This radio generates RF electromagnetic energy during transmission. This radio is classified as "Occupational Use Only," meaning it should only be used by those who are properly trained and aware of potential hazards, and not by general consumers in an uncontrolled environment. This radio has been tested and complies with FCC RF exposure limits. In addition, this radio complies with the following guidelines with regard to RF energy, electromagnetic energy levels and exposure to humans.

IEEE Std. 1528:2013 and KDB447498 Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields

American National Standards Institute (C95.1-1992) IEEE Standard for Safety Levels with Respect to Human Exposure Institute to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz

American National Standards Institute (C95.3-1992) IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave
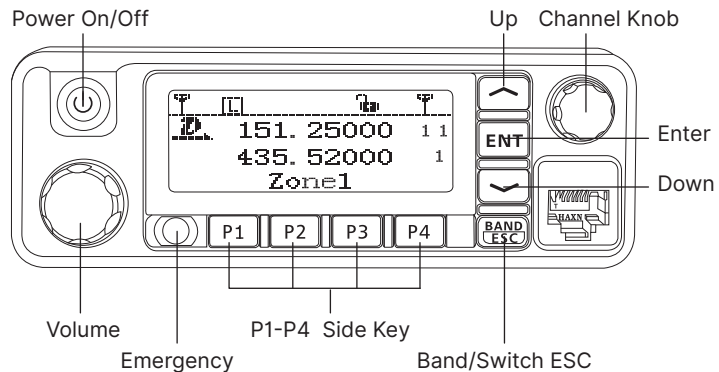
RF energy can potentially interfere with other devices. To avoid such interference, turn off the radio in areas where you are indicated to do so. DO NOT operate the radio in areas that are sensitive to electromagnetic radiation, such as hospitals, airports, or demolition sites.

This radio complies with IEEE and ICNIRP exposure limits for occupational RF exposure. An appropriate warning label is affixed to all units. In order to comply with such limits, a minimum distance of at least 2.5cm must be maintained. Any body worn usage should be restricted to approved accessories, such as belt clips. Do not use this device if the antenna shows obvious damage.
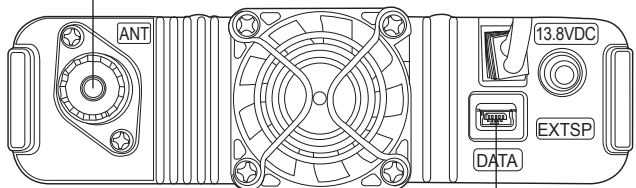
For more information refer to https://apps.fcc.gov/oetcf/eas/reports/GenericSearch.cfm and search FCC ID: POD-DMR3

Table of Contents

Radio Overview

Power On/Off

Up   Channel Knob

151.25000   1 1
435.52000   1
Zone1

Enter

Down

Volume

P1-P4   Side Key

Emergency

Band/Switch ESC

P1 P2 P3 P4

BAND
ESC

ENT

Antenna Connection

ANT

13.8VDC

EXTSP

DATA

Programming Cable
Connection

5	4
1	6
7	3
	2
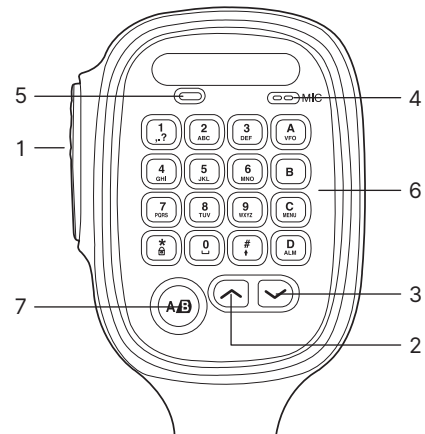
	Icon	Function
1	PTT	Press to transmit
2	︿	Increase volume or setting value
3	﹀	Decrease volume or setting value
4	MIC	Speak here during transmission
5	Indicator Light	Light is red during transmission
6	Number Keys	Input channel number or DTMF dial out
7	A/B	Swap between home and sub screen

Safety Precautions

Before using this radio, please read this manual which contains important information about safe usage, RF energy awareness, control information, and operational instructions for compliance with RF energy exposure limits.

