Data Sheet EMEA

MOTOTRBO™ MR7 mobile two-way radios

Focus on the road.
We'll handle the rest.



MOTOROLA SOLUTIONS

Drive with confidence

Keep your vehicles moving and your team connected with the MOTOTRBO MR7. Clear audio and tactile controls help drivers stay focused, while flexible connectivity and fleet-management tools support the work beyond the driver's seat.

Clear calls, zero distractions

Loud audio helps drivers hear over engine noise. AI-trained noise suppression helps reduce background noise in transmitted speech when used with a compatible microphone.[2]

Built for muscle memory

Four programmable controls and an orange emergency button put frequently used functions close at hand, helping drivers operate the radio with muscle memory.

Know where your vehicles are

Give your team visibility into vehicle locations with dual-frequency GNSS[1].

Expand your connection options

Bring broadband connectivity to your MR7r by connecting an external broadband modem or router through its Ethernet port[1].

Keep your team talking beyond radio coverage

Give your team a backup path for voice communication with WAVE PTX Backup Client[1]. Requires an active WAVE PTX Backup Client subscription per radio and the WAVE PTX MOTOTRBO LMR interoperability add-on for the system. MR7r connects to an external broadband modem or router through its Ethernet port.

Budget-protected fleet migration

MR7 builds on the DM4000e installation footprint, helping fleets simplify replacement and reuse compatible mounting hardware. Confirm the accessories required for each vehicle configuration.

Secure, rugged and simple to maintain

Over-the-air software updates through Wi-Fi[1] help teams manage their fleet. IP54 protection and MIL-STD 810 testing support use in demanding vehicle environments.

[1] Selected models - see regional features matrix.

[2] The compatible microphones are RMN5053, MM730, MM780 and PMMN4182.

Specifications

GENERAL SPECIFICATIONS				
	COLOUR ALPHANUMERIC DISPLAY		NUMERIC DISPLAY	
Band	VHF	UHF band 1	VHF	UHF band 1
Frequency	136 - 174 MHz	400 - 470 MHz	136 - 174 MHz	400 - 470 MHz
High power model output[3]	25-45 W	25-40 W	25-45 W	25-40 W
Low power model output	1-25 W	1-25 W	1-25 W	1-25 W
Channel spacing	12.5 kHz, 20 kHz, 25 kHz			
Channel capacity	1000		99	
Display	Colour 2.4” 240 x 320 px. display		Two-digit numeric display	
Dimensions (H x W x D)	**Overall:** 61 (H) x 182 (W) x 204.90 mm (D) (2.402 x 7.165 x 8.067 in.) **Brick only:** 44 (H) x 168.10 (W) **Control Head only:** 61 (H) x 182 (W)		**Overall:** 53 (H) x 175 (W) x 204.90 mm (D) (2.087 x 6.889 x 8.067 in.) **Brick only:** 44 (H) x 168.10 (W) **Control Head only:** 53 (H) x 175 (W)	
Weight	MR7 1757 g (61.98 oz) MR7b 1777 g (62.68 oz) MR7r 1757 g (61.98 oz) with GOB +11 g (0.38 oz)		MR7 1707 g (60.21 oz) MR7b 1727 g (60.92 oz) MR7r N.A. with GOB +11 g (0.38 oz)	
Power Supply	Nominal: 13.2 Vdc Range: 10.8 - 15.6 Vdc			
Max Current, Standby	0.5 A max			
Max Current, Receive	1.5 A max			
Max Current Transmit, Low Power	8 A max			
Max Current Transmit, High Power	12 A max			
RF connector type	BNC		BNC	

MARITIME CERTIFICATION
VHF low power model: certified to FCC Maritime - Part 80 ISED 18 for use onboard vessels.
UHF1 low power model: certified to EN 300 720, IEC/EN 60945 and FCC Maritime - Part 80 ISED 18 for use onboard vessels.

[3] High power models are not available in some countries.

Specifications

TRANSMITTER SPECIFICATIONS	
FM modulation	12.5 kHz: 11K0F3E 20 / 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,- 4 DMR Tier II and DMR Tier III
Conducted / radiated spurious 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 70 dB @ 20 kHz / 25 kHz
Frequency stability	±0.5 ppm
Modulation limiting (ETSI / TIA603E)	± 2.5 kHz @ 12.5 kHz ± 4.0 kHz @ 20 kHz ± 5.0 kHz @ 25 kHz

RECEIVER SPECIFICATIONS	
Analogue sensitivity (12dB SINAD)	0.18 uV (0.16 uV typ)
Digital sensitivity (5% BER)	0.18 uV (0.15 uV typ)
Conducted / radiated spurious emissions (ETSI / TIA603E)	< -57 dBm for < 1 GHz < -47 dBm for > 1 GHz
Intermodulation	VHF : 70 dB (ETSI), 78 dB (TIA603E) UHF1 : 70 dB (ETSI), 75 dB (TIA603E)
Adjacent channel selectivity (ETSI / TIA603A) - 1T	VHF: 65 dB (12.5 kHz channel) 78 dB (20 kHz channel) 80 dB (25 kHz channel) UHF1: 65 dB (12.5 kHz channel) 75 dB (20 kHz & 25 kHz channel)
Adjacent channel selectivity (TIA603E) - 2T	VHF: 55 dB (12.5 kHz channel) 80 dB (25 kHz channel) UHF1: 55 dB (12.5 kHz channel) 80 dB (25 kHz channel)
Spurious rejection (ETSI / TIA603E)	VHF: 75 dB (ETSI), 80 dB (TIA603E) UHF1: 80 dB (ETSI), 80 dB (TIA603E)

