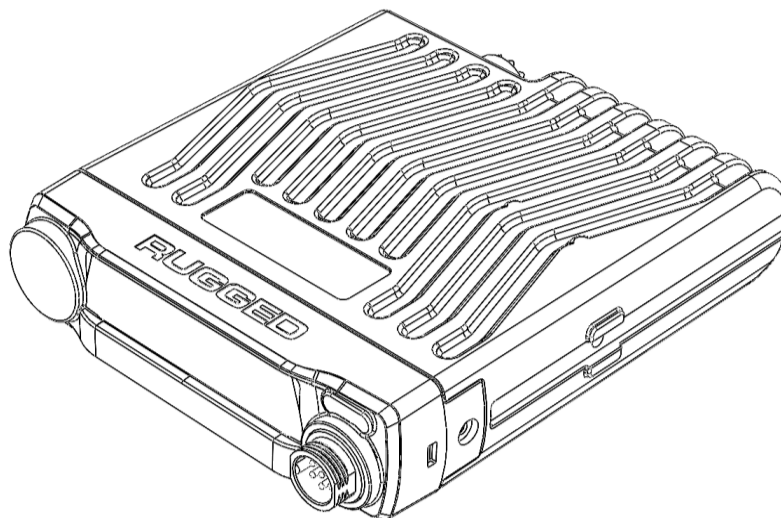
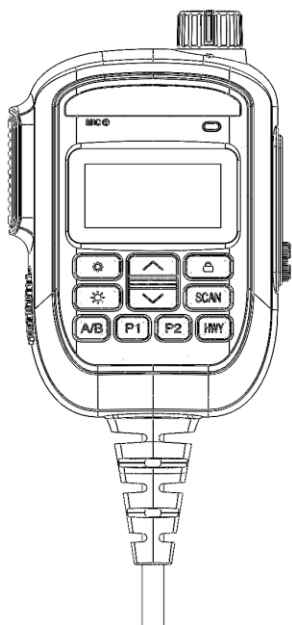




G2

User Manual

Version 1 | July/2025

Safety

FCC NOTICE

The G2 operates on GMRS (General Mobile Radio Service) frequencies, which requires a Federal Communications Commission (FCC) license. You must be licensed prior to operating on channels 1-7, 15-22 or RP23-30 which comprise the GMRS channels of the G2. 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.

FCC RF Exposure and Separation Distance: This radio transmitter has been approved by FCC to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

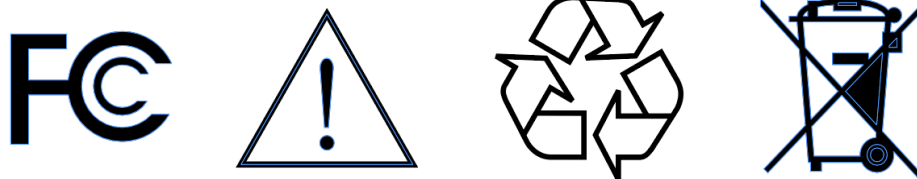
External Antenna:

Maximum Antenna Gain: 0 dBi max

Antenna impedance: 50 Ohms

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment shall be installed and operated with a minimum distance 280 cm between the radiator & body.

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

- Do not attempt to configure your radio while driving.
- This radio is designed for a 12 Volt DC power supply. Do not use a 24 Volt battery to power this radio.
- Keep this radio away from devices that cause interference, such as TV's, Generators, etc.
- Do not expose the radio to long periods of direct sunlight. Do not expose the radio to heat sources.
- If an abnormal odor or smoke is detected coming from the radio, turn off the power immediately, disconnect the power source, and contact your dealer.
- Do not transmit at high power for extended periods as overheating may occur.

