

# 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, singlesite 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.



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

The Control	General Specifications	General Specifications				
Description	- Sanorar opcomodulons	DR 3000				
Table   Tabl	Channel Canacity					
Law Work						
150   150	Low Power UHF1 and VHF					
Presenting	High Power UHF1	25-40 W				
March   Marc						
Character   Marcol	Frequency					
Weight   W						
Wings Personalers         1000-100 ACT (1901 VID)           Standard         SCR MINDS           Content Dame         SCR MINDS           Tableward         SCR MINDS (MINDS)           Legal Prevail         SCR MINDS (MINDS)           Legal Prevail         SCR MINDS (MINDS)           Object To Control (1904 VID)         SCR MINDS (MINDS)           Object To Control (1904 VID)         SCR MINDS (MINDS)           Proposed (1904 VID)         SCR MINDS (MINDS)           Proposed (1904 VID)         SCR MINDS (MINDS)           Chart of Specing         SCR MINDS (MINDS)           Cha	Dimensions (HxWxL)	132.6 × 482.6 × 296.5 mm				
Search   Process	Weight	14 kg				
Sanday   S	Voltage Requirements	100-240 V AC (13.6 V DC)				
Table	Standby					
10 or Noveman						
High Power Services S						
1991 Power   1992 Power   1994 Power   199	Low Power					
		>9.0A (typical) (13.4 VDC)				
Contains Perspentium Briage   30°C to 10°C	High Power	>2.5A (100 V AC)				
Man Day Poyce   100%   100						
Man Day Poyce   100%   100	Operating Temperature Range	-30°C to +60°C				
Page						
Proguency   135,114 Mile (WF)   400,270 Mile		ETSI-TS 102 361-1, 2 & 3				
Prequency   1881   18						
Pequatricy   139.174 Mey 6/H9   430-279 Mey (LPR2)   140-0527 Me	Heceiver					
Channel Spacing   Channel Sp		DR 3000				
Chames Spacing   G. 18.5 Met 20 Met	Frequency					
Damen Spacing         12.5 kHz / 20 kHz / 25 kHz           Frequency Spacing         - 5.5 ppm           Land CV, C. 40° C, 20° C)         - 3.00 kH / 12 at ShADO           Analogue Sensitivity         0.22 kW Spropail 12 dit ShADO           Digital Sensitivity         6.6 Bert 0.3 kW           Digital Sensitivity         6.6 Bert 0.3 kW           Adjacent Channel Selectivity         6.0 de 21.5 kHz           Spurious Rejection         70 dit           Audio Distrotion B Rated Audio         3.0 de 20.00 dit           Liver and Notice         4.0 de 20.00 dit           Liver and Notice         4.0 de 20.00 dit           Conducted Spurious Emission         6.0 dit 20.25 kHz           Conducted Spurious Emission         5.0 dit           Frequency           Series         5.0 dit           Frequency         5.0 dit           Audio Response         1.3 dit           Frequency         5.0 dit           Audio Response         1.5 dit           Frequency         6.0 dit           Audio Response         1.5 dit           Frequency         1.0 dit           Conducted Sparious Emission         1.0 dit           Channel Spacing         1.0 dit           Channel Spacing <td></td> <td></td>						
Financian Statisty	Channel Spacing					
C 001 C 4 00						
Digital Sensitivity		+/- 0.5 ppm				
Digital Sensitivity	Analogue Sensitivity	0.30 uV (12 dB SINAD)				
Digital Sensitivity         5% BER: 0.3 uV           Intermodiation         70 dB           Aguient Channel Selectivity         60 dB 9 125 kHz           Sourious Rejection         70 dB           Audio Distortion @ Rated Audio         70 dB           Hum and Noise         40 dB 9 125 kHz           Audio Response         40 dB 9 125 kHz           Audio Response         11, 3 dB           Conducted Spunous Emission         158 000           TRANSMITEER           TRANSMITEER           TRANSMITEER           TRANSMITEER           TRANSMITEER           Channel Spacing         10 80000           Channel Spacing         10 80000           Channel Spacing         10 80000           Channel Spacing         10 800000           Channel Spacing         10 800000           Channel Spacing         10 5 ppm           Channel Spacing         10 5 ppm           Channel Spacing         10 5 ppm           Channel Space Unit?         14 05 ppm           Player Chapter Unit?         14 05 ppm           Modulation Limiting         1-2 St trie 20 20 kHz           Hyll Prover Unit?         1-2 St trie 20 20 kHz	,	0.22 uV (typical) (12 dB SINAD)				
