

VHF/UHF FM TRANSCEIVER

User's Manual

PROFESSIONAL FM TRANSCEIVER



PROFESSIONAL 2-WAY-RADIO MANUFACTURER

THANK YOU FOR PURCHASING OUR TRANSCEIVER!

We appreciate your trust in our products and believe that this easy to operate and state of the art 2-way transceiver would well serve your diverse communication needs.

SAFETY PRECAUTIONS

- Please refer servicing to the qualified technicians only.
- Do not operate the transceiver, or charge a battery pack, where there is an explosive atmosphere gasses, dust, fumes, etc.
- Turn OFF the transceiver while taking fuel, or parking at the petrol station.
- Do not modify, or attempt to adjust this transceiver for any reason.
- Do not expose the transceiver to the direct sunlight for a long period of time and do not place it close to the hot appliances.
- Do not expose the transceiver to excessively dusty, humid, and/or wet conditions. Do not leave the transceiver on unstable surfaces.

WARNING:

It is important that the transceiver operator is aware of, and understands hazards common to the operation of any transceiver.

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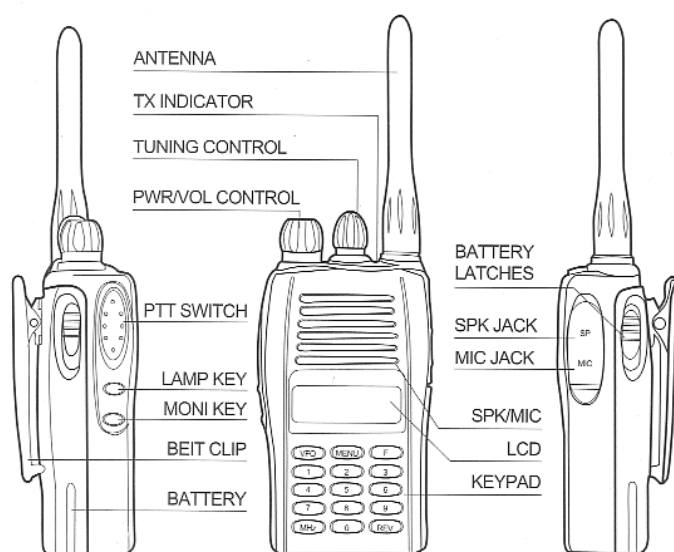
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1 GETTING STARTED

INTRODUCTION



1 GETTING STARTED

BASIC TRANSCEIVER MODES

This section introduces you to the basic modes you can select with this transceiver.

● VFO Mode

Press [VFO] to select. In this mode you can change the operating frequency by using the **Tuning** control.



● Memory Recall (MR) Mode

Press [VFO] again to select. In this mode you can change memory channels, using the **Tuning** control, where you stored frequencies and related data. You cannot enter this mode unless you programmed one memory channel ones.



● Menu Mode

Press [MENU] to select. In this mode you can change Menu numbers by using the **Tuning** control.



1 GETTING STARTED

LCD DISPLAY

On the display you will see various indicators that show what function you have selected. Sometimes you may not recall what those indicators mean, or how to select them. In such a case, you can refer to the table below.

18888888⁷⁵₂₅

Display shows various alphanumeric information such as an operating frequency, or menu functions selection.

188

This number displays the current memory channel when in Memory Recall mode.

■■■■■5■■■■■9

This symbol shows the strength of signal received. While transmitting, it shows the current relative battery charge.

Indicator	Selection	Press To Select
1 [F]	Second Function, Select Mode	[F]
2 +	Plus Offset Direction	[F], [REV]
3 -	Minus Offset Direction	[F], [REV]; [F], [REV]
4 [T]	Keypad Tone	Use Menu No. 2
5 R	Reverse Function	[REV]
6 [H]	High Transmission Power	Default Settings
7 [L]	Low Transmission Power	[F], [2]
8 [S]	Power Save Mode	Default Setting
9 ★	Memory Channel Lockout	[F], [0]
10 [O]	Transceiver Lock	[F] (1s)
11 [B]	Battery Gauge Indicator	

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2 BASIC FUNCTIONS

TURNING TRANSCEIVER ON/OFF

1. Turn the [PWR] switch clockwise to turn the transceiver ON.
■ You will hear a beep sound.
2. To turn the transceiver OFF, turn the [PWR] switch counterclockwise.

ADJUSTING VOLUME

Turn the [VOL] control clockwise to increase the audio volume level and counterclockwise to decrease the audio volume level.

- If background noise is inaudible, because of the squelch function, press and hold [MONI] key, then turn VOL control. While pressing [MONI] key, you will hear the background noise.

