# TX2000U
# TX2000UBT(Bluetooth Compatible)
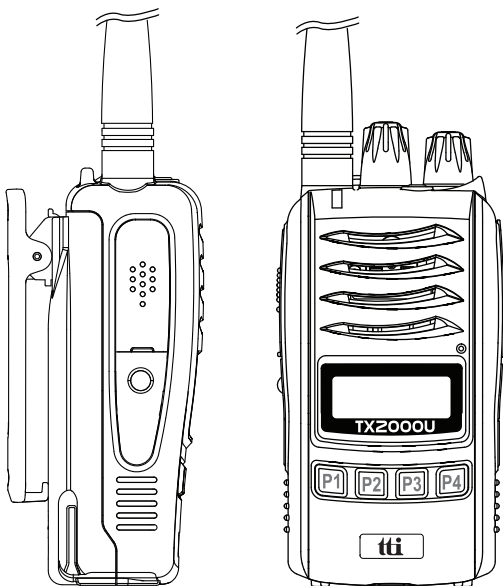


## INSTRUCTION MANUAL

**tti**

*www.ttikorea.co.kr*

**Thank you for purchasing this 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

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

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 5cm 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 (if applicable) when the jack is not in use.

ONLY use TTI approved rechargeable batteries with the supplied charger .

AVOID charging your radio or battery pack while is it wet.

AVOID storing or charging your radio in direct sunlight.

AVOID storing or using your radio where temperatures are below -20ºC or above +60ºC.

| | |
|---|---|
| 1.Antenna | 8.Power ON/Off & Volume Control Knob |
| 2.Channel Knob | |
| 3.Strap Hole | 9.Lock Button |
| 4.TX/RX Indicator | 10.Accessory Jack |
| 5.PTT Button | 11.Speaker |
| 6.Monitor Button | 12.Microphone |
| 7.Belt Clip | 13.LCD Display |
| | 14.P1/P2/P3/P4 Button |
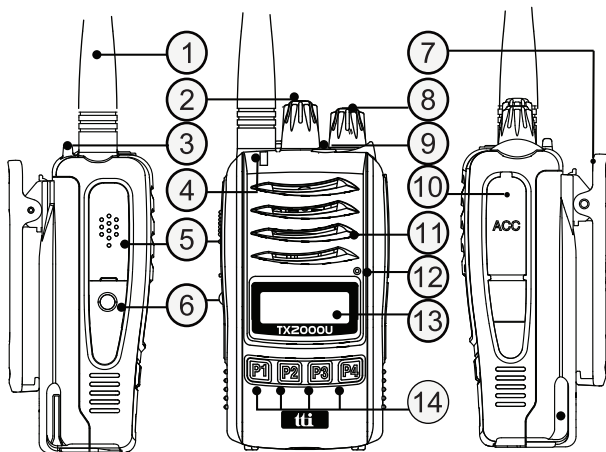
## 2. Equipment and Accessories Supplied

| | |
|---|---|
| 1. TX2000U(or TX2000UBT) Radio | 1 unit |
| 2. Antenna | 1 unit |
| 3. Li-Ion Battery pack (2200mAh) | 1 unit |
| 4. Charging Cradle | 1 unit |
| 5. Power Adaptor | 1 unit |
| 6. Belt Clip | 1 unit |

## 3. Fitting the Battery pack

Fitting
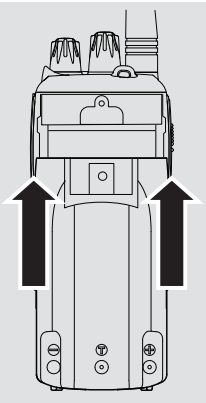


1. Ensure that your radio is switched off.

2. Align the battery pack with the battery guide at the back of the radio.

3. Slide the battery pack up to the top until you hear the snapping sound.

Removal
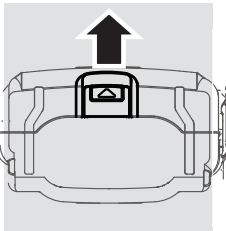


1. Ensure that your radio is switched off.

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 mains power supply and connect the adaptor charger jack 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 or green or the charger LED does not light, re-insert the radio into the charging cradle.
4. The battery charging time is about 3 hours. When the battery is fully charged the charger LED will turn green.
5. The two batteries can be installed together. The front one the radio with battery, always has the priorty.