Internodulation         70 dB           Adjacent Channel Selectivity         30 dB 90 12.5 kHz           Spurious Rejection         70 dB           Spurious Rejection         70 dB           Audio Distortion Selectivity         30 dB 90 12.5 kHz           Hum and Noise         40 dB 90 12.5 kHz           Audio Response         40 dB 90 12.5 kHz           Conducted Spurious Emission         50 dB 90 2005 kHz           TERRONITION           TERRONITION <th co<="" td=""><td></td><td></td></th>	<td></td> <td></td>					
Adjacent Channel Selectivity         50 of 8 9 1.5 kHz           Spurious Rejection         70 d8           Audio Distortion © Rated Audio         6 0 3% (typical)           Hum and Noise         45 d8 9 20/25 kHz           Audio Response         1,3 d8           Conducted Spurious Emission         5 75 dm < 10 kHz						
Suprious Rejection         70 dB 0 2002 5kHz           Audio Distortion ® Rated Audio         3% (typical)           Hum and Noise         40 dB 0 2025 kHz           Audio Response         +1, 3 dB           Conducted Sparious Emission         57 dBm < 10kHz           TEATH						
Spurious Rejection         70 dB           Audio Datoritorio ® Riedel Audio         3% (trypical)           Hum and Noise         40 dB 8 12.5 kHz           Audio Response         1-1,3 dB           Conducted Spurious Emission         6 dB 20/95 kHz           Transmitter           Brequency           Brequency           Channel Spacing         1 dB 20/90 MHz (UHF2)           Frequency Stability         40 dB 27/90 MHz (UHF2)           Frequency Stability         1 dB 25 WHz           Cabric C, 425° CI         40 dB 20/92 MHz           High Power UHF2 (465-912 MHz)         1 dB 25 WHz           High Power UHF2 (465-912 MHz)         1 dB 25 WHz           High Power UHF2 (465-912 MHz)         1 dB 25 WHz           High Power UHF2 (465-912 MHz)         1 dB 25 WHz           High Power UHF2 (465-912 MHz)         1 dB 25 WHz           High Power UHF2 (465-912 MHz)         1 dB 25 WHz           High Power UHF2 (465-912 MHz)         1 dB 25 WHz           High Power UHF2 (465-912 MHz)         1 dB 25 WHz           High Power UHF2 (465-912 MHz)         1 dB 25 WHz           High Power UHF2 (465-912 MHz)         1 dB 25 WHz           High Power UHF2 (465-912 MHz)         1 dB 25 WHz           High Pow	Adjacent Channel Selectivity					
Audio Distortion @ Rated Audio         3% (typical)           Hum and Noise         40 di 8 e 12.5 kHz           Audio Response         43 dis           Conducted Spurious Emission         5 m 200 m           TEADRITUSE           TEADRITUSE           DR 3000           Frequency         DR 3000           Prequency Stability           Cannel Spacing         136-174 MHz (VHF)         405-470 kHz (JPS Hz)           Caylor, 460° C, -26° C)         25 kHz (20 kHz / 25 kHz)         25 kHz (20 kHz / 25 kHz)           Caylor C, 460° C, -26° C,	Spurious Rejection					
Hum and Noise         450 d8 € 125 kHz           Audio Response         4-0 d8 € 2075 kHz           Conducted Spurious Emission         5-0 d8 m < 10 Hz           TEASSMITTER           TEQUENCY           BIR 3000           Channel Spacing         10 3000           Channel Spacing         2 5-5 kHz / 20 kHz / 25 kHz           Frequency Stability         4-0.5 kpm           Clay C+ 400° C, +25° C)         3 5-2 kHz / 20 kHz / 25 kHz           Power Output         1-25 W           High Power UHF2 (450-512 MHz)         1-40 W </td <td></td> <td></td>						
Audio Response   Audi						
