MOTOROLA

MOTOTRBO™

XPR™ 8300
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 analog 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 analog radios, rejecting static and noise.
- Provides **easy migration** from analog to digital with the ability to operate in both analog and digital modes and utilizing the **dynamic mixed mode** repeater functionality allows for automatic switching between analog 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 recognized 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 prioritize critical communication exactly when needed.
- The **IP Site Connect** digital solution uses the Internet 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 without adding new frequencies.
- **Motorola's Application Developer Program** enables the development of customized data applications that adapt MOTOTRBO radios to meet the unique needs of your business.
- Backed by a **two-year Standard Warranty.**

MOTOTRBO™ XPR™8300 REPEATER SPECIFICATIONS

General Specifications

	XPR 8300		
	VHF	UHF Band I	UHF Band II
Channel Capacity	1		
Typical RF Output: Low Power High Power	1-25 W 25-45 W	1-25 W 25-40 W	— 1-40 W
Frequency	136-174 MHz	403-470 MHz	450-512 MHz
Dimensions (HxWxL)	5.22 x 19 x 11.67 in (132.6 x 482.6 x 296.5 mm)		
Weight	31 lbs (14 kg)		
Voltage Requirements	100-240 V AC (13.6 V DC)		
Current Drain During Standby: Low Power High Power	1 A (1 A DC typical) 1 A (1 A DC typical)		
Current Drain During Transmit: Low Power High Power	3 A (7.5 A DC typical) 4 A (12 A DC typical)		
Operating Temperature Range	-30°C to +60°C		
Max Duty Cycle	100%		
FCC Description	1-25 W: ABZ99FT3026 25-45 W: ABZ99FT3025	1-25 W: ABZ99FT4026 25-40 W: ABZ99FT4025	1-40 W: ABZ99FT4027
IC Description	1-25 W: 109AB-99FT3026 25-45 W: 109AB-99FT3025	1-25 W: 109AB-99FT4026 25-40 W: 109AB-99FT4025	1-40 W: 109AB-99FT4027

Receiver

	XPR 8300		
	VHF	UHF Band I	UHF Band II
Frequencies	136-174 MHz	403-470 MHz	450-512 MHz
Channel Spacing	12.5 kHz / 25 kHz*		
Frequency Stability (-30° C, +60° C, +25° C)	+/- 0.5 ppm		
Analog Sensitivity (12 dB SINAD)	0.30 uV 0.22 uV (typical)		
Digital Sensitivity	5% BER: 0.3 uV		
Intermodulation (TIA603C)	78 dB	75 dB	
Adjacent Channel Selectivity: TIA603 TIA603C	65 dB @ 12.5 kHz, 80 dB @ 25 kHz* 50 dB @ 12.5 kHz, 80 dB @ 25 kHz*	65 dB @ 12.5 kHz, 75 dB @ 25 kHz* 50 dB @ 12.5 kHz, 75 dB @ 25 kHz*	
Spurious Rejection	80 dB	75 dB	
Audio Distortion @ Rated Audio	3% (typical)		
Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 25 kHz*		
Audio Response	TIA603C		
Conducted Spurious Emission	-57 dBm		

Transmitter

	XPR 8300		
	VHF	UHF Band I	UHF Band II
Frequencies	136-174 MHz	403-470 MHz	450-512 MHz
Channel Spacing	12.5 kHz / 25 kHz*		
Frequency Stability (-30° C, +60° C, +25° C Ref.)	+/- 0.5 ppm		
Power Output: Low Power High Power	1-25 W 25-45 W	1-25 W 25-40 W	— 1-40 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 (TIA603C)	60 dB @ 12.5 kHz 70 dB @ 25 kHz*		
Audio Response	TIA603C		
Audio Distortion	3%		
FM Modulation	12.5 kHz: 11K0F3E 25 kHz*: 16K0F3E		
4FSK Digital Modulation	12.5 kHz Data Only: 7K60FXD 12.5 kHz Data & Voice: 7K60FXE		
Digital Vocoder Type	AMBE+2™		
Digital Protocol	ETSI TS 102 361-1, -2, -3		

*25 kHz will not be available on new equipment in the U.S. after 1/1/2011.

