

# GMR25

USER MANUAL

VERSION 1.1.1

## FCC NOTICE

The GMR25 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 GMR25. 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.



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## **USER SAFETY INFORMATION**

- Do not attempt to configure your radio while driving.
- This radio is designed for a 13.8V DC power supply. Do not use a 24V battery to power on the radio.
- Please keep it away from interference devices (Such as TVs, generators, etc.)
- Do not expose the radio to long periods of direct sunlight or place it close to heating appliances.
- If an abnormal odor or smoke is detected coming from the radio, turn off the power immediately and contact your dealer.
- Do not transmit with high power for extended periods or the radio may overheat.

## **PACKAGE INCLUDES**

- Radio unit x 1
- Hand Mic 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

Dirt, Mud & Water... It's all part of the off-road riding and now we've got a radio that will withstand it all! The GMR25 mobile radio is stout and reliable, ready for any adventure. This radio is also equipped with a Rugged Radios Accessory Port allowing you to upgrade the radio to do even more! Upgrades include things like: External Speaker, Headsets, intercom systems and more! Whether you are in a 4X4, UTV or other vehicle, the GMR25 is a great option!

### FEATURES:

- 25 Watt Radio
- 8 Repeater Channels
- 15 GMRS Channels (1-7 & 15-22)
- Small & Compact Design
- Rugged Radios Accessory Ready (intercom, headset & more)

### SPECIAL FEATURES:

- Dual Watch Mode
- Battery Voltage Display
- Adjustable Squelch
- KeyPad Lock
- External Speaker Port
- Clear Backlit Display
- Channel Scan Mode
- IP67 Water Resistant (w/ data port closed)

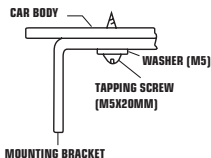
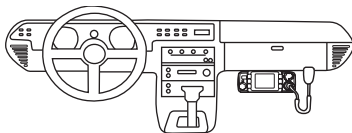
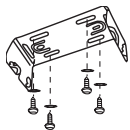
# INITIAL INSTALLATION

## MOBILE INSTALLATION

Mobile Installation: To install the radio select a safe and convenient location inside your vehicle that minimizes danger to your passengers and yourself while the vehicle is in motion. Consider installing the unit at an appropriate position so that knees or legs will not strike it during sudden braking of your vehicle. Try to pick a well ventilated location that is shielded from direct sunlight.

**Caution:** Extreme care should be exercised when drilling into dash to avoid damage to under dash components.

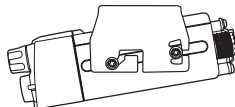
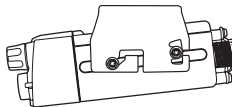
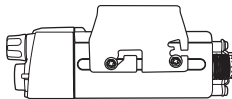
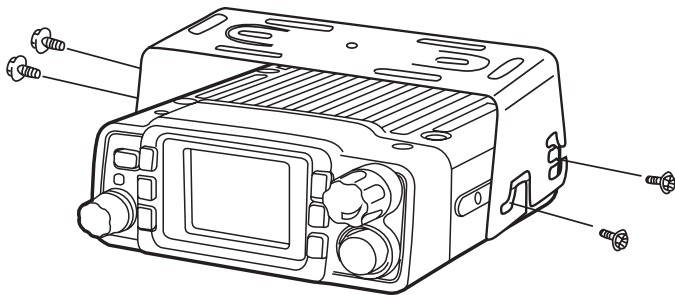
1. Install the mounting bracket in the vehicle using the supplied self-tapping screws and flat washers.



# INITIAL INSTALLATION

## MOBILE INSTALLATION (CONT.)

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.





# INITIAL INSTALLATION

## DC POWER CABLE CONNECTION

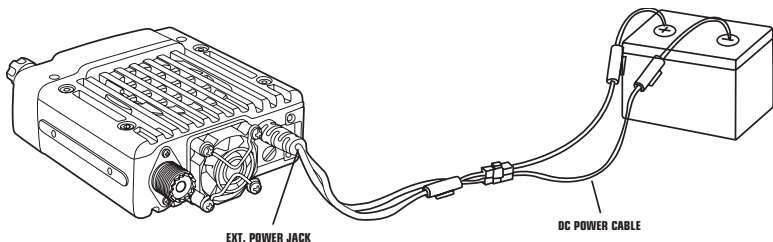
The vehicle battery must have a nominal rating of 12V. Never connect the radio to a 24V battery. Be sure to use a 12V vehicle battery that has sufficient current capacity. If the current to the radio is insufficient the display may darken during transmission or transmitting output power may drop dramatically.

