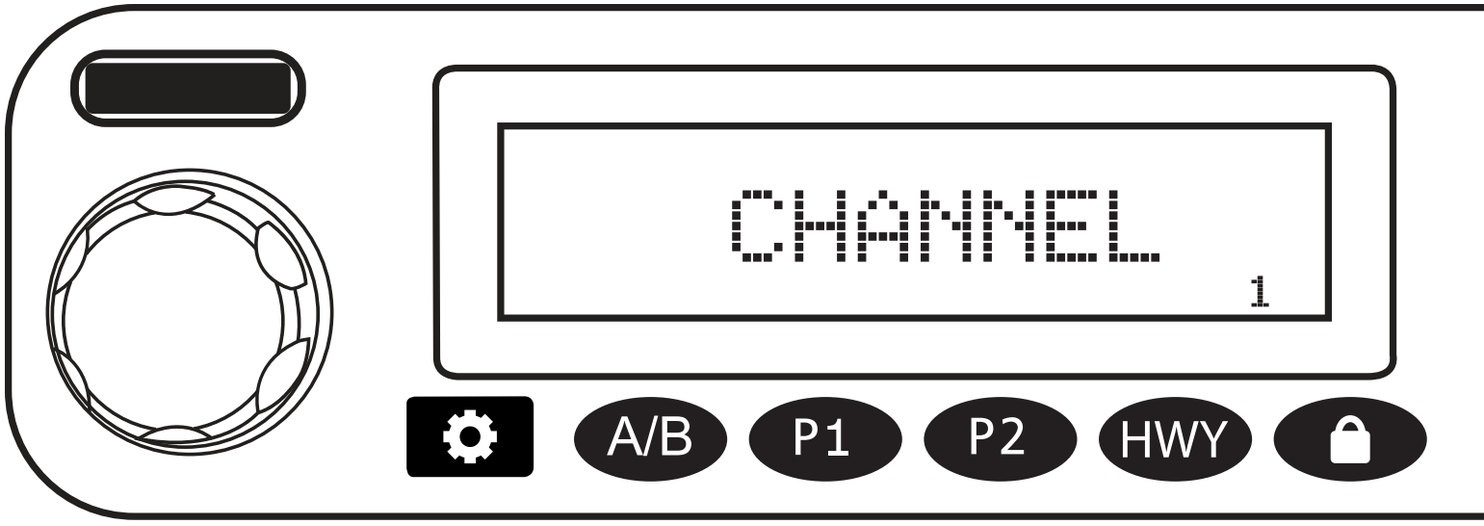


G4

USER MANUAL

V1.0 | 05/24

SAFETY

FCC NOTICE: The G4 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 which comprise the GMRS channels of the G4. 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

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 114 cm between the radiator & body.

WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR RADIOTELEPHONE 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

CONTENTS

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

- Radio Unit x 1
- Hand Mic with Scosche MagicMount Magnetic Mount x 1
- Scosche Magnetic Hand Mic Hanger x 1
- Mobile Mounting Bracket x 1
- DC Power Cable with Fuse Holder x 1
- Screw Packs x 1
- Protection Fuses x 1

MAIN FEATURES

Go Further® with our industry leading G4 mobile radio. More wattage equals more power and range, giving you the ability to transmit long-distances when it matters. Easily connect to an intercom with it's own dedicated port. Use the Audio Jack for external speaker connection! Loaded with channels and features, the G4 is ideal for installation into your vehicle or setup at base camp.

