



GMR5-M

2-WAY RADIO

P.N. GMR5-M

User Manual

FCC Warnings and Statements

IMPORTANT

Changes or modifications to this unit not expressly approved by **TYT Electronics Co., Ltd.** could void your right to operate this unit. Your radio is set up to transmit a regulated signal on an assigned frequency. It is against the law to alter or adjust the settings inside the COMMUNICATOR to exceed those limitations. Any adjustment to your radio must be made by qualified technicians.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions; (1) this device does not cause any harmful interference, and (2) this radio must accept any interference that may cause undesired operations

IMPORTANT NOTICE, FCC LICENSE REQUIRED FOR GMRS OPERATION **(Only Applicable for GMRS Radio Use in the United States)**

The radios operate on GMRS (General Mobile Radio service) frequencies which require an FCC (Federal Communications Commission) license. You must be licensed prior to operating on channels 1-23, which comprise the GMRS channels of the radio.

Serious penalties could result from unlicensed use of GMRS channels, in violation of FCC rules, as stipulated in the Communications Acts Sections 501 and 502 (amended).

You will be issued a call sign by the FCC which should be used for station identification when operating the radio on GMRS channels. You should also cooperate by engaging in permissible transmissions only, avoiding channel interference with other GMRS users, and being prudent with the length of your transmission time.

To obtain a license or ask questions about the license application, contact the FCC at 1-888-CALL FCC or go to the fccs website:

<http://www.fcc.gov> and request form **605**.



PLEASE READ

Thank you for purchasing a Rugged Radios 2-Way Radio. This radio was pre-programmed and fully optimized before being shipped to you. **Please use caution before changing any settings on this radio. For questions, please call the Rugged Radios Tech Department at 888-541-7223.**

FCC NOTICE

The GMR5-M Radio operates on GMRS (General Mobile Radio Service) frequencies which require a Federal Communications Commission (FCC) license. You must be licensed prior to operating on channels 1-7, 15-22 or RP15-22, and RUGGED which comprise the GMRS channels of the GMR5-M. Serious penalties may result from unlicensed use of GMRS channels in violation of FCC rules as stipulated in the Communications Act Sections 501 and 502 (amended). You will be issued a call sign by the FCC that should be used for station identification when operating your radio on GMRS channels. You should also cooperate by engaging in permissible transmissions only, avoiding channel interference with other GMRS users, and being prudent with the length of your transmission time.

To obtain a license or inquire about the license application, contact the FCC at 1-888-CALL-FCC or visit the FCC website at <http://www.fcc.gov> and request form 605.

RF exposure warning:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment shall be installed and operated with minimum distance 44.8cm between the radiator & body.

For a transmitter that can only be operated with an FCC license, warnings concerning compliance with applicable licensing requirements and information concerning license application procedures.

Contents

USAGE TIPS	2
UNPACKING & CHECKING EQUIPMENT	3
CONFIGURATION	4
ACCESSORY INSTALLATION	7
GETTING FAMILIAR	9
OPERATION MODES	14
MENU	15
DETAILED FUNCTION DESCRIPTION	17
ADVANCED FUNCTIONS	22
TECHNICAL PARAMETERS	25
WARRANTY REGISTRATION	27

Usage Tips

Please read the following instructions. Failure to comply with these instructions may be dangerous or violate the law.

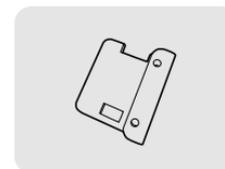
- Obey local government regulations. Improper use may be punishable by law.
- Turn off the radio before entering flammable or explosive areas.
- Do not charge or change the battery in flammable or explosive areas.
- Turn off the radio before getting close to blasting zones or detonation areas.
- Do not use a radio with a damaged antenna. Touching a damaged antenna may cause heat injury.
- Do not attempt to open the radio. Maintenance work should be done by technical experts only.
- To avoid trouble caused by electromagnetic interference or electromagnetic compatibility, please turn off the radio in places with "Do Not Use Wireless Equipment" displayed, such as hospitals or other healthcare facilities.
- In cars with airbags, do not keep the radio within the scope of airbag deployment.
- Do not store the radio under direct sunlight or in hot areas.
- When transmitting with the radio, always remain at least 35 inches from the antenna.
- If the radio appears or smells burnt or emits smoke, shut off power immediately and contact your local dealer.
- Transmitting for an extended period of time may cause the radio to overheat and potentially harm the user.

