MOTOROLA

MOTOTRBO™

DR 3000 / MTR3000
PROFESSIONAL DIGITAL TWO-WAY RADIO REPEATER

MOTOTRBO PROFESSIONAL DIGITAL TWO-WAY RADIO SYSTEM THE FUTURE OF TWO-WAY RADIO

Motorola is a company of firsts with a rich heritage of innovation. We continue to invent what's next, connecting people, delivering mobility and making technology personal. Versatile and powerful, MOTOTRBO combines the best in two-way radio functionality with digital technology, making it the ideal communication solution for your business. You get enhanced features, increased capacity, integrated data applications, exceptional voice quality and extended battery performance. This means more productive employees and lower operating costs for your business.

- **Integrates voice and data** into one device to increase your operational efficiency and support integrated applications including MOTOTRBO Text Messaging Services. Also features an integrated GPS module for use with third-party location-tracking applications.
- Uses Time-Division Multiple-Access (TDMA) digital technology to provide **twice the calling capacity** (as compared to analogue or FDMA radios) for the price of one frequency license. A second call doesn't require a second repeater, saving you equipment costs.
- In digital mode, provides **clearer voice communications** throughout the coverage area, as compared to analogue radios, rejecting static and noise.
- Provides **easy migration** from analogue to digital with the ability to operate in both analogue and digital modes and utilising the **dynamic mixed mode** repeater functionality allows for automatic switching between analogue and digital mode on the same repeater.
- **Enables additional functionality** including dispatch data, enhanced call signaling, basic and enhanced privacy-scrambling and option board expandability.
- Designed to comply with the globally recognised European Telecommunications Standard Institute (ETSI) Digital Mobile Radio (DMR) Tier 2 standard for professional two-way radio users.
- Features the **transmit interrupt** suite, voice interrupt, remote voice dekey, emergency voice interrupt or data over voice interrupt, to help prioritise critical communication exactly when needed.
- The **IP Site Connect** digital solution uses an IP network to extend coverage of your MOTOTRBO communication system to users anywhere in the world for dramatically improved customer service and increased productivity.
- **Capacity Plus** is a scalable, single-site digital trunking solution that can expand the capacity of your MOTOTRBO communication to over a thousand radio users.
- **Motorola's Professional Radio Application Partner Programme** enables the development of customised data applications that adapt MOTOTRBO radios to meet the unique needs of your business.
- Backed by a **two-year Standard warranty**. Extended Care Option available.

STANDARDS BASED, FUTURE READY SOLUTION

MOTOTRBO is designed to comply with the globally recognised European Telecommunications Standard Institute (ETSI) Digital Mobile Radio (DMR) Tier 2 standard for professional two-way radio users.

DMR is widely backed by industry leading two-way radio manufacturers, and it is the most widely deployed digital mobile radio technology for professional radio users around the world. This open standard assures long-term stability and develops a community of manufacturers who build interoperable equipment that can compete on features, benefits and price.

DMR
DIGITAL MOBILE RADIO ASSOCIATION

The DMR Association represents a collection of companies and organisations that manufacture DMR equipment, supply related products and service or support the standard in other ways. Motorola is an active member of the DMR Association so you can be assured that MOTOTRBO will always be a robust and future-ready digital radio solution.

MOTOTRBO™ DR 3000 REPEATER SPECIFICATIONS

General Specifications

	DR 3000
Channel Capacity	16
Typical RF Output Low Power UHF1 and VHF High Power UHF2 (450-512 MHz) High Power UHF2 (512-527 MHz) High Power UHF1 High Power VHF	 1-25 W 1-40 W 1-25 W 25-40 W 25-45 W
Frequency	136-174 MHz (VHF) 403-470 MHz (UHF1) 450-527 MHz (UHF2)
Dimensions (HxWxL)	132.6 x 482.6 x 296.5 mm
Weight	14 kg
Voltage Requirements	100-240 V AC (13.6 V DC)
Current Drain: Standby	 >0.2A (100 V AC) >0.1A (240 V AC) >1.5A (typical) (13.4 V DC)
Transmit Low Power High Power	 >2.0A (100 VAC) >1.0A (240 VAC) >9.0A (typical) (13.4 VDC) >2.5A (100 V AC) >1.25A (240 V AC) >12.0A (typical) (13.4 V DC)
Operating Temperature Range	-30°C to +60°C
Max Duty Cycle	100%
Digital Protocol	ETSI-TS 102 361-1, 2 & 3

Receiver

	DR 3000
Frequency	136-174 MHz (VHF) 403-470 MHz (UHF1) 450-527 MHz (UHF2)
Channel Spacing	12.5 kHz / 20 kHz / 25 kHz
Frequency Stability (-30° C, +60° C, +25° C)	+/- 0.5 ppm
Analogue Sensitivity	0.30 uV (12 dB SINAD) 0.22 uV (typical) (12 dB SINAD) 0.4 uV (20 dB SINAD)
Digital Sensitivity	5% BER: 0.3 uV
Intermodulation	70 dB
Adjacent Channel Selectivity	60 dB @ 12.5 kHz 70 dB @ 20/25 kHz
Spurious Rejection	70 dB
Audio Distortion @ Rated Audio	3% (typical)
Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 20/25 kHz
Audio Response	+1, -3 dB
Conducted Spurious Emission	-57 dBm < 1GHz

