entered once!

Press (ENT) key once again to confirm the number, and the screen will now show the MMSI of your vessel.

To view your vessel's MMSI, press **(MENU)** soft key on the fist mike to select the MMSI VIEW screen, as below:

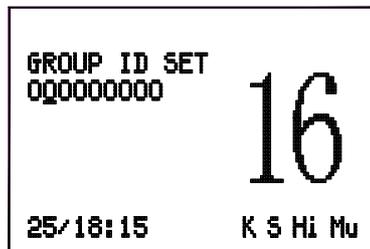


Press **(CLR)** key to go back to the main screen.

To change the MMSI number after it has been programmed, the unit must be returned to an authorized dealer to erase the exiting number.

8.2 SET GROUP ID

To enter a Group ID (if for example, the vessel is part of a flotilla or fishing fleet etc), press **(MENU)** soft key to select the GROUP ID SET screen. The screen will be displayed as below:



Press numeric soft key to enter the GROUP ID number (8-digits, the first digit must be "0"). If a mistake is made, use the ◀ or ▶ key to move back the cursor and reset the number. Press **(ENT)** key and the radio will ask for verification. Check that the no, is correct and press **(ENT)** key once again to confirm your entry. To amend, press **(CLR)** key to go back to main screen.

8.3 SET DATE AND TIME

Press **(MENU)** soft key to select the "SET DATE/TIME" screen, as below:



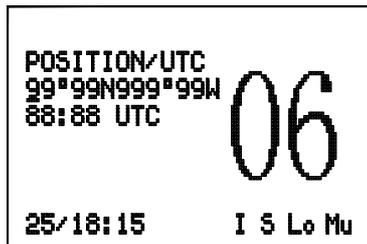
Use the numeric keys to enter numbers, then press **(ENT)** key to confirm the date and time.

Note that the time should be entered in 24-hour clock format.

8.4 SET MANUAL POSITION/UTC

If the position of the vessel cannot be obtained from a GPS via the NMEA 0183 input, this data can be entered manually.

Press **(MENU)** soft key to select the "POSITION/UTC" screen as below:



Use the numeric soft key to enter the required data, then press **(ENT)** key to accept the position and time entered.

After 23 hours, if the radio has not received any position data either manually or from the NMEA input, then the position data will disappear from the screen, and it will show "NO POSITION".

8.5 SET CALLED CHANNEL

The Radio includes a list of 9 working channels, which can be scrolled through when using the routine group calling. The first four channels are preset as 06, 08, 72 and 77. These cannot be amended. The remaining five channels are programmable. Always consult your local authority requirements when choosing suitable working channels. Find out which channels are duplex as these do not allow ship-to-ship communication.

Press **(MENU)** key to select the WORK CHANNEL screen as below:

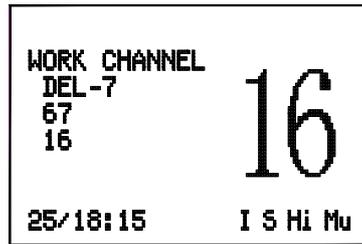


Press **▲** or **▼** key to select "ADD" from the WORK CHANNEL screen, then press **(ENT)** key to enter, as below:



Press **▲** or **▼** key to change the selected channel, and press **(ENT)** key to accept. Then press **◀** or **▶** key to enter the next channel.

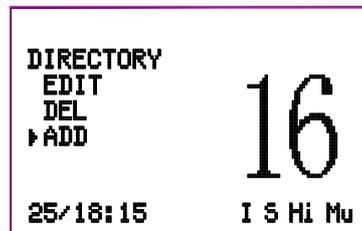
To delete a Work Channel, press ▲ or ▼ key to move the cursor on the WORK CHANNEL screen and select “DEL”, then press (ENT) to accept. The WORK CHANNEL screen appears as below:



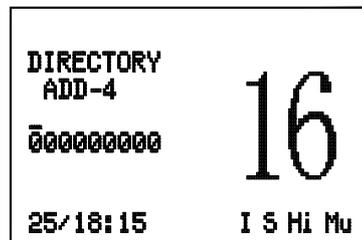
Press ◀ or ▶ key to select the channel (5th – 9th channel) that you wish to delete, then press (ENT) key to accept.