Unpacking & Checking Equipment

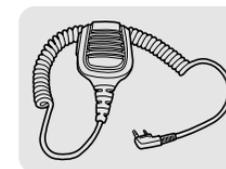
Check your package for the items listed below. If any items are missing or damaged during shipment, contact your dealer.



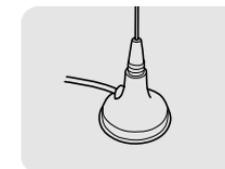
GMR5-M Radio



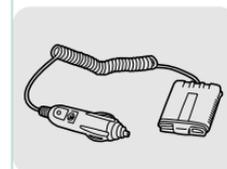
Radio Mount



Speaker Mic



Magnetic Roof Mount Antenna



Power Adapter



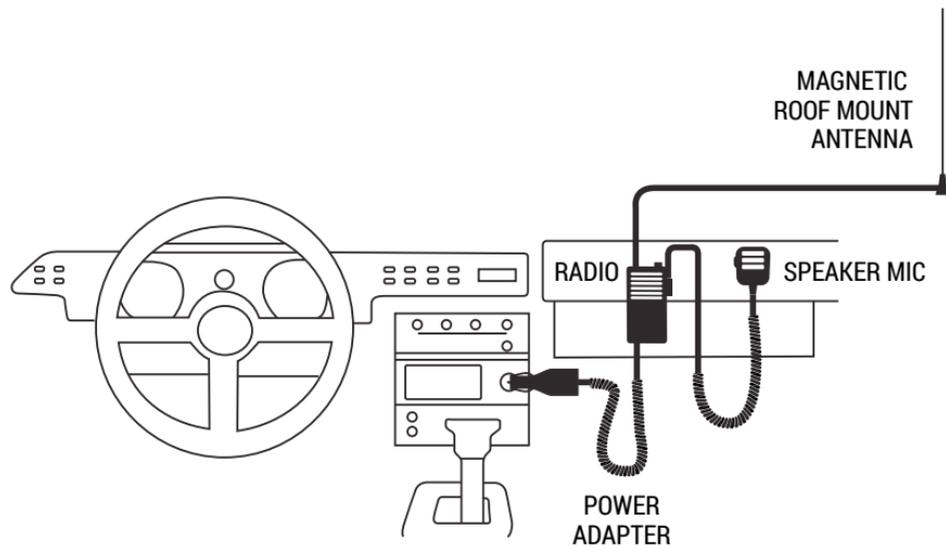
Mounting Clip



User Manual

Configuration

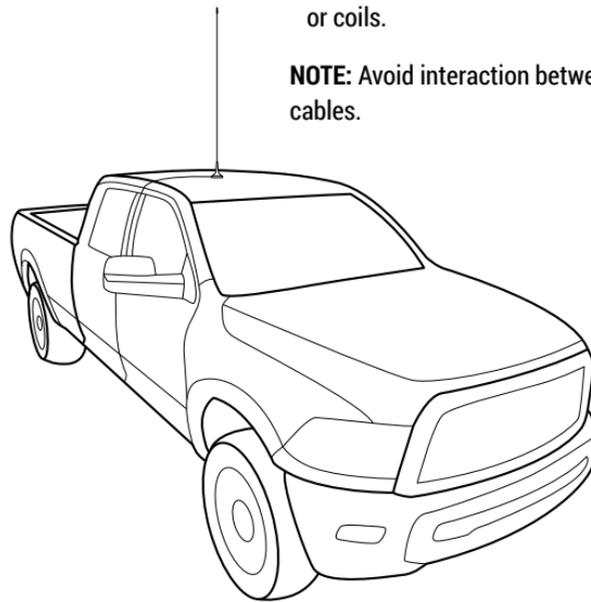
Example of Radio Placement



Antenna Placement

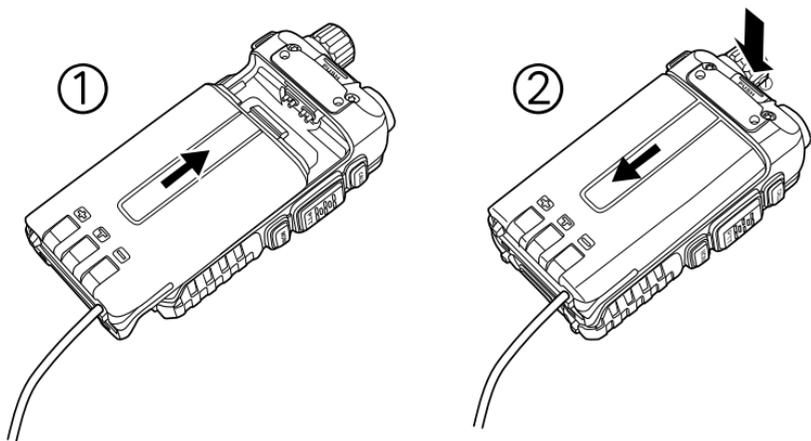
- Antenna should be mounted as high up on the vehicle as possible, centered on the roof if possible.
- Carefully route the coax cable as to not have any pinches or coils.

