

RT750

RT750AIS

VHF MARINE DSC RADIO

User Manual

NAVICOM



RT750/RT750AIS User Manual

RF Radiation Information

RF Radiation Profile

Your radio is designed and tested to comply with a number of national and international standards and guidelines (listed below) regarding human exposure to radio frequency electromagnetic energy. This radio complies with the IEEE and ICNIRP exposure limits for occupational/controlled RF exposure environment at operating duty factors of up to 50% transmitting. In terms of measuring RF energy for compliance with the FCC exposure guidelines, your radio radiates measurable RF energy only while it is transmitting (during talking in PTT mode), not when it is receiving (listening) or in standby mode.

The device complies with SAR and/or RF field strength limits of RSS-102 requirement.

RF Radiation Safety

In order to ensure user health, experts from relevant industries including science, engineering, medicine and health work with international organizations to develop standards for safe exposure to RF radiation. These standards consist of:

United States Federal Communications Commission, Code of Federal Regulations; 47CFR part 2 sub-part J;
American National Standards Institute (ANSI)/Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992;
Institute of Electrical and Electronic Engineers (IEEE) C95. 1 – 1999;
International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998.

FCC Regulations

Federal Communication Commission (FCC) requires that all radio communication products should meet the requirements set forth in the above standards before they can be marketed in the U.S, and the manufacturer SHAIL post a RF label on the product to inform users of operational instructions, so as to enhance their occupational health against exposure to RF energy.

Part 15 Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help. Note: "Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment."

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 : 3rd Floor,Block C,Huafeng Second Industry Park,Hangcheng Road,Gushu,
Xixiang town, Baoan District, Shenzhen,China

Warning - Limitations on Use

This HM390S/HM390C product contains simple PPI chart, only as an aid to navigation for reference. Only Official Government Charts and Notice to Mariners contain all the current information needed for safe navigation. This products feature cannot be relied on as complete or accurate and may vary depending on location. It's the captain's responsibility to use official government charts, notices to mariners, caution, sound judgment and proper navigational skills when operating their boat using this product.

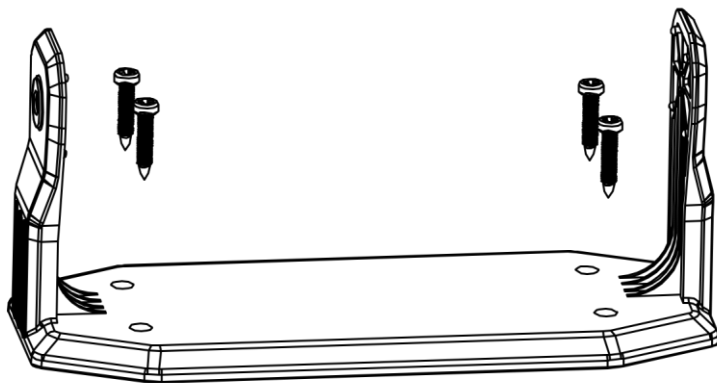
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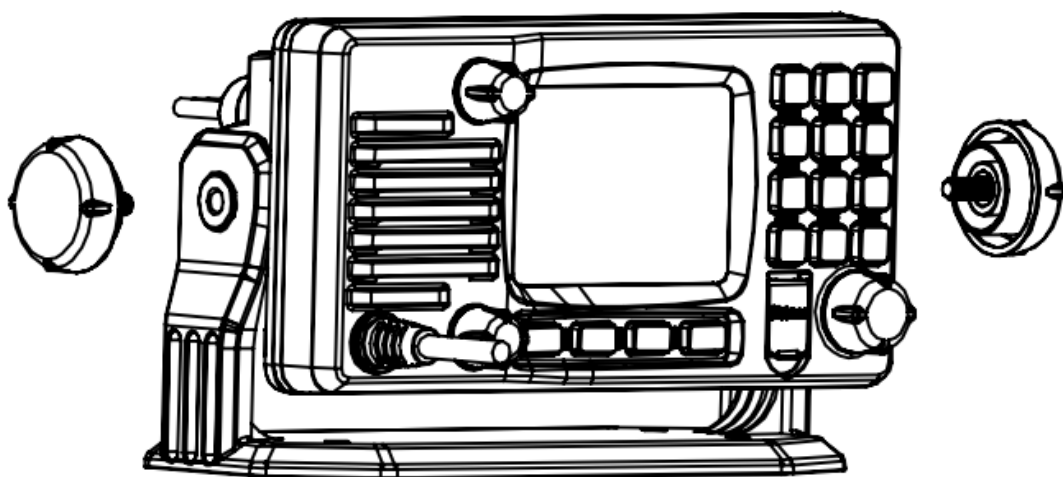
1 .Installation

Yoke Mount Installation:



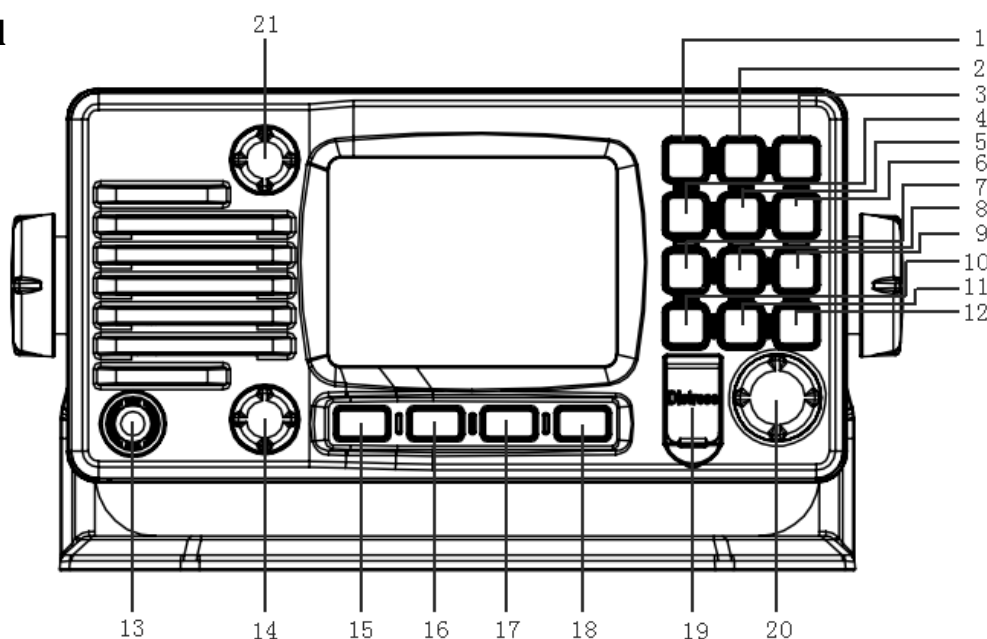
1. Place and fasten the mounting bracket on the console by 4 screws;
2. Mount the radio onto the bracket;
3. Attach the supplied mounting knobs from two sides of the bracket to fix the base radio securely in the mounting bracket (as shown above).

Note. Mounting bracket, mounting knobs and 4 screws M4x20 are in a radio's package.



