

MOTOTRBO™ R5 portable two-way radios

MOTOTRBO R5 connects teams, helping boost efficiency and safety with loud, clear audio that cuts through background noise, plus intuitive status indications and controls so workers can focus on their tasks, all in a tough, compact device that's built to last.



Key features

- VHF and UHF
- Wi-Fi 2.4/5.0 GHz
- WPA3 Wi-Fi security protocol compliant
- Bluetooth® Core version 5.2
- Digital and analog signaling
- 1.5" 132 x 48 px display¹
- Modern, intuitive user experience
- Wide suite of accessories
- Sleek and ergonomic form factor
- Automatic acoustic feedback suppression
- SINC+ Noise Suppression
- AI-trained Noise Suppression
- Intelligent Audio
- IMPRES™ audio and energy technology
- Programmable loudness up to 106 phons
- Wideband speaker
- Simple audio configuration
- Up to 32 hours battery life²
- IP67 dust-tight and waterproof
- Intrinsically safe option (UL TIA4950 / CSA C22.2)
- Robust side accessory connector
- Rugged to MIL-STD 810H
- 5 years of hardware repair and software updates with optional add-ons for enhanced cover



MOTOROLA SOLUTIONS

Specifications

GENERAL SPECIFICATIONS				
	R5 LIMITED KEYPAD MODEL (LKP)		R5 NON-KEYPAD MODEL (NKP)	
Band	VHF	UHF	VHF	UHF
Frequency	136 - 174 MHz	400 - 512 MHz	136 - 174 MHz	400 - 512 MHz
High Power Output	5 W	4 W	5 W	4 W
Low Power Output	1 W			
Channel Spacing	12.5 kHz, 25 kHz			
Channel Capacity	256		64	
Zone Capacity	50		4	
Display	132 x 48 px 1.5" monochrome display		n/a	
FCC Description	AZ489FT7181	AZ489FT7182	AZ489FT7181	AZ489FT7182
IC Description	109U-89FT7181	109U-89FT7182	109U-89FT7181	109U-89FT7182
Power Supply (Nominal)	7.5 V			
MOTOTRBO R5 WITH SLIM IMPRES LI-ION IP67 2200 MAH BATTERY (PMNN4888)				
Dimensions (h x w x d)	122 x 56 x 35 mm (4.82 x 2.2 x 1.37 inches)			
Weight	285 g		269 g	
Battery life ² (digital/analog)	21.5 / 16 hrs	20 / 15.5 hrs	21.5 / 16 hrs	20 / 15.5 hrs
Operating temperature	-20 °C to 60 °C (-4 °F to 140 °F)			
MOTOTRBO R5 WITH IMPRES LI-ION IP67 3200 MAH BATTERY (PMNN4889)				
Dimensions (h x w x d)	122 x 56 x 41 mm (4.82 x 2.2 x 1.6 inches)			
Weight	318 g		301 g	
Battery life ² (digital/analog)	32 / 24 hrs	30 / 23 hrs	32 / 24 hrs	30 / 23 hrs
Operating temperature	-20 °C to 60 °C (-4 °F to 140 °F)			
MOTOTRBO R5 WITH IMPRES LI-ION IP67 TIA4950 3200 MAH BATTERY (PMNN4890)				
Dimensions (h x w x d)	122 x 56 x 41 mm (4.82 x 2.2 x 1.6 inches)			
Weight	332 g		315 g	
Battery life ² (digital/analog)	32 / 24 hrs	30 / 23 hrs	32 / 24 hrs	30 / 23 hrs
Operating temperature	-20 °C to 60 °C (-4 °F to 140 °F)			
SERVICE COVERAGE				
Included: Hardware repair, technical support and software updates (5 years)				
Optional: Accidental damage hardware repair (5 years)				
HAZLOC CERTIFICATION				
ANSI/TIA4950 and CAN/CSA C22.2 No. 157-92 certified 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 when properly equipped with Motorola UL-Approved battery				
MARITIME CERTIFICATION				
R5 VHF models meet the requirements of FCC Rule Part 80 and ISSED RSS-182 for maritime use on board ships				



Specifications

TRANSMITTER SPECIFICATIONS

FM Modulation	12.5 kHz: 11K0F3E 25 kHz: 16K0F3E
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 102 361-1, -2, -3 DMR Tier II
Conducted/Radiated Emissions (TIA603E / ANSI C63.26, C63.4)	-36 dBm, <1 GHz, -30 dBm >1 GHz
Adjacent Channel Power (TIA603E)	60 dB @ 12.5 kHz 70 dB @ 25 kHz
Frequency Stability	±0.5 ppm
Modulation Limiting (TIA603E)	±2.5 kHz @ 12.5 kHz ±5.0 kHz @ 25 kHz

RECEIVER SPECIFICATIONS

Analog Sensitivity (12dB SINBAD)	0.16 µV
Digital Sensitivity (5% BER)	0.14µV
Intermodulation (TIA603E)	70 dB
Adjacent Channel Selectivity (TIA603A) - 1T	60 dB @ 12.5 kHz 70 dB @ 25 kHz
Adjacent Channel Selectivity (TIA603E) - 2T	45 dB @ 12.5 kHz 70 dB @ 25 kHz
Spurious Rejection (TIA603E)	70 dB
Frequency Stability	±0.5 ppm

