

The transceiver will return to its normal operation when the power is switched ON or repeat above operation.



Important: The range of displayed voltage is only from 7V to 16V DC, because the displayed value is estimated, please use a voltmeter when a more precise reading is desired.

Antenna Connection

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

Use a 50Ω impedance antenna and low-loss coaxial feed-line that has a characteristic impedance of 50Ω , to match the transceiver input impedance. Coupling the antenna to the transceiver via feed-lines having an impedance other than 50Ω reduces the efficiency of the antenna system and can cause interference to nearby broadcast television receivers, radio receivers, and other electronic equipment.

NOTE: Transmitting without first connecting an antenna or other matched load may damage the transceiver. Always connect the antenna to the transceiver before transmitting.

All fixed stations should be equipped with a lightning arrester to reduce the risk of fire, electric shock, and transceiver damage.

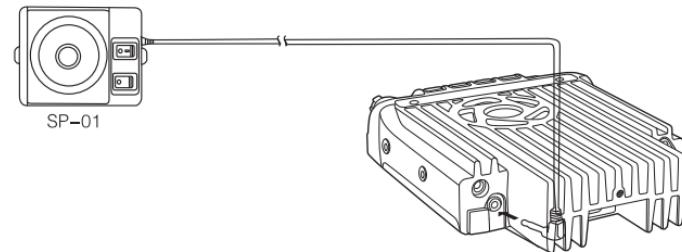
The possible locations of antenna on a car are shown as following:



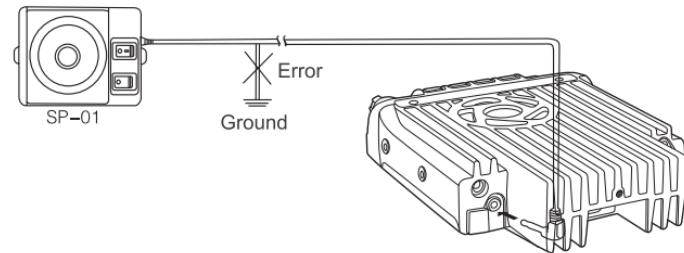
Accessories Connections

External Speaker

If you plan to use an external speaker, choose a speaker with an impedance of 8Ω . The external speaker jack accepts a 3.5 mm(1/8") mono (2-conductor) plug.

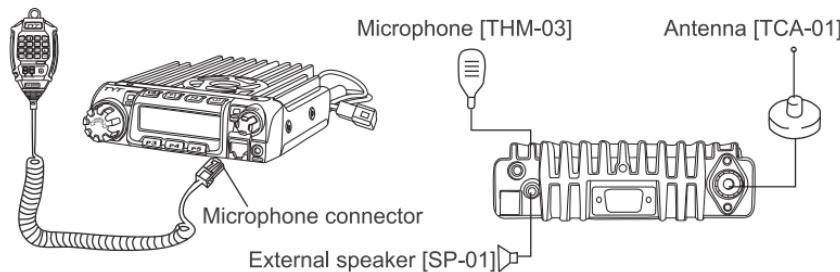


NOTE: External speaker adopt double port BTL, please care about the connecting way. The speaker can not connect with the ground, otherwise the speaker will be fault. The wrong connecting way as the following picture.



■ Microphone

For voice communications, connect a microphone equipped with an 8-pin modular plug into the modular socket on the front 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.



■ PC Connecting

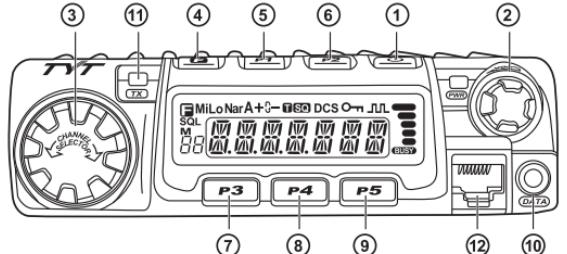
To utilize the optional TH-9000 software, you must first connect the transceiver to your PC then using an optional programming cable PC50 (via Data socket).

Please use TH-9000 software for programming.

NOTE: Ask your dealer about purchasing a Programming Cable PC50.

Getting Acquainted

Front panel



Basic Functions

NO.	KEY	FUNCTION
1	Pow(Power)	Power on/Off
2	VOL	Adjust Volume Key
3	Main Dial	Change frequency, memory channel and scan direction etc.
4	F	Function Key
5	P1	Call key
6	P2	Squelch off
7	P3	Switch VFO/MR mode
8	P4	Step key (step: 1MHZ)
9	P5	Set CTCSS/DCS
10	Data Terminal	Data reading/writing, cloning and theft alarm functions
11	TX	lights during Transmitting
12	Mic.connector	Microphone connection port

Press **F** key until icon appears then press the following key.