8.6 SET DIRECTORY OF CALLED MMSI AND VESSEL NAMES

The DIRECTORY screen is used to add, edit and delete the MMSI and NAME of called vessels from a list of up to 20 stored MMSI numbers, which can be recalled in the routine call screen. Press (MENU) soft key to select the “DIRECTORY” screen as below:

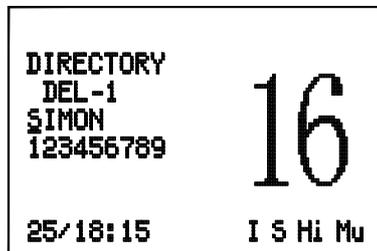


To access a new entry, press ▲ or ▼ to move the cursor in front of “ADD”, then press (ENT) key to enter DIRECTORY-ADD screen as below:



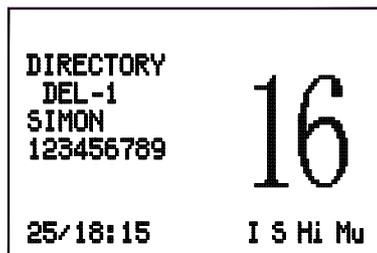
Use the soft keypad to move backwards and forwards along the line to enter a name or number. When the name and number have been added, press **(ENT)** key to confirm.

To edit an existing entry, press ▲ or ▼ key to move the cursor in front of "EDIT", then press **(ENT)** key to enter DIRECTORY-EDIT screen as below:



Use the ◀ or ▶ key to move along the name and MMSI fields, using the soft keypad to edit the data. Press **(ENT)** to store the modified entry.

To delete an entry, press ▲ or ▼ key to move the cursor in front of "DEL", then press **(ENT)** key to enter DIRECTORY-DEL screen as below:



Use the ◀ or ▶ key to select the number you wish to delete, then press **(ENT)** key to delete the entry.

9. Expansion Channels

Authorized users can have up to 10 expansion channels activated on their Silva S10 units.

Silva UK Ltd. Service Division

10. Technical Specifications

Power Supply	DC 12 V +30/-10%
Channel Capability	57 international channels UK: includes 10 expansion channels
Frequency Resolution	25KHz
Method of Frequency Generation	synthesizer
Dimension	175(W) × 79(H) × 130(D) mm
Weight	1175 grams

10.1 RECEIVER

Multi Channel Receiver

1. The receiver incorporates a dual conversion super-heterodyne design.
2. Tuning Frequency Range 156.025-163.275MHz
3. IF Frequency Used: 21.4MHz; 455KHz
4. Maximum Useable Sensitivity $\leq 6\text{dB } \mu \text{ e.m.f. of } 20\text{dB/SINAD}$
5. Adjacent Channel Selectivity $\geq 70\text{dB}$
6. Spurious Response Rejection $\geq 70\text{dB}$
7. Inter-Modulation Rejection $\geq 68\text{dB}$
8. Spurious Emission Radiation $\leq 2\text{nW}$
9. Current:
 - 0.9 Amps (Max Audio)
 - 0.4 Amps (STBY)
10. Audio Frequency Response +1, -3dB of +6dB/octave
De-emphasis 300-3000Hz
11. Hum and Noise $\leq 40\text{dB}$
12. Audio Output 3.5W at less than 10% distortion
with 4 Ohm external speaker
2W only internal speaker

10.2 CHANNEL 70 MONITOR GENERAL SPECIFICATION

1. Frequency	CH70 (156.525MHz)
2. Sensitivity	$\leq 0\text{dB } \mu \text{ EMF}$ for 20dB SINAD
3. Bandwidth	16KHz
4. First IF Frequency Used	17.9MHz
5. Second IF Frequency Used	455KHz
6. Adjacent Channel Selectivity	$\geq 70\text{dB}$
7. Spurious Response Rejection	$\geq 70\text{dB}$
8. Inter-Modulation Rejection	$\geq 65 \text{dB}$
9. Mode of Reception	16K0G2B
10. Spurious Emission, Radiation	$\leq 2\text{nW}$, 9KHz to 2GHz

10.3 TRANSMITTER

1. Type of Emission	16K0F3E(Voice) 13K5G2B(DSC)
2. Frequency Range	156.025-161.425MHz
3. Output Power	25W, 1W into 50 Ohms
4. Audio Harmonic Distortion	$\leq 10\%$
5. Audio Frequency Response	+/-3dB of +6dB/octave Pre-emphasis 300 – 3000Hz
6. Hum and Noise	$\leq -40\text{dB}$
7. Frequency Deviation	5KHz max peak
8. Spurious Emissions (Radiated)	$\leq 0.25 \mu \text{ W}$
9. Current	$\leq 5 \text{ Amps}(25\text{W})$

