RECYCLED PACKAGING

USR'S MANUAL

DUAL BAND
Mobile Radio

V+V & U+U & V+U DUAL RECEIVER

Safety and Overview

We are grateful that you chose UHF/VHF FM Mobile Transceiver.

We believe this easy-to-use transceiver will provide dependable communication to people who are operating efficiently. The transceivers incorporate the latest in advanced technology. As a result, we feel strongly that you will be pleased with the quality and features of this product!

Product safety and RF exposure for handheld

Before using this two way radio,please read the manual which contains important operating instructions for safe usage, RF Energy Awareness, control information and operational instructions for compliance with RF Energy Exposure limits inapplicable national and international standards. also read the operational instructions for safe use.

CONTENTS

Main function

- Transmit frequency bands: 140/430MHz
- Receive frequency bands: AM: 108-133.995MHz
  FM: 136-174/400-480MHz
- 999 channels
- 75W output power for VHF
- 60W output power for UHF
- A/B band independent operating
- V+V&U+U&V+U dual receiver (two independent receivers)
- Detachable front panel for flexible installation direction
- Cross-band repeater function
- DTMF/2Tone/5Tone
- FM radio
- Scrambler
- Compander

⚠ CAUTION

The transceiver is designed for a 13.8 V DC (±15%) power source! Never use a 24 V battery to power the transceiver. Check the battery polarity and voltage of the vehicle before installing the transceiver.

⚠ WARNING

Do not cut or remove the fuse holder on the DC power cable. Improper connections or current surges may cause smoke or fire.
For passenger safety, install the transceiver securely using the supplied mounting bracket and screw set so the transceiver will not break loose in the event of a collision.
Various electronic equipment in your vehicle may malfunction if they are not properly protected from the radio frequency energy that is present while transmitting.

PREPARATION

SUPPLIED ACCESSORIES

Item	Quantity
Microphone	1
Microphone hanger	1
DC power cable (with 20 A fuses)	1
Mounting bracket	1
Screw set	1
Fuse (15 A)	1
Instruction manual	1

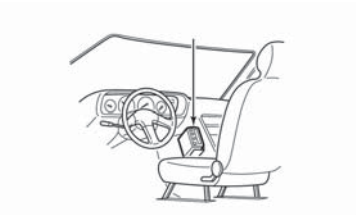
Initial Installation

Mobile installation

To install the transceiver select a safe and convenient location inside your vehicle that minimizes danger to your passengers and yourself while the vehicle is in motion.
Consider installing the unit at an appropriate position so that knees or legs will not strike it during the sudden braking of your vehicle.
Try to pick a well-ventilated ventilated location that is shielded from direct sunlight.

Installation methods

1-Single Body Installation



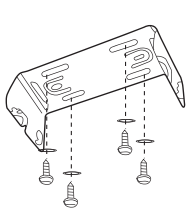
The supplied mounting bracket can be used for the main unit installation.

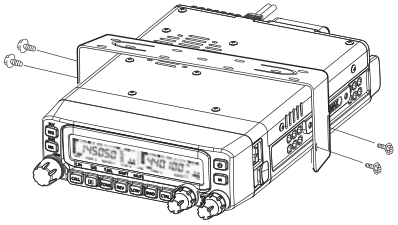
2-Remote Control Installation

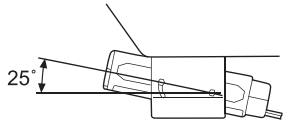
The supplied remote controller mounting bracket and separation cable can be used for installation.

Mounting bracket installation

1.Drill 4 holes where the mounting bracket is to be installed.
2.Insert the supplied screws,nuts and washers through the mounting bracket and tighten.
3.Adjust the angle for your suitable position.