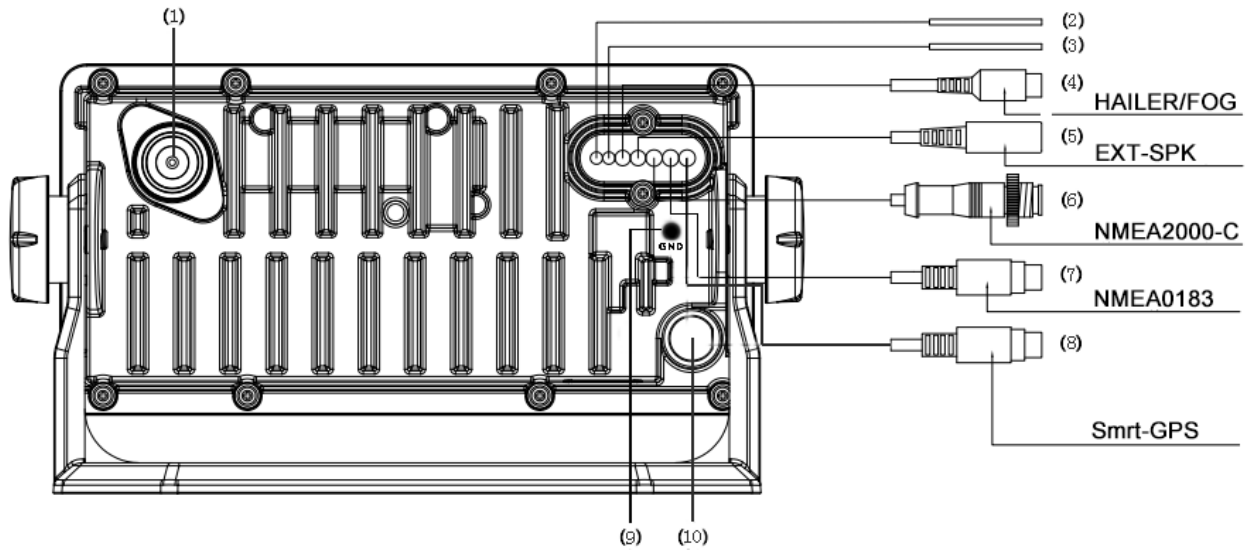
2. Front Panel/Back Panel

Front Panel



- 1、CH/* /WX—short press to enter private channel, long press to enter weather channel (only available in US)
- 2、Back Light On/Off—short press to back light On/Off.
- 3、Call/MENU—short press to enter “DSC Menu”, long press to enter “Main Menu”.
- 4、16/9—short press to enter channel 16 or press this button to quit all other modes and back to the priority channel quickly, long press will get second-priority channel 09 or any channel that you’ve set as second-priority channel.
- 5、LOC/DX—short press to get conversion between local and distance mode (DX allows normal receive sensitivity; and “LOCAL” eliminates receiver noise, but degrades receiver sensitivity meanwhile “LOCAL” icon display on LCD).
- 6、HI/LO—short press to toggle between 25watt and 1 watt output. “HI” or “LO” icon appears on LCD display to indicate setting.
- 7、SCAN—short press to enter all scan/all memory scan, long press to enter priority all/memory scan.
- 8、MEM—short press to enter memory mode, long press to save/delete memory channel.
- 9、DW/FOG—short press to enter Dual Watch Mode, long press to enter “Foghorn Menu”.
- 10、MOB—short press to get MOB activated.
- 11、TRIW/HAIL—short press to enter Tri Watch Mode, long press to enter “HAILER LISTEN MODE” and set volume as you wish.
- 12、UIC/AIS—short press to switch UIC band, long press to enter AIS (Automatic Identification System)
- 13、Standard Handset.
- 14、VOL-The VOL will becomes larger while turning rotary knob by clockwise and vice versa.
- 15、Generally it activates the “Exit” icon shown on screen. On initial screen, it also acts as the UP key function;
- 16、Soft key--short press to get channel up, long press to make channel up much faster.
- 17、Soft key--short press to get channel down, long press to make channel down much faster.
- 18、Generally it acts enter function as “Enter” icon show on screen. At INITIAL screen, it also acts Down key function;
- 19、DISTRESS—Pull up key cover and press to start Distress Alert Calling if you programmed your radio with an MMSI Number.
- 20、Power on/off—short press to turn it on, long press to turn it off. Rotate knob to get up/down function when radio is on.
- 21、SQL-The SQL will becomes larger while turning rotary knob by clockwise and vice versa.

Handset PTT key—remote command microphone push this key to sent out radio frequency signals.



Back Panel

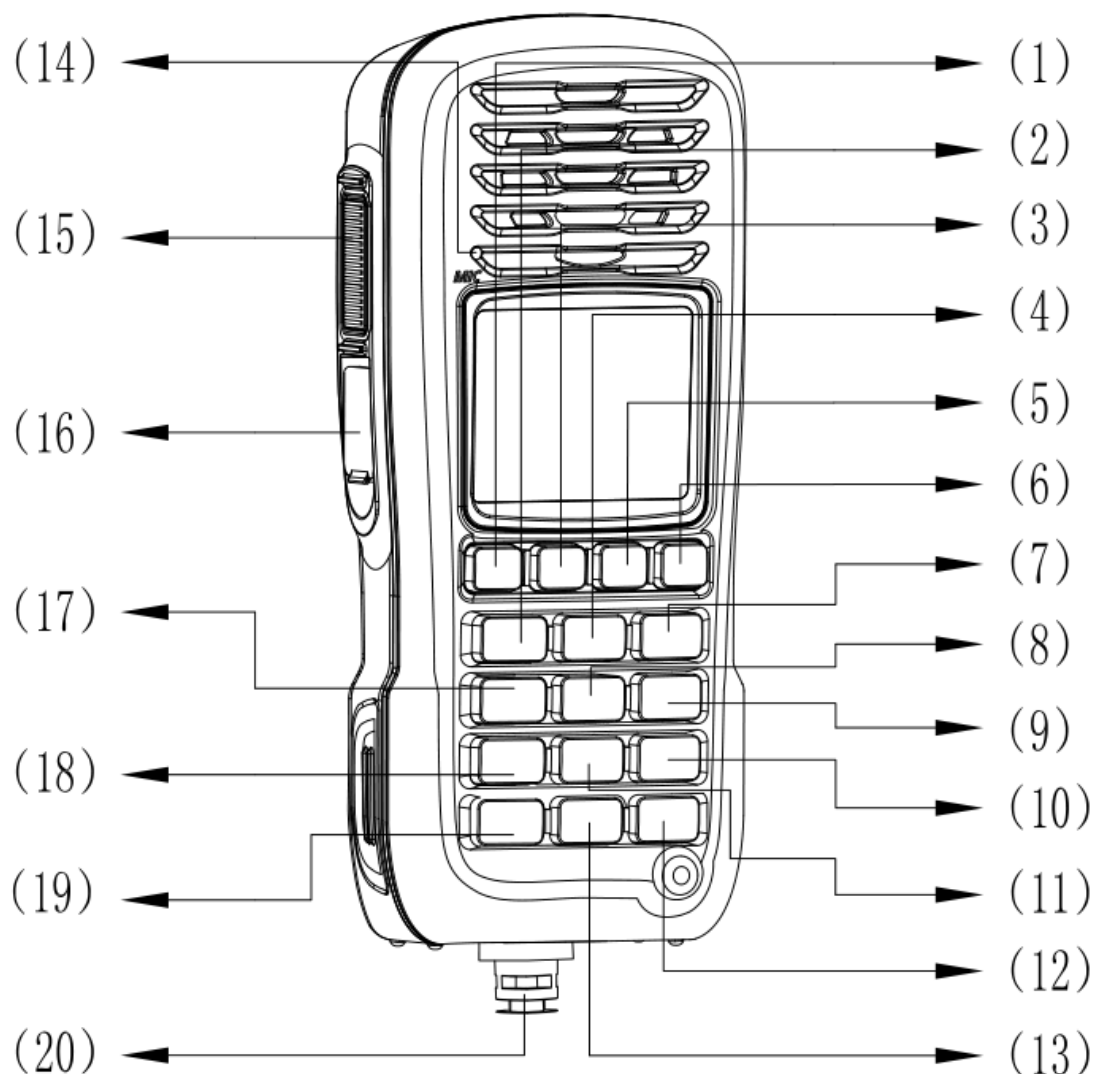
- (1) RF antenna port SMA (Female)
- (2) Power + wire (red, 210 mm length)
- (3) Power – wire (black, 210 mm length)
- (4) Hailer cable with 3.5 mm plug (180 mm length)
- (5) External speaker cable with 3.5 mm plug (180 mm length)
- (6) NMEA 2000 cable (180 mm length)
- (7) NMEA 0183 cable (180 mm length)
- (8) Smart GPS cable (yellow, 180 mm length)
- (9) GND hole (M3x5)
- (10) The second handset(Optional)

As above show, the “number in picture” correspond to “wiring number” also correspond to “the number in the below table”
The details please check the below table.

Serial Number	General Description	Function Description	Different Color Code of the cable wires	
(1)	RF antenna connector SMA (Female)	VHF antenna	-	-
(2)	Red & Black Power	Power supply wires	Red	Power+ +13.8V
(3)			Black	Power- GND
(4)	Audio Connector RCA (Phone) Plug	Hailer	White	SPK
			Black	GND
(5)	Audio Connector Black 3.5 mm Plug	External Speaker	Red	AUDIO-OUT-
			Black	GND
			-	NC
(6)	NMEA 2000 connector	NMEA2000 network	-	NC
			-	NC
			-	NC
			Black	CANH
			Red	CANL
(7)	NMEA 0183 connector	NMEA0183 network	Yellow	NC
			Green	0183_ IN +
			Black	0183_ IN -
			Brown	0183_ OUT +
			Orange	NC
			Black (bare)	0183_ OUT -
(8)	Smart GPS connector / Software upgrade	Smart GPS Device / Software upgrade	Red	USB RX
			Yellow	+5V
			Green	USB TX
			Black	GND
			Brown	MINI GPS_RX
(9)	GND connection hole	Grounding ware	Orange	NC
			-	-
(10)	Remote command microphone connector	Remote command microphone	-	-

Optional Accessories Handset/Back Panel/Wiring diagram Handset

Handset details



- (1) Generally it acts exit function as “Exit” icon show on screen. At initial screen, it also acts UP key function;
- (2) CH/*/WX—short press to enter private channel, long press to enter weather channel (only available in US
- (3) Soft key--short press to get channel up, long press to make channel up much faster.
- (4) Back Light On/Off—short press to back light On/Off.
- (5) Soft key--short press to get channel down, long press to make channel down much faster.
- (6) Generally it acts enter function as “Enter” icon show on screen. At INITIAL screen, it also acts Down key function;
- (7) Call/MENU—short press to enter “ Menu”, long press to enter “Main Menu”.
- (8) LOC/DX—short press to get conversion between local and distance mode (DX allows normal receive sensitivity; and “LOCAL” eliminates receiver noise, but degrades receiver sensitivity meanwhile “LOCAL” icon display on LCD).
- (9) HI/LO—short press to toggle between 25watt and 1 watt output. “HI” or “LO” icon appears on LCD display to indicate setting.
- (10) MEM—short press to enter memory mode, long press to save/delete memory channel.
- (11) DW/FOG—short press to enter Dual Watch Mode, long press to enter “Foghorn Menu”.

