HIMUNICATION

VHF MARINE DSC RADIO

HM390

HM390C

HM390S

User Manual

Please Scan the QR Code to Download
EN/FR/DE/ES/NL Multi-language User Manual

http://www.himunication.com

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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.

Warning - Limitations on Use

This TS18S 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.

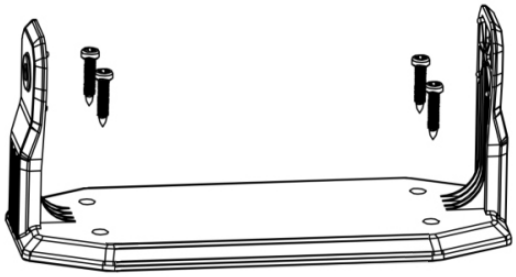
Manufacturer: HIMUNICATION
Trademark number: 11005103
Address: 3rd Floor,Block C,Huafeng Second Industry Park,Hangcheng Road,Gushu,Xixiang town, Baoan District,Shenzhen,China

Optional Accessories

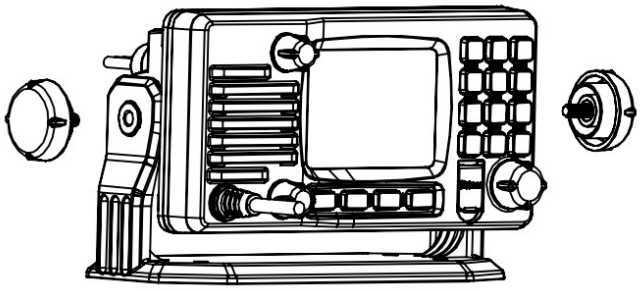
Handset/Wiring diagram Handset

1. Installation

Yoke Mount Installation:

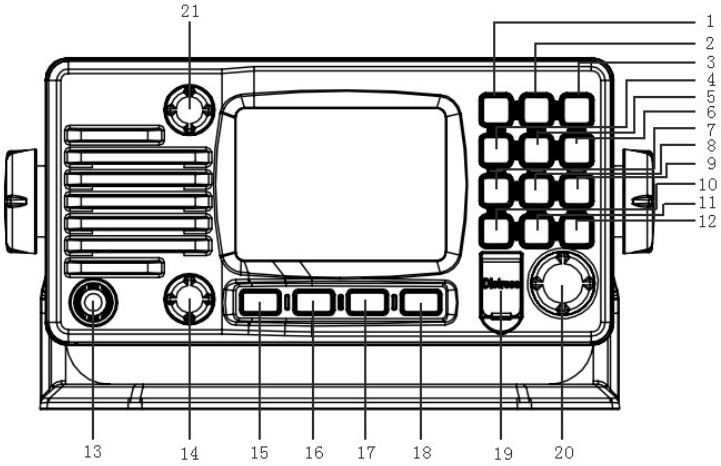


1. Place and fasten the mounting bracket on the console by 4 screws;
2. Mount the radio onto the bracket;
3. Attach the supplied mounting knobs from two sides of the bracket to fix the base radio securely in the mounting bracket (as shown above).
   Note. Mounting bracket, mounting knobs and 4 screws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



