



# RD985 / RD985S

DMR repeaters

The DMR repeaters RD985 and RD985S from Hytera are the heart of analog and digital radio networks and were developed in line with the open ETSI standard for DMR. Both repeaters are characterized by their reliability and outstanding functions. RD985 and RD985S – your digital advantages over the competition!



# Repeaters

## RD985

## RD985S

DMR repeaters



### Highlights

Both repeaters can be operated both in analog and in digital mode and are completely compatible with the analog systems currently in use. In addition, the RD985S is a true allrounder: As well as DMR trunked radio, it also supports use in Hytera XPT and synchronized radio systems.

Both repeaters were developed in conjunction with the open ETSI standard Digital Mobile Radio (DMR) and, thanks to their technical features, they are your perfect companion on the path toward digital radio.

#### Heart of professional radio systems

All the repeaters from Hytera can be connected in digital mode via IP connection to a comprehensive radio network. In analog mode, the repeaters can be connected together back-to-back. Both repeaters can switch independently between the digital and analog modes, depending on the type of the receiver signal. Both in conventional analog and DMR modes (DMR Tier II), the RD985 and RD985S repeaters can be used with the RD625 and RD965 repeaters in a radio system.

#### Upgradeable for greater challenges (RD985S)

The RD985S repeater supports not only conventional analog and digital modes, but also other modes that can be unlocked with an upgrade. It can be upgraded into a base station for DMR synchronization, DMR trunked radio or Hytera XPT radio systems. This means that the RD985S is a secure investment for growing radio projects.

#### Improved utilization of the frequency spectrum

Thanks to the TDMA technology, twice as many users can use the same channel, such as is the case with analog or digital FDMA systems. Due to the restricted frequency resources, this represents an important relief and reduces the expenses for system terminals and licenses.

#### Secure communication

To protect your radio communications against eavesdropping, the RD985 and RD985S repeaters possess advanced digital encryption functions, according to the DMRA specification. Depending on the variant, both repeaters support encryption with 40, 128 or 256 bit. With air interface encryption signaling and communications data between radios and repeaters are transmitted with reliable protection.

#### Increased reliability with repeater redundancy

Particularly in operationally critical communications it is essential to be able to rely on the radio infrastructure. To make doubly sure, spare repeaters can be connected to the radio system to act as backup. If the main repeater fails, the spare repeater can automatically take over.



## Powerful and reliable

### High transmitting power

Both repeaters offer an adjustable transmitting power of up to 50 Watt and therefore satisfy the high requirements for modern PMR radio systems.

### Extremely reliable

As they are designed to military standards, both repeaters offer consistently high reliability and excellent performance. Test results from independent laboratories have shown that the device can be operated for up to 100,000 hours without interference (MTBF) and it therefore meets the requirements for use in extreme situations.

### Flexible installation options

The RD985 and RD985S repeaters can be installed in a 19-inch equipment rack with an optional installation kit. Alternatively, they can be operated simply on a rack, a bracket or a table. With the additionally available installation kit, an optional duplexer can be housed in the chassis.

### High cooling capacity

The booster can dissipate any generated heat with extraordinary efficiency. In addition, the integrated fan system ensures stable and powerful operation.

### High-resolution 2-inch LCD color display

Whether during ongoing operation or during a maintenance task: You can easily access all the desired information via the large LCD color display.

### Professional design

Integrated LEDs on the volume controller complement the innovative repeater design and simultaneously optimize its use. The repeaters are easy to use thanks to their clear menus and the large navigation controller.



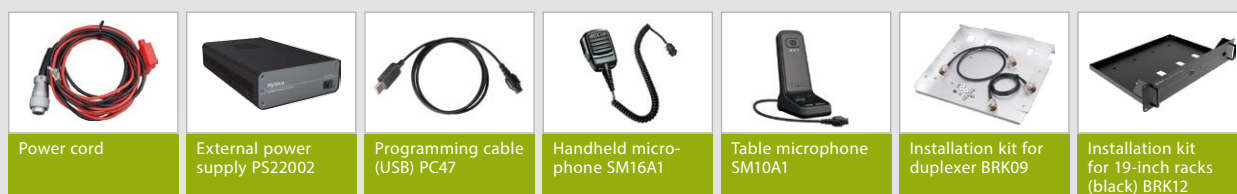
### Clear LED indicators

The 8 LED indicators on the front allow the current repeater status to be easily identified.