NO.	KEY	FUNCTION
4	F	Confirms the selective functions and exit
5	P1	TX power set
6	P2	Voice commander
7	P3	Store memory channel
8	P4	Delete memory channel
9	P5	Keypad lock

Press **F** key and following key together to activate following function:

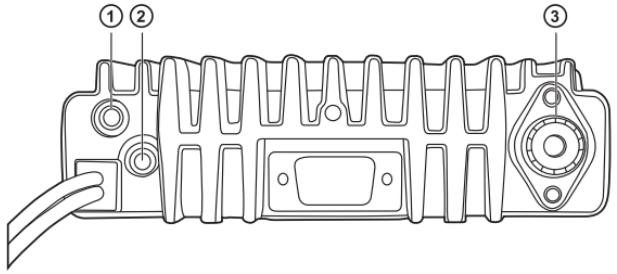
NO.	KEY	FUNCTION
5	P1	Data clone
6	P2	Power voltage display
7	P3	Scan mode
8	P4	Repeater offset set
9	P5	Auto dialer setting

Functions that require continuous pressing following key to be activated

NO.	KEY	FUNCTION
4	FUN/SET	Press and hold for 2s to enter the Setting mode

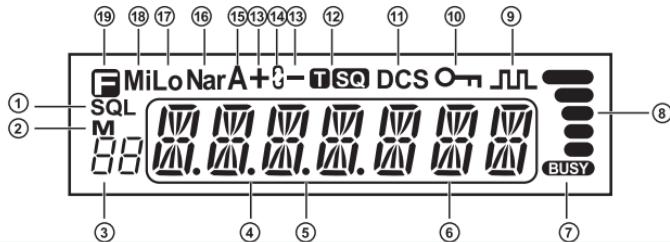
Note:P1-P5 keys setting above are default. Users can modify them according to their need by program software.

Rear panel



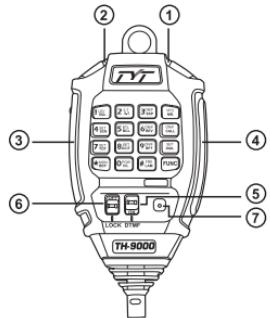
NO.	KEY	FUNCTION
1	Ext. Power Jack	Terminal for connecting optional cable for use with ignition key On/Off function. The radio will auto power on when car is driving. The radio will auto power off when car stops.
2	Ext.Speaker Terminal	Terminal for optional external speaker SP-01.
3	Antenna Connector	Connection for 50Ω antenna.

DISPLAY



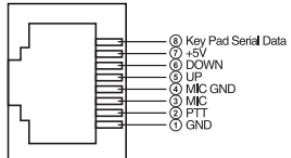
NO.	KEY	FUNCTION
1	SQL	Squelch level.
2	M	In channel mode.
3		Indicates the channel number in channel mode.
4	Decimal point	Channel skip.
5	Decimal point	Indicates the decimal point of frequency and the scanning function.
6		Indicates the frequency or memory name.
7		Signal is being received or monitor.
8		Signal strength of receiving and transmitting.
9		Compander.
10		Keypad lock .
11	DCS	Set DCS function.
12		Set CTCSS function.
13		Offset frequency direction.
14		Scrambler.
15	A	Auto power off.
16	Nar	Narrow band.
17	LO	Low power.
18	Mi	Middle Power.
19		Pressing key.

■ Microphone



NO.	KEY	FUNCTION
1	UP	Increase frequency ,channel number or setting value.
2	DOWN	Decrease frequency, channel number or setting value.
3	PTT	Press the PTT (Push-TO-Talk) key to transmit.
4	Number Key	Input VFO frequency or DTMF dial out etc.
5	DTMF ON/ OFF	Switches between DTMF dialing or function operating.
6	LOCK Switch	Locks out the UP DownNumerical keys and Function keys.
7	MIC	Speak here during transmission.

MIC Connector Diagram(in the front view of connector)



Working Mode (Amateur Transceiver Or Professional Transceiver)

According to practical application,you can set the radio works as Amateur Transceiver mode or Professional Transceiver mode . There are also 2 levels operation menu to set functions as you need. It is easy and convenient (From No.1 to No. 15 are channel function setup,from No.15 to No.29 are general setting setup).