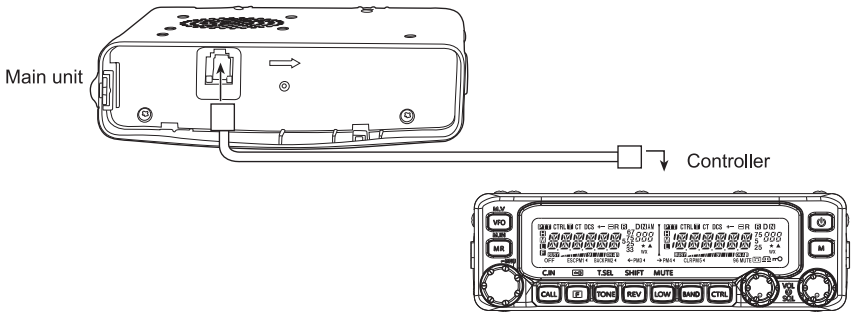






Front panel cable connection

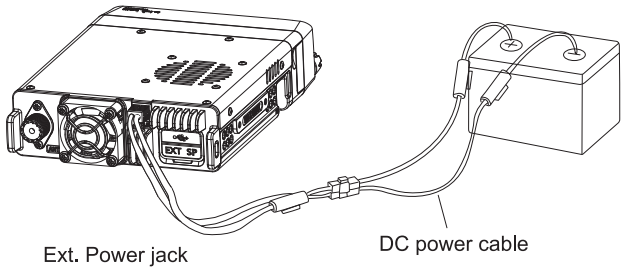
The radio support the front panel to be separated via the panel cable .
Connect the controller and the main unit using the cable as follows.



DC Power Cable Connection

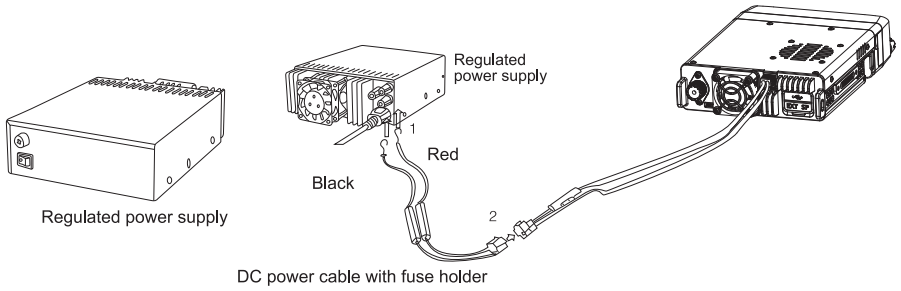
Note: Locate the power input connector as close to the transceiver as possible.The vehicle battery must have a nominal rating of 12V. Never connect the transceiver to a 24V battery, Be sure to use a12V vehicle battery that has sufficient current capacity. If the current to the transceiver is insuficient the display may darken during transmission or transmitting output power may drop excessively.1. Route the DC power cable supplied with the transceiver directly to the vehicle's battery terminals using the shortest path from the transceiver. We suggest you do not use the cigarette lighter socket as some cigarette lighter sockets intr.oduce an unacceptable voltage drop, The entire lenath of the cable must be dressed so it is isolated from heat, moisture and the engine secondary (high voltage) ignition system/cables.2. After installing the cable, in order to avoid the risk of damp, please use heat-resistant tape to tie together with the fusebox. Do not forget to reinforce the whole cable.
3. Confirm the correct polarity of the connecions, then attach the power cable to the battery terminals: Red connects tothe positive (+)terminal and black connects to the negative (-) terminal.

4.Reconnect any wiring removed from the negative terminal.
5. Connect the DC power cable to the transceiver's power supply connector. Press the connectors firmly together unti the locking tab clicks.



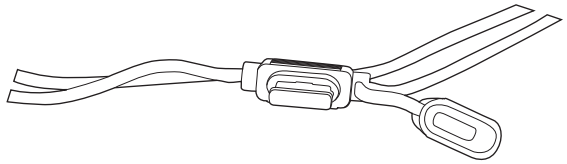
Fixed Station Operation

In order to use this transceiver for fixed station operation you will need a separate 13.8V DC power supply (not included).Please contact your local dealer about it.
The recommended current capacity of your power supply is 12A.
1. Connect the DC power cable to the regulated DC power supply and ensure that the polarities are correct. (Red: positive; Black: Negative).
Do not directly the transceiver to an AC outlet.
Use the supplied DC power cable to connect the transceiver to a regulated power supply.
Do not substitute a cable with smaller gauge wires.
Connect the transceiver's DC power connector to the connector on the DC power cable.
3. Press the connectors firmly together until the locking tab clicks.
Note:
Before connecting the DC power to the transceiver be sure to switch the transceiver and the DC power supply OFFe Do not plug the DC power supply into an AC outlet until you make all connections.



Replacing Fuses

If the fuse blows, determine the cause then correct the problem. After the problem is resolved replace the fuse. If newlyinstalled fuses continue to blow, disconnect the power cable and contact your local dealer for assistance.



