

# MOTOTRBO™ DEM™500 MOBILE RADIOS

Digital, now within reach



Picking up cargo or re-routing school buses, how do you make sure your people stay connected and safe? MOTOTRBO™ can help by putting the power of digital communications within reach. Versatile and powerful, the MOTOTRBO DEM™500 combines the best of two-way radio functionality with the latest digital technology for enhanced voice communications.

MOTOTRBO DEM 500 mobile radios are compact and capable for the busy mobile worker who needs digital technology at an affordable cost. You get all the advantages of digital – including systems capability, twice the calling capacity and clearer voice communications.

The MOTOTRBO DEM 500 has full systems capability, so when you need the flexible coverage of IP Site Connect and Capacity Plus, the DEM 500 can deliver. Transform your operation with digital voice communication. DEM 500 can help you achieve even greater productivity, safety and cost-efficiency.

**Affordable voice  
communications for the busy  
professional who wants better  
connectivity**

## → Features

- Dual mode Digital
- Voice Communications
- Alphanumeric Display
- Intelligent Audio
- Basic Privacy
- IMPRES™ Audio
- Dual Capacity Direct Mode (Only in Digital version)
- Voice Announcement
- Digital Mobile Radio (DMR) Standards Compliant
- Narrowbanding Compliant
- IP54 Rated
- Conventional Systems Capable (IPSC only)

## → Options

- Enhanced Privacy
- Radio Management Suite
- Over the Air Programming (OTAP)
- Transmit Interrupt Capability

## → Compatibility

- IP Site Connect
- Capacity Plus





## Hear and be heard clearly on the move

When it comes to exceptional audio quality, digital technology can't be beaten. DEM 500 delivers clarity throughout your coverage area plus unique features to help employees hear and be heard clearly. With its Intelligent Audio, for example, workers don't need to adjust their radio volume to avoid missing a call in loud places or disturb others when they move into quiet areas. Unleash the power of your DEM 500 mobiles with Motorola Original® accessories. They're the only accessories designed, built and tested with your radio to optimize its performance. (See separate accessory fact sheet for full portfolio.)

## Migrate at your own pace

Keeping operations running smoothly during a change in communication systems is vital to your operation. Now you can transition to digital with great confidence and low risk at a price you can afford. It's easy to migrate because the DEM 500 operates in both analog and digital modes. Analog and digital channels can be configured concurrently on the same radio, and scanning can be digital, analog or dual-mode. So you can use your existing analog system and move to digital when time and budget allow.

## Connect more people, more productively

Whether your people are delivering packages or transporting students, you'll appreciate our mobile's easy scalability. All it takes is a simple software upgrade to add key features like enhanced scrambling for increased voice privacy or the transmit interrupt suite to prioritize critical communication.

And when you want to expand capacity or coverage, rely on IP Site Connect and Capacity Plus that use the Internet to extend coverage to employees anywhere in the world.

## Improve their effectiveness

With enhanced features and integrated systems capability, the DEM 500 helps your workers be more effective at what they do. Voice announcement, for example, calls out channel and zone changes so they don't have to look at the radio while they're on the go. And convenient one-touch programmable buttons provide fast access to their favorite radio features.

## Get durability that endures

The DEM 500 is made to last. It is backed by a two-year standard warranty and a minimum one-year warranty for Motorola-branded accessories. It is rated IP54 (waterproof, virtually dustproof), so it can be used even in harsh environments. Moreover, the design has been proven tough in Motorola's grueling Accelerated Life Test program, in which the radio must survive a simulated 5 years of hard service before it is accepted. You can be confident in the durability of your DEM 500 radios.