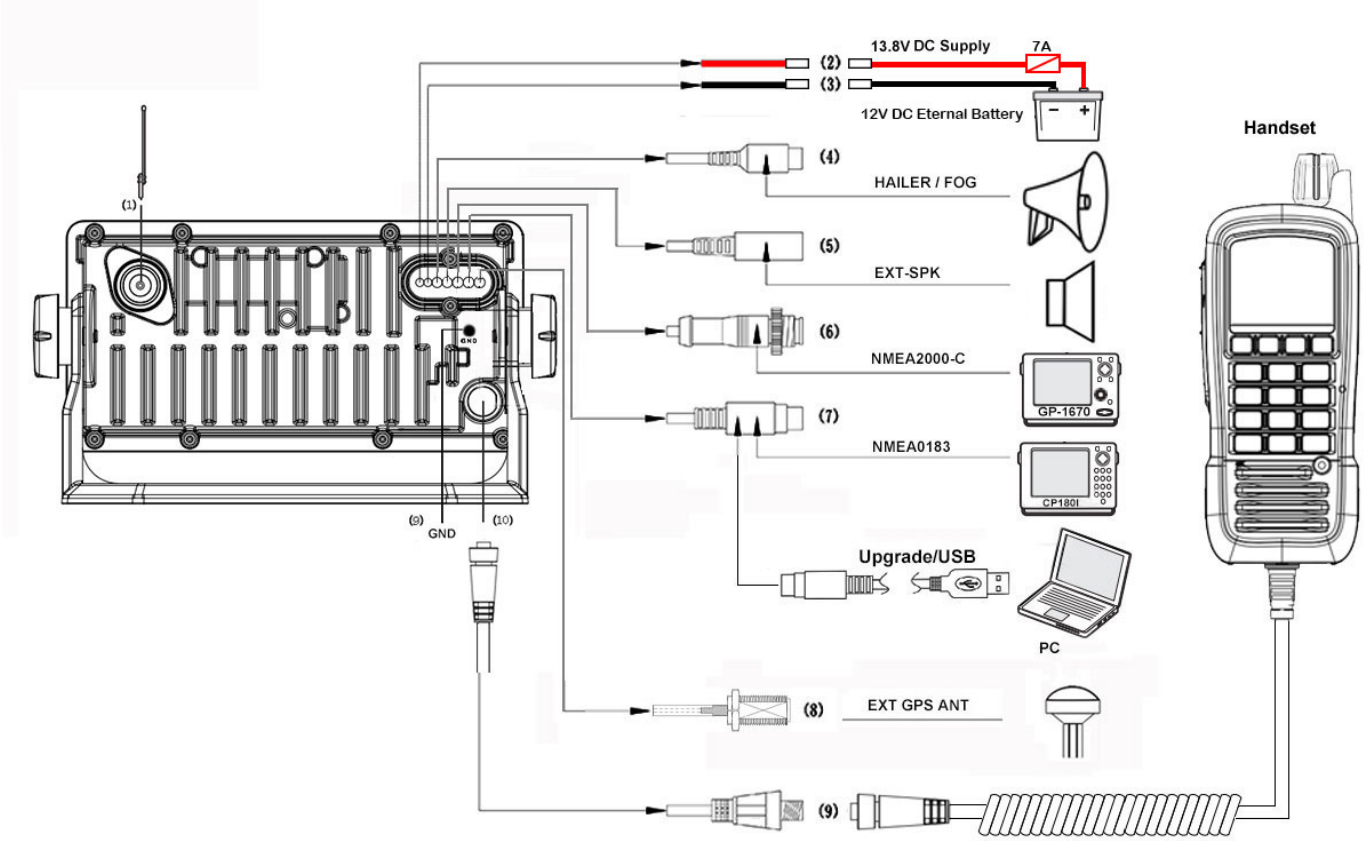
2. Front Panel/Back Panel

Front Panel



1. CH/*/WX—short press to enter private channel, long press to enter weather channel（only available in US and CAN）
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 25w 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. GPS/MOB—short press to get GPS activated,Long press MOB.
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 rota ry knob by clockwise and vice versa.
15. Soft key 1
16. Soft key 2
17. Soft key 3
18. Soft key 4
19. DISTRESS—Pull up key cover and press hold on 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 rotar y 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/Fog 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/upgrade USB (180 mm length)
8、EXT GPS ANT
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.

Connection cables 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/Fog	White	SPK+
			Black	SPK-
(5)	Audio Connector Black 3.5 mm Plug	External Speaker	Red	AUDIO-OUT
			Black	GND
			-	NC
(6)	NMEA 2000 connector	NMEA2000 network	Black	CANH
			Red	CANL
(7)	NMEA 0183 connector	NMEA0183 network Software upgrade	Green	USB-TX
			Brown	0183_OUT
			White	NC
			Orange	0183_IN
			Red	USB-RX
			BARE WIRE	GND
			Black	GND
(8)	EXT GPS ANT connector	EXT GPS ANT	-	-
(9)	GND connection hole	Grounding ware	-	-
(10)	Remote command microphone connector (Optional)	Remote command microphone (Optional)	-	-

Connection cables in a package box

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

3.LCD Display

4. Main Menu Operation on Screen

DSC Menu

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

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

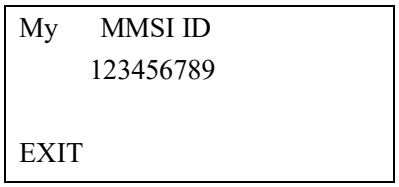
EXIT ▲ ▼ ENTER

Detailed entrance for each catalogue as shown below:

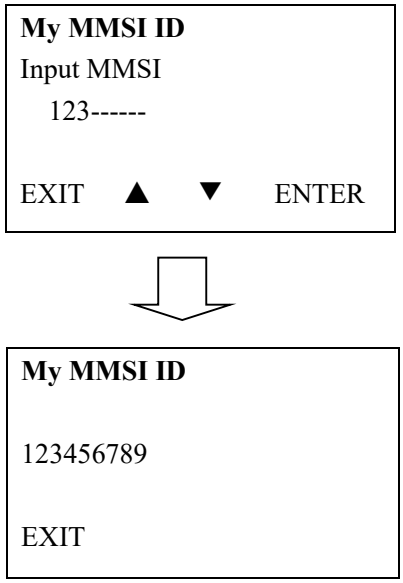
Individual Call►	Individual Call		Receive Call Log►	Receive Call Log
	Input Address			Distress Call
	From Phone book			Others Call
Position Request►	Position Request		Send Call Log►	Send Call Log
	Input Address			Distress Call
	From Phone book			MOB Call
				Others Call
All Ship Call►	All Ship Call	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

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.



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.



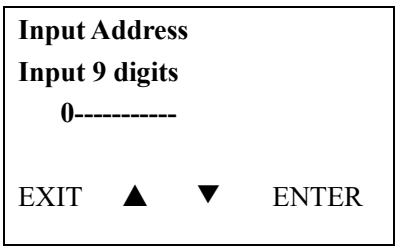
Note. You must enter your user MMSI before you can access the DSC functions. This is a once-only operation.

Individual Call/Position Request/Group

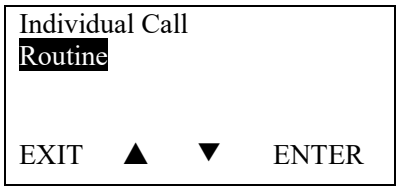
Call/Test call

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

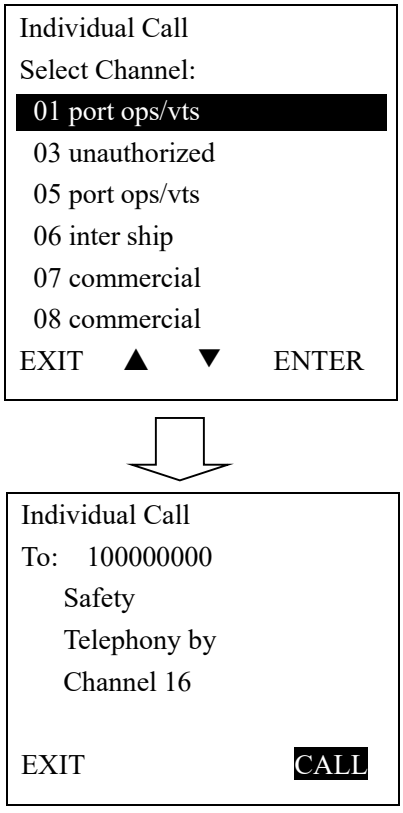
First select the “Input Address”, then input 9 MMSI digits manually such as 123456789 for your address as below:



