MOTOTRBO™ PROFESSIONAL DIGITAL TWO-WAY RADIO SYSTEM

MOTOROLA SOLUTIONS

	MOTOTRBO MOBILE RADIOS																				
	DP1000 SERIES	DP2000e SERIES		DP3000e SERIES		DP4000e SERIES			R7 SERIES			DP4000 Ex SERIES		ION SMART RADIO	SL SERIES		DM1000 SERIES		DM2000 SERIES	DM4000e SERIES	
	DP1400	DP2400e	DP2600e	DP3441e	DP3661e	DP4401e	DP4601e	DP4801e	R7a (NKP)	R7 (NKP)	R7 (FKP)	DP4401 Ex	DP4801 Ex	ION SMART RADIO	SL1600	SL2600	DM1400	DM1600	DM2600	DM4400e / DM4401e	DM4600e / DM4601e
GENERAL SPECIFICATIONS																					
Protocol	DMR or analogue communications	Analogue / Digital or Analogue Only	Analogue / Digital		Analogue / Digital		Analogue / Digital			Analogue / Digital		Analogue / Digital		Analogue / Digital	Analogue / Digital		Analogue / Digital		Analogue / Digital	Analogue / Digital	
Frequency	Capable of operating in the following frequency ranges	VHF: 136-174MHz UHF: 403-470MHz	VHF: 136-174MHz / UHF: 403-527MHz 300[12]: 300-360, 350-400MHz		VHF: 136-174MHz UHF: 403-527MHz		VHF: 136-174MHz / UHF: 403-527MHz 300[12]: 300-360, 350-400MHz			VHF: 136-174MHz UHF: 400-527MHz		VHF: 136-174MHz UHF: 403-470MHz		UHF: 400-527MHz	VHF: 136-174MHz UHF: 403-470MHz	VHF: 136-174MHz UHF: 403-480MHz	VHF: 136-174MHz UHF: 403-470MHz		VHF: 136-174MHz UHF: 403-470MHz	VHF: 136-174MHz / UHF: 403-470MHz, 450-527MHz 300[12]: 300-360, 350-400MHz	
Max. Power Output	Radio's full power rating	4W UHF / 5W VHF	4W 300MHz,UHF / 5W VHF		4W UHF / 5W VHF		4W 300MHz,UHF / 5W VHF			4W UHF / 5W VHF		1W UHF / VHF		4 W	2W(an) / 3W(dig)	2W(an) / 3W[16](dig)	25W or 40 / 45W[14]		25W or 40 / 45W[14]	25W or 40 / 45W[14]	
Max. Channel Capacity	Programmable channel capacity	32	32	128	32	1000	32	1000	1000	64	64	1000	32	1000	1000	99	256	16	160	256	99	1000
Channel Spacing	Programmable channel spacing	12.5 / 20 / 25 kHz	12.5 / 20[15] / 25 kHz		12.5 / 20 / 25 kHz	12.5 / 20 / 25 kHz	12.5 / 20[15] / 25 kHz			12.5 / 20 / 25 kHz			12.5 / 20 / 25 kHz		12.5 / 20 / 25 kHz	12.5 / 20 / 25 kHz	12.5 / 20 / 25 kHz		12.5 / 20 / 25 kHz	12.5 / 20[15] / 25 kHz	
Display	Displays provide easy access to advanced features	No	No	2 line monochrome	No	5 line colour	No	5 line colour	5 line colour	No	No	2.4" 320 x 240 px. QVGA display, with up to 10 lines of text	No	5 line colour	102 mm colour display, 480 x 800 px	Single line scrolling ActiveView display	2 line OLED	2-digit numeric	2 line monochrome	2 line monochrome	2-digit numeric	4 line colour
Keypad	Keypads provide access to radio controls, texting and telephony	No	No	Menu buttons	No	Menu buttons	No	Menu buttons	Full Keypad	No	No	Full Keypad	No	Full Keypad	Capacitive touchscreen with Gorilla Glass	No	4 virtual buttons	No	Menu buttons	Menu buttons	No	Menu buttons
Audio Recording	Enables the radio to record received voice calls	No	No		No		No			Yes			No		No	No		No		No	No	
Integrated GPS	Embedded GPS receiver for location monitoring	No	No		Yes		Yes[1]			No	Yes[17]		Yes		Yes	No		No		No	Yes[1]	
Integrated GLONASS	Embedded GLONASS receiver for location monitoring	No	No		Yes		Yes[1]			No	Yes[17]		No		Yes	No		No		No	Yes[1]	
Event Driven Location Updates	Location update based on input from external device (eg door senser)	No	No		No		Yes[11]			No	Yes[17]		No		Yes	No		No		No	Yes[11]	
Distance Driven Location Updates	Location update transmission based on distance travelled	No	No		Yes		Yes[11]			No	Yes[17]		No		Yes	No		No		No	Yes[11]	
Integrated Bluetooth 2.1	Wireless connection for audio accessories or data comms	No	No		n/a		n/a			No			No		Yes	No	n/a	No		No	n/a	
Integrated Bluetooth 4.0	Energy efficient Bluetooth for greater battery life	No	No		Audio and Data		Audio and Data[1]			No			No		Yes	No	Audio and Data	No		No	Audio and Data[1]	
Integrated Bluetooth 5.0	Draws less power than Bluetooth 4.2, which helps accessories with small batteries, such as earpieces, to last longer	No	No		No		No			No	Yes[17]		No		Yes	No		No		No	No	
Permanent Bluetooth Discovery	Bluetooth "always on" mode used by some applications	No	No		Yes		Yes (Bluetooth models only)			No			No		Yes	No	Option	No		No	No	
Smartphone Collaboration	M-Radio Control App allows user to view radio status and control selected features	No	No		No		No			Yes			No		No	No		No		No	No	
Dedicated Emergency Button	Orange programmable button for one-touch emergency calling	No	No		Yes		Yes			Yes			Yes		Yes	No		No		No	No	
Programmable Buttons	Allow access to most often used features with one press	2	2	4	2	4	3	5	5	Yes			3	5	3	1[9]	1	2	4	4	4	
Digital DMR Signalling	DMR standard digital voice communications	Yes[8]	Yes		Yes		Yