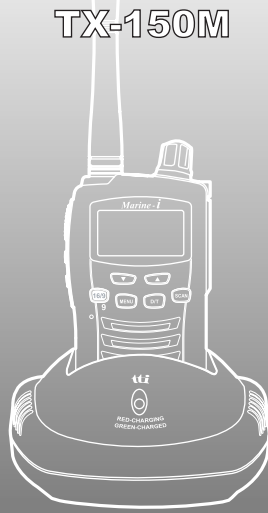


Marine-i
TX-150M



MARINE TRANSCEIVER
INSTRUCTION MANUAL

Manufactured by **tti**
www.ttikorea.co.kr

ENGLISH

Thank you for purchasing this TTI radio.

All our products are built to offer excellent value by combining advanced features, great design and manufacturing quality.

To ensure you are familiar with the operation and features of your radio, and in order to obtain the best performance, please read this manual carefully before operation.

CONTENTS

Caution	4
1. Radio Controls	5
2. Equipment and Accessories Supplied	6
3. Fitting the Battery pack	6
4. Battery Charging	7
5. Radio Controls	8
6. LCD Display	10
7. Basic Radio Operation	11
8. Function(Menu) Mode	11
9. Radio Features Explained	12
Volume level	12
Channels	12
Power Hi / Low	12
Squelch Level Adjustment	12
Monitor	12
Keypad Lock	13
Channel 16 and 9	13
Last Channel Memory (LCM)	13
Dual Watch and Triple Watch Mode ..	13
Channel Scan/Priority Channel Scan	14
Priority Channel	15
Key Beep	15
Time and Timer (TOT)	15
Display & Keypad Backlight	15
Battery Level	15
Power Save	16
10. Troubleshooting	16
11. CE Declaration	17
12. Safety Requirements	17
13. Marine Channel (International)	18
14. Technical Specification	19

Caution

IMPORTANT - READ ALL INSTRUCTIONS carefully and completely before operating your radio and retain this manual for future reference.

NEVER carry the radio in the pocket with metallic or inflammable objects such as coin or gas lighter etc.

NEVER connect the radio to a power source other than the supplied battery. This may damage your product.

NEVER operate your radio with the antenna less than 2in from exposed parts of the body.

NEVER use the radio in or near a mining facility or other area which uses remotely triggered explosives or an area labelled "Blasting Area".

NEVER use or charge your radio in a potentially explosive atmosphere.

DO NOT place your radio in front of a vehicle airbag.

DO NOT operate your radio on board an aircraft.

DO NOT use your radio with a damaged antenna.

DO NOT attempt to modify your radio in any way.

ALWAYS charge your radio at normal room temperature.

ALWAYS switch off your radio where notices restrict the use of two-way radio or mobile telephones.

ALWAYS replace the accessory jack cover when the jack is not in use.

ONLY use TTI approved rechargeable batteries with the supplied charger.

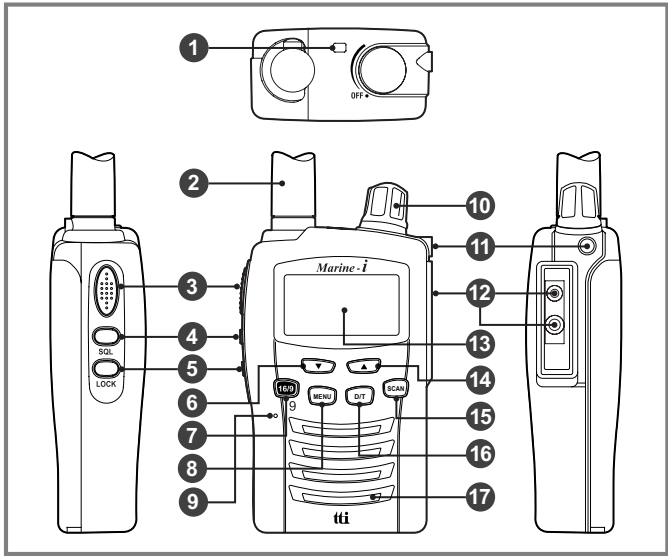
AVOID submerging your radio into water. It is not submersible.

AVOID storing or charging your radio in direct sunlight.