Conducted Spurious Emission         67 dBm < 1GHz           Transmitter           DR 3000           Frequency           Enguency         136-174 MHz (JHF1) 490-527 MHz (JHF1) 490-527 MHz (JHF2)           Channel Spacing         1 25 kHz / 20 kHz / 25 kHz           Channel Spacing         1 25 W           Power Output Cuptur Low Power UHF1 and VHF (1905 Hz MHz) High Power UHF2 (805-812						
Transmitter   DR 3000	Audio Response	+1, -3 dB				
Frequency         136-174 MHz (VHF) 403-470 MHz (UHF1) 403-470 MHz (UHF2)           Channel Spacing         12.5 kHz / 20 kHz / 25 kHz           Frequency Stability (-30° C, 450° C)         +f-0.5 ppm           Power Output Low Power UHF1 and VHF (Low Power UHF2 (450-612 MHz))         1.25 W	Conducted Spurious Emission	-57 dBm < 1GHz				
Frequency         136-174 MHz (VHF) 403-470 MHz (UHF1) 403-470 MHz (UHF2)           Channel Spacing         12.5 kHz / 20 kHz / 25 kHz           Frequency Stability (-30° C, 450° C)         +f-0.5 ppm           Power Output Low Power UHF1 and VHF (Low Power UHF2 (450-612 MHz))         1.25 W	Transmitter					
Frequency         136-174 MHz (VHF) 450-827 MHz (UHF1) 450-827 MHz (UHF1) 450-827 MHz (UHF2)           Channel Spacing         12.5 kHz / 20 kHz / 25 kHz           Frequency Stability (-30° C, +60° C, +25° C)         +/- 0.5 ppm           Power Output of VHF (-30° C, +60° C, +25° C)         1-25 W Hybrid (-30° C, +60° C, +25° C)           Power Output of VHF1 and VHF1 (-30° C, +60° C, +25° C)         1-25 W Hybrid (-30° C, +25° C)           Power Output of VHF2 (450-512 MHz) (Hybrid (-30° C, +25° C))         1-25 W Hybrid (-30° C, +25° C)           Modulation Limiting         1-25 W Hybrid (-30° C, +25° C)           Modulation Limiting         1-25 kHz (-30° C, +25° C)           FM Hum and Noise         -40° CH (-30° C, +25° C)           Conducted / Radiated Emission         -36° CHm < 1 GHz (-30° C, +25° C)	Transmittor	SD gage				
Mode of the Current Spacing         430-470 MHz (UHFT) 450-527 MHz (UHFT) 450-512 MHz) 410 MHz (UHFT) 450-512 MHz (UHFT) 450-512 MHz (UHFT) 450-512 MHz (UHFT) 450	_					
Channel Spacing         12.5 kHz / 20 kHz / 25 kHz           Frequency Stability (-30° C, 450° C, 125° C)         1-0.5 ppm           Power Output Low Power UHF1 and VHF High Power UHF2 (450-512 MHz) High Power UHF2 (450-512 MHz) High Power UHF2 (450-512 MHz) High Power UHF1 (450-512 MHz) High Power UHF1 High Power UHF2 (450-512 MHz) High Power UHF2 (450-512 MHz) High Power UHF2 (450-512 MHz) High Power UHF1 High Power UHF1         1-25 W 1-26 W 25-46 W           Modulation Limiting         2-25 40 W 25-46 W         2-25 W 25-46 W           FM Hum and Noise         4-0 dB @ 12.5 kHz 4-5 G B W 20/25 kHz         2-25 W Rz 4-5 G B W 20/25 kHz           Conducted / Radiated Emission         3-36 dBm < 1 GHz -30 dBm > 1 GHz         3-30 dBm > 1 GHz -30 dB W 20/25 kHz           Adia Response         4-0 dB @ 12.5 kHz -70 dB @ 20/25 kHz         3-40 dB @ 20/25 kHz           Audio Response         4-1, 3 dB           Audio Distortion         3-6 dBm < 1 GHz -70 dB @ 20/25 kHz	Frequency					
Frequency Stability (-30° C, +25° C)  Power Output Low Power UHF1 and VHF High Power UHF2 (450-512 MHz) High Power UHF2 (450-512 MHz) High Power UHF2 (450-512 MHz) High Power UHF3 and VHF High Power UHF4 (450-512 MHz) High Power UHF4 (510-52 MHz) High Power UHF5 (450-512 MHz) High Power UHF4 (510-52 MHz) High Power UHF5 (450-512 MHz) High Power UHF5 (450-512 MHz) High Power UHF6 (450-512 MHz) High Power UHF7 (450-512 MHz) High Power UHF7 (450-512 MHz) High Power UHF7 (450-512 MHz) High Power UHF1 (450-512 MHz) High Power UHF1 (450-512 MHz) High Power UHF1 (450-512 MHz) High Power UHF2 (450-512 MHz) High Power UHF1 (450-512 MHz)						
C-30° C, +60° C, +25° C)   Power Output   Cow Power UHF1 and VHF   1-25 W   High Power UHF2 (450-512 MHz)   1-40 W   1-25 W   1-40 W   1-25 W   1	Channel Spacing	12.5 kHz / 20 kHz / 25 kHz				
