MOTOROLA

MOTOTRBO™

PROFESSIONAL DIGITAL TWO-WAY RADIO SYSTEM

ACCELERATE PERFORMANCE

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.

THE DIGITAL DIFFERENCE

Two-way radio has been a successful analog communication solution for generations, and it proves itself every day in countless deployments around the world.

But in today's technologically advanced environment, a new platform is possible—a digital platform that breaks through to new levels of performance and productivity.

In the same way digital technology has transformed other media, it is now revolutionizing the way mobile professionals communicate. The time to take advantage of digital two-way radio technology is now.

TAKE ADVANTAGE OF DIGITAL

Digital two-way radios offer several advantages over analog solutions, to name a few:

• Clearer audio to help assure messages are understood without background noise and static
• Integrated data applications such as text messaging, GPS-based location tracking, work order ticket management and much more
• 40% longer battery life for extended work shifts
• Increased capacity – twice the number of users for the price of one frequency license

TDMA – THE BEST CHOICE

There are two primary digital radio technologies: Time-Division Multiple-Access (TDMA) and Frequency-Division Multiple-Access (FDMA).

While both digital technologies provide significant benefits over analog, TDMA is the best choice.

TDMA technology delivers advantages over FDMA

• *Double your capacity per channel with less than half the infrastructure per channel*
  TDMA divides your existing channels into two time slots enabling you to double the number of users on your system or utilize data applications. A second call does not require a second repeater, resulting in lower costs for you, as you do not need to purchase, install and maintain additional infrastructure equipment.

• *Double your capacity without the hassle*
  TDMA provides two time slots on your existing licensed channels, doubling your capacity. There is no increased risk of interference, and there is no need for new licenses—simply amend your existing licenses to specify digital. Compatibility with all legacy radios working in 12.5 kHz analog channels is also maintained by TDMA.

• *Longer battery life*
  TDMA uses only half of the transmitter's capacity, resulting in longer battery life. During long work shifts or where productivity enhancing data applications place an increased power demand on the radio, this extended battery life is invaluable.

• *Advanced features*
  TDMA enables smart control features like "transmit interrupt" that makes it possible to interrupt lower priority communication so critical instructions can be delivered exactly when they're needed. And to help you maximize your infrastructure investment, TDMA can transmit voice and data on the same channel.

STANDARDS BASED, FUTURE READY SOLUTION

MOTOTRBO is 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.

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 interchangeable equipment that can compete on features, benefits and price.

The DMR Association represents a collection of companies and organizations 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.

DMR
DIGITAL MOBILE RADIO ASSOCIATION

UNIQUE MOTOTRBO™ SYSTEM BENEFITS FOR ENHANCED PRODUCTIVITY

MOTOTRBO offers a robust, standards-based solution that can be tailored to meet your unique coverage and feature needs. This versatile portfolio provides a complete system of portable radios, mobile radios, repeaters, accessories, data applications, and services—a comprehensive communication solution for your business. MOTOTRBO:

- **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.

- Offers **enhanced battery life.** MOTOTRBO digital two-way portable radios can operate up to 40 percent longer between recharges compared to typical analog radios.

- 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.

- Meets **demanding specifications**—IP57

for submersibility in water (portable models), U.S. Military 810 C, D, E and F, and Motorola standards for durability and reliability.

- Is **intrinsically safe**, when purchased and equipped with an FM battery, and can be used in locations where flammable gas, vapors or combustible dust may be present.

- Utilizes Motorola's **state-of-the-art IMPRES™ technology** in batteries, chargers and audio accessories, providing longer talk time and clearer audio delivery.

- 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.

EXTENDED COVERAGE WITH IP SITE CONNECT

Imagine using your MOTOTRBO digital two-way radio to speak instantly to a colleague in a plant on the other side of the world.

The IP Site Connect digital solution uses the Internet to extend the coverage of your MOTOTRBO communication system no matter where you may be located.

You can communicate easily among geographically dispersed locations located across the city, state or country. You can create wide area coverage and automatically roam from one coverage area to another with no manual intervention. Or you can simply enhance coverage at a single site like a high-rise building that contains physical barriers.

IP Site Connect enables you to extend the voice and data communication capability of your workforce far beyond what two-way radio has ever achieved before. This means dramatically improved customer service and increased productivity.

INCREASED CAPACITY WITH CAPACITY PLUS SINGLE-SITE TRUNKING

As a scalable, single-site digital trunking solution, Capacity Plus expands the capacity of your MOTOTRBO communication system even further. Over a thousand radio users can quickly and efficiently share business-critical voice and data communication on the same system without having to add new frequencies.

MOTOTRBO INTEGRATED DATA ENABLES ADVANCED APPLICATIONS

ONE DEVICE FOR VOICE AND DATA

In addition to voice, MOTOTRBO supports text messaging, GPS location tracking capability, and custom applications from Motorola's Application Developer Program such as telephony, dispatch, work order ticket solutions and much more. MOTOTRBO keeps your employees connected to the information they need to be more efficient—with the convenience of one device.

