BD505

DMR handheld radio

Getting started easily

The BD series of radios is a new device class for getting started in digital technology (DMR). The BD505 offers functions comparable to simple analog radios in the same price class, but with the advantages of digital transmission technology.

Excellent performance

Thanks to its innovative design, the BD505 offers better performance than analog radios. Its excellent reception properties ensure trouble-free voice communication.

Robust and durable

The BD505 was developed and tested in compliance with the military standard MIL-810 G. The dust and water-proof construction as per IP54 ensures reliability in different environments.

Clear voice

Use of digital coding and correction technology makes it possible to transmit voices without any interference – even over large distances.

Simple operation

Ergonomically optimized volume keys ensure easy operation, even while wearing gloves.

Technical Data BD505

General data

Frequency range	VHF: 136 – 174 MHz UHF: 400 - 470 MHz
Supported operating modes	▪ DMR Tier II in acc. with ETSI TS 102 361-1/2/3 ▪ Simulcast ▪ XPT Digital Trunking ▪ Analog
Number of channels	48
Number of zones	3
Channel spacing	12.5 kHz (analog) 25 kHz (digital)
Operating voltage	7.2 V
Battery service life (5/5/90 duty cycle) analog digital	 approx. 12 hours at 1500 mAh; approx. 16 hours at 2000 mAh; approx. 16 hours at 1500 mAh; approx. 22 hours at 2000 mAh;
Standard battery	1500 mAh (lithium-ion battery) 2000 mAh (lithium-ion battery)
Frequency stability	± 0.5 ppm
Antenna impedance	50 Ω
Dimensions (H × W × D)	108 × 54 × 29 mm
Weight (with antenna and standard battery)	approx. 220 g

Environmental conditions

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)
Protection against dust and moisture	IP54
Shock and vibration resistance	MIL-STD-810 G
Relative humidity	MIL-STD-810 G

Transmitter

Transmitting power	VHF: 1 / 5 W UHF: 1 / 4 W
Modulation	11K0F3E at 12.5 kHz 16K0F3E 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 ± 5.0 kHz at 25 kHz
Noise cancellation	40 dB at 12.5 kHz 45 dB at 25 kHz
Adjacent channel selectivity	60 dB at 12.5 kHz 70 dB at 25 kHz
Audio sensitivity	+1 dB to -3 dB
Audio distortion	≤5 %
Digital vocoder type	AMBE +2™
Digital protocol	ETSI-TS102 361-1,2,3

Receiver

Sensitivity (analog)	0.22 µV (typical) (12 dB SINAD) 0.4 µV (20 dB SINAD)
Sensitivity (digital)	0.22 µV / BER 5%
Adjacent channel selectivity (ETSI)	60 dB at 12.5 kHz 70 dB at 25 kHz
Intermodulation	65 dB at 12.5/25 kHz
Spurious response rejection (ETSI)	70 dB at 12.5/25 kHz
Signal-noise ratio (S/N)	40 dB at 12.5 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

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

Hytera

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