



GMR5-X

User Manual



Safety

FCC NOTICE

The GMR5-X operates on GMRS (General Mobile Radio Service) frequencies, which require a Federal Communications Commission (FCC) license. You must be licensed prior to operating on the GMRS channels of the GMR5-X. Serious penalties may result from unlicensed use of GMRS channels, in violation of FCC rules, as stipulated in the Communications Act's 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 ask questions about the license application, contact the FCC at 1-888-CALL-FCC or go to the FCC's website: <http://www.fcc.gov> and request Form 605.

FCC Compliance Statement: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference including received interference that may cause undesired operation. **Note 1:** The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment. Replacement of any transmitter component (crystal, semiconductor, etc.) not authorized by the FCC equipment authorization for this radio could violate FCC rules. **Note 2:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

RF Exposure Statement:

SAR tests are conducted using standard operating positions accepted by FCC with the device transmitting at its highest certified power level in all tested frequency bands, although the SAR is determined at the highest certified power level, the actual SAR level of the device while operating can be well below the maximum value. Before a new model is available for sale to the public, it must be tested and certified to the FCC that it does not exceed the exposure limit established by the FCC. Tests for each product are performed in positions and locations as required by the FCC. For body worn operation, this device has been tested and meets the FCC RF exposure guidelines when used with and accessory designated for this product or when used with and accessory that contains no metal. To maintain compliance with FCC RF exposure guidelines, hold the transmitter and antenna at least 1 inch (2.5 centimeters) from your face and speak in a normal voice, with the antenna pointed up and away from the face.

WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR RADIO TELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.



To program your radio and to access advanced features, visit



rtsystemsinc.com

or contact them at 800-921-4834

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User Safety Information

Please read the following brief instructions, non compliance with these rules may cause danger or violate the law.

- Do not attempt to configure your radio while driving.
- Do not transmit at high power for extended periods as overheating may occur.
- Do not expose the radio to long periods of direct sunlight. Do not expose the radio to heat sources.
- When transmitting, keep away from the antenna at least 5cm
- Do not use a radio whose antenna is damaged, touching of damaged antenna will cause heat injury.
- Turn off Radio when entering flammable or explosive areas
- Do not charge or change the battery in flammable or explosive areas.
- Turn off radio before getting close to blasting zone or detonator areas
- To avoid troubles caused by electromagnetic interference or electromagnetic compatibility, please turn off the radio in places where the banner displays **“Do not use wireless equipment”**, such as hospitals and other healthcare locations.
- If an abnormal odor or smoke is detected coming from the radio, turn off the power immediately, remove the battery, and contact your dealer.

Package Includes

- (1) Radio Unit
- (1) Antenna
- (1) Li-ion Battery (3600mAh)
- (1) USB-C charging cable/power adapter
- (1) Belt Clip
- (1) Quick Start Guide

Charging the Battery Pack

Charging Preparation

PRECAUTION: The supplied battery pack of this radio is a high –performance Li-ion with 7.4V standard voltage 3600mAh high capacity in a very compact package. Under normal use, the battery pack may be used for approximately 500 charge cycles and more, after which operating time may be expected to decrease. If you have an old battery pack which is displaying capacity which has become diminished, you should replace the pack with a new one.

- Please do not short-circuit the battery terminals or expose them to fire.
- Do not disassemble the battery.
- Charge the battery between 32°F and 113°F. The battery cannot normally be charged beyond this temperature range.
- Please turn off the transceiver when you charge it. Transmitting with the transceiver in charge will affect its normal charge.
- Do not unplug the Power Adapter or battery when it is charging.
- If the battery does not last its normal charge, it shows that the battery is depleted, please change the battery pack. Please contact your local dealer to buy a new battery.
- Please do not charge when the battery or the radio is wet. Please dry it with a cloth and wait for it to be fully dry before charging to avoid any danger.

WARNING: When conductive metals such as jewelry, keys, or decorative chains touch the battery terminals, the batteries are likely to cause damage to the items or personal injury. These conductive metals may form a short circuit and generate heat. Handle the battery carefully, especially when placed in a pocket or metallic container.

Charging Operation

After installing the battery pack, if the battery icon shows [], it means that the battery pack is out of power. Please charge it

Indicator Display	Status
 Red	Charging
 Green	Completed

Battery Tips

- Fully charge battery using the included USB-C charging cable before use.
- Charge and discharge the battery two or three times, the battery capacity will reach the best condition. When the battery capacity is low, please charge or change the battery.
- Radio will perform at the highest efficiency when the battery is fully charged. If a signal is low, the battery may not have enough power to transmit and receive properly.

