VHF MARINE RADIO

HM365
HM365C
HM365S

User Manual

HIMUNICATION

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Contents

HM365/HM365C/HM365S User Manual

1. Installation

The HM365 series is a professional marine VHF radio developed by HIMUNICATION in 2023 and launched in 2024.It is an international standard marine radio that can transmit and receive all VHF channels of international vessels, such as those specified by the International Telecommunication Union (ITU). At the same time, the VHF uses high-quality materials and is waterproof, meeting all industry standards to provide reliable communication. Because HIMUNICATION believes that innovation brings a different kind of brilliance.

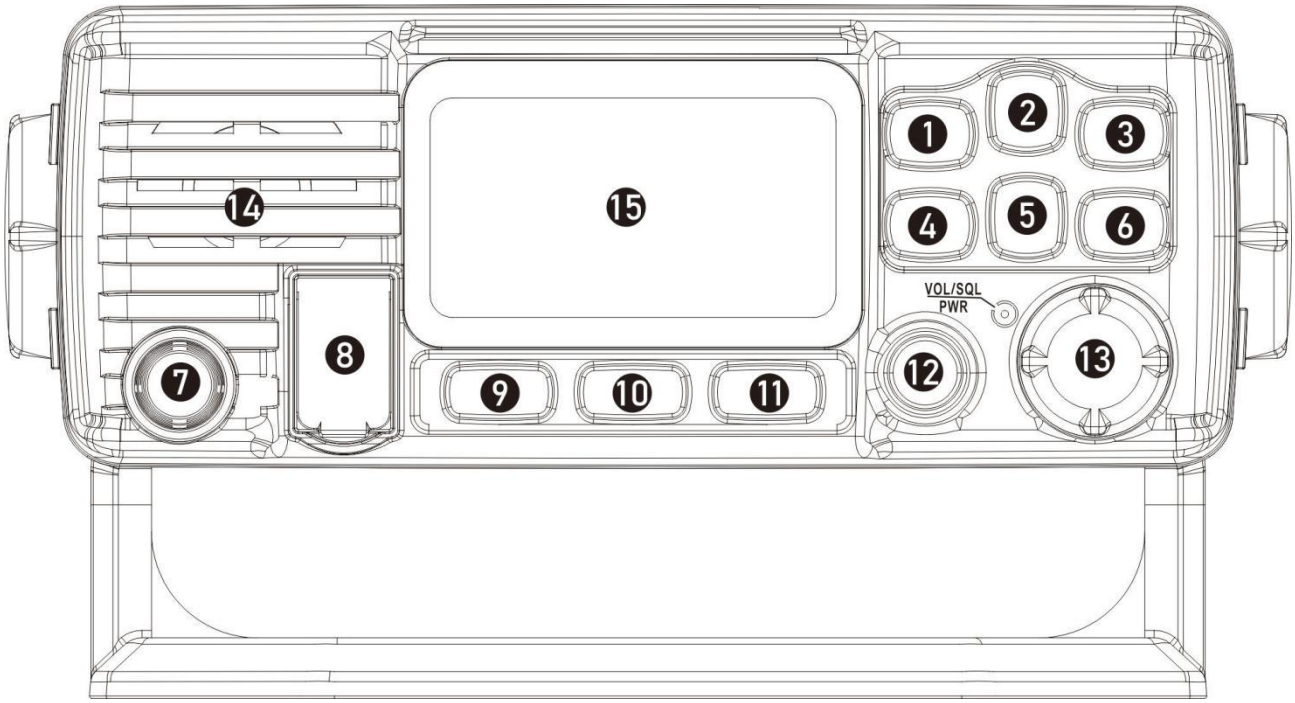
EU Regulatory Conformance

As certified by the qualified laboratory, the product is in compliance with the essential requirements and other relevant provisions of the Directive 2014/53/EU. Please note that the above information is applicable to EU countries only.

Manufacturer：HIMUNICATION
Trademark number ： 11005103
Address ： 7th Floor, building 13, Run Dong Sheng Industrial Park, National Road 107,Longzhu community, Xixiang, baoan district, Shenzhen,China

2. Front Panel/Back Panel

Front Panel Functions and Operations



1、 CLR MENU Key

- At normal mode, long press to enter the menu setup.
- At menu mode, short press to return previous menu level.

2、 CH Key

- At normal mode, short press to turn up the channel , hold on the key , quickly turn up the channel.
- At menu mode, short press to turn up the menu.

3、 ENT AIS Key

- At normal mode, short press to enter DSC menu.
- At menu mode, short press to enter next level menu.
- At normal mode, long press to enter AIS function（only AIS VHF）.

4、 Key

- At normal mode, short press to enter the loop to select the software key function
- At software key mode, short press the software key to shift left.

5、 CH Key

- At normal mode, short press to turn down the channel , hold on the key , quickly turn down the channel.
- At menu mode, short press to turn down the menu.

6、  Key

- At normal mode, short press to enter software key function.
- At software key mode, short press the software key to shift right.
-

7、Standard Handset

- Hold on Standard Handset PTT key， Handset enter transmit mode， there are also convenient function keys to operate, more details to be seen on Standard Handset functions and operations.

8、DISTRESS Key

- Short press or long press to enter emission DISTRESS mode.

9、  KEYL

- At normal mode, short press to enter software key mode.
- At software key mode, short press to select the left function.
- At menu mode, short press to return the previous menu.

10、  KEYC

- At normal mode, short press to enter software key mode.
- At software key mode, short press to select middle function.

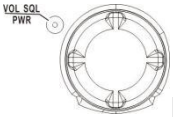
11、  KEYR

- At normal mode, short press to enter software key mode.
- At software key mode, short press to select the right function.
- At menu mode, short press to enter next level menu.

12、 

Key

- If not currently in the priority channel, short press 16/C once to enter the priority channel CH16, the screen displays "P-CH", then short press 16/C again to exit the priority channel and return to normal mode.
- If not currently in the second priority channel, long press 16/C once to access the second priority channel, the screen displays "P-2nd", then short press 16/C once to access the priority channel.

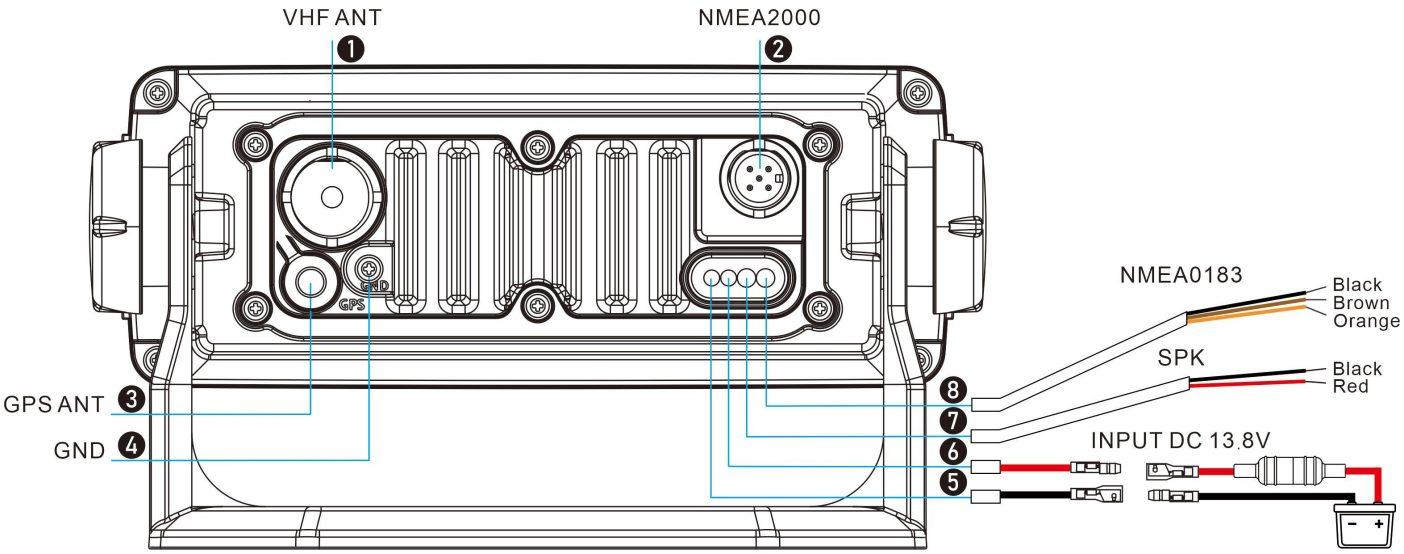
13、 

Power On/ Off(Multi-Function Knob)

- Power on/ off:: Long press “Power On/Off” to turn on /off VHF
- Adjust VOL: At normal mode, rotate the "multi-function knob" clockwise or anticlockwise to adjust the volume level .
- Adjust SQL level: At normal mode or adjusting the volume level mode, short press Multi-Function Knob to enter the SQL level adjustment mode and press Up/Down, or rotate the Multi-Function Knob clockwise/anticlockwise to select an appropriate SQL level.
- Adjust channel: At the adjustment SQL level mode, short press the "Multi-Function Knob" to enter the adjustment channel mode. Press Up/Down or rotate clockwise/anticlockwise to adjust the channel.
  Press the multi-function knob to exit the adjustment channel mode and return to normal mode.

14、Speaker
15、LCD Display

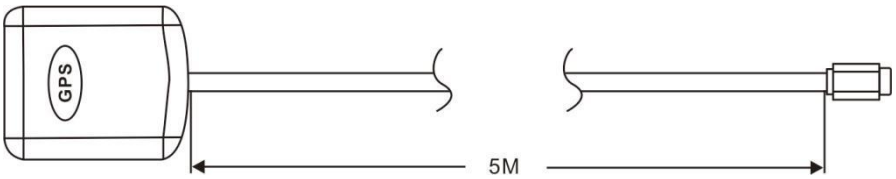
Back Panel Functions and Operations



1、ANTENNA CONNECTOR
Connects to a marine VHF antenna cable's PL-259 connector.
CAUTION: Transmitting without an antenna may dam age the transceiver.

2、NMEA2000 (only N2K VHF)
The AIS and GPS position data from the external devices is sent to the N2K VHF, through the NMEA2000 network.

3、GPS ANTENA
Connects to an optional GPS antenna.
Note:
• The GPS sentences input from this connector takes precedence to over the sentences input from the built-in GPS receiver.
• Be sure the GPS antenna is positioned where it has a clear view to receive signals from satellites.
• Optional accessory，A Plug & Play GPS antenna can be connected directly to the VHF.



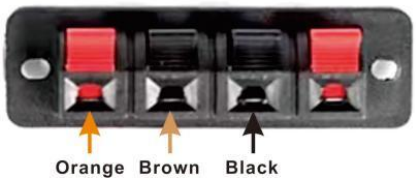
4、GROUND TERMINAL
Connects to a vessel ground to prevent electrical shocks and interference from other equipment occurring. Use a PH M3x6 screw (not supplied).