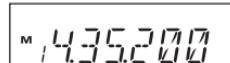
1. Working Mode:

A.By programming software: In PC software's "General Setting"menu ,choose "Display Mode" to select Amateur Transceiver mode or Professional Transceiver mode.

B.By manual setup :Please refer to "Display Mode" in Page 43.

2. Amateur Transceiver Mode: Except setting as "CH" mode, others considered as Amateur transceiver mode. Under this mode,press **P3** key to switch between Channel mode and VFO mode .

A. Frequency + Channel mode: When set display as"FR",it enters into Frequency+Channel mode, new setting of channel operation and shortcut operation can be temporarily used by user. Once the radio is turned off or switched to another channel, the temporary setting will be erased and back to initial settings.(As pic 1)



(Pic 1)



(Pic 2)

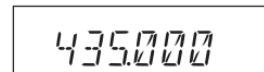
B. Channel+Name Tag Mode: When set display as "NM",it enters into Channel +Name Tag mode. At this mode, it will display corresponding channel name when the current channel is edited with name. Otherwise, it will display frequency + channel. Its operations are the same as frequency + channel mode.(As pic 2)

C. VFO Mode(Frequency mode): This mode shows only frequency on the display. Shortcut operation and Channel setting will be changed & stored as the latest value permanently. Once the radio is turned off or changed to new VFO frequency, the latest setting is remained until next change.(As pic 3)

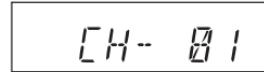
3. Professional Transceiver Mode: When set display mode as "CH", it enters into Professional Transceiver mode. At this mode, except scan, other shortcut operation can't operate. And from No.1- 17 menu in function setting will be auto-hidden, They should be set by PC software. If there is corresponding name for current channel, the LCD will display current channel name Otherwise, it shows current channel number. (As pic 4) (As pic 5)

NOTE: If transceiver programmed as professional transceiver mode and locked, you can't return to amateur transceiver mode by manual operation from general setting.

4. Under every mode, from No. 18-29 menu in general setting can be changed and saved.



(Pic 3)

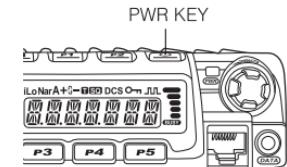


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Basic Operations

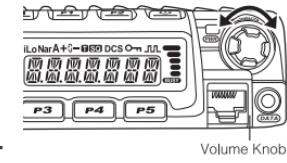
Switching The Power On/Off

according to the option selected during installation Press the switch or turn the ignition key to ACC (speed up) or ON (startup) position to power on radio . Press the key for 1s or turn the ignition key to OFF position to turn off.



Adjusting The Volume

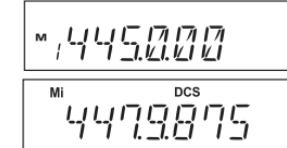
Turn the VOL knob clockwise to increase the audio level, counterclockwise to decrease.



NOTE: During communication, volume can be adjusted more accurately.

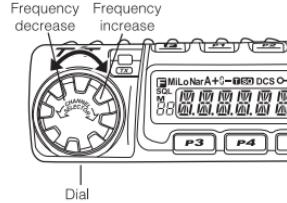
Switch Between VFO And Channel Mode

In standby, press key or Microphone's key until appear , this indicates current channel in channel mode. Repeat above operation to switch between Frequency mode (VFO) and Channel mode.



Adjusting Frequency/Channel Through Selector Knob

1. Under frequency (VFO) mode, you can change the current frequency to the desired one through selector knob; Turn clockwise to increase frequency; turn counterclockwise to decrease. Every gear will increase or decrease one step.



Press key, the decimal point of key, the decimal point

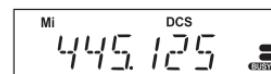
of frequency in screen will be auto-hidden. In this status, turn selector knob or Microphone [**UP** / **DOWN**] key will increase or decrease frequency quickly by 1MHz step .

2. Under channel mode, you can change the current channel to the desired one through selector knob, clockwise turn to the forward channel, anticlockwise turn to the backward channel. In relative working mode, Microphone's [**UP** / **DOWN**] key has same function for adjusting frequency and channel.

NOTE: 5k, 6.25k, 8.33K, 10k, 12.5k, 20k, 25k, 30k and 50k total nine step size available for this radio.

Receiving

When the channel you are operating is called, the screen shows **BUSY** and field intensity, in this way, you can hear the calling from transmitting party.



NOTE: If the transceiver has set at higher squelch level, it may fail to hear the calling.