CONVENIENT AND DISCREET MOTOTRBO TEXT MESSAGING

Text messaging enables your employees to quickly and easily share information when voice communication isn't practical. It is ideal in loud environments, for delivering messages that don't need an immediate response, or when voice communication could be disrupting to guests, students, customers, or patients.

MOTOTRBO text messaging communicates between radios, radios and dispatch systems, and even radios to any email capable device.

TRACK VEHICLES AND PEOPLE WITH INTEGRATED GPS

Every MOTOTRBO radio has an integrated GPS module to use for tracking people outside your facility, vehicles or other remote assets operating in your coverage area. Unlike other GPS capable radios, MOTOTRBO's module is integrated into the handset so there is no clumsy additional equipment to attach, carry or maintain.

This enables you to better manage your mobile work force and quickly respond to incidents by locating the nearest employee and dispatching them to the scene. It also makes it easier to manage your fleet so you can make deliveries and drive routes more efficiently.

For utility crews, taxi services, the hospitality industry, and countless other industries, the ability to see where your vehicles and employees are located with just a glance is invaluable. Your employees will be far more efficient and your customer service can improve significantly.

CUSTOM DATA APPLICATIONS WITH MOTOROLA'S APPLICATION DEVELOPER PROGRAM

MOTOTRBO offers an optional expansion card which can accommodate custom data applications that adapt the radios to support your specific business tasks.

You can, for example, work with third-party developers or your own IT staff to extend the functionality of MOTOTRBO using Motorola's Application Developer Program.

With this development tool you can create unique applications such as a program to help you manage your work order tickets, to integrate your dispatch and billing systems, to link your MOTOTRBO radios to your telephone system, or to connect to email.

MOTOTRBO is a powerful tool for communication with the flexibility to adapt to your work force, your customers and your business.

MOTOTRBO™ SYSTEM COMPONENTS AND BENEFITS

XiR P8260 / XiR P8268
DISPLAY PORTABLE RADIO

1 Flexible, menu-driven interface with user-friendly icons or two lines of text for ease of reading text messages and navigating through the menus.

2 Tri-color LED indicator for clear, visible feedback of calling, scanning, roaming and monitoring features.

3 Emergency button alerts supervisor or dispatcher in an emergency situation.

4 Accessory connector meets IP57 submersibility specifications and incorporates RF, USB and IMPRES™ audio capability.

5 Integrated GPS module enables the use of location-tracking data applications.

6 Large, easy-to-use navigation buttons allow easy access to intuitive menu-driven interfaces.

7 Radio housing meets IP57 specifications; submersible in 1 meter of fresh water up to 30 minutes. Offers intrinsically safe FM battery options for use in locations where flammable gas, vapors or combustible dust may be present.

8 Powerful, front projecting speaker.

9 Three side and two front programmable buttons for easy access to frequently used features.

10 Large, textured push-to-talk button provides good tactile response and easy access, even when wearing gloves.

11 Up to 1,000 channels.

ADDITIONAL FEATURES

- Enhanced call management
  Digital calling features
    Encode/Decode: call alert, emergency, push-to-talk ID, radio check, remote monitor, private call, all call, transmit interrupt (voice interrupt, remote voice dekey, emergency voice interrupt or data over voice interrupt), radio disable

  MDC 1200 analog calling features
    Encode/decode: push-to-talk ID, emergency, call alert

  Quik-Call II™ analog calling features
    Encode/decode: call alert, call alert with voice, select call

- Dual-mode analog and/or digital scan and mixed mode priority scan—facilitates a smooth migration from analog to digital
- Optional Expansion Card for added capabilities
- Basic or Enhanced privacy—built-in scrambling for increased security
- Free-form and quick text messaging
- Contacts list accommodates up to 1,000 contacts
- Voice Activated Transmit (VOX) hands-free communication
- Seamless site roaming with IP Site Connect*
- Increased voice and data capacity with Capacity Plus* single-site trunking

*Optional feature, please indicate it when placing the radio order

DISPLAY PORTABLE RADIO STANDARD PACKAGE

- Display Portable Radio
- VHF/UHF Antenna
- IMPRES Li-Ion Submersible Battery 1500 mAh
- IMPRES Single Unit Charger
- 2" Belt Clip

XiR P8200 / XiR P8208
NON-DISPLAY PORTABLE RADIO

1 Tri-color LED indicator for clear, visible feedback of calling, scanning, roaming and monitoring features.

2 Emergency button to alert supervisor or dispatcher in an emergency situation.

3 Accessory connector meets IP57 submersibility specifications and incorporates RF, USB and IMPRES audio capability.

4 Integrated GPS module enables the use of location-tracking data applications.

5 Radio housing meets IP57 specifications; submersible in 1 meter of fresh water up to 30 minutes. Offers intrinsically safe FM battery options for use in locations where flammable gas, vapors or combustible dust may be present.