10.4 GPS

1. Input Data Format:	NMEA0183 version 2.0 sentences RMC, GGA and GLL
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11. International VHF Marine Channel Chart

Channel	Transmitter Frequency	Receiver Frequency	Mode S/D	Channel Assignment	Function	
					Ship To Ship	Ship To Shore
1	156.050	160.650	D	Public Correspondence, Port Operation	YES	YES
2	156.100	160.700	D	Public Correspondence, Port Operation	YES	YES
3	156.150	160.750	D	Public Correspondence, Port Operation	YES	YES
4	156.200	160.800	D	Public Correspondence, Port Operation	YES	YES
5	156.250	160.850	D	Public Correspondence	YES	YES
6	156.300	156.300	S	Safety (Compulsory)	YES	NO
7	156.350	160.950	D	Port Correspondence, Port Operation	YES	YES
8	156.400	156.400	S	Commercial, inter-ship	YES	NO
9	156.450	156.450	S	Commercial/Non-Commercial	YES	YES
10	156.500	156.500	S	Commercial	YES	YES
11	156.550	156.550	S	Commercial, VTS	YES	YES
12	156.600	156.600	S	Port Operation, VTS	NO	YES
13	156.650	156.650	S	Bridge to Bridge, (1W) navigational	YES	YES
14	156.700	156.700	S	Port Operation, VTS	YES	YES
15	156.750	156.750	S	Recv Only-Coast to Ship	YES	YES
16	156.800	156.800	S	Calling&Safety, Compulsory	YES	YES
17	156.850	156.850	S	State Controlled Ship to Coast (1W)	YES	YES
18	156.900	161.500	D	Port Operation	YES	YES
19	156.950	161.550	D	Port Operation	NO	YES
20	157.000	161.600	D	Port Operation	NO	YES
21	157.050	161.650	D	Public Correspondence	NO	YES
22	157.100	161.700	D	Public Correspondence	NO	YES
23	157.150	161.750	D	Public Correspondence	NO	YES
24	157.200	161.800	D	Public Correspondence		
25	157.250	161.850	D	Public Correspondence		
26	157.300	161.900	D	Port Operation, VTS		
27	157.350	161.950	D	Public Correspondence, Port Operation		
28	157.400	162.000	D	Public Correspondence, Port Operation		
60	156.025	160.625	D	Public Correspondence, Port Operation		
61	156.075	160.675	D	Public Correspondence, Port Operation		
62	156.125	160.725	D	Public Correspondence, Port Operation		
63	156.175	160.775	D	Public Correspondence, Port Operation		
64	156.225	160.825	D	Public Correspondence, Port Operation		
65	156.275	160.875	D	Public Correspondence, Port Operation,	YES	YES
66	156.325	160.925	D	Public Correspondence, Port Operation	YES	YES
67	156.375	156.375	S	Non-Commercial, VTS	YES	NO
68	156.425	156.425	S	Non-Commercial	YES	YES
69	156.475	156.475	S	Non-Commercial	YES	YES
70		156.525	S	DSC Distress, urgency, safety and	YES	NO
71	156.575	156.575	S	Intership, Port Operation, on	YES	YES
72	156.625	156.625	S	Non-Commercial	YES	NO
73	156.675	156.675	S	Port Operation, VTS	YES	YES
74	156.725	156.725	S	Port Operation, VTS	YES	YES
77	156.875	156.875	S	Intership, Port Operation	YES	NO
78	156.925	161.525	D	Port Operation, Public Correspondence	YES	YES
79	156.975	161.575	D	Port Operation, Public Correspondence	YES	YES
80	157.025	161.625	D	Port Operation, Public Correspondence	YES	YES
81	157.075	161.675	D	Port Operation, Public Correspondence	YES	YES
82	157.125	161.725	D	Port Operation, Public Correspondence	YES	YES
83	157.175	161.775	D	Port Operation, Public Correspondence	YES	YES
84	157.225	161.825	D	Public Correspondence	YES	YES
85	157.275	161.875	D	Public Correspondence	NO	YES
86	157.325	161.925	D	Public Correspondence	NO	YES
87	157.375	161.975	D	Public Correspondence	NO	YES
88	157.425	162.025	D	Port Operation, Public Correspondence	YES	NO

