

MOTOTRBO R7 SERIES



MOTOTRBO™ R7 series are digital portable radios that offer game-changing audio capabilities in a rugged, future-ready device. Its advanced audio processing ensures that your communications are loud and clear, while its rugged construction is ready for harsh environments, and advanced connectivity options get your workforce ready for tomorrow.

R7 is available with full keypad and no keypad versions.
R7a is available only as no keypad versions.

KEY FEATURES

- UHF/VHF
- Wi-Fi 2.4/5.0 GHz
- WPA3 Wi-Fi security protocol compliant
- Bluetooth 5.2
- 2.4" 320 x 240 px. QVGA display
- Modern, intuitive user experience
- Full suite of accessories
- Sleek and ergonomic form factor
- Automatic Acoustic Feedback Suppression
- Adaptive Dual Microphone Noise Suppression
- Intelligent Audio
- IMPRES™ technology
- Programmable loudness up 107 phons
- Wideband speaker and microphones
- Simple audio configuration
- Up to 28 hours of battery life[1]
- IP68 (waterproof up to 2 meters for 2 hours)
- IP66 (concentrated water jet pressure)
- Intrinsically safe option (UL TIA-4950)
- Disinfectant and decontamination substance resistant housing[2]
- Robust and corrosion-proof side connector
- Rugged to MIL-STD 810
- 5 years of hardware repair, technical support, software updates and premium features

[1] Typical battery life, 5/5/90 profile at maximum transmitter power with GNSS, Bluetooth, Wi-Fi and Option Board applications disabled. Actual observed runtimes may vary.
[2] Please refer to the MOTOTRBO R7 user manual for a list of approved disinfectants and decontamination substances.

MOTOROLA SOLUTIONS

SPECIFICATIONS

GENERAL SPECIFICATIONS				
	FULL KEYPAD MODEL (FKP)		NO KEYPAD MODEL (NKP)	
Band	UHF	VHF	UHF	VHF
Frequency	400-527 MHz	136-174 MHz	400-527 MHz	136-174 MHz
High Power Output	4 W	5 W	4 W	5 W
Low Power Output	1 W			
Channel Spacing	12.5 kHz, 20 kHz, 25 kHz			
Channel Capacity	1000 Channels		64 Channels	
Display	2.4" 320 x 240 px. QVGA display, with up to 10 lines of text		N/A	
FCC Description	AZ489FT7143	AZ489FT7144	AZ489FT7143	AZ489FT7144
IC Description	109U-89FT7143	109U-89FT7144	109U-89FT7143	109U-89FT7144
Power Supply (Nominal)	7.5 V			
MOTOTRBO R7 with 2200 mAh Slim IMPRES Li-Ion battery (PMNN4807)				
Dimensions (H x W x D)	5.2 x 2.2 x 1.4 in. (131.8 x 56 x 34.7 mm)		5.2 x 2.2 x 1.2 in. (131.8 x 56 x 31.3 mm)	
Weight[1]	11 oz (316 g)		10 oz (289 g)	
Digital / Analog Battery Life[2]	19 / 14.5 hrs	20 / 15 hrs	19 / 14.5 hrs	20 / 15 hrs
Operating Temperature	-4 °F to 140 °F (-20 °C to 60 °C)			
MOTOTRBO R7 with 2450 mAh Li-Ion battery (PMNN4808)				
Dimensions (H x W x D)	5.2 x 2.2 x 1.6 in. (131.8 x 56 x 40.7 mm)		5.2 x 2.2 x 1.5 in. (131.8 x 56 x 37.3 mm)	
Weight[1]	12 oz (346 g)		11 oz (319 g)	
Digital / Analog Battery Life[2]	21.5 / 16.5 hrs	22 / 17 hrs	21.5 / 16.5 hrs	22 / 17 hrs
Operating Temperature	-4 °F to 140 °F (-20 °C to 60 °C)			
MOTOTRBO R7 with 2850 mAh IMPRES Li-Ion battery (PMNN4809)				
Dimensions (H x W x D)	5.2 x 2.2 x 1.4 in. (131.8 x 56 x 34.7 mm)		5.2 x 2.2 x 1.2 in. (131.8 x 56 x 31.3 mm)	
Weight[1]	12 oz (333 g)		11 oz (306 g)	
Digital / Analog Battery Life[2]	25 / 19 hrs	26 / 19.5 hrs	25 / 19 hrs	26 / 19.5 hrs
Operating Temperature	-4 °F to 140 °F (-20 °C to 60 °C)			
MOTOTRBO R7 with 3200 mAh HazLoc IMPRES Li-Ion battery (PMNN4810)				
Dimensions (H x W x D)	5.2 x 2.2 x 1.6 in. (131.8 x 56 x 40.7 mm)		5.2 x 2.2 x 1.5 in. (131.8 x 56 x 37.3 mm)	
Weight[1]	13 oz (366 g)		12 oz (339 g)	
Digital / Analog Battery Life[2]	28 / 21.5 hrs	29 / 22 hrs	28 / 21.5 hrs	29 / 22 hrs
Operating Temperature	-4 °F to 140 °F (-20 °C to 60 °C)			