6 Powerful, front projecting speaker.

7 Three side programmable buttons for easy access to frequently used features.

8 Large, textured push-to-talk button provides good tactile response and easy access, even when wearing gloves.

9 32 channels.

NON-DISPLAY PORTABLE RADIO STANDARD PACKAGE

- Non-Display Portable Radio
- VHF/UHF Antenna
- IMPRES Li-Ion Submersible Battery 1500 mAh
- IMPRES Single Unit Charger
- 2″ Belt Clip

ADDITIONAL FEATURES

- Enhanced call management
  Digital calling features
      Encode/Decode: private call, call alert, all call, transmit interrupt (voice interrupt, remote voice dekey, emergency voice interrupt or data over voice interrupt)
      Encode only: emergency, push-to-talk ID
      Decode only: radio check, remote monitor, radio disable
  MDC 1200 analog calling features
      Encode/decode: call alert
      Encode only: push-to-talk ID, emergency
  Quik-Call II™ analog calling features
      Decode only: call alert, call alert with voice, select call
- Dual-mode analog and/or digital scan and mixed mode priority scan—facilitates a smooth migration from analog to digital
- Optional Expansion Card for added capabilities
- Basic or Enhanced privacy—built-in scrambling for increased security
- Send quick text messages via programmable buttons
- Voice Activated Transmit (VOX) hands-free communication
- Seamless site roaming with IP Site Connect*
- Increased voice and data capacity with Capacity Plus* single-site trunking

*Optional feature, please indicate it when placing the radio order

MOTOTRBO™ PORTABLE RADIO SPECIFICATIONS

DISPLAY VHF/UHF

XiR P8268
With integrated GPS module

NON-DISPLAY VHF/UHF

XiR P8208
With integrated GPS module

General Specifications

	Display XiR P8260 / P8268			Non-Display XiR P8200 / P8208		
	VHF	UHF Band I	UHF Band II	VHF	UHF Band I	UHF Band II
Channel Capacity		Up to 1,000			32	
Frequency	136-174 MHz	403-470 MHz	450-512 MHz	136-174 MHz	403-470 MHz	450-512 MHz
Dimensions (HxWxT) w/ Li-Ion Battery		131.5 x 63.5 x 35.2 mm (5.18 x 2.50 x 1.39 in)			131.5 x 63.5 x 35.2 mm (5.18 x 2.50 x 1.39 in)	
Weight (with IMPRES Li-Ion 1500 mAh Battery) (with IMPRES Li-Ion 1400 mAh FM Battery) (with IMPRES Li-Ion 2200 mAh Battery)		360 g (12.7 oz) 370 g (13 oz) 361 g (12.8 oz)			360 g (12.7 oz) 370 g (13 oz) 361 g (12.8 oz)	
Power Supply		7.5 V nominal			7.5 V nominal	
FCC Description	AZ489FT3815	AZ489FT4876	AZ489FT4884	AZ489FT3815	AZ489FT4876	AZ489FT4884
Average battery life at 5/5/90 duty cycle with battery saver enabled in carrier squelch and transmitter in high power.						
IMPRES Li-Ion 1500 mAh Battery		Analog: 9 hrs Digital: 13 hrs			Analog: 9 hrs Digital: 13 hrs	
IMPRES Li-Ion FM 1400 mAh Battery		Analog: 8.5 hrs Digital: 12 hrs			Analog: 8.5 hrs Digital: 12 hrs	
IMPRES Li-Ion 2200 mAh Battery		Analog: 13.5 hrs Digital: 19 hrs			Analog: 13.5 hrs Digital: 19 hrs	

Receiver

	Display XiR P8260 / P8268			Non-Display XiR P8200 / P8208		
	VHF	UHF Band I	UHF Band II	VHF	UHF Band I	UHF Band II
Frequencies	136-174 MHz	403-470 MHz	450-512 MHz	136-174 MHz	403-470 MHz	450-512 MHz
Channel Spacing		12.5 kHz/ 25 kHz			12.5 kHz/ 25 kHz	
Frequency Stability (-30° C, +60° C, +25° C)		+/- 0.5 ppm			+/- 0.5 ppm	
Analog Sensitivity (12 dB SINAD)		0.35 uV 0.22 uV (typical)			0.35 uV 0.22 uV (typical)	
Digital Sensitivity		5% BER: 0.3 uV			5% BER: 0.3 uV	
Intermodulation (TIA603C)		70 dB			70 dB	
Adjacent Channel Selectivity TIA603 TIA603C		60 dB @ 12.5 kHz, 70 dB @ 25 kHz 45 dB @ 12.5 kHz, 70 dB @ 25 kHz			60 dB @ 12.5 kHz, 70 dB @ 25 kHz 45 dB @ 12.5 kHz, 70 dB @ 25 kHz	
Spurious Rejection (TIA603C)		70 dB			70 dB	
Rated Audio		500 mW			500 mW	
Audio Distortion @ Rated Audio		3% (typical)			3% (typical)	
Hum and Noise		-40 dB @ 12.5 kHz -45 dB @ 25 kHz			-40 dB @ 12.5 kHz -45 dB @ 25 kHz	
Audio Response		TIA603C			TIA603C	
Conducted Spurious Emission (TIA603C)		-57 dBm			-57 dBm	