Then select the type of individual call such as Routine



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

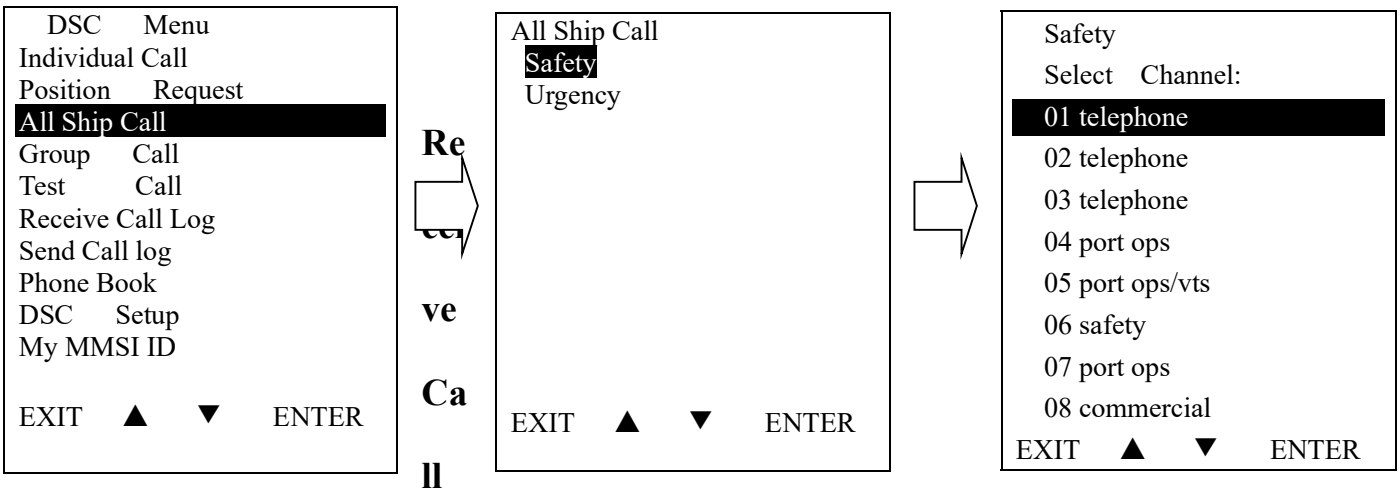


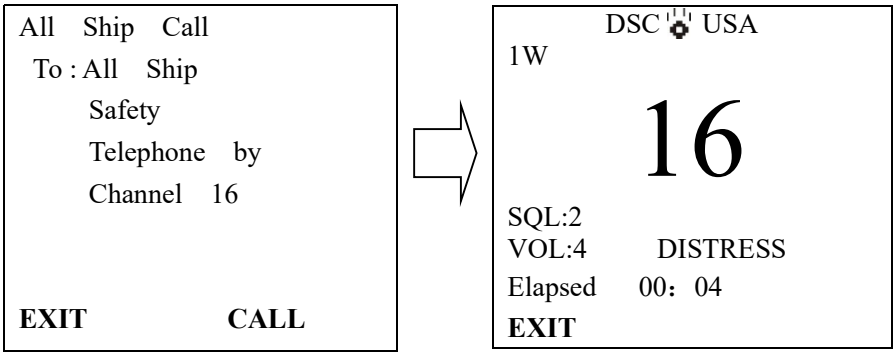
Then the individual call is sent as below shown

All Ship Call

Select the All Ship item

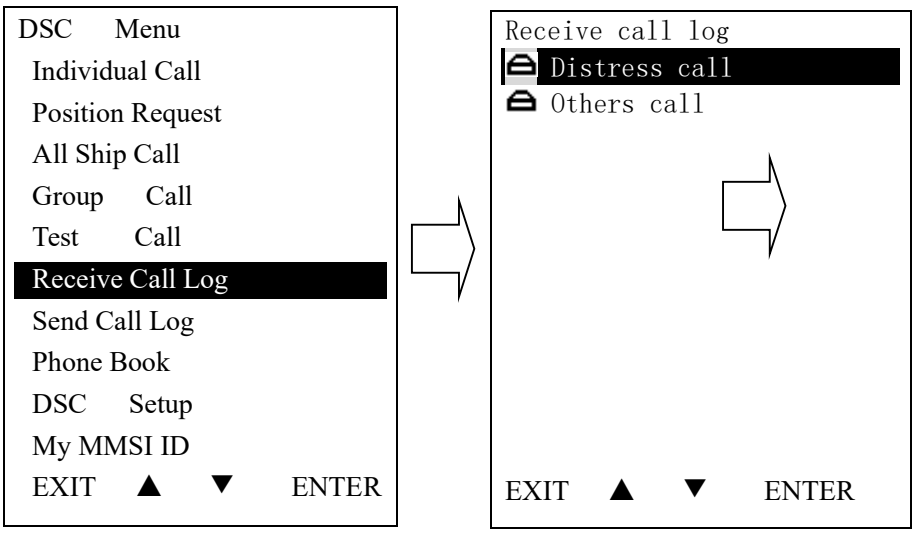
The All Ship Call is sent



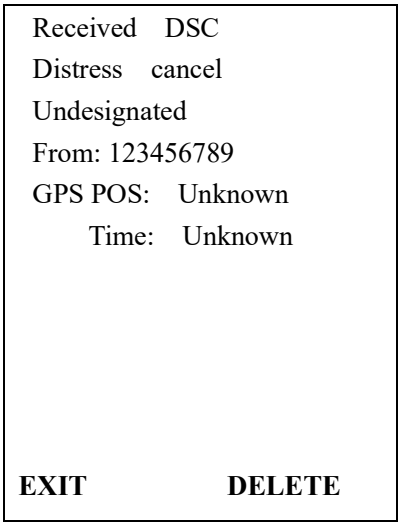


Log

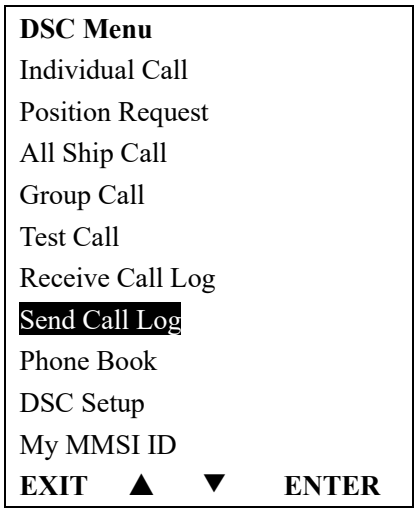
When received DSC, you can check those messages from the “Distress Menu” and see the exact message

