

MD785i

DMR mobile radio

Higher sensitivity and frequency stability

Compared to the MD785, the MD785i has significantly improved performance. Its further developed technology increases both the range and the reliability.

Optimized GPS protocol

To accelerate the determination of the location of radios, the way the radio sends its GPS position has been significantly improved. As a result, more GPS information than before can be sent to the control center via a timeslot, provided only position data are required.

Communication via the accessory port

Users can access the option board using the application CPS (Customer Programming Software) to transfer data to external devices.

Communication using "wireless link"

The mobile radios can be connected to repeaters using a special UART cable to provide a "wireless link" for the transfer of digital services (voice, data or signaling). This function can be used in scenarios in which IP multi-site connection is not available due to Internet connection restrictions and the repeaters are connected wirelessly to expand the communications coverage.

Over the Air Encryption

Encryption of the signaling protects against unauthorized access to the repeater and interception of the connection data using a DMR scanner.



Technical Data MD785i

General data	
Frequency range	UHF: 400–470 MHz VHF: 136 – 174 MHz
Supported operating modes	<ul style="list-style-type: none"> ▪ DMR Tier II in acc. with ETSI TS 102 361-1/2/3 ▪ Simulcast ▪ XPT Digital Trunking ▪ DMR Tier III in acc. with ETSI TS 102 361-1/2/3/4 ▪ Analog, MPT 1327
Number of channels	1024
Number of zones (Up to 256 channels in each zone)	64
Channel spacing	12.5 / 20 / 25 kHz (analog) 12.5 kHz (digital)
Operating voltage	$13.6 \pm 15\% V_{DC}$
Max. power consumption (in stand by)	$\leq 0.6 A$
Max. power consumption (during reception)	$\leq 2.0 A$
Max. current consumption (during transmission)	1 W: $\leq 2 A$ 25 W: $\leq 8 A$ 45 W / 50 W: $\leq 12 A$
Frequency stability	$\pm 0.5 \text{ ppm}$
Antenna impedance	50 Ω
Dimensions (H x W x D)	174 x 60 x 200 mm
Weight	1.7 kg
LCD display	220 x 176 pixels, 262,000 colors, 2.0 inches, 4 rows

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) $\pm 8V$ (Contact), $\pm 15V$ (Air)
Protection against dust and moisture	IP54
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 fix (TTFF)	< 1 Minute (cold start) < 10 seconds (warm start)
Horizontal accuracy	< 5 meter

Transmitter	
Transmitting power (adjustable)	VHF: 1–25 W/1–50 W UHF: 1–25 W/1–45 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	$\pm 2.5 \text{ kHz}$ at 12.5 kHz $\pm 4.0 \text{ kHz}$ at 20 kHz $\pm 5.0 \text{ kHz}$ at 25 kHz
Noise cancellation	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 response (TIA-603D)	+1 dB to -3 dB
Audio distortion	$\leq 3 \%$
Digital vocoder type	AMBE +2™

Receiver	
Sensitivity (analog)	0.22 μV (12 dB SINAD) 0.18 μV (typical) (12 dB SINAD) 0.35 μV (20 dB SINAD)
Sensitivity (digital)	0.22 μV / BER 5 %
Adjacent channel selectivity TIA-603	65 dB at 12.5 kHz / 75dB at 20 and 25 kHz
ETSI	60 dB at 12.5 kHz / 70 dB at 20 and 25 kHz
Spurious response rejection TIA-603	75 dB at 12.5 / 20 / 25 kHz
ETSI	70 dB at 12.5 / 20 / 25 kHz
Intermodulation TIA-603	75 dB at 20 / 25 kHz
ETSI	70 dB at 20 / 25 kHz
Blocking TIA-603	90 dB
ETSI	84 dB
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	3 W at 20 Ω (internal) 7.5 W at 8 Ω (external)
Maximum audio power output	8 W at 20 Ω (internal) 20 W at 8 Ω (external)
Audio distortion	$\leq 3 \%$
Audio response (TIA-603D)	+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.



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

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