5&6、 DC POWER CONNECTOR
Connects to a DC power source, Input DC 13.8V

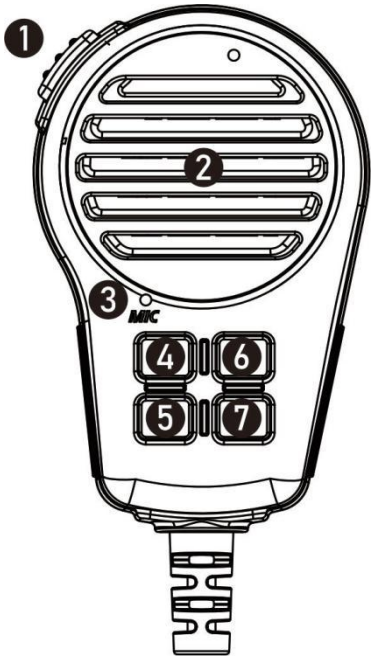
7、 AF OUT
Red: External Speaker (+), Black: External Speaker (–) ; Connects to an external speaker

8、NMEA0183 IN/OUT & SOFTWARE UPGRADE
Orange: NMEA 0183_ IN
Brown: NMEA 0183_OUT
Black: GND
Connect to the NMEA output lines of a GPS receiver for position data.
• NMEA 0183 (ver. 2.0 or later) sentence format GGA,GLL,GSV,RMC,VTG and ZDA compatible GPS receiver is required. Ask your dealer about suitable GPS receivers.
• The GPS sentences input from this connector are given priority to over the sentences input from the built-in GPS receiver.

• The interface used for NMEA0183 is RS232
• Software upgrade：Connect the NMEA0183 cable to the upgrade cable clip(Orange NMEA +、Brown NMEA -、GND) to upgrade.



Fist Mic Functions and Operations



1、Hold on PPT button to enter transmit mode

2、Speaker

3、Microphone

4、  UP key

5、  DOWN key

6、 

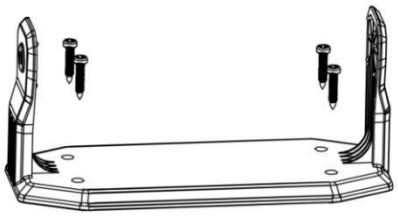
Key
Short press to enter priority channel CH16, long press to enter the the second priority channel.

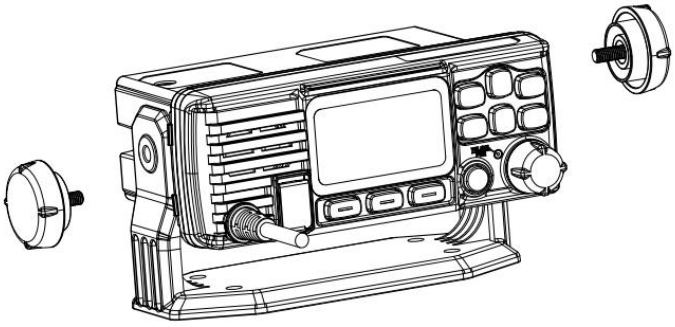
7、 

Key
Short press to switch high/low power, long press for 3 seconds will lock on, the screen displays a lock icon , except the PTT key and distress, all other keys are invalid.
Long press and hold the HI/LO LOCK key again to release the key lock.

Yoke Mount Installation

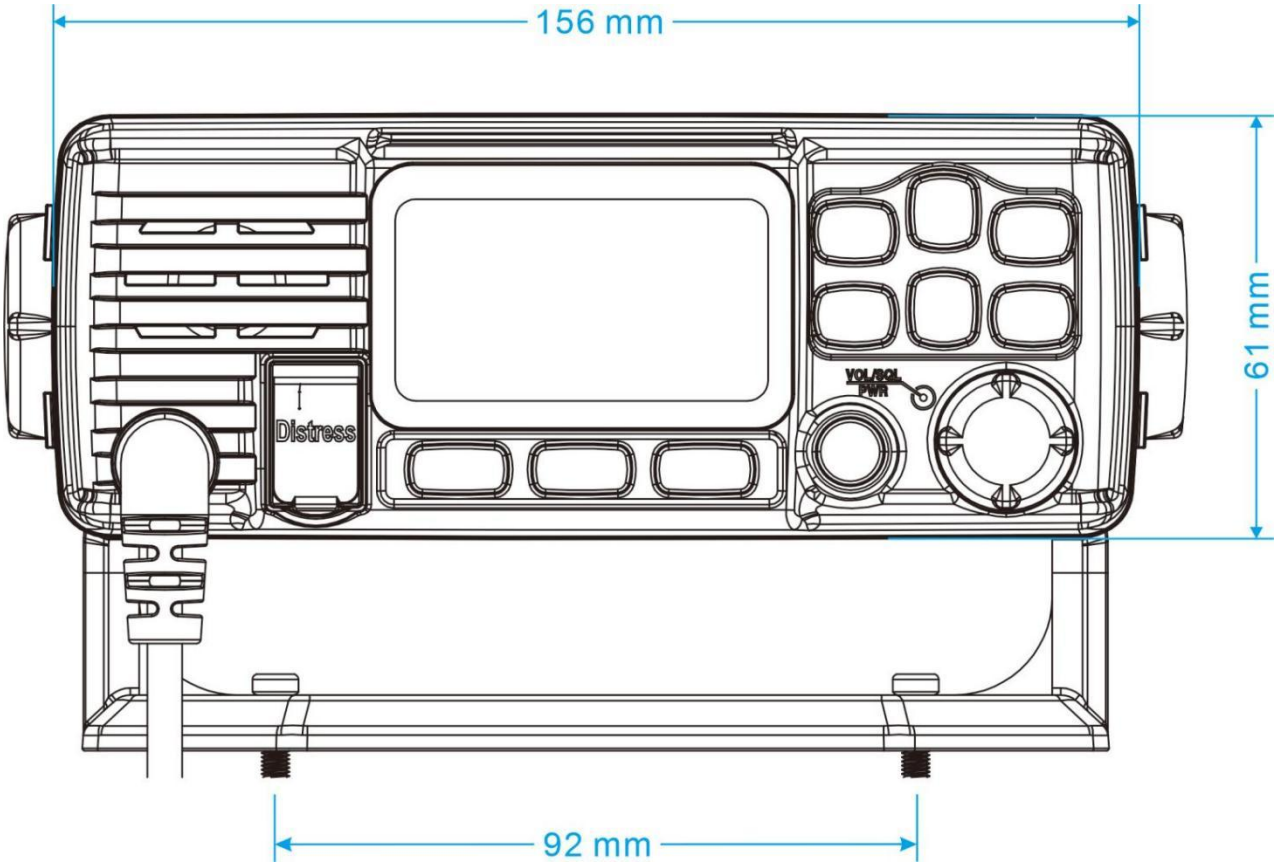
1.Place and fasten the mounting bracket on the console by 4 screws;
2.Mount the radio onto the bracket;
3.Attach the supplied mounting knobs from two sides of the bracket to fix the base radio securely in the mounting bracket (as shown above).
Note. Mounting bracket, mounting knobs and 4 screws M4x20 are in a radio's package.