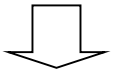


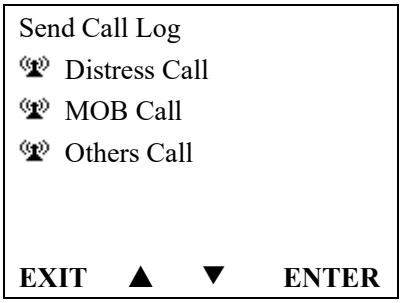
Send Call Log



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

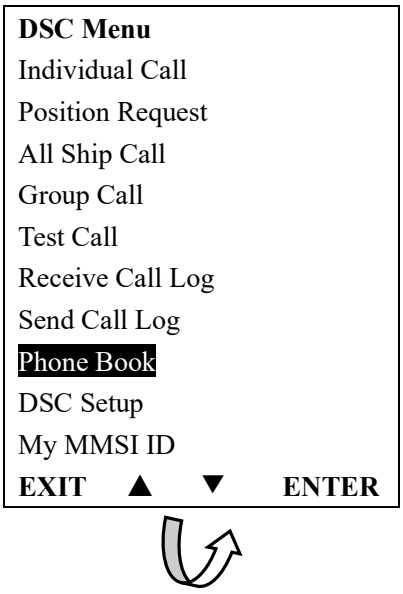


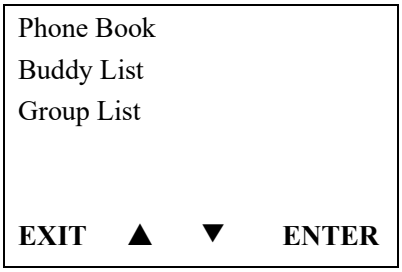




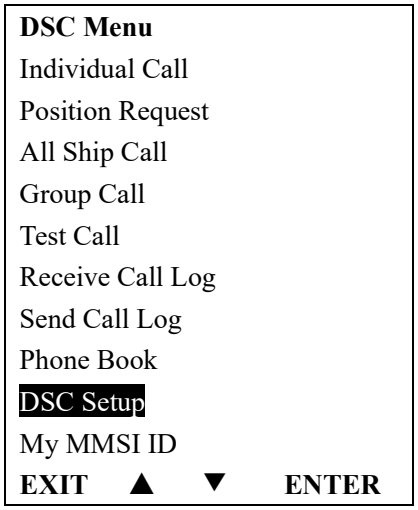
Phone Book

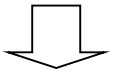
Press “CALL/MENU” key to choose “Phone Book” item and can check the contacted ship by “Buddy List” and “Group List”

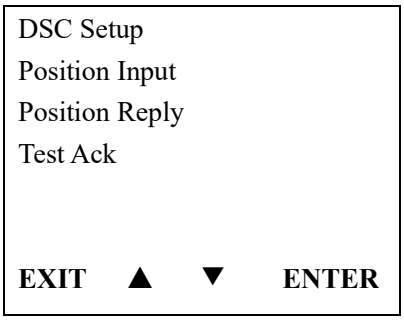




DSC Setup

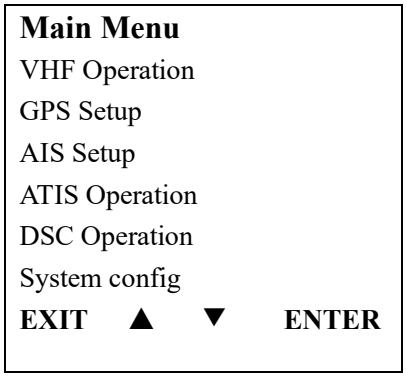






Main Menu

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

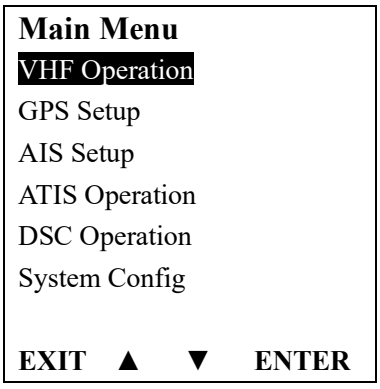


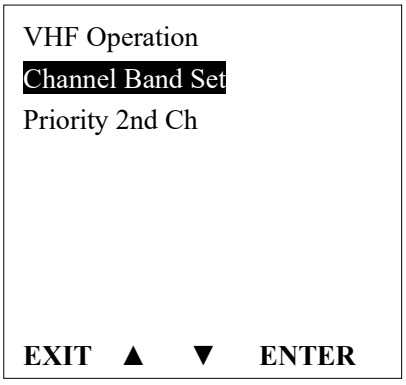
Detailed entrance for each catalogue as shown below:

