



Hytera RD985 DMR Repeater for Small Radio Networks Instructions

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RD985 DMR Repeater for Small Radio Networks

The RD985 and RD985S DMR repeaters from Hytera are at the heart of analogue and digital radio networks and were developed in line with the open ETSI standard for DMR. Both repeaters are characterised by their reliability and outstanding functionality.



Highlights

Both repeaters can be operated in analogue and digital mode and are completely compatible with analogue systems currently in use. In addition, the RD985S is a true all-rounder. As well as DMR trunked radio (Tier III), it also supports use in Hytera XPT and simulcast radio systems.

Both repeaters were developed according to the open ETSI DMR standard and, thanks to their technical features, they are your perfect companion to deliver a professional digital radio network.

The 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 analogue mode, the repeaters can be connected together back-to-back. Both in conventional analogue 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 analogue and digital modes, but also other modes that can be unlocked with a chargeable licence. It can be upgraded into a base station for DMR simulcast, DMR trunked radio (Tier III) or Hytera XPT radio systems. This means that the RD985S is a secure investment for growing radio projects.

Dual mode and automatic change

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

Secure communication

To protect your radio communications, the RD985 and RD985S repeaters offer 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 watts 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 colour display
Whether during ongoing operations, or during maintenance tasks, users can easily access all desired information via the large LCD colour 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 7 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.

In the box

	
DC Power Cable (3M) PWC11	External Power Supply (300W) PS22002 (RD985 on

Optional accessories

			
Handheld microphone SM16A1	Programming (USB) PC47	Table microphone SM10A1	Installation kit for duplex 09

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

Technical Data

General	
Frequency range	VHF: 136 – 174 MHz UHF: 400 – 470 MHz UHF2: 450 – 520 MHz Add UHF3: 350 – 400MHz (RD985s)
Supported operating modes	<ul style="list-style-type: none"> • DMR Tier II in acc. with ETSI TS 102 361-1/2/3 • Analogue • DMR Tier III (RD985S only, via chargeable license) • Hytera XPT (RD985S only, via chargeable license)
Channel capacity	16
Zone capacity	1
Channel spacing	12.5 / 20 / 25 kHz (analogue) 12.5 kHz (digital)
Operating voltage	13.6 ± 15% VDC Storage battery: 14.8 V
Max. power consumption (in stand by)	≤ 0.8 A
Max. power consumption (during transmission)	≤ 11A @45W
Frequency stability	± 0.5 ppm
Antenna impedance	50 Ω
Dimensions (H × W × D)	88 x 463 x 366mm (with protective housing)
Weight	8.5 kg (without standard battery)

Ambient data	
Operating temperature range	– 30°C to + 60°C
Storage temperature range	– 40°C to + 85°C

Transmitter	
Transmitting power	1 – 50 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): 7K60FXD 12.5 kHz (data and voice): 7K60FXW
Interfering signals and harmonics	-36dBm (< 1GHz) -30dBm (> 1GHz)
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 70dB at 20 / 25kHz
Audio sensitivity	+ 1 to – 3dB
Nominal audio distortion	≤3%
Digital vocoder type	AMBE+2TM

Receiver	
Sensitivity (analogue)	0.3 μ V (12 dB SINAD) 0.22 μ V (typical) (12 dB SINAD) 0.4 μ V (20 dB SINAD)
Sensitivity (digital)	0.3 μ V / BER 5 %
Adjacent channel selectivity TIA-603 ETSI	65dB at 12.5KHz / 75dB at 20 / 25KHz 65dB at 12.5KHz / 75dB at 20 / 25KHz
Intermodulation TIA-603 ETSI	75 dB at 12.5 kHz / 20 / 25 kHz 70 dB at 12.5 kHz / 20 / 25 kHz
Spurious response rejection TIA-603 ETSI	80 dB at 12.5 kHz / 20 / 25 kHz 80 dB at 12.5 kHz / 20 / 25 kHz
Hum and noise	40dB at 12.5kHz, 43dB at 20kHz 45 dB at 25 kHz
Rated audio power	3.0W (internal speaker)
Nominal audio distortion	$\leq 3\%$
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.

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Keep up to date with Hytera on social media.
Hytera reserves the right to modify the product design and the specifications.
In case of a printing error, Hytera 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 European export regulations.



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Documents / Resources

	<p>Hytera RD985 DMR Repeater for Small Radio Networks [pdf] Instructions RD985 DMR Repeater for Small Radio Networks, RD985, DMR Repeater for Small Radio Networks, Repeater for Small Radio Networks, Small Radio Networks, Radio Networks, Networks</p>
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References

- [Hytera Professional Radio Communications | Hytera EU](#)