- (12) VOL/AIS—short press to enter volume set, long press to enter AIS (Automatically Identification System HM390S-BB only).
- (13) TRIW/HAIL—short press to enter Tri Watch Mode, long press to enter “HAILER LISTEN MODE” and set volume as you wish.
- (14) Speaker Grill—The Sound is released from here.
- (15) PTT key----push this key to sent out radio frequency signals
- (16) DISTRESS—Pull up key cover and press to start Distress Alert Calling if you programmed your radio with an MMSI number.
- (17) 16/9—short press to enter channel 16 or press this button to quit all other modes and back to the priority channel quickly, long press will get second-priority channel 09 or any channel that you’ ve set as second-priority channel.
- (18) SCAN—short press to enter all scan/all memory scan, long press to enter priority all/memory scan.
- (19) SQL/MOB—short press to get SQL setting, long press to get MOB activated.
- (20) Handset connector.

Connection cables in a package box

NMEA0183 connection cable, 0.4 m length (depending on a model)

NMEA2000 connection cable, 0.4 m length (depending on a model)

Hailer cable, 0.4 m length

DC lead wires (red and black), 1.5 m length both

Note. Red wire equipped with fuse 7 A.

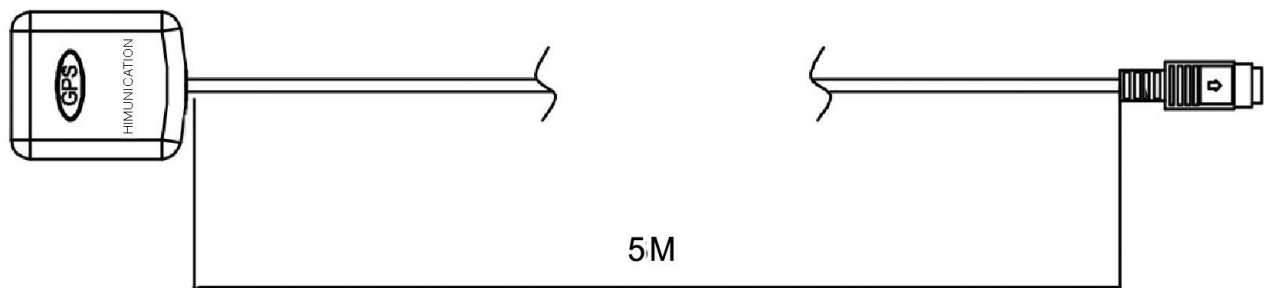
Optional accessories

Smart GPS Device (GPS module + antenna)

NMEA0183 connector cable, 3 m length

NMEA2000 connector cable, 3 m length

PC Programming cable, 1.5 m length



Optional Accessories Built-in GPS

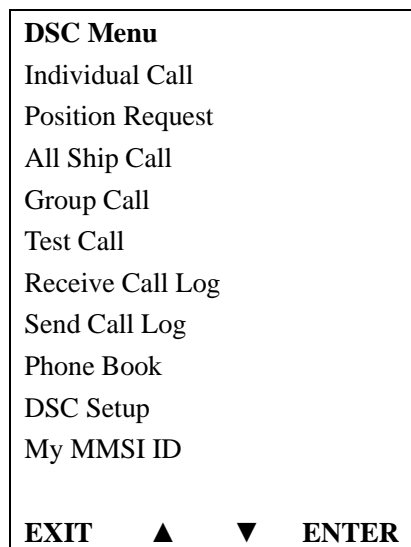
3.LCD Display








4. Main Menu Operation on Screen

DSC Menu

Short press the CALL/MENU key will be displayed as below on LCD:



Detailed entrance for each catalogue as shown below:

Individual Call▶	Individual Call	Receive Call Log▶	Receive Call Log
	Input Address		 Distress Call
	From Phone book		 Others Call
Position Request▶	Position Request	Send Call Log▶	Send Call Log
	Input Address		 Distress Call
	From Phone book		 MOB Call
			 Others Call
All Ship Call▶	All Ship Call	Phone Book▶	Phone Book
	Safety		Buddy List
	Urgency		Group List
Group Call▶	Group Call	DSC Setup▶	DSC Setup
	Input Address		Position Input
	From Phone book		Position Reply
			Test Ack
Test Call▶	Test Call	My MMSI ID▶	My MMSI ID
	Input Address		100000008
	From Phone book		

MY MMSI ID setup

Firstly, long press CALL/MENU key to enter “Main Menu”.

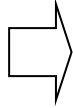
Secondly, select “DSC Operation” to enter “MY MMSI ID”.

Then you can set up your related MMSI ID as below, generally you need to double confirm the MMSI ID. Once confirmed, your MMSI ID will be locked by this radio.

My MMSI ID 123456789 EXIT
--

When input 9 digits, UP/DOWN key used for choosing the number from 1 to 9. You need to input all numbers from the left to right one by one until all finished. Once fulfilled 9 digits, then press “ENTER” to confirm.

My MMSI ID
 Input MMSI
 123-----
 EXIT ▲ ▼ ENTER



My MMSI ID
 123456789
 EXIT

Note. You must enter your user MMSI before you can access the DSC functions. This is a once-only operation.

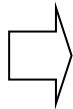
Individual Call/Position Request/Group Call/Test call

Press the “CALL/MENU” key and choose “Individual Call”, then choose “Input Address” or “From Phonebook”. Take individual call as example-

First select the “Input Address”, then input 9 MMSI digits manually such as 123456789 for your address as below:

Then select the type of individual call such as Routine

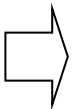
Input Address
 Input 9 digits
 0-----
 EXIT ▲ ▼ ENTER



Individual Call
Routine
 EXIT ▲ ▼ ENTER

Next select the preferred channel such as 01 port operation and confirm to call

Individual Call
 Select Channel:
 01 port ops/vts
 03 unauthorized
 05 port ops/vts
 06 inter ship
 07 commercial
 08 commercial
 EXIT ▲ ▼ ENTER



Individual Call
 To: 100000000
 Safety
 Telephony by
 Channel 01
 EXIT **CALL**

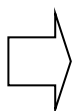
Then the individual call is sent as below shown

DSC 📶 USA	
1W	
16	
SQL:5	
VOL:4	SAFETY
Elapsed	00: 56
EXIT	

All Ship Call

Select the All Ship item

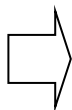
DSC	Menu
Individual Call	
Position	Request
All Ship Call	
Group	Call
Test	Call
Receive Call Log	
Send Call log	
Phone Book	
DSC	Setup
My MMSI ID	
EXIT	▲ ▼ ENTER




The All Ship Call is sent.

All Ship Call	
Safety	
Urgency	
EXIT ▲ ▼ ENTER	

Safety	
Select	Channel:
01 telephone	
02 telephone	
03 telephone	
04 port ops	
05 port ops/vts	
06 safety	
07 port ops	
08 commercial	
EXIT	▲ ▼ ENTER