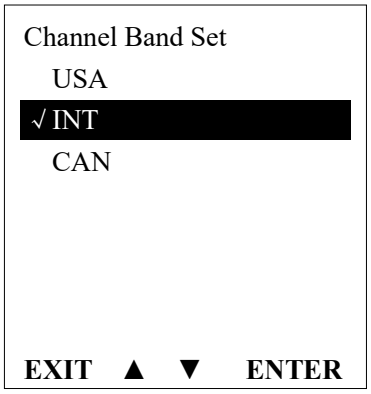
VHF Operation	Channel Band Set		ATIS Operation	My ATIS ID
	Priority 2nd Ch			ATIS Function
GPS Setup	GPS Source		DSC Operation	My MMSI ID
	GPS Setting			DSC Function
	NMEA0183 Setting			
	GPS ALARM		System Config	Back Light lumi
				Key Beep
AIS Setup	AIS Output			Version Info
	AIS Display Set			Factory Reset
	AIS ALARM			Language Select

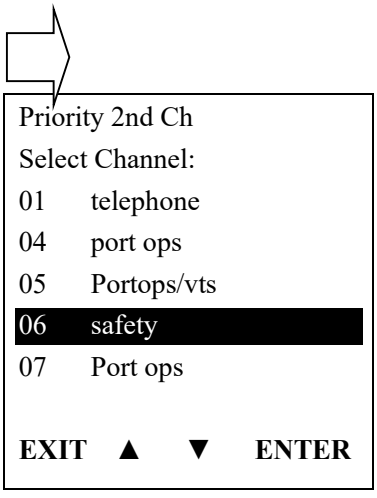
VHF Operation

Long press the CALL/MENU key to enter "VHF Operation" item as below for setup:









For priority 2nd Ch, you can select your preferred channel from below as your priority second channel.

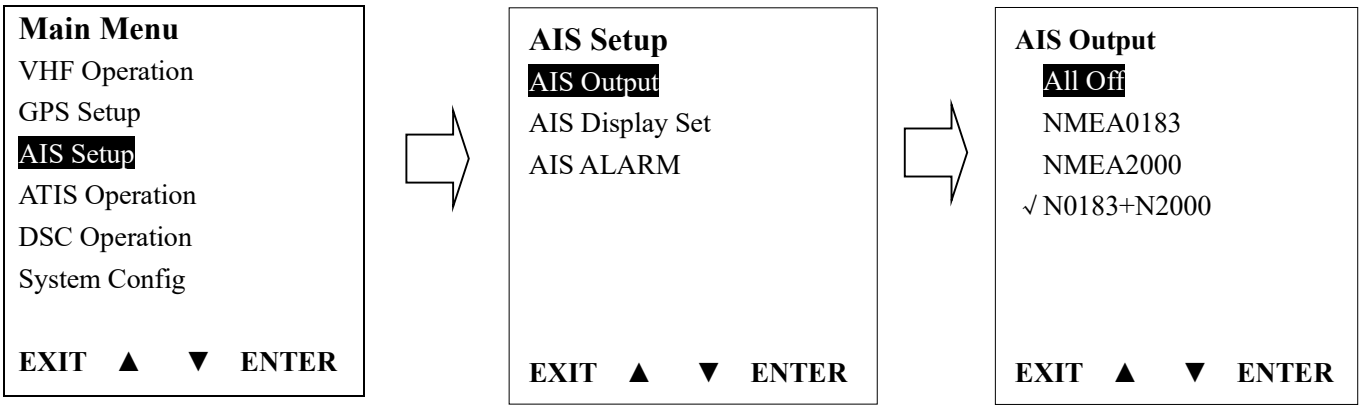
GPS Setup

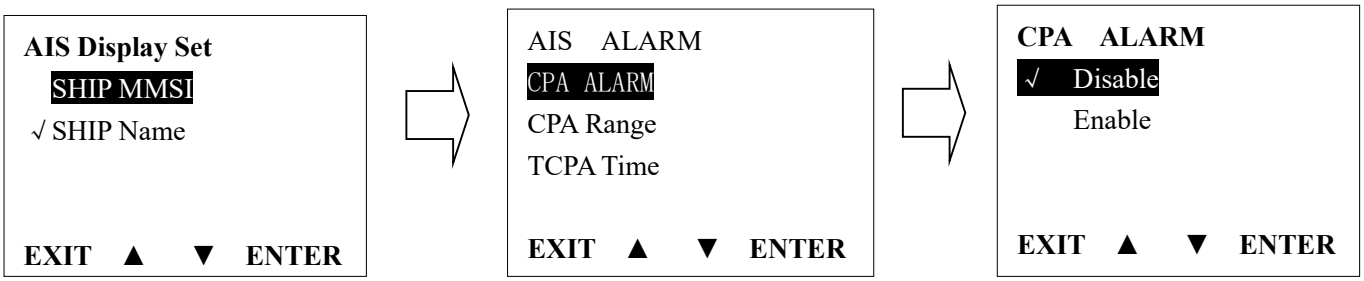
Click the “GPS Setup” to enter “GPS Setup” item for setup as below shown.

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

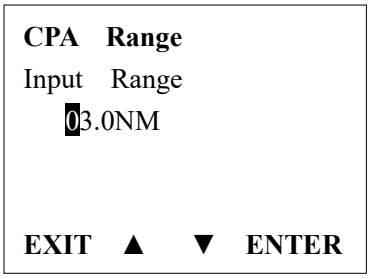
AIS Setup (Only HM390S)

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

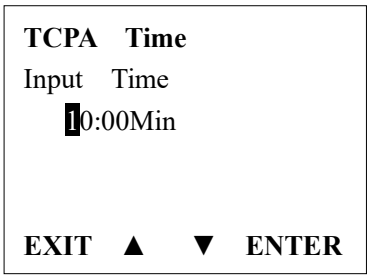




CPA Alarm enable Choose “Disable” or “Enable” item to enter disable or enable AIS alarm, then press “ENTER” key to confirm.



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 1.5NM.