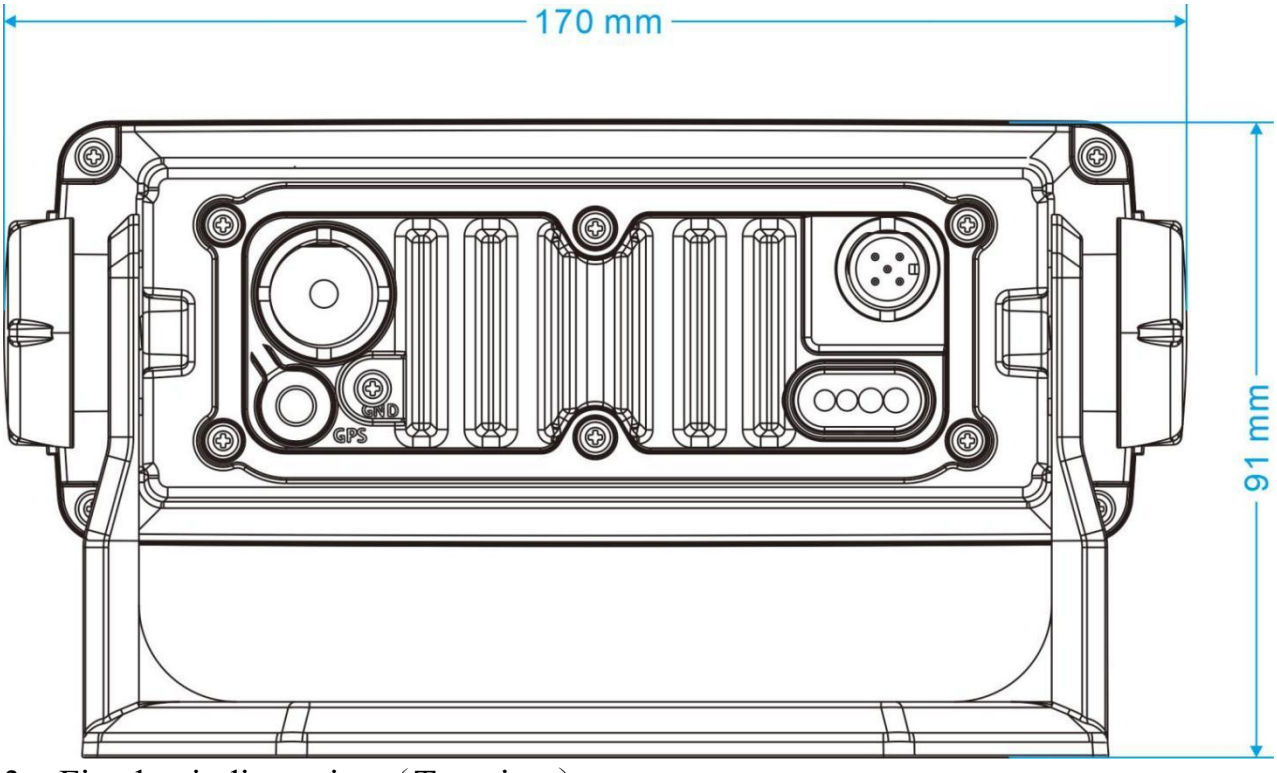


VHF Appearance Dimension Drawing

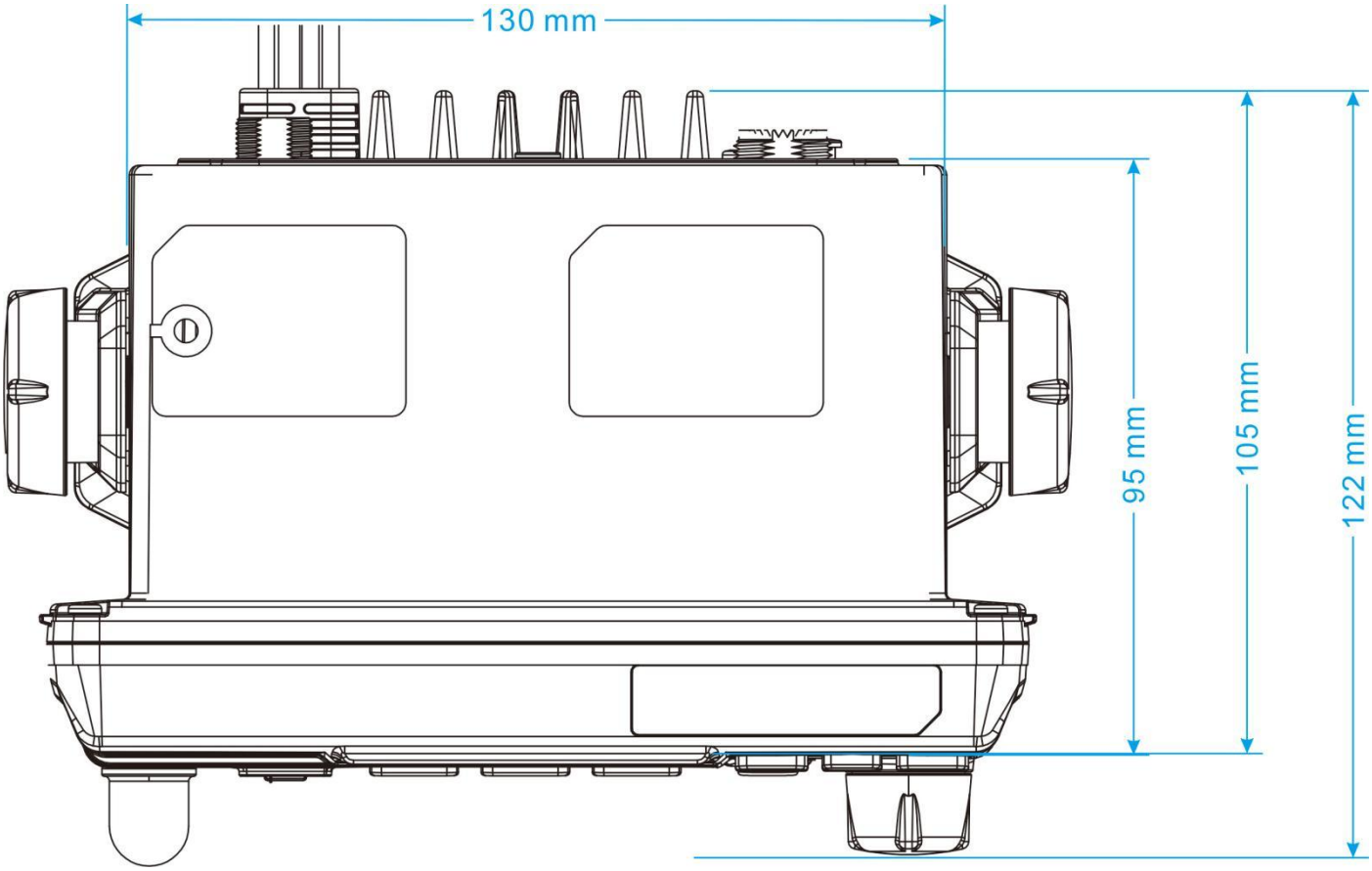
1、Fixed unit dimension



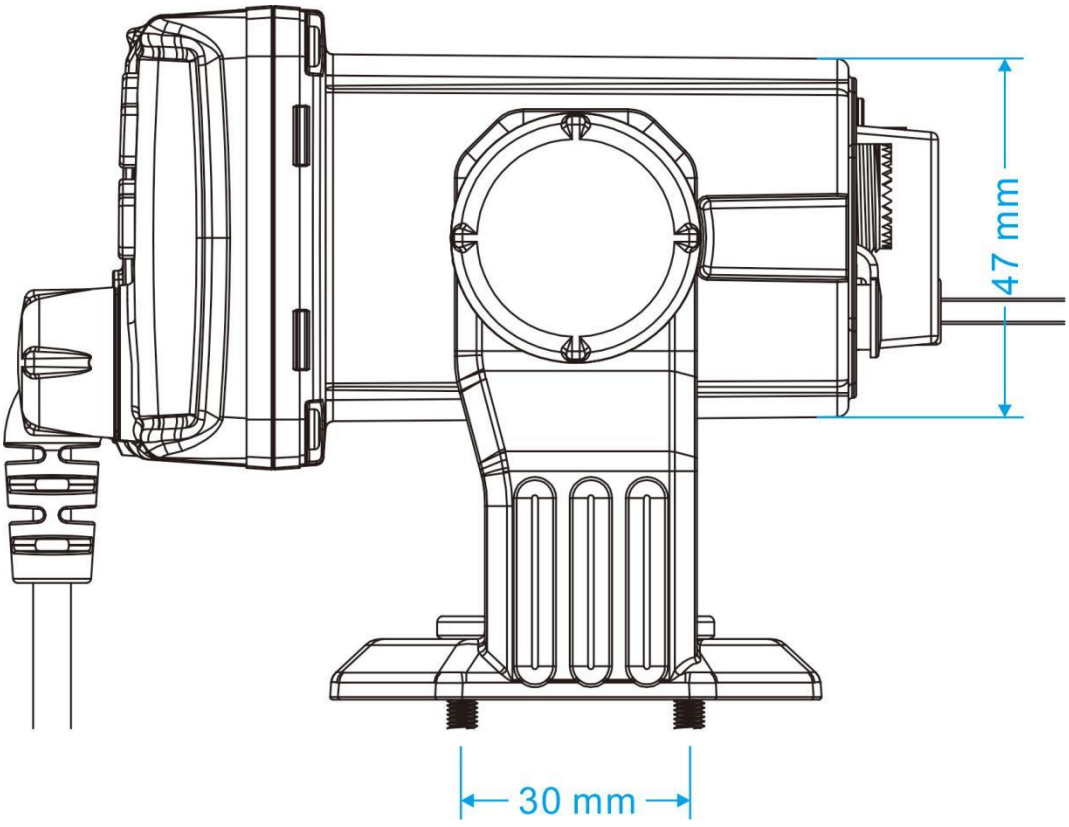
2、Fixed unit dimensions on mounting bracket



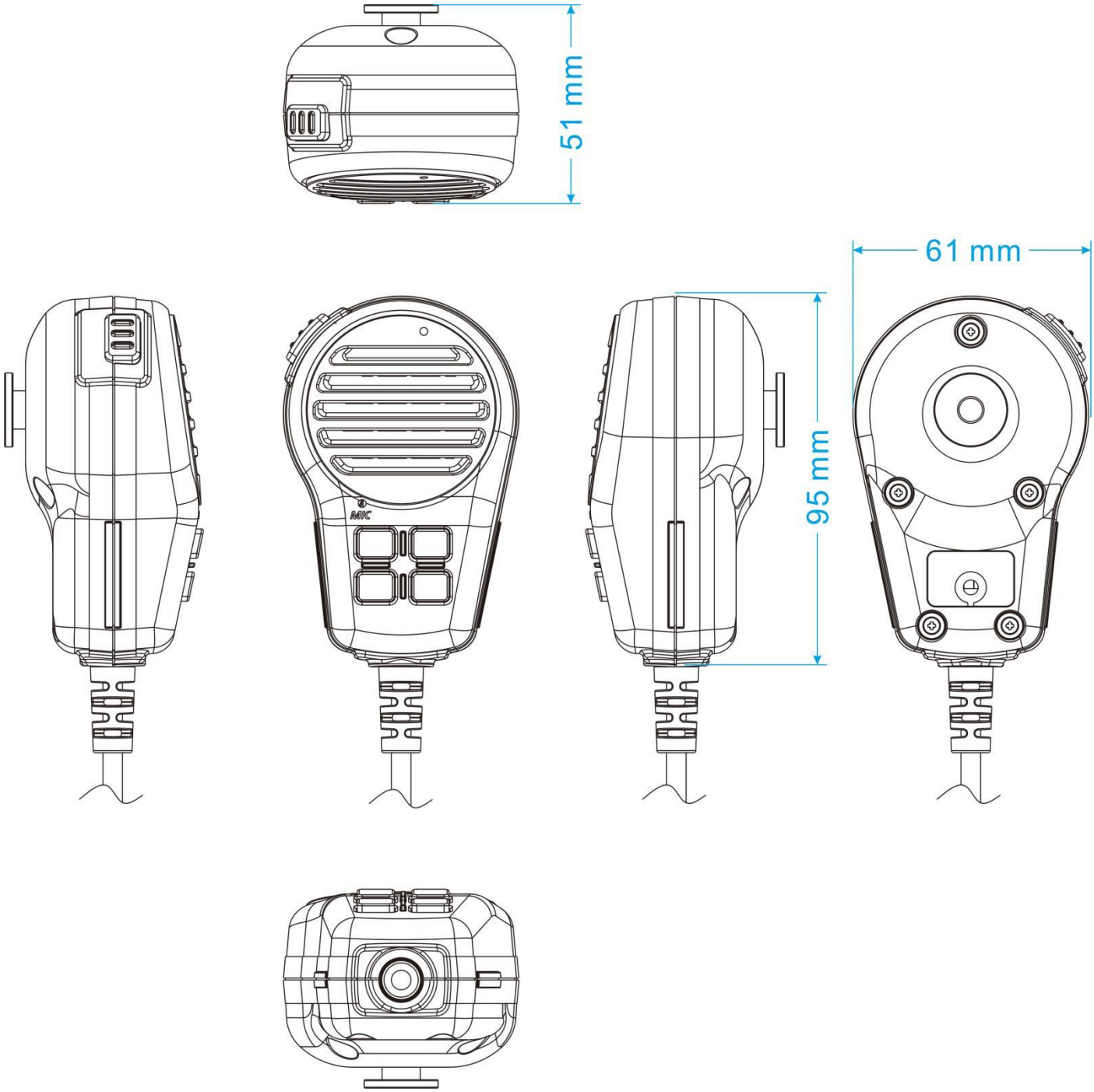
3、Fixed unit dimension（Top view）



4、Fixed unit dimension（Side view）



5、Standard Handset unit dimension



3. LCD Display

1、DSC is enable
2、Unread message
3、Channel band indicator. Indicates whether VHF is 'INT' or 'USA' or 'CAN ' band
4、Current channel display
5、Channel name
6、Ship GPS Date
7、Ship GPS time
8、Ship GPS Position
9、Volume level indicator
10、Squelch level indicator
11、First priority channel
12、RX carrier is received
13、Power indicator. 25W means the transmission power is 25 watt,and 1W means 1 watt.