All Ship Call	
To : All Ship	
Safety	
Telephone by	
Channel 01	
EXIT	CALL

DSC  USA

1W

16

SQL:2

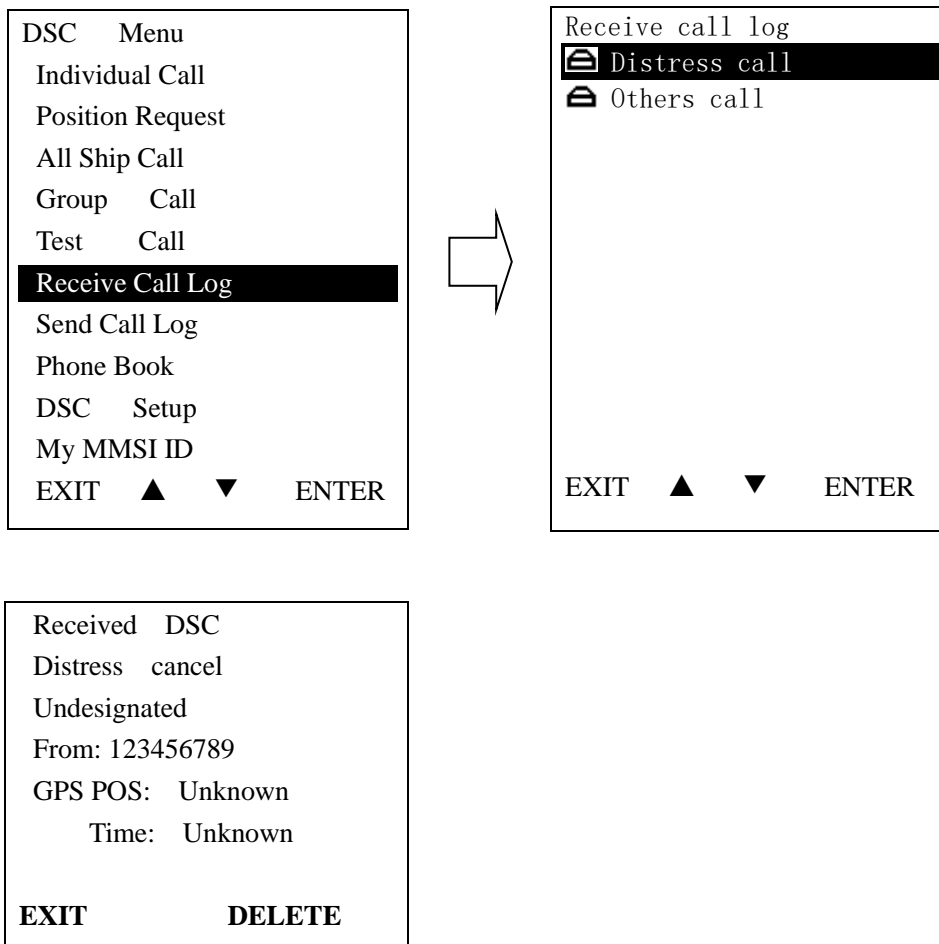
VOL:4 DISTRESS

Elapsed 00: 04

EXIT

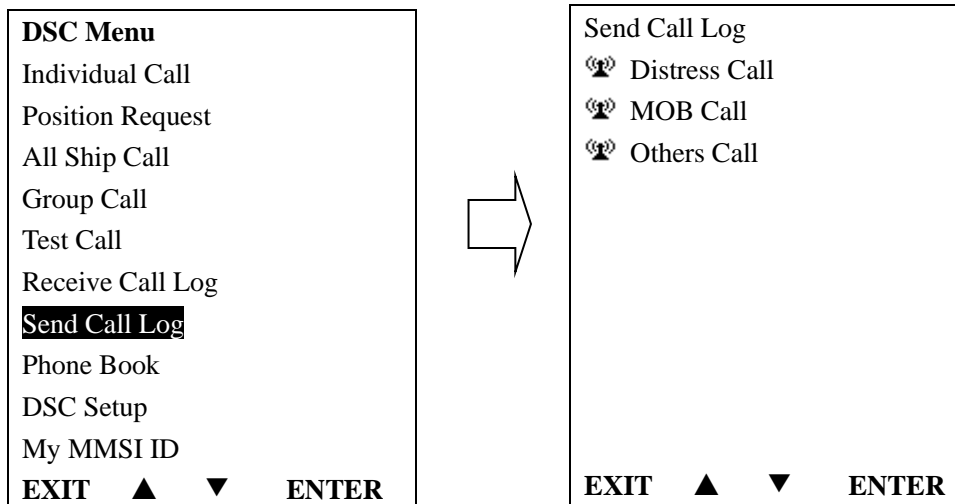
Receive Call Log

When received DSC, you can check those messages from the “Distress Menu” and see the exact message.



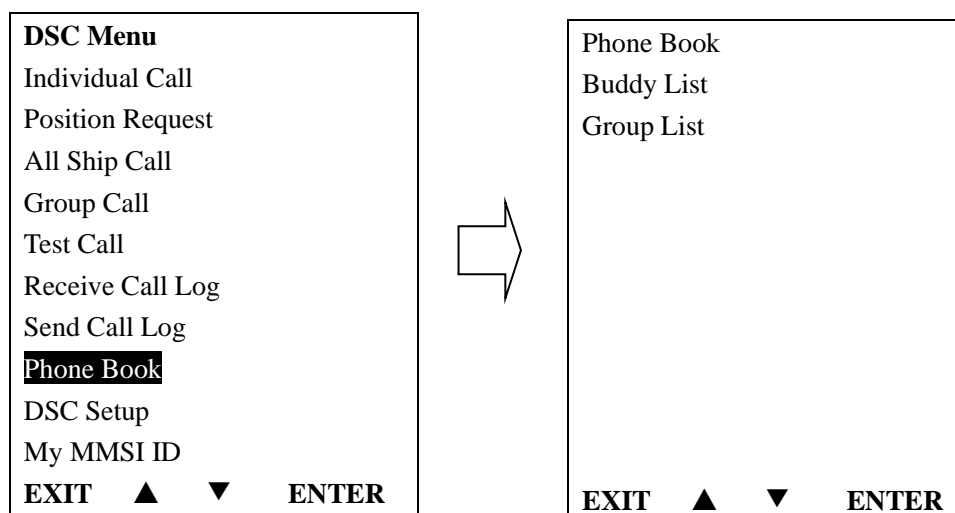
Send Call Log

Press “CALL/MENU” key to choose “Send Call Log” item and see previous distress call, MOB call and other call that you have sent.

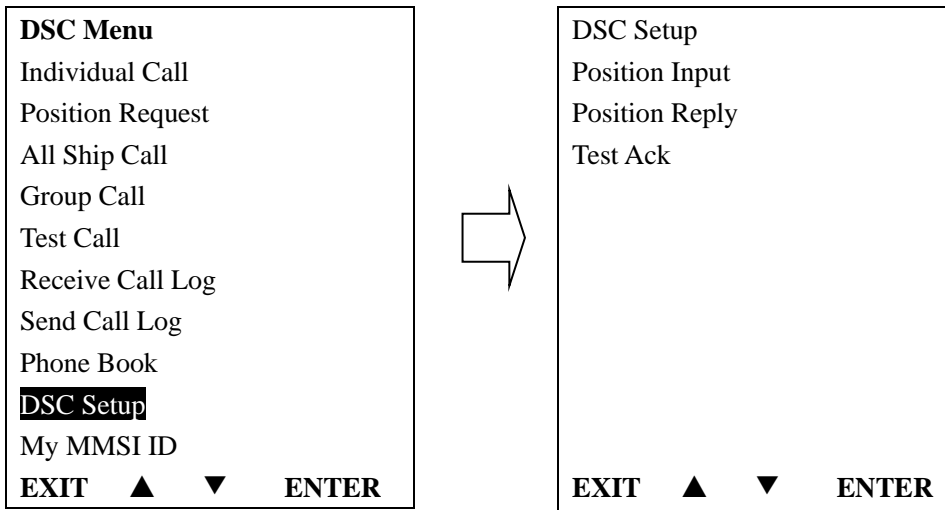


Phone Book

Press “CALL/MENU” key to choose “Phone Book” item and can check the contacted ship by “Buddy List” and “Group List”

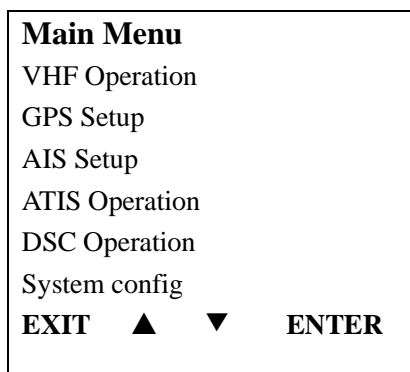


DSC Setup



Main Menu

Long press the CALL/MENU key will display as below:



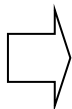
Detailed entrance for each catalogue as shown below:

Priority 2nd Ch
 Select Channel:
 01 telephony
 04 sar
 05 port ops/ vts
 06 inter ship
07 commercial
 08 commercial
EXIT ▲ ▼ ENTER

GPS Setup

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

Main Menu
 VHF Operation
GPS Setup
 AIS Setup
 ATIS Operation
 DSC Operation
 System Config
EXIT ▲ ▼ ENTER



GPS Setup
GPS Source
 GPS Setting
 Smart GPS Baud
EXIT ▲ ▼ ENTER

GPS Source
√ Smart GPS
 NMEA0183
 NMEA2000

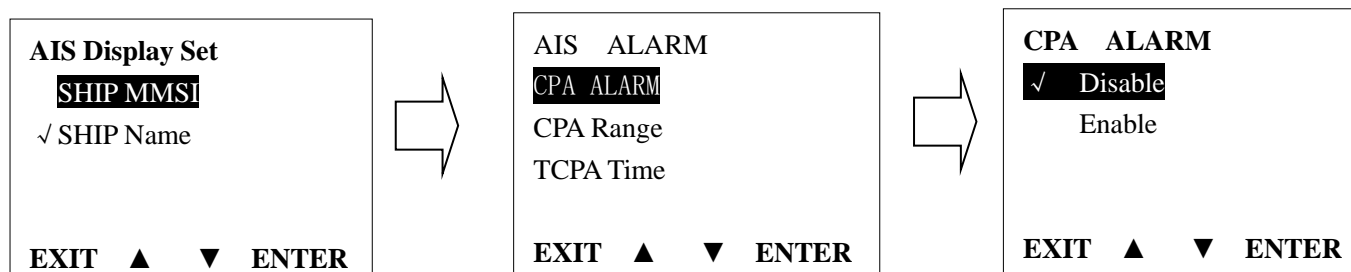
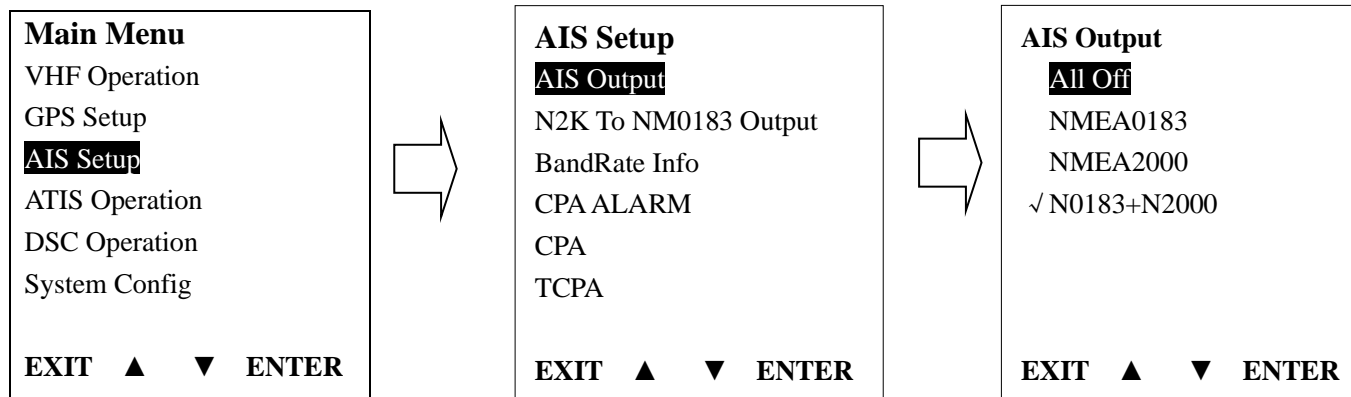


GPS Setting
Time display
 Time offset
 COG/SOG Display
EXIT ▲ ▼ ENTER

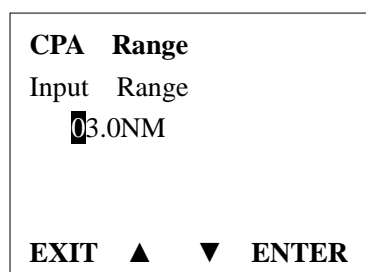
Follow like this, you can setup your priority as you wish.