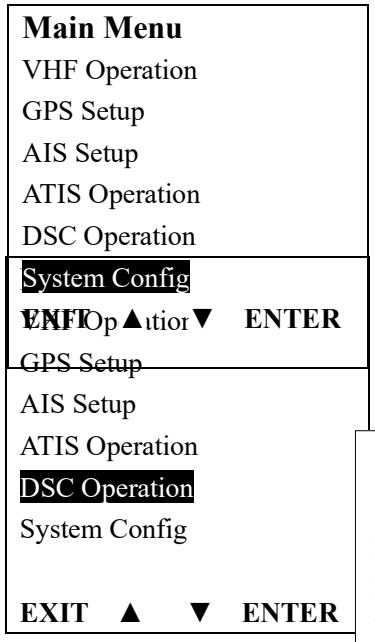


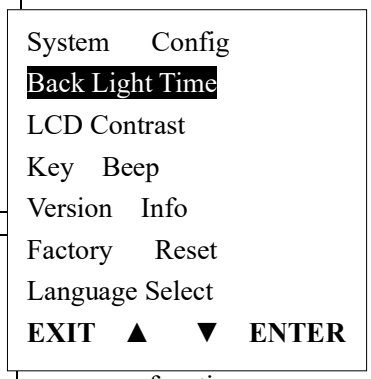
TCPA (Time closest point of approach)Alarm distance setup
Press UP/DOWN key to input digital one by one, after you have done this, press “ENTER” key to confirm, the maximum input range is 30 minutes, if the input value is over than 30 minutes, the input is invalid, then the system will ask for re-enter,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

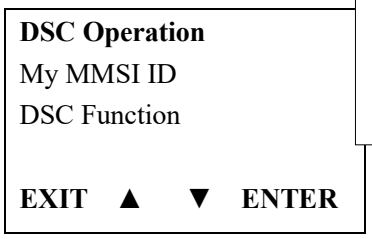
ATIS Operation

Long press the CALL/MENU key to enter “ATIS

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







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

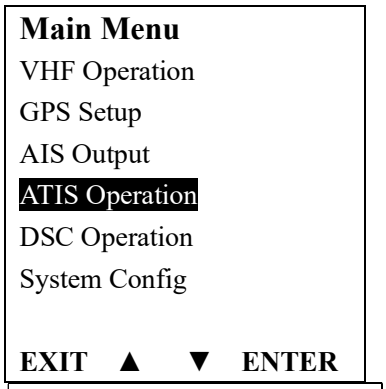
Note. You must enter your user ATIS ID before you can access the ATIS functions. This is a once-only operation.

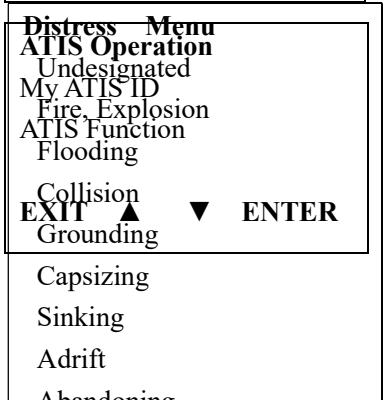
DSC Operation

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

Distress Menu & Send the Distress Message

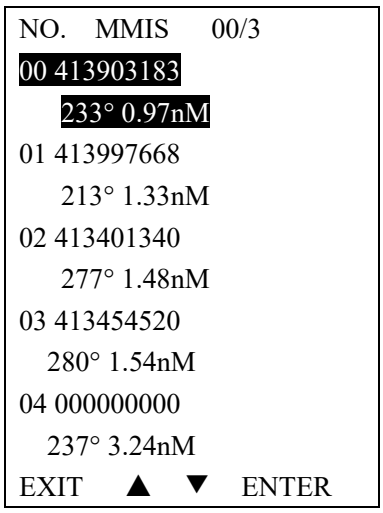
Pull the DISTRESS red cover and press the DISTRESS key. Then below “Distress Menu” will be displayed on LCD.



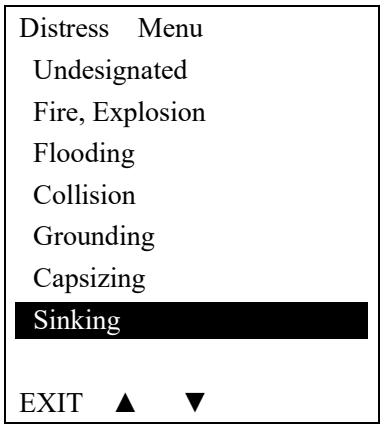


Choose one distress as item such as “sinking”, press and

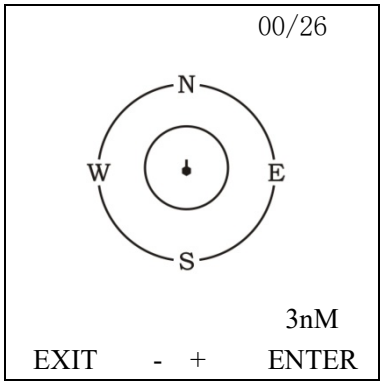
System Config

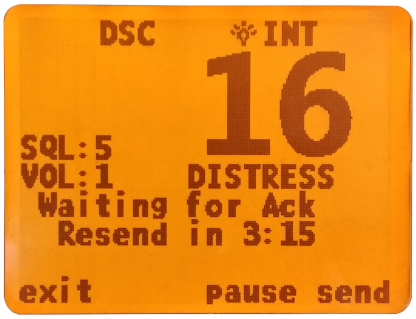


hold this for more than 3 seconds for transmitting sinking message out.



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

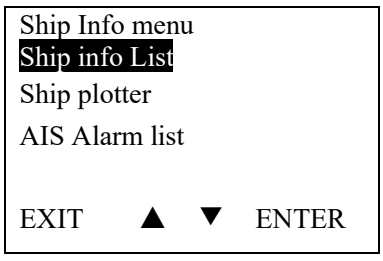




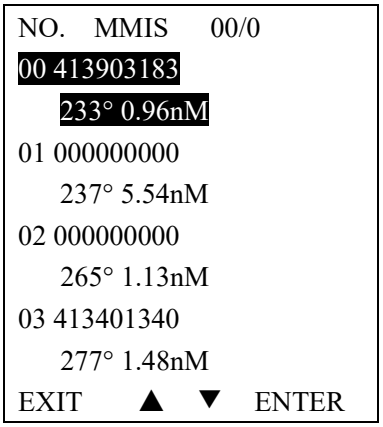
You can also choose to resend, pause or exit after this message was sent.