NOTE: Avoid interaction between the coax cable and power cables.



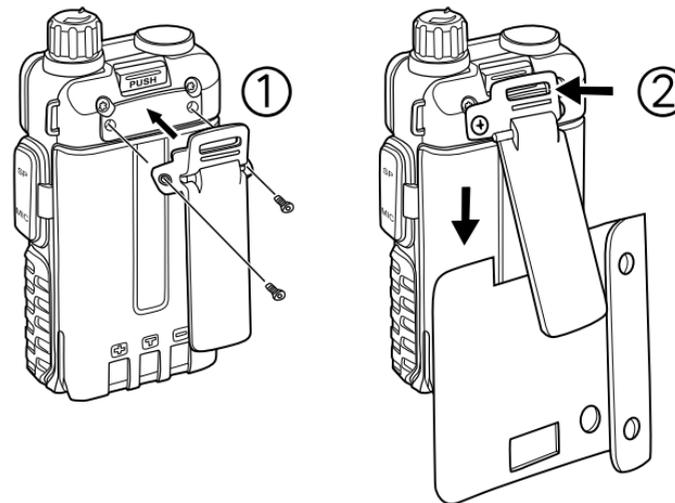
Power Adapter

- 1) Fit the supplied power adapter into the trough, then slide it toward the top of the radio to insert it completely (in the direction the of arrowhead below)
- 2) Push the power adapter lock to release the power adapter and slide it toward the bottom of the radio to remove it (in the direction the of arrowhead below)



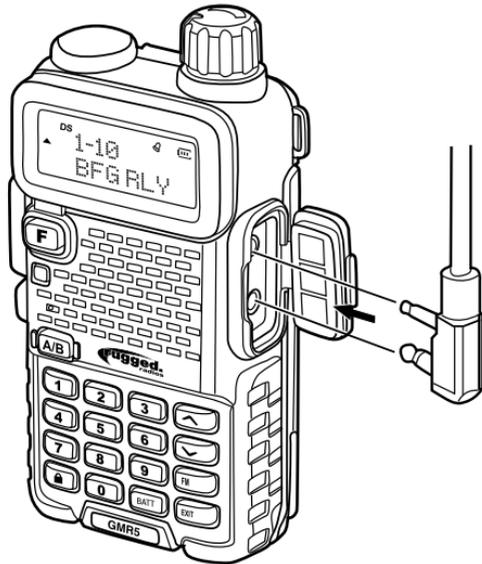
Mounting Clip

1. Align the two holes of the mounting clip with the two holes of the radio and affix them with the supplied M2.5x5 screws. Loosen the screws to remove the mounting clip.
2. Secure the GMR5-M to the radio mount as shown.

