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Radtel RT-6D PRO

Radtel RT-6D PRO DMR Radio Instruction Manual

Model: RT-6D PRO

1. INTRODUCTION

The Radtel RT-6D PRO DMR Radio is a dual-band two-way communication device designed for both amateur radio enthusiasts and professional users. It supports DMR Tier 1 and Tier 2 digital operations, as well as traditional analog communication, across VHF (144-148MHz) and UHF (420-450MHz) frequency ranges. This manual provides essential information for the proper setup, operation, and maintenance of your RT-6D PRO radio.



Figure 1: Radtel RT-6D PRO DMR Radio

2. PACKAGE CONTENTS

Verify that all items are present in your package:

- 1x RT-6D PRO Main unit
- 1x 2400mAh Li-ion Battery
- 1x Dual band antenna
- 1x Belt Clip
- 1x Charging base
- 1x Type-C Power cable
- 1x English User Manual

3. PRODUCT OVERVIEW

3.1 Radio Components



Figure 2: Raddtel RT-6D PRO Labeled Components

Familiarize yourself with the main parts of your radio:

- **Antenna:** For transmitting and receiving signals.
- **Channel Knob:** Used to select channels.
- **Volume/ON/OFF Button:** Controls power and audio volume.
- **Indicator Light:** Displays radio status (e.g., transmitting, receiving, charging).
- **PTT1 / PTT2:** Push-to-Talk buttons for initiating transmissions.
- **Side-key:** Programmable function button.
- **Keypad:** For manual frequency input, menu navigation, and DTMF tones.
- **Speaker:** Outputs received audio.
- **Earphone Jack:** For connecting external audio accessories.
- **Type-C Charging/Programming Port:** For battery charging and connecting to a computer for programming.

3.2 Key Features

- **GPS and APRS Functionality:** Integrated GPS for location services and APRS for position reporting.
- **Promiscuous Mode:** Automatically scans and monitors digital channels for active talk groups and color codes.
- **USB Type-C Port:** Conveniently handles both charging and programming.
- **Large Data Capacity:** Stores 2,000 contacts, manages 90 Talk Group lists (up to 128 groups each), and accesses a global database of 500,000 contacts with CSV import capability.
- **Channel and Zone Capacity:** Supports 256 zones and 1024 channels.
- **Encryption:** Operates with AES-256 encryption protocols.
- **One-Touch Frequency Scanner:** Simplifies signal identification.
- **NOAA Weather Alerts:** Provides live weather feeds.



Figure 3: Radel RT-6D PRO Feature Icons

4. INITIAL SETUP

4.1 Battery Installation and Charging

1. Align the 2400mAh Li-ion battery with the battery compartment on the back of the radio.
2. Slide the battery into place until it clicks securely.
3. To charge, connect the Type-C power cable to the radio's Type-C port and a compatible power source (e.g., wall adapter, car charger, power bank, or computer USB port). The indicator light will show charging status.

4.2 Antenna Attachment

1. Screw the dual-band antenna clockwise onto the antenna connector at the top of the radio until it is finger-tight. Do not overtighten.

4.3 Basic Power On/Off

1. To power on, rotate the Volume/ON/OFF button clockwise until you hear a click and the display illuminates.
2. To power off, rotate the Volume/ON/OFF button counter-clockwise until you hear a click and the display turns off.

5. BASIC OPERATION

5.1 Channel Selection

Rotate the Channel Knob at the top of the radio to cycle through available channels. The selected channel will be displayed on the screen.

5.2 Adjusting Volume

After powering on, rotate the Volume/ON/OFF button to increase or decrease the audio output level.

5.3 Transmitting and Receiving

1. To transmit, press and hold one of the PTT (Push-to-Talk) buttons (PTT1 or PTT2) on the side of the radio. Speak clearly into the microphone.
2. Release the PTT button to stop transmitting and return to receive mode.
3. When receiving a signal, the indicator light will illuminate, and audio will be heard through the speaker or connected earphone.

5.4 Contact Management

The RT-6D PRO supports extensive contact management features:

- **Local Contacts:** Store up to 2,000 individual contacts.
- **Talk Group Lists:** Manage up to 90 Talk Group lists, each supporting up to 128 groups.
- **Global Database:** Access a built-in global database of 500,000 contacts.
- **Import Functionality:** Import custom contact lists via CSV files for streamlined call management.



Figure 4: Contact Management Interface

5.5 GPS and APRS Functions

The integrated GPS module allows the radio to determine its location. This data can be used for APRS (Automatic Packet Reporting System) to transmit your position to other APRS-enabled devices or networks.

5.6 NOAA Weather Alerts

The radio can receive NOAA weather alerts, providing timely information on severe weather conditions in your area.

6. ADVANCED FEATURES

6.1 DMR Tier 1 & Tier 2 Operation

The RT-6D PRO supports both DMR Tier 1 (unlicensed, direct mode) and Tier 2 (licensed, repeater mode) digital communication, offering enhanced audio quality and spectral efficiency compared to analog modes.



Figure 5: 1024 Channel Capacity and Call Types

6.2 Promiscuous Mode

This mode allows the radio to automatically scan and monitor all digital channels, identifying active talk groups and color codes without prior programming, facilitating seamless communication in dynamic environments.

6.3 Encryption Protocols (AES-256)

For secure communications, the RT-6D PRO supports AES-256 encryption, ensuring privacy and preventing unauthorized interception of your transmissions.