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

AIS Operation(Only HM390S)



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



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.

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

4. 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--

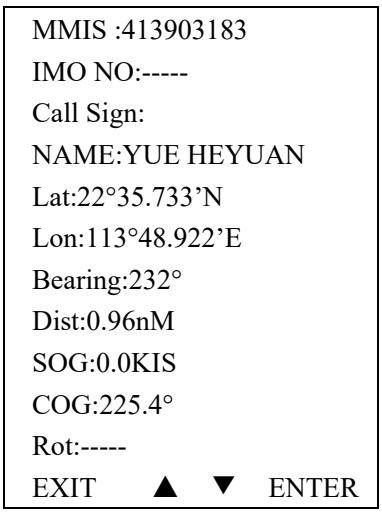
Press the "PAUSE" key to pause or resume the resend.

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

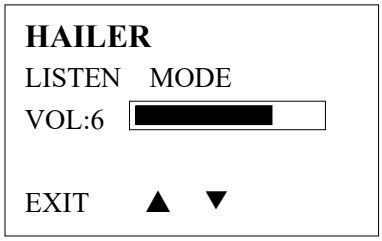
Short press "UIC/AIS" key and "UIC" icon will be shown on LCD.

Long press "UIC/AIS" key and enter AIS (Automatic Identification System) mode (HM390S only). 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.



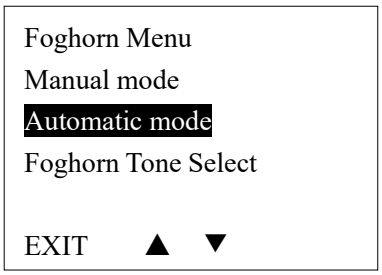
GPS/MOB Key

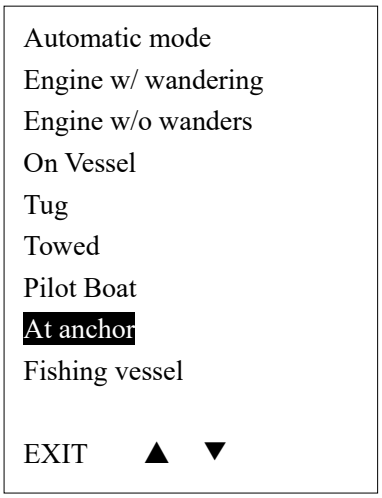
Short press "GPS/MOB" key to get GPS activated

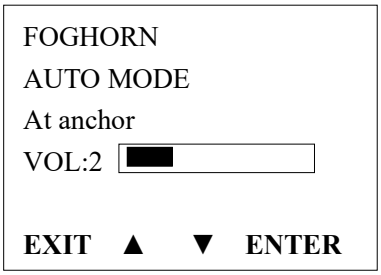
long press “GPS/MOB” key “MOB”icon will be shown on LCD, then Press Distress for 3 seconds, Distress call with nature MOB is sent.
MOB mark is outputted via NMEA0183/2000. A MOB mark is immediately sent to the chart plotter to have a position as accurate as possible.

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 hi gh 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

if you press and hold the"DISTRESS"Key then power on,

you can enter the up grade mode directly. LCD display as below:

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

if you press and hold the"PTT"Key then power on, later you can enter the writing channel mode directly. LCD display as below:

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

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:

UTC time Local time

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 HM390S 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.When the GPS data does not exist, the radio will signal you to manually enter a position 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.

The interface used for NMEA0183 is RS232

Compass safe distance is 0.8m

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

International Marine VHF Channels & Frequencies				
CH	TX Freq	RX Freq	Simplex	Freq Use
1	156.050	160.650		Public Correspondence, Port Operations and Ship Movement
2	156.100	160.700		Public Correspondence, Port Operations and Ship Movement
3	156.150	160.750		Public Correspondence, Port Operations and Ship Movement
4	156.200	160.800		Public Correspondence, Port Operations and Ship Movement
5	156.250	160.850		Public Correspondence, Port Operations and Ship Movement
6	156.300	156.300	x	Inter-ship [1]
7	156.350	160.950		Public Correspondence, Port Operations and Ship Movement
8	156.400	156.400	x	Inter-ship
9	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	161.550	161.550	x	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	161.600	161.600	x	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	Inter-ship, Port Operations and Ship Movement [2]

International Marine VHF Channels & Frequencies				
CH	TX Freq	RX Freq	Simplex	Freq Use
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	161.525	161.525	x	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	161.575	161.575	x	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

- 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
01A	156.050	156.050	x	Port Operations and Commercial, VTS. Available only in New Orleans / Lower Mississippi area.
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.
6	156.300	156.300	x	Inter-ship Safety
07A	156.350	156.350	x	Commercial
8	156.400	156.400	x	Commercial (Inter-ship only)
9	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	–	156.750	x	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
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 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. Inter-ship only.
68	156.425	156.425	x	Non-Commercial