FEATURES:

- RFI reflective aluminum chassis shielding
- Large easy to read LED display
- 15 GMRS Channels (1-7 & 15-22)
- 8 Repeater Channels
- Programmable with RT Systems

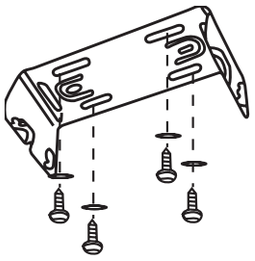
INSTALLATION

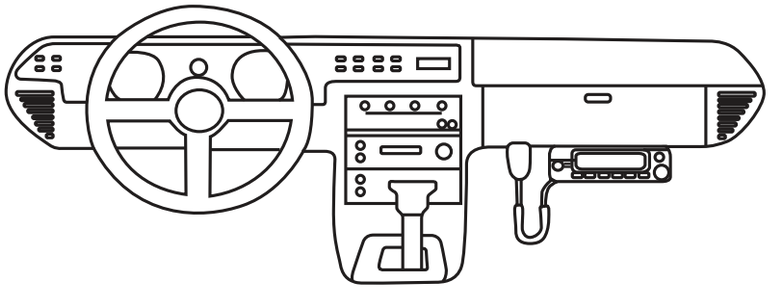
MOBILE INSTALLATION

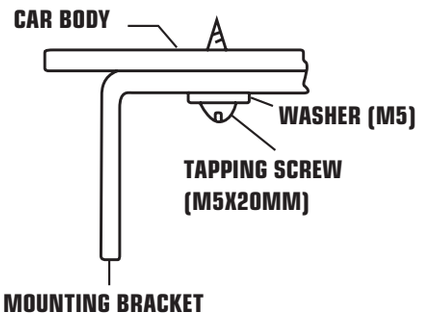
Mobile Installation: Select a location that is safe and easy to reach to protect you and your passengers while the vehicle is in motion. Consider installing the radio in a location and position in which knees and legs will not strike it during sudden braking. Choose a well-ventilated location that is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

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 mounting bracket in the vehicle using the supplied self-tapping screws.







2. Position the radio, then insert and tighten the supplied hex/Phillips screws.

   - Determine the appropriate angle of the radio using the 3 screw hole positions on the side of the mounting bracket.
   - 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. 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. **Note:** Loose or poor connections can also cause this.

1. Route the DC power cable supplied with the radio directly to the vehicle's battery terminals using the shortest path from the radio. We suggest that you do not use the cigarette lighter socket as some cigarette lighter sockets introduce an unacceptable voltage drop. The entire length of the cable must be routed so it is isolated from heat, moisture and the engine secondary (high voltage) ignition system, componets, or cables.

2. Confirm the correct polarity of the connections, then attach the power cable to the battery terminals: Red connects to the positive (+) terminal and black connects to the negative (-) terminal. **Note:** Connecting the power cables incorrectly will damage the radio!

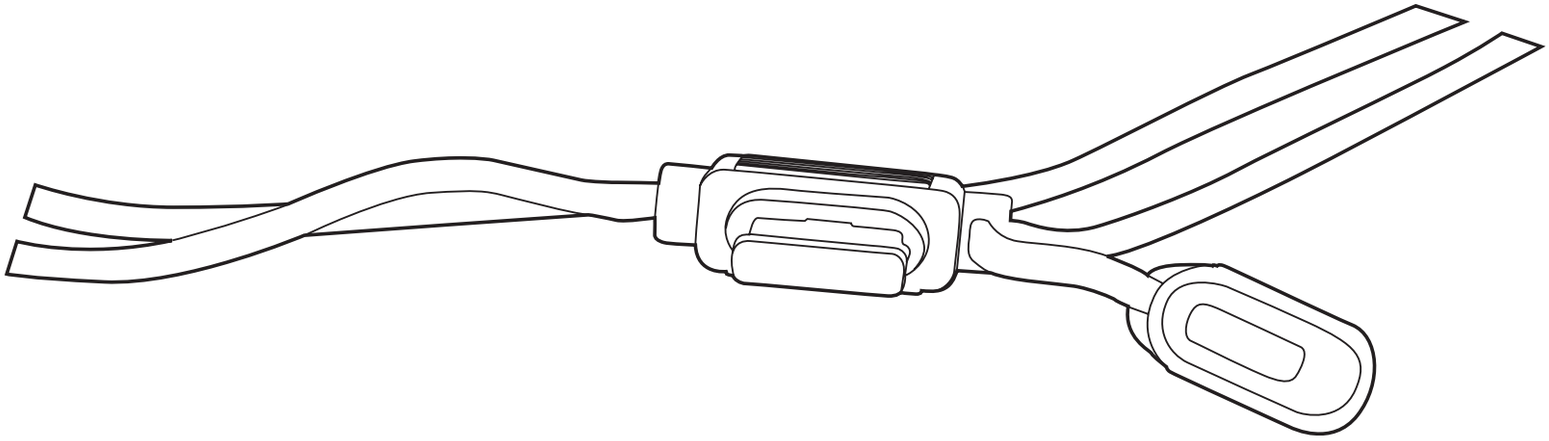
3. Connect the DC power cable to the radio's power supply connector. Press the connectors firmly together until the locking tab clicks.