ADJUSTING SQUELCH

The purpose of the Squelch function is to silence background noise output from the speaker (squelch closed), when no signal is present. When the squelch level is set correctly, you will hear sound (squelch opened), but only while a signal is actually being received.

1. Press [F], [1].
■ The current squelch level appears.
2. Use the **Tuning** control key to select the squelch level from 0 to 9.
■ Select just the level, at which the background noise is eliminated and when no signal is present.
■ The larger number you select, the stronger the signal you need to hear properly.

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2 BASIC FUNCTIONS

3. Press any key, other than [LAMP] and [MONI], to complete the setting.

SELECTING FREQUENCY

Use the Tuning control clockwise to increase the selected frequency, and counterclockwise to decrease the selected frequency.

- If you cannot select a particular frequency, the frequency step size needs to be changed. See "CHANGING SIZE OF FREQUENCY STEPS".

- You can also select frequencies with the numeric keys. See "KEYPAD DIRECT ENTRY".

TRANSMITTING

1. When ready to begin transmitting, press and hold the [PTT] switch and speak in a normal tone of voice.

- The On Air lamp lights red.
- Speaking too close to the microphone, or too loudly, may increase distortion and reduce intelligibility of your signal at the receiving station.

2. When you finish speaking, release the [PTT] switch.

HI/LO Power Output Switches

Press [F] + [2] to switch Hi/Lo power output.

It will show the symbol of "H" or "L" on the screen.

Note: If the RX signal is clearly in communication distance, you can switch to "L" mode to save the power for long talk.

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3 MENU SET-UP

MENU ACCESS

1. Press [MENU] to enter Menu mode.
■ The Menu appears.
2. Use Tuning control to select the desired Menu number.
3. Press [MENU] to switch the configuration selection.
■ Depending on Menu function selected press [MENU], or use the Tuning control to select numeric values. Press [MENU] again to complete-save the settings.
4. Press any key other than [MENU], [LAMP], and [MONI] to exit Menu Mode.

MENU CONFIGURATION

Menu No.	Description	Value (Selection or Tuning)
1	Scan Resume Method	Time-Operated(TO)/Carrier-Operated(CO)
2	Keypad Tone	ON/OFF
3	To Enable Tuning control	ON
4	Offset Frequency	00.000 ~ 19.995 MHz

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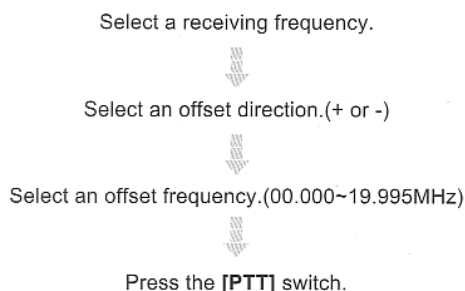
4 ▶▶ OPERATING VIA REPEATERS

The 2-way communication can be transmitted over much longer distances by using repeaters. Repeaters are typically located on the top of the mountains, or other elevated locations. Often they operate at higher ERP (Effective Radiated Power) than a typical station. The combination of elevation and high ERP allows communications over long distances.

REPEATER ACCESS

Most amateur radio voice repeaters use a separate receiving and transmission frequency. You can set a separate transmission frequency by selecting the offset frequency and offset direction with respect to the receiving frequency. The required offset direction and offset frequency depend on the repeater you are accessing.

Chart Flow for Repeater Access



4 ▶▶ OPERATING VIA REPEATERS

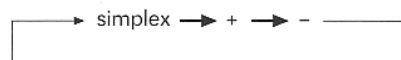
Selecting Offset Direction

Select whether the transmission frequency will be higher (+) or lower (-) than the received frequency.

1.Select the desired frequency.

2.Press [F], [REV].

■ Each time you repeat this key operation, the offset direction changes as shown below.



Selecting Offset Frequency

Select how much the transmission frequency will be offset from the received frequency.

1.Press [MENU] to enter the Menu mode.

2.Select Menu 4 (OFF. SET).



3.Press [MENU], then enter directly the appropriate offset frequency.

■ The selectable range is from 00.000 MHz to 19.995 MHz.

4.Press [MENU] again to complete the settings.

5.Press any key other than [LAMP], and [MONI] to exit.

Selecting CTCSS Code

For this model, there are 50 standardized CTCSS channels built in for selection(please refer to QT/DQT code).

Press [F], [9] to enter selecting CTCSS mode(the unit shown as below)

4 ▶▶ OPERATING VIA REPEATERS



The selectable range is from 01 to 50 by using tuning control.

Press [MENU] to complete the setting.

Press any key other than [LAMP], and [MONI] to exit.

Set RX CTCSS with pressing [F] + [7] (the unit shown as below).