Transmitter

	Display XiR P8260 / P8268			Non-Display XiR P8200 / P8208		
	VHF	UHF Band I	UHF Band II	VHF	UHF Band I	UHF Band II
Frequencies	136-174 MHz	403-470 MHz	450-512 MHz	136-174 MHz	403-470 MHz	450-512 MHz
Channel Spacing	12.5 kHz/ 25 kHz			12.5 kHz/ 25 kHz		
Frequency Stability (-30° C, +60° C, +25° C Ref.)	+/- 0.5 ppm			+/- 0.5 ppm		
Power Output Low Power High Power	1 W 5 W	1 W 4 W		1 W 5 W	1 W 4 W	
Modulation Limiting	+/- 2.5 kHz @ 12.5 kHz +/- 5.0 kHz @ 25 kHz			+/- 2.5 kHz @ 12.5 kHz +/- 5.0 kHz @ 25 kHz		
FM Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 25 kHz			-40 dB @ 12.5 kHz -45 dB @ 25 kHz		
Conducted / Radiated Emission	-36 dBm < 1 GHz -30 dBm > 1 GHz			-36 dBm < 1 GHz -30 dBm > 1 GHz		
Adjacent Channel Power	60 dB @ 12.5 kHz 70 dB @ 25 kHz			60 dB @ 12.5 kHz 70 dB @ 25 kHz		
Audio Response	TIA603C			TIA603C		
Audio Distortion	3%			3%		
FM Modulation	12.5 kHz: 11K0F3E 25 kHz: 16K0F3E			12.5 kHz: 11K0F3E 25 kHz: 16K0F3E		
4FSK Digital Modulation	12.5 kHz Data Only: 7K60FXD 12.5 kHz Data & Voice: 7K60FXE			12.5 kHz Data Only: 7K60FXD 12.5 kHz Data & Voice: 7K60FXE		
Digital Vocoder Type	AMBE+2™			AMBE+2™		
Digital Protocol	ETSI TS 102 361-1			ETSI TS 102 361-1		

GPS

Accuracy specs are for long-term tracking (95th percentile values > 5 satellites visible at a nominal -130 dBm signal strength)

TTFF (Time To First Fix) Cold Start	< 2 minutes	< 2 minutes
TTFF (Time To First Fix) Hot Start	< 10 seconds	< 10 seconds
Horizontal Accuracy	< 10 meters	< 10 meters

Military Standards

Applicable MIL–STD	810E		810F	
	Methods	Procedures	Methods	Procedures
Low Pressure	500.3	II	500.4	II
High Temperature	501.3	I/A, II/A1	501.4	I/Hot, II/Hot
Low Temperature	502.3	I/C3, II/C1	502.4	I/C3, II/C1
Temperature Shock	503.3	I/A, 1C3	503.4	I
Solar Radiation	505.3	I	505.4	I
Rain	506.3	I, II	506.4	I, III
Humidity	507.3	II	507.4	-
Salt Fog	509.3	I	509.4	I
Dust	510.3	I	510.4	I
Vibration	514.4	I/10, II/3	514.5	I/24
Shock	516.4	I, IV	516.5	I, IV

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-801-2KV
Water Intrusion	IEC 60529 - IP57
Packaging Test	MIL-STD 810D and E

Testing completed using portable radio with attached battery and antenna.

Factory Mutual Approvals

MOTOTRBO XPR Series portable radios have been certified by FM Approvals in accordance with Canada and U.S. Codes as intrinsically safe for use in Class I, II, III, Division 1, Groups C, D, E, F, G, when properly equipped with a Motorola FM approved battery option. They are also approved for use in Class I, Division 2, Groups A, B, C, D.

MOTOTRBO™ SYSTEM COMPONENTS AND BENEFITS

XiR M8260 / XiR M8268 DISPLAY MOBILE RADIO

1 Flexible, menu-driven interface with user-friendly icons or two lines of text for ease of reading text messages and navigating through the menus.