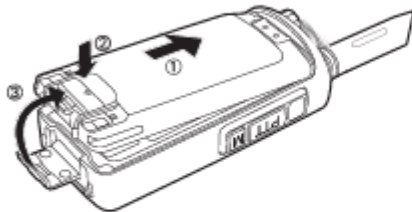
Accessories and Connections

Antenna

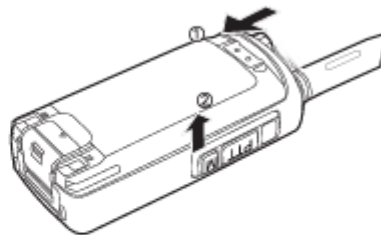
IMPORTANT! MAKE SURE ANTENNA IS SCREWED ON TIGHTLY PRIOR TO TRANSMITTING, FAILURE TO DO SO CAN DAMAGE RADIO

Battery Pack

1. To insert the battery:
 - Align the two grooves of the battery with the guide rail on the back of the aluminum ensuring full contact and in parallel.
 - Push the battery up to the radio base along the rail on the back of the aluminum shell.
 - Press down and hold the battery firmly, then latch the battery clip on the radio to the battery until it snaps securely into place. **(Picture 1)**
2. To remove the battery:
 - Push the battery latch down in the direction of the arrow on the latch that reads “OPEN”. The radio should then release the latch holding the battery.
 - Once the radio and battery are in the releasing state, pull the battery out from the radio. **(Picture 2).**



(picture 1)

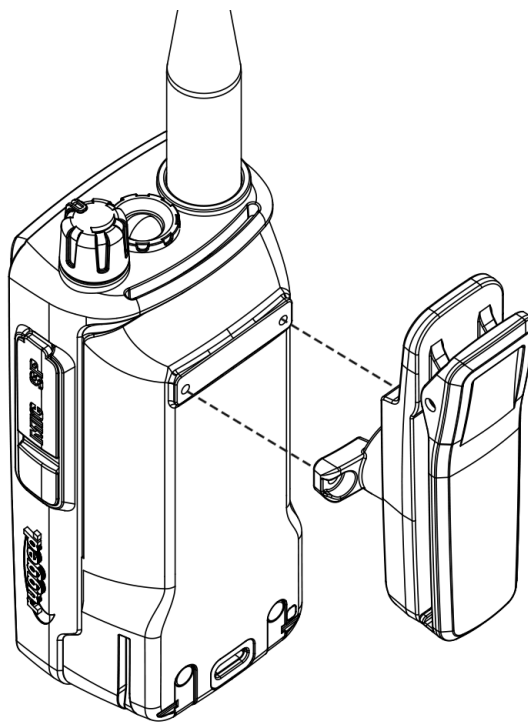


(picture 2)

Accessories and Connections

Belt Clip

- 1.) Align the two holes of the belt clip and the two holes of the radios, fix them with the supplied M2.5x5 screws.
- 2.) Loosen the screw set to remove the belt clip.

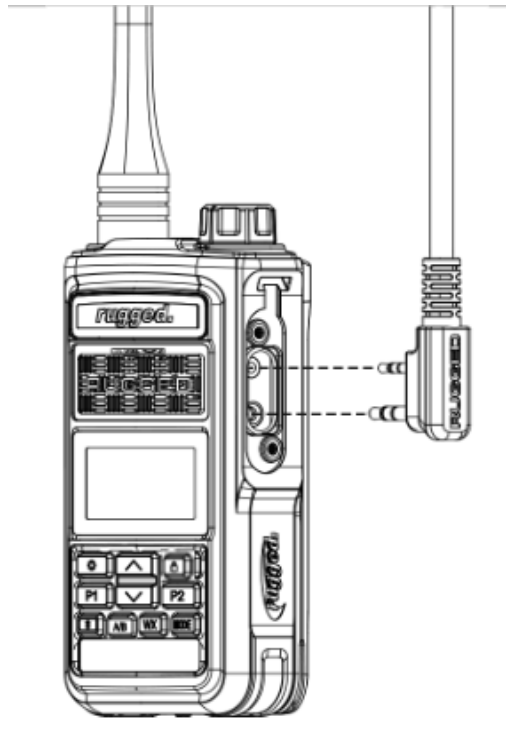


External Microphone/Speaker

Unscrew the bolt to the cover of the microphone/speaker jack using a flathead screwdriver and insert the microphone/speaker plugs into the jack.