Set TX CTCSS with pressing [F] + [8] (the unit shown as below).



REVERSE FUNCTION

When used while monitoring a repeater, the Reverse function allows you to manually check the signal strength of a station accessing the repeater.

Press [REV] to switch the Reverse function ON (or OFF).

■ The received frequency and the transmission frequency are exchanged.

■ "R" appears on the screen when the function is ON.

Note:

4 ▶▶ OPERATING VIA REPEATERS

■ If pressing [REV] would put the transmission frequency outside the allowable range, an error beep sounds when [PTT] is pressed, and transmission is prohibited.

■ If reversed communication would place the received frequency outside of the receiver frequency range, an error beep would sound when [REV] is pressed. No reversal communication would occur.

■ Automatic repeater offset does not function while Reverse is ON.

■ You cannot switch Reverse function ON or OFF while transmitting.

5 ▶▶ MEMORY CHANNELS

In memory channels, you can store frequencies and related data that you often use. Subsequently, you do not need to reprogram this data again. You can quickly recall wanted channels in a simple operation. A total of 99 memory channels are available in the transceiver storage area.

STORING DATA IN MEMORY CHANNELS

1.Select the desired frequency and related data using VFO mode.

2.Press [F].

■ A memory channel number appears.

3.Use the Tuning control to select the memory channel number to save.

4.Press [VFO].

■ The selected frequency and related data are stored in the memory channel.

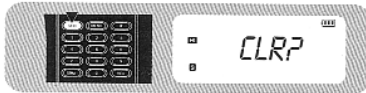
■ If the channel selected in the previous step already contained data, the new data overwrites the old data.

RECALLING MEMORY CHANNELS

- 1 Press **[VFO]** again to enter Memory Recall mode.
 - The memory channel used last is recalled.
- 2 Use the Tuning control to select the desired memory channel.
 - You cannot recall empty memory channels.
 - To restore VFO mode, press **[VFO]**.

CLEARING MEMORY CHANNELS

- 1 Recall the desired memory channel, which will be erased.
- 2 Switch OFF the power of the transceiver.
- 3 Press **[VFO]** and turn **POWER ON**.
 - A confirmation message appears.



- 4 Press **[VFO]** again.
 - The content of the selected memory channel is erased.

CHANNEL DISPLAY FUNCTION

When this function is switched ON, the transceiver displays only a memory channel number instead of a frequency.
Press **[MENU] + [PWR]** to switch this function ON (or OFF).
Note: You cannot switch this function ON, if you have not stored any memory channel.

INITIALIZING MEMORY

If your transceiver seems to be malfunctioning, initializing the transceiver may resolve the problem.
Remember that you need to re-program memory channels after initialization. On the other hand, initialization is a quick way to

clear all memory channels.

Note: you cannot do Partial or Full Reset, while using the Channel, or Transceiver Lock functions.

Partial Reset (VFO)

Use to initialize all settings except the Memory Channels and Memory Channel Lockout.

1. Press **[VFO]** and turn **POWER ON**.
 - A confirmation message appears.



- To quit resetting, press any key other than **[VFO]**.
2. Press **[VFO]** again.

Full Reset (MR)

Use to initialize all settings.

1. Press **[F]** and turn **POWER ON**.
 - A confirmation message appears.



- To quit resetting, press any key other than **[F]**.
2. Press **[F]** again.

Scan is a useful feature for hands-off monitoring of your favorite frequencies. After becoming comfortable with how to use all types of Scan, the gained monitoring flexibility will increase your operating efficiency.

Note: Remember to adjust the squelch threshold level before using Scan.

SCAN RESUME METHOD

Before using Scan function, it's necessary to decide under what conditions you want your transceiver to continue scanning after detecting and stopping at a signal. You can choose one of the following modes. The default is Time-Operated mode.

Time-Operated Mode

Your transceiver stops scanning when detecting a signal, remains there for approximately 5 seconds, and then continues to scan even if the signal is still present.

Carrier-Operated Mode

Your transceiver stops scanning when detecting a signal and remains on the same frequency until the signal drops out. There is a 2 seconds delay between signal drop-out and scan resumption to allow time for any responding stations to begin transmitting.

Selecting Scan Resume Method

1. Press **[MENU]** to enter Menu mode.
2. Select Menu No. 1 (**SCAN**).
3. Press **[MENU]** to select Time-Operated (TO), or Carrier-Operated (CO) mode.
4. Press any key other than **[LAMP]**, **[MONI]**, and **[MENU]** to exit Menu mode.

VFO SCAN

VFO Scan allows you to scan all frequencies from the lowest to the highest band frequency. The current size of frequency step is used.