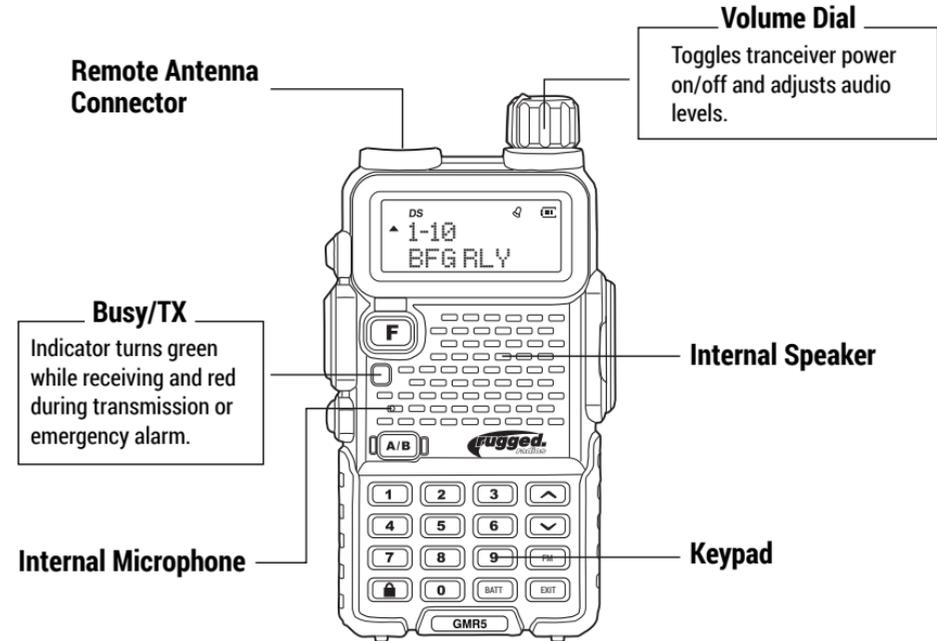


Speaker Mic

With the radio turned off, open the cover of the microphone/speaker jack and insert the speaker mic plug into the jack.



Getting Familiar



Remote Antenna Connector

Volume Dial

Toggles transceiver power on/off and adjusts audio levels.

Busy/TX

Indicator turns green while receiving and red during transmission or emergency alarm.