12. Installation

12.1 Unit Installation

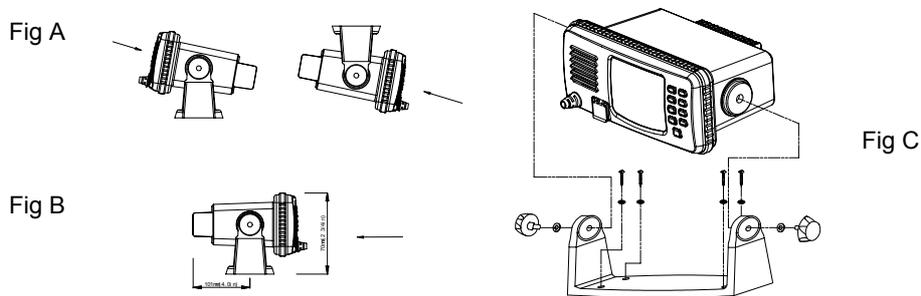
The S10 should be sited so that engine noise and vibration or other background noises do not make it difficult for the operator to hear.

It is recommended not to install the unit where it will be exposed to continuous direct sunlight as this will eventually damage the LCD display.

As loudspeakers contain powerful magnets, the radio should not be installed within 1m (3ft 3in) of any compasses, whether magnetic or electronic.

The fins on the back of the unit act as a heat sink to dissipate heat generated by the set when in use, which maintains the high efficiency of the radio. The free circulation of air is essential - if the radio is mounted in an enclosed space, please ensure the space is well ventilated

The S10 is supplied with a reversible mounting bracket. This can be used to mount the radio on the chart table or on an overhead bulkhead (Fig A). Before installing, ensure that there is at least 100mm (4.0 in) vertical clearance and 70mm (2 3/4in) horizontal clearance behind the bracket to allow the radio to fit (Fig B). The rake angle of the radio can be adjusted by slackening the clamp.



On the back of the S10 there is an antenna socket, a power cable socket (Fig D) and an external speaker and GPS input socket.

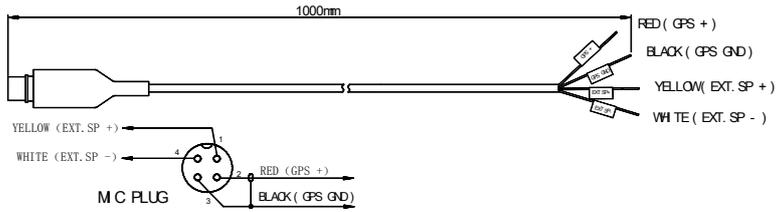


Fig D

The S10 requires a 12v DC supply to operate. This lead should be connected to the vessel’s power supply (the red wire is positive, black is negative), and the cable kept as short as possible. Although the radio draws very little current when receiving, a heavier current is drawn when transmitting which may result in a voltage drop if very long cables are used of inadequate core diameter. If the supplied power lead is not long enough, an extension of up to 3m(10 ft) can be made using at least 2.5mm (13AWG) wire.

The chassis of the S10 is not connected to either supply rail. This allows a direct connection to the ship’s earth connection for voltage and RF interface protection. The red wire is positive and black is negative. If polarity is accidentally reversed, the set will not operate.

The antenna is connected to the S10 using a standard PL259 type connector as fitted to most marine antenna. If fitted to an existing antenna, check that the contacts are not corroded before connecting, as this will affect the quality of the signal, Ensure that the retaining collar of the antenna plug is securely tightened to prevent accidental disconnection.

12.2 Antenna Installation Recommendations

The most important factor in the performance of the S10 will be the quality and positioning of the antenna. Most recorded problems with VHF radios are related to poor antenna sighting, faulty cabling, poor quality cable joints and low voltage supply. Even the best performing radio cannot compensate for these factors. If replacing an existing installation using the same antenna, it is important that these factors are checked when installing the radio.

As the range of VHF signals are governed by line of sight, the antenna should be placed as high as possible, while remaining clear of any metallic objects that could influence the resonance of the antenna.

The most popular antenna for marine use are 1m (3ft 3in) long. On sail boats these are usually mounted at the masthead, where the length of the antenna keeps it clear from the navigation lights and wind vanes etc. This type of antenna can also be mounted on the cabin roof or radar arch on powerboats.