Fuse Location	Fuse Current Rating
Transceiver	15A
Supplied Accessory DC power cable	20A

Only use fuses of the specified type and rating otherwise the transceiver could be damaged.Note: If you use the transceiver for a long period when the vehicle battery is not fuly charged or when the engine is OFFthe battery may become discharged and will not have sufficient reserves to start the vehicle. Avoid using the transceivelin these conditions.

Antenna Connection

Before operating install an efficient well-tuned antenna. The success of your installation wil depend largely on the type oantenna and its correct installation, The transceiver can give excellent results if the antenna system and its installation aregiven careful attention.

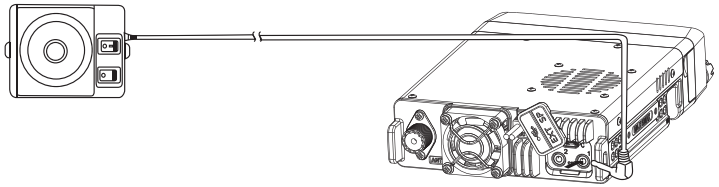
Jse a 500 impedance antenna and low-loss coaxial feed-ine that has a characteristic impedance of 50 0 . to match thetransceiver input impedance. Coupling the antenna to the transceiver via feed-lines having a impedance other than 50 creduces the eficiency of the antenna system and can cause interference to nearby broadcast TV receivers, radio receiers and other electronic equipment.

Note: Transmiting without first connecting an antenna or other matched load may damage the transceiver. Always conn.ect the antenna to the transceiver before transmiting. All fixed stations should be equipped with a lightning arrester to reduce the risk of fire, electric shock and transceiver damage

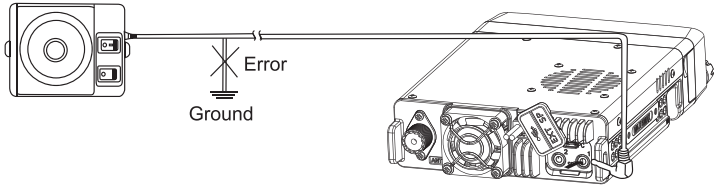
Accessories Connections

External Speaker

If you plan to use an external speaker, choose a speaker with an impedance of 8Ω. The external speaker jack accepts a 3.5mm mono (2-conductor) plug.

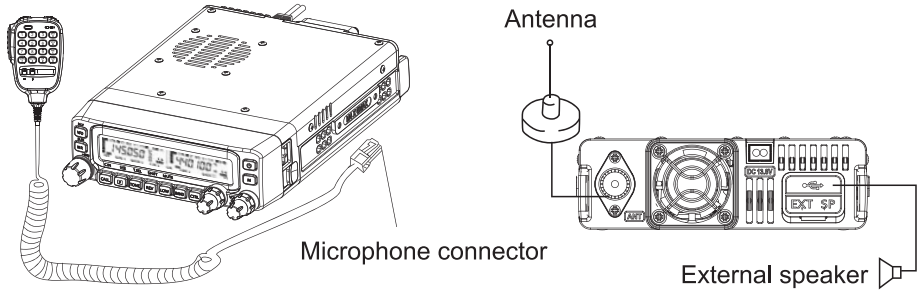


Note: External speaker output adopts double port BTL. Please be aware that the speaker can't connect to the ground otherwise the speaker will fault. The wrong connection way is as below:



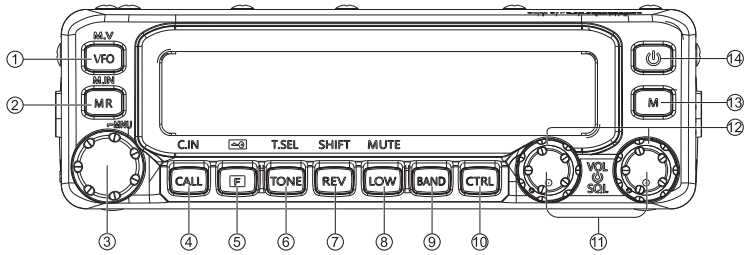
Microphone

For voice communications connect a microphone equipped with an 8-pin modular plug into the modular socket on the side of the main unit. Press firmly on the plug until the locking tab clicks. Attach the supplied microphone hanger in an appropriate location using the screws included in the screw set.