AIS Setup (Only HM390S)

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

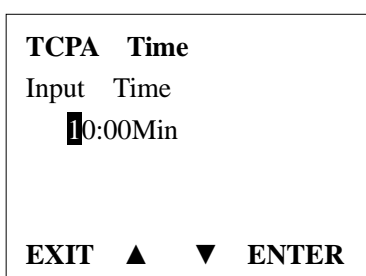


CPA Alarm enable Choose “Disable” or “Enable” item to enter disable or enable AIS alarm, then press “ENTER” key to confirm.



CPA Range (Closest point of approach) Alarm distance setup

Press UP/DOWN key to input digital one by one, after you have done this, press “ENTER” key to confirm, the maximum input range is 25.0NM, if the input value over than 25.0NM, than this operation is invalid, the system will ask for re-enter, the default CPA value is 3.0NM.

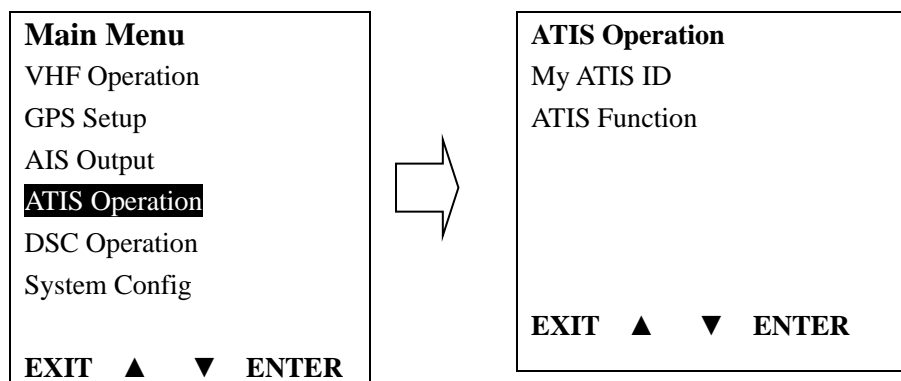


TCPA (Time closest point of approach)Alarm distance setup

Press UP/DOWN key to input digital one by one, after you have done this, press “ENTER” key to confirm, the maximum input range is 30 minutes, if the input value is over than 30 minutes, the input is invalid, then the system will ask for re-enter, the default CPA value is 10:00 Min.

ATIS Operation

Long press the CALL/MENU key to enter “ATIS Operation” for setup.

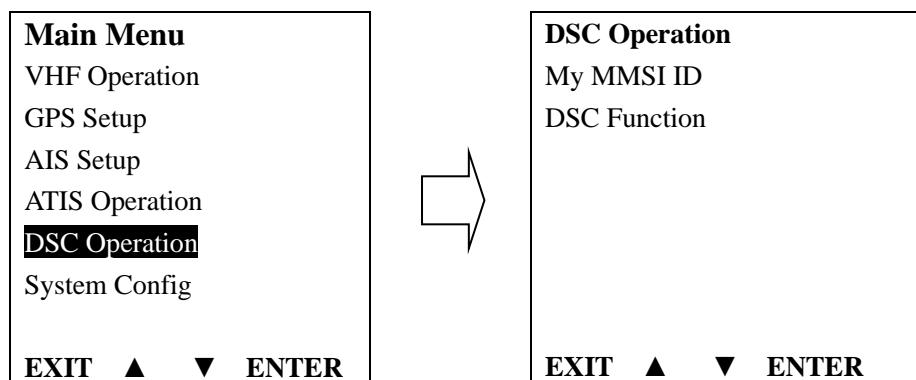


Choose to press for setup or more function as you wish.

Note. You must enter your user ATIS ID before you can access the ATIS functions. This is a once-only operation.

DSC Operation

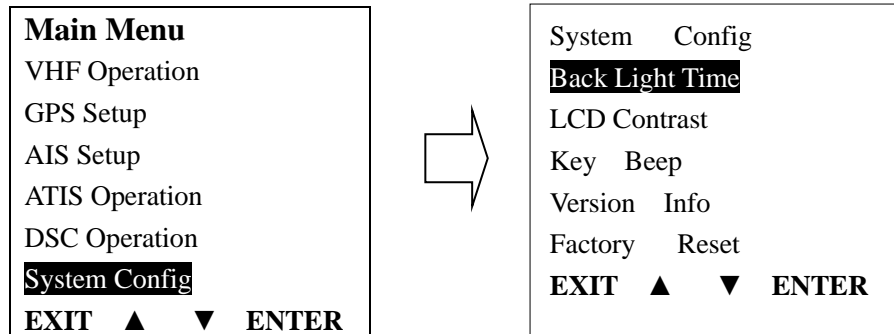
Long press the CALL/MENU key to enter “DSC Operation” for setup.



(My MMSI ID setup have been explained in previous chapter, please see Page 7)

System Config

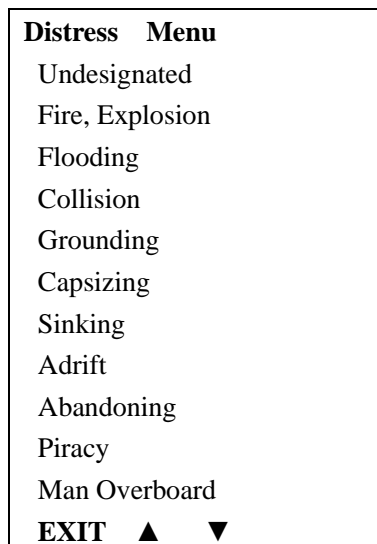
Long press the CALL/MENU key to enter “system config” for setup.



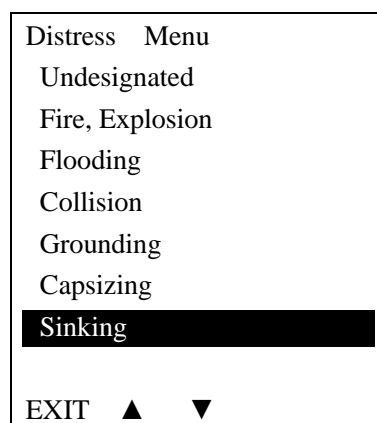
Choose to press for setup or more function as you wish.

Distress Menu & Send the Distress Message

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 “sinking”, press and hold this for more than 3 seconds for transmitting sinking message out.



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

AIS Operation(Only HM390S)

Long press the 'UIC/AIS' key to enter this interface.

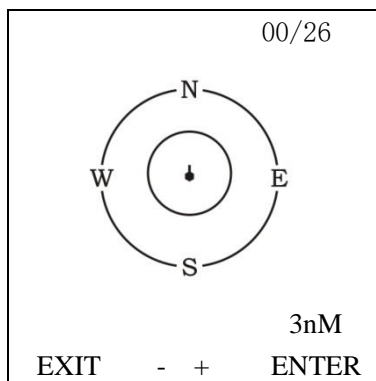
```
Ship Info menu
Ship info List
Ship plotter
AIS Alarm list

EXIT  ▲  ▼  ENTER
```

From the AIS ship info menu, you have three options: List mode, plotter mode, AIS Alarm list alarm list mode. If you choose option 'AIS ship info list' and press 'enter', you will open the list mode.

```
NO.  MMIS  00/3
00 413903183
    233° 0.97nM
01 413997668
    213° 1.33nM
02 413401340
    277° 1.48nM
03 413454520
    280° 1.54nM
04 000000000
    237° 3.24nM
EXIT  ▲  ▼  ENTER
```

If you choose option 'All ship plotter' and press 'enter', you will open the plotter mode.