2 Multi-colored LED indicators for clear, visible feedback of calling, scanning, roaming and monitoring features.

3 Large, easy-to-use volume knob.

4 Integrated GPS module enables the use of location-tracking data applications.

5 Up to **1,000** channels.

6 Powerful, front-projecting speaker.

7 Large, easy-to-use navigation buttons allow easy access to intuitive, menu-driven interfaces.

8 Accessory connector supports USB and IMPRES™ audio capability.

9 Four programmable/replaceable buttons for easy access to frequently used features.

10 Compact and ergonomically friendly microphone.

DISPLAY MOBILE RADIO STANDARD PACKAGE

- Mobile Radio with Display Control Head
- Compact Microphone
- Mounting Trunnion
- 10-Foot Power Cable
- Replacement Button Kit: monitor, scan, backlight, emergency, talkaround, text message, contacts

ADDITIONAL FEATURES

- Enhanced call management
  Digital calling features
  Encode/Decode: call alert, emergency, remote monitor, push-to-talk ID, radio check, private call, all call, transmit interrupt (voice interrupt, remote voice dekey, emergency voice interrupt or data over voice interrupt), radio disable

  MDC 1200 analog calling features
  Encode/decode: push-to-talk ID, emergency, call alert

  Quik-Call II™ analog calling features
  Encode/decode: call alert, call alert with voice, select call

- Dual-mode analog and/or digital scan and mixed mode priority scan—facilitates a smooth migration from analog to digital
- Optional Expansion Card for added capabilities
- Basic or Enhanced privacy—built-in scrambling for increased security
- Free-form (requires keypad microphone) and quick text messaging
- Remote mount control head kit for easier access and installation
- Seamless site roaming with IP Site Connect*
- Increased voice and data capacity with Capacity Plus* single-site trunking

*Optional feature, please indicate it when placing the radio order

XiR M8220 / XiR M8228 NUMERIC DISPLAY MOBILE RADIO

1 32 channels; channel number is easy to read on large, clear numeric two-digit display.

2 Multi-colored LED indicators for clear, visible feedback of calling, scanning, roaming and monitoring features.

3 Large, easy-to-use volume knob.

4 Integrated GPS module enables the use of location-tracking data applications.

5 Large, easy-to-use channel navigation buttons.

6 Powerful, front-projecting speaker.

7 Accessory connector supports USB and IMPRES audio capability.

8 Two programmable/replaceable buttons for easy access to frequently used features.

9 Compact and ergonomically friendly microphone.

NUMERIC DISPLAY MOBILE RADIO STANDARD PACKAGE

- Mobile Radio with Numeric Display Control Head
- Compact Microphone
- Mounting Trunnion
- 10-Foot Power Cable
- Replacement Button Kit: monitor, scan

ADDITIONAL FEATURES

- Enhanced call management
  Digital calling features
      Encode/Decode: private call, call alert, all call, transmit interrupt (voice interrupt, remote voice dekey, emergency voice interrupt or data over voice interrupt)
      Encode only: emergency, push-to-talk ID
      Decode only: radio check, remote monitor, radio disable
  MDC 1200 analog calling features
      Encode/decode: call alert
      Encode only: push-to-talk ID, emergency
  Quik-Call II™ analog calling features
      Decode only: call alert, call alert with voice, select call
- Dual-mode analog and/or digital scan and mixed mode priority scan—facilitates a smooth migration from analog to digital
- Optional Expansion Card for added capabilities
- Basic or Enhanced privacy—built-in scrambling for increased security
- Send quick text messages via programmable buttons
- Remote mount control head kit for easier access and installation
- Seamless site roaming with IP Site Connect*
- Increased voice and data capacity with Capacity Plus* single-site trunking

*Optional feature, please indicate it when placing the radio order

MOTOTRBO™ MOBILE RADIO SPECIFICATIONS

DISPLAY VHF/UHF

XiR M8268
With integrated GPS module

General Specifications

	Display XiR M8260 / M8268			Numeric Display XiR M8220 / M8228		
	VHF	UHF Band I	UHF Band II	VHF	UHF Band I	UHF Band II
Channel Capacity	Up to 1,000			32		

Typical RF Output
  Low Power
  High Power
	1-25 W
	25-45 W
		1-25 W
		25-40 W
			—
			1-40 W
				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	136-174 MHz	403-470 MHz	450-512 MHz
Dimensions (HxWxL)	51 x 175 x 206 mm (2.01 x 6.89 x 8.11 in)			51 x 175 x 206 mm (2.01 x 6.89 x 8.11 in)		
Weight	1.8 kg (4.0 lbs.)			1.8 kg (4.0 lbs.)		

Current Drain:
  Standby
  Rx @ Rated Audio
  Transmit
	0.81 A max
	2 A max
	1-25 W: 11.0 A max
	25-45 W: 14.5 A max
		0.81 A max
		2 A max
		1-25 W: 11.0 A max
		25-40 W: 14.5 A max
			0.81 A max
			2 A max
			1-40 W: 14.5 A max
			(11.0 A max < 25 W)
				0.81 A max
				2 A max
				1-25 W: 11.0 A max
				25-45 W: 14.5 A max
					0.81 A max
					2 A max
					1-25 W: 11.0 A max
					25-40 W: 14.5 A max
						0.81 A max
						2 A max
						1-40 W: 14.5 A max
						(11.0 A max < 25 W)

FCC Description	1-25 W: ABZ99FT3083 25-45 W: ABZ99FT3082	1-25 W: ABZ99FT4081 25-40 W: ABZ99FT4080	1-40 W: ABZ99FT4083	1-25 W: ABZ99FT3083 25-45 W: ABZ99FT3082	1-25 W: ABZ99FT4081 25-40 W: ABZ99FT4080	1-40 W: ABZ99FT4083