1. Press **[F]**, **[3]**.
 - Scan starts at the frequency currently displayed.
2. To quit VFO Scan, press any key other than **[LAMP]**, **[MONI]**.

Note: The squelch must be closed for Scan to function.

MEMORY SCAN

Memory Scan allows all memory channels containing data to be scanned.

1. Select **[MR]** mode, then Press **[F]**, **[3]**.
 - Scan starts with the channel last recalled.
2. To quit Memory Scan, press any key other than **[LAMP]**, **[MONI]**.

Note:

- At least 2 or more memory channels must contain data and must not be locked out.
- The squelch must be closed for Scan to function.

Locking Out Memory Channels

Memory channels, that you prefer not to monitor while scanning, can be locked out.

- 1 Recall the desired memory channel.
- 2 Press **[F]**, **[0]** to switch Lockout ON (or OFF).
 - A star appears below the memory channel number to indicate that the channel has been locked out.



KEYPAD LOCK

This function prevents unauthorized individuals from changing the transceiver settings.

1. Press [F] (1 second) to switch the function ON (or OFF).

- A key icon appears when the function is ON.

TUNING CONTROL ON/OFF

You can change memory channels by using the Tuning control while your unit in locking mode, choose the third MENU*ENC ON/OFF*to switch this function ON or OFF.

LAMP FUNCTION

You can illuminate the transceiver display by pressing [LAMP]. Approximately 5 seconds after releasing [LAMP], the light goes OFF if no other keys are pressed. Pressing [LAMP] turns OFF the light immediately.

BEEP ON/OFF

The transceiver beeps each time you press a key on the keypad. You can also switch this function OFF.

1. Access Menu No. 3 (BP) to switch the function ON (default) or OFF.

KEYPAD DIRECT ENTRY

You can select the desired operating frequency or memory channel by entering digits directly from the keypad. Enter the next digit within 10 seconds.

Frequency Entry

1 Press [VFO] to select VFO mode.

2 Press the numeric keys in sequence on the keypad.

- Enter the digits in order starting from the most significant (multiples) and the least significant (singles).

Note:

- When the current step size is 5, 25 kHz, the 1 kHz digit is corrected according to which key is pressed for the 1 kHz digit. Pressing [0] ~ [4] selects "0" and pressing [5] ~ [9] selects 5.
- When the current step size is 6.25kHz or 12.5 kHz, the 1 kHz and subsequent digits are corrected according to which keys are pressed for the 10KHz and 1 kHz digits.

Memory Channel Number Entry

1. Press [VFO] to enter Memory Recall mode.

- The memory channel used last is recalled.

2. Press the numeric keys to enter a 2-digit memory channel number.

- To recall channel 3, for example, enter "03"

- Do not enter a memory channel number, which is not stored.

CHANGING SIZE OF FREQUENCY STEPS

Choosing the correct step size is essential in order to select your receiving frequency.

1. Press [VFO] to select VFO mode.

2. Press [F], [MHz].

- The current step size appears.



3. Use the Tuning control to select your desired frequency step size.

- The selectable step sizes are 5, 6.25, 12.5 and 25 kHz.

4. Press any key other than [LAMP] and [MONI] to complete the settings.

GENERAL

Frequency Range	136 ~ 174 MHz 400 ~ 480 MHz
Operating Temperature	-20°C to +60°C
Frequency Configuration	PLL Circuit
Mode	F3E (FM)
Supplied Voltage	DC 7.20V
Power Output	5 Watts
Sensitivity	0.2 μ V or less (20dB SINAD)
Squelch Sensitivity	0.2 μ V or less
Memory Channels	99 Channels
Antenna Impedance	50 Ω
Dimensions	100 X 55 X 32 mm
Weight(w/battery)	Approx. 220g

Note:

- Specifications are subject to change without notice due to advancements of the technology.
- We accept the request for different frequencies in accordance with users requirements.

Install QT/DQT CODE

channel	Frequency(Hz)	channel	Frequency(Hz)
01	67.0	26	162.2
02	71.9	27	167.9
03	74.4	28	173.8
04	77.0	29	179.9
05	79.7	30	186.2
06	82.5	31	192.8
07	85.4	32	203.5
08	88.5	33	210.7
09	91.5	34	218.1
10	94.8	35	225.7
11	97.4	36	233.6
12	100.0	37	241.8
13	103.5	38	250.3
14	107.2	39	62.5
15	110.9	40	64.7
16	114.8	41	69.3
17	118.8	42	159.8
18	123.0	43	183.5
19	127.3	44	189.9
20	131.8	45	196.6
21	136.5	46	199.5
22	141.3	47	206.5
23	146.2	48	229.1
24	151.4	49	165.5
25	156.7	50	254.1