Longer whip antenna are recommended for larger boats. These radiate the same total power as smaller antenna, but concentrate it into a narrower beam, which is advantageous on a tall mast at extreme range where concentrating the available power into a narrow horizontal beam becomes more important. However, if the antenna is not vertical when transmitting, the beam will be angled either too high or too low (Fig E). Here the wider beam of the shorter antenna will be more universally effective, although the signal will be weaker (Fig F):

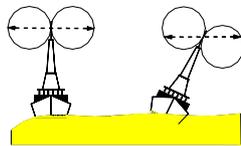


Fig E

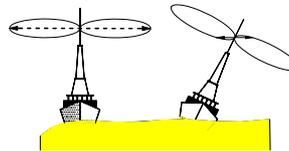


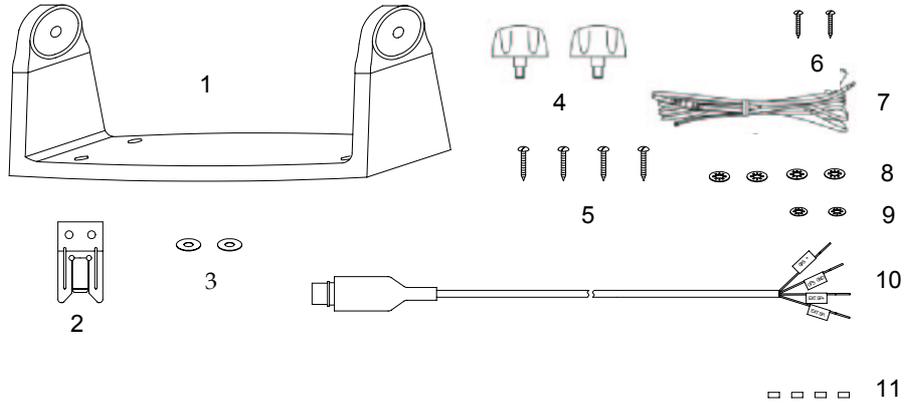
Fig F

Therefore vessels with a large heel angle (small sailboats) would do better with a short masthead antenna. Your local agent should be able to provide specific advice on antenna choice for the vessel it is to be fitted on.

The antenna coaxial cable and any connectors used must be rated at 50 Ω . Under no circumstances should standard domestic TV cable and connectors be used. Incorrectly rated cabling and connectors could result in power not reaching the antenna, but also power could be reflected back into the radio, damaging it in the process.

13. Supplied Parts

- | | | | |
|----------------------------------|---|-------------------------------|---|
| 1. Mounting Bracket | 1 | 7. Power Cord | 1 |
| 2. Microphone Hanger | 1 | 8. Mounting Bracket Washer... | 4 |
| 3. Bracket Knob Washers | 2 | 9. Hanger Spring washer | 2 |
| 4. Mounting Bracket Knobs | 2 | 10. GPS/Speaker Plug Cord ... | 1 |
| 5. Mounting Bracket Screws | 4 | 11. Thermoshrink Tube | 4 |
| 6. Mic Hanger Screws | 2 | | |



15. Warranty.

Silva warrants this product against manufacturing defects or malfunction in material and workmanship for two (2) years from the date of original purchase. The remedies given under the warranty will be available so long as the consumer can show in a reasonable manner that any manufacturing defect or malfunction in materials or workmanship occurred within two year of the date of original purchase. Proof of the date of purchase may be established by returning copy of original sales invoice (or any other proof of purchase) to us. Any manufacturing defect or malfunction in materials or workmanship which occurs within two years from the original purchase date will be repaired without charge or replaced with a new product identical or reasonably equivalent to this product, at Silva's option, within a reasonable time after receipt of the product. This Warranty does not however cover defects or damage caused by unauthorized articles or services nor does it cover damage through accident or misuse, including failure to provide reasonable and necessary maintenance in accordance with the instructions set forth in your owner's manual. Silva reserves the right to make changes or improvements in its products from time to time without incurring the obligation to install such improvements on equipment previously manufactured.

All transportation expenses for repairs are the responsibility of the consumer.

16. Declaration of Conformity

We **Silva UK Ltd.** of **Fleming road,**
Kirkton Campus, Livingston,
EH54 7BN, SCOTLAND.

declare that the product identified below complies with the essential requirements of Council Directive 99/05/EC according to the conformity assessment procedure laid down in Annex IV of the Directive.

QINETIQ statement of opinion: QQ-RTTE XX/02-XX

Product:

Silva S10

25 Watt Marine Band Class D Transceiver.

For non-compulsory fit use only.

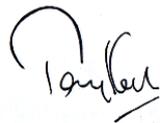
The product is labelled with the CE conformity marking and the identification number of the notified body consulted in the conformity assessment procedure.

Applicable Standards: EN301-025

EN 60945:1997 (clauses 9, 10 & 12).

ETS 300-225:1992

Livingston, 21st September 2003.



Mr A. Kent. Managing Director