AVOID storing or using your radio where temperatures are below -10°F or above +140°F

1. Radio Controls

1	Strap Hole	10	Power On/Off & Volume Control Knob
2	Antenna	11	Jack Cover Lid Holder
3	PTT Button	12	Accessory Jack
4	Squelch & Monitor Button	13	LCD Display
5	Keypad Lock & LCM Button	14	Up Button
6	Down Button	15	Scan Button
7	Channel 16 Button	16	Dual/Triple Watch
8	Menu Button	17	Speaker
9	Microphone		



2. Equipment and Accessories Supplied

1. TX-150M Radio	1 unit
2. Replaceable Antenna	1 unit
3. Li-Ion Battery pack (1000mAh)	1 unit
4. Charging Cradle	1 unit
5. Power Adaptor	1 unit
6. Carry Case	1 unit
7. Aqua Pack	1 unit
8. Instruction Manual	1 unit

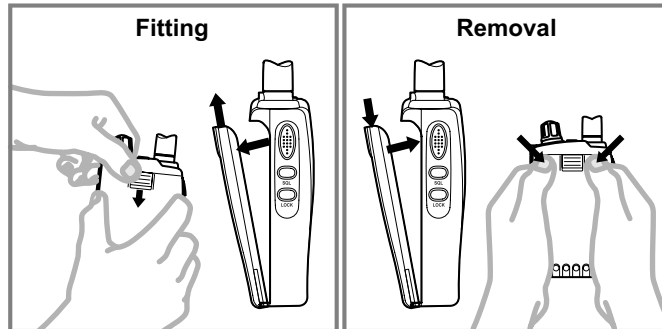
3. Fitting the Battery pack

Fitting

1. Ensure that your radio is switched off.
2. Align the bottom of the battery pack with the securing slots at the back of the radio.
3. Press the top of the battery into the back of the radio until it 'clicks' home.

Removal

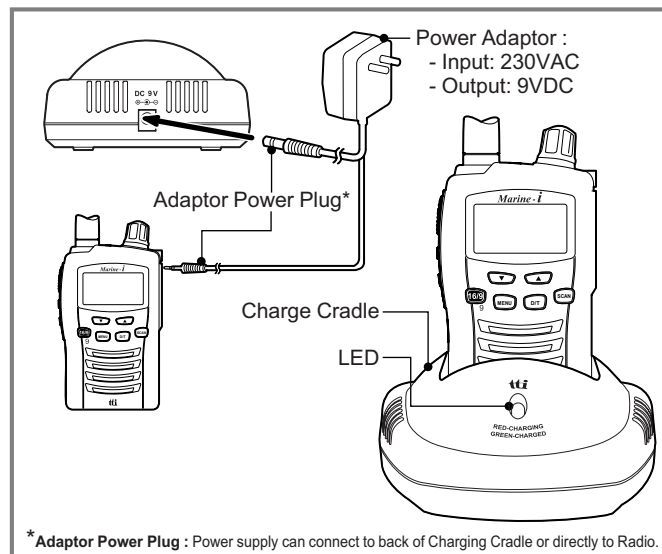
1. Ensure that your radio is switched off.
2. Press down on the battery release catch and separate the battery pack from the radio.



4. Battery Charging

To charge your radio, carefully follow these instructions:

1. Connect the power adaptor to the main power supply and connect the adaptor power plug to the charging cradle.
2. Disconnect any radio accessories and ensure the radio is switched off.
3. Insert the radio into the charging cradle until it 'clicks' home. The charger LED will glow red and charging will start. If the charger LED blinks red and green or the charger LED does not light, re-insert the radio into the charging cradle.
4. The battery charging time is typically 4 to 5 hours. When the battery is fully charged the charger LED will turn green.



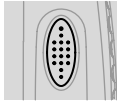
5. Radio Controls

1. Power On/Off/Volume control



Turn the knob clockwise to switch on and increase the volume and counter-clockwise to decrease the volume and switch off the radio. The radio will emit a confirmation tone when it switches on.

2. Push-To-Talk (PTT) button



Press and hold this button to speak (transmit) and release the button to hear (receive) messages. You can only communicate with other marine band radios when the channel and privacy code settings are the same as yours. Double click this PTT button quickly twice to send call(page) tone.

3. Squelch Control and Monitor button



Press this button briefly to change the squelch level in combination with Up and Down buttons. Press and hold this button to activate or de-activate the MONITOR function.

4. KEYPAD LOCK and Last Channel Memory (LCM) button



Press and hold this button to activate or de-activate the keypad lock function. Press and hold this button to return to the previously used channel.

5. DOWN button



Pressing this button will decrease the channel number. In some modes this button is used to adjust the function setting.