Radio Features

- Output Power: 50W
- Dual Band
- Dual Display
- Dual Time Slot
- 1,000 Channels
- 1,000 Contacts
- 250 Zones
- Private Call
- Group Call (Digital Mode)
- Record
- 1750 Hz
- Talkaround
- Scan
- Encryption
- Side Key Programmable
- Lone Worker
- Emergency
- Monitor
- Squelch
- VOX
- Remote Kill/Stun
- Group/Single Match

Function Overview

Power On
Press the power button for 1 second. The LED indicator will light up and the home screen will appear. Note: If alert tones are turned off, there will be no sound during power on.

Volume Adjustment
Turn the volume knob clockwise to increase volume or counterclockwise to decrease.

Send & Receive Calls

Zone Selection
Zone is a channel group.

- Press ENT key to enter menu.
- Select 'Zone' and hit ENT.
- Use 'Zone List' to browse current zones.

ID Selection of Channels, User ID, or Group ID
Select a zone, then use the channel knob to select a channel, user name or ID, or group ID.

Receiving and Responding to Single and Group Calls
A single call is a one-on-one call between two radios. The radio must be part of a group to be able to receive a group call.

When receiving a call:

- The LED indicator will be on.
- The top of the screen will display the RSSI mark with the group name, incoming caller ID, and icon (only in digital mode).
- Hold the hand mic 1.5 inches from your mouth.
- Press the Push to Talk (PTT) button to respond to the call. Release the PTT to receive transmission.
- If there is no activity, the call will end.

All Call
All Call is used to transmit important information to all other users on a channel.

When receiving a call:

- The LED indicator will be on.
- The top of the screen will display the RSSI mark with the group name, incoming caller ID, and icon (only in digital mode).
- You will receive the transmission. Once transmission is over a sound will indicate that the channel is free to use again.

Starting a Call
You can choose a channel, user ID, group ID or group call in the following ways:

• The Channel Knob   • Contacts
• A Pre-programmed Key   • Manual Dialing (Only for single calls)

Starting a Single or Group Call
The radio will need to be part of a group in order to make a group call.

• Turn the channel knob to select to select the desired user ID. It is also possible to assign channels to P1-P4 side keys.
• Hold the hand mic 1.5 inches from your mouth and press the PTT to transmit.
• The top of the screen will display the RSSI mark with the group name, incoming caller ID, and icon (only in digital mode).
• Release the PTT to receive transmission.
• If there is no activity, the call will end, or may have failed.

All Call
The radio must be programmed with this function in order to use it.

• Turn the channel knob to select to select the desired group ID.
• Hold the hand mic 1.5 inches from your mouth.
• Press the PTT to transmit. During All Call, no one on this group channel can respond.

Menu Overview

Keypad Operation
The hand mic keypad can be used to input alphanumeric characters. The chart below details which characters are available per key.

KEY	Available Characters
1	1 . , ? ! @ & ' % - : * #
2	a b c 2 A B C
3	d e f 3 D E F
4	g h i 4 G H I
5	j k l 5 J K L
6	m n o 6 M N O
7	p q r s 7 P Q R S
8	t u v 8 T U V
9	w x y z 9 W X Y Z
0	0 blank space
*	*
#	Switch input mode

Menu Operation

• Press **ENT** to enter menu mode.
• Press **⌃** **⌄** to select the desired menu item.
• Press **ENT** again to make a selection.
• Press **ESC** to return to home screen.

Advanced Features

Both the long and short press functions of side keys 1-4 can be reprogrammed with software to perform the following functions:

- No function
- Turn warning tones on/off
- Emergency on
- Emergency off
- High/low power
- Monitor
- One touch access

- Repeater/talk around
- Scan on/off
- Tight/normal squelch
- Privacy on/off
- VOX on/off
- Zone select
- Lone work on/off

- Record on/off
- Record playback
- Delete all recordings
- Recording replay
- 1750Hz

This radio has 1,000 channels, 1,000 contacts, and 250 zones, which can add 64 channels.

rt SYSTEMS

To program your radio and to access advanced features, visit rtsystemsinc.com, or contact them at 800-921-4834

Monitor
Monitor opens the squelch on your radio completely, allowing you to hear weak signals. When Monitor Mode is on you will see the (speaker) icon.

Start Monitor Mode

- Hold P3 to start or stop Monitor Mode.

Message Function (Digital Mode Only)
Send and receive text based messages.

- In Menu Mode, select Messages.
- When the cursor appears, use the keypad on the hand mic to write your message. Use the ⏶ ⏷ keys to move the cursor backward or forward if needed, and press ESC to delete characters.
- Hit ENT to either send or save your message.

Quick Text
The radio can save up to 50 saved messages for you to send out at any time. You will have the option to edit the message before sending.