Note: If you use the radio for a long period when the vehicle battery is not fully charged or when the engine is OFF, the battery may become discharged and will not have sufficient reserves to start the vehicle. Avoid using the radio in these conditions.

INSTALLATION

REPLACING FUSES

If a fuse blows, determine the cause and correct the problem. After the problem is resolved replace the fuse. If newly installed fuses continue to blow, disconnect the power cable and contact Rugged Radios for assistance. Only use fuses of the specified type and rating otherwise the radio could be damaged.



Fuse Location	Fuse Current Rating
Transceiver	15A

ACCESSORY CONNECTIONS

EXTERNAL SPEAKERS

Use the Audio Jack to connect your external speaker.

The external speaker jack accepts a 3.5mm mono (2-conductor) plug.

If you plan to use an external speaker, choose a speaker with an impedance of 8 ohms.

ANTENNA AND CABLE

Radio performance relies greatly on the antenna and antenna cable!

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

Notes:

- 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. Note that if your specific vehicle configuration, accessories, or intended use do not allow this - radio range may decrease.

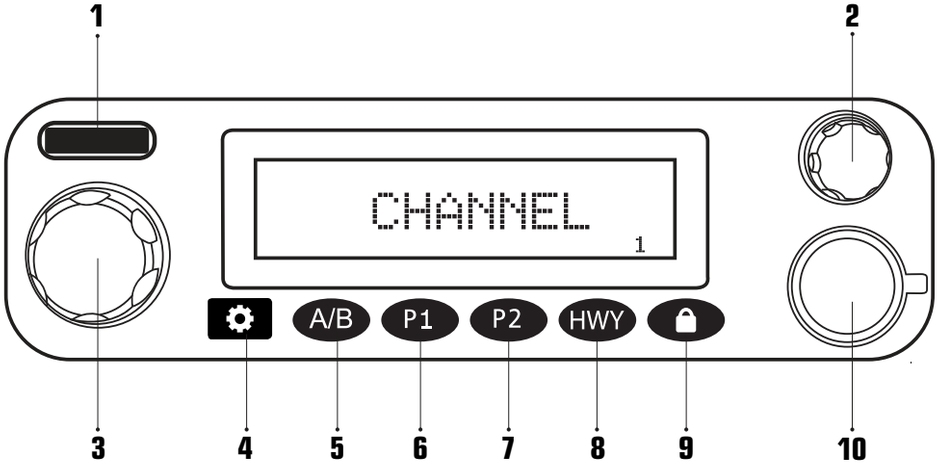
For the best range, only the Rugged Radios GMRS POINT5 antenna should be used. Specific installation requirements vary between vehicles. Use the following guidelines to install the antenna. The location of your antenna will significantly effect your radio's performance!

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.
3. Be sure the mounting location is clean and dry before installing the antenna.
4. Route the antenna cable through an accessible 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, 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: Mount antenna as high as possible and away from obstructions.
Do not coil excess cabling. This will drastically reduce radio performance.