6.4 Programming via Type-C Port

The radio can be programmed using Customer Programming Software (CPS) via the Type-C USB port. This allows for customization of channels, contacts, talk groups, and other advanced settings. Refer to the specific CPS software manual for detailed programming instructions.

10w High Power For Longer Distance



Figure 6: 10W High Power Transmission

7. SAFETY INFORMATION

Please read and adhere to the following safety guidelines to ensure safe operation and prevent damage to your radio:

- **Operating Environment:** Operate the radio in environments with temperatures between 0-40°C and below 2000m altitude. Operating outside these conditions may damage the radio.
- **SAR Values:** The radio has been tested for Head SAR (25mm from device) and Body SAR (0mm from device, with headset and belt clip). Specific Absorption Rate (SAR) values are: Face up (25mm): 0.277W/Kg; Back (0mm): 4.061W/Kg; Hand (0mm): 4.270W/Kg.
- **Battery Safety:** Risk of explosion if the battery is replaced by an incorrect type. Dispose of used batteries according to local regulations.
- **General Warnings:** Be cautious of electric shock, flammable materials, and ionizing radiation.

DEUTSCH

INFORMATIONEN ZUR SICHERHEITSERKLÄRUNG

Wir erklären, dass das Funkgerät der Funkgeräterichtlinie 2014/53/EU entspricht. Das Gerät in der Umgebung mit der Temperatur zwischen 0-40°C und arbeitet unter 2000m, sonst kann es Ihr Radio beschädigen.

Für dieses Gerät wurde Head SAR und Body SAR mit dem Gerät durchgeführt, das in den Positionen gemäß EN IEC/IEEE 62209-1528:2021 konfiguriert ist, und Face-up SAR wurde mit dem Gerät 25mm vom Phantom durchgeführt, und Body SAR wurde mit dem Gerät 0mm vom Phantom durchgeführt. Body SAR wurde auch mit dem Headset und Gürtelclip befestigt und ohne durchgeführt.

Die maximalen Ergebnisse von SAR (50% Betriebszyklus) wie folgt:

Gesicht nach oben (25mm): 0.277W/Kg

Rückenteil (0mm): 4.061W/Kg

Hand (0mm): 4.270W/Kg

VORSICHT:

Explosionsrisiko, wenn die Batterie durch einen fehlerhaften Typ ersetzt wird. Entsorgung gebrauchter Batterien gemäß den Anweisungen.





Be careful of electric shock FLAMMABLE MATERIALS WARNING IONIZING RADIATION

Figure 7: Safety Declaration (German original, summarized above)

8. MAINTENANCE AND CARE

Proper care will extend the life of your Radtel RT-6D PRO radio:

- **Cleaning:** Use a soft, damp cloth to clean the radio's exterior. Do not use harsh chemicals or solvents.
- **Water Resistance:** This radio is **Not Water Resistant**. Avoid exposure to water, rain, or high humidity.
- **Battery Care:** Store the battery in a cool, dry place when not in use. Avoid overcharging or fully discharging the battery frequently.
- **Storage:** When storing for extended periods, remove the battery and store the radio in a dry, dust-free environment.

9. TROUBLESHOOTING

9.1 Common Issues and Solutions

| Issue | Possible Cause | Solution |
|--|---|--|
| Radio does not power on | Low or depleted battery; improperly installed battery. | Charge the battery fully. Ensure the battery is correctly installed. |
| Poor signal reports or audio quality | Loose antenna connection; incorrect microphone gain setting; wrong frequency/channel. | Ensure antenna is securely attached. Adjust microphone gain via CPS if available. Verify correct frequency and channel settings. |
| Difficulty programming via Type-C port | Incorrect CPS version; driver issues; antivirus interference; faulty cable. | Download the latest CPS from the official Radtel website. Install necessary drivers. Temporarily disable antivirus software during installation/programming. Try a different Type-C cable. |
| Incorrect time display or GPS issues | Firmware bug; poor GPS signal reception; incorrect UTC offset setting. | Check for firmware updates. Ensure the radio has a clear view of the sky for GPS signal acquisition. Verify UTC offset settings in the radio menu or CPS. |

| Issue | Possible Cause | Solution |
|--------------------------------------|--|--|
| Radio stops receiving intermittently | Software/firmware issue; channel interference. | Restart the radio. Try switching to a different channel and then back. Check for firmware updates from Radtel. |

10. SPECIFICATIONS

| Feature | Specification |
|------------------------|--|
| Model Number | RT-6D PRO |
| Item Weight | 1.45 pounds |
| Product Dimensions | 1.5 x 2.36 x 9.84 inches (radio body: 1.57"D x 2.36"W x 10.23"H) |
| Battery Type | 1x 9V Li-ion battery (included) |
| Number of Channels | 1024 |
| Frequency Range | 144-148Mhz / 420-450Mhz |
| Talking Range Maximum | 6 Kilometer |
| Voltage | 7.4 Volts |
| Water Resistance Level | Not Water Resistant |
| Special Features | GPS/APRS, Type C Charging, Digital/Analog, 500K Global Contacts |



Figure 8: Rattel RT-6D PRO Dimensions

11. WARRANTY AND SUPPORT

11.1 Warranty Information

The Rattel RT-6D PRO radio comes with a **1-Year Warranty**. Please retain your proof of purchase for warranty claims.

11.2 Customer Support

For technical assistance, troubleshooting beyond this manual, or warranty inquiries, please contact Rattel customer support through their official website or the retailer where the product was purchased. Ensure you have your model number and purchase details ready when contacting support.