



# RD965

## Outdoor DMR repeater

RD965 is Hytera's first digital/analog outdoor repeater which is developed in compliance with the ETSI DMR standard. Thanks to its compact design and the embedded mini duplexer the RD965 is easy to use. Equipped with a wide selection of components, RD965 easily fits into various application scenarios, whether carried on your back, wall-mounted or installed in an equipment rack. It supports a wide range of power supply plans to guarantee uninterrupted communication during emergencies. The repeater provides IP67 protection, making it reliable in any rough operating environment.



# Repeater

## RD965

Outdoor DMR repeater



### Highlights

#### GPS

The GPS module enables emergency command centers to monitor the location of a small mobile network in real time if the repeater is used as mobile unit.

#### Smart Battery as backup (optional)

A 10Ah smart li-ion battery can support at least eight hours of work when working at 50% duty cycle and high TX power as backup power supply for outdoor or mobile operation. Compatible with the SMBus 1.1 standard, RD965 can monitor battery conditions such as estimated remaining capacity, used capacity percentage, and usage record. The repeater can also maximize the battery life through smart charge management to considerably enhance charging safety and reliability.

#### Repeater diagnostics and control

Through a PC-based application, the repeater can monitor, diagnose and control remote (connected to the Internet via an IP port) and local repeaters (via a USB port). Hytera's RDAC software supports network access at multiple points and allows the administrator to monitor networked two-way radios.

#### Voice Input/output via Dual Time Slots: easy for monitoring and voice recording

In digital mode, the device supports voice input and output via dual time slots and enables users to record calls continuously.

#### Digital/analog compatibility and smart switching

Back to back interconnection of digital & analog network can be achieved by wired or wireless IP, ensuring a smooth analog-to-digital transition.

#### Flexible networking

By connecting geographically distributed repeaters that run at the same or different frequencies to form an IP-based and location-independent wireless communication network, IP-based repeater interconnection allows mobile radios to obtain voice and data services while roaming. The RD965 repeater can be used together with RD985 in an network of repeaters.



## Innovative design

### Outdoor operation & IP67 protection

RD965 is strictly compliant with MIL-STD-810 C/D/E/F/G and IP67 standards, ensuring outstanding performance even in harsh environments.

### Slim and portable

Based on a compact design, the device measures only 42mm and weighs less than 5 kg, (include the 10Ah battery).

### 16 Channels

The product supports up to 16 channels. You can switch between channels using PCbased RDAC software, the channel selector knob on the front panel, or the external interface on the repeater.

### Upgradable Software

This enables you to easily add functions through software upgrade without purchasing a new device.



### Emergency port

The port allows power connection in emergencies.

### Digital-analog Interconnection for Smooth Transition

The feature enables two-way radios with digital and analog capabilities, and digital and analog users to intercommunicate in different operating modes to guarantee users' seamless transition from analog to digital capabilities.

### User-friendly panel

The operating panel provides a wide range of channel status indicators, a button for channel adjustment, and a port for palm microphone or remote speaker microphone.

### Flexible applications

RD965 can be desk or wall-mounted for in-building coverage, installed in a mobile suitcase or cabinet for emergency communications, or carried on the back for forest firefighting. The RD965 repeater is suitable for providing radio coverage inside tunnels and underground facilities like parking garages or the like.

## Technical Data

| General data  |   |
|---|---|
| Frequency range   | VHF: 136 MHz – 174 MHz<br>UHF1: 400 MHz – 470 MHz<br>UHF2: 450 MHz – 520 MHz<br>UHF3: 350 MHz – 400 MHz |
| Channel capacity  | 16  |
| Channel spacing   | 12.5 / 20 / 25 kHz  |
| Operating voltage   | DC: 13.6V 15%; Battery: 14.8V   |
| Current drain (Standby)   | ≤ 0.8 A   |
| Current drain (Transmit)  | ≤ 3.5 A   |
| Battery   | 10 Ah (Li-ion battery)  |
| Battery life (5-5-90 duty cycle, high TX power)                 | 8 h   |
| Frequency stability   | ± 0.5 ppm   |
| Antenna impedance   | 50 Ω  |
| Duty cycle  | 100 %   |
| Dimensions (H × W × D) (with standard battery, without antenna) | 52 × 183 × 302 mm (repeater & protection case)<br>42 × 172 × 280 mm (repeater without protection case)  |
| Weight  | 3.5 kg (without standard battery)   |