IMPORTANT NOTE:

- Using the external headset or mic/speaker will affect the water-tightness performance of the radio.
- When reinstalling the cover of the microphone/speaker jack, make sure to tighten down the bolt sufficiently to ensure a water-tight seal.



Getting Acquainted

Front Panel Operation



Radio Functions:

No.	Key	Function	Quick-Press	Long-Press
1.	Indicator Light	Illuminates red while transmitting and green while receiving	N/A	N/A
2.	Volume Knob	Powers the radio on/off, adjusts volume	N/A	N/A

No.	Key	Function	Quick-Press	Long-Press
3.	Up (▲) and Down (▼) Keys	Scrolls through items or channels	Scroll one item or CH at a time	Press and hold to Scroll rapidly
4.	Lock □ Icon	Locks the radio controls/ Back out the menu	Menu/Back	Lock/ Unlock
5.	P2	Quick access to P2 channel preset /Adjust LSO by 1.5 MHz	Preset Ch.1 /1.5 MHz change	Save current channel to P2
6.	Mode	Switches between Listen Only (LSO), FM Radio or GMRS modes	Programmable	Switch between modes
7.	Weather (WX)	Turns second monitored Channel to Weather (WX) Alert Channel (preselected in menu)	Programmable	Monitor WX Alert
8.	A/B	Switches between monitored channels. Switches between Digital Code to Inverse Code in the Tone Code list.	Dual Monitor or Active CH switch	Programmable
9.	Bluetooth	Quick access Bluetooth Menu or turn on/off Bluetooth function	Bluetooth Menu	Turn on/off Bluetooth
10.	P1	Quick access to P1 channel preset /Adjust LSO by 10 MHz	Go to Preset CH /10MHz change	Save current CH to P1
11.	Menu (⚙️ Gear Icon)	Enters the menu / confirms the current selection	Menu/Confirm	N/A
12.	LED Display	Bright LED display for ease of use	N/A	N/A
13.	Speaker	High quality speaker for loud environments	N/A	N/A
14.	Microphone	Designed for clear transmissions in any environment	N/A	N/A
15.	Removable Antenna	Screw in tightly before transmitting.	N/A	N/A

Getting Acquainted

Side Panel Operation

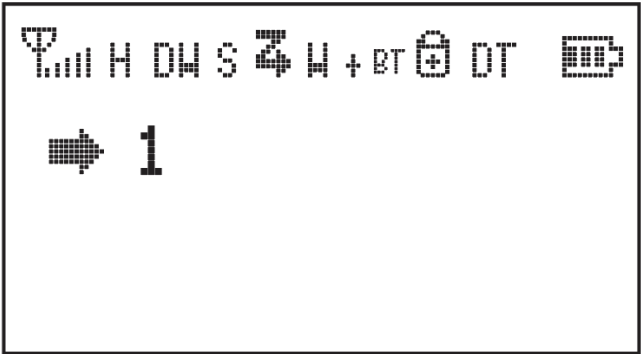


No.	Key	Function	Quick-Press	Long-Press
A.	Top Side Button	Display current battery voltage	Battery Voltage	N/A
B.	PTT	Press and hold to transmit, release to receive	TX	TX
C.	Bottom Side Button	Press and hold to monitor current channel	N/A	Monitor current CH
D.	2 Pin Mic/ Accessory Port	Connection points for microphone input, audio output, and program cable	N/A	N/A

Getting Acquainted

LCD Display Icons

You will see various icons show on the screen when it is powered on. The following table can help you identify icons meaning which display on LCD.



Icons	Function
	Operating band signal & power meter
H	High TX power active
DW	Dual watch/standby active
S	RX power save active
Z	Scanning active
W	Narrow/wide band mode active
+	Repeater shift direction
	Keypad lock
BT	Bluetooth Icon
	Battery power indicatorv

