



## rugged radios RDM-DB Digital Business Band Mobile Radio with Antenna Instruction Manual

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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.

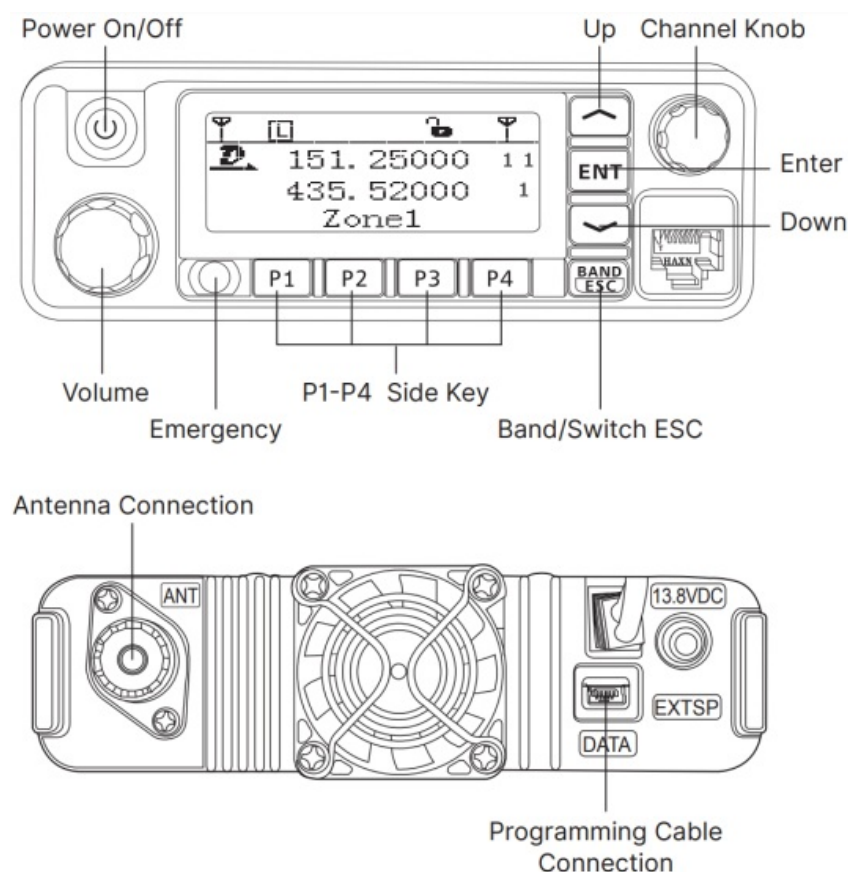
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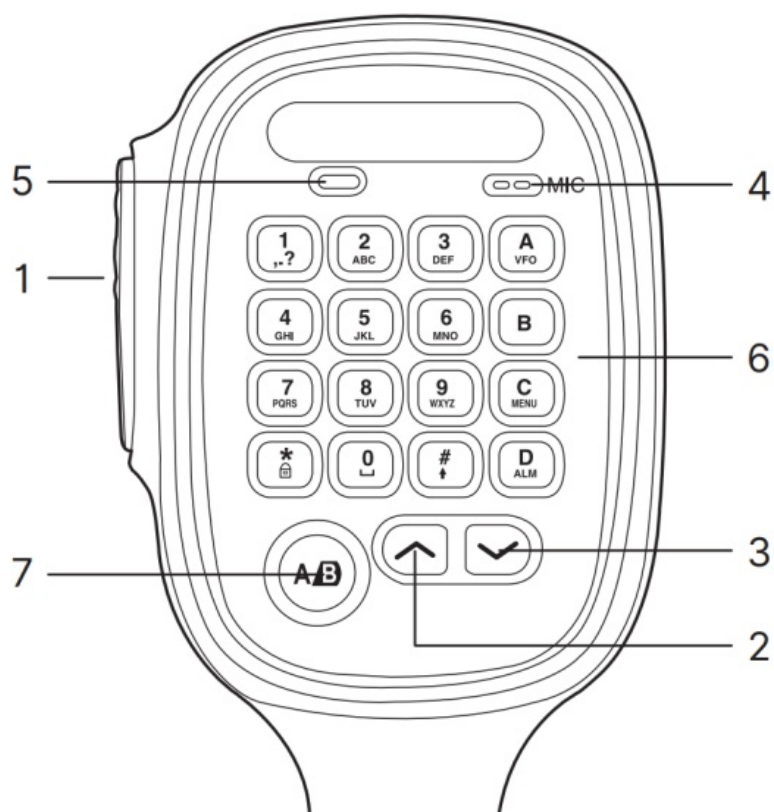
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## Safety Precautions

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 Overview





## 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

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

## 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
- A Pre-programmed Key
- Contacts
- 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.



To program your radio and to access advanced features, visit [rtsystemsinc.com](http://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
- Keypad Lock
- Power
- Record
- Backlight
- Clock
- Squelch
- 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 ~ -3dB
- **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@12.5k HZ-45dB @ 25kHz
- **Audio Response:** +1dB ~ -3dB
- **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](https://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**



**Documents / Resources**

	<a href="#">rugged radios RDM-DB Digital Business Band Mobile Radio with Antenna</a> [pdf] Instruction Manual RDM-DB, Digital Business Band Mobile Radio with Antenna, RDM-DB Digital Business Band Mobile Radio with Antenna
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**References**

-  [Welcome to RT Systems, Inc. - Radio Programming Made Easy!](#)
-  [Returns and Warranty – Rugged Radios](#)
-  [System Maintenance | Federal Communications Commission](#)