4. Quick Start System

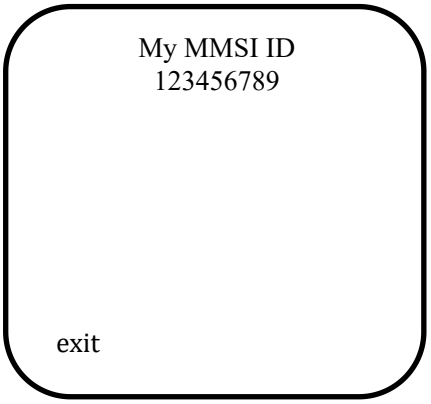
a. VHF Startup

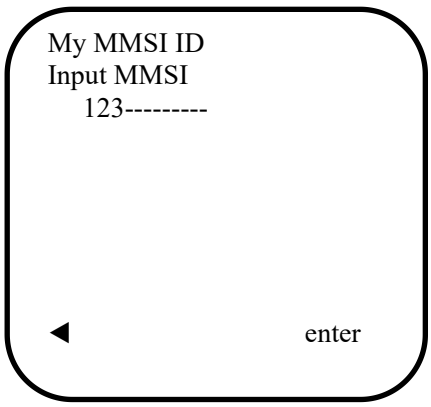
Warning: Transmitting without an antenna may damage your VHF Radio

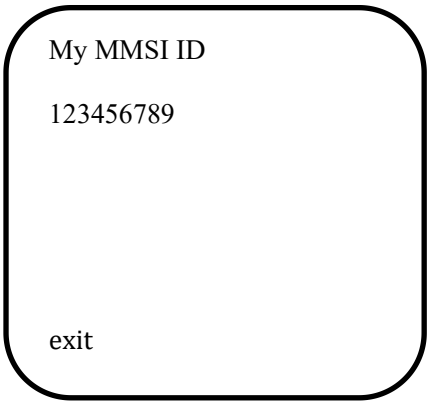
1. Install the VHF and ensure that the antenna is correctly connected to the power supply.
2. Then press the rotary power button to turn on VHF.
3. Use the rotary power button to adjust VOL, SQL, and channel.

b. MY MMSI ID setup

Firstly, long press CLR/MENU key to enter "Main Menu". Secondly, select "DSC Operation" to enter "MY MMSI ID". Then you can set up your related MMSI ID as below, input all numbers from the left to right one by one until all finished. When input 9 digits, UP/DOWN key used for choosing the number from 1 to 9. Once fulfilled 9 digits, then press "ENTER" to confirm. Note: You must enter your user MMSI before you can access the DSC functions. This is a once-only operation. You need to double confirm the MMSI ID. Once confirmed, your MMSI ID will be locked by this radio.

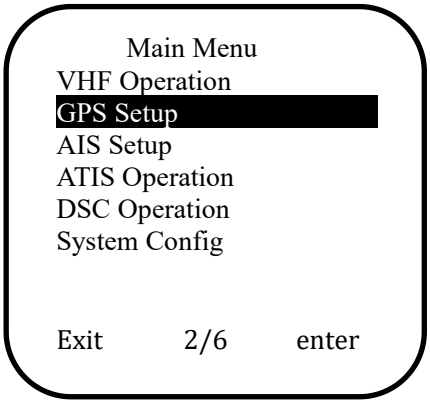


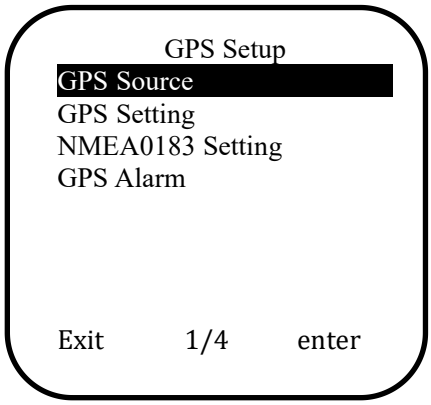


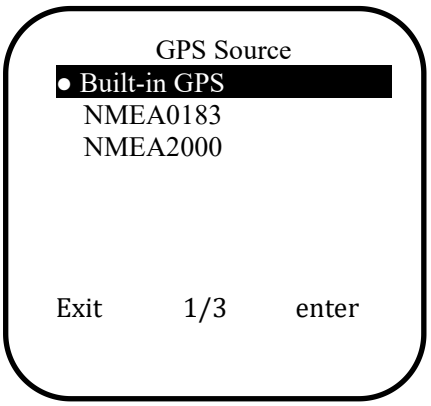


c. GPS Setup

Long press the CLR/MENU key to enter “GPS Setup” item for setup as below shown.



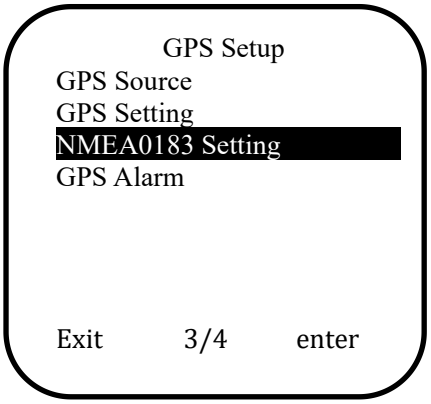


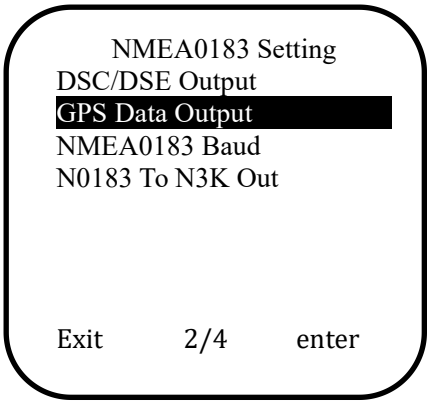


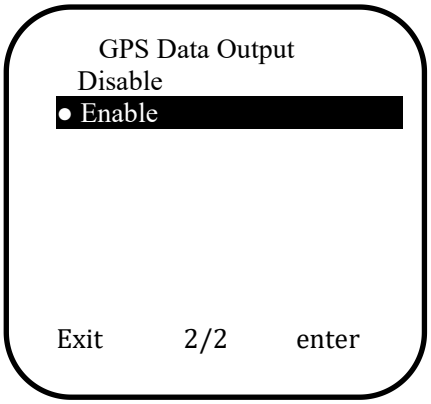
If connected to the GPS source of NMEA 0183, select NNME0183.
The GPS Setup NMEA 0183 is connected as follows:

Cable NMEA0183 VHF
Orange: NMEA 0183_ IN
Brown: NMEA 0183_OUT
Black: GND

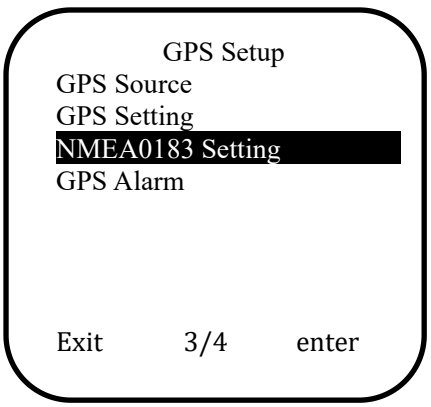
Then check if the GPS location is displayed on the VHF screen.
The GPS Data is set to Enable by NMEA0183output:

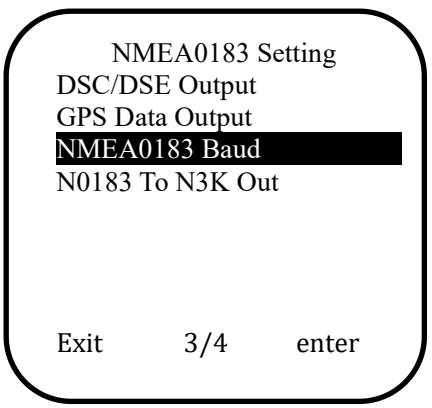


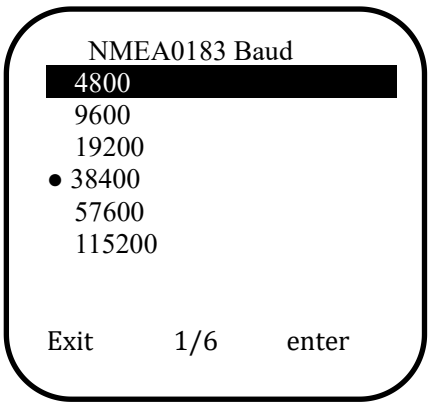




Then select the data transfer rate in “GPS Setup”.

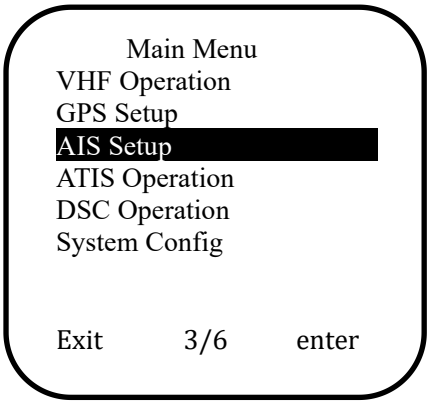


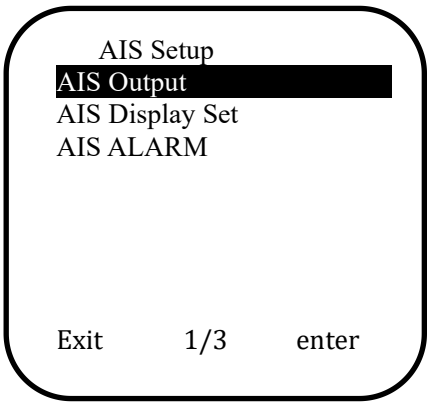


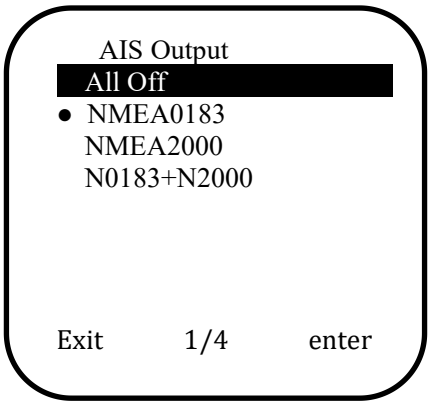


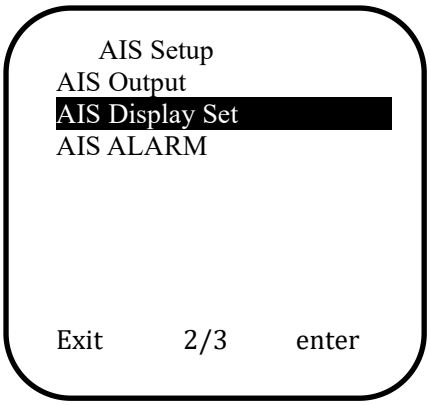
d. AIS Setup（Only AIS VHF）

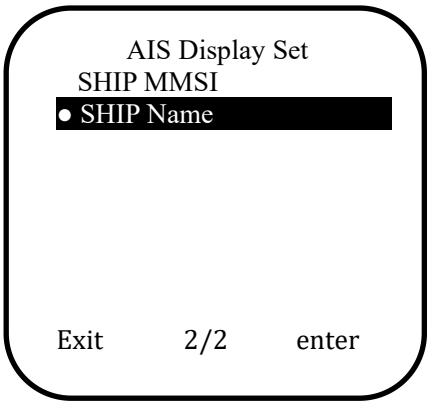
Long press the CLR/MENU key to enter “AIS Setup” item for setup as below shown.

