Data Sheet EMEA

# 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[1]
- WPA3 Wi-Fi security protocol compliant[1]
- Bluetooth® Core version 5.2[1]
- Integrated GNSS location tracking[1]
- Digital and analogue signalling
- 1.5" 132 x 48 px display[1]
- 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 life[2]
- IP67 dust-tight and waterproof
- Intrinsically safe option (UL TIA4950)
- Robust side accessory connector
- Rugged to MIL-STD 810H
- Enhanced 5 year warranty as standard 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 - 527 MHz | 136 - 174 MHz | 400 - 527 MHz |
| High Power Output | 5 W | 4 W | 5 W | 4 W |
| Low Power Output | 1 W | | | |
| Channel Spacing | 12.5 kHz, 20 kHz, 25 kHz | | | |
| Channel Capacity | 256 | | 64 | |
| Zone Capacity | 50 | | 4 | |
| Display | 132 x 48 px 1.5" monochrome display | | n/a | |
| 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 | | | |
| Weight | 285 g | | 269 g | |
| Battery life[2] (digital/analogue) | 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 LI-ION IP67 2400 MAH BATTERY (PMNN4878)** | | | | |
| Dimensions (h x w x d) | 122 x 56 x 41 mm | | | |
| Weight | 314 g | | 297 g | |
| Battery life[2] (digital/analogue) | 24 / 18 hrs | 22.5 / 17.5 hrs | 24 / 18 hrs | 22.5 / 17.5 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 | | | |
| Weight | 318 g | | 301 g | |
| Battery life[2] (digital/analogue) | 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 | | | |
| Weight | 332 g | | 315 g | |
| Battery life[2] (digital/analogue) | 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 (2 years), plus technical support and software updates (5 years) |
| Optional: Hardware repair (5 years) and accidental damage 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 UHF models are maritime certified to EN 300 720 V2.1.1 and IEC / EN 60945:2002 standards for use on board vessels |

# Specifications

| TRANSMITTER SPECIFICATIONS | |
|---|---|
| FM Modulation | 12.5 kHz: 11K0F3E<br>20 / 25 kHz: 16K0F3E |
| 4FSK Digital Modulation | 12.5 kHz Data: 7K60F1D and 7K60FXD<br>12.5 kHz Voice: 7K60F1E and 7K60FXE<br>Combination of 12.5 kHz Voice and Data: 7K60F1W |
| Digital Protocol | ETSI TS 102 361-1, -2, -3<br>DMR Tier II |
| Conducted/Radiated Emissions (ETSI / TIA603E / ANSI C63.26 , C63.4) | -36 dBm, <1 GHz, -30 dBm >1 GHz |
| Adjacent Channel Power (ETSI / TIA603E) | 60 dB @ 12.5 kHz<br>70 dB @ 20 kHz / 25 kHz |
| Frequency Stability | ±0.5 ppm |
| Modulation Limiting (ETSI / TIA603E) | ±2.5 kHz @ 12.5 kHz<br>±4.0 kHz @ 20 kHz<br>±5.0 kHz @ 25 kHz |

| RECEIVER SPECIFICATIONS | |
|---|---|
| Analogue Sensitivity (12dB SINBAD) | 0.16 µV |
| Digital Sensitivity (5% BER) | 0.14uV |
| Intermodulation (ETSI) | 65 dB |
| Intermodulation (TIA603E) | 70 dB |
| Adjacent Channel Selectivity (ETSI / TIA603A) - 1T | 60 dB @ 12.5 kHz<br>70 dB @ 20 kHz / 25 kHz |
| Adjacent Channel Selectivity (TIA603E) - 2T | 45 dB @ 12.5 kHz<br>70 dB @ 20 kHz / 25 kHz |
| Spurious Rejection (ETSI / TIA603E) | 70dB |
| Frequency Stability | ±0.5 ppm |

| GNSS SPECIFICATION (LKP GNSS MODEL ONLY) | |
|---|---|
| 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 m |

| WI-FI SPECIFICATION (LKP BT/WI-FI MODEL ONLY) | |
|---|---|
| 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 |

| BLUETOOTH SPECIFICATIONS (LKP BT/WI-FI MODEL ONLY) | |
|---|---|
| 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), In-door location (Passive Scanning) |
| 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<br>-45 dB @ 20 kHz / 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 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 | 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.