6. UP button



Pressing this button will increase the channel number. In some modes this button is used to adjust the function setting.

7. Channel 16/9 button



Press this button briefly to enter or escape from the channel 16. Press and hold this button to enter or escape from the channel 9. Pressing this button briefly again during executing the channel 9 will change the channel 16 mode.

8. MENU button



Press this button briefly to activate the function menu. Press the button again (repeatedly) to step through the function menu.

9. DUAL WATCH & TRIPLE WATCH button



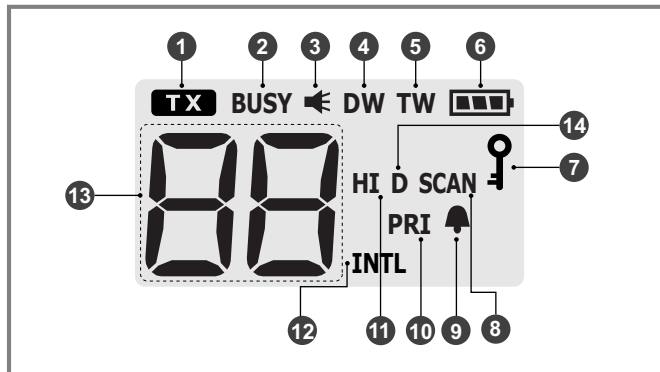
Press this button briefly to activate and de-activate the Dual Watch. Press and hold this button to activate or de-activate the Triple Watch. Pressing this button briefly again during executing Triple Watch will change the mode to Dual Watch.

10. SCAN button



Press this button briefly to activate or de-activate the scan mode. Pressing this button with one Priority Channel turned on will activate or de-activate the Priority Scan

6. LCD Display



1	Transmit Icon	8	Scan Icon
2	Receiver Busy Icon	9	Key Beep Icon
3	Monitor Icon	10	Priority Channel Icon
4	Dual Watch Icon	11	High Power Icon
5	Triple Watch Icon	12	International Mode Icon
6	Battery Icon	13	Channel Icon
7	Keypad Lock Icon		

7. Basic Radio Operation

The marine radio service that this radio uses shares channels on a 'take turns' basis. This means that other users and groups may be using any channel and privacy code combination.

To communicate with other marine radios, all units must be switched to the same channel. If the combination you have chosen is already in use please make an alternative selection.

1. Switch on your radio.
2. Check and if necessary change the channel settings (see Function Mode).
3. To speak, hold the radio upright, about 10cm from your mouth and press the PTT. Speak slowly and clearly towards the radio. Release the PTT when you finish speaking.

You will hear messages from other radios that are within range and have the same channel setting.

The appropriate icon will appear in the radio display when you receive or transmit a message.

8. Function(Menu) Mode

The function mode allows you to set-up and edit the basic functions (see Radio Features Explained).

To access the consumer mode, press the MENU button briefly.

Each press of the MENU button steps the radio sequentially through the different functions. The radio display indicates the current function. The present setting and associated icon flash.

Use the UP or DOWN button to change the setting. Press the PTT or MODE button or wait for 5 seconds to store your choice. If you do not press any key for 5 seconds your radio will return to standby mode automatically.

9. Radio Features Explained

Volume Level

To adjust the volume level, use the POWER On/Off/VOLUME control. To increase the volume turn this control clockwise, to decrease the volume turn this control counter-clockwise.

Channels

This radio operates on any one of the marine band radio channels. To communicate with other marine band radios, all units must be switched to the same channel and privacy code. To change the radio channel, press the UP or DOWN button when the radio is in stand-by mode.

Power High / Low

This feature permits selection of the transmit power level to High or Low. The LCD indicator will display "HI" when it is in the high power mode. Using low power, the radio will have a lower transmit range but the battery life will be increased.

Pressing the PTT button, press the DOWN button to select the low power. The LCD indicator, "HI" will disappear. To return to the high power, press again the PTT button and UP button.

Squelch Level Adjustment

This function allows you to adjust the squelch level of your radio. To change the squelch level, press the Squelch and Monitor button briefly. The current squelch setting will appear. Use the UP or DOWN button to change the setting. Press the PTT button or wait for 5 seconds to store your choice.

There are 8 squelch levels. Level 1 is the most sensitive (open) and level 8 is the least sensitive (closed). Auto(Ao) is the optimum factory setting and 'Off' is fully open, with constant static noise.

Monitor

The Monitor function is used to briefly check for activity on the current channel, regardless of privacy code settings. It is the same as setting the squelch level to 'Off'.