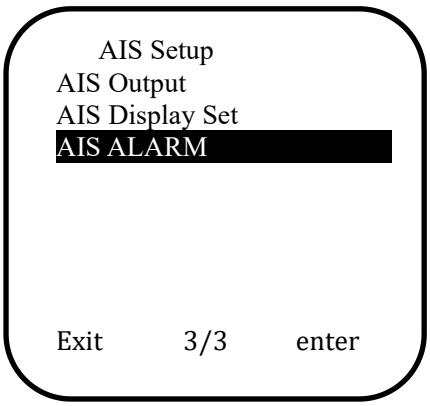


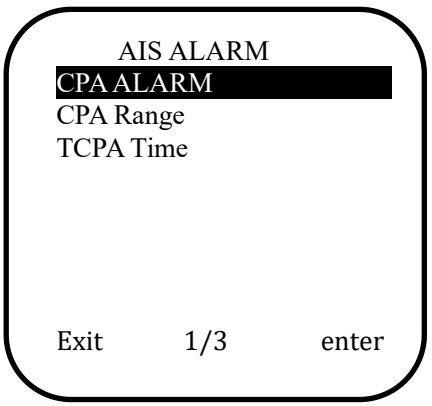


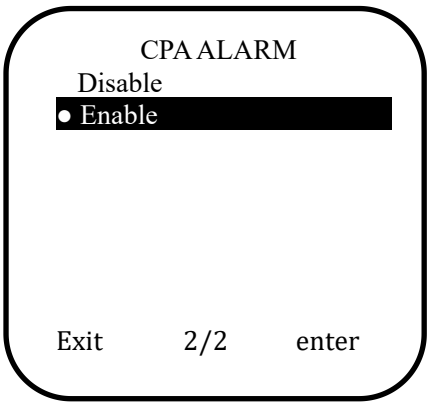


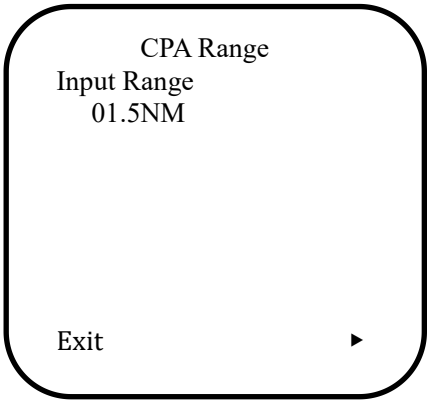


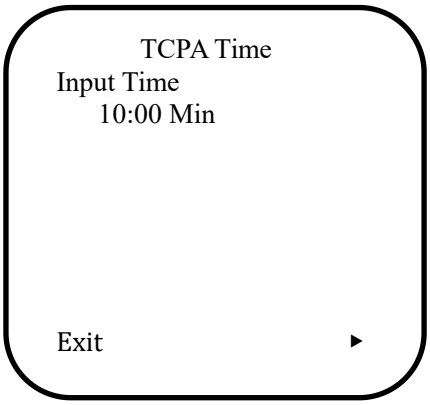












5. Main Menu Operation on Screen

DSC Menu

At noraml mode, short ENT/AIS key press to enter “DSC Menu” to operate.

DSC Menu **Individual Call** Position Request All Ship Call Group Call Test Call Receive Call Log exit 1/10 enter	Individual Call **Input Address** From Phone book exit 1/2 enter	Input Address Input 9 digits 123------ exit ▶	Individual Call Routine exit 1/1 enter
	Individual Call Input Address **From Phone book** exit 2/2 enter	Buddy List **4** 1/1	Individual Call **Routine** exit 1/1 enter
DSC Menu Individual Call **Position Request** All Ship Call Group Call Test Call Receive Call Log exit 2/10 enter	Position Request **Input Address** From Phone book exit 1/2 enter	Input Address Input 9 digits 123------ exit ▶	Position Request TO:123------ Safety exit call
	Position Request Input Address **From Phone book** exit 2/2 enter	Buddy List **4** 1/1	Position Request TO:400000004 4 Safety exit call
DSC Menu Individual Call Position Request **All Ship Call** Group Call Test Call Receive Call Log exit 3/10 enter	All Ship Call **Safety** Urgency exit 1/2 enter	Safety Select Channel: **0016 distress** 0017 sar 0018 port ops 0019 commercial 1019 commercial exit enter	All Ship Call TO:All Ship Safety Telephone by Channel 0016 exit call
	All Ship Call Safety **Urgency** exit 2/2 enter	Urgency Select Channel: **0016 distress** 0017 sar 0018 port ops 0019 commercial 1019 commercial exit enter	All Ship Call TO:All Ship Urgency Telephone by Channel 0016 exit call

DSC Menu Individual Call Position Request All Ship Call **Group Call** Test Call Receive Call Log exit 4/10 enter	Group Call **Input Address** From Phone book exit 1/2 enter	Input Address Input 8 digits 0123----- exit ▶	Input Address Input 8 digits 012345678 ◀ ▶
	Group Call Input Address **From Phone book** exit 2/2 enter		
DSC Menu Individual Call Position Request All Ship Call Group Call **Test Call** Receive Call Log exit 5/10 enter	Test Call **Input Address** From Phone book exit 1/2 enter	Input Address Input 9 digits 123------ exit ▶	Test Call TO:123------ Safety exit call
	Test Call Input Address **From Phonebook** exit 2/2 enter		
DSC Menu Individual Call Position Request All Ship Call Group Call Test Call **Receive Call Log** exit 6/10 enter	Receive Call Log **Distress Call** Others Call exit 1/2 enter	Distress Call **Distress alert** Distress alert Distress alert Distress cancel Distress alert Distress alert 1/50	Received DSC Distress call Undesignated From:100000000 22° 36.0560’ N 113° 51.6467’ E 08:57 UTC exit delete
	Receive Call Log Distress Call **Others Call** exit 2/2 enter	Others Call **All ships call** All ships call All ships call All ships call 1/4	Received DSC All ships call Safety From:000000002 Channel 0016 Is requested. exit delete
DSC Menu Position Request All Ship Call Group Call Test Call Receive Call Log **Send Call Log** exit 7/10 enter	Send Call Log **Distress Call** MOB Call Others Call exit 1/3 enter		

	Send Call Log Distress Call **MOB Call** Others Call exit 2/3 enter		
	Send Call Log Distress Call MOB Call **Others Call** exit 3/3 enter		
DSC Menu All Ship Call Group Call Test Call Receive Call Log Send Call Log **Phone Book** exit 8/10 enter	Phone Book **Buddy List** Group List exit 1/2 enter	Buddy List **New Entry** List exit 1/2 enter	New Entry Input MMSI 0-------- Input Name ---------- exit ▶
	Phone Book Buddy List **Group List** exit 1/2 enter	Group List **New Entry** List exit 1/2 enter	New Entry Input MMSI 00------- Input Name ---------- exit ▶
DSC Menu Group Call Test Call Receive Call Log Send Call Log Phone Book **DSC Setup** exit 9/10 enter	DSC Setup **Position Input** Position Reply Test Ack exit 1/3 enter	Position Input input Position 0-°--。 ----'N ---°--°----'E Input UTC Time --:-- UTC exit ▶	
	DSC Setup Position Input **Position Reply** Test Ack exit 2/3 enter	Position Reply ● **Automatic** Manual exit 1/2 enter	
	DSC Setup Position Input Position Reply **Test Ack** exit 3/3 enter	Test Ack ● **Automatic** Manual exit 1/2 enter	

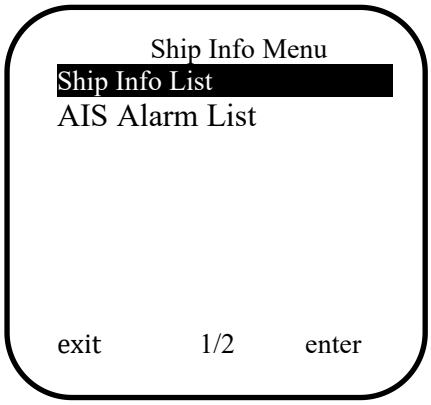
DSC Menu Test Call Receive Call Log Send Call Log Phone Book DSC Setup My MMSI ID exit 10/10 enter	My MMSI ID 100000000 exit		

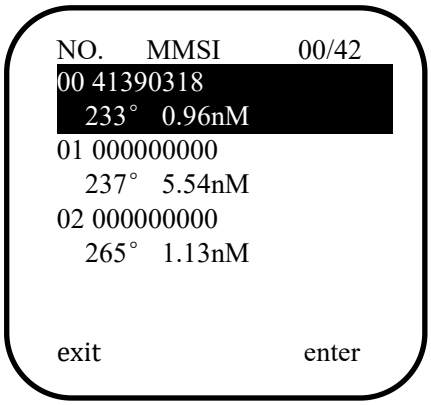
AIS Menu(Only AIS VHF)

Long press the 'ENT/AIS' key to enter AIS interface.

Ship Info List indicates the information about the received ship. If the ship information be received , press enter to check the information list.

AIS Alarm List is a list of alarms received from ships.



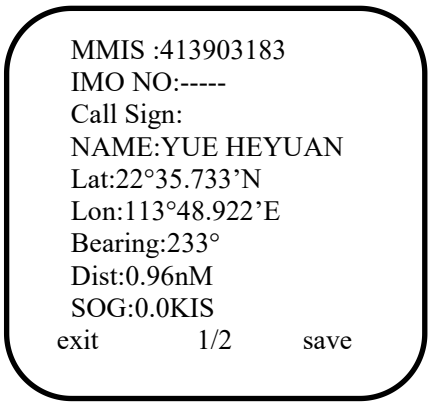


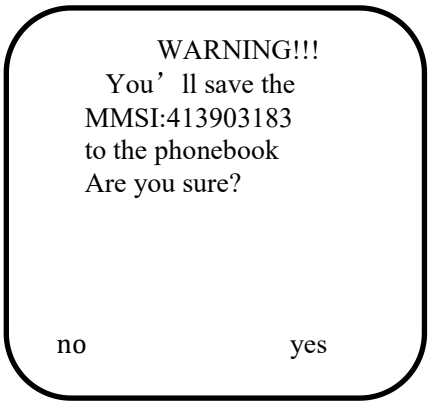
Press▲or ▼key，Or turn the knob to check and select the boat information.