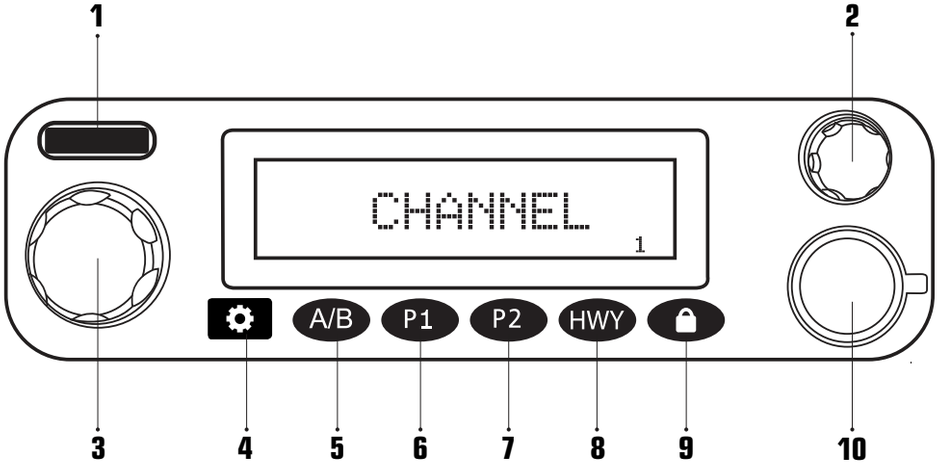
GETTING ACQUAINTED

FRONT PANEL OPERATION



No.	Key	Function	Quick-Press	Long-Press
1	Indicator Light	Illuminates while transmitting	N/A	N/A
2	Volume Knob	Turns radio ON/OFF and controls volume	N/A	N/A
3	Channel Knob	Turn to change channels/ scroll menu	N/A	N/A
4		Enter into Menu/ Use as a confirm button	Menu/ Confirm	N/A
5	A/B	Switch back and forth between monitored channels while in “Dual Monitor Mode”.	A/B	Programmable