Familiar with the device

Front Panel

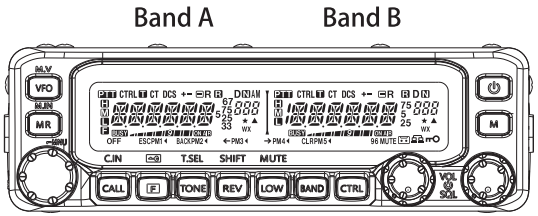


NO.	Button/Knob	Description
1	【VFO】	a.Press this key to enter VFO mode, and rotate [Turing Control] to choose the frequency. b.Press [VFO] key and hold on 1s to turn on/off scan function When the radio is in MR mode, press [F] key at first, then press [VFO] key can copy the current MR mode's frequency to VFO mode.
2	【MR】	a.Press [MR] key to enter the channel mode, and rotate[Turing Control] to choose channel. b.Press [MR] key and hold one 1s to turn on/off scan function. c.Choosing a channel, press [F] key at first, then switch [Turning knob] to choose the channel Number you need, then press [MR] key to save.
3	【Turning Control】	a.Rotate this knob can change the VFO frequency, Channel number, Tone value, Scan direction. When operating band is VFO mode, rotate [Turning Control] can change VFO frequency When When operating band is VFO mode, press [Turning Control], and rotate [Turning Control] can change VFO frequency by 1 MHz. b.When operating band is MR mode or Channel mode, Press [Turning Control] can switch the MR mode and channel mode. c.Press [F] Key, then press [Turning Control] to enter the menu; rotate [Turning Control] to switch menu function you need then press [Turning Control] to select the menu and rotate the key to select the value you need, and press [Turning Control] to confirm, press [F] to exit menu.

4	【Call】	a.Press the [Call] key to enter CALL channel, long press [Call] and hold on 1s to scan the call frequency and VFO under the call mode. b.Long press [Call] and hold on 1s to enter the scan mode when the operating band in VFO or channel mode. c.When operating band in VFO mode, press [F] key at first, then press [Call] key to save the current frequency to Call channel.
5	【F】	a.Press [F] to enter Function mode. Operation: Press [F] Key, then press [Turning Control] to enter the menu; rotate [Turning Control] to switch menu function you need then press [Turning Control] to select the menu and rotate the key to select the value you need, and press [Turning Control] to confirm, press [F] to exit menu. b.Press [F] key and hold on 1s to turn the transceiver key lock function ON or OFF.
6	【TONE】	a.Press [TONE] key to turn on DTDCC/DCS function. Continually press [TONE] to toggle the functions as follows: Tone ON >> CTCSS ON >> DCS ON >> OFF. b.While Tone, CTCSS, or DCS is ON, press [F], [TONE] to enter CTCSS or DCS setup mode. Operation: press [F] key at first, then enter [TONE] to enter the CTCSS/DCS setup mode; rotate [Turning Control] to select the code you need, then press [TONE] to confirm and press again to exit.
7	【REV】	a.Press [REV] to turn the Reverse function ON or OFF （this function is invalid when the operating band no offset frequency). Operation: Press [F]at first,then press [REV] to enter Offset Direction selection, then press [REV] again to turn Reverse function is on or off. b.Press [REV] and hols on 1s to turn the Automatic Simplex Checker ON. c.Press [F]at first,then press [REV] to enter Offset Direction selection mode. Each time you press [F], [REV], the offset direction toggles as follows: plus (+) direction > minus (–) direction > OFF
8	【LOW】	a.Press [LOW] key to toggle the output power as follow: High power > Middle power > Low power. b.Press [F] key then [LOW] key to turn the MUTE function on or off.
9	【BAND】	a.Press [BAND] key to switch the frequency as follow: VFO mode (Band A): 108M (AM receive) > >144M>>430M VFO mode (Band B): 144M>>430M Channel mode: 144M >> 430M b.Long press enter or exit FM RADIO mode.
10	【CTRL】	Press [CTRL] to toggle the operating band.
11	【BAND SEL (VOL) Knob】	Rotate the [BAND SEL] to adjust the speaker volume. Press the left [BAND SEL] to select the A band. Press the right [BAND SEL] to select the B band. Press [BAND SEL] and hold on 1s to switch between single and dual band mode.

12	【SQL Knob】	Rotate [SQL] Knob to adjust Squelch level. Clockwise rotates to open the squelch and counterclockwise rotates to close the squelch.
13	【M】	Press [M] to enter the assigned function by the programming software, the default function is monitor.
14	【Power Button】	Press the key to Turn the radio power on or off.