# Specifications

General specifications		
	DEM 500	
	VHF	UHF BAND 1
Channel Capacity	128	
Typical RF Output		
Low Power	1-25 W	1-25 W
High Power	25-45 W	25-40 W
Frequency	136-174 MHz	403-470 MHz
Dimensions (H x W x L)	1,7 x 6,7 x 5,3 in (44 x 169 x 134 mm)	
Weight	2,9 lbs (1,3 kg)	
Current Drain		
Standby	0,81 A máx,	0,81 A máx,
Rx @ Rated Audio	2 A máx,	2 A máx,
Transmit	1-25 W: 11,0 A máx / 25-45 W: 14,5 A máx,	1-25 W: 11,0 A máx / 25-40 W: 14,5 A máx,
FCC Description	1-25 W: ABZ99FT3090 25-45 W: ABZ99FT3091	1-25 W: ABZ99FT4092 25-40 W: ABZ99FT4093
IC Description	1-25 W: 109AB-99FT3090 25-45 W: 109AB-99FT3091	1-25 W: 109AB-99FT4092 25-40 W: 109AB-99FT4093
Receiver		
Frequency	136-174 MHz	403-470 MHz
Channel Spacing	12,5 kHz / 25 kHz*	
Frequency Stability (-30°C, +60°C, +25°C Ref)	± 0,5 ppm	
Analog Sensitivity (12 dB SINAD)	0,3 uV 0,22 uV (typical)	
Digital Sensitivity (5% BER)	0,25 uV 0,19 uV (typical)	
Intermodulation (TIA603D)	75 dB	70 dB
Adjacent Channel Selectivity (TIA603D)	50 dB @ 12,5 kHz 75 dB @ 25 kHz*	50 dB @ 12,5 kHz 70 dB @ 25 kHz*
Spurious Rejection (TIA603D)	75 dB	70 dB
Rated Audio	4 W (Internal) 7.5 W (External - 8 ohms) 13 W (External - 4 ohms)	
Distorsión de audio en audio nominal	3% (typical)	
Hum and Noise	-40 dB @ 12,5 kHz -45 dB @ 25 kHz*	
Audio Response	TIA603D	
Conducted Spurious Emissions (TIA603D)	-57 dBm	
Transmitter		
Frequency	136-174 MHz	403-470 MHz
Channel Spacing	12,5 kHz / 25 kHz*	
Frequency Stability (-30°C, +60°C, +25°C Ref)	± 0,5 ppm	
Low Power Output	1-25 W	1-25 W
High Power Output	25-45 W	25-40 W
Modulation Limiting	± 2,5 kHz @ 12,5 kHz ± 5,0 kHz @ 25 kHz*	
FM Hum and Noise	-40 dB @ 12,5 kHz -45 dB @ 25 kHz*	
Conducted / Radiated Emission	-36 dBm < 1 GHz -30 dBm > 1 GHz	
Adjacent Channel Power	60 dB @ 12,5 kHz 70 dB @ 25 kHz*	
Audio Response	TIA603D	
Audio Distortion	3%	
FM Modulation	12,5 kHz: 11K0F3E 25 kHz*: 16K0F3E	
4FSK Digital Modulation	12.5 kHz Voice: 7K60F1E and 7K60FXE	
Digital Vocoder Type	AMBE +2™	
Digital Protocol	ETSI TS 102 361-1, -2, -3	

\*25 kHz is not available in the U.S.  
Specifications subject to change without notice. All specifications shown are typical.  
Radio meets applicable regulatory requirements. Version 1 02/13





Military Standards										
	810C		810D		810E		810F		810G	
	Method	Procedures	Method	Procedures	Method	Procedures	Method	Procedures	Method	Procedures
Low Pressure	500,1	I	500,2	II	500,3	II	500,4	II	500,5	II
High Temperature	501,1	I, II	501,2	I/A1, II/A1	501,3	I/A1, II/A1	501,4	I/Hot, II/Hot	501,5	I/A1, II
Low Temperature	502,1	I	502,2	I/C3, II/C1	502,3	I/C3, II/C1	502,4	I/C3, II/C1	502,5	I/C3, II
Temperature Shock	503,1	–	503,2	I/A1C3	503,3	I/A1C3	503,4	I	503,5	I/C
Solar Radiation	505,1	II	505,2	I	505,3	I	505,4	I	505,5	I/A1
Rain	506,1	I, II	506,2	I, II	506,3	I, II	506,4	I, III	506,5	I, III
Humidity	507,1	II	507,2	II	507,3	II	507,4	–	507,5	II - Aggravated
Salt fog	509,1	–	509,2	–	509,3	–	509,4	–	509,5	–
Dust	510,1	I	510,2	I	510,3	I	510,4	I	510,5	I
Vibration	514,2	VIII/F, Curve-W	514,3	I/10, II/3	514,4	I/10, II/3	514,5	I/24	514,6	I/24
Shock	516,2	I, II	516,3	I, IV	516,4	I, IV	516,5	I, IV	516,6	I, IV, V, VI

Environmental specifications	
Operating Temperature	-30°C / +60°C
Storage Temperature	-40°C / +85°C
Thermal Shock	Per MIL-STD
Humidity	Per MIL-STD
ESD	IEC 61000-4-2 Level 3
Dust and Water Intrusion	IP54, MIL-STD*
Packaging Test	Per MIL-STD

\* Radio meets IP54 and MIL-STD rating with microphone sealing boot and rear accessory connector cover properly installed.  
 Specifications subject to change without notice.  
 All specifications shown are typical.  
 Radio meets applicable regulatory requirements. Version 1 02/13

For more information on the MOTOTRBO™ DEM™ 500, visit [motorolasolutions.com/mototrbo](https://motorolasolutions.com/mototrbo).

To find your nearest Motorola Channel Partner, go to [www.motorolasolutions.com/contactus](https://www.motorolasolutions.com/contactus).



MOTOROLA, MOTO, MOTOROLA SOLUTIONS and the Stylized M Logo are trademarks or registered trademarks of Motorola Trademark Holdings, LLC and are used under license. All other trademarks are the property of their respective owners. © Motorola Solutions, Inc. All rights reserved. 11-2024 [DB]