[1] Radio weight information is exclusive of General Option Board and antenna.
[2] Typical battery life, 5/5/90 profile at maximum transmitter power with GNSS, Bluetooth, Wi-Fi and Option Board applications disabled. Actual observed runtimes may vary.

Specifications are subject to change without notice. All specifications shown are typical values.

SPECIFICATIONS

TRANSMITTER SPECIFICATIONS	
Channel Spacing	12.5 kHz, 20 kHz, 25 kHz
4FSK Digital Modulation	• 12.5 kHz Data Only: 7K60F1D & 7K60FXD • 12.5 kHz Data & Voice: 7K60F1E & 7K60FXE • Combination of 12.5 kHz Voice and Data: 7K60F1W
Digital Protocol	• ETSI TS 102 361-1, -2, -3,- 4 • DMR Tier II, III
Conducted/Radiated Emissions (TIA603D)	•-36 dBm < 1 GHz •-30 dBm > 1 GHz
Adjacent Channel Power	• 60 dB @ 12.5 kHz • 70 dB @ 20 kHz / 25 kHz
Frequency Stability	+/-0.5 ppm

RECEIVER SPECIFICATIONS	
Analog Sensitivity (12dB SINAD)	0.16 µV (typical)
Digital Sensitivity (5% BER)	0.14 µV (typical)
Intermodulation (TIA603D)	70 dB
Adjacent Channel Selectivity, (TIA603A)-1T	• 60 dB @ 12.5 kHz • 70 dB @ 20 kHz / 25 kHz
Adjacent Channel Selectivity, (TIA603D)-2T	• 45 dB @ 12.5 kHz • 70 dB @ 20 kHz / 25 kHz
Spurious Rejection (TIA603D)	70 dB

GNSS SPECIFICATIONS	
Constellation Support	GPS, GLONASS, BEIDOU, GALILEO
Time To First Fix, Cold Start	≤ 60 seconds
Time To First Fix, Hot Start	≤10 seconds
Horizontal Accuracy	< 5 meters

WI-FI SPECIFICATIONS	
Frequency Range	2.4 GHz, 5 GHz
Standards Supported	Wi-Fi 5 / IEEE 802.11a/b/g/n/ac
Security Protocol Supported	WPA-3, WPA-2
Maximum Number of SSIDs	128 (64 for NKP Models)

HAZLOC CERTIFICATION
ANSI/TIA 4950 and CAN/CSA C22.2 No. 157-92 as intrinsically safe for use in Class I, II, III, Division 1, Groups C, D, E, F, G, Division 2, Groups A, B, C, D