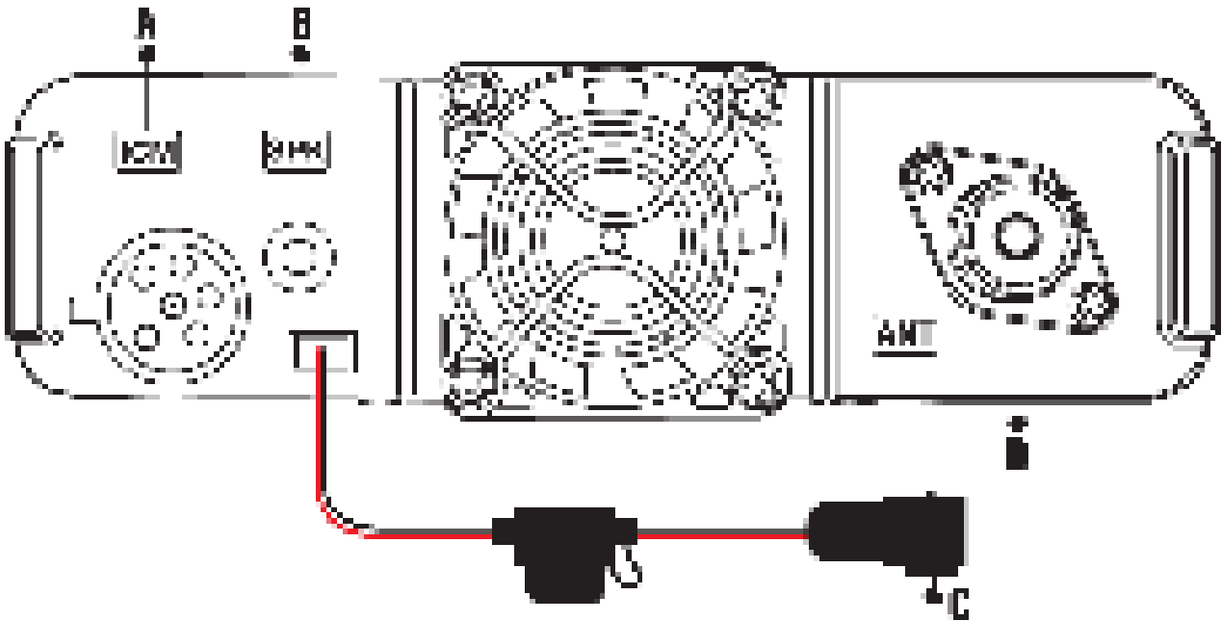
FRONT PANEL OPERATION CONTINUED



No.	Key	Function	Quick-Press	Long-Press
6	P1	Quick access to the channel you set as P1	Preset Ch. 15	Save current channel to P1
7	P2	Quick access to the channel you set as P2	Preset Ch. 16	Save current channel to P2
8	HWY	Automatically switch to highway channel 19	Go to Ch. 19	Programmable
9		Lock your radio to avoid accidentally changing channel	Exit	Lock/ Unlock
10	Microphone Port	6-Pin connection port for included hand-mic	N/A	N/A

GETTING ACQUAINTED

REAR PANEL OPERATION



No.	Port	Function
A	Intercom	Port to attach cable that connects to the intercom.
B	Audio Jack	Port to attach cable for external speaker.
C	Power	Power connector port (connects to the power cable).
D	Antenna	Port to attach coax cable from the antenna.