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	WPA3, WPA2
Roaming Protocol Supported	IEEE 802.11k/v/r
Maximum Number of SSIDs	128 (64 for NKP Models)

BLUETOOTH SPECIFICATIONS

Bluetooth Technology	Bluetooth, Bluetooth Classic, Bluetooth LE, Bluetooth Dual Mode
Core Version	Qualified against Bluetooth Core 5.2
Range	Class 2, 10 m (33 ft)
Supported Profiles	Bluetooth Headset Profile (HSP), Serial Port Profile (SPP), Personal Area Network (PAN), Generic Attributes (GATT)
Simultaneous Connections	1 audio accessory and up to 4 data devices

AUDIO SPECIFICATIONS

Digital Vocoder Type	AMBE+2™
Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 25 kHz
Audio Response (TIA603E / ANSI C63.26)	+1, -3 dB
Audio Output Power (Rated/Max)	1 W / 3 W
Audio Distortion at Rated Audio	≤3%
Maximum Speech Loudness, Default (ISO532B)	101 phon @ 30 cm
Maximum Programmable Speech Loudness (Digital) (User Selectable Audio Profile Level 3)	106 phon @ 30 cm

ENVIRONMENTAL SPECIFICATIONS

Operating temperature ³	-30 °C to 60 °C (-22 °F to 140 °F)
Storage temperature	-40 °C to 85 °C (-40 °F to 185 °F)
Thermal Shock	Per MIL-STD
Humidity	Per MIL-STD
Electrostatic Discharge	IEC 61000-4-2 Level 4
Dust and Water Intrusion	IP67
Salt Fog	5% NaCl for 8 hrs at 35 °C, 16 hrs standing
Packaging Test	MIL-STD 810D and E

MILITARY STANDARDS

	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 Temperature	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 Temperature	502.1	I	502.2	I, II	502.3	I, II	502.4	I, II	502.6	I, II	502.7	I, II
Temperature Shock	503.1	I	503.2	A1/C3	503.3	A1/C3	503.4	I	503.6	I-C	503.7	1-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



Features

R5 is available with limited keypad (LKP) and non-keypad (NKP) versions.

	R5 LKP	R5 NKP		R5 LKP	R5 NKP
GENERAL			MANAGEMENT		
VHF 5 W, UHF 4 W	●	●	CPS 2.0 and Radio Management	●	●
Limited keypad	●	—	Over-the-air programming (via DMR)	●	●
Monochrome display	●	—	Over-the-air software update (via Wi-Fi)	●	●
Analog and digital	●	●	IMPRES energy	●	●
Voice and text	●	●	IMPRES battery management	○	○
Integrated Wi-Fi	●	●	Over-the-air battery management	○	○
Canned text messaging	●	● ⁴	SAFETY		
Bluetooth audio	●	●	Emergency button	●	●
Bluetooth data	●	●	Lone worker	●	●
Voice operated transmit (VOX)	●	●	IP67	●	●
Voice announcement	●	●	Rugged to MIL-STD 810	●	●
Home channel reminder	●	●	Basic privacy	●	●
Late entry	●	●	Enhanced privacy	●	●
Priority scan	●	●	Transmit Interrupt	●	●
AUDIO			Digital emergency	●	●
Intelligent Audio in digital mode	●	●	Emergency search tone	●	●
IMPRES audio	●	●	Remote monitor	●	● ⁵
Received audio leveling	●	●	Radio disable / enable	●	● ⁵
Automatic acoustic feedback suppressor	●	●	Secure processor	●	●
Microphone distortion control	●	●	Hazloc certification	●	●
User-selectable audio profile	●	●	CUSTOMIZATION		
Trill enhancement	●	●	Slim GCAI accessory port	●	●
AI-trained noise suppression	●	●	Programmable buttons ⁶	5	3
Single mic noise cancellation (SINC+)	●	●	NFC / RFID tags (Requires aftermarket installation)	○	○
SYSTEMS					
Dual Capacity Direct Mode	●	●			
Conventional	●	●			
IP Site Connect	○	○			
Capacity Plus single site	○	○			
Capacity Plus multi-site	○	○			

● Included ○ Optional — Not included

¹ Limited keypad model only.

² Typical battery life, 5/5/90 profile at maximum transmitter power with Bluetooth and Wi-Fi disabled. Actual observed runtimes may vary.

³ Radio only. Battery minimum operating temperature -20 °C.

⁴ R5 NKP models support canned text message send only.

⁵ Decode only.

⁶ Including emergency button which can also be programmed for other functions.

To learn more about MOTOTRBO, visit: motorolasolutions.com/MOTOTRBO



These models are available in Motorola Solutions N America region only. Availability varies and is subject to individual country law and regulations. All specifications shown are typical unless otherwise stated and are subject to change without notice.

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