Press" exit"key to return the previous page, press enter to check the detailed ships information.

Press "exit" key to return to the previous page, press SAVE to enter the interface for saving MMSI into phonebook.

Press"no"key to return the previous page, press"yes"to save MMSI into phonebook.





Main Menu

Long press the CLR/MENU key to enter “Main Menu” item as below for setup

Main Menu **VHF Operation** GPS Setup AIS Setup ATIS Operation DSC Operation System config exit 1/6 enter	VHF Operation **Channel Band Set** Priority 2nd Ch exit 1/2 enter	Channel Band Set **USA** ● INT CAN exit 1/3 enter	
	VHF Operation Channel Band Set **Priority 2nd Ch** exit 2/2 enter	Priority 2nd Ch Select Channel: **0016 distress** 0017 sar 0018 port ops 0019 commercial 1019 commercial exit enter	Priority 2nd Ch New Priority Second Channel 0016 distress exit enter
Main Menu VHF Operation **GPS Setup** AIS Setup ATIS Operation DSC Operation System config exit 2/6 enter	GPS Setup **GPS Source** GPS Setting NMEA0183 Setting GPS Alarm exit 1/4 enter	GPS Source ● built-in GPS NMEA0183 NMEA2000 exit 1/3 enter	
	GPS Setup GPS Source **GPS Setting** NMEA0183 Setting GPS Alarm exit 2/4 enter	GPS Setting **Time Display** Time off set COG/SOG Display Speed Unit exit 1/4 enter	Time Display **Disable** ● Enable exit 1/2 enter
	GPS Setup GPS Source GPS Setting **NMEA0183 Setting** GPS Alarm exit 3/4 enter	NMEA0183 Setting **DSC/DSE Output** GPS Data Output NMEA0183 Baud N0183 To N2K Out exit 1/4 enter	DSC/DSE Output **Disable** ● Enable exit 1/2 enter
	GPS Setup GPS Source GPS Setting NMEA0183 Setting **GPS Alarm** exit 4/4 enter	GPS Alarm **On** ●Off exit 1/2 enter	

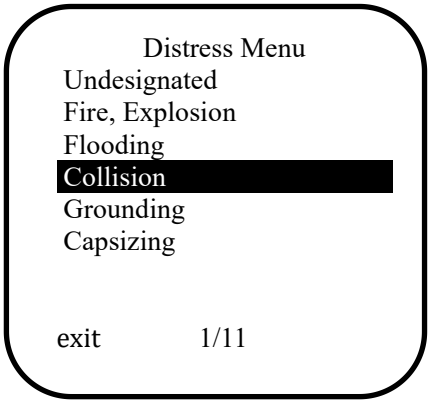
Main Menu VHF Operation GPS Setup **AIS Setup** ATIS Operation DSC Operation System config exit 3/6 enter	AIS Setup **AIS Output** AIS Display Set AIS Alarm exit 1/3 enter	AIS Output **All Off** ●NMEA0183 NMEA2000 N0183+N2000 exit 1/4 enter	
	AIS Setup AIS Output **AIS Display Set** AIS Alarm exit 2/3 enter	AIS Display Set **● SHIP MMSI** SHIP Name exit 1/2 enter	
	AIS Setup AIS Output AIS Display Set **AIS ALARM** exit 3/3 enter	AIS ALARM **CPA ALARM** CPA Range TCPA Time exit 1/3 enter	CPA ALARM **● Disable** Enable exit 1/2 enter
Main Menu VHF Operation GPS Setup AIS Setup **ATIS Operation** DSC Operation System config exit 4/6 enter	ATIS Operation **My ATIS ID** ATIS Function exit 1/2 enter	My ATIS ID Input ATIS ID 90-------- exit ▶	
	ATIS Operation My ATIS ID **ATIS Function** exit 2/2 enter	ATIS Function **● Disable** Enable exit 1/2 enter	
Main Menu VHF Operation GPS Setup AIS Setup ATIS Operation **DSC Operation** System config exit 5/6 enter	DSC Operation **My MMSI ID** DSC Function exit 1/2 enter		
	DSC Operation My MMSI ID **DSC Function** exit 2/2 enter	DSC Function Disable **● Enable** exit 1/2 enter	

Main Menu VHF Operation GPS Setup AIS Setup ATIS Operation DSC Operation System config exit 6/6 enter	System Config LCD Contrast Key Beep Dimmer Version Info Factory Reset Language Select exit 1/6 enter	LCD Contrast Contrast:4  exit enter	
	System Config LCD Contrast Key Beep Dimmer Version Info Factory Reset Language Select exit 2/6 enter	Key Beep Off ●Quiet Middle Loud exit 2/4 enter	
	System Config LCD Contrast Key Beep Dimmer Version Info Factory Reset Language Select exit 3/6 enter	Dimmer Back Light:5  exit enter	
	System Config LCD Contrast Key Beep Dimmer Version Info Factory Reset Language Select exit 4/6 enter	Version Info PCBA Ver:xxxx Boot Loader:xxxx Main SW:xxxx Clone SW:xxxx exit	
	System Config LCD Contrast Key Beep Dimmer Version Info Factory Reset Language Select exit 5/6 enter	Factory Reset Enable exit 1/1 enter	
	System Config LCD Contrast Key Beep Dimmer Version Info Factory Reset Language Select exit 6/6 enter	Language Select ●English Français Español exit 1/3 enter	

Distress Menu

Pull the DISTRESS red cover and press the DISTRESS key. Then below “Distress Menu” will be displayed on LCD. Choose one distress item such as “Collision”, press and hold this for more than 3 seconds for transmitting Collision message out.

You can also choose to resend, pause or exit after this message was sent.



6. Software Key and Knob Functions

At normal mode,press （◀ , ▶,KEYL,KEYC,or KEYR）,Various often-used functions are assigned to the Software Keys for easy access. The functions’ icons are displayed above the Software Keys, as shown below.

Selecting a Software Key function

Push [◀] or [▶] to slide through the selectable functions that are assigned to the Software Keys. press KEYL,KEYC,or KEYR to enter the function.

SCAN

search for currently all working channels.
CH1-CH2-CH3-…-CH88
When a signal is detected, the scan pauses until the signal disappears.

PSCAN

CH1-CH16-CH2-CH16-CH3-CH16-…..CH88-CH16-L1-CH16-

DUAW

Monitor the current channel and CH16 in cycle.

LAMP

Any key press will turn on the backlit (if backlit setting is ON) except the PTT key. The backlit should be remaining on for 5 sec if no any keys pressed. The time out will be reset if any key pressed within the time frame.

WX

Enter WX channels.

PRI
Enter private channel.
If there is no private channel, a warning interface will appear.

TRIW
Monitor CH16, current channel and one programmed channels in cycle.

MOB
Enter the MOB launch interface.

GPS
Enter display GPS.

Other features and solution
TX Time Out
The transmission will be automatically turn off after PTT key pressed over 5 consecutive minutes. The Tx mode will be terminate and back to Rx mode. Once the PTT key is released, the TX time out timer will be reset. PTT key will work back normally.

TX Indicator
When the radio is transmitting, the “TX” icon will be lit up

RX Indicator
When theVHF receives a signal; the "RX" icon will be lit up.

European specific operation
Most of the functions of the radio are the same as American . Only some features work differently.

Programming ATIS ID
The ATIS feature is only available in European models. Therefore, it only works when tuned to the International Frequency Group. The ATIS function is always enabled when the ATIS ID is written to the radio by pressing a key or cloning software. Users cannot disable this function.
In order to enable customer to input ATIS ID into the radio, the checkbox next to the user's ATIS input items on the cloning software must be checked.

MUTE Feature for Internal Speaker
When the crew is resting inside,you can operate only the external speaker by turning ON the MUTE feature.The internal speaker will have no sound when the MUTE feature works normally,so as not to disturb the crew to rest.
This feature is enabled or disabled in the VHF menu.

Power-on and power-off Memory Function
The VHF RADIO will remember its on/off state in case of a sudden power outage; when power is restored, the VHF RADIO will return its previous on or off state.

N2K or AIS VHF NMEA2000 COMMUNICATION PGN
59392 ISO acknowledgement
60928 ISO Address Claim
126208 Nmea request/command/acknowledge Group function
126464 PGN List
126720 fast data packet, multi frame, proprietary PGN
126996 Product information
129799 Radio frequency/Mode/power
129025 Position,rapid update
129026 COG/SOG Rapid update
129033 time & date update
129038 Class A position report (Rx,Tx) note:ais msg 1/2/3
129039 Class B position report (Rx,Tx) note:ais msg 18
129040 Class B ext position report (Rx,Tx) note:ais msg 19
129793 UTC and date report (Tx) note:ais msg 4/11
129794 Class A static and voyage related data (Rx,Tx) note:ais msg 5
129801 Addressed safety msg (Rx,Tx) note:ais msg 12
129802 Broadcast safety msg (Rx,Tx) note:ais msg 14
129808 Dsc call information
129809 AIS Class B 'CS'Static Data Report, Part A note:ais msg 24A
129810 AIS Class B 'CS'Static Data Report, Part B note:ais msg 24B
AIS VHF SEND NMEA2000 PGN:
59392 ISO acknowledgement
60928 ISO Address Claim
126208 Nmea request/command/acknowledge Group function
126464 PGN List
126720 fast data packet,multi frame, proprietary PGN
126996 Product information
129025 Position,rapid update
129026 COG/SOG Rapid update
129033 time & date update
129799 Radio frequency/Mode/power
129808 Dsc call information
AIS VHF RECEIVE NMEA2000 PGN:
59392 ISO acknowledgement
59904 ISO request
60928 ISO Address Claim
126208 Nmea request/command/acknowledge Group function
126464 PGN List
129026 COG/SOG Rapid update
129029 GNSS Position data