When the channel you are operating is called, the screen shows **BUSY** and field intensity, you can't hear the calling from transmitting party, it means current channel receives a matching carrier but unmatching signaling(Refer to CTCSS/DCS encode and decode or Optional Signaling setup).

Transmitting

Press **P2** key or press MIC's **MON BEEP** key to monitor for a while to confirm the channel desired is not busy. Release **P2** or press MIC's **MON BEEP** key to return standby status, Then press and hold [PTT] key to speak into microphone.

Please hold the microphone approximately 2.5-5.0cm from your lips, and then speak into the microphone in your normal speaking voice to get best timbre.

NOTE: Press and hold [PTT] key, LED lights RED and power intensity showed in screen indicates it is transmitting, release to receive.

Transmitting Tone-pulse

Press and hold [PTT] key, then press Microphone **DOWN** transmit current selected tone-pulse signal.

Transmitting Optional Signaling

Press and hold [PTT] key, then press Microphone **UP** key or press **P1** key in front panel or press Mic's **ON/CALL** key to transmit pre-stored and selected DTMF/2Tone/5Tone optional signaling.

Channel Edit

- Under frequency mode (VFO), turn selector knob to select the desired frequency or input frequency by MIC's numeric keys.
- Press **P5** key to enter CTCSS/DCS signaling setup, turn selector knob to select the desired signaling.
- Press **F** key, LCD appears **F**, Micon and current channel number, Micon flashing means current channel is empty.
- Turn selector knob to select the desired channel number to store.
- Press **P3** key, **F**, Micon and channel number disappears and emit a prompt voice, thus the channel storage succeed.



Channel Delete

1. Under channel mode, turn selector knob to select channel which you want to delete.
2. Press **[F]** key and **[P4]** key together, current channel will be deleted and emitted and emitted a prompt voice. Mic on flashing means current channel is deleted.

Shortcut Operations

Squelch Off

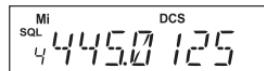
[P2] key programmed as Squelch Off to monitor the weak signal.

1. Squelch Off: Press **[P2]** key to disable squelch ,press **[P2]** key again to resume squelch.

Squelch level Setup

Setting the radio to a tight squelch level,you can avoid unwanted signals or noise,but you may not receive a weak signal. Therefore,it will be better for you to select the normal squelch level.

1. While standby, press **[P2]** key and turn selector knob at the same time until LCD appears and current squelch level
2. Turn selector knob or press MIC [**UP** / **DOWN**] key to set desired squelch level.
3. Press any key except **[P2]** and **[F]** key to exit .



Frequency/Channel Scan

Frequency Scan

In frequency (VFO) mode, this function is designed to monitor signal of every communicative frequency point of transceiver "step size" you have set.

1. In VFO mode,press **[P3]** for 1s to enter into frequency scan.

2. Turn selector knob or press Microphone [**UP** / **DOWN**] key to change scan direction.

3. Press any key except **[P2]** and **[F]** key to exit.

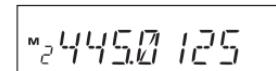


Channel Scan

In channel mode, this function is designed to monitor signal in every channel.

1. In channel mode,Press **[P3]** key for 1s to enter into channel scan

2. Turn selector knob or press Microphone [**UP** / **DOWN**] key to change scan direction.



3. Press any key except **[P2]** and **[F]** key to exit.

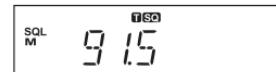
CTCSS/DCS Encode and Decode Setup

Repeatedly press **[P5]** key to check whether set CTCSS/DCS encode and decode in current channel or not.

1. When LCD appears **T** iron, it means current channel with CTCSS encode, turn selector knob or press Microphone's [**UP** / **DOWN**] key to select desired CTCSS encode.



2. When LCD appears **T** and **SQ** iron, it means current channel with CTCSS encode and decode, turn selector knob or press Microphone's [**UP** / **DOWN**] to select desired CTCSS code.



3. When LCD appears DCS iron, it means current channel can be set with DCS encode and decode together, turn selector



knob or press Microphone's [**UP** / **DOWN**] to select desired DCS encode and decode.

4. CTCSS:62.5-254.1, Total 51groups; DCS:000N-777I total 1024 groups. N is positive code, is inverse code.

5. Press any key except **F**, **C** and **P5** keys to return into standby status.

NOTE: Under channel mode, this operation can be temporarily used by user. Once the radio is turned off or switched to another channel, the temporary setting will be erased.