Specifications subject to change without notice. All specifications shown are typical. Repeater meets applicable regulatory requirements. Version 9 03/10

MOTOTRBO XPR 8380 REPEATER SPECIFICATIONS

General Specifications

		XPR 8380
		800 MHz
Channel Capacity		1
Typical RF Output:	Low Power High Power	- 10-35 W
Frequency		806-870 MHz
Dimensions (HxWxL)		5.22 x 19 x 11.67 in (132.6 x 482.6 x 296.5 mm)
Weight		31 lbs (14 kg)
Voltage Requirements		100–240 V AC 47–63 Hz (13.6 V DC)
Current Drain During Standby:		1.0 A (100 V AC) 0.5 A (240 V AC) 1.0 A (typical)(13.4 V DC)
Current Drain During Transmit:	Low Power	3.0 A (100 V AC) 1.5 A (240 V AC) 10 A (typical)(13.4 V DC)
	High Power	4.0 A (100 V AC) 1.8 A (240 V AC) 12 A (typical)(13.4 V DC)
Operating Temperature Range		-30°C to +60°C
Max Duty Cycle		100%
FCC Description		10–35 W: ABZ99FT5029
IC Description		10–35 W: 109AB-99FT5029

Receiver

		XPR 8380
		800 MHz
Frequencies		806–825 MHz
Channel Spacing		12.5 kHz/25 kHz
Frequency Stability (-30° C, +60° C, +25° C)		+/- 0.5 ppm
Analog Sensitivity (12 dB SINAD)		0.22 uV (typical)
Digital Sensitivity		5% BER: 0.28 uV
Intermodulation (TIA603C)		78 dB
Adjacent Channel Selectivity:	TIA603 TIA603C	65 dB @ 12.5 kHz, 75 dB @ 25 kHz 50 dB @ 12.5 kHz, 75 dB @ 25 kHz
Spurious Rejection (TIA603C)		75 dB
Audio Distortion @ Rated Audio		3% (typical)
Hum and Noise		-45 dB @ 12.5 kHz -45 dB @ 25 kHz
Audio Response		TIA603C
Conducted Spurious Emission (TIA603C)		-57 dBm

Transmitter

	XPR 8380
	800 MHz
Frequencies	851–870 MHz
Channel Spacing	12.5 kHz / 25 kHz
Frequency Stability (-30° C to +60° C)	+/- 0.5 ppm
Power Output: Low Power High Power	10W 35 W
Modulation Limiting	+/- 2.5 kHz @ 12.5 kHz +/- 5.0 kHz @ 25 kHz
Digital Modulation Fidelity (4FSK)	FSK Error 5% FSK Magnitude 1%
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 (TIA603C)	-50 dB @ 12.5 kHz -60 dB @ 25 kHz
Audio Response	TIA603C
Audio Distortion	3%
FM Modulation	12.5 kHz: 11K0F3E 25 kHz: 16K0F3E
4FSK Digital Modulation	12.5 kHz Data Only: 7K60FXD 12.5 kHz Data & Voice: 7K60FXE
Digital Vocoder Type	AMBE+2™
Digital Protocol	ETSI TS 102 361-1 ETSI TS 102 361-2 ETSI TS 102 361-3

MTR3000 BASE STATION / REPEATER SPECIFICATIONS

General Specifications

		T3000A	T2003A - Upgrade kit for MTR2000 stations
Number of Frequencies		Up to 16	
Modulation		FM & 4FSK	
Frequency Generation		Synthesized	
Channel Spacing	Analog Digital	12.5 kHz, 25 kHz* 12.5 kHz (6.25e compliant)	
Mode of Operation		Semi-duplex / Duplex	
Temperature Range		–30ºC to +60ºC	
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

		T3000A	T2003A - Upgrade kit for MTR2000 stations
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)	
Analog 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

		T3000A	T2003A - Upgrade kit for MTR2000 stations
Frequency		403-470, 470-524 MHz	403-435, 435-470 MHz
Power Output (Continuous Duty)		8-100 watts	25-100 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

*25 kHz will not be available on new equipment in the U.S. after 1/1/2011.
Specifications subject to change without notice. All specifications shown are typical.
Repeater meets applicable regulatory requirements. Version 1 03/10

FCC Type Acceptance

Frequency Range in MHz	Type	Power Output in Watts	US Type Acceptance Number
403-470	Transmitter	8-100	ABZ89FC4823
403-470	Receiver	N/A	ABZ89FC4824
470-524	Transmitter	8-100	ABZ89FC4825
450-524	Receiver	N/A	ABZ89FC4826

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