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 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 dressed so it is isolated from heat, moisture and the engine secondary (high voltage) ignition system/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.

# INITIAL INSTALLATION

## DC POWER CABLE CONNECTION (CONT.)

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



# INITIAL INSTALLATION

## FIXED STATION OPERATION

In order to use this radio for fixed station operation you will need a separate 13.8V DC power supply (not included). The recommended current capacity of your power supply is 12A.

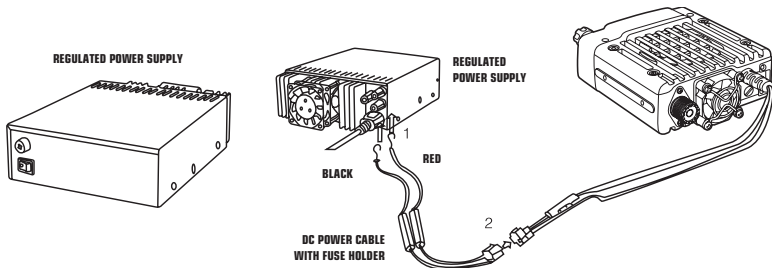
1. Connect the DC power cable to the regulated DC power supply and ensure that the polarities are correct. (Red: positive; Black: Negative). Use the supplied DC power cable to connect the radio to a regulated power supply. Do not substitute a cable with smaller gauge wires.
2. Connect the radio's DC power connector to the connector on the DC power cable.

# INITIAL INSTALLATION

## FIXED STATION OPERATION (CONT.)

3. Press the connectors firmly together until the locking tab clicks.

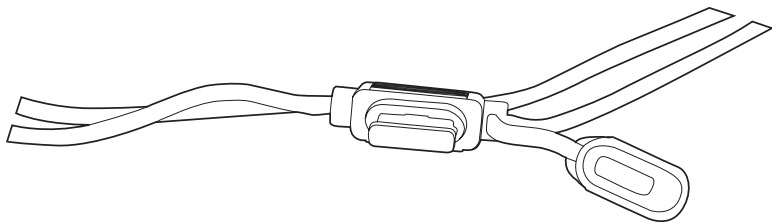
**Note:** Before connecting the DC power to the radio be sure to switch the radio and the DC power supply OFF. Do not plug the DC power supply into an AC outlet until you make all connections.



# INITIAL INSTALLATION

## REPLACING FUSES

If the fuse blows, determine the cause then 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
Supplied accessory DC power cable	20A

**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.

## ANTENNA CONNECTION

Before operating, install an efficient well-tuned antenna. The success of your installation will depend largely on the type of antenna and its correct installation. The radio can give excellent results if the antenna system and its installation are given careful attention. Use a  $50\Omega$  impedance antenna and low-loss coaxial feed-line that has a characteristic impedance of  $50\Omega$ , to match the radio input impedance. Coupling the antenna to the radio via feed-lines having a impedance other than  $50\Omega$  reduces the efficiency of the antenna system and can cause interference to nearby broadcast TV receivers, radio receivers and other electronic equipment.

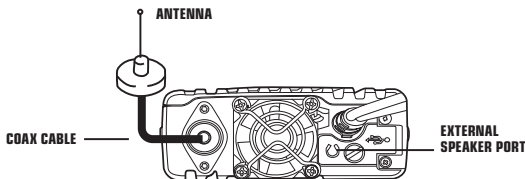
**Note:** Transmitting without first connecting an antenna or other matched load may damage the radio.

Always connect the antenna to the radio before transmitting. All fixed stations should be equipped with a lightning arrester to reduce the risk of fire, electric shock and radio damage.

## INSTALLING THE ANTENNA

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. Where you locate your antenna does make a difference!

1. Avoid metal surfaces covered by fiberglass or vinyl that may affect radio range.
2. Mount the antenna as high on the vehicle as possible. The higher the better.
3. If possible, mount the antenna in the center of whatever surface you choose.
4. Be sure the mounting location is clean and dry before installing the antenna.
5. Route the antenna cable through an accessible entry point, such as a door or trunk opening.
6. When routing the antenna cable inside the vehicle, keep the cable away from noise sources, such as the ignition system, gauges, etc.
7. Exercise care to prevent cable damage. Make use of existing gaskets, grommets and weather stripping to protect the cable along its route.