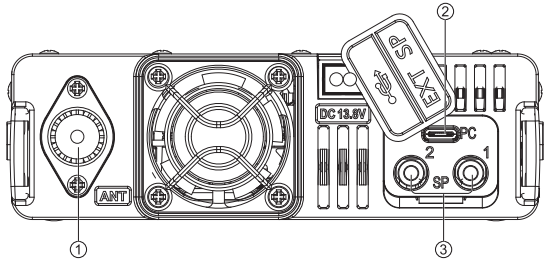
Display



Indicator	Description
PTT	Appears when there is a transmission band available. Blinks when the cross-band repeater is ON. (Cross type only)
CTRL	Shows the current band is operating band.
T	Appears when the tone code function is on (only TX tone, no RX tone)
CT	Appears when the CTCSS function is on.
DCS	Appears when the DCS function is on.

+	Appears when the shift direction is set to plus.
–	Appears when the shift direction is set to minus.
R	Appears when the Reverse function is on.
AM	Appears while in AM mode.
N	Appears while in narrow band mode.
BUSY	The current channel is busy (or Squelch is off).
MUTE	Appears when mute has been turned on.
	Displays the operating frequency, Memory channel name, and Menu.
L	Appears while using Low output power.
M	Appears while using Middle output power.
H	Appears while using High output power.
	Appears when the Key Lock function is on.
	Performs as an S meter when receiving a signal and displays the selected power level while transmitting.
ON AIR	Appears while transmitting.
F	Appears when the F key is pressed.
BACK	Appears while accessing the Menu.
ESC	Appears while in Menu mode.

Rear Panel



① ANT

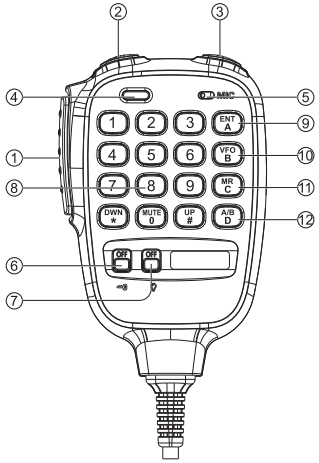
Connect an external antenna to this terminal. When making test transmissions, connect a dummy load in place of the antenna.

② PC programming port

Connect the computer to program radio by programming cable to this port.

③ If desired, connect 1 or 2 external speakers for clearer audio.

Microphone



NO.		Description
1	PTT	Press and hold on to transmit
2	Down	Functions the same as the transceiver [Tuning control], Down same as counterclockwise rotate [Tuning control], Up same as clock rotate [Tuning control]
3	Up	
4	Indicator Light	Shows red light while the radio is transmitting
5	Mic	Speak here during transmitting
6	Key lock	Key lock on or off
7	Keypad light	Keypad light on or off
8	Number keys	Press these keys to make DTMF calls, enter frequencies,enter channel No. The number keys only work if the [ENT]key is defined as Enter, press [ENT], then input the value you need.
9	ENT (A)	Press the key firstly, then input the numbers you need. This is programmable key and can be reprogrammed with a programmable function.
10	VFO (B)	Functions the same as the transceiver front panel [VFO] key.
11	MR (C)	Functions the same as the transceiver front panel [MR] key.
12	A/B (D)	Press to toggle between bands A and B.

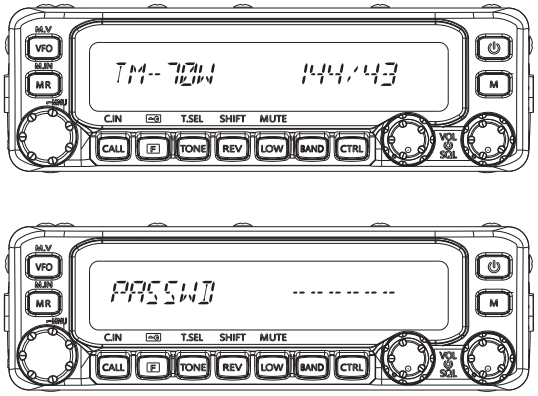
Basic Operations

Powering on/off

Press the [⏻] button to switch the radio ON.

• The power on message momentarily appears on the display.

• If the transceiver power on password has been activated , you must first enter your password before you can operate the transceiver.



Press [⏻] button again to switch the radio OFF.

Adjusting the Volume

Rotate the [BAND SEL] Knob of your selected band clockwise to increase the volume and counterclockwise to decrease the volume.

The volume adjustment of right band and left band is separate.