To activate or deactivate the Monitor press the Squelch Control and Monitor button for about 2 seconds. The Monitor icon will appear when the Monitor is active. It is normal to hear background static noise.

Keypad Lock

To toggle the key lock briefly, press the Keypad Lock button. The keypad lock icon appears when the lock is activated.

Channel 16 and 9

The channel 16 (Distress channel) is used to initially contact another radio station for emergency communications. This channel is automatically monitored during Dual Watch and Triple Watch. Upon stand-by, you must monitor the channel 16. In some places, the channel 9 is selected more frequently.

Last Channel Memory (LCM)

The channel that was just previously used is memorized every time and you can visit the channel pressing and holding the Keypad Lock button. To deactivate this function, press and hold this button again.

Dual Watch and Triple Watch Mode

Dual Watch mode allows you to monitor two channels; a primary channel and the dual watch channel. The dual watch channel must be the channel 16 in any case and this is preset by factory default. When a signal is received on either channel the unit will pause for about 5 seconds before resuming the dual watch.

To activate the dual watch mode, first select a radio channel (see Channels) as the primary channel. Press the Dual Watch and Triple Watch button briefly.

The radio display will alternate between the primary and the channel 16 and the dual watch icon will appear.

To deactivate the dual watch press the Dual Watch and Triple Watch button briefly again.

Triple Watch mode allows you to monitor three channels; a primary channel, the dual watch channel(Channel 16) and the third channel that you can select in the function menu. A selected priority channel is working as the third channel. If the third channel(one priority channel) has not been selected, the triple watch will not start with an error beep.

When a signal is received on either one channel of the primary channel or the priority channel. The unit will pause for about 5 seconds before resuming the triple watch. When a signal is received on the channel 16 the unit will stay on the channel 16 as long as the signal exists before resuming the triple watch.

To activate the triple watch mode, first select a radio channel (see Channels) as the primary channel and select one priority channel. Press and hold the Dual Watch and Triple Watch button.

The radio display will alternate among the primary channel, the channel 16 and the priority channel. The triple watch icon will appear.

To deactivate the triple watch press and hold the Dual Watch and Triple Watch button again. Pressing the Dual Watch and Triple Watch button briefly will lead to the dual watch mode.

If you press the PTT button whilst receiving a signal in dual watch or triple watch mode the radio will transmit on the currently displayed channel. If you press the PTT button when no signal is present the radio will transmit on the primary channel. dual watch and triple watch will resume approximately 5 seconds after the transmission

Channel Scan / Priority Channel Scan

The Channel Scan can be used to find or detect users on other radio channels.

To activate/deactivate the channel scan, press the Scan button briefly. The Scan icon will appear when the channel scan is active. Scanning will only stop when you deactivate the scan function. The radio will scan through the whole marine band channels. If your radio detects a valid signal the scan will pause for about 5 seconds. If you press the PTT button when your radio detects a signal, the radio will transmit on the same channel. Scanning will resume approximately 5 seconds after the transmission. Press the UP or DOWN button to resume scanning immediately.

While one Priority Channel has been selected in the Function Menu, only the Priority Scan is available. The selected Priority Channel is visited as frequently as the scanning channel changes.

Priority Channel

The Priority Channel is the channel that should be used for the Triple Watch as well as the Priority Channel Scan. If one Priority Channel is not selected in the Function Mode, the Priority Channel Scan and Triple Watch will not work.

To change the Priority Channel setting, press the MENU button until the Priority Channel icon and current setting flashes. Use the UP or DOWN button to change the setting. Press the PTT or MENU button or wait for 5 seconds to store your choice.

The Priority Channel icon will appear when one Priority Channel has been selected.

Key Beep

If the Key Beep is activated, your radio will emit a confirmation tone whenever you use the keypad. You can activate or deactivate the Key Beep as required.

To change the Key Beep setting, press the MENU button until the Key Beep icon appears. Use the UP or DOWN button to change the setting. Press the PTT or MENU button or wait for 5 seconds to store your choice.

The Key Beep icon will appear when Key Beep is active.

Time Out Timer (TOT)

The unit has time out timer setting of 5 minutes. The unit will automatically stop transmitting after 5 minutes of pressing the PTT button. To resume the PTT transmitting, release the PTT button and press the button again.

Display & Keypad Backlight

The display and keypad backlight will illuminate for 5 seconds whenever any buttons (except for the PTT button) are pressed.