If you choose option 'AIS Alarm List' and press enter, you will open the AIS alarm list mode.

```
NO.  MMIS  00/0
00 413903183
    233° 0.96nM
01 000000000
    237° 5.54nM
02 000000000
    265° 1.13nM
03 413401340
    277° 1.48nM
EXIT  ▲ ▼ ENTER
```

From either mode, you can choose a target with Confirm key, then press enter to display the target details.

```
MMIS :413903183
IMO NO:-----
Call Sign:
NAME:YUE HEYUAN
Lat:22°35.733'N
Lon:113°48.922'E
Bearing:232°
Dist:0.96nM
SOG:0.0KIS
COG:225.4°
Rot:-----
EXIT
```

5.Key Operation

Power on/off & rotate to get up/down function

Short press to turn it on, long press to turn it off. Rotate knob to get up/down function when radio stay powered on.

Special Function of DISTRESS key & Real-time DSC

When sending distress message:

Pull the Distress key cover and press the Red key into “Distress Menu” selection. Select current distress situation such as “Flooding”, then press and hold for 3 seconds, the selected DSC message will be sent. And this message will be resent within 4 minutes--

Press the “PAUSE” key to pause or resume the resend.

Press “SEND” to resend immediately.

Press the soft key below “Exit” icon to exit the current menu and shortly cancelation option of selected DSC alerting will be given for confirmation.

When receiving distress message:

The HM390 has two receivers, one receiver used for receiving/transmit voice and another receiver used to continually monitor 70 channel. The DSC function of HM390 is operated in separate way which means any arriving DSC message will not be ignored even if you are using HM390 for transmitting or receiving. If you want to check those messages, please press “CALL/MENU” to enter “Receive Call Log” for checking all received DSC messages.

UIC/AIS Control

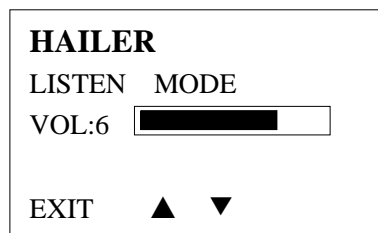
Short press “UIC/AIS” key and “UIC” icon will be shown on LCD, then press Up/Down key or rotate “POWER” key to toggle as you wish.

Long press “UIC/AIS” key and enter AIS (Automatic Identification System) mode (HM390Sonly). The radio has built-in AIS receiver to meet the demands for vessels to know the position, details and navigational intentions of other vessels within VHF range for improved safety and collision avoidance.

TRIW/HAIL (Tri Watch/Hailer)

Short press “TRIW/HAIL” key can activate the TRI WATCH mode. Monitor CH16, current channel and one programmed channels in cycle.

Long press “TRIW/HAIL” and enter “HAILER LISTEN MODE” for setup as you wish. Sounds received through the horn can be heard through the radio speaker. Press and hold the PTT key and speak your announcement. Release the PTT key to listen.



MOB Key

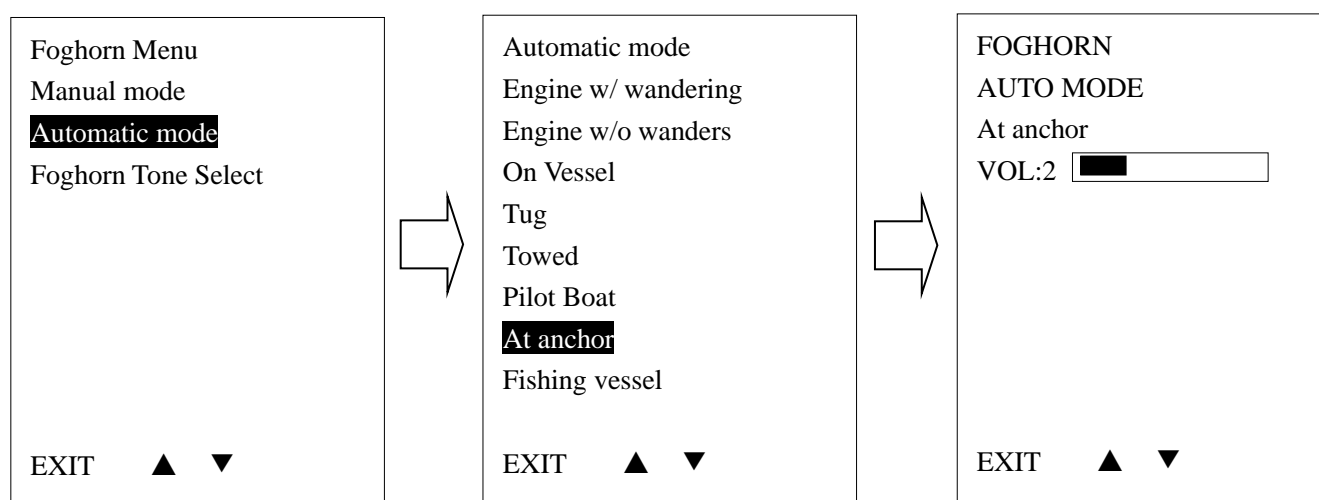
Short press “MOB” key icon will be shown on LCD, then Press Distress for 3 seconds, Distress call with nature MOB is sent.

MOB mark is outputted via NMEA. A MOB mark is immediately sent to the chart plotter to have a position as accurate as possible.

DW/ FOG (Dual Watch/Foghorn)

At the normal mode, short press “DW/FOG” key to activate the DUAL WATCH mode. Monitor the current channel and CH16 in cycle. Whenever weather alert is activated, the WX Alert channel will be monitored once every 4 seconds.

Long press “DW/FOG” key and enter “Foghorn Menu”, then select preferred item from list. Press PTT key on the microphone or handset to sound the horn. The horn will stop when you release the PTT key in Manual Mode .



MEM Key

Enter /Exit the memory mode:

Short press MEM key to enter the memory mode, the memory channel will be marked and “M” icon show on the right side next to channel number. At the left side of the current channel will mark a “MEM” icon which means already entered the user memory mode.

At the Memory mode, short press the MEM key to exit the memory mode. The “M” icon and “MEM” icon will disappear.

Adding/Deleting memory CH:

1. At the normal mode, use the “UP/DOWN” key to select desired channel for programming.
2. Long press the MEM key to store up the channel as memory channel.
3. “M” icon will be shown on LCD to indicate the current CH has been saved in the memory.
4. No limitation for saving memory channels.
5. For USA, International, and Canadian Frequency can be saved separately.
6. At the normal mode, use the “UP/DOWN” key to select the memory channel to be deleted.
7. Long press the “MEM” key to delete the selected channel from the memory mode.

Scan Key

Short press “Scan” key is to activate the scan function which is searching for currently all working channels.

All scanning: CH1-CH2-CH3-...-CH88

Memory scanning: M1 - M2 - M3 - ... M10 - M1- ...

When a signal is detected, the scan pauses until the signal disappears. Long press the Scan Key, to activate the Priority Scan.

Priority memory scanning: M1 - CH 16 - M2 - CH 16 - ... CH 16 - M1 ...

Priority all scanning: CH1-CH16-CH2-CH16-CH3-CH16-.....CH88-CH16-L1-CH16-

Hi/Lo/Lock

Short press the Hi/Lo/LOCK key will toggle the TX power from Hi to Lo or vice versa. The corresponding “25W/1W” icon will be displayed on the LCD.

Some of the channels (such as channel 16 initially set for high power channel13&67 initially set for low power) have been initially set to be low power or high power, but can be reprogrammed manually to high power or low power. Thus, the software needs to check against the channel setting stored in the EEPROM
long press the Hi/Lo/LOCK switch lock function

Up/Down Key

At the normal mode, they act as Channel Up/Down key. When it presses > 0.5 sec, the channels will change in a quick way. It returns to normal mode when key press is released.

LOC/DX

Short press to get conversion between local and distance mode (DX allows normal receive sensitivity; and “LOCAL” eliminates receiver noise, but degrades receiver sensitivity meanwhile “LOCAL” icon display on LCD).

16/9 Key

At the normal mode, pressing the 16 / 9 Key (short press to jump to priority CH16 at High Power and long press to jump to priority CH9 at High Power) if the current channel is not the priority channel.

After the channel is tuned to the priority channel, “P-CH” or “P-2nd” icon is lit to indicate the priority CH16 or CH9 has been reached. UP/Down key functions normally.

Select second priority channel

Solution 1: Select the second priority channel by “16/9” key: the second priority channel is set as channel 9 by default. At the normal mode, long press “16/9” key, “P-2nd” will be displayed as the second priority channel on LCD, then long press “16/9” key again, “set P-2nd CH” will be displayed on LCD and the displayed channel will keep on flashing, then press “UP/Down” key to choose your preferred channel as new second priority channel. Finally, long press “16/9” key again to save and confirm it.

Solution 2: Select the second priority channel by “CALL/Menu” key: long press “CALL/Menu” key to select “VHF operation” option, and press to select the “Priority 2nd Ch”, then press and select your preferred channel by “Up/Down” key and confirm it.

CALL/MENU

Short press to enter “DSC Menu”, long press to enter “Main Menu” (detailed operation please see 3. Main Menu Operation on Screen)

Back Light

Short press to switch the Back Light On and Off. Short Press 'Backlight' key the light will keep turning on. Press it again, it'll turn off. If the backlight setting is off, press any key will turn on the backlight except the PTT key. The backlight should be remaining for 5 seconds if no any keys pressed. The time out will be reset if any key pressed within the time frame.

CH/* /WX (WX Channel: Only available for USA, Canada)

A short press of "CH/* /WX" key will trigger Private channel if there are private channels in memory. Pressing the "Up/Down" key will change private channel selection.