Receiver

	Display XiR M8260 / M8268			Numeric Display XiR M8220 / M8228		
	VHF	UHF Band I	UHF Band II	VHF	UHF Band I	UHF Band II
Frequencies	136-174 MHz	403-470 MHz	450-512 MHz	136-174 MHz	403-470 MHz	450-512 MHz
Channel Spacing	12.5 kHz / 25 kHz			12.5 kHz / 25 kHz		
Frequency Stability (-30° C, +60° C, +25° C)	+/- 0.5 ppm			+/- 0.5 ppm		
Analog Sensitivity (12dB SINAD)	0.3 uV 0.22 uV (typical)			0.3 uV 0.22 uV (typical)		
Digital Sensitivity	5% BER: 0.3 uV			5% BER: 0.3 uV		
Intermodulation (TIA603C)	78 dB	75 dB		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
				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 (TIA603C)	80 dB	75 dB		80 dB	75 dB	
Rated Audio	3 W (Internal) 7.5 W (External - 8 ohms) 13 W (External - 4 ohms)			3 W (Internal) 7.5 W (External - 8 ohms) 13 W (External - 4 ohms)		
Audio Distortion @ Rated Audio	3% (typical)			3% (typical)		
Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 25 kHz			-40 dB @ 12.5 kHz -45 dB @ 25 kHz		
Audio Response	TIA603C			TIA603C		
Conducted Spurious Emission (TIA603C)	-57 dBm			-57 dBm		

NUMERIC DISPLAY VHF/UHF

XiR M8228
With integrated GPS module

Transmitter

	Display XiR M8260 / M8268			Numeric Display XiR M8220 / M8228		
	VHF	UHF Band I	UHF Band II	VHF	UHF Band I	UHF Band II
Frequencies	136-174 MHz	403-470 MHz	450-512 MHz	136-174 MHz	403-470 MHz	450-512 MHz
Channel Spacing	12.5 kHz / 25 kHz			12.5 kHz / 25 kHz		
Frequency Stability (-30° C, +60° C, +25° C Ref.)	+/- 0.5 ppm			+/- 0.5 ppm		
Power Output Low Power High Power	1-25 W 25-45 W	1-25 W 25-40 W	— 1-40 W	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			+/- 2.5 kHz @ 12.5 kHz +/- 5.0 kHz @ 25 kHz		
FM Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 25 kHz			-40 dB @ 12.5 kHz -45 dB @ 25 kHz		
Conducted / Radiated Emission	-36 dBm < 1 GHz -30 dBm > 1 GHz			-36 dBm < 1 GHz -30 dBm > 1 GHz		
Adjacent Channel Power (TIA603C)	60 dB @ 12.5 kHz 70 dB @ 25 kHz			60 dB @ 12.5 kHz 70 dB @ 25 kHz		
Audio Response	TIA603C			TIA603C		
Audio Distortion	3%			3%		
FM Modulation	12.5 kHz: 11K0F3E 25 kHz*: 16K0F3E			12.5 kHz: 11K0F3E 25 kHz*: 16K0F3E		
4FSK Digital Modulation	12.5 kHz Data Only: 7K60FXD 12.5 kHz Data & Voice: 7K60FXE			12.5 kHz Data Only: 7K60FXD 12.5 kHz Data & Voice: 7K60FXE		
Digital Vocoder Type	AMBE+2™			AMBE+2™		
Digital Protocol	ETSI TS 102 361-1			ETSI TS 102 361-1		

GPS

Accuracy specs are for long-term tracking (95th percentile values > 5 satellites visible at a nominal -130 dBm signal strength)

TTFF (Time To First Fix) Cold Start	< 1 minute
TTFF (Time To First Fix) Hot Start	< 10 seconds
Horizontal Accuracy	< 10 meters

Military Standards

Applicable MIL–STD	810E		810F	
	Methods	Procedures	Methods	Procedures
Low Pressure	500.3	II	500.4	II
High Temperature	501.3	I/A, II/A1	501.4	I/Hot, II/Hot
Low Temperature	502.3	I/C3, II/C1	502.4	I/C3, II/C1
Temperature Shock	503.3	I/A1C3	503.4	I
Solar Radiation	505.3	I	505.4	I
Rain	506.3	I, II	506.4	I, III
Humidity	507.3	II	507.4	-
Salt Fog	509.3	I	509.4	I
Dust	510.3	I	510.4	I
Vibration	514.4	I/10, II/3	514.5	I/24
Shock	516.4	I, IV	516.5	I, IV

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-801-2KV
Dust and Water Intrusion	IEC 60529 - IP54
Packaging Test	MIL-STD 810D and E

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

MOTOTRBO™ SYSTEM COMPONENTS AND BENEFITS

XiR R8200 REPEATER

1 100% continuous duty at 40W/UHF and 45W/VHF.