AUDIO SPECIFICATIONS	
Digital vocoder type	AMBE+2™
Audio response (TIA603E / ANSI C63.26)	+1, -3 dB
Audio output power (rated / max)	4 W / 9 W (internal speaker)
Audio distortion at rated audio	3% typ 5% max
Hum and noise	-40 dB (12.5 kHz channel) -45 dB (20kHz & 25 kHz channel)
Maximum speech loudness by default (ISO532B)	107 phon @ 30cm
Maximum programmable speech loudness (extra loud mode, level 3)	112 phon @ 30cm

BLUETOOTH SPECIFICATIONS (MR7b AND MR7r MODELS ONLY)	
Bluetooth Technology	Bluetooth, Bluetooth Classic, Bluetooth LE, Bluetooth Dual Mode
Core Version	Qualified against Bluetooth Core 5.2
Power class	Class 1
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

GNSS SPECIFICATION (MR7b AND MR7r MODELS ONLY)	
LONG-TERM TRACKING (95TH PERCENTILE VALUES >5 SATELLITES VISIBLE AT NOMINAL -130DBM SIGNAL STRENGTH)	
Constellation support4	GPS, Galileo, QZSS (L1 + L5)
Time to first fix, cold start	dual constellation: <35s single constellation: <45s
Time to first fix, hot start	dual constellation: <2s single constellation: <2s
Horizontal accuracy	dual constellation: <1m single constellation: <1m

[4] The following SBAs are supported with GNSS combinations that include GPS: EGNOS, GAGAN, MSAS, WAAS, BDSBAS, KASS and SouthPAN.

Specifications

WI-FI SPECIFICATIONS (MR7b AND MR7r MODELS ONLY)	
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
Roaming Protocol Supported	IEEE 802.11k/v/r
Maximum Number of SSIDs	Colour alphanumeric display: 128 Numeric display: 64

ENVIRONMENTAL SPECIFICATIONS	
Operating temperature	-30 °C to 60 °C (-22 °F to 140 °F)
Storage temperature	-40 °C to 85 °C (-40 °F to 185 °F)
Electrostatic discharge	IEC 61000-4-2 level 4
Dust and water intrusion	IEC 60529 - IP54
Packaging test	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	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, III, V	516.3	I, V, IV	516.4	I, V, IV	516.5	I, V, IV	516.7	I, V, IV	516.8	I, V, IV

Note: A dash (-) in the Procedure column indicates the corresponding test Method has only one procedure.



Features

● Included as standard ○ Model variant or optional – Not available

	MR7 (Base model)	MR7b (GNSS, BT and Wi-Fi)	MR7r (GNSS, BT, Wi-Fi, RJ45)
GENERAL			
UHF	○	○	○
VHF	○	○	○
Alphanumeric colour display	○	○	●
Numeric display	○	○	–
High power model	○	○	○
Low power model	○	○	○
Analogue and digital	●	●	●
Voice and data	●	●	●
Integrated Wi-Fi	–	●	●
RJ45 Connectivity to external Broadband modem/router	–	–	●
Canned text messaging	●	●	●
Freeform text messaging[5]	●	●	●
Text to speech	●	●	●
Work order ticketing[9]	●	●	●
Indoor location tracking (BT)	–	●	●
Outdoor location tracking (Dual-frequency GNSS)	–	●	●
Event-driven location updates[6]	–	●	●
Bluetooth audio	–	●	●
Bluetooth data	–	●	●
Voice announcement	●	●	●
Home channel reminder	●	●	●
Late entry	●	●	●
Priority scan	●	●	●
IP54	●	●	●
Rugged to MIL-STD 810	●	●	●
Audio recording/playback	●	●	●
Generic option board (aftermarket field-install only)	○	○	○
WAVE PTX Backup Client[7]	–	○	○
MANAGEMENT			
CPS 2.0 and Radio Management	●	●	●
Over-the-air programming (via DMR)	●	●	●
Over-the-air software update (via Wi-Fi)	–	●	●
Preventive maintenance	○	○	○
Rental timer	●	●	●

	MR7 (Base model)	MR7b (GNSS, BT and Wi-Fi)	MR7r (GNSS, BT, Wi-Fi, RJ45)
AUDIO			
Intelligent audio	●	●	●
IMPRES audio	●	●	●
Received audio levelling	●	●	●
Automatic acoustic feedback suppressor	●	●	●
Microphone distortion control	●	●	●
User-selectable audio profile	●	●	●
Trill enhancement	●	●	●
AI-trained noise suppression (AINS)[2]	●	●	●
SAFETY			
Emergency button	●	●	●
Lone worker	●	●	●
IP54	●	●	●
Rugged to MIL-STD 810	●	●	●
Basic privacy	●	●	●
Enhanced privacy	●	●	●
AES256 encryption	○	○	○
Transmit Interrupt	●	●	●
Digital emergency	●	●	●
Emergency search tone	●	●	●
Remote monitor	●	●	●
Radio disable / enable	●	●	●
Enhanced device security[8]	●	●	●
SYSTEMS			
Dual Capacity Direct Mode	●	●	●
Conventional	●	●	●
IP Site Connect	●	●	●
Capacity Plus single site	●	●	●
Capacity Plus multi-site	●	●	●
Capacity Plus multi-site extended	○	○	○
Capacity Max	○	○	○

[5] Alphanumeric display models only. Requires full keypad microphone.

[6] Requires GNSS (Global Navigation Satellite System) support to be enabled.

[7] Requires WAVE PTX Backup Client subscription per radio and WAVE PTX MOTOTRBO LMR Interop add on for the system.

[8] Secure processor, SE Linux, digital certificates and meets EU RED Cybersecurity per test standards EN 18031-1:2024 and EN 18031-2:2024.

[9] Alphanumeric display models only.



To learn more about MOTOTRBO, visit:
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