### Ergonomic design

The beveled handles facilitate the installation and transport of the repeater.

## Accessories available (extract)



The representations shown above are intended for reference purposes only. Actual products might differ from these illustrations.

## Technical Data

General data	
Frequency range	VHF: 136 MHz – 174 MHz UHF: 400 MHz – 470 MHz 450 MHz – 520 MHz
Number of channels	1024
Number of zones	1
Channel spacing	12.5 / 20 / 25 kHz (analog) 12.5 kHz (digital)
Operating voltage	13.6 ± 15% V <sub>DC</sub>
Max. power consumption	≤ 0.8 A (at operational readiness) ≤ 11 A (at transfer)
Frequency stability	± 0.5 ppm
Antenna impedance	50 Ω
Dimensions (H × W × D)	88 × 483 × 366 mm
Weight	8.5 kg
LCD display	220 × 176 Pixel, 262,000 colors, 2 inches, 4 rows

Receiver	
Sensitivity (analog)	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 bei 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	80 dB at 12.5 / 20 / 25 kHz 80 dB at 12.5 / 20 / 25 kHz
Signal-noise ratio (S/N)	40 dB at 12,5 kHz 43 dB at 20 kHz 45 dB at 25 kHz
Nominal audio power output	0.5 W
Audio distortion	≤ 3 %
Audio sensitivity	+ 1 dB to - 3 dB
Conducted spurious emission	< 57 dBm

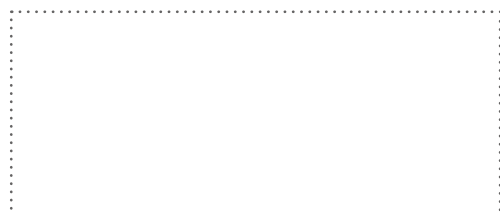
Transmitter	
Transmitting power (adjustable)	VHF: 1 – 50 W (RD985 only), 5 – 50 W UHF: 5 – 50 W
Modulation	11 K0F3E at 12.5 kHz 14 K0F3E at 20 kHz 16 K0F3E at 25 kHz
4FSK digital modulation	12.5 kHz (data only): 7K60FXD 12.5 kHz (data and voice): 7K60FXW
Interfering signals and harmonics	- 36 dBm (< 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 - 3dB
Audio distortion	≤ 3 %
Digital vocoder type	AMBE +2™

Environmental conditions	
Operating temperature range	- 30 °C to + 60 °C
Storage temperature range	- 40 °C to + 85 °C
Relative humidity	< 95%

Supported operating modes	
RD985	<ul style="list-style-type: none"> <li>DMR Tier II (ETSI TS 102 361-1/2/3)</li> <li>Analog</li> </ul>
RD985S	<ul style="list-style-type: none"> <li>DMR Tier III (optional, ETSI TS 102 361-1/2/3)</li> <li>XPT (optional)</li> <li>DMR Tier II (ETSI TS 102 361-1/2/3/4)</li> <li>DMR Tier II Simulcast (optional)</li> <li>Analog</li> </ul>

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

Your Hytera partner:



### Hytera Mobilfunk GmbH

**Address:** Fritz-Hahne-Straße 7, 31848 Bad Münder, Germany  
**Tel.:** + 49 (0)5042 / 998-0 **Fax:** + 49 (0)5042 / 998-105  
**E-mail:** info@hytera.de | [www.hytera-mobilfunk.com](http://www.hytera-mobilfunk.com)

Further information can be found at:

[www.hytera-mobilfunk.com](http://www.hytera-mobilfunk.com)

Contact us if you are interested in sales, distribution or application partnership: ✉ [info@hytera.de](mailto:info@hytera.de)



SGS Certificate DE11/81829313

Hytera Mobilfunk GmbH reserves the right to modify the product design and the specifications. In case of a printing error, Hytera Mobilfunk GmbH does not accept any liability. All specifications are subject to change without notice.

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

**HYT** Hytera are registered trademarks of Hytera Co. Ltd.  
ACCESSNET® and all derivatives are protected trademarks of Hytera Mobilfunk GmbH.  
© 2017 Hytera Mobilfunk GmbH. All rights reserved.