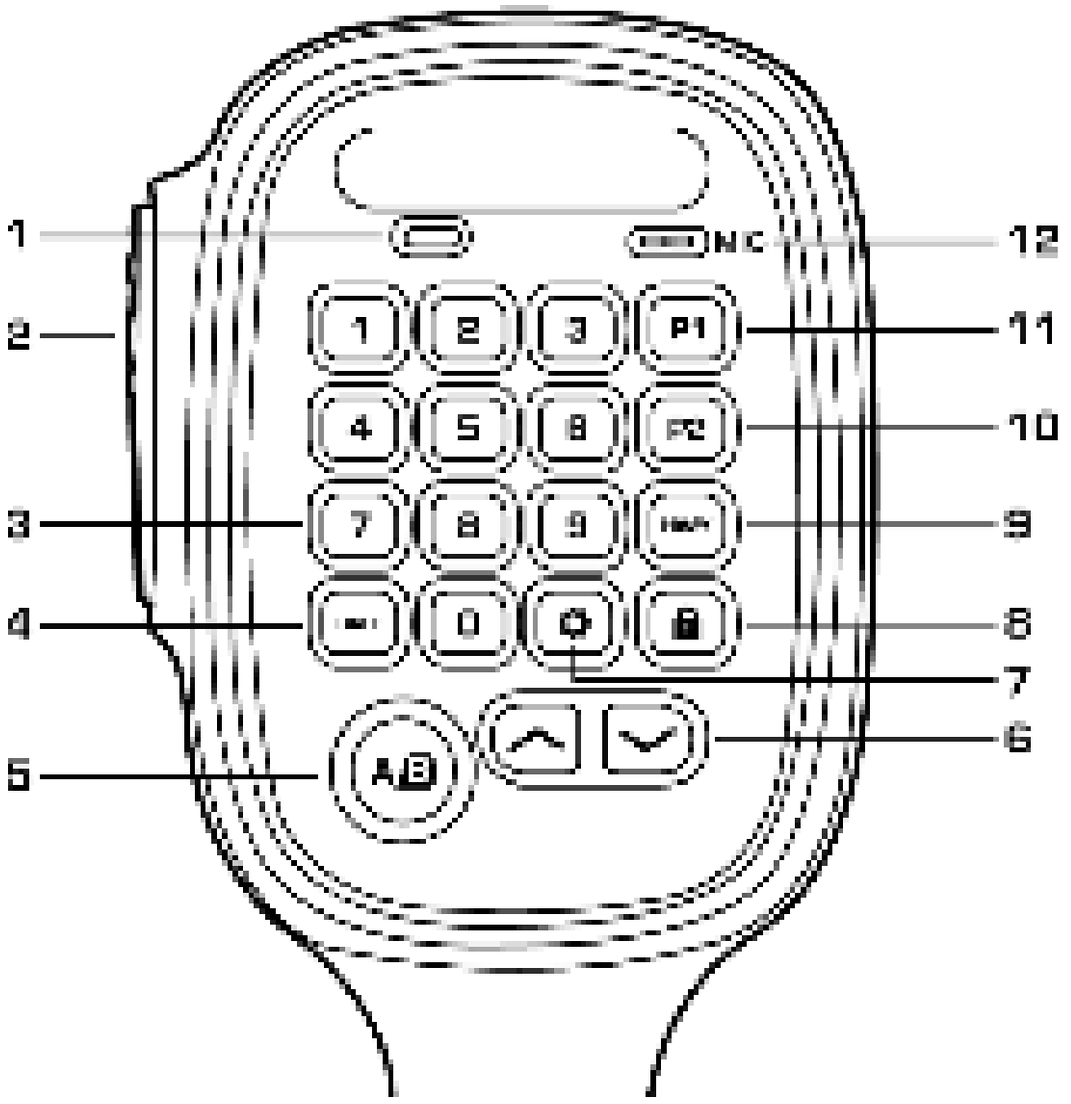
GETTING ACQUAINTED

TRANSMITTING

No.	Icon	Function
1	PTT	To transmit, hold microphone approximately 4 inches from mouth, press the key [2], and speak into microphone. Release PTT key [2] when transmit is complete.

GETTING ACQUAINTED

HAND MIC OPERATION



No.	Key	Function
1.	Indicator Light	Light is illuminated when transmitting
2.	PTT Button	Press to transmit
3.	Number Pad	Input channel number or DTMF dial out
4.	BATT	Shows vehicle battery voltage
5.	A/B	Switch between home and sub screen when dual monitor mode is enabled.
6	Nav Arrows	Increase or decrease volume or setting value
7.	 Menu	Access the menu
8.	 Lock	Lock your radio to avoid accidentally changing the channel. Quick-press: Exit
9.	HWY	Automatically switch to Highway channel 19
10.	P2	Quick access to the channel set as P2
11.	P1	Quick access to the channel set as P1
12.	Mic	Speak here during transmission

GETTING ACQUAINTED

MENU

Menu Item	Operation
Scan	This function is designed to scan for signals on every channel in the scan list.
Dimmer	Increases or decreases the display brightness.
Display Color	Changes the display color. (Grey/Green/Orange)
Backlight	Dims the display after so many seconds of inactivity. (5, 10, 20, or 30 seconds)
Dual Monitor	Allows you to monitor two channels at once.
CH Display	Shows the frequency or channel name.
Squelch	The squelch system allows you to mute background noise when no signal is being received. The squelch system's "standby" operation is audibly more pleasant, and significantly reduces battery current consumption.
Tone Codes	Prevents hearing radio traffic on the same frequency.

GETTING ACQUAINTED

ADVANCED MENU

Menu Item	Operation
Tx Power	The level of power output used during transmission. (High/Medium/Low)
Bandwidth	Wide - Used for shorter distances, with a broader range of frequency communication. Narrow - Used for long-range communication with a comparatively smaller range of frequency communication.
B Chan Alert	Gives warning of a transmission coming from B channel (when turned on).
VFL (RX Only)	Dual Active Voice Enhancement filters our background noise from receiving voice.
Reset	Resets the radio to factory settings.
Mic Level	Volume level of the hand mic
VOX ON/OFF	Turns VOX on or off.

ADVANCED MENU CONTINUED

Menu Item	Operation
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.
Radio Info	Displays firmware version and the date it was updated.