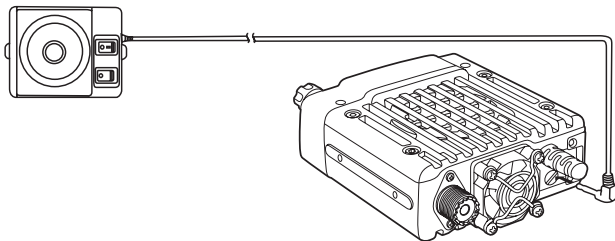


**Important:** Mount antenna up high and do not coil-up excess cable.

# ACCESSORY CONNECTIONS

## EXTERNAL SPEAKERS

If you plan to use an external speaker, choose a speaker with an impedance of  $8\Omega$ . The external speaker jack accepts a 3.5mm mono (2-conductor) plug. When an external speaker is connected, the radios internal speaker is automatically disabled.



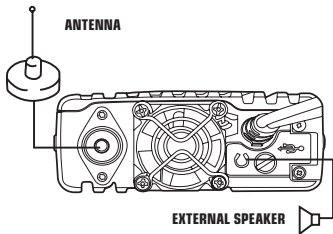
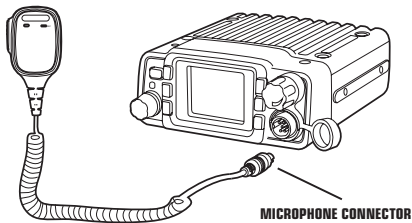


# ACCESSORY CONNECTIONS

## MICROPHONE

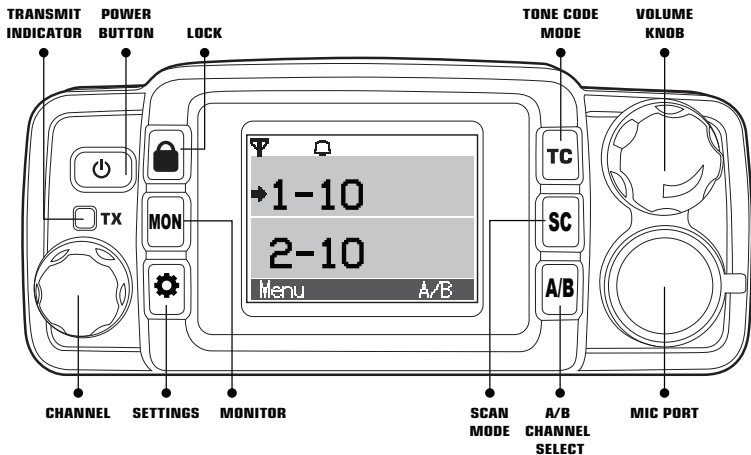
For voice communications, connect the handmic supplied into the modular socket on the front of the panel and tighten the connector nut. Attach the supplied microphone hanger in an appropriate location using the screws included in the screw set.

**Note:** Disconnect the hand mic if you are using a microphone equipped accessory connected to the 5-pic cable at rear of the radio.



# GETTING ACQUAINTED

## FRONT PANEL OPERATION



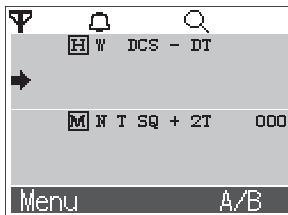
# GETTING ACQUAINTED

## FRONT PANEL ICONS

Key	Function
Power	Press and hold button for 1 second to turn on or off.
Volume Knob	Turn clockwise/ counterclockwise to raise/ lower volume
Channel Knob	Change frequency, memory channel and scan direction, etc
Gear	Push and hold to access the Function settings
Lock	Push and hold to lock/ unlock the radio
Monitor	Hold to temporarily change the squelch to zero allowing you to hear very weak signals
TC	Short press to enter tone code mode
	Long press to select RX/ TX tone codes
SC	Long press to scan channels
A/B	Press to change between top and bottom channel bank
TX	Transmit indicator light will turn red when transmitting
Mic Port	If connecting to intercom, do not connect hand mic

# GETTING ACQUAINTED

## DISPLAY

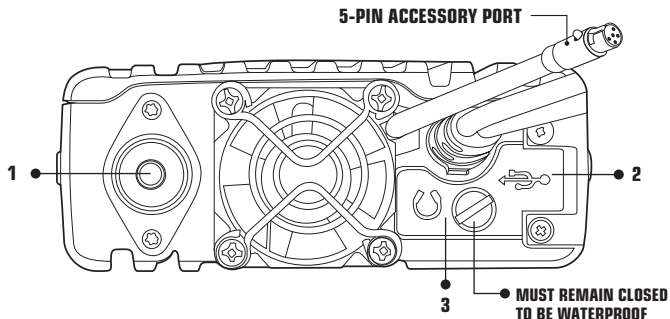


Icon	Function
000	Memory Channel Number
<b>H M L</b>	High Power Output / Middle Power Output/ Low Power Output
T	CTCSS Encode
SQ	CTCSS Decode
DCS	DCS Encode and Decode
	Beep
+	Positive Direction of Offset
-	Negative Direction of Offset
	Home Screen Position
	Scan
	Locked Keypad