2 Supports two simultaneous voice or data paths in digital TDMA mode.

3 Integrated power supply with connector for optional external DC battery backup.

4 Operates in analog or digital mode—bright, clear, colored LEDs indicate mode.

5 LEDs clearly indicate transmit and receive modes in both channel slots.

6 Rack- or wall-mountable—compatible with desktop housing as well.

7 Sturdy handles make installation and handling easier.

REPEATER STANDARD PACKAGE

• Repeater
• Power Cord (EURO)

ADDITIONAL FEATURES

• Automated battery back-up (battery sold separately)
• Seamless site roaming with IP Site Connect*
• Increased voice and data capacity with Capacity Plus* single-site trunking
• Dynamic mixed mode capability allows for automatic switching between analog and digital mode
• Repeater diagnostic and control software provides remote or local site monitoring

*Optional feature, please indicate it when placing the radio order

MOTOTRBO REPEATER SPECIFICATIONS

VHF/UHF

XiR R8200

General Specifications

	XiR R8200		
	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

Receiver

	XiR R8200		
	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

	XiR R8200		
	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		

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

IMPRES™ SMART AUDIO SYSTEM— EXCLUSIVE AUDIO TECHNOLOGY THAT ENABLES HIGH QUALITY COMMUNICATIONS

Motorola digital technology enables breakthrough radio performance and features. Our state-of-the-art IMPRES audio technology allows communication between the radio and audio accessories, enabling enhanced performance and capabilities, both in analog and digital modes—now and into the future.

- **IMPRES Smart Audio System**—Provides businesses and agencies with a solution that optimizes key aspects of two-way audio quality— loudness, clarity and intelligibility.

  Optimal Audio Performance: When an IMPRES accessory is attached, the accessory parameters are sent to the MOTOTRBO™ radio enabling the radio to optimize its output for each type of audio accessory. This results in more consistent output across all audio accessory types. For example, the IMPRES remote speaker microphone capitalizes on the MOTOTRBO radio's intelligent signal processing for outstanding noise suppression, speech clarity, and loudness – even in difficult weather conditions.

  Customization: Accessory programmable buttons can be programmed to any feature available in the radio CPS, rather than being linked to radio programmable button programming. This allows accessories with programmable buttons to have independently programmed features. This flexibility allows the radio to be customized to fit your specific applications and needs.

  Enhanced Audio Gain Capability (AGC): IMPRES audio accessories have significantly enhanced audio gain capability. When you are speaking either quietly or speaking in a normal volume but not directly into the microphone, IMPRES audio

technology can detect that condition and will automatically increase the microphone gain. AGC eliminates the need to adjust volume levels repeatedly.

- **Built-in Antenna Signal**—The portable connector design incorporates the antenna signal within the audio connector, eliminating the need for an external radio frequency (RF) adapter for public safety microphones.

- **Submersibility**—This connector design meets IP57 submersibility requirements. This allows for use with submersible accessories, such as the submersible remote speaker microphone, which provides reliable communications even in wet conditions.

- **Future Applications**—The portable connector design also incorporates built-in USB capability to allow for the use of USB-capable accessories. The audio accessory interface is now the Motorola standard audio accessory interface for mid- to high-tier two-way radios. Future accessory development is based on this interface so you will be able to take advantage of future releases of new audio accessories.

IMPRES SMART ENERGY SYSTEM—A UNIQUE BATTERY CHARGING AND RECONDITIONING SOLUTION

Motorola's state-of-the-art IMPRES technology allows communication between the battery and the charger to automate battery maintenance. The result—prolonged life of your batteries and maximized talk time.

• **Automated battery maintenance**—Manual tracking and recording of battery use are a thing of the past. IMPRES uses a unique communications protocol to facilitate adaptive reconditioning—the charger evaluates the details of the battery's usage pattern to determine the optimal reconditioning interval. This automated process works to diminish memory effect and optimize the cycle life of the battery and maximize talk time.

• **Long-term safe charging**—IMPRES batteries may be left in IMPRES chargers for extended periods without heat damage from the charger. Charge levels are also monitored by the charger, so that radios are charged to the appropriate level and ready to go whenever needed.

• **Chargers that communicate**—IMPRES chargers are available with a two-line display module. You now have access to valuable information such as:
  ~ Battery capacity (in mAh and percent of minimum rated capacity) and voltage while charging and at completion of charge
  ~ Time remaining to complete rapid charging (NiCd and NiMH only)
  ~ Current battery charge status

  ~ The battery's unique serial number, part number and chemistry
  ~ Knowledge is power. You can make informed decisions on battery replacement and asset management.

• **Extended warranty**—When used exclusively with IMPRES chargers, MOTOTRBO IMPRES batteries have an 18 month capacity warranty coverage—six months longer than Motorola Premium Li-Ion batteries.

• **Proven Tough**—IMPRES batteries are subjected to the same rigorous testing and held to the same high standards as all Motorola Premium batteries. Actual results of Drop, Vibration and ESD (Electrostatic Discharge) tests prove Motorola batteries outperform the competition.