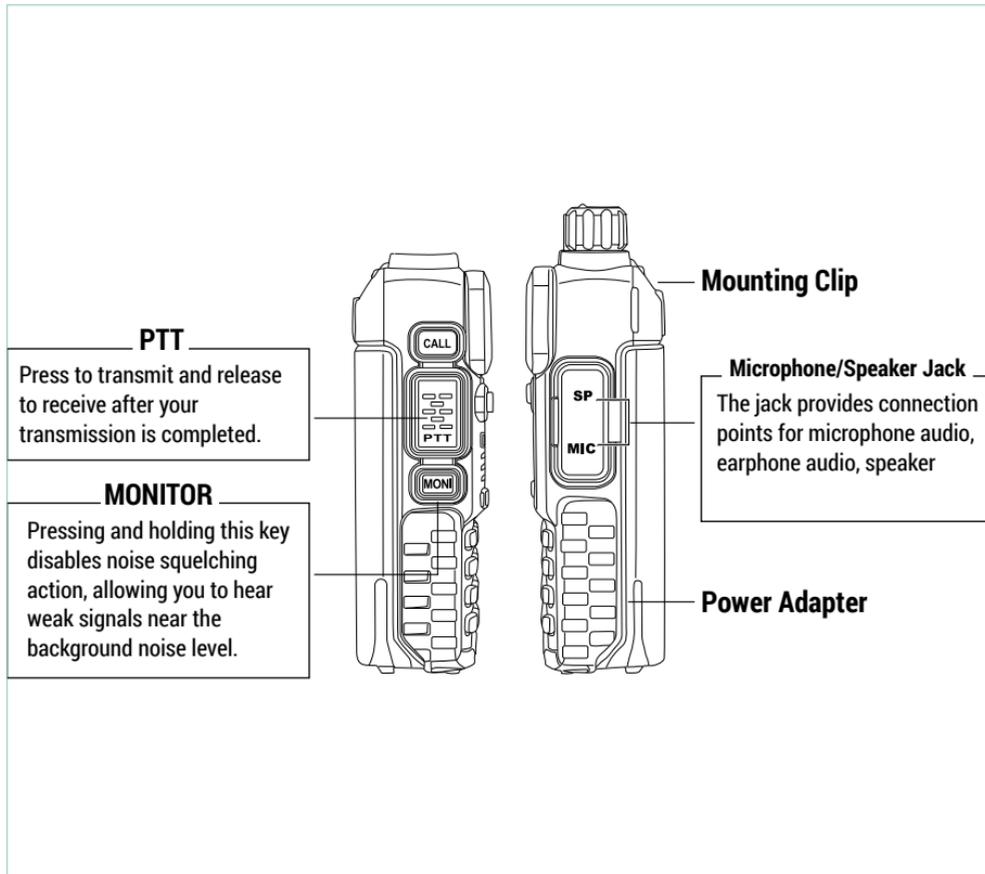
Internal Speaker

Internal Microphone

Keypad

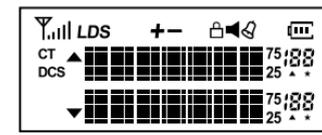
- BATT** : Displays Battery Voltage
- FM** : Enter & Exit FM Mode
- EXIT** : Exit Key Functions & Menus

- ▲ ▼** : Up & Down Arrow Keys
- 🔒** : Locks & Unlocks Radio



LCD Display

The following table defines the icons that display on the radio LCD.



Icons	Description of Functions
	Operating Band Signal & Power Meter
L	Low TX Power Active
D	Dual Watch/Standby Active
+ -	Repeater Shift Direction
N	Narrow Band Mode Active
	Keypad Lock Active

Icons	Description of Functions
	Squelch Active
	Beep Tone Active
	Battery Power Indicator
CT	Set CTCSS Tone
DCS	Set DCS Tone
	Operating A Band Indicator
	Operating B Band Indicator
75 25	Frequency Mantissa Indicator
	Channel Number/Menu Items Number Indicator
	Busy Channel Indicator
★	Channel Scanned Available Under CH Mode

Keypad Functions

				
Press key	Enter Menu mode/confirm the setting	Upper menu item, channel or frequency	Lower menu item, channel or frequency	Switch between VFL Mode and MR Mode/exit the setting
Hold key and turn on radio				Channel delete mode (will not delete preset channels)

Operation Modes

1) Channel Mode (MR)

Use [↻] / [⏺] keys to change or input frequencies by keypad directly and store channels.

2) Listen Only Frequency Mode (VFL)

In VFL mode, press [EXIT] to enter MR mode. The frequency will be indicated on the display and the channel number will be indicated on the right side.

4) FM Radio Mode

GMR5-M provides 76.00-108.00MHz FM radio. In FM mode, you can choose the frequency you need directly, scan frequency range, and store your favorite channels. Press [FM] to enter and exit FM radio mode.

5) MENU Mode

Press [F] key to enter MENU mode

Menu

No.	LCD Display	Available Values	Description of Function
01	SCAN	/	Frequency/Channel Scan
02	SQL	0-9	SQL Level Setting
03	DUALDSP	ON/OFF	Dual Wait/Standby
04	LED	ON/AUTO/OFF	LED Display Mode
05	BACKLIT	COLOR 1/COLOR 2/COLOR 3	Background Light Color
06	BEEP	ON/OFF	Keypad Beeper Setting
07	ROGER	ON/OFF	Receive End Beep
08	BUSYLOK	ON/OFF	No Transmit Over Carrier
09	VOICE	ON/OFF	Voice Prompt
10	ON MSG	OFF/VOLTS/MESSAGE	Power On Display
11	BATTERY	/	Battery Power Voltage
12	PON.MSG	-1A, @	Power On Message
13	TONE	OFF/67.0/D023N	TX/RX Tone Coder
14	RX-TONE	OFF/67.0/D023N	RX Tone Coder
15	TX-TONE	OFF/67.0/D023N	TX Tone Coder

Menu Operation

- 1) In standby mode, press [**F**] to enter menu setting. The LCD will display "MENU."
- 2) Press [**▲**] or [**▼**] to select the desired menu item. The LCD will display the current setting of the selected item.
- 3) Press [**F**] to enter, and then press [**▲**] or [**▼**] to select the desired setting.
- 4) Press [**F**] to confirm.
- 5) Press [**EXIT**] twice to exit and return standby mode.