International Marine VHF Channels & Frequencies				
CH	TX Freq	RX Freq	Simple	Freq Use
01	156.050	160.650		Public Correspondence, Port Operations and Ship Movement
02	156.100	160.700		Public Correspondence, Port Operations and Ship Movement
03	156.150	160.750		Public Correspondence, Port Operations and Ship Movement
04	156.200	160.800		Public Correspondence, Port Operations and Ship Movement
05	156.250	160.850		Public Correspondence, Port Operations and Ship Movement
06	156.300	156.300	x	Inter-ship [1]
07	156.350	160.950		Public Correspondence, Port Operations and Ship Movement
08	156.400	156.400	x	Inter-ship
09	156.450	156.450	x	Inter-ship, Port Operations and Ship Movement
10	156.500	156.500	x	Inter-ship, Port Operations and Ship Movement [2]
11	156.550	156.550	x	Port Operations and Ship Movement
12	156.600	156.600	x	Port Operations and Ship Movement
13	156.650	156.650	x	Inter-ship Safety, Port Operations and Ship Movement [3]
14	156.700	156.700	x	Port Operations and Ship Movement
15	156.750	156.750	x	Inter-ship and On-board Communications at 1W only [4]
16	156.800	156.800	x	Distress, Safety and Calling
17	156.850	156.850	x	Inter-ship and On-board Communications at 1W only [4]
18	156.900	161.500		Public Correspondence, Port Operations and Ship Movement
19	156.950	161.550		Public Correspondence, Port Operations and Ship Movement
1019	156.950	156.950	x	Public Correspondence, Port Operations and Ship Movement
2019	RX Only	161.550		Public Correspondence, Port Operations and Ship Movement
20	157.000	161.600		Public Correspondence, Port Operations and Ship Movement
1020	157.000	157.000	x	Public Correspondence, Port Operations and Ship Movement
2020	RX Only	161.600		Public Correspondence, Port Operations and Ship Movement
21	157.050	161.650		Public Correspondence, Port Operations and Ship Movement
22	157.100	161.700		Public Correspondence, Port Operations and Ship Movement
23	157.150	161.750		Public Correspondence, Port Operations and Ship Movement
1027	157.350	157.350	x	Public Correspondence
1028	157.400	157.400	x	Public Correspondence
60	156.025	160.625		Public Correspondence, Port Operations and Ship Movement
61	156.075	160.675		Public Correspondence, Port Operations and Ship Movement
62	156.125	160.725		Public Correspondence, Port Operations and Ship Movement
63	156.175	160.775		Public Correspondence, Port Operations and Ship Movement
64	156.225	160.825		Public Correspondence, Port Operations and Ship Movement
65	156.275	160.875		Public Correspondence, Port Operations and Ship Movement
66	156.325	160.925		Public Correspondence, Port Operations and Ship Movement
67	156.375	156.375	x	Inter-ship, Port Operations and Ship Movement [2]
68	156.425	156.425	x	Port Operations and Ship Movement
69	156.475	156.475	x	Inter-ship, Port Operations and Ship Movement
71	156.575	156.575	x	Port Operations and Ship Movement
72	156.625	156.625	x	Inter-ship

73	156.675	156.675	x	Inter-ship [2]
74	156.725	156.725	x	Port operations and Ship movement
75	156.775	156.775	x	See Note [5]
76	156.825	156.825	x	See Note [5]
77	156.875	156.875	x	Inter-ship
78	156.925	161.525		Public correspondence, Port Operations and Ship Movement
1078	156.925	156.925	x	Public correspondence, Port Operations and Ship Movement
2078	RX Only	161.525		Public correspondence, Port Operations and Ship Movement
79	156.975	161.575		Public correspondence, Port Operations and Ship Movement
1079	156.975	156.975	x	Public correspondence, Port Operations and Ship Movement
2079	RX Only	161.575		Public correspondence, Port Operations and Ship Movement
80	157.025	161.625		Public correspondence, Port Operations and Ship Movement
81	157.075	161.675		Public correspondence, Port Operations and Ship Movement
82	157.125	161.725		Public correspondence, Port Operations and Ship Movement
83	157.175	161.775		Public correspondence, Port Operations and Ship Movement
87	157.375	157.375	x	Port Operations and Ship Movement
88	157.425	157.425	x	Port Operations and Ship Movement
31	157.550	162.150		Public Correspondence, Port Operations and Ship Movement

- Inter-ship channels are for communications between ship stations. Inter-ship communications should be restricted to Channels 6, 8, 72 and 77. If these are not available, the other channels marked for Inter-ship may be used.
- Channel 70 is used exclusively for Digital Selective Calling (DSC) and is not available for regular voice communications.

Notes:

1. Channel 06 may also be used for communications between ship stations and aircraft engaged in coordinated search and rescue operations. Ship stations should avoid harmful interference to such communications on channel 06 as well as to communications between aircraft stations, ice breakers and assisted ships during ice seasons.
2. Within the European Maritime Area and in Canada, channels 10, 67 and 73 may also be used by the individual administrations concerned for communication between ship stations, aircraft stations and participating land stations engaged in coordinated search and rescue and anti-pollution operations in local areas. Channels 10 or 73 (depending on location) are also used for the broadcast of Marine Safety Information by the Maritime and Coast Guard Agency in the UK only.
3. Channel 13 is designated for use on a worldwide basis as a navigation safety communication channel, primarily for inter-ship navigation safety communications.
4. Channels 15 and 17 may also be used for on-board communications provided the effective radiated power does not exceed 1 Watt.
5. The use of Channels 75 and 76 should be restricted to navigation related communication only and all precautions should be taken to avoid harmful interference to channel 16. Transmit power is limited to 1 Watt.

U.S. Marine VHF Channels and Frequencies				
CH	TX Freq	RX Freq	Simplex	Freq Use
1001	156.050	156.050	x	Port Operations and Commercial, VTS. Available only in New Orleans / Lower Mississippi area.
1003	156.150	156.150	x	U.S. Government only
1005	156.250	156.250	x	Port Operations or VTS in the Houston, New Orleans and Seattle areas.
06	156.300	156.300	x	Inter-ship Safety
1007	156.350	156.350	x	Commercial
08	156.400	156.400	x	Commercial (Inter-ship only)
09	156.450	156.450	x	Boater Calling. Commercial and Non-Commercial.
10	156.500	156.500	x	Commercial
11	156.550	156.550	x	Commercial. VTS in selected areas.
12	156.600	156.600	x	Port Operations. VTS in selected areas.
13	156.650	156.650	x	Inter-ship Navigation Safety (Bridge-to-bridge). Ships >20meters in length maintain a listening watch on this channel in US waters.
14	156.700	156.700	x	Port Operations. VTS in selected areas.
15	RX Only	156.750		Environmental (Receive only). Used by Class 'C' EPIRBS.
16	156.800	156.800	x	International Distress, Safety and Calling. Ships required to carry radio, USCG, and most coast stations maintain a listening watch on this channel.
17	156.850	156.850	x	State Control
1018	156.900	156.900	x	Commercial
1019	156.950	156.950	x	Commercial
20	157.000	161.600		Port Operations (duplex)
1020	157.000	157.000	x	Port Operations
1021	157.050	157.050	x	U.S. Coast Guard only
1022	157.100	157.100	x	Coast Guard Liaison and Maritime Safety Information Broadcasts. Broadcasts announced on channel 16.
1023	157.150	157.150	x	U.S. Coast Guard only
1027	157.350	157.350	x	PC Public Correspondence
1028	157.400	157.400	x	PC Public Correspondence
1061	156.075	156.075	x	U.S. Government only
1063	156.175	156.175	x	Port Operations and Commercial, VTS. Available only in New Orleans / Lower Mississippi area.
1064	156.225	156.225	x	U.S. Coast Guard only
1065	156.275	156.275	x	Port Operations
1066	156.325	156.325	x	Port Operations
67	156.375	156.375	x	Commercial. Used for Bridge-to-bridge communications in lower Mississippi River. Inter-ship only.
68	156.425	156.425	x	Non-Commercial
69	156.475	156.475	x	Non-Commercial
70	156.525	156.525	x	Non-Commercial
71	156.575	156.575	x	Non-Commercial
72	156.625	156.625	x	Non-Commercial (Inter-ship only)
73	156.675	156.675	x	Port Operations
74	156.725	156.725	x	Port Operations

77	156.875	156.875	x	Port Operations (Inter-ship only)
1078	156.925	156.925	x	Non-Commercial
1079	156.975	156.975	x	Commercial. Non-Commercial in Great Lakes only.
1080	157.025	157.025	x	Commercial. Non-Commercial in Great Lakes only
1081	157.075	157.075	x	U.S. Government only – Environmental protection operations.
1082	157.125	157.125	x	U.S. Government only
1083	157.175	157.175	x	U.S. Coast Guard only
87	157.375	157.375	x	Public Correspondence Marine Operator)
88	157.425	157.425	x	Public Correspondence only near Canadian border

- Recreational boaters normally use channels listed as Non-Commercial: 68, 69, 71, 72, 1078.
- Channel 70 is used exclusively for Digital Selective Calling (DSC) and is not available for regular voice communications.
- Channel 16 and are not available for regular voice communications.

Notes:

1. The digits “10” following a channel number indicates simplex use of the ship station transmit side of an international semi-duplex channel. Operations are different from that of international operations on that channel.

2. Channel 13 should be used to contact a ship when there is danger of collision. All ships of length 20 meters or greater are required to guard VHF channel 13, in addition to VHF channel 16, when operating within U.S. territorial waters.
3. Channel is Receive Only.
4. Channel 16 is used for calling other stations or for distress alerting.
5. Output power is fixed at 1 watt only.
6. Output power is initially set to 1 watt. User can temporarily override this restriction to transmit at high power.

Canadian Marine VHF Channels and Frequencies				
CH	TX Freq	RX Freq	Simple	Area of Operation Use
01	156.050	160.650		PC Public Correspondence
02	156.100	160.700		PC Public Correspondence
03	156.150	160.750		PC Public Correspondence
1004	156.200	156.200	x	PC Inter-ship, Ship/Shore and Safety: Canadian Coast Guard S&R
1005	156.250	156.250	x	Ship Movement
06	156.300	156.300	x	All areas Inter-ship, Commercial, Non commercial and Safety: May Be used for search and rescue communications between ships and aircraft.
1007	156.350	156.350	x	All areas Inter-ship, Ship/Shore, Commercial
08	156.400	156.400	x	WC, EC Inter ship, Commercial and Safety: Also assigned for operations in the Lake Winnipeg area.
09	156.450	156.450	x	AC Inter-ship, Ship/Shore, Commercial, Non-commercial and Ship Movement: May be used to communicate with aircraft and Helicopters in predominantly maritime support operations.
10	156.500	156.500	x	AC, GL Inter-ship, Ship/Shore, Commercial, Non-commercial, Safety and Ship Movement: May also be used for communications with aircraft engaged in coordinated search and rescue and antipollution operations.
11	156.550	156.550	x	PC, AC, GL Inter-ship, Ship/Shore, Commercial, Non-commercial and Ship Movement: Also used for pilotage purposes.
12	156.600	156.600	x	WC, AC, GL Inter-ship, Ship/Shore, Commercial, Non-commercial and Ship Movement: Port operations and pilot information and messages.
13	156.650	156.650	x	All areas Inter-ship, Commercial, Non-commercial and Ship Movement: Exclusively for bridge-to-bridge navigational traffic. Limited to 1-watt maximum power.
14	156.700	156.700	x	AC, GL Inter-ship, Ship/Shore, Commercial, Non-commercial and Ship Movement: Port operations and pilot information and Messages.
15	156.750	156.750	x	All areas Inter-ship, Ship/Shore, Commercial, Non-commercial and Ship Movement: All May also be used for on-board Communications.
16	156.800	156.800	x	All areas International Distress, Safety and Calling.
17	156.850	156.850	x	All areas Inter-ship, Ship/Shore, Commercial, Non-commercial and Ship Movement: All operations limited to 1-watt maximum power. May also be used for on-board Communications.
1018	156.900	156.900	x	All areas Inter-ship, Ship/Shore and Commercial: Towing on the Pacific Coast.
1019	156.950	156.950	x	All areas except PC Inter-ship and Ship/Shore: Canadian Coast Guard only.
20	157.000	161.600		All areas Ship/Shore, Safety and Ship Movement: Port operation
1021	157.050	157.050	x	All areas Inter-ship and Ship/Shore: Canadian Coast Guard only.
2021	RX Only	161.650		All areas Safety: Continuous Marine Broadcast (CMB) service.