# GETTING ACQUAINTED

## REAR PANEL OPERATION

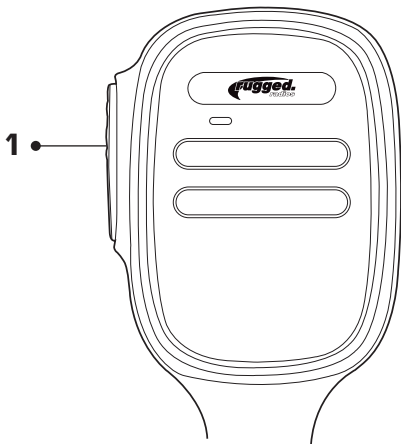
No.	Port	Function
1	ANT	Connection for 50Ω antenna
2	DATA	PC programming data port for manufacturing only.
3	EXT SP	Terminal for optional external speaker



# GETTING ACQUAINTED

## MICROPHONE


No.	Icon	Function
1	PTT	Press the key to transmit



## TRANSMITTING

Feature	Icon	Function
Menu	PTT	Hold microphone approximately 1 to 2.5 inches from mouth, press key (#1 shown on page 22), and speak into microphone.

## MENU

Feature	Icon	Function
Menu		To enter the Menu, press and hold [  ] key. To exit, press the [PTT] button



## MENU OPTIONS

Feature	Function
Squelch	(Increases/decreases the sensitivity of the radio receiver) OFF: Receiver completely open 1: Receiver at highest sensitivity 9: Receiver at lowest sensitivity Default: Squelch setting is 5
Back Light	(Controls back-lighting of display) ON: Display stays on continuously 5S: Display stays on for 5 seconds after seconds of last button press 10S: Display stays on for 10 seconds after last button press
Scan Skip	(Enables individual channels to be skipped during scan) Disable: The channel currently displayed will be skipped Enable: The channel currently displayed will be scanned when scan is active
Single Monitor Display	Show voltage or blank
Dual Monitor Display	Dual Monitor - Turn On or Off
Radio Info	Shows firmware version

## TROUBLESHOOTING

<b>Problem</b>	<b>Possible Cause and Potential Solutions</b>
(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. 3.5mm external speaker jack is occupied.
(d) Key and Dial do not function.	Key-lock function is activated. Cancel Key-lock function.
(e) Rotating Dial will not change memory channel	Transceiver is in CALL mode. Radio is transmitting.
(f) PTT key is pressed but transmission does not occur	Microphone connection is poor: <ul style="list-style-type: none"><li>● Connect microphone properly.</li><li>● Antenna connection is poor.</li><li>● Connect antenna properly.</li><li>● Poor Sound</li><li>● Check cable connection.</li></ul>



# 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*

To toggle between numbered tone codes [EX: 22] and actual tone codes [EX:141.3], press [A/B] when in tone code menu. Only radios produced after March 1, 2022 (signified by a waterproof power connector) are equipped with this feature.

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*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*

To toggle between numbered tone codes [EX: 22] and actual tone codes [EX:141.3], press [A/B] when in tone code menu. Only radios produced after March 1, 2022 (signified by a waterproof power connector) are equipped with this feature.

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ABOUT OUR INDUSTRY LEADING GMRS RADIOS**

## 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

<b>Channel</b>	<b>Transmit Frequency (MHz)</b>	<b>Receive Frequency (MHz)</b>
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	GMRS
Frequency stability	$\pm 1$ ppm
Operating temperature	-30°C ~ +60°C
Operating voltage	13.8V DC
Dimension	107x125x45mm

## RECEIVER

Sensitivity	0.2 $\mu$ V
Inter modulation	$\geq 60$ dB/ $\geq 65$ dB
Spurious rejection	$\geq 70$ dB
Audio response	+1 ~ -3dB
Audio distortion	<5%
FM hum and noise	$\geq 45$ dB@25KHz $\geq 40$ dB@12.5KHz
Rated audio	3W

# SPECIFICATIONS

## TRANSMITTER

Maximum Output power	High - 25 watts Medium: 15 watts Low: 5 watts
Transmitting current	4A@13.8V
Standby current	0.2A@13.8V
FM modulation	Narrow band: 11K0F3E
Modulation distortion	<5%
FM hum and noise	≥45dB@25KHz ≥40dB@12.5KHz
Adjacent channel power	≥60dB@12.5KHz ≥70dB@25KHz
Audio response	+1~-3dB



## NOTES

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