Getting Acquainted

Menu

Menu Item	Operation
001 Scan	Scans for signals on every channel in the scan list.
002 Cross Tone	Prevents hearing radio traffic on the same frequency. Comes with Digital and Analog options
003 RX Tone	Prevents hearing radio traffic on the same frequency when receiving. Comes with Digital and Analog options
004 TX Tone	Prevents hearing radio traffic on the same frequency when transmitting. Comes with Digital and Analog options
005 Squelch	Increases or decreases the sensitivity of the receiver. Higher Squelch settings will block more interference but also limit range. NOTE: Rugged Radios suggests using the factory-set Squelch level.
006 Backlight	Dims the display after 5, 10, 20, or 30 seconds of inactivity.
007 Dimmer Level	Increases or decreases the display brightness.
008 Monitor	Allows you to switch between monitoring 1 or 2 Channels.
009 CH Announce	Audibly announces the channel frequency or name
010 Menu Timeout	Sets the length of time before the menu times out and returns to default display.
011 Autolock	Enables automatic keypad locking feature after the selected duration. Keypad can be unlocked by long pressing the [] button.
012 Beep	Turns on and off beep tone when scrolling and selecting in the menu
013 Talk Permit	The transmitting radio emits a tone to alert when to begin speaking after pressing the PTT (push to talk).
014 Roger Beep	Emits a tone to the receiving radio alerting to others that the user is finished talking.
015 TX Mic Level	Adjusts the transmit volume of the microphone.
016 WX Alert	Changes which Weather channel to be monitored
017 TX Encode	Filters out background noise from transmitting voice
018 VOX Sw	Turns Vox On or Off. Allows users to transmit their voice automatically without needing to press the push to talk (PTT) button.
019 VOX Level	Increases or decreases the volume threshold in which your voice automatically activates a radio transmission *Adjusting this level will make it easier or harder to trigger a VOX transmission.

020 Listen Only (LSO)	Enables Listen-Only (LSO) mode. LSO allows users to listen to transmissions on UHF
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	frequencies outside of the GMRS band.
021 Battery Voltage	Displays remaining battery voltage
022 Firmware	Displays firmware version and the date it was updated
023 Reset	Resets the radio to factory settings

024 Bluetooth	
001 BT Switch	Turns BT On/Off
002 Pairing	Connect BT headsets or BT speakers
003 Paired Device	Shows current device that is connected and previously
004 PTT Pair	Connect a BT PTT button
005 BT Hold Time	BT power saving mode. Increase/decrease how long the hold time is.
006 BT Mic Gain	Increase/decrease the TX volume of the microphone
007 BT Spk Gain	Increase/decrease how loud the incoming audio is.
008 Radio Speak	Turn On/Off radio speaker

Tone Codes

Along with the standard GMRS channels, all Rugged GMRS radios come preprogrammed with two "tone coded" channel options.

Example:

Channel 1

- GMRS Ch. 1 (Frequency 462.5625)
- No Tone Code*

Channel 1-10:

- GMRS Ch. 1 (Frequency 462.5625)
- Tone Code 10 (Frequency 98.4)

Channel 1-25:

- GMRS Ch. 1 (Frequency 462.5625)
- Tone Code 25 (Frequency 156.7)

This continues throughout the channel list.

***NOTE: Custom tone codes can be added to any of the non tone-coded channels through the menu. See "Changing Tone Codes" below:**

CHANGING TONE CODES

To Access Tone codes:

1. Press [□] to get into menu.
2. Use the arrows [↵ ▼] to navigate and to select your desired tone code type: “RX Tone” (Receive Only), or “TX Tone” (TX Only). Then press [□] to select it.

For “CTC” (Analog) tone code types:	For “DCS” (Digital) tone code types:
• Press [□] to select it • From here a list of tone code frequencies and their number can be scrolled through [↵ ▼] and selected by pressing the [□] button.	• Press [□] • Press the [▼] • Press [□] to select it. • From here a list of tone code frequencies and their number can be scrolled through [↵ ▼] and selected by pressing the [□] button. To Switch to Inverted Digital Tone Codes: • Press the A/B button.

See the lists of Tone Codes below:



GMRS TONE CODES

CTCSS Analog Tone Codes

*This is the
number you
toggle to on
your radio!*

No.	Freq. (Hz)
1	67.0
2	71.9
3	74.4
4	77.0
5	79.7
6	82.5
7	85.4
8	88.5
9	91.5
10	94.8
11	97.4
12	100.0
13	103.5
14	107.2
15	110.9
16	114.8
17	118.8
18	123.0
19	127.3
20	131.8
21	136.5
22	141.3
23	146.2
24	151.4
25	156.7
26	162.2

No.	Freq. (Hz)
27	167.9
28	173.8
29	179.9
30	186.2
31	192.8
32	203.5
33	210.7
34	218.1
35	225.7
36	233.6
37	241.8
38	250.3
39	62.5
40	69.3
41	159.8
42	165.5
43	171.3
44	177.3
45	183.5
46	189.9
47	196.6
48	199.5
49	206.5
50	229.1
51	254.1