1022	157.100	157.100	x	All areas Inter-ship, Ship/Shore, Commercial and Non-commercial: For communications between Canadian Coast Guard and non-Canadian Coast Guard stations only.
23	157.150	161.750		PC Ship/Shore and Public Correspondence: Also in the inland waters of British Columbia and the Yukon.
2023	RX Only	161.750		Continuous Marine Broadcast Service
1027	157.350	157.350	x	PC Ship/Shore and Public Correspondence
1028	157.400	157.400	x	PC Ship/Shore and Public Correspondence
60	156.025	160.625		PC Ship/Shore and Public Correspondence.
61	156.075	160.675		PC Ship/Shore and Public Correspondence
1061	156.075	156.075	x	EC Inter-ship, Ship/Shore and Commercial: Commercial fishing only.
1062	156.125	156.125	x	EC Inter-ship, Ship/Shore and Commercial: Commercial fishing only.
1063	156.175	156.175	x	Tow Boats - BCC area
64	156.225	160.825		PC Ship/Shore and Public Correspondence
1064	156.225	156.225	x	EC Inter-ship, Ship/Shore and Commercial: Commercial fishing only.
1065	156.275	156.275	x	Inter-ship, Ship/Shore, Commercial, Non-commercial, Safety: Search & rescue and antipollution operations on the Great Lakes. Towing on the Pacific Coast. Port operations only in the St. Lawrence River areas with 1W maximum power. Pleasure craft in the inland waters of Alberta, Saskatchewan and Manitoba (excluding Lake Winnipeg and the Red River).
1066	156.325	156.325	x	Inter-ship, Ship/Shore, Commercial, Non-commercial, Safety and Ship Movement:Port operations only in the St.Lawrence River/Great Lakes Areas with 1-watt maximum power.
67	156.375	156.375	x	All areas except EC Inter-ship, Ship/Shore, Commercial, Non-commercial, Safety:May also be used for communications with aircraft engaged in coordinated search and rescue and antipollution operations.
68	156.425	156.425	x	All areas Inter-ship, Ship/Shore and Non-commercial: For marinas and yacht clubs.
69	156.475	156.475	x	All areas except EC Inter-ship, Ship/Shore, Commercial and Non-commercial
71	156.575	156.575	x	PC Inter-ship, Ship/Shore, Commercial, Non-commercial, Safety and Ship Movement the East Coast and on Lake Winnipeg.
72	156.625	156.625	x	EC, PC Inter-ship, Commercial and Non-commercial: May be used to communicate with aircraft and helicopters in predominantly maritime support
73	156.675	156.675	x	All areas except EC Inter-ship, Ship/Shore, Commercial, Non-commercial, Safety:May also be used for communications with aircraft engaged in coordinated search and rescue and antipollution operations.
74	156.725	156.725	x	EC, PC Inter-ship, Ship/Shore, Commercial, Non-commercial and Ship Movement.
75	156.775	156.775	x	Simplex port operation, Ship movement and navigation related communication only. 1 watt maximum
76	156.825	156.825	x	Simplex port operation, Ship movement and navigation related communication only.1 watt maximum
77	156.875	156.875	x	Inter-ship, Ship/Shore, Safety and Ship Movement: Pilotage on Pacific Coast. Port operations only in the St. Lawrence River/Great Lakes areas with 1W maximum power.
1078	156.925	156.925	x	EC, PC Inter-ship, Ship/Shore and Commercial

1079	156.975	156.975	x	EC, PC Inter-ship, Ship/Shore and Commercial
1080	157.025	157.025	x	EC, PC Inter-ship, Ship/Shore and Commercial
1081	157.075	157.075	x	Inter-ship and Ship/Shore: Canadian Coast Guard use only in the St. Lawrence River/ Great Lakes areas.
1082	157.125	157.125	x	Inter-ship and Ship/Shore: Canadian Coast Guard use only in the St. Lawrence River/ Great Lakes areas.
83	157.175	161.775		PC Ship/Shore and Public Correspondence
1083	157.175	157.175	x	EC Inter-ship and Ship/Shore: Canadian Coast Guard and other Government agencies.
2083	RX Only	161.775		AC, GL Safety: Continuous Marine Broadcast (CMB) Service.
87	157.375	157.375	x	AC, GL, NL Ship/Shore and Public Correspondence
88	157.425	157.425	x	AC, GL, NL Ship/Shore and Public Correspondence

AC: Atlantic Coast, Gulf and St. Lawrence River up to and including Montreal
EC: (East Coast): includes NL, AC, GL and Eastern Arctic areas
GL: Great Lakes (including St. Lawrence above Montreal)
NL: Newfoundland and Labrador
PC: Pacific Coast
WC:(West Coast): Pacific Coast, Western Arctic and Athabasca-Mackenzie Watershed areas All areas: includes East and West Coast areas

Notes:

1. The digits “10” following a channel number indicates simplex use of the ship station transmit side of an international

2. duplex channel. Operations are different from that of international operations on that channel.
3. Channel 16 is used for calling other stations or for distress alerting.
4. The digits “20” following a channel number indicates simplex use of the coast station transmit side of an international duplex channel. That is, the channel is Receive Only.
5. Channel 70 is used exclusively for Digital Selective Calling (DSC) and is not available for regular voice communications.
6. Channels 75 and 76 are reserved as guard bands for Channel 16 and are not available for regular voice communications.

European private channels and frequencies

In addition to the channels listed above in the International Marine VHF Channels & Frequencies table, your radio may also include some of the following private channels. Which channels are included depend upon the country in which the radio is to be operated and whether you possess the appropriate licensing

Counrty	Channel	TX Frequencies	RX Frequencies	Frequency use
Belgium	96	162.425	162.425	Maritime
Denmark	L1	155.500	155.500	Leisure
	L2	155.525	155.525	Leisure
Denmark, Finland	F1	155.625	155.625	Fishery
Norway & Sweden	F2	155.775	155.775	Fishery
	F3	155.825	155.825	Fishery
Finland ,Norway & Sweden	L1	155.500	155.500	Leisure
	L2	155.525	155.525	Leisure
	L3	155.650	155.650	Leisure
Netherlands	31	157.550	162.150	Maritime
	37	157.850	157.850	Leisure
Britain	M1	157.850	157.850	Maritime
	M2	161.425	161.425	Maritime

Note: A license may be required to operate radio on private channels. It is your responsibility to obtain permission to use these frequencies.

Weather channel frequency

WX Channel	Frequency(MHz)		Note
	Transmit	Receive	
1	OnlyRX	162.550	Wether（Receive only）
2	OnlyRX	162.400	Wether（Receive only）
3	OnlyRX	162.475	Wether（Receive only）
4	OnlyRX	162.425	Wether（Receive only）
5	OnlyRX	162.450	Wether（Receive only）
6	OnlyRX	162.500	Wether（Receive only）
7	OnlyRX	162.525	Wether（Receive only）
8	OnlyRX	161.650	Wether（Receive only）
9	OnlyRX	161.775	Wether（Receive only）
10	OnlyRX	163.275	Wether（Receive only）

7. Specifications

---VHF Radio

General

TX Frequency……156.025--157.425MHz
RX Frequency……156.300--162.000MHz
Digital Selectivity Calling (DSC)……Class-D with dual receiver (individual CH70)
CH70……156.525MHz
Channel spacing……25kHz
Channel banks……All INT/USA/Canadian 10 WX (only available for USA and Canada)
Modulation mode……FM (16K0G3E), DSC/ATIS (16K0G2B)
Frequency stability …… ±5 ppm
Ambient operating temperatures……-20˚C to +60˚C
Waterproof……IPX8
Compass safe distance……1.0m
Buddy list……20/50/100
Private channels……99
Antenna impedance……50Ω (nominal)
Power supply……13.8V DC

Receiver

Receive system …… Double-conversion superheterodyne
Intermediate frequency …… 1st 38.85 MHz, 2nd 450 kHz
Sensitivity at 12dB SINAD…… ≤ -6dBμV (EMF)
Squelch sensitivity…… ≤ -6dBμV (EMF)
Spurious Resp.Rej……⩾70 dB
Adjacent Channel Rejection…… ⩾70 dB
Intermodulation …… ⩾68 dB
Audio frequency response …… +1 dB to –3 dB of 6 dB oct. from 300–3000 Hz
Audio output power……10W @ 4Ω
Audio Distortion…… ⩽ 5%

Transmitter

RF Output power…… High:25W / Low:1W
Harmonic Emissions…… 0.25μW
Residual modulation …… 40 dB
Current drain, Stdby / TX (high) / RX ……0.5A/ 5A / 1A (@ 13.8V
Maximum frequency deviation……±5.0kHz
Local Oscillator mode……PLL
Audio frequency response …… +1 dB to –3 dB of 6 dB oct. from 300–3000 Hz

Communications

Comm. port NMEA 0183……default 38400 baud
Comm. port NMEA 2000 (N2K or AIS VHF)……NMEA 2000
NMEA 0183 input (receive)…… GGA,GLL,GSV,RMC,VTG,ZDA
NMEA 0183 output (transmit)……DSC (for DSC call), DSE (for enhanced position)AIVDM (AIS)

AIS Receiver (only AIS VHF)

Frequency ……161.9750MHz/162.025MHz
Number of Channels…… Dual Channels

Dimension & Weight

Fixed unit dimensions (LxWxH)……6.14” x2.40” x 4.13” (156 mm x 61 mm x105 mm)
Fixed unit dimensions on mounting bracket……6.69” x 3.58” x4.80” (170 mm x 91 mm x122 mm)
Fixed unit Weight…… (0.95 kg)