

# Motorola MOTOTRBO™ Ion

*Your business runs on voice and data. But if your devices can only access one, you're not running at your best.*

The MOTOTRBO™ Ion smart radio is the first business-ready communication device with all-on voice and broadband data capabilities. It brings together renowned PTT performance, an open app ecosystem on the Android platform, and access to Motorola Solutions' unified technology ecosystem—from video security and analytics solutions, to best-in-class network security, to powerful new software and technology services like smart virtual assistants.

With MOTOTRBO Ion, teams stay connected across networks and devices. Business-critical data and workflows are unified and simplified. And the capabilities your workforce needs to be at their best are always on.

## Key Features

### Apps are on:

- Android platform
- Open app ecosystem
- Motorola Solutions' unified technology ecosystem
- Full multimedia capabilities
- Intuitive touchscreen interface

### Uptime is on:

- Fast setup and updates
- Seamless device management
- Managed and supported services



### Security is on:

- Device security
- Application security
- Data security

### Dependability is on:

- Built for any environment
- Industry-leading audio
- Ultra-rugged touchscreen
- Customizable experience
- Long battery life
- Redesigned antenna
- Intrinsically safe

### Connectivity is on:

- Dedicated PTT device
- Seamless Voice Handover
- Full network interoperability with WAVE PTX
- DMR (MOTOTRBO)
- Long Term Evolution (LTE)
- Wi-Fi
- CBRS (Nitro™)
- Bluetooth

# Motorola MOTOTRBO™ Ion

## LTE Connectivity

Bands Supported	B2, B4, B5, B7, B12, B13, B14, B17, B30, B48 (Private Band)
Device Class	4
Certifications	Verizon, AT&T, Bell Mobility

## DMR (MOTOTRBO) Connectivity

Operational Systems	Digital and Analog Conventional Dual Capacity Direct Mode IP Site Connect Capacity Plus Single/Multi-Site Capacity Max
Frequency Bands	UHF (400 -527 MHz) Up to 1000 Channels Up to 250 Zones
Channel Spacing	12.5, 25* kHz

## DMR Transmitter Spec Connectivity

RF Output Power	4 W (high) / 1 W (low)
4FSK Digital Modulation	12.5 kHz Data: 7K60F1D and 7K60FXD 12.5 kHz Voice: 7K60F1E and 7K60FXE Combination of 12.5 kHz Voice and Data: 7K60F1W
Digital Protocol	ETSI TS 102 361, DMR Tier II & III
Conducted/Radiated Emissions (ETSI)	-36 dBm < 1GHz, -30 dBm > 1GHz
Adjacent Channel Power	60dB (12.5 kHz channel), 70dB (25* kHz channel)
Frequency Stability	± 0.5 ppm

## DMR Receiver Spec Connectivity

Analog Sensitivity (12dB SINAD)	0.16uV
Digital Sensitivity (5% BER)	0.14uV
Intermodulation (TIA603D)	70 dB
Adjacent Channel Selectivity, (TIA603A)-1T	60 dB (12.5 kHz channel), 70 dB (25* kHz channel)
Adjacent Channel Selectivity, (TIA603D)-2T	45 dB (12.5 kHz channel), 70 dB (25* kHz channel)
Spurious Rejection (TIA603D)	70 dB

## Wi-Fi Connectivity

Standards Supported	802.11a/b/g/n/ac
Frequency Range	2.4 GHz, 5 GHz
Security	Supports WEP, WPA, WPA2, WPA3, Wi-Fi Enhanced Open

## Bluetooth Connectivity

Version	5.0 + LE +BR/EDR
Range	Class 1.5, 33ft (10m)
Simultaneous Connections	1 x audio accessory and 1 x data device

\*25 kHz channels not available in USA

## GNSS Specifications Connectivity

Time To First Fix, Cold Start	< 50 sec
Time To First Fix, Hot Start	< 5 sec
Horizontal Accuracy	< 16.5 ft (< 5 m)