Adjusting the Squelch

Squelch is used to mute the speaker when no signals are present. With the squelch level set correctly, you will hear sound only while actually receiving a signal. The higher the squelch level selected, the stronger the signals must be in order to hear them.

Rotate the [SQL] control of your selected band, when no signals are present, and select the squelch level at which the background noise is just eliminated.

The squelch adjustment of right band and left band is separate.

Selecting a Band

Press the left [BAND SEL] knob to select band A and the right [BAND SEL] knob to select band B.

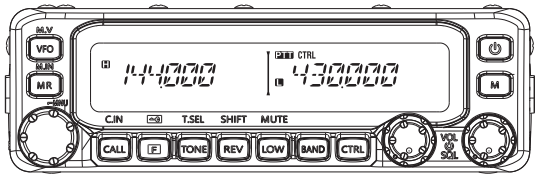
The [CTRL] icon appears at the top of the band on which you are operating and the PTT icon appears at the top of the band on which you are currently set to transmit.

Pressing [CTRL] to switch the operating band between bands A and B, while maintaining the original band as the transmit band. You can press [BAND SEL] button to switch the transmit band also.

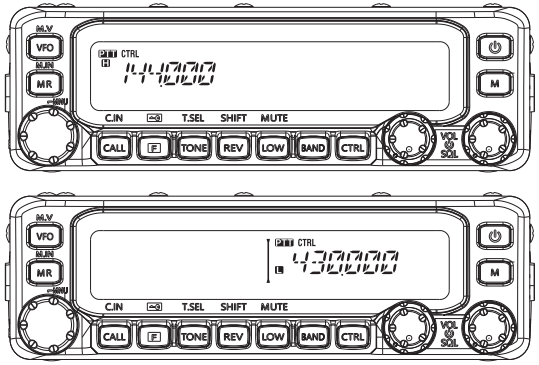
Selecting Dual Band Mode/Single Band Mode

You can switch the radio between dual band operation and single band operation by pressing [BAND SEL] knob and holding on 1s of your selected band.

Dual band mode:



Single band mode:



It shows the Band A or Band B depends on the operating band is Band A or Band B; you can switch the single band between Band A or Band B by pressing [BAND SEL] button.

Selecting the Frequency Band

You can change the default frequency bands for bands A and band B.

1.Select band A or band B by pressing [BAND SEL] knob or [Band] knob.

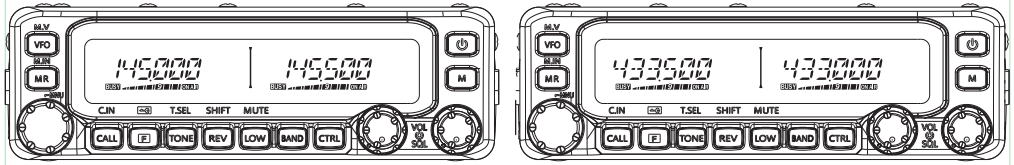
2.Press [F] key at first, then press [BAND SEL] of your selected band.

- Each time you press [F], [BAND SEL], you cycle to the next frequency band.
- The [BAND] also allows you to cycle to the next frequency band.
- When masking a band, you are restricted to using only the selectable band.
- When receiving 2 signals on the same band, the image interference, sensitivity, etc., performance will decrease.
- Band A: 108>>144>>430(MHz)
- Band B: 144>>430(MHz)

Frequency ranges:

- 108MHz: 118~135.995MHz
- 144MHz: 136~174MHz
- 430MHz: 400-480MHz

Note: the Band A and Band B can work in VHF (V-V) or UHF (U-U) at the same time.



Selecting the Operating Mode

There are 3 operating modes available to choose from: VFO mode, Memory channel mode, and Call channel mode.

VFO mode

VFO mode allows you to manually change the operating frequency.
1.Press [VFO] to enter VFO mode.
2.Rotate the [Turning Control] to select your desired operating frequency. You can also adjust the frequency by using the microphone [UP/DOWN] KEYS or microphone [Number keys].
The default step frequency for the Tuning control varies according to the operating band:
144MHz: 15KHz/430MHz: 20KHz/108MHz: 25KHz

Memory Channel mode

Memory channel mode allows you to quickly select a frequently used frequency and related data which you have saved in the radio memory.
1.Press [MR] to enter Memory channel mode.
2.Rotate the [Turning Control] to select your desired Memory channel.