- In Menu Mode, select Messages, then Quick Text.
- Highlight the message you wish to send and press ENT .
- Press ENT to either save or send your message.
- A prompt will confirm that your message was either sent successfully or unsuccessfully.

Sent Messages & Drafts
Sent Messages and Drafts can be reviewed under the Messages menu at any time. You will have the option to edit, resend, or delete all of these messages.

Dual Tone Multi-Frequency Mode (DTMF)
DTMF mode is on by default and allows the radio to operate when there is interference in the radio system.

Utilities
The following options are included under utilities:

- Radio Settings
- Radio Info

Radio Settings

The following options are included under Radio Settings:

- Tones/Alerts
- Power
- Backlight
- Squelch
- Keypad Lock
- Record
- Clock
- Mode

Tones/Alerts
Use this option to enable or disable radio alert tones and keypad tones.

Power
Set the transmit power level for each channel, with high power transmitting at a distance and low power transmitting at closer range.

Backlight
Enable or disable the radio backlight. Note that this also controls the keypad backlight setting.

Squelch
Squelch acts as a filter for incoming radio frequencies. Normal is the default setting.

Keypad Lock
Automatically lock the keypad after a set period of time to prevent accidental input. To unlock the keypad, hold the * key until the radio screen indicates that the keypad is unlocked.

Record
When the record function is on, each digital call will be recorded and stored on the radio. Up to 8 hours can be recorded in total. Use this function to turn the Record function on or off.

Clock
Use this function to adjust the time and date on your radio.

Mode
Switch between CH mode and MR mode. By default the radio is in CH mode, and it is recommended to not change this setting.

Technical Parameters

Specifications may be revised without notice due to technical improvement.

General

Frequency Range	136-174MHz	400-480MHz
Channel	1000	
PLL Channel Spacing	6.25/25/12.5/25KHz	
Voltage Rating	DC 13.8V	
Operating Temperature	-30°C ~ +60°C	
Storage Temperature	-30°C ~ +85°C	
Dimensions	143mm x 50mm x 175mm	
Compatible with US Military Standard	MIL-STD-810C/D/E	

Transmitter

RF Power Output	L:25W H:50W (VHF)	L:25W H:35W (UHF)
FM Hum & Noise	-40dB @ 12.5kHZ	-45dB @ 25kHZ
Modulation Limited	+/-2.5kHz @ 12.5kHZ	+/-5kHz @ 25kHZ
Conducted/Radiated Emission	-36dBm < 1GHz	-30 dBm > 1GHz < 4GHz
Adjacent Channel Power	-60dB @ 12.5kHZ	-65dB @ 25kHZ
Audio Response	+1dB ~ -3dbB	
Audio Distortion	3%	
FM Modulation	12.5kHZ:11KOF3E	25kHZ:16KOF3E
4FSK Digital Modulation	12.5kHZ only data: 7K60FXD	12.5kHZ data and audio: 7K60FXE
Digital Protocol	ETSI TS 102361-1, -2, -3	
Digital Vocoder Type	AMBE++	
Digital Agreement	DMR	

Receiver

Frequency Stability (-20°C, +60°C, +25°C)	+/-1.0ppm	
Digital Sensibility	0.3uV/-117.4dBm(BER 5%)	0.7uV/-110dBm(BER1%)
Analogue Sensibility	0.35uV/-116dBm(20dB SINAD)	
	0.22uV/-120dBm(20dB SINAD)	
Rated Audio	5W	
Adjacent Channel Sensitivity	TIA603C:60dB @ 12.5kHz	ETSI: 60dB @ 12.5 kHZ
Intermodulation	TIA603C:65dB	ETSI: 65dB
C0 Channel Rejection	12dB @ 12.5kHz	
Spurious Rejection	TIA603C:70dB	ETSI: 70dB
Audio Distortion @ Rated Audio	≤3%	
FM Hum & Noise	-40dB@12.5kHZ	-45dB @ 25kHZ
Audio Response	+1dB ~ -3dbB	
Spurious Emission	-57dBm @ < 1GHz	-47dBm @ 1GHz
Block	84dB	

Warranty Registration

Rugged Radios Intercoms, Radios, and Headsets are backed by a 3-year warranty. For more information, or to register your product, please visit our website.

Product Registration: **ruggedradios.com/warranty**
Questions: **888.541.7223**

When registering your product, or requesting a warranty over the phone, the following information will be required:

Model Number
Serial Number
Purchase Date
Purchase Location

Notes

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