GETTING ACQUAINTED

TERMINOLOGY

Abbreviation	Meaning
VOX	Voice-activated transmission
PTT	Push-to-talk
BT	Bluetooth

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 plus terminal and black lead to minus terminal of DC power supply.
(b) Fuse is blown.	Check and solve problem resulting in blown fuse and replace fuse with 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.
(d) Key and Dial do not function.	Key-lock function is activated. Cancel Key-lock function.

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

TONE CODES

CHANGING TONE CODES

Press [⚙] to get into menu. Use the [Channel Knob] to navigate to “Tone Codes”, then press [⚙] to select it. From within the “Tone Codes” menu, select your desired tone type: “Cross Tone”, “CTC RX”, “CTC TX”, “DCS RX”, “DCS TX”. Then press the [⚙] to select it. Our tone codes use the same chat and numbering system as listed in GMRS charts.

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 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
1	23
2	25
3	26
4	31
5	32
6	43
7	47
8	51
9	54
10	65
11	71
12	72
13	73
14	74
15	114
16	115
17	116
18	125
19	131
20	132
21	134
22	143
23	152
24	155
25	156
26	162

No.	DCS (Digital) Code
27	165
28	172
29	174
30	205
31	223
32	226
33	243
34	244
35	245
36	251
37	261
38	263
39	265
40	271
41	306
42	311
43	315
44	331
45	343
46	346
47	351
48	364
49	365
50	371
51	411
52	412

No.	DCS (Digital) Code
53	413
54	423
55	431
56	432
57	445
58	464
59	465
60	466
61	503
62	506
63	516
64	532
65	546
66	565
67	606
68	612
69	624
70	627
71	631
72	632
73	654
74	662
75	664
76	703
77	712
78	723

No.	DCS (Digital) Code
79	731
80	732
81	734
82	743
83	754
84	36
85	53
86	122
87	145
88	212
89	225
90	246
91	252
92	255
93	266
94	274
95	325
96	332
97	356
98	446
99	452
100	454
101	455
102	462
103	523
104	526

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

STANDARD GMRS CHANNELS

Channel	Frequency (MHz)
1	[illegible]
2	[illegible]
3	[illegible]
4	[illegible]
5	[illegible]
6	[illegible]
7	[illegible]
8	[illegible]
9	[illegible]
10	[illegible]
11	[illegible]
12	[illegible]
13	[illegible]
14	[illegible]
15	[illegible]
16	[illegible]
17	[illegible]
18	[illegible]
19	[illegible]
20	[illegible]
21	[illegible]
22	[illegible]

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

Frequency Range	TX-462-467MHz RX: 400-480MHz
Channel Capacity	350
Frequency Stability	±2ppm
Working Temperature	-30°C ~ +60°C
Working Voltage	13.8V DC
Dimension(HxWxD)	53*138*153mm
Weight	2.55 lbs.

SPECIFICATIONS

RECEIVER

Receiving Sensitivity	0.25μV @ 12dB SINAD
Adjacent Channel Selectivity	≤-60dB@12.5KHz
Inter-modulation	≥60dB
Spurious Rejection	≥70dB
Audio response	+1~-3dB
Audio Distortion	<5%
Audio power	≤3W
Hum/Noise	≥40dB@25KHz /≥35dB @12.5KHz
Standby current	0.16A
RX current	0.4A

SPECIFICATIONS

TRANSMITTER

Output Power	High:40W Middle:25W Low:5W
TX Current	≤9A
FM Modulation	11K0F3E @ 12.5KHz 14K0F3E @ 20KHz 16K0F3E @ 25KHz
Modulation Distortion	<5%
Hum/Noise	≥40dB@25KHz /≥35dB@12.5KHz
Adjacent Channel Power	≤-60dB@12.5KHz
Audio Response	+1~-3dB
Spurious	≤-30dBm12.5kHZ data and audio:7K60FXE

NOTES

WWW.RUGGEDRADIOS.COM