Detailed Function Descriptions

- 1) Scan & Scan Mode setting (SCAN)

Functions: Under VFL/MR mode, GMR5-M allows you to scan the entire current operating band and memory channels.

Enter Menu 1st and press [**F] key to start scanning.**

When you have started scanning, press [**▲**] / [**▼**] key to change direction. The radio will halt on a signal it encounters. Press PTT key to stop scanning. Press MONI key to stop scanning temporarily. Press [**F**] key again to exit the scanning function.

- 2) Squelch Adjustment (SQL --- MENU 2)

Functions: The GMR5-M Squelch system allows you to mute background noise when no signal is being received. The Squelch system significantly reduces battery consumption.

Enter Menu 2 to set SQL level. Default: 5

- 3) Dual Wait/Standby (DUALDSP --- MENU 6)

Functions: Receive a sub band signal even while working on the operating band. Monitor signals under both master and sub bands at the same time.

Enter Menu 3 to set Dual Wait. Default: ON

- 4) LED Display Mode (LED --- MENU 4)

Functions: Select the LED/Keypad Lamp mode.

Enter Menu 4 to select LED display mode. Default: AUTO

ON: LED display lights all the time.

AUTO: Illuminates the LED when any key is pressed. Light turns off after 3 seconds.

OFF: Disable the LED lamp.

5) Background Light Color (BACKLIT)

Functions: Choose LED background light color.

Enter Menu 5 to select background light color. Default: COLOR1

COLOR1: Purple

COLOR2: Blue

COLOR3: Orange

6) Keypad Beeper Setting (BEEP)

Functions: Enable/disable the keypad beeper.

Enter Menu 6 to set keypad beeper. Default: ON

7) Receive End Beep (ROGER --- MENU 7)

Functions: Beeps to inform that receiving is over.

Enter Menu 7 to set ROGER. Default: OFF

8) No Transmit Over (BUSYLOK --- MENU 8)

Functions: Prevent transmission over a present carrier.

Enter Menu 8 to set BUSYLOK. Default: OFF

9) Voice Prompt (VOICE --- MENU 9)

Functions: Enable/disable voice prompt.

Enter Menu 16th to set VOICE. Default: ON

10) Power-On Display Setting (ON MSG, BATTERY, PON. MSG. --- MENU 10, 11, 12)

Functions: Choose power-on display mode and edit power-on message.

Enter Menu 10 to set ON MSG. Default: OFF

OFF: Displays model version

VOLTS: Battery power voltage

MESSAGE: Power-on message

Enter Menu 11 to check battery voltage.

Enter Menu 12 to edit power-on message, also you can edit it directly with program software.

Using [] / [] to select character;

11) Tone Coder (TONE, RX-TONE, TX-TONE --- MENU 13,14,15)

Function 1: CTCSS/DCS Operation

Many repeater systems require that a very-low-frequency audio tone be superimposed on your FM carrier in order to activate the repeater. This helps prevent false activation of the repeater by radar or spurious signals from other transmitters.

Enter Menu 13, 14, 15 to set TX & RX Tone coder, RX Tone coder, TX Tone coder.

Many repeater systems require that a very-low-frequency audio tone be superimposed on your FM carrier in order to activate the repeater. This helps prevent false activation of the repeater by radar or spurious signals from other transmitters.

- Press [] key to select CTCSS/ DCS/ OFF. After you choose CTCSS/DCS, press [] / [] keys to choose the right group you need.
- Press [] key to select DCS direction.

The GMR5-M has 50 CTCSS groups and 104 normal/inverted DCS groups.