Call Channel mode

Call channel mode allows you to quickly select a preset channel to allow immediate calls on that frequency. The Call channel can be conveniently used as an emergency channel within your group.
1.Select your desired band A or band B
The call channel has a dedicated frequency for both bands A and B. The default frequency for Band A is 144MHz, and Band B is 440MHz
2.Press [CALL] to enter Call channel mode.
“C” icon shows on the display
3.When you enter the Call channel mode, press [CALL] key and hold on 1s, the radio will start scan between VFO frequency and Call channel, repeat to exit scanning.
4.Press [CALL] again to return to your previous operating frequency.

Receiving

The BUSY icon and S meter appears on display when the current receive the signal.
The radio may not hear the voice when the Squelch level is too high.

Transmitting

Press [PTT] and hold on, and speak into the microphone to transmit
The ON AIR icon and RF power meter appear on the display for the transmit band. The RF power meter shows the relative transmit output power.
The H M L icon appear on the display, depending on what output power you have selected.
The PTT icon appears on the display of the current transmitting band (A or B). You can press [BAND SEL] to switch the transmit band.

Menu Operation

1.Press [F] at first, then press [Turning Control] to enter the menu.
2.Rotate [Turning Control] to select the desired menu.
3.Press [Turning Control] to enter and set the current menu.
4.Rotate [Turning Control] to select the desired value of the current menu.
5.Press [Turning Control] to save the selected value.
6.Repeat the steps 2 to 5 can set more menus.
7.Press [F] again to exit the menu mode.
8.Press [TONE] can cancel the menu setting and back to the menu selection.

Menu No.	Display	Description	Setting values	Default value
000	BEEP	Beep sound	OFF/ON	ON
002	EXT.Sp	External speaker output mode	MODE 1/MODE 2	MODE 1
101	STEP	Step frequency	5.0/6.25/10.0/12.5/15.0/20.0 /25.0/30.0/50.0KHz	15.0
109	TOT	Time out timer	Off/3/5/10 mins	off
206	TXMUTE	The sub-band RX volume when radio is transmitting	100%/50%/30%/Mute 30/50	100%
400	OFFSET	Frequency offset	0.00~40MHz	
403	PRT.MOD	Repeater mode	CROSS/A-TX/R-TX	CROSS
500	P.ON.MSG	Power on message setup	Up to characters	HELLO
501	BRIGHT	Display brightness	OFF/1~8 6-8	8

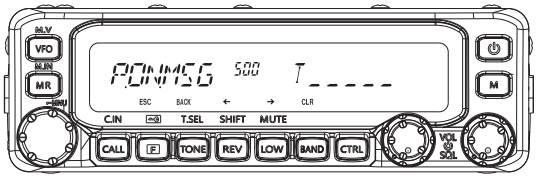
502	AUTO.BR	Display auto brightness	OFF/ON	ON
507	PF1(BAND)	BAND key programmable function value	FRBAND/CTRL/MONI/MENU/MUTE/SHIFT/DUAL/M>V/V-FO/MR/CALL/MHZ/TONE/REV/LOW/LOCK/A/B/Enter/1750	FRBAND
509	MIC.PF1	Microphone D key program-mable function value	A/B	A/B
510	MIC.PF2	Microphone C key program-mable function value	MR	MR
511	MIC.PF3	Microphone B key program-mable function value	VFO	VFO
512	MIC.PF4	Microphone Akey program-mable function value	FRBAND/CTRL/MONI/MENU/MUTE/SHIFT/DUAL/M>V/V-FO/MR/CALL/MHZ/TONE/REV/LOW/LOCK/A/B/Enter/1750	ENT
516	APO	Auto power off time	OFF/30/60/90/120/180 (minutes)	OFF
600	OPTION	Optional signals	OFF/DTMF/2TONE/5TONE	OFF
601	2TONE	2 Tone preset TX channel	CH01/CH02.../CH16	CH01
602	5TONE	2 Tone preset TX channel	CH01/CH02.../CH16	CH01
603	DTMF	DTMF preset TX channel	CH01/CH02.../CH16	CH01
604	CH.W/N	Bandwidth	WIDE/MIDDLE/NARROW	WIDE
605	CH.BUSY	Busy channel lock	OFF/RI-SUB/BUSY	OFF
606	DIS.MOD	Display mode	FRQUEN/CHANNE/NAME	FRQUEN
607	TB.FRE	Preset repeater tone	1750/2100/1000/1450	1750
608	SCRAM	Scrambler on/off	OFF/1/2.../8/UDF	OFF

998	PASSWD	Power on password	OFF/ON	OFF
999	RESTORE	RESET	FULL/VFO	FUU
609	T X . E N C (Optional)	Transmitting noise cancellation	OFF/ON	OFF
610	VOX.SW	VOX	OFF/ON	OFF
611	VOX.LEV	VOX level	LEV0/LEV1/LEV2/LEV3	LEV0

Character Input

Certain menus require you to enter characters, such as the power on message and memory names. When character entry is required, a cursor will appear on the display.