U.S. Marine VHF Channels and Frequencies				
CH	TX Freq	RX Freq	Simplex	Freq Use
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)
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)
84A	157.225	157.225		Non-Commercial
85	157.275	161.875		Public Correspondence (Marine Operator)
85A	157.275	157.275		Non-Commercial
86	157.325	161.925		Public Correspondence (Marine Operator)
86A	157.325	157.325		Non-Commercial
87	157.375	161.975		Public Correspondence Marine Operator)
87A	157.375	157.375		Non-Commercial
88	157.425	162.025		Public Correspondence only near Canadian border
88A	157.425	157.425	x	Commercial, Inter-ship 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	TX Freq	RX Freq	Area of Operation Use
1	156.050	160.650	PC Public Correspondence
2	156.100	160.700	PC Public Correspondence
3	156.150	160.750	PC Public Correspondence
04A	156.200	156.200	PC Inter-ship, Ship/Shore and Safety: Canadian Coast Guard S&R
05A	156.250	156.250	Ship Movement
6	156.300	156.300	All areas Inter-ship, Commercial, Non commercial and Safety: May Be used for search and rescue communications between ships and aircraft.
07A	156.350	156.350	All areas Inter-ship, Ship/Shore, Commercial
8	156.400	156.400	WC, EC Inter ship, Commercial and Safety: Also assigned for operations in the Lake Winnipeg area.
9	156.450	156.450	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	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	PC, AC, GL Inter-ship, Ship/Shore, Commercial, Non-commercial and Ship Movement: Also used for pilotage purposes.
12	156.600	156.600	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	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	AC, GL Inter-ship, Ship/Shore, Commercial, Non-commercial and Ship Movement: Port operations and pilot information and Messages.
15	156.750	156.750	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	All areas International Distress, Safety and Calling.
17	156.850	156.850	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.
18A	156.900	156.900	All areas Inter-ship, Ship/Shore and Commercial: Towing on the Pacific Coast.
19A	156.950	156.950	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
21A	157.050	157.050	All areas Inter-ship and Ship/Shore: Canadian Coast Guard only.
21B	–	161.650	All areas Safety: Continuous Marine Broadcast (CMB) service.

Canadian Marine VHF Channels and Frequencies			
CH	TX Freq	RX Freq	Area of Operation Use
22A	157.100	157.100	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.
23B	–	161.750	Continuous Marine Broadcast Service
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.
61A	156.075	156.075	EC Inter-ship, Ship/Shore and Commercial: Commercial fishing only.
62A	156.125	156.125	EC Inter-ship, Ship/Shore and Commercial: Commercial fishing only.
63A	156.175	156.175	Tow Boats - BCC area
64	156.225	160.825	PC Ship/Shore and Public Correspondence
64A	156.225	156.225	EC Inter-ship, Ship/Shore and Commercial: Commercial fishing only.
65A	156.275	156.275	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).
66A	156.325	156.325	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	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	All areas Inter-ship, Ship/Shore and Non-commercial: For marinas and yacht clubs.
69	156.475	156.475	All areas except EC Inter-ship, Ship/Shore, Commercial and Non-commercial
71	156.575	156.575	PC Inter-ship, Ship/Shore, Commercial, Non-commercial, Safety and Ship Movement the East Coast and on Lake Winnipeg.
72	156.625	156.625	EC, PC Inter-ship, Commercial and Non-commercial: May be used to communicate with aircraft and helicopters in predominantly maritime support

Canadian Marine VHF Channels and Frequencies			
CH	TX Freq	RX Freq	Area of Operation Use
73	156.675	156.675	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	EC, PC Inter-ship, Ship/Shore, Commercial, Non-commercial and Ship Movement.
75	156.775	156.775	Simplex port operation, Ship movement and navigation related communication only. 1 watt maximum
76	156.825	156.825	Simplex port operation, Ship movement and navigation related communication only.1 watt maximum
77	156.875	156.875	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.
78A	156.925	156.925	EC, PC Inter-ship, Ship/Shore and Commercial
79A	156.975	156.975	EC, PC Inter-ship, Ship/Shore and Commercial
80A	157.025	157.025	EC, PC Inter-ship, Ship/Shore and Commercial
81A	157.075	157.075	Inter-ship and Ship/Shore: Canadian Coast Guard use only in the St. Lawrence River/ Great Lakes areas.
82A	157.125	157.125	Inter-ship and Ship/Shore: Canadian Coast Guard use only in the St. Lawrence River/ Great Lakes areas.
83A	157.175	157.175	EC Inter-ship 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	TX Freq	RX 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……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)
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 @ 4Ω
Audio Power Output (hailer)……20W @ 4Ω
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 (TS18\TS18S)……20/50/100
Private channels……99

---Communications

Comm. port NMEA 0183……9600 baud
Comm. port NMEA 2000 (TS18/TS18S 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 (L/W/H)……210 mm x 111 mm x 57 mm
Fixed unit dimensions on mounting bracket……216 mm x 134 mm x 57 mm
Fixed unit Weight……1.2 kg

Declaration of Conformity with Marine VHF Radio

Product Designation:
Maritime Radio,Model HM390S,HM390C,HM390，HM390 Non DSC,HM390S-BB, HM390C-BB,HM390-BB,HM390-BBN
Registration No: G111010J
Brand: HIMUNICATION
Trademark number: 11005103
Applicant Name & Address: Shenzhen Jiuzhou Himunication Technology Co., Ltd Factory1,3rd Floor,Block C,Huafeng Second Industry Park, Hangcheng Road,Gushu,Xixiang town, Baoan District, Shenzhen, China

Radio Equipment Directive 2014/53/EU

Essential Requirement		Applied Specifications/Standards	Documentary Evidence	Result
Art 3.1(a)	Health	EN 50385	Test Report TRE 1711006505	conform
Art 3.1(a)	Safety	EN 60950-1+A11+A1+A12+A2	Test Report TRS 17110164	conform
Art 3.1(b)	EMC	EN 301843-1/-2 EN 301489-1/-19	Test Report TRE 1711006503 Test Report TRE 1711006504	conform
Art 3.2	Radio	EN 301025 EN 300338-3 EN 303413	Test Report TRE 1711006501 Test Report TRE 1711006502	conform

The product shall be marked with the CE conformity marking as shown on the right.

CE

Technical Details:

Frequency Range:156.025-157.425MHz

Rated Output Power:25W/1W

Transmit Power:43.88dBm(conducted)

Modulation Type:PM,FSK,BPSK

Channel Separation:25kHz

Shenzhen,January 25,2018

Francis Sun, General Manager