## Location Tracking Connectivity

Built-in GNSS (GPS/GLONASS/BEIDOU/GALILEO) and AGPS

Indoor Positioning

## Battery

Technology	IMPRES™ 2 Smart Battery
Battery Capacity	Standard 2820 mAh Standard HazLoc 2900 mAh High Capacity HazLoc 4400 mAh
Power Supply	7.5 V (Nominal)

## Audio

Audio Output Power	Rated: 1 W @ 1% distortion Maximum: 3 W
Audio Response (EIA)	+1, -3 dB
Hum and Noise	-40 dB (12.5 kHz channel) -45 dB (25 kHz channel)
Conducted Spurious Emissions (TIA603D)	-57dBm
Audio Features	Adaptive Speaker Equalization Adaptive Dual Microphone Noise Suppression Adaptive Gain Control Adaptive Wind Noise Mitigation Automatic Acoustic Feedback Suppression Intelligent Audio IMPRES Audio Microphone Distortion Control User-Selectable Audio Profiles Trill Enhancement
Voice Interaction	Customizable Voice Announcements Voice Control: 13 Actions with Intuitive Commands

## Software

Operating System	Android 11
Google Certifications	Google Mobile Services Android Enterprise Recommended

## Video & Imaging

Supported Formats	H.263, H.264, MPEG-4 SP, VP8, JPEG (.jpg), GIF (.gif), PNG (.png), BMP (.bmp), WebP, (.webp) formats supported for playback, streaming & recording
Supported File Types	3GPP (.3gp), MPEG-4 (.mp4), WebM (.webm), (.mkv)
Video Recording Quality	1080p (FHD) at 30 fps

## Security

Root Detection: Standard  
Multi-Factor Authentication: Optional  
Integrity Monitoring: Standard  
Malware Blocking: Standard  
Secure boot: Standard  
Mobile Virtual Private Network: Optional

# Motorola MOTOTRBO™ Ion

## Hardware

Main Display	4 in. color display, 480 x 800 px Capacitive touchscreen with Gorilla Glass Usable with gloves up to 4 mm thick Resistant to false actuation from fresh or salt water, snow, dirt or grease	
Top Display	1.05 in. Monochromatic LCD	
Memory	4 GB RAM 32 GB Internal Storage Storage is expandable with external up to 256 GB microSD™ card	
Card Slot	eSIM	1 x Nano SIM, 1 x Micro SD
Camera	Rear 13 MP Auto Focus	High-Output LED Flash 8x Digital Zoom
Sensor Platform	Hall-Effect Sensor Gyroscope Accelerometer	Barometer Ambient Light Sensor E-Compass
User Interface	High velocity user interface: large touch targets, shallow menu hierarchy, home screen information at a glance.	
Physical Buttons	Power/Volume Knob Display On/Off Button Channel Selector Knob	Dedicated PTT Button Dedicated Emergency Button 3 Programmable Buttons
Antenna Length	6 cm, 9 cm or 15 cm, depending on frequency. Refer to MOTOTRBO Ion Accessory Catalog for details.	

## Hazloc Protection

When properly equipped with Motorola UL-Approved battery, MOTOTRBO Ion is UL Approved to TIA-4950 for use in Hazardous Locations, Division 1, Class I, II, III, Groups C,D,E, F, G; Division 2, Class 1, Groups A, B, C, D, T3C. Tamb = -20 °C to +60 °C.

## Ruggedness

Ingress Protection	IP68 (2 meters, 2 hours)
--------------------	--------------------------

## Physical\*\*

Dimensions (H x W x D) with Standard Battery	5.6 in x 2.8 in x 1.2 in (143 mm x 70 mm x 29 mm)
Dimensions (H x W x D) with Standard Hazloc Battery	5.6 in x 2.8 in x 1.5 in (143 mm x 70 mm x 38 mm)
Dimensions (H x W x D) with High-Capacity Battery	5.6 in x 2.8 in x 1.6 in (143 mm x 70 mm x 41 mm)
Weight with Standard Battery	15 oz (414 g)
Weight with Standard Hazloc Battery	15 oz (439 g)
Weight with High-Capacity Battery	17 oz (478 g)