Privacy Tones Frequency Chart (Hz)

CTCSS				
67.0	91.5	118.8	156.7	210.7
71.9	94.8	123.0	162.2	218.1
74.4	97.4	127.3	167.9	225.7
77.0	100.0	131.8	173.8	233.6
79.7	103.5	136.5	179.9	241.8
82.5	107.2	141.3	186.2	250.3
85.4	110.9	146.2	192.8	
88.5	114.8	151.4	203.5	

Note: Also known as PL/CT/CTCSS Tones. Privacy codes can be programmed for use on any channel.

DCS Codes

023	074	172	265	371	503	662
025	114	174	266	411	506	664
026	115	205	271	412	516	703
031	116	212	274	413	523	712
032	122	223	306	423	526	723
036	125	225	311	431	532	731
043	131	226	315	432	546	732
047	132	243	325	445	565	734
050	134	244	331	446	606	743
051	143	245	332	452	612	754
053	145	246	343	454	624	
054	152	251	346	455	627	
065	155	252	351	462	631	
071	156	255	356	464	632	
072	162	261	364	465	645	
073	165	263	365	466	654	

Advanced Functions

1) Keypad Lock Settings

In standby mode, press [] for 2 seconds to lock or unlock the keypad. [] will be displayed at the top of the LCD when keypad is locked.

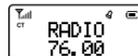
2) Tone Calling (1750Hz Tone)

To access a repeater, press and hold the [] key for the amount of time specified by the repeater. The transmitter will automatically be activated, and a 1750Hz audio tone will be superimposed on the carrier. Once access to the repeater has been gained, you may release the [] key and use PTT for activating transmission.

3) FM Radio Function

On/Off Radio Receiver

In standby mode, press [] to open FM radio function. LCD will display "76.00."
Pressing [] again will exit FM radio mode.



Note: In FM radio mode, if a signal is received, the radio will exit FM mode. The radio will return to FM mode 5 seconds after signal ends.

Mode Selection

In FM radio mode, press [] to switch between FM memory mode and FM frequency mode.

Note: This function is unavailable when there are no FM memory channels.

Frequency Selecting

In FM frequency or memory mode, input digits directly by keypad or press [] or [] to choose the desired frequency or stored FM channel.

FM Radio Search

In FM radio mode, press [] + [], then press [] again to enter FM radio scanning. On the "RADIO" screen, press [] or [] to change scanning direction. The radio will stop scanning when a frequency is available and then exits.

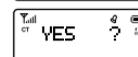


FM Radio Storage

In FM frequency mode, press [] and then press []. The channel number for storage will blink at the right of the screen. Press [] or [] or use number key to select the desired channel number and press [] to confirm.

FM Radio Channel Delete

In FM memory mode, turn off the radio. Press [] to turn on the radio. "DEL ?" will appear on the screen and the channel number will blink. Press [] or [] to choose the channel number you wish to delete, then press [] to confirm.



Technical Parameters

General

Listen Only Frequency Range	462.550-462.7250MHz,462.5625-462.7125MHz, 467.550-467.7250MHz
Channel No.	2x128
Frequency Stability	±2.5PPm
Antenna	High Gain Antenna
Antenna Impedance	50Ω
Operating Voltage	12 Volts (With Power Adapter)
Mode of Operation	Simple or Semi-Duplex
Dimensions (WxHxD)	110x58x32mm (Not Including Antenna)

Transmitter

Modulation Mode	11K0F3E
Maximum Deviation	< 5kHz / < 2.5kHz
Spurious Radiation	< 7.5μW
Adjacent Ch. Power	< -65dB / < 60dB
Pre-emphasis Characteristics	6db
Current	< 1.6A(5W)
CTCSS/DCS	0.5kHz±0.1kHz / 0.4kHz±0.1kHz
Intermediation Sensitivity	8-12mv
Intermediation Distortion	< 5%

Receiver

RF Sensitivity	-122dBm(12dB SINAD)
Audio Power	1W
Audio Distortion	< 10%
Intermediation	> 60dB > 55dB
Selectivity	> 65dB > 60dB
Spurious Rejection	> 65dB
Blocking	> 85dB

Note: Specifications may be revised without notice due to technical improvement.