Battery Pack

LED

Power Adaptor
-Input : 230VAC
-Output : 12VDC 1Ah
Note
- Upon the red LED blinking, there is a doubt on the battery quality.
- Upon the orange LED blinking, there is a doubt on the high temperture of the battery. In this case, separate the battery from the cradle and try again after cooling.
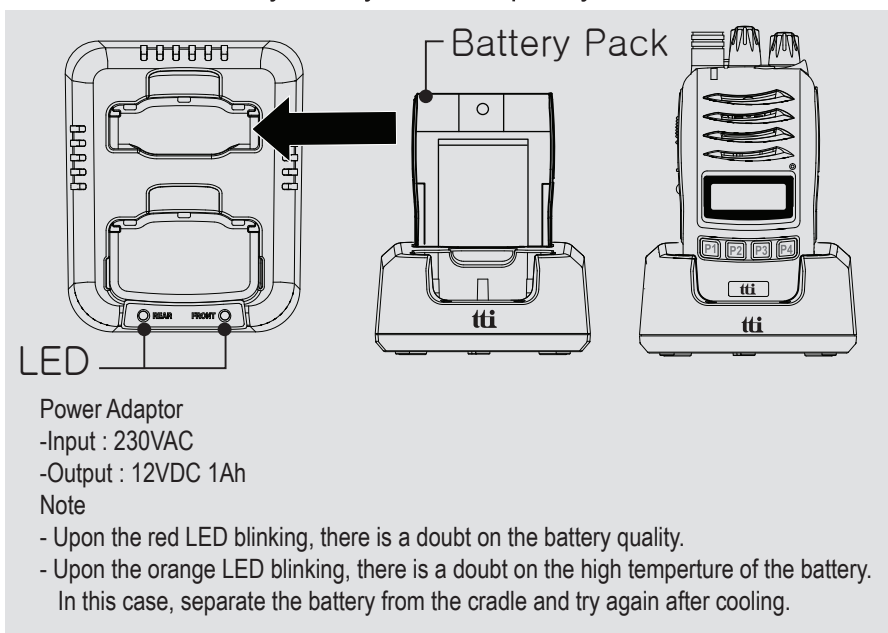
## 5. Radio Controls

### 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 radios when the channel and privacy code or ID setting is the same as that of yours. The red LED lights during the PTT press.

Note : The green or orange LED lights during receive. The green lights on the basic channels and the orange lights on the channel swith privacy codes.

### 3. Monitor Button
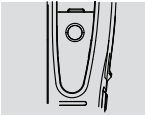
Press and hold this button to activate the monitor function. The function works only when the button is pressed and held. To deactivate this function, just release the button.

### 4. Channel Knob

To change the channel, turn right or turn left. The right turn leads channels upward and the left turn leads downward.

### 5. P1,P2,P3 and P4 Button
i. P1

As factory default, the menu mode is assigned to P1. Press and hold for about 2 seconds to enter the menu mode. Then briefly press to step down through the menus.

ii. P2



As factory default, the button works as up button or value selection of each menu.

iii. P3



As factory default, the button works as down button or value selection of each menu.

iv. P4



As factory default, this button is in charge of returnning function to the just previous menu or value.

6. Emergency/Keypad Lock Button
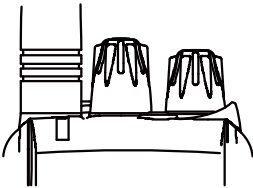


Emergency : Press and hold this button to transmit the emergency tone. The radio PTT is automatically pressed and held after the emergency tone. To stop the emergency situation, press the PTT again and press and hold the emergency button.

Keypad Lock : Momentarily press this button to activate the Keypad Lock.

## 6. LCD Display
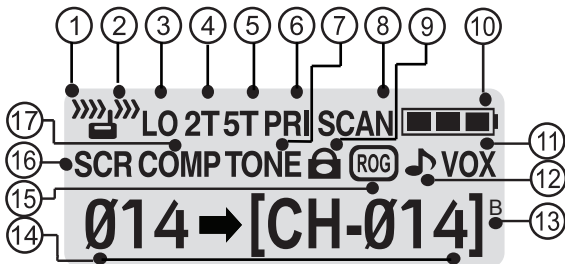


| NO | Description | NO | Description |
|----|-------------|----|-------------|
| 1 | Receive | 10 | Battery Indicator |
| 2 | Transmit | 11 | VOX(Hands free) |
| 3 | Power Low | 12 | Key Tone |
| 4 | 2 Tone | 13 | Bluetooth Compatible (Optional) |
| 5 | 5 Tone | | |
| 6 | Priority Channel | 14 | Information Indicator |
| 7 | CTCSS/DCS Tone | 15 | Roger Beep |
| 8 | Scan | 16 | Scrambler |
| 9 | Keypad Lock | 17 | Compander |

## 7. Basic Radio Operation

The UHF Radio service which this radio users share 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 UHF radios, all units must be switched to the same frequency and privacy code.
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 or frequency and privacy code settings.
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 and privacy code setting.
The appropriate icon will appear in the radio display when you receive or transmit a message.