SERVICE COVERAGE
Included: Hardware repair, technical support, software updates and premium features (5 years)
Optional: Accidental damage (5 years)

BLUETOOTH SPECIFICATIONS	
Version	5.2
Range	Class 2, 33 ft (10 m)
Supported Profiles	Bluetooth Headset Profile (HSP), Serial Port Profile (SPP), Personal Area Network (PAN), Generic Attributes (GATT), In-door location (Bluetooth LE Passive Scanning)
Simultaneous Connections	1 audio accessory and up to 4 data devices

AUDIO SPECIFICATIONS	
Digital Vocoder Type	AMBE+2
Audio Response (TIA603D)	+1, -3 dB
Audio Output Power (Rated/Max)	1 W / 3 W
Audio Distortion at Rated Audio	≤1.5%
Maximum Speech Loudness by Default (ISO5326)	102 phon @ 30 cm
Maximum Programmable Speech Loudness (Extra Loud Mode, Level 3)	107 phon @ 30cm
Hum and Noise	• -40 dB @ 12.5 kHz • -45 dB @ 20 kHz / 25 kHz
Conducted Spurious Emissions (TIA603D)	-57 dBm

ENVIRONMENTAL SPECIFICATIONS	
Operating Temperature[1]	-22 °F to 140 °F (-30 °C to 60 °C)
Storage Temperature	-40 °F to 185 °F (-40 °C to 85 °C)
Thermal Shock	Per MIL-STD
Humidity	Per MIL-STD
Electrostatic Discharge	IEC 61000-4-2 Level 4
Dust and Water Intrusion	IP68 (Submersion up to 2m, 2hrs) IP66 for high pressure-water resistance per IEC 60529
Salt Fog	5% NaCl for 8 hrs at 35 °C, 16 hrs standing
Packaging Test	MIL-STD 810D and E

MILITARY STANDARDS (MIL-STD 810)

	MIL-STD 810C		MIL-STD 810D		MIL-STD 810E		MIL-STD 810F		MIL-STD 810G		MIL-STD 810H	
	METHOD	PROCEDURE	METHOD	PROCEDURE	METHOD	PROCEDURE	METHOD	PROCEDURE	METHOD	PROCEDURE	METHOD	PROCEDURE
Low Pressure	500.1	I	500.2	II	500.3	II	500.4	II	500.6	II	500.6	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, II	502.3	I, II	502.4	I, II	502.6	I, II	502.7	I, II
Temp Shock	503.1	I	503.2	A1/C3	503.3	A1/C3	503.4	I	503.6	I-C	503.7	I-C
Solar Radiation	505.1	II	505.2	I/A1	505.3	I/A1	505.4	I/A1	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	507.3	II	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	-
Blowing Dust & Sand	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/CatF, XI	514.3	I/Cat10, II/Cat3	514.4	I/Cat10, III/Cat3	514.5	I/Cat24, II/Cat5	514.7	I/Cat24, II/Cat5	514.8	I/Cat24, II/Cat5
Shock	516.2	I, II	516.3	I, IV	516.4	I, IV	516.5	I, IV	516.7	I, IV	516.8	I, IV
Contamination by Fluids[2]									504.2	II	504.3	2.2.6 b

[1] Radio only. Battery requires -20 °C minimal operating temperature.

[2] Please refer to the MOTOTRBO R7 user manual for a list of tested disinfectants and decontamination substances.

Specifications are subject to change without notice. All specifications shown are typical values.

FEATURE COMPARISON

R7 is available with full keypad and no keypad versions. R7a is available only as no keypad versions.