CTCSS Scan

Repeatedly press **P5** key until LCD displays **T** and **SQ** icons, Press **FUNC** key on microphone the press **4 SET SCN** key to enter into CTCSS scanning. Once finding a matching CTCSS signaling, it will stop for 15s then scan again.

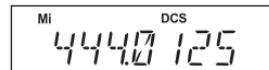
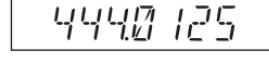
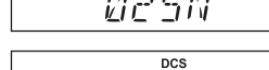
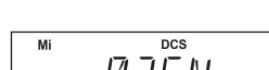
DCS Scan

Repeatedly press **P5** key until LCD displays DCS icons, Press **FUNC** key on microphone the press **4 SET SCN** key 1S to enter into DCS scanning. Once finding a matching DCS signaling, it will stop for 15s then scan again.

High/Mid/Low Power Switch

Press **F** key until LCD display **F** iron, then press **P1** key to switch between high/ Mid/low power. The LCD appears:

None: Transmit in high power Mi: Transmit in middle power
Lo: Transmit in low power



Voice Comander

Comander function will decrease the background noise and enhance 15 audio clarity, especially in long range communication.

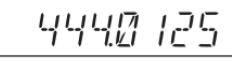
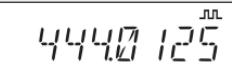
1. Press **F** key, then press **P2** key to

turn on compander function, repeat

above operation again to turn off compander function.

2. When LCD appears **JUL** iron, enable compander in current channel.

3. When LCD doesn't display **JUL** iron, disable compander in current channel.



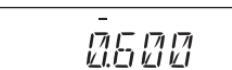
Offset Direction and offset frequency setup

Repeater receives a signal(UP-LINK) on one frequency and re-transmits on another frequency(DOWN-LINK). The difference between these two frequencies is called the offset frequency. If the UP-LINK frequency higher than DOWN-LINK frequency, the direction is positive, If it is lower, the shift direction is negative.

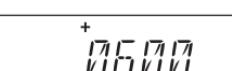
1. Press **F** key until the **F** icon displays on the LCD, then press **P4** key, LCD displays offset direction and offset frequency.

2. Repeatedly press **P4** key to select positive offset and negative offset.

3. When LCD displays " + " icon, it indicates positive offset, which means transmitting frequency higher than receiving frequency.



4. When LCD displays " - " icon, it indicates negative offset, which means transmitting frequency lower than receiving frequency.



5. Turn selector knob or Mic's [**UP** / **DOWN**] key to change offset frequency, offset frequency changed as per stepping.

6. Press any key except **F** and **P2** key to exit into standby.

NOTE: Under channel mode, this operation can be temporarily used by user.

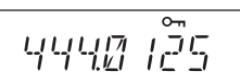
Once the radio is turned off or switched to another channel, the temporary setting will be erased.

Keypad Lockout

Avoiding unintentional operation, this function will lock main keys, all keys except **P2**

F and **ON** key are invalid.

1. Press **F** key until the **F** icon displays on the LCD, then press **P5** key until LCD displays **ON** icon, it indicates keypad lockout function is valid.

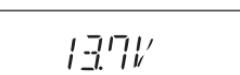


2. Repeat above operation, **ON** icon disappears, it indicates keypad lockout function is invalid.

Current Voltage Enquiry

This function will display Current Battery Voltage.

1. Press and hold **F** key, then press **P2** key, LCD displays current battery voltage.



2. Repeat above operation to return into VFO or Channel mode

NOTE: In voltage display mode, all functions and channel or frequency selection are invalid.

Auto-Dialer Setup

This will automatically transmit pre-programmed and stored DTMF tones. And they are often used to remote control electronic devices or AUTOPATCH phone systems available on some repeater.

1. Press and hold **P5** key to enter the auto-dialer enquiry mode, LCD displays current default data and current group displayed on left. If no data in current group, it shows "EMPTY".
2. Turn selector knob to choose group you desired. Total:16 group, 01-16.

3. Press **P5** key to enter into editing of current group, press MIC's numeric keys to set your desired data.

4. The display scrolls when the 7th digit is entered. The numbers 0-9, --, A-D, *, and # can be stored up to a total of 23 digits.

5. After editing, press PTT or **P1** key to send current group and store edited DTMF signaling.

01 EMPTY

01 --- 123

01 123

Transmitting Edited DTMF tones in the Auto-dialer memory

1. Press and hold **P5** key to enter into auto-dialer enquiry
2. Turn selector knob to select desired transmitting group
3. Press PTT then **UP** or **P1** key to transmit current selected DTMF tones.