



# 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!



# Repeater

## 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 simulcast radio systems.

Both repeaters were developed according to 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 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 simulcast, 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.

#### Dual mode and automatic change

Both repeaters can switch independently between the digital and analog modes, depending on the type of the receiver signal.

#### 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.



## 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 power amplifier 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.

## Standard accessories



Power cord

### Ergonomic design

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

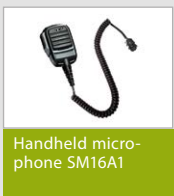
## Optional accessories (excerpt)



External power supply PS22002



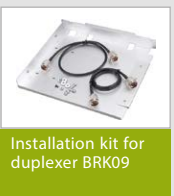
Programming cable (USB) PC47



Handheld microphone SM16A1



Table microphone SM10A1



Installation kit for duplexer BRK09



Installation kit for 19-inch racks (black) BRK12

The representations shown above are intended for reference purposes only. The products themselves may deviate from these representations.

## Technical Data

| General data           |                                                        |
|------------------------|--------------------------------------------------------|
| Frequency range        | VHF: 136 MHz – 174 MHz<br>UHF: 400 MHz – 470 MHz       |
| Channel capacity       | 16                                                     |
| Number of zones        | 1                                                      |
| Channel spacing        | 12.5 / 20 / 25 kHz (analog)<br>12.5 kHz (digital)      |
| Operating voltage      | 13.6 ± 15% V <sub>DC</sub>                             |
| Max. power consumption | ≤ 0.8 A (in stand by)<br>≤ 11 A (during transmission)  |
| 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,<br>2.0 inches, 4 rows |

| 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>Adjacent channel 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  | 80 dB at 12.5 / 20 / 25 kHz<br>80 dB at 12.5 / 20 / 25 kHz                           |
| Signal-noise ratio (S/N)                               | 40 dB at 12.5 kHz<br>43 dB at 20 kHz<br>45 dB at 25 kHz                              |
| Nominal audio power output                             | 0.5 W                                                                                |
| Audio distortion                                       | ≤ 3 %                                                                                |
| Audio sensitivity                                      | +1 dB at -3 dB                                                                       |
| Conducted spurious emission                            | < 57 dBm                                                                             |

| Transmitter                       |                                                                     |
|-----------------------------------|---------------------------------------------------------------------|
| Transmitting power (adjustable)   | VHF: 1 – 50 W (RD985 only), 5 – 50 W<br>UHF: 5 – 50 W               |
| Modulation                        | 11 K0F3E at 12.5 kHz<br>14 K0F3E at 20 kHz<br>16 K0F3E at 25 kHz    |
| 4FSK digital modulation           | 12.5 kHz (data only): 7K60FXD<br>12.5 kHz (data and voice): 7K60FXW |
| Interfering signals and harmonics | -36 dBm (< 1 GHz)<br>-30 dBm (> 1 GHz)                              |
| Modulation limiting               | ± 2.5 kHz at 12.5 kHz<br>± 4.0 kHz at 20 kHz<br>± 5.0 kHz at 25 kHz |
| Hum and noise                     | 40 dB at 12.5 kHz<br>43 dB at 20 kHz<br>45 dB at 25 kHz             |
| Adjacent channel selectivity      | 60 dB at 12.5 kHz<br>70 dB at 20 / 25 kHz                           |
| Audio sensitivity                 | +1 dB at -3 dB                                                      |
| 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 |

| 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:



**LEWEL Radiokomunikacja sc**  
09-410 Płock, ul. Boryszewska 32  
tel. 24 3674224, +48 606223958  
www.lewel.pl, kontakt@lewel.pl  
www.sklep.lewel.pl



### 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. © 2016 Hytera Mobilfunk GmbH. All rights reserved.