• **Environmentally Friendly**—IMPRES chargers have technology that avoids overcharging and our single-unit IMPRES chargers with external power supplies consume 40 percent less energy in standby mode than required by the U.S. Energy Independence and Security Act of 2007.

MOTOTRBO™ ACCESSORIES

PORTABLE RADIO

To complement the MOTOTRBO portables, Motorola Original® accessories are specifically designed for your critical communication needs. Whether it is harsh working conditions, noisy environments, long shifts or the focus is on discreet communication, a MOTOTRBO accessory is available to meet the challenge.

It is recommended that your MOTOTRBO radio always be paired with Motorola approved batteries or accessories. Use of non-Motorola approved batteries or accessories may result in RF energy exposure standards being exceeded. Use of non-Motorola approved batteries or accessories may cause your Motorola radios to become non-compliant to other regulations and standards, for example, EMC or FM.
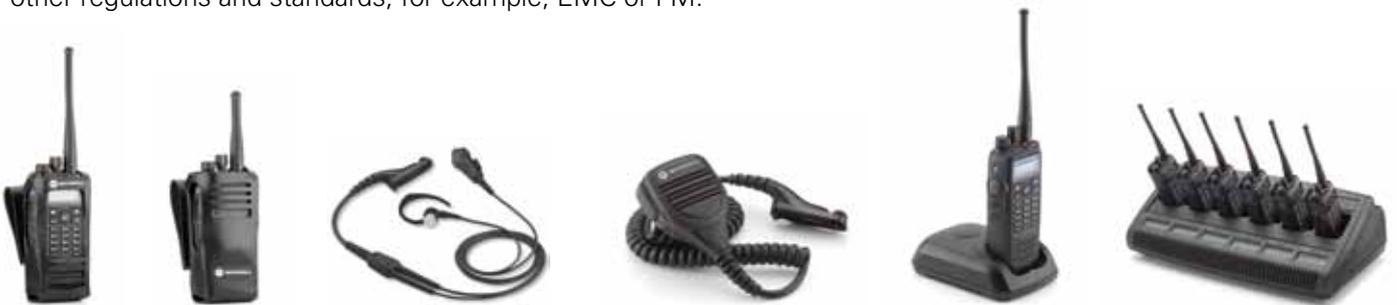
AUDIO SOLUTIONS

Remote and Public Speaker Microphones are versatile and reliable accessories that allow users to remain in full contact without removing the radio from the belt or carry case. Motorola offers a range of these speaker microphones that provide features such as IMPRES™, Windporting, IP57 submersibility and noise-canceling acoustics.

Motorola also offers a wide range of earpieces, surveillance kits, headsets and temple transducers to ensure you have the right audio accessory for your specific business need.

BATTERY AND CHARGING SOLUTIONS

IMPRES batteries are designed to maximize talk time and optimize battery life. Four batteries are available to meet your specific power needs. Complementing the battery portfolio are a range of IMPRES charging solutions from single-unit chargers, multi-unit chargers and vehicular chargers.

CARRYING SOLUTIONS

The ability to perform the job while staying in contact requires good carrying solutions. MOTOTRBO offers a wide range of solutions including belt clips, nylon- and leather carry cases, shoulder straps and chest packs. All designed to increase comfort and enhance functionality such as ruggedness as well as water and dust resistance.

MOBILE RADIO

A range of Motorola accessories are available to support the MOTOTRBO mobile radios. Accessories are an important piece of the mobile solution to meet even the most challenging installation and operational requirements. These MOTOTRBO mobile accessories can enable hands free communication in the vehicle, dispatch-enabled communication and convenient installation options.

AUDIO SOLUTIONS

Various mobile microphones are available for different needs. The IMPRES keypad microphone allows the user to navigate the mobile menu, dial phone numbers and send text messages, the heavy duty microphone provides enhanced durability and easier handling while wearing gloves. The IMPRES visor microphone enables hands-free and discreet communications.

The desktop microphone, tray and external speaker allow users to convert MOTOTRBO mobiles into simple base stations offering an optimal solution for transportation and dispatch users.

Other accessories are available for MOTOTRBO with specific needs in mind. An emergency footswitch is available allowing users to discretely notify about an emergency situation. External speaker and push-button PTT are available when operating in noisy environments or if hands free operation is required.

REMOTE MOUNTING SOLUTIONS

Remote Mount cables enable you to mount the mobile in a trunk, a critical accessory when space is limited in the vehicle or in covert operations.

ANTENNA SOLUTIONS

A wide variety of antenna options are available to support your specific mobile configuration. Standalone radio frequency (RF) antennas, standalone GPS antennas or combination GPS/RF antennas are all available in the frequency band you require.

Motorola Electronics Pte Ltd
Motorola Innovation Centre - Level 7, 12 Ang Mo Kio Street 64, Ang Mo Kio Industrial Park 3, Singapore 569088

www.motorola.com

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