A long press of "CH/* /WX" key will enter WX mode in USA or CAN Band. Pressing "Up/Down" key will change WX channel. The "WX" icon will be displayed on the screen.

Weather Alert Operation: (USA and CAN Band only)

When in the Weather mode, a long press the "CH/* /WX" key will switch on the Weather Alert function. Toggling the Weather Alert function ON/OFF. The icon "WAT" will be displayed accordingly, When Weather Alert function is enabled, every 4 seconds the last used weather channel will be checked for weather alert tone when the radio is tuned to working channel. With Weather Alert Function enabled, once the alert tone is detected, the "Weather Alarm" will be display and alarm sounds. After silencing the weather alarm, the radio will automatically tune to the current WX channel where the weather alert has been detected. The alert will be detected in the modes of Dual/Tri-watch, Scan operation etc.

6.Other Features and Solutions

Special function keys

The software's
Upgrading by PC
Please wait----

The software's Upgrading

First Power on. Then Press and hold "PTT" key and CH/* /WX+CALL/Menu Key, you can enter the up grade mode directly. LCD display as below:

The Private
Channels are
Cloning by PC
Please wait---

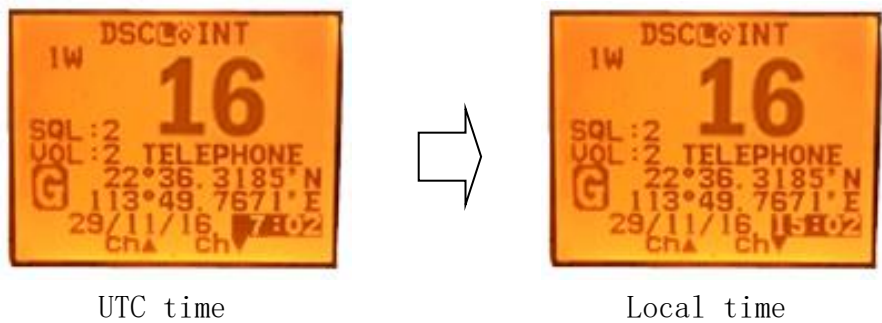
The Private Channels setting

First Power on. Then Press and hold "PTT" key and SCAN+DW/FOG Key, later you can enter the writing channel mode directly. LCD display as below:

TX Time Out

The transmission will be automatically turned off after PTT key pressed over 5 consecutive minutes. The TX mode will be terminated and back to Rx mode. Once the PTT key is released, the TX time out timer will be reset. PTT key will back to work normally.

The Local Time & Date on Screen:



When HM390 cannot receive the GPS signal to display the current position, screen will automatic display the time and date. When radio received the GPS signal, screen will show the current GPS location, related UTC time and date will be shown below the GPS location mark.

Long press “Call/Menu” and enter “GPS Setup” to select the “Time offset” item for setting user’s local time based on UTC time. Then press “Enter” to confirm. User need to pass the entire item from hour-minute-second then able to see enter option to click and confirm.

In other words, the process is the same as your setup of local time on your computer.

NMEA 0183 and NMEA 2000

The HM390 can be connected to both NMEA0183 and NMEA2000 networks. When you connect your radio to a NMEA 0183 network or a NMEA2000 network, the following data can be transferred; the radio can receive GPS position. GPS position can be displayed on the screen and is transmitted with DSC calls. When GPS data is not present, the radio will signal for you to enter your position manually every four hours.

This setting indicates whether you are connected to a NMEA 0183 or NMEA 2000 network; the radio can communicate over two networks at the same time.

Appendix A – List of Abbreviations

AE	Auxiliary Equipment
CE	Conducted Emissions
EMC	Electromagnetic Compatibility
EN	European Norm
EUT	Equipment Under Test
FTB	Fast Transient Burst
MED	Marine Equipment Directive
QP	Quasi Peak

HM390S/HM390C AND NMEA2000 COMMUNICATION PGN

HM390S 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
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

HM390C 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

HM390C AND HM390S 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

Appendix B – Channel List

International Marine VHF Channels & Frequencies

CH No.	XMIT Freq	RCVFreq	Single	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	Intership 1
07	156.350	160.950		Public Correspondence, Port Operations and Ship Movement
08	156.400	156.400	x	Intership
09	156.450	156.450	x	Intership, Port Operations and Ship Movement
10	156.500	156.500	x	Intership, 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	intership Safety, Port Operations and Ship Movement 3
14	156.700	156.700	x	Port Operations and Ship Movement
15	156.750	156.750	x	Intership and On-board Communications at 1W only 4
16	156.800	156.800	x	Distress, Safety and Calling
17	156.850	156.850	x	Intership 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
20	157.000	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
24	157.200	161.800		Public Correspondence, Port Operations and Ship Movement
25	157.250	161.850		Public Correspondence, Port Operations and Ship Movement
26	157.300	161.900		Public Correspondence, Port Operations and Ship Movement
27	157.350	161.950		Public Correspondence, Port Operations and Ship Movement
28	157.400	162.000		Public Correspondence, Port Operations and Ship Movement
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	Intership, Port Operations and Ship Movement 2
68	156.425	156.425	x	Port Operations and Ship Movement
69	156.475	156.475	x	Intership, Port Operations and Ship Movement
71	156.575	156.575	x	Port Operations and Ship Movement
72	156.625	156.625	x	Intership

73	156.675	156.675	x	Intership 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	Intership
78	156.925	161.525		Public correspondence, Port Operations and Ship Movement
79	156.975	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
84	157.225	161.825		Public correspondence, Port Operations and Ship Movement
85	157.275	161.875		Public correspondence, Port Operations and Ship Movement
86	157.325	161.925		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

• Intership channels are for communications between ship stations. Intership communications should be restricted to Channels 6, 8, 72 and 77. If these are not available, the other channels marked for Intership 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 intership 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. No	XMIT Freq	RCV Freq	Single	Freq Use
01A	156.050	156.050	x	Port Operations and Commercial, VTS. Available only in New Orleans / Lower Mississippi area. 1
03A	156.150	156.150	x	U.S. Government only
05A	156.250	156.250	x	Port Operations or VTS in the Houston, New Orleans and Seattle areas.
06	156.300	156.300	x	Intership Safety
07A	156.350	156.350	x	Commercial
08	156.400	156.400	x	Commercial (Intership 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	Intership Navigation Safety (Bridge-to-bridge). Ships >20meters in length maintain a listening watch on this channel in US waters. 2, 6
14	156.700	156.700	x	Port Operations. VTS in selected areas.
15	—	156.750	x	Environmental (Receive only). Used by Class 'C' EPIRBs.3
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. 4
17	156.850	156.850	x	State Control 5
18A	156.900	156.900	x	Commercial
19A	156.950	156.950	x	Commercial
20	157.000	161.600		Port Operations (duplex)
20A	157.000	157.000	x	Port Operations
21A	157.050	157.050	x	U.S. Coast Guard only
22A	157.100	157.100	x	Coast Guard Liaison and Maritime Safety Information Broadcasts. Broadcasts are announced on channel 16.
23A	157.150	157.150	x	U.S. Coast Guard only
24	157.200	161.800		Public Correspondence (Marine Operator)
25	157.250	161.850		Public Correspondence (Marine Operator)
26	157.300	161.900		Public Correspondence (Marine Operator)
27	157.350	161.950		Public Correspondence (Marine Operator)
28	157.400	162.000		Public Correspondence (Marine Operator)
61A	156.075	156.075	x	U.S. Government only
63A	156.175	156.175	x	Port Operations and Commercial, VTS. Available only in New Orleans / Lower Mississippi area.
64A	156.225	156.225	x	U.S. Coast Guard only
65A	156.275	156.275	x	Port Operations
66A	156.325	156.325	x	Port Operations
67	156.375	156.375	x	Commercial. Used for Bridge-to-bridge communications in lower Mississippi River. Intership only. 6
68	156.425	156.425	x	Non-Commercial
69	156.475	156.475	x	Non-Commercial
71	156.575	156.575	x	Non-Commercial
72	156.625	156.625	x	Non-Commercial (Intership 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 (Intership only) 5
78A	156.925	156.925	x	Non-Commercial
79A	156.975	156.975	x	Commercial. Non-Commercial in Great Lakes only.
80A	157.025	157.025	x	Commercial. Non-Commercial in Great Lakes only
81A	157.075	157.075	x	U.S. Government only – Environmental protection operations.
82A	157.125	157.125	x	U.S. Government only
83A	157.175	157.175	x	U.S. Coast Guard only
84	157.225	161.825		Public Correspondence (Marine Operator)
85	157.275	161.875		Public Correspondence (Marine Operator)
86	157.325	161.925		Public Correspondence (Marine Operator)
87	157.375	161.975		Public Correspondence Marine Operator)
88	157.425	162.025		Public Correspondence only near Canadian border
88A	157.425	157.425	x	Commercial, Intership only

- Recreational boaters normally use channels listed as Non-Commercial: 68, 69, 71, 72, 78A.
- Channel 70 is used exclusively for Digital Selective Calling (DSC) and is not available for regular voice communications.
- Channels 75 and 76 are reserved as guard bands for Channel 16 and are not available for regular voice communications.