Transmitter

	DR 3000
Frequency	136-174 MHz (VHF) 403-470 MHz (UHF1) 450-527 MHz (UHF2)
Channel Spacing	12.5 kHz / 20 kHz / 25 kHz
Frequency Stability (-30° C, +60° C, +25° C)	+/- 0.5 ppm
Power Output Low Power UHF1 and VHF High Power UHF2 (450-512 MHz) High Power UHF2 (512-527 MHz) High Power UHF1 High Power VHF	 1-25 W 1-40 W 1-25 W 25-40 W 25-45 W
Modulation Limiting	+/- 2.5 kHz @ 12.5 kHz +/- 4 kHz @ 20 kHz +/- 5.0 kHz @ 25 kHz
FM Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 20/25 kHz
Conducted / Radiated Emission	-36 dBm < 1 GHz -30 dBm > 1 GHz
Adjacent Channel Power	-60 dB @ 12.5 kHz -70 dB @ 20/25 kHz
Audio Response	+1, -3 dB
Audio Distortion	3%
Digital Vocoder Type	AMBE+2

Specifications subject to change without notice. All specifications shown are typical. Repeater meets applicable regulatory requirements.

MTR3000 BASE STATION / REPEATER SPECIFICATIONS

General Specifications

		MTR3000	Upgrade kit for MTR2000 stations
Number of Frequencies		Up to 16	
Modulation		FM & 4FSK	
Frequency Generation		Synthesized	
Channel Spacing	Analogue Digital	12.5 kHz, 25 kHz* 12.5 kHz (6.25e compliant)	
Mode of Operation		Semi-duplex / Duplex	
Temperature Range		–30°C to +60°C	
Antenna Connectors		Transmit and Receive, Type "N" Female	
AC Operation		85-264 VAC, 47-63 Hz	
DC Operation		28.6 VDC (25.7-30.7 VDC full rated output power)	
		Dimensions	**Weight**
Base Station Repeater		5.25 x 19 x 16.5 in. (133 x 483 x 419 mm)	40 lbs (19 kg)

Receiver

		MTR3000	
Frequency		403-470, 450-524 MHz	403-470 MHz
Selectivity (TIA603)	25 kHz* 12.5 kHz	80 dB (86 dB typical) 75 dB (78 dB typical)	
Selectivity (TIA603D)	25 kHz* 12.5 kHz	75 dB (85 dB typical) 45 dB (60 dB typical)	
Analogue Sensitivity 12 dB SINAD		0.30 uV (0.22 uV typical)	
Digital Sensitivity 5% BER		0.30 µV (0.20 uV typical)	
Signal Displacement Bandwidth 12.5 / 25 kHz		1 kHz / 2 kHz	
Intermodulation Rejection	12.5 and 25 kHz	85 dB	
Spurious and Image Response Rejection		85 dB (typical 95 dB)	
Audio Response		+1,-3 dB from 6 dB per octave de-emphasis; 300-3000 Hz referenced to 1000 Hz at line output	
Audio Distortion		Less than 3% (1.5% typical) at 1000 Hz, 60% RSD	
Line Output		330 mV (RMS) @ 60% RSD	
FM Hum and Noise (750µs de-emphasis)	25 kHz* 12.5 kHz	50 dB nominal 45 dB nominal	
RF Input Impedance		50 Ohms	

Transmitter

		MTR3000
Frequency		403-470, 470-524 MHz
Power Output (Continuous Duty)		8-100 watts
Electronic Bandwidth		Full Band
Output Impedance		50 Ohms
Intermodulation Attenuation		55 dB
Maximum Deviation (RSD)	25 kHz* 12.5 kHz	±5 kHz ±2.5 kHz
Audio Sensitivity		60% RSD @ 80 mV RMS
Spurious and Harmonic Emissions Attenuation		85 dB
FM Hum and Noise (750 µs de-emphasis)	25 kHz* 12.5 kHz	50 dB nominal 45 dB nominal
Frequency Stability (for temperature and aging variation)		1.5 PPM/External Ref (optional)
Audio Response		+1,-3 dB from 6 dB per octave pre-emphasis; 300-3000 Hz referenced to 1000 Hz at line output
Audio Distortion		Less than 3% (1% typical) at 1000 Hz; 60% RSD
Emission Designators		FM Modulation: 12.5 kHz: 11K0F3E; 25 kHz*: 16K0F3E 4FSK Modulation: 12.5 kHz - Data Only: 7K60FXD; 12.5 kHz - Data & Voice: 7K60FXE
Digital Vocoder Type		AMBE +2™ Vocoder
Digital Protocol		ETSI 102 361-1, -2, -3

UHF Input Power

	AC Line 117 Volts / 220 Volts	28 VDC D/C Battery Revert, Neg. Gnd.
100 W Standby	0.4A/0.2A	0.8A
100 W Transmit	3.3A/1.8A	11.5A

Specifications subject to change without notice. All specifications shown are typical. Repeater meets applicable regulatory requirements.