



# RD965

## Outdoor DMR repeater

The RD965 is Hytera's first digital/analogue repeater for outdoor use that is compatible with the DMR standard. Thanks to its compact design, the device can be used in a number of application scenarios, whether carried on your back, mounted on a wall or installed in an equipment rack.



# Repeater

## RD965

Outdoor DMR repeater



### Highlights

#### GPS

The GPS module enables emergency control rooms to monitor the location of a small radio network in real-time if the repeater is being used as a mobile unit.

#### Small backup battery (optional)

The 10 Ah lithium-ion battery can support at least eight hours of operation at a duty cycle of 50% and boasts a high transmitting power as an emergency power supply, for outdoor operation and mobile use. RD965 is compatible with the SMBus 1.1 standard and can monitor battery statuses, such as the estimated remaining capacity. Intelligent charging management enables the battery to be charged automatically for later use. The three-stage battery protection enhances the safety and reliability of the charging process.

#### Repeater diagnostics and control system

Using a PC-based application, it is possible to monitor, diagnose, and control remote repeaters (via the IP interface with a network connected) and local repeaters (via USB port). Hytera's RDAC software supports network access at multiple points and enables the administrator to monitor two-way radios registered in the DMR radio network.

#### Voice input/output via dual timeslots

The device supports voice input and output via dual timeslots in digital mode and enables users to continuously record conversations.

#### 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, mobile radios can use voice and data services even when in roaming mode. The RD965 can be used with the RD985 in a repeater network.



## Innovative design

### Outdoor operation and IP67 degree of protection

RD965 fully complies with the standards MIL-STD-810 C/D/E/F/G and conforms to the IP67 degree of protection, ensuring exceptional performance, even in harsh conditions.

### Slimline and portable

With its compact design, the device measures a mere 52 mm in height and weighs less than 5 kg, including the 10 Ah battery.

### 16 channels

The repeater supports up to 16 voice channels. The user can switch between channels using the PC-based RDAC software, the channel selector switch on the front panel of the device, or the external interface on the repeater.

### Upgradeable software

New functions can be integrated easily and smoothly using software upgrades, meaning the user does not need to buy a new device.



### Digital/analogue connection

Using a back-to-back-connection between two repeaters, analogue radio networks can be connected to the DMR radio system, facilitating the smooth transition from analogue to digital radio technology.

### User-friendly control panel

The control panel has various indicators for the channel status, a button for the channel settings and a connection for a hand microphone or a remote speaker microphone.

### Flexible applications

The repeater can be mounted on tables and walls to provide mobile radio coverage within a building, installed in a mobile case or rack for emergency communication, or carried on your back for outdoor use. The RD965 repeater is also suitable for providing tunnels and underground facilities, e.g. underground car parks, with radio coverage.

## In the box



External Power Supply  
(84W) P57502

## Optional accessories



GPS antenna  
AN0141H03



Nylon backpack  
NCN010



Lithium-ion battery  
PV3001



Remote speaker micro-  
phone IP67 SM18A1



Various program-  
ming cables

The illustrations below are for reference purposes only. The products might differ from these illustrations.

## Technical Data

General data	
Frequency range	VHF: 136 MHz – 174 MHz UHF: 400 MHz – 470 MHz
Supported operating modes	<ul style="list-style-type: none"> <li>DMR Tier II in acc. with ETSI TS 102 361-1/2/3</li> <li>Analog</li> </ul>
Channel capacity	16
Zone capacity	1
Channel spacing	12.5 / 20 / 25 kHz (analog) 12.5 kHz (digital)
Operating voltage	13.6 ± 15% V <sub>DC</sub> Storage battery: 14.8 V
Max. power consumption (in stand by)	≤ 0.8 A
Max. power consumption (during transmission)	≤ 3.5 A
Standard battery	10 Ah (lithium-ion battery)
Battery life (5-5-90 operating cycle, high transmitting power, standard battery)	approx. 8 hours
Frequency stability	± 0.5 ppm
Antenna impedance	50 Ω
Dimensions (H × W × D)	52 × 183 × 302 mm (repeater with protective housing) 42 × 172 × 280 mm (repeater without protective housing)
Weight	3.5 kg (without standard battery)

Ambient data	
Operating temperature range	-30°C to +60°C
Storage temperature range	-40°C to +85°C
ESD	IEC 61000-4-2 (Level 4), ± 8 kV (contact), ± 15 kV (air)
Dust and water protection	IP67
Shock and vibration resistance	MIL-STD-810 C/D/E/F/G
Relative humidity	MIL-STD-810 C/D/E/F/G

GPS	
Time to first position recognition (TTFF) cold start	< 1 minute
Time to first position recognition (TTFF) warm start	< 10 seconds
Horizontal accuracy	< 10 meter

Your Hytera partner:



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Transmitter	
Transmitting power	1 – 10 W (adjustable)
Modulation	11 K0F3E at 12.5 kHz 14 K0F3E at 20 kHz 16 K0F3E at 25 kHz
4FSK digital modulation	12.5 kHz (data only): 7K6ΦFXD 12.5 kHz (data and voice): 7K6ΦFXW
Interfering signals and harmonics	-36 dBm (< 1 GHz) -30 dBm (> 1 GHz)
Modulation limiting	± 2.5 kHz at 12.5 kHz ± 4.0 kHz at 20 kHz ± 5.0 kHz at 25 kHz
Hum and noise	40 dB at 12.5 kHz 43 dB at 20 kHz 45 dB at 25 kHz
Adjacent channel selectivity	60 dB at 12.5 kHz 70 dB at 20 / 25 kHz
Audio sensitivity	+1 dB at -3 dB
Nominal audio distortion	≤ 3%
Digital vocoder type	AMBE+2™

Receiver	
Sensitivity (analogue)	0.3 μV (12 dB SINAD) 0.22 μV (typical) (12 dB SINAD) 0.4 μV (20 dB SINAD)
Sensitivity (digital)	0.3 μV / BER 5 %
<b>Adjacent channel selectivity</b> TIA-603 ETSI	65 dB at 12.5 kHz / 75 dB at 20 / 25 kHz 60 dB at 12.5 kHz / 70 dB at 20 / 25 kHz
<b>Intermodulation</b> TIA-603 ETSI	75 dB at 12.5 / 20 / 25 kHz 70 dB at 12.5 / 20 / 25 kHz
<b>Spurious response rejection</b> TIA-603 ETSI	75 dB at 12.5 / 20 / 25 kHz 70 dB at 12.5 / 20 / 25 kHz
Hum and noise	40 dB at 12.5 kHz, 43 dB at 20 kHz 45 dB at 25 kHz
Nominal audio power output	0.5 W
Nominal audio distortion	≤ 3%
Audio sensitivity	+1 dB at -3 dB
Conducted spurious emission	< -57 dBm

All technical information was determined at the factory and in accordance with the corresponding standards. Subject to change on the basis of continuous development.

Further information can be found at:

[www.hytera.co.uk](http://www.hytera.co.uk)

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Encryption features are optional and have to be configured separately. They are also subject to European export regulations.

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