



MOTOTRBO R7

PORTABLE TWO-WAY RADIOS

MOTOTRBO™ R7 is a digital portable two-way radio that offers 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.

KEY FEATURES

- UHF, VHF, 800/900 MHz
- 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 life¹
- 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 housing²
- 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.



SPECIFICATIONS

GENERAL SPECIFICATIONS

| FULL KEYPAD MODEL (FKP) | | | | NO KEYPAD MODEL (NKP) | | |
|-------------------------|--|---------------|---|-----------------------|---------------|---|
| Band | UHF | VHF | 800 / 900 | UHF | VHF | 800 / 900 |
| Frequency | 400-527 MHz | 136-174 MHz | 806-825 MHz, 851-870 MHz, 896-902 MHz, 935-941 MHz | 400-527 MHz | 136-174 MHz | 806-825 MHz, 851-870 MHz, 896-902 MHz, 935-941 MHz |
| High Power Output | 4 W | 5 W | 2.5 W | 4 W | 5 W | 2.5 W |
| Low Power Output | 1 W | | | | | |
| Channel Spacing | 12.5 kHz, 20 kHz, 25 kHz ¹ | | | | | |
| 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 | AZ489FT7169 | AZ489FT7143 | AZ489FT7144 | AZ489FT7169 |
| IC Description | 109U-89FT7143 | 109U-89FT7144 | 109U-89FT7169 | 109U-89FT7143 | 109U-89FT7144 | 109U-89FT7169 |
| 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 ² | 11 oz (316 g) | | | 10 oz (289 g) | | |
| Digital / Analog Battery Life ³ | 19 / 14.5 hrs | 20 / 15 hrs | 19/15.5 hrs | 19 / 14.5 hrs | 20 / 15 hrs | 19/15.5 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 ² | 12 oz (333 g) | | | 11 oz (306 g) | | |
| Digital / Analog Battery Life ³ | 25 / 19 hrs | 26 / 19.5 hrs | 25/20.5 hrs | 25 / 19 hrs | 26 / 19.5 hrs | 25/20.5 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 ² | 13 oz (366 g) | | | 12 oz (339 g) | | |
| Digital / Analog Battery Life ³ | 28 / 21.5 hrs | 29 / 22 hrs | 27.5/22 hrs | 28 / 21.5 hrs | 29 / 22 hrs | 27.5 / 22 hrs |
| Operating Temperature | -4 °F to 140 °F (-20 °C to 60 °C) | | | | | |

¹ 25 kHz channels not available in USA.

² Radio weight information is exclusive of General Option Board and antenna.

³ 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, 25 kHz ¹ |
| 4FSK Digital Modulation | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • ETSI TS 102 361-1, -2, -3, -4 • DMR Tier II, III |
| Conducted/Radiated Emissions (TIA603D) | <ul style="list-style-type: none"> • -36 dBm < 1 GHz • -30 dBm > 1 GHz |
| Adjacent Channel Power | <ul style="list-style-type: none"> • 60 dB @ 12.5 kHz • 70 dB @ 25 kHz¹ |
| Frequency Stability | +/-0.5 ppm |

RECEIVER SPECIFICATIONS

| | |
|--|--|
| Analog Sensitivity (12dB SINAD) | 0.16 µV (0.21µV for 800/900 band) |
| Digital Sensitivity (5% BER) | 0.14 µV (0.18µV for 800/900 band) |
| Intermodulation (TIA603D) | 70 dB |
| Adjacent Channel Selectivity, (TIA603A)-1T | <ul style="list-style-type: none"> • 60 dB @ 12.5 kHz • 70 dB @ 25 kHz¹ |
| Adjacent Channel Selectivity, (TIA603D)-2T | <ul style="list-style-type: none"> • 45 dB @ 12.5 kHz • 70 dB @ 25 kHz¹ |
| 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 | <ul style="list-style-type: none"> • -40 dB @ 12.5 kHz • -45 dB @ 25 kHz¹ |
| Conducted Spurious Emissions (TIA603D) | -57 dBm |

ENVIRONMENTAL SPECIFICATIONS

| | |
|------------------------------------|---|
| Operating Temperature ² | -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, II/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 ³ | | | | | | | | | 504.2 | II | 504.3 | 2.2.6 b |

¹ 25 kHz channels not available in USA.

² Radio only. Battery requires -20 °C minimal operating temperature.

³ Please refer to the MOTOTRBO R7 user manual for a list of approved disinfectants and decontamination substances.

FEATURE COMPATIBILITY

| | R7 FKP | R7 NKP |
|---|--------|--------|
| GENERAL | | |
| 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 | ○ | ○ |
| 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 ¹ | • | • |
| Single Microphone Noise Cancellation | – | – |
| SYSTEMS | | |
| Dual Capacity Direct Mode | • | • |
| Conventional | • | • |
| IP Site Connect | • | • |
| Capacity Plus Single/Multi Site | ○ | ○ |
| Capacity Max | ○ | ○ |

| | R7 FKP | R7 NKP |
|--|--------|--------|
| MANAGEMENT | | |
| CPS 2.0 and Radio Management | • | • |
| Over-the-Air Programming | • | • |
| Over-the-Air Software Update | • | • |
| IMPRES Energy | ○ | ○ |
| IMPRES Battery Management | ○ | ○ |
| Over-the-Air Battery Management | ○ | ○ |
| SAFETY | | |
| Sensor Integration | ○ | ○ |
| Integrated Accelerometer | • | • |
| Man Down / Fall Alert ² | ○ | ○ |
| Lone Worker | • | • |
| Basic Privacy | • | • |
| 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 | ○ | ○ |

- Included
- Optional
- Not Included

¹ Noise suppression method differs between accessories.

² Is available in both NKP & FKP in NA.

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

For more information, contact:

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