## Environmental

Operating Temperature	-20 to +60 °C (-4 to +140 °F)
Storage Temperature	-40 to +85 °C (-40 to +185 °F)
Humidity	Per MIL-STD 810
Thermal Shock	Per MIL-STD 810
Electrostatic Discharge	IEC 61000-4-2 Level 4
Dust and Water Intrusion	IEC 60529 - IP68, 6.6 ft (2 m) for 2 hrs
Salt Fog	5% NaCl for 48 hrs at 35 °C, 48 hrs standing
Packaging Test	Per MIL-STD 810

## Regulatory

FCC ID	AZ489FT7133
IC ID	109U-89FT7133
Model Number	MSLB-MKZ900



\*\*Physical specifications and dimensions are listed without antenna

# Motorola MOTOTRBO™ Ion

## Military Standards

	810C		810D		810E		810F		810G		810H	
Applicable MIL-STD	Method	Proc/Cat	Method	Proc/Cat	Method	Proc/Cat	Method	Proc/Cat	Method	Proc/Cat	Method	Proc/Cat
Low Pressure	500.1	I	500.2	II	500.3	I/II	500.4	I/II	500.6	I/II	500.6	I/II
High Temp.	501.1	I, II	501.2	I/A1, II/A1	501.3	I/A1, II/A1	501.4	I/Hot, II/Hot	501.6	I/A1, II/A1	501.7	I/A1, II/A1
Low Temp.	502.1	I	502.2	I/C3, II/C1	502.3	I/C3, II/C1	502.4	I/C3, II/C1	502.6	I/C3, II/C1	502.7	I/C3, II/C1
Temp. Shock	503.1	I	503.2	I/A1, C3	503.3	I/A1, C3	503.4	I	503.6	I/C	503.7	I/C
Solar Radiation	505.1	II	505.2	I/Hot-Dry	505.3	I/Hot-Dry	505.4	I/Hot-Dry	505.6	I/A1	505.7	I/A1
Rain	506.1	I, II	506.2	I, II	506.3	I, II	506.4	I, III	506.6	I, III	506.6	I, III
Humidity	507.1	II	507.2	II/Hot-Humid	507.3	II/Hot-Humid	507.4	-	507.6	II/Aggravated	507.6	II/Aggravated
Salt Fog	509.1	I	509.2	I	509.3	I	509.4	-	509.6	-	509.7	-
Dust	510.1	I	510.2	I, II	510.3	I, II	510.4	I, II	510.6	I, II	510.7	I, II
Vibration	514.2	VIII/F, XI	514.3	I/10, II/3	514.4	I/10, II/3	514.5	I/24, II/5	514.7	I/24, II/5	514.8	I/24, II/5
Shock	516.2	II	516.3	I, IV	516.4	I, IV	516.5	I, IV	516.7	I, IV	516.8	I, IV
Contamination by Fluids									504.2	II	504.3	2.2.6 b

## Audio

### Loud and clear, designed for comfort & wearability



A range of wired and wireless audio accessories enable a tailored experience. Bluetooth 5.0 provides fast and secure wireless connectivity, while the sleek and compact GCAI-mini wired accessory port is designed for improved wearability.

The new covert surveillance earpieces are designed for comfort with a lighter weight, modern look and sleek profile. Like the MOTOTRBO Ion, these new earpieces are HD voice ready. The speaker element has moved closer to the ear tube, reducing the audio travel length and preserving audio quality.

## Energy

### Maximize power for the longest shifts



If the battery dies, it jeopardizes everything. Our slim, lightweight batteries provide a battery life that lasts a full shift – ensuring the MOTOTRBO Ion works when you need it.

A variety of flexible charging solutions enables you to charge one or up to six batteries simultaneously - so your radios are always ready for the next shift.

## Carry

### Secure, easy access



Choose from plastic carry cases and belt clips, all designed for ease yet provide a secure access to the MOTOTRBO Ion radio when wearing it on the waist or hip — so your team can stay hands free and focused on the task ahead.

## Antennas

### Designed for wearability



Motorola Solutions' redesigned antennas provide convenience without compromising performance. Shorter and compliant conforming to the user in mission critical environments.