| | BT/WI-FI LKP MODEL | GNSS LKP MODEL | NKP MODEL |
|---|---|---|---|
| **GENERAL** | | | |
| VHF 5 W, UHF 4 W | ● | ● | ● |
| Limited keypad | ● | ● | – |
| Monochrome display | ● | ● | – |
| Analogue and digital | ● | ● | ● |
| 5 tone signalling | ● | ● | ● |
| Voice and data | ● | ● | ● |
| Integrated Wi-Fi | ● | – | – |
| Canned text messaging | ● | ● | ● |
| Indoor location tracking | ○ | – | – |
| Outdoor location tracking (GNSS) | – | ● | – |
| Bluetooth audio | ● | – | – |
| Bluetooth data | ● | – | – |
| Voice operated transmit (VOX) | ● | ● | ● |
| Voice announcement | ● | ● | ● |
| Home channel reminder | ● | ● | ● |
| Late entry | ● | ● | ● |
| Priority scan | ● | ● | ● |
| **AUDIO** | | | |
| Intelligent Audio in digital mode | ● | ● | ● |
| IMPRES audio | ● | ● | ● |
| Received audio levelling | ● | ● | ● |
| Automatic acoustic feedback suppressor | ● | ● | ● |
| Microphone distortion control | ● | ● | ● |
| User-selectable audio profile | ● | ● | ● |
| Trill enhancement | ● | ● | ● |
| AI-trained noise suppression | ● | ● | ● |
| Single mic noise cancellation (SINC+) | ● | ● | ● |
| **SYSTEMS** | | | |
| Dual Capacity Direct Mode | ● | ● | ● |
| Conventional | ● | ● | ● |
| IP Site Connect | ● | ● | ● |
| Capacity Plus single site | ○ | ○ | ○ |
| Capacity Plus multi-site | ○ | ○ | ○ |

| | BT/WI-FI LKP MODEL | GNSS LKP MODEL | NKP MODEL |
|---|---|---|---|
| **MANAGEMENT** | | | |
| CPS 2.0 and Radio Management | ● | ● | ● |
| Over-the-air programming (via DMR) | ● | ● | ● |
| Over-the-air software update (via Wi-Fi) | ● | – | – |
| IMPRES energy | ○ | ○ | ○ |
| IMPRES battery management | ○ | ○ | ○ |
| Over-the-air battery management | ○ | ○ | ○ |
| **SAFETY** | | | |
| Emergency button | ● | ● | ● |
| Lone worker | ● | ● | ● |
| IP67 | ● | ● | ● |
| Rugged to MIL-STD 810 | ● | ● | ● |
| Basic privacy | ● | ● | ● |
| Enhanced privacy | ● | ● | ● |
| Transmit Interrupt | ● | ● | ● |
| Digital emergency | ● | ● | ●[5] |
| Emergency search tone | ● | ● | ●[5] |
| Remote monitor | ● | ● | ● |
| Radio disable / enable | ● | ● | ● |
| Secure processor | ● | ● | ● |
| Hazloc certification | ● | ● | ● |
| **CUSTOMISATION** | | | |
| Slim GCAI accessory port | ● | ● | ● |
| Programmable buttons[6] | 5 | 5 | 3 |
| NFC / RFID tags (Requires aftermarket installation) | ○ | ○ | ○ |

[1] R5 is available in three configurations: NKP, LKP with GNSS or LKP with Bluetooth and Wi-Fi.
[2] Typical battery life, 5/5/90 profile at maximum transmitter power with GNSS, 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.

● Included ○ Optional – Not included

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

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