Power Output Low Power UHF1 and VHF High Power UHF2 (450-512 MHz) High Power UHF2 (512-527 MHz) High Power UHF2 (512-527 MHz) High Power UHF3 (512-527 MHz) High Power UHF4 (512-528 MHz) +/- 2.5 kHz @ 12.5 kHz +/- 4.6 kHz @ 20 kHz +/- 5.0 kHz @ 25 kHz           FM Hum and Noise         -40 dB @ 12.5 kHz +/- 5.0 kHz @ 25 kHz           Conducted / Radiated Emission         -36 dBm < 1 GHz -30 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%	Frequency Stability	+/- 0.5 ppm				
Low Power UHF2 (4D-512 MH2)         1-25 W           High Power UHF2 (5D-527 MH2)         1-25 W           High Power UHF2 (5D-527 MH2)         1-25 W           High Power UHF1 (5D-527 MH2)         25-40 W           High Power UHF1 (5D-527 MH2)         25-45 W           Modulation Limiting         +/- 2.5 kHz @ 12.5 kHz +/- 4.4 kHz @ 20 kHz +/- 5.0 kHz @ 25 kHz           +/- 5.0 kHz @ 20 kHz +/- 5.0 kHz @ 20 kHz +/- 5.0 kHz @ 20 kHz         -4-0 dB @ 12.5 kHz 45 dB @ 20/25 kHz           Conducted / Radiated Emission         36 dBm < 1 GHz 30 dBm > 1 GHz						
High Power UHF2 (812-527 MHz) High Power UHF2 (1512-527 MHz) High Power UHF1	Low Power UHF1 and VHF	1-25 W				
High Power UHF1         25-40 W           High Power VHF         25-45 W           Modulation Limiting         +/- 2.5 kHz @ 12.5 kHz +/- 4 kHz @ 20 kHz +/- 5.0 kHz @ 25 kHz           +/- 2.5 kHz @ 12.5 kHz +/- 5.0 kHz @ 25 kHz         +/- 5.0 kHz @ 25 kHz           FM Hum and Noise         -40 dB @ 12.5 kHz +/- 5.0 kHz @ 20/25 kHz           Conducted / Radiated Emission         -36 dBm x 1 GHz -/- 30 dBm > 1 GHz           Adjacent Channel Power         -50 dB @ 12.5 kHz -/- 70 dB @ 20/25 kHz           Audio Response         +1,-3 dB           Audio Distortion         3%	High Power UHF2 (450-512 MHz)	1-40 W				
High Power VHF     25-45 W       Modulation Limiting     1-2.5 kHz @ 12.5 kHz with 20	nign Power UHF2 (512-527 MHz) High Power UHF1					
# +/ - 4 kHz @ 20 kHz   +/ - 5.0 kHz @ 25 kHz    FM Hum and Noise						
FM Hum and Noise         40 dB @ 12.5 kHz           Conducted / Radiated Emission         45 dB @ 20/25 kHz           Adjacent Channel Power         50 dBm > 1 GHz           Audio Response         10 dB @ 20/25 kHz           Audio Distortion         3%	Modulation Limiting					
FM Hum and Noise         -40 dB @ 12.5 kHz -45 dB @ 20/25 kHz           Conducted / Radiated Emission         -36 dBm < 1 GHz -30 dBm > 1 G		+/- 4 kHz @ Z0 kHz +/- 5,0 kHz @ 25 kHz				
Conducted / Radiated Emission     36 dBm < 1 GHz -30 dBm > 1 GHz       Adjacent Channel Power     -50 dB @ 12.5 kHz -70 dB @ 20/25 kHz       Audio Response     +1, -3 dB       Audio Distortion     3%	FM Hum and Noise					
Adjacent Channel Power         -30 dBm > 1 GHz           Audio Response         -60 dB @ 12.5 kHz -70 dB @ 20/25 kHz           Audio Distortion         +1,-3 dB           Audio Distortion         3%						
Adjacent Channel Power         -60 dB @ 12.5 kHz -70 dB @ 20/25 kHz           Audio Response         +1, -3 dB           Audio Distortion         3%	Conducted / Radiated Emission	-36 dBm < 1 GHz				
-70 dB @ 20/25 kHz           Audio Response         +1, -3 dB           Audio Distortion         3%						
Audio Response         +1, -3 dB           Audio Distortion         3%	Adjacent Channel Power					
Audio Distortion 3%	Audio Response					
AIVIDE+Z						
	Signal vocodor Typo	AINIDLT2				

## MTR3000 BASE STATION / REPEATER SPECIFICATIONS

General Specifications	MTR3000	Upgrade kit for	
		MTR2000 stations	
Number of Frequencies		Up to 16	
Modulation	F	FM & 4FSK	
Frequency Generation	S	Synthesized	
Channel Spacing Analogue Digital		12.5 kHz, 25 kHz* 12.5 kHz (6.25e compliant)	
Mode of Operation	Semi-	Semi-duplex / Duplex	
Temperature Range	-30	-30°C to +60°C	
Antenna Connectors	Transmit and Re	Transmit and Receive, Type "N" Female	
AC Operation	85-264	85-264 VAC, 47-63 Hz	
DC Operation	28.6 VDC (25.7-30.7	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				
		МТР	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 25 kHz* (750 µs de-emphasis) 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		