| Receiver  |  |
|---|--|
| Sensitivity analog                                    | 0.3 μV (12 dB SINAD)<br>0.22 μV (Typical) (12 dB SINAD)<br>0.4 μV (20 dB SINAD)      |
| Sensitivity digital                                   | 0.3 μV / BER 5 %   |
| <b>Blocking</b><br>TIA-603<br>ETSI                    | 90 dB<br>84 dB   |
| <b>Selectivity</b><br>TIA-603<br>ETSI                 | 65 dB at 12.5 kHz / 75 dB at 20 / 25 kHz<br>60 dB at 12.5 kHz / 70 dB at 20 / 25 kHz |
| <b>Intermodulation</b><br>TIA-603<br>ETSI             | 75 dB at 12.5 / 20 / 25 kHz<br>70 dB at 12.5 / 20 / 25 kHz                           |
| <b>Spurious response rejection</b><br>TIA-603<br>ETSI | 75 dB at 12.5 / 20 / 25 kHz<br>70 dB at 12.5 / 20 / 25 kHz                           |
| Hum and noise (S/N)                                   | 40 dB at 12.5 kHz; 43 dB at 20 kHz<br>45 dB at 25 kHz                                |
| Rated audio power output                              | 0.5 W  |
| Rated audio distortion                                | ≤ 3 %  |
| Audio response  | + 1 dB ~ - 3 dB  |
| Conducted spurious emission                           | - 57 dBm   |

| Transmitter                 |   |
|-----------------------------|---|
| RF power output             | 1 – 10 W (adjustable)   |
| FM Modulation               | 11 KΦF3E at 12.5 kHz<br>14 KΦF3E at 20 kHz<br>16 KΦF3E at 25 kHz    |
| 4FSK digital modulation     | 12.5 kHz data only: 7K6ΦFXD<br>12.5 kHz data & voice: 7K6ΦFXE       |
| Conducted/Radiated Emission | - 36 dBm < 1 GHz<br>- 30 dBm > 1 GHz                                |
| FM hum & noise              | 40 dB at 12.5 kHz<br>43 dB at 20 kHz<br>45 dB at 25 kHz             |
| Modulation limiting         | ± 2.5 kHz at 12.5 kHz<br>± 4.0 kHz at 20 kHz<br>± 5.0 kHz at 25 kHz |
| Adjacent Channel Power      | 60 dB at 12.5 kHz<br>70 dB at 20/25 kHz                             |
| Audio Response              | + 1 dB ~ - 3 dB   |
| Audio Distortion            | ≤ 3 %   |
| Digital Vocoder Type        | AMBE+ +   |
| Digital Protocol            | ETSI-TS102 361-1, 2 & 3   |

| Ambient data                |  |
|-----------------------------|--|
| Operating temperature range | - 30 °C ~ + 60 °C  |
| Storage temperature range   | - 40 °C ~ + 85 °C  |
| ESD                         | IEC 61000-4-2 (level 4)<br>± 8 kV (contact); ± 15 kV (air) |
| American military standard  | MIL-STD-810 C/D/E/F/G                                      |
| Dust & Water Intrusion      | IP67 Standard  |
| Humidity                    | Per MIL-STD-810 C/D/E/F/G Standard                         |
| Shock & vibration           | Per MIL-STD-810 C/D/E/F/G Standard                         |

| GPS                                 |              |
|-------------------------------------|--------------|
| TTFF (Time To First Fix) cold start | < 1 minute   |
| TTFF (Time To First Fix) hot start  | < 10 seconds |
| Horizontal accuracy                 | < 10 meters  |

All technical indications were tested according to the corresponding standards. Subject to change on the basis of continuous development.

Your Hytera partner:



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