	R7 Full Keypad		R7 No Keypad		R7a No Keypad
GENERAL	Enable Model	Capable Model	Enable Model	Capable Model	
UHF Band 4 W, VHF Band 5 W	●	●	●	●	●
Full Keypad	●	●	—	—	—
Color Screen	●	●	—	—	—
Analog and Digital	●	●	●	●	●
Voice and Data	●	●	●	●	●
Integrated Wi-Fi	●	○	●	○	—
Canned Text Messaging	●	●	●	●	●
Freeform Text Messaging	●	●	—	—	—
Text to Speech	●	●	●	●	●
Work Order Ticketing	●	●	—	—	—
Indoor Location Tracking	●	○	●	○	—
Event-Driven Location Update	●	○	●	○	—
Outdoor Location Tracking	●	○	●	○	—
Bluetooth Audio	●	○	●	○	—
Bluetooth Data	●	○	●	○	—
Voice Announcement	●	●	●	●	●
Home Channel Reminder	●	●	●	●	●
Option Board[1]	○	○	○	○	—
Late Entry	●	●	●	●	●
Priority Scan	●	●	●	●	●
Real-Time Clock	●	●	●	●	—
Audio Recording/Playback	○	○	○	○	—
Secure Linux Operating System	●	●	●	●	●
M-Radio Control App	○	○	○	○	—
AUDIO					
Intelligent Audio in Analog and Digital	●	●	●	●	●
IMPRES Audio	●	●	●	●	●
Automatic Acoustic Feedback Suppressor	●	●	●	●	●
Microphone Distortion Control	●	●	●	●	●
User-Selectable Audio Profile	●	●	●	●	●
Trill Enhancement	●	●	●	●	●
Advanced Dual Microphone Noise Suppression[2]	●	●	●	●	—
Single Microphone Noise Cancellation	—	—	—	—	●
SYSTEMS					
Dual Capacity Direct Mode	●	●	●	●	●
Conventional	●	●	●	●	●
IP Site Connect	●	●	●	●	●
Capacity Plus Single/Multi Site	●	●	●	●	●
Capacity Max	○	○	○	○	○

	R7 Full Keypad		R7 No Keypad		R7a No Keypad
MANAGEMENT	Enable Model	Capable Model	Enable Model	Capable Model	
CPS 2.0 and Radio Manangement	●	●	●	●	●
Over-the-Air Programming	●	●	●	●	●
Over-the-Air Software Update	●	●	●	●	—
IMPRES Energy[3]	○	○	○	○	○
IMPRES Battery Management[3]	○	○	○	○	○
Over-the-Air Battery Management	○	○	○	○	○
SAFETY					
Sensor Integration	○	○	○	○	—
Integrated Accelerometer	●	●	●	●	—
Man Down / Fall Alert	●	○	●	○	—
Lone Worker	●	●	●	●	●
Enhanced Privacy	○	○	○	○	○
Transmit Interrupt	●	●	●	●	●
Digital Emergency	●	●	●	●	●
Emergency Search Tone	●	●	●	●	●
Remote Monitor	●	●	●	●	●
Radio Disable / Enable	●	●	●	●	●
IP68 (waterproof up to 2 meters for 2 hours)	●	●	●	●	●
IP66 (concentrated water jet pressure)	●	●	●	●	●
Rugged to MIL-STD 810	●	●	●	●	●
Secure Processor	●	●	●	●	●
Digital Certificates	●	●	●	●	—
CUSTOMIZATION					
GCAI-Mini Accessory Port	●	●	●	●	●
6 Programmable Buttons	●	●	—	—	—
4 Programmable Buttons	—	—	●	●	●
Day/Night Screen Mode	●	●	—	—	—
Action List	●	●	—	—	—
Emergency Button	●	●	●	●	●
Label Recess	●	●	●	●	●
Option Board[1]	○	○	○	○	—

LEGEND

● Included ○ Optional — Not Included

[1] Pending option board installation.
[2] Noise suppression method differs between accessories.
[3] Standard for regions that do not offer core battery / Optional if they do.

Specifications are subject to change without notice. All specifications shown are typical values.

For more information, please visit
motorolasolutions.com/R7

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MOTOTRBO R7

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