1. Press the Tuning control
• The cursor will blink.



2.Rotate the Tuning control to select your desired character.
3.You can move the cursor to the left or right by pressing [REV] or [LOW].
4.Press the Tuning control to save the characters

Memory channels

In memory channels, you can store frequencies and related data that you often use. Then you need not reprogram the data every time. You can quickly recall a programmed channel by simple operation. A total of 999 memory channels are available for bands A and B.

Storing a channel

1.Press [VFO] to enter VFO mode
2.Rotate the Tuning control to select your desired frequency.
• Additionally, you can press the microphone [UP]/[DWN] keys to select a frequency.
3.Set up any additional data desired for the frequency.
• Offset direction, Tone ON/OFF, Tone frequency, CTCSS ON/OFF, CTCSS frequency, DCS ON/OFF, DCS code, etc.
4.Press [F].
• A memory channel number appears
5.Rotate the Tuning control to select your desired channel number.
6.Press [MR] to store the data in the selected Memory channel.
7.Press [MR] to enter the channel just stored.

Call Channel Memory

The call channel can be used to store any frequency and related data that you will recall often. You may want to dedicate the Call channel as an emergency channel within your group.
To store a simplex frequency and related data as the Call channel instead of in a Memory channel, Repeat steps1 to 4 (above), press [Call].

Deleting a channel

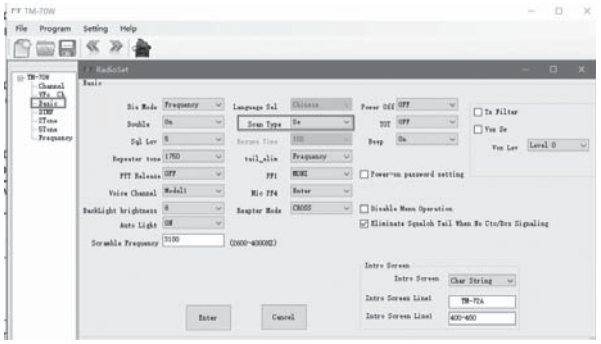
Press [MR] to enter the memory channel mode and rotate [Turning control] to select the the channel which you want to delete.
Press [F] key then [Band] key to delete the current channel.

Naming a memory channel

1.Press [MR] to enter Memory Recall mode.
2.Rotate the [Turning control] to select your desired Memory channel.
3.Enter Menu mode and access Menu [MNAME]
4.Rotate the [Turning control] to choose you desired name for the channel.

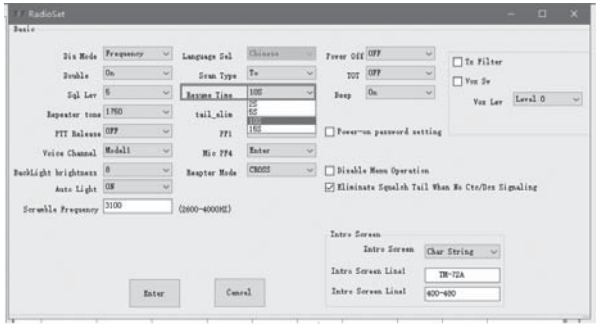
Scan

The radio stops scanning at a frequency or memory channel on which a signal is detected. It then continues scanning according to which resume mode you have selected. You can choose one of the following modes by the programming software.



Time-Operated mode

The radio remains on a busy frequency or memory channel for approximate 2/5/10/15 seconds (you can set the resume time by programming software), and then continues to scan even if the signal is still present.



Carrier-Operated mode

The radio remains on a busy frequency or Memory channel until the signal drops out. There is a 2 seconds delay between signal drop-out and scan resumption.

Seek mode

The radio remains on a busy frequency or Memory channel even after the signal drops out and does not automatically resume scanning.

Operation

Press [VFO] or [MR] key and hold on to enter the scan mode, and press keys on the radio to exit the scan mode. To reverse