Battery Level

The Battery icon indicates when the battery level is low and the battery needs recharging.

Power Save

To conserve battery power the radio will automatically enter Power Save mode after a short period of inactivity. There is no user setting for Power Save.

10. Troubleshooting

If you experience problems with your TX-150M marine band radio first check the battery power level as low batteries can cause problems such as poor transmission, weak reception and reduced sound quality.

Then check the manual and radio display to ensure that a function (such as Lock) has not been activated by accident.



If these steps do not solve the problem reset your unit as follows:

1. Switch off the radio.
2. Press and hold the Menu button, Down button and PTT button together.
3. Switch on the radio and press the Menu button.
4. Turn off the radio and turn it on again.

This will reset the radio to the factory settings and should resolve most problems.

In case of further difficulty please consult your dealer or visit our website at www.ttikorea.co.kr.

11. CE Declaration

-  CE version of the TX-150M which displays the CE symbol on the product label, complies with the essential requirements of the European Radio and Telecommunications Terminal Directive 1999/5/CE.
-  This warning symbol indicates that this equipment operates in non-harmonised frequency bands and/or may be subject to licensing conditions in the country of use. Be sure to check that you have the correct version of this radio or the correct programming of this radio, to comply with your national licensing requirements.

12. Safety Requirements

For charging the rechargeable batteries, only a CE approved AC adaptor complying with the following specifications must be used :

INPUT : AC 230V 50Hz

OUTPUT :DC 9V 500mA

13. Marine Channel - International

CH	Frequency (MHz)		CH	Frequency (MHz)	
	Transmit	Receive		Transmit	Receive
01	156.050	160.650	61	156.075	160.675
02	156.100	160.700	62	156.125	160.725
03	156.150	160.750	63	156.175	160.775
04	156.200	160.800	64	156.225	160.825
05	156.250	160.850	65	156.275	160.875
06	156.300	156.300	66	156.325	160.925
07	156.350	160.950	67	156.375	156.375
08	156.400	156.400	68	156.425	156.425
09	156.450	156.450	69	156.475	156.475
10	156.500	156.500	70	RX Only	156.525
11	156.550	156.550	71	156.575	156.575
12	156.600	156.600	72	156.625	156.625
13	156.650	156.650	73	156.675	156.675
14	156.700	156.700	74	156.725	156.725
15	156.750	156.750	75	156.775	156.775
16	156.800	156.800	76	156.825	156.825
17	156.850	156.850	77	156.875	156.875
18	156.900	161.500	78	156.925	161.525
19	156.950	161.550	79	156.975	161.575
20	157.000	161.600	80	157.025	161.625
21	157.050	161.650	81	157.075	161.675
22	157.100	161.700	82	157.125	161.725
23	157.150	161.750	83	157.175	161.775
24	157.200	161.800	84	157.225	161.825
25	157.250	161.850	85	157.275	161.875
26	157.300	161.900	86	157.325	161.925
27	157.350	161.950	87	157.375	157.375
28	157.400	162.000	88	157.425	157.425
60	156.025	160.625			

14. Technical Specification

- 1) Channel Spacing: 25kHz
- 2) Power Source: 1 x Li-Ion battery
- 3) Technical Specification

RECEIVER

Frequency Range : 156.400 to 161.925 MHz
Receiver Type : Double Conversion Super Heterodyne
Sensitivity : 20 dB Quieting: Typical -116 dBm
12 dB Sinad : -120 dBm
Adjacent Channel Selectivity : 65 dB
Intermodulation and Rejection : 65 dB
Spurious and Image Rejection : 65 dB
AF Output : 800mW @ 8 Ohms

TRANSMITTER

Frequency Range : 156.050 to 157.425 MHz
RF Output Power : 1 or 4 Watts
Spurious Emissions : -60dB @ High Power
-55dB @ Low Power
Frequency Stability : +/- 5.0ppm @
Modulation : +/- 5 KHz Max.

GENERAL

Dust and Leakage Protection : IP54
Number of Channels : International Channels
Channel Spacing : 25 kHz
Operating Voltage : 7.4V DC
Battery Life Stand-by : 10 hours
Current Drain : Stand-by : 40 mA
Receive : 170 mA
Transmit : 1.4 A@Hi
700 mA @ Lo
Temperature Range : -15°C to + 55°C
Unit Dimensions : 98 H x 62 W x 30 D mm
Unit Weight : 180 g approx.

***All Specifications are typical and subject to change without notice or obligation.**