

Data Sheet

North America

MOTOTRBO™ R2

Portable two-way radio

A next-level workhorse, the MOTOTRBO R2 marries durability and ergonomics to ensure confident, easy handling. And with superior range, configurable audio and seamless integration, the R2 is a reliable addition to an uninterrupted workday.



MOTOROLA SOLUTIONS

Key features

- UHF, VHF
- 64 channels
- Single-site conventional
- Extended Range Direct Mode
- Dual Capacity Direct Mode
- Transmit Interrupt
- Dual priority scan
- Quick Call II / MDC1200 capable
- Secure Enhanced Linux operating system
- Enhanced privacy
- Radio disable/enable
- Remote monitor
- Voice announcement
- Loudness up to 101 phons
- SINC+ noise suppression
- Acoustic feedback suppression
- User selectable audio profiles
- Received audio leveling
- Sleek & ergonomic form factor
- Rugged to MIL-STD 810
- IP55 (dust and water ingress protection)
- 2 programmable buttons
- Home channel reminder
- Rental timer

Specifications

GENERAL SPECIFICATIONS		
Band	VHF	UHF
Frequency	136-174 MHz	400-480 MHz
Typical RF output		
High power	5W	4W
Low power	1W	1W
Channel spacing	12.5 / 25.0 kHz ¹	
Channel capacity	64	
Power supply	7.5V (nominal)	
FCC description	AZ489FT3852	AZ489FT4971
IC description	89FT3852	109U-89FT4971
MOTOTRBO R2 WITH SLIM IP55 2100 MAH BATTERY (PMNN4600)		
Dimension ² (h x w x d)	4.9 x 2.2 x 1.3 in.	
Weight ³	9.2 oz	
Battery life ⁴ (analog / digital)	17 Hours / 22.5 Hours	
MOTOTRBO R2 WITH HIGH CAPACITY IP55 2300 MAH BATTERY (PMNN4598)		
Dimension ² (h x w x d)	4.9 x 2.2 x 1.5 in.	
Weight ³	10.1 oz.	
Battery life ⁴ (analog / digital)	19.5 Hours / 26.5 Hours	



TRANSMITTER SPECIFICATIONS

4FSK digital modulation	12.5 kHz Data: 7K60F1D and 7K60FXD 12.5 kHz Voice: 7K60F1E and 7K60FXE Combination: 7K60F1W
Digital protocol	ETSI TS 102 361-1, -2, -3 DMR Tier II
Conducted/radiated spurious emissions (TIA603E)	< -36 dBm for < 1 GHz < -30 dBm for > 1 GHz
Adjacent channel power	> 60 dB @ 12.5 kHz > 70 dB @ 25 kHz
Frequency stability	± 0.5 ppm
Modulation limiting	± 2.5 kHz @ 12.5 kHz ± 5.0 kHz @ 25 kHz

RECEIVER SPECIFICATIONS

Analog sensitivity (12dB SINAD)	0.18 µV (typical)
Digital sensitivity (5% BER)	0.16 µV (typical)
Conducted/radiated spurious emissions (TIA603E)	< -57 dBm
Intermodulation (TIA603E)	> 70 dB
Adjacent channel selectivity (TIA603A)-1T	> 60 dB @ 12.5 kHz > 70 dB @ 25 kHz
Adjacent channel selectivity (TIA603E)-2T	> 55 dB @ 12.5 kHz > 70 dB @ 25 kHz
Spurious rejection (TIA603E)	> 70 dB
Frequency stability	± 0.5 ppm

AUDIO SPECIFICATIONS

Digital vocoder type	AMBE+2
Audio response	TIA603E
Audio output power (Rated / Max)	1W / 3W
Audio distortion at rated audio	3% (typical)
Maximum speech loudness (ISO 532B)	101 phons
Hum and noise	-40 dB @ 12.5 kHz -45 dB @ 25 kHz

ENVIRONMENTAL SPECIFICATIONS

Operating temperature ⁵	-30 °C to 60 °C (-22 °F to 140 °F)
Storage temperature ⁵	-40 °C to 85 °C (-40 °F to 185 °F)
Thermal shock	Per MIL-STD 810C, D, E, F, G, H
Humidity	Per MIL-STD 810C, D, E, F, G, H
Electrostatic discharge	IEC 61000-4-2 Level 4
Dust and water intrusion	IEC60529 IP55
Salt fog	Per MIL-STD 810C/D/E/F/G/H
Packaging test	Per MIL-STD 810C/D/E/F/G/H

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 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



Features

	R2
GENERAL	
Analog and digital	●
DMR standards compliant ⁶	●
64 channels	●
2 programmable buttons	●
Pre-programmed text messaging ⁶	●
Voice announcements	●
Home channel reminder	●
Late entry ⁶	●
Dual priority scan	●
Nuisance channel delete	●
Secure Enhanced Linux operating system	●
TLS-PSK CPS/RM - Radio/repeater authentication	●
Rental timer	●
Internal Voice Operated Transmission (VOX)	●
Wide range of accessories	●
IP55 dust and water ingress protection	●
Rugged to MIL-STD 810	●
Priority scan	●
IP54	●
Rugged to MIL-STD 810	●
SYSTEMS	
Dual Capacity Direct Mode ⁶	●
Single-site conventional	●
Extended Range Direct Mode ⁶	●

	R2
SAFETY	
Basic privacy ⁶	●
Enhanced privacy ⁶	○
Transmit interrupt ⁶ (decode)	●
Remote monitor (decode)	●
Radio disable / enable (decode)	●
AUDIO	
Acoustic feedback suppressor ⁶	●
User-selectable audio profile	●
Trill enhancement for rolling "R"s	●
SINC+ noise suppression	○
Automatic gain control	●
Received audio leveling	●
ANALOG FEATURES	
Lone worker	●
Emergency alert	●
Analog scrambling	●
Quick Call II / MDC1200 capable	●

● Included ○ Optional — Not Included

¹ 25 kHz channels not available in USA.

² Dimensions at grip area.

³ Excludes antenna.

⁴ Typical battery life, 5/5/90 profile at maximum transmitter power. Actual observed runtimes may vary.

⁵ Temperatures listed are for radio only. Minimum operating temperature with battery is -20° C (-4 °F).

⁶ Digital feature.

To learn more, visit:
www.motorolasolutions.com/r2



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