*Codes 38-51
may not be
supported by
other brand
GMRS radios*

For info on updating firmware, call us at: (888) 541-7223

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GMRS TONE CODES

DCS Digital Tone Codes

*This is the number
you toggle to on
your radio!*

No.	DCS (Digital) Code	No.	DCS (Digital) Code	No.	DCS (Digital) Code	No.	DCS (Digital) Code
1	23	27	165	53	413	79	731
2	25	28	172	54	423	80	732
3	26	29	174	55	431	81	734
4	31	30	205	56	432	82	743
5	32	31	223	57	445	83	754
6	43	32	226	58	464	84	36
7	47	33	243	59	465	85	53
8	51	34	244	60	466	86	122
9	54	35	245	61	503	87	145
10	65	36	251	62	506	88	212
11	71	37	261	63	516	89	225
12	72	38	263	64	532	90	246
13	73	39	265	65	546	91	252
14	74	40	271	66	565	92	255
15	114	41	306	67	606	93	266
16	115	42	311	68	612	94	274
17	116	43	315	69	624	95	325
18	125	44	331	70	627	96	332
19	131	45	343	71	631	97	356
20	132	46	346	72	632	98	446
21	134	47	351	73	654	99	452
22	143	48	364	74	662	100	454
23	152	49	365	75	664	101	455
24	155	50	371	76	703	102	462
25	156	51	411	77	712	103	523
26	162	52	412	78	723	104	526

*Codes 84-104
may not be
supported by
other brand
GMRS radios*

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STANDARD GMRS CHANNELS

Channel	Frequency (MHz)
1	462.5625
2	462.5875
3	462.6125
4	462.6375
5	462.6625
6	462.6875
7	462.7125
8	467.5625
9	467.5875
10	467.6125
11	467.6375
12	467.6625
13	467.6875
14	467.7125
15	462.5500
16	462.5750
17	462.6000
18	462.6250
19	462.6500
20	462.6750
21	462.7000
22	462.7250

GMRS REPEATER CHANNELS

Channel	Transmit Frequency (MHz)	Receive Frequency (MHz)
15RP	467.5500	462.5500
16RP	467.5750	462.5750
17RP	467.6000	462.6000
18RP	467.6250	462.6250
19RP	467.6500	462.6500
20RP	467.6750	462.6750
21RP	467.7000	462.7000
22RP	467.7250	462.7250

Specifications

General

Channels	30
Operating Voltage	7.4VDC
Operating Temperature	14 °F ~ 122 °F. / -10°C ~ +50°C
Weight	.7 lbs
Dimension	5" x 2.45" x 1.62" (10" w/ antenna)

Specifications

Transmitter

Frequency Range	RX: 136-174 & 400-480MHz TX: GMRS
Modulation Type	FM
Spurious Power	≤ -15dB
Modulation Noise	< -40dB
Modulation Distortion	< 5%
Frequency Stability	5ppm
Max Fr. Deviation	≤ ±5KHz
Current	≤ 1600mA
Audio response (300-3400Hz)	+6.5~ - 14dB
Adjacent Ch Power	≥65dB

Specifications

Receiver

Frequency	RX: 136-174 & 400-480MHz TX: GMRS
Sensitivity	$\leq 0.2 \mu V$
Occupied bandwidth	$\leq 16KHz$
Selectivity	$\geq 65dB$
Intermediation	$\geq 55dB$
Audio Power	$> 500m W$
Audio Distortion	$\leq 10\%$
Frequency Stability	5ppm
Current	Standby: 60mA working: 250Ma
Audio response (300-3400Hz)	+7~- 12.5dB

Troubleshooting

Problem	Possible Causes and Potential Solution
Not powering on	The battery has been depleted. Replace or recharge the battery
Not transmitting or receiving audio	Make sure volume is turned up
Buttons on keypad wont work	Make sure keypad is unlocked by holding the lock key
Backlight wont come on	Make sure backlight is enabled in menu and confirm dimmer light in menu is not set to "off"
Radio won't charge	Make sure battery is fully seated in cradle/ charger is fully inserted in the charging port and connected to a power source
Radio got stuck in fm radio mode	Press and hold mode button to switch modes, make sure keypad is unlocked by holding the lock button
Need to reset radio	Go to reset setting in menu and press settings key three times to accept

For additional help call our Tech Department at (888) 541-7223. We are here to help!

HOURS OF OPERATION: Monday - Friday: 8:00 AM - 5:00 PM PST

Notes