## 8. Menu Mode

1. Function Buttons



| P1 | P2 | P3 | P4 |
|---|---|---|---|
| Entering Menu & Menu Selection | Value Selection | Value Selection | |

2.Menus

The menu mode allows you to set-up and edit the basic functions.
To access this menu mode press and hold the menu(P1) button.
Each press of this button(P1) steps the radio sequentially through the different functions.
The radio display indicates the current functions. The current setting and associated icon display. Use the up(P2) or down (P3) button to change the value of any selected menu.
Press the PTT button or wait for about 5 seconds to confirm the change.

| 1 | Output Power | PWR    SETUP |
|---|---|---|
| 2 | Squelch Level Adjustment | SQL    SETUP |
| 3 | DTMF Tone | DTMF    MODE |
| 4 | Roger Beep | TX        ROGER |
| 5 | LCD Backlighting | BACK    LIGHT |
| 6 | Keypad Tone | BEEP    SETUP |
| 7 | Compander | COMPANDER |
| 8 | VOX | VOX    SETUP |
| 9 | Microphone Gain | MIC        GAIN |
| 10 | Quiet Talk | QUIET    TALK |

## 9. Radio Features Explained

| LO [battery] ♪ |
|---|
| **PWR    LOW** |

**Output Power**

This feature permits the selection of the transmit power. Using the low power the radio will have lower transmit range but the battery life will be increased.

| [battery] ♪ |
|---|
| **SQL    AUTO** |

**Squelch Level Adjustment**

This function allows you to adjust the squelch level of your radio.

There are 9 squelch levels,  1 to 9 and auto. If the auto is selected, the squelch level is adjusted in most proper level for communications The level 1 is the most sensitive and level 9 is the least sensitive. The more distant message you like to hear, the smaller level the squelch should be down to.

| [battery] ♪ |
|---|
| **DTMF    ON** |

**DTMF Tone**

The DTMF tone is a kind of combinations of short tones.  The DTMF tone can preamble to the message upon every press of the PTT button. Selecting this allows the other party never to miss your initial message that might arrive before the audio of the other party's is open to receive.This can be activated and de-activated.

| [battery] |
|---|
| [ROG] ♪ |
| **BEEP    SETUP** |

**Roger Beep**

This is a short tone that is automatically added to the end of your transmissions to tell other users that you have finished speaking. This can be activated and de-activated.

## LCD Backlighting

This is adjustable. Always indicates that the backlighting is on always.

Auto indicates that the backlighting is active for 5 seconds from every press of keys or knobs(except for the PTT button).

If Off is selected, the LCD backlighting is always off.

## Keypad Tone

If this function is activated your radio will emit a confirmation tone whenever you use the keypad or the channel knob.

## Compander

This function reduces the background noise upon receive.

This function however, might be able to reduce the audio of massges also.

## VOX

When VOX(hansfree) mode is selected the radio will automatically transmit when the microphone detects your voice(or other noise). It can be used with the internal microphone or a suitable audio accessory(available separately)

**Microphone Gain**

There are 5 different levels(from 1 to 5) and auto. The level 1 is the most sensitive and the level 5 is the least sensitive. The level one responds to quiet sound. For normal use auto is recommended.

**Quiet Talk**

This is used when you are requird to talk quietly. Your radio responds to your very small and quiet voice to transmit.

## 10.Advanced Radio Features Activated by PC Program

**1.TOT**

This timer is used to limit the transmit time of your radio. By selecting this function, your radio will automatically release the PTT when the selected time limit is reached.

**2.Battery Saver**

This reduced the battery consumption. However, there might be slight delay receiving signal when the radio is in the sleep mode by this saver activation.

**3.Privacy Codes(CTCSS and DCS Tone Codes)**

Only one type of privacy code can be used on each channel. If the other unit(s) do not have privacy codes ensure your radios privacy codes are set to off.

**4.Stun Kill**

When a radio is lost and not found, it can be remotely controlled to be inoperative.

**5.Bluetooth Compatible(Optional)**

This is an optional system and can be active with most of market purchasable Bluetooth headphone.