Notes:

1. The letter “A” 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 No.	XMIT Freq	RCV Freq	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
04A	156.200	156.200	PC Intership, Ship/Shore and Safety: Canadian Coast Guard S&R
04A	156.200	156.200	EC Intership, Ship/Shore and Commercial: Commercial fishing only
05A	156.250	156.250	Ship Movement
06	156.300	156.300	All areas Intership, Commercial, Non-commercial and Safety: May be used for search and rescue communications between ships and aircraft.
07A	156.350	156.350	All areas Intership, Ship/Shore, Commercial
08	156.400	156.400	WC, EC Intership, Commercial and Safety: Also assigned for operations in the Lake Winnipeg area.
09	156.450	156.450	AC Intership, 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	AC, GL Intership, 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	PC, AC, GL Intership, Ship/Shore, Commercial, Non-commercial and Ship Movement: Also, used for pilotage purposes.
12	156.600	156.600	WC, AC, GL Intership, Ship/Shore, Commercial, Non-commercial and Ship Movement: Port operations and pilot information and messages.
13	156.650	156.650	All areas Intership, Commercial, Non-commercial and Ship Movement: Exclusively for bridge-to-bridge navigational traffic. Limited to 1-watt maximum power.
14	156.700	156.700	AC, GL Intership, Ship/Shore, Commercial, Non-commercial and Ship Movement: Port operations and pilot information and messages.
15	156.750	156.750	All areas Intership, Ship/Shore, Commercial, Non-commercial and Ship Movement: All operations limited to 1-watt maximum power. May also be used for on-board communications.
16	156.800	156.800	All areas International Distress, Safety and Calling ²
17	156.850	156.850	All areas Intership, Ship/Shore, Commercial, Non-commercial and Ship Movement: All operations limited to 1-watt maximum power. May also be used for on-board communications.
18A	156.900	156.900	All areas Intership, Ship/Shore and Commercial: Towing on the Pacific Coast.
19A	156.950	156.950	All areas except PC Intership and Ship/Shore: Canadian Coast Guard only.
19A	156.950	156.950	PC Intership and Ship/Shore: Various Government departments
20	157.000	161.600	All Ship/Shore, Safety and Ship Movement: Port operation
21A	157.050	157.050	All areas Intership and Ship/Shore: Canadian Coast Guard only.
21B	-	161.650	All areas Safety: Continuous Marine Broadcast (CMB) service. ³
22A	157.100	157.100	All areas Intership, 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.
24	157.200	161.800	All areas Ship/Shore and Public Correspondence
25	157.250	161.850	PC Ship/Shore and Public Correspondence: Also assigned for operations in the Lake Winnipeg area.
25B	-	161.850	AC Safety: Continuous Marine Broadcast (CMB) service.
26	157.300	161.900	All areas Ship/Shore, Safety and Public Correspondence
27	157.350	161.950	AC, GL, PC Ship/Shore and Public Correspondence
28	157.400	162.000	PC Ship/Shore, Safety and Public Correspondence
28B	-	162.000	AC Safety: Continuous Marine Broadcast (CMB) service.
60	156.025	160.625	PC Ship/Shore and Public Correspondence
61	156.075	160.675	PC Intership and Ship/Shore: Canadian Coast Guard only.
61A	156.075	156.075	EC Intership, Ship/Shore and Commercial: Commercial fishing only.
62	156.125	160.725	PC Intership and Ship/Shore: Canadian Coast Guard only.
62A	156.125	156.125	EC Intership, Ship/Shore and Commercial: Commercial fishing only.
64	156.225	160.825	PC Ship/Shore and Public Correspondence
64A	156.225	156.225	EC Intership, Ship/Shore and Commercial: Commercial fishing only.
65A	156.275	156.275	Intership, 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).
66A	156.325	156.325	Intership, 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	EC Intership, Ship/Shore and Commercial: Commercial fishing only.
67	156.375	156.375	All areas except EC Intership, 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	All areas Intership, Ship/Shore and Non-commercial: For marinas and yacht clubs.
69	156.475	156.475	All areas except EC Intership, Ship/Shore, Commercial and Non-commercial
69	156.475	156.475	EC Intership, Ship/Shore and Commercial: Commercial fishing only.
71	156.575	156.575	PC Intership, Ship/Shore, Commercial, Non-commercial, Safety and Ship Movement
71	156.575	156.575	Intership, Ship/Shore and Non-commercial: For marinas and yacht clubs on the East Coast and on Lake Winnipeg.
72	156.625	156.625	EC, PC Intership, Commercial and Non-commercial: May be used to communicate with aircraft and helicopters in predominantly maritime support operations.
73	156.675	156.675	EC Intership, Ship/Shore and Commercial: Commercial fishing only
73	156.675	156.675	All areas except EC Intership, 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	EC, PC Intership, Ship/Shore, Commercial, Non-commercial and Ship Movement.
77	156.875	156.875	Intership, 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.
78A	156.925	156.925	EC, PC Intership, Ship/Shore and Commercial
79A	156.975	156.975	EC, PC Intership, Ship/Shore and Commercial
80A	157.025	157.025	EC, PC Intership, Ship/Shore and Commercial

81A	157.075	157.075	Intership and Ship/Shore: Canadian Coast Guard use only in the St. Lawrence River/Great Lakes areas.
81A	157.075	157.075	PC Intership, Ship/Shore and Safety: Canadian Coast Guard antipollution.
82A	157.125	157.125	PC Intership, Ship/Shore and Safety: Canadian Coast Guard use only.
82A	157.125	157.125	Intership 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 Safety: Canadian Coast Guard use only.
83A	157.175	157.175	EC Intership and Ship/Shore: Canadian Coast Guard and other Government agencies.
83B	-	161.775	AC, GL Safety: Continuous Marine Broadcast (CMB) Service.
84	157.225	161.825	PC Ship/Shore and Public Correspondence
85	157.275	161.875	AC, GL, NL Ship/Shore and Public Correspondence
86	157.325	161.925	PC Ship/Shore and Public Correspondence
87	157.375	161.975	AC, GL, NL Ship/Shore and Public Correspondence
88	157.425	162.025	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. An "A" following a channel number indicates simplex use of the ship station transmit side of an international duplex channel. Operations are different from that of international operations on that channel.
2. Channel 16 is used for calling other stations or for distress alerting.
3. The letter "B" 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.
4. Channel 70 is used exclusively for Digital Selective Calling (DSC) and is not available for regular voice communications.
5. 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

Country	CH No.	XMIT Freq	RCV Freq	Freq Use
Belgium	96	162.425	162.425	Marina
Denmark	L1	155.500	155.500	Leisure
	L2	155.525	155.525	Leisure
Denmark, Finland, Norway & Sweden	F1	155.625	155.625	Fishing
	F2	155.775	155.775	Fishing
	F3	155.825	155.825	Fishing
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	Marina
	37	157.850	157.850	Leisure
UK	M1	157.850	157.850	Marina
	M2	161.425	161.425	Marina

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

Weather Channels and Frequencies

WX channel	Frequency(MHz)		Remarks
	Transmit	Receive	
1	RX only	162.550	Weather(receive only)
2	RX only	162.400	Weather(receive only)
3	RX only	162.475	Weather(receive only)
4	RX only	162.425	Weather(receive only)
5	RX only	162.450	Weather(receive only)
6	RX only	162.500	Weather(receive only)
7	RX only	162.525	Weather(receive only)
8	RX only	161.650	Weather(receive only)
9	RX only	161.775	Weather(receive only)
10	RX only	163.275	Weather(receive only)

Specifications

---VHF radio

TX Frequency.....	155.500-162.425MHz
RX Frequency.....	155.500-162.425MHz
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)
Antenna impedance.....	50Ω (nominal)
Power supply.....	13.8V DC
Sensitivity at 12dB SINAD.....	≤-5 dBμV (EMF)
Squelch sensitivity.....	<-5 dBμ (EMF)
Spurious Resp.Rej.....	70 dB
Adjacent Channel Rejection.....	70 dB
Audio output power.....	5W @ 40hm
Audio Power Output (hailer).....	20W @ 4 Ohms
Audio Distortion.....	5%
RF Output power.....	High:25W / Low:1W
Harmonic Emissions.....	0.25μW
Current drain, Stdby / TX (high) / RX	0.5A/ 6A / 1A (@ 13.8V
Maximum frequency deviation.....	±5.0kHz
Local Oscillator mode.....	PLL
Ambient operating temperatures.....	-15°C to +55°C
Waterproof.....	IP67
Compass safe distance.....	0.8m
Buddy list (HM390/HM390C/HM390S).....	20/50/100
Private channels.....	99

---Communications

Comm. port NMEA 0183.....	9600 baud
Comm. port NMEA 2000 (HM390C, HM390S only).....	NMEA 2000
NMEA 0183 input (receive).....	RMC, GGA, GLL, ZDA, VTG, GSV
NMEA 0183 output (transmit).....	DSC (for DSC call), DSE (for enhanced position) AIVDM (AIS)

---AIS Receiver

Frequency	161.9750MHz/162.025MHz
Number of Channels.....	(2) Dual Channels

---Dimension & Weight

Fixed unit dimensions (LxWxH).....	8.0" x 4.25" x 2.25" (201 mm x 111 mm x 57 mm)
Fixed unit dimensions on mounting bracket.....	8.5" x 5.25" x 2.25" (216 mm x 134 mm x 57 mm)
Fixed unit Weight.....	3.3 Lbs (1.2 kg)