Package Includes

- (1) G2 Radio: GMRS mobile radio (main control unit)
- (1) Display / Control Hand Mic
- (1) Magnetic Hand Mic Mount
- (1) Radio Mount: Universal Quick-Release U-Bracket
- (1) Power: DC power cable with in-line fuse set
- (1) Hardware Pack
- (2) Spare Fuses (15 Amp)
- (1) Adventure Patch
- (1) Rip-Stop Hand Mic Bag
- (1) Warranty Card
- (1) User Quick Start Guide

Introduction

Features:

- **Powerful:** 30 Watts
- **AMPLIFY 2.0:** Stable Power Mitsubishi Transmit amplifier
- **RIDEui:** Friendly, intuitive menu system with LED display
- **AMPS Mounting:** AMPS mounting pattern (RAM compatible)
- **All Standard GMRS Channels:** 15 GMRS channels (1-7 & 15-22)
- **Repeater Channels:** 8 repeater channels
- **259 Privacy Codes:** 51 CTCSS / 208 DCS
- **Tone Code:** Adjustable, Split Tone Capable (repeater)
- **P1 / P2 Preset Buttons:** Programmable
- **HWY Button:** Channel 19 preset
- **Power Settings:** High / Medium / Low
- **Bands:** Narrow / Wide
- **Brightness:** Adjustable
- **Squelch:** Adjustable
- **Roger Beep:** Adjustable
- **TX / RX Alert:** Adjustable
- **Button Lock**
- **External Speaker Port**
- **Channel Scan**
- **Dual Monitor**
- **Listen Only Mode:** UHF frequencies
- **Dimensions:**
 - 4.25" x 4.75 x 1" (108*121*26 mm) (Body)
 - 1.41" x 4.13" x 2.56" (36*105*65 mm) (Hand Mic)
 - **Display/Control Hand Mic Cable Length (Coiled):**36 inches **(Extended):** 74 inches
- **Connectivity:** easily connect to headset or helmet kit with accessory port on hand mic, or add an external speaker through the 3.5mm mono port on the radio body

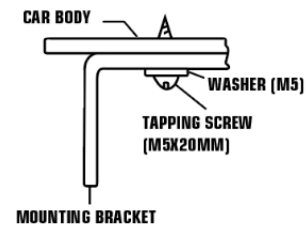
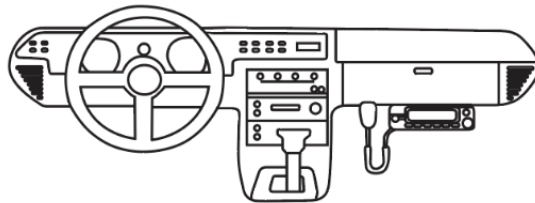
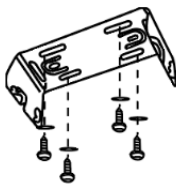
Installation

MOBILE INSTALLATION

Select a location that is safe in order to protect you and your passengers while the vehicle is in motion. Consider installing the radio in a location and position in which knees and legs will not strike it during sudden braking. Choose a well-ventilated location that is shielded from direct sunlight and heat sources, but still easy to reach and access.

IMPORTANT NOTE: Extreme care should be taken if drilling into the dash or other areas of any vehicle to avoid damaging vehicle components.

1. Install the provided mounting bracket in the vehicle using the supplied self-tapping screws.
2. Position the radio, then insert and tighten the supplied Hex/Phillips screws already on the radio.
 - a. Determine the appropriate angle of the radio using the three screw hole positions on the side of the mounting bracket.
 - b. Double check that all screws are tightened to prevent vehicle vibration from loosening the bracket or radio.



Installation

DC Power Cable Connection

This radio is designed to operate on 12 volt systems. Never connect to a 24 volt system without reducing to 12 volts first. If the power supply is lower than 12 volts, the display may darken during transmissions, transmit power may decrease dramatically, and/or the radio may reboot.

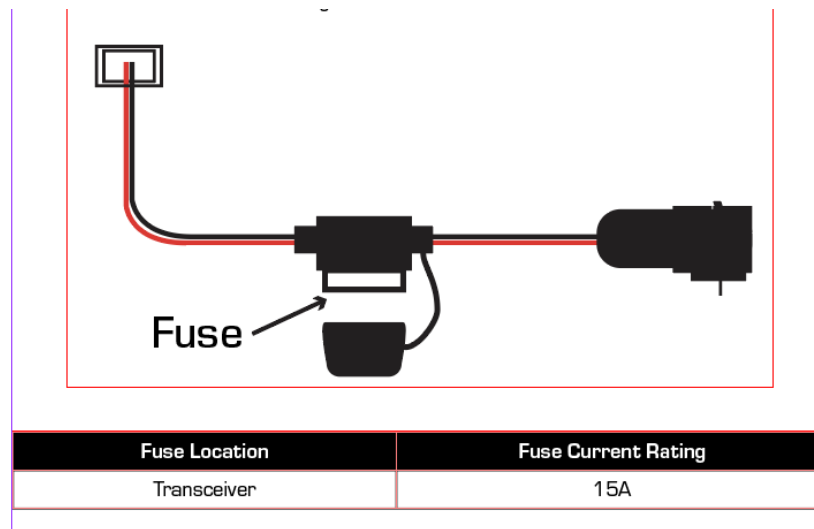
IMPORTANT NOTE: Loose or poor connections may also cause similar issues.

1. Route The DC power cables supplied with the radio directly to the vehicles' battery terminals.
 - a. We suggest that you do not use the cigarette lighter socket as most do not provide enough power to transmit at high power. .
 - b. The entire length of the cable must be routed so that it is isolated from heat, moisture, and the engine secondary (high voltage) ignition system, its components, or its cables.
2. Confirm the correct polarity of the connections, then attach the DC power cable to the battery terminals
 - a. Red connects to the positive (+) terminal
 - b. Black connects to the negative (-) terminal.
3. Connect the DC power cable to the radio's power supply plug. Press the connectors firmly together until the locking tabs click.

Installation

Replacing Fuses

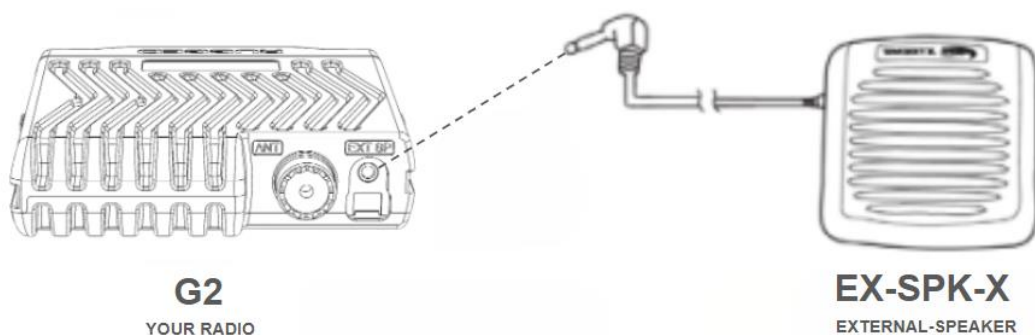
If a fuse blows, determine the cause and correct the problem. After the problem is resolved, replace the fuse. If the newly installed fuse continues to blow, disconnect the power cable and contact **Rugged Radios** at 805-541-1696 and ask for the Tech Department for further assistance. Only use fuses of the specified type and rating that are suitable for use, otherwise the radio will be damaged.



Accessory Connections

Use the External Speaker Connection on the back of the radio to connect your external speaker device.

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



Antenna & Cable

Radio Antenna is an additional purchase. Please visit our website for a list of compatible antennas.

Important Note: Radio performance relies greatly on the antenna and antenna cable!

Before operating, install an efficient, well-tuned antenna and a high-quality antenna and cable. Failure to do so will reduce transmit and receive range, radio call clarity, and can damage the radio.

NOTE:

- This radio must be used with a 50Ω impedance antenna and antenna cable.
- Transmitting without an antenna may damage the radio.

Installing the Antenna

For vehicle-mounting, the best place for an antenna is the center of a metal roof.

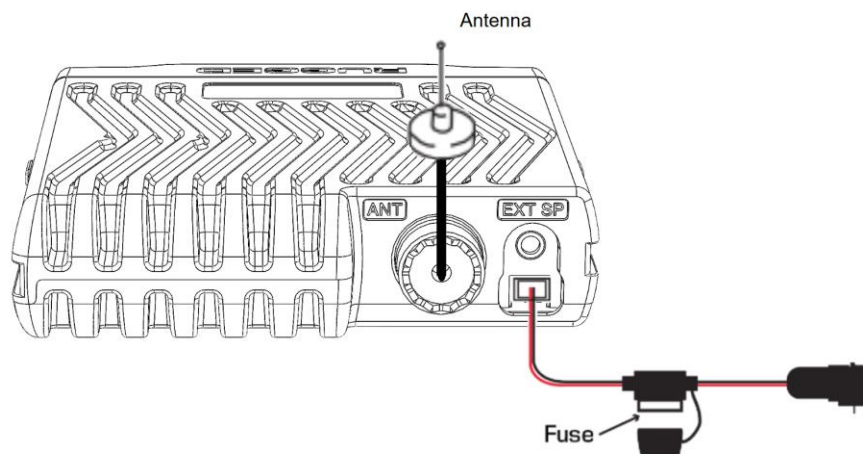
IMPORTANT NOTE: If your specific vehicle configuration, accessories, or intended use do not allow ideal antenna mounting, the radio range and quality may decrease.

For the best range, only the Rugged Radios GMRS POINT5 antenna should be used. Specific installation requirements will vary between vehicles.

Use the following guidelines to install the antenna:

NOTE: Antenna locations will significantly affect radio's performance.

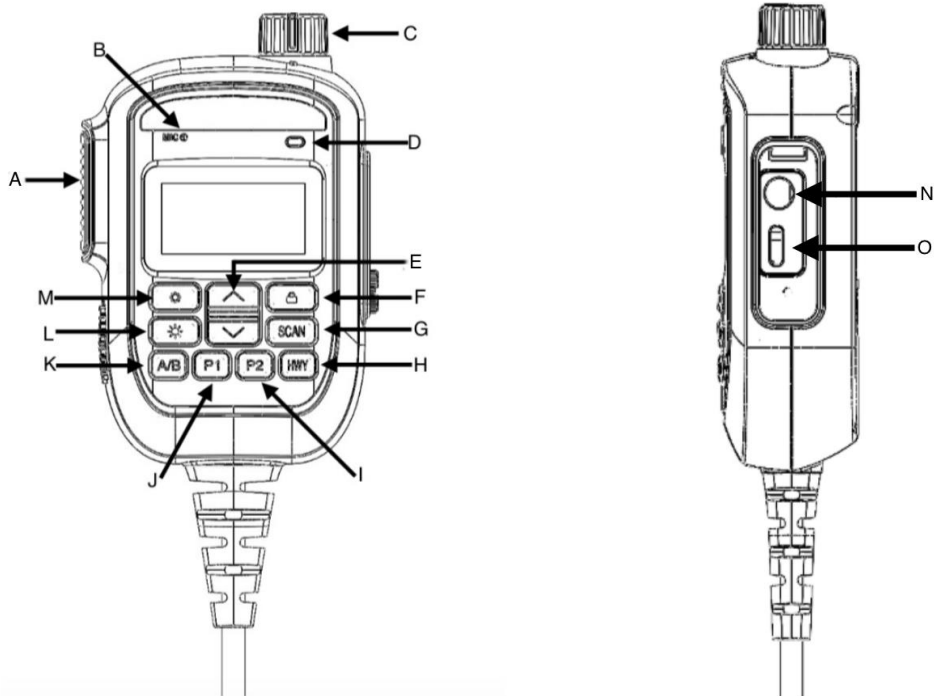
1. Mount the antenna as high on the vehicle as possible. The higher the better.
2. If possible, mount the antenna in the center of a metal roof. This is the ideal placement for an antenna.
3. Be sure the mounting location is clean and dry before installing the antenna.
4. Route the antenna cable through an accessory entry point, such as a door or trunk opening.
5. When routing the antenna cable inside the vehicle, keep the cable away from noise sources such as the ignition system, gauges, pinch points etc.
6. Exercise care to prevent cable damage. Make use of existing gaskets grommets and weather stripping to protect the cable along its route.



IMPORTANT NOTE: Do not coil excess cabling. This will drastically reduce radio performance.

Getting Acquainted

Hand Mic Operation

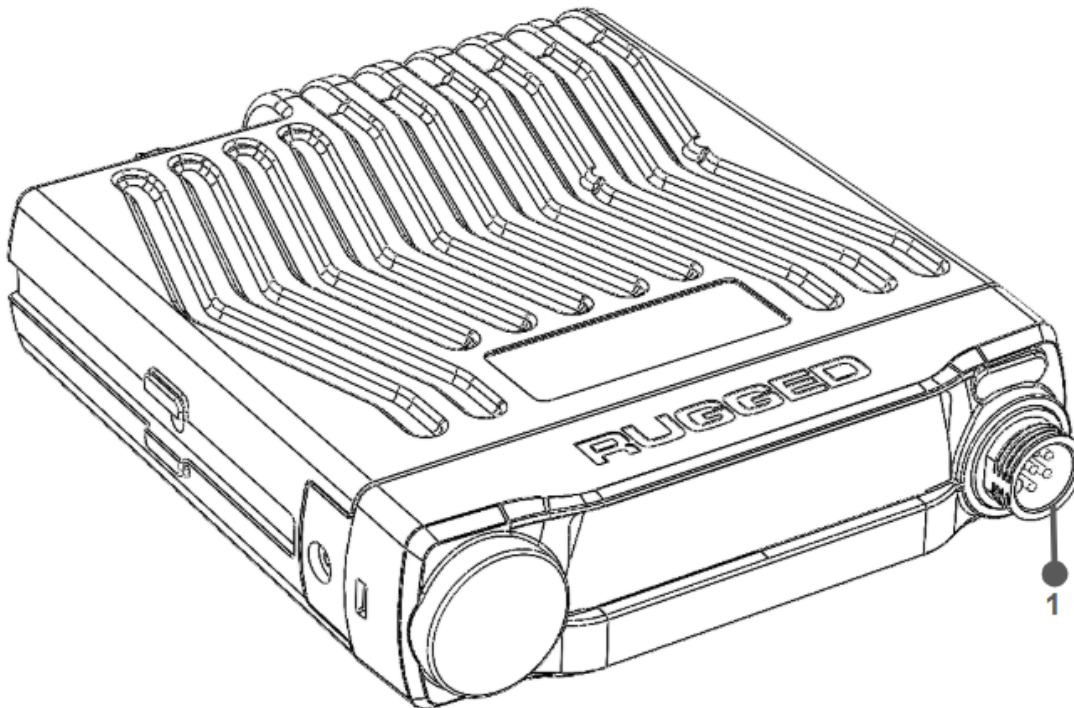


No	Key	Function	Quick-Press	Long-Press
A.	PTT	Press and hold to transmit, release to receive	TX	TX
B.	Mic	Speak here	N/A	N/A
C.	Power/Volume Knob	Press and hold for 1 second to turn on/off. Turn clockwise to increase or counterclockwise to decrease volume	N/A	Power on/off
D.	Indicator Light	Illuminates red while transmitting	N/A	N/A

E.	Up and Down	Scroll through items and channels	Scroll one item or CH at a time	N/A
F.	Lock Icon 	Locks the radio controls/ Exit or back in menu	Back in menu/ Exit	Lock/Unlock
G.	Scan	Allows the radio to automatically scan for signals on every channel included in the list.	N/A	Scan
H.	HWY	Quick access to Highway Channel 19	Preset CH19	Programmable
I.	P2	Quick access to P2 channel preset/Adjust LSO 1.5 MHz	Preset CH16/1.5 MHz LSO Change	Saves current channel to P2
J.	P1	Quick access to P1 channel preset/Adjust LSO 10 MHz	Preset CH15/ 10 MHz LSO Change	Saves current channel to P1
K.	A/B	Switches between monitored channels while in "Dual Monitor Mode"/ Switches between Digital Code to Inverse Code in the Tone Code list.	A/B	Programmable
L.	 Brightness	Increases/decreases the display brightness. Displaying the battery voltage reading.	Brightness Level	Battery Voltage
M.	Menu ( Gear Icon)	Enters the menu/Confirms the current selection	Menu/Confirm	N/A
N.	Accessory port	3.5mm port provides connection for HK-SPORT	N/A	N/A
O.	Hand mic programming port	USB Type C programming port for hand mic	N/A	N/A

Getting Acquainted

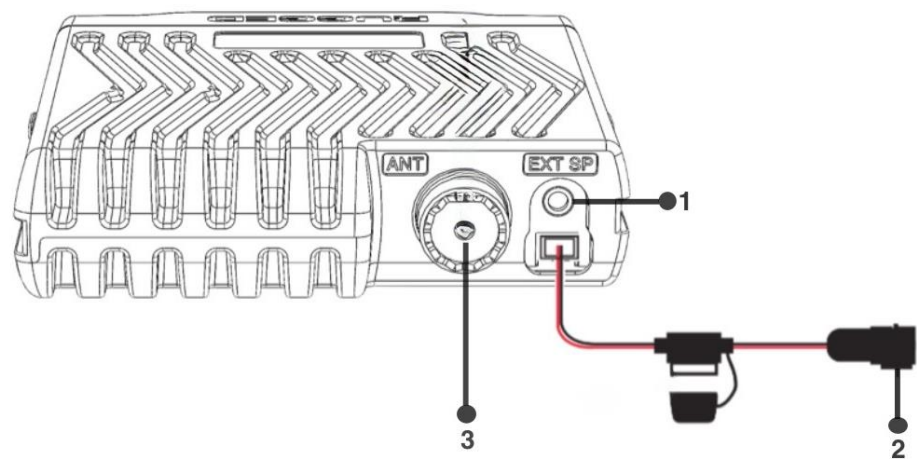
Front Panel Operation



No.	Port	Function
1.	Control Head Connector	Port to connect the G2 to hand mic display

Getting Acquainted

Rear Panel Operation



No.	Port	Function
1.	External Speaker	Connects to external speaker
2.	Power Plug	Connects to the radio power cable. Ensure a direct connection to the battery
3.	Antenna	Port to attach coax cable from antenna

Getting Acquainted

Menu & Advanced Menu

Menu Item	Operation
Scan	Scans for signals on every channel in the scan list.
Tone Codes	Prevents hearing radio traffic on the same frequency. Comes with Digital and Analog options for RX, TX and both (Cross Tone).
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.

Backlight	Dims the display after 5, 10, 20, or 30 seconds of inactivity.
Dimmer Level	Increases/decreases the display brightness.
Ch Display	Displays the frequency or channel name.
Dual Monitor	Allows you to switch between monitoring 1 or 2 Channels.
Menu Timeout	Sets the length of time before the menu times out and returns to default display.
Autolock	Enables automatic keypad locking feature after the selected duration. Keypad can be unlocked by long pressing the [] button.
Beep	Emits a tone while strolling through menu
Talk Permit Tone	The transmitting radio emits a tone to alert when to begin speaking after pressing the PTT (push to talk).
Roger Beep	Emits a tone to the receiving radio alerting to others that the user is finished talking.

Advanced Menu

Menu Item	Operation
Tx Power	Changes the level of power output used during transmission (High/Medium/Low)
Bandwidth	Changes operating bandwidth Wide (25 kHz) - Used for shorter distances, with a broader range of frequency communication. Narrow (2.5 kHz) - Used for long range communication with a comparatively smaller range of frequency communication.
B Chan Alert	When monitoring 2 channels (Dual Monitor), B Channel Alert emits a tone when radio calls are received on "B" or "Sub" Channels.
Tx Mic Level	Adjusts the transmit volume of the microphone.
SPK Setting	Adjusts the speaker settings on the handheld mic and main control unit
WX ALert	Sets weather channel to allow for emergency broadcasting to be transmitted to radio
Listen Only (LSO)	Enables Listen-Only (LSO) mode. LSO allows users to listen to transmissions on UHF frequencies outside of the GMRS band.
Radio Info	Display firmware version and the date it was updated.
Reset	Resets the radio to factory settings

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

1. Press [F] to get into menu.
2. Use the arrows [↵] to scroll and navigate to “Tone Codes” then press [F] to select it
3. Use the arrows [↵] to select the desired tone code type: “Cross Tone”, “TX Tone” (Transmit Only), or “RX Tone” (Receive Only). Then press [F] to select it.
- 4.

For “CTC” (Analog) tone code types:	For “DCS” (Digital) tone code types:
●Press [F] ●Press the[↵] to select the desired tone code frequency and their number. ●press the [F] button to confirm. ●Press the [F] button to exit	●Press [F] ●Press the [M] ●Press [F] to select it. ●Press the[↵] to select the desired tone code frequency and their number To Switch to Inverted Digital Tone Codes: ●Press the A/B button. ●press the [F] button to confirm. ●Press the [F] button to exit

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

VISIT [RUGGEDRADIOS.COM](https://www.ruggedradios.com) TO LEARN MORE
ABOUT OUR INDUSTRY LEADING GMRS RADIOS



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

Note: Mobile GMRS Radio does not support channels 8-14.

Specifications

General

Name	Tech Data
Frequency Range	GMRS
Channel Capacity	300
Frequency Stability	±2 ppm
Working Temperature	−30°C ~ +60°C
Working Voltage	13.8V DC
Main Control Unit Dimension (HxWxD)	1.05" x 4.2" x 5"
Display/Control Hand mic Dimension (HxWxD)	4.15" x 2.6" x 1.33"
Weight	Combined: 1.15 LBS Mic: .45LBS MCU: .65 LBS

Specifications

Receiver

Name	Tech Data
Receiving Sensitivity	0.25 μV @ 12 dB SINAD
Adjacent Channel Selectivity	≤ −60 dB @ 12.5 kHz
Inter-modulation	≥ 60 dB
Spurious Rejection	≥ 70 dB
Audio Response	+1 to −3 dB
Audio Distortion	≤ 5%
Audio Power	≤ 3 W
Hum/Noise	≥ 40 dB @ 25 kHz / ≥ 35 dB @ 12.5 kHz
Standby Current	0.16 A

Specifications

Transmitter

Name	Tech Data
Output Power	High: 30 W / Mid 10W/ Low: 5 W
Tx Current	≤ 5 A
FM Modulation	11K0F3E @ 12.5 kHz / 16K0F3E @ 25 kHz
Modulation Distortion	$\leq 5\%$
Hum/Noise	≥ 40 dB @ 25 kHz / ≥ 35 dB @ 12.5 kHz
Adjacent Channel Power	≤ -60 dB @ 12.5 kHz
Audio Response	+1 to -3 dB
Spurious	≤ -20 dBm

Troubleshooting

Problem	Possible Cause and Potential Solutions
(a) Power is on, nothing appears on Display.	+ and - polarities of power connection are reversed. Connect red lead to + positive terminal and black lead to - negative terminal of DC power supply.
(b) Fuse is blown.	Check and solve the problem resulting in a blown fuse. Replace the blown fuse with a new fuse.
(c) No sound comes from speaker	• Squelch is muted. Decrease squelch level. • Tone or CTCSS/DCS squelch is active. • Turn CTCSS or DCS squelch off. • Increase volume on radio
(d) Key and Dial do not function.	Key-lock function is activated. Cancel Key-lock function. Long press lock (icon) button to unlock

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

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