**6.Cloning**

Using TTI supplied cloning cable, the frequencies and current setting can be copied.

**7.Scrambler**

The other parties who do not use the same scrambling codes are not permitted to take your messages.

**8.Grouping**

Radios can be combined in groups. The messages to be transmitted can be taken by the radios in the same group.

**9.Scan**

Each channel can be stored for scanning. Upon activating the scanning. only the stored channels are scanned and monitored. When the priority channel has been selected, the radio always monitor the priority channel during scanning.

**10.ID Tone**

Using 5 tone system, each ID can be transmitted and received.

**11.Repeater use**

The 2 tone system is used for the repeater environment.

## 11. Troubleshooting

If you experience problems with your TX2000U 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 VOX or Lock) has not been activated by accident.
In case of further difficulty please consult your dealer or visit our websites at *www.ttikorea.co.kr*.

## 12. CE Declaration

C E 0678   CE version of the TX2000U 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-harmonized 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.

This radio can be used without license and charges in; Austria, Belgium, Cyprus, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and U.K.

## 13. Safety Requirements

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

INPUT :   230VAC   50Hz

OUTPUT :  12VDC  1AH

# General Specifications

| | |
|---|---|
| Frequency Range | 400~470MHz |
| Number of Channels | 512CH / 16 Group |
| Channel Spacing | 12.5KHz / 25KHz |
| Antenna Impedance | 50Ω |
| Power Supply | 7.4V (Li-ion Battery) |
| Current Drain | TX: High 1.3A , Low 0.7A |
| | RX: 360mA , Standby 57mA |
| Operating Temp. Range | -20°C~+60°C |
| Dimension | 57(W)x116(H)x39(D)mm |
| Weight | 224.5g |
| Average Battery Life | 16Hours |
| PLL Step | 6.25KHz |
| Battery Capacity | 2200mAh |
| IP Level | IP67 |
| Environmental Sealing | MIL-STD-810-C,D,E&F and IP67 |
| Shock and Vibration | Impact resistant housing exceeding |
| | MIL-STD-810-C,D,E&F and TIA/EIA603 |
| Dust and Humidity | Environment resistant housing exceeding |
| | MIL-STD-810-C,D,E&F and TIA/EIA603 |

# TRANSMITTER SPECIFICATIONS

| | |
|---|---|
| Power | HI : 4W, LOW : 1W |
| Frequency Stability | less than ±3ppm |
| Max Frequency Deviation | ±2.5 KHz |
| TX distortion | less than 5% |
| Spurious Emission | less than -36dBm |
| FM Him and Noise | more than 40dB |
| Adjacent Channel Power | less than 20uV |
| Audio Response | 6dB/OCT (+1dB, -3dB) |
| | Pre-emphasis (300 ~ 3000Hz) |

# RECEIVER SPECIFICATIONS

| | |
|---|---|
| Sensitivity | less than 0.4uV |
| Receiver IF Frequency | 1st IF : 46.35MHz, 2nd IF:450KHz |
| Inter Modulation Distortion | more than 65dB |
| Spurious Response | more than 60dB |
| Adjacent Channel Selectivity | more than 60dB |
| RX distortion | less than 5% |
| FM Him and Noise | more than 40dB |
| Audio Output Power | 1.5W (16Ω load) |

## 15.DECLARATION OF CONFORMITY

We, TTI Tech Co., Ltd. (4F, Juwon Bldg, 1188, Gaepo-dong, Gangnam-gu, Seoul, Korea) declare on our sole responsibility that this equipment complies with the essential requirements of the Radio and Telecommunications Terminal Equipment Directive, 1999/5/EC, and that any applicable Essential Test Suite measurements have been performed.

Kind of equipment: PRIVATE MOBILE RADIO

Type-designation: **TX2000U**

Version (where applicable):

This compliance is based on conformity with the following harmonised standards, specifications or documents:
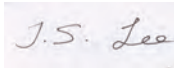
| | |
|---|---|
| EN 300 086-1 | V1.4.1(2010-06) |
| EN 300 086-2 | V1.3.1(2010-06) |
| EN 301 489-1 | V1.9.2(2011-09) |
| EN 301 489-5 | V1.3.1(2002-08) |
| EN 62209-2 : | 2010 |
| EN 60950 : | 2006 |

CE 0678 !

Seoul, Oct. 13,2012
Place and date of issue

**J. S. Lee**
**Senior Manager**

*J.S. Lee*

**Signature**

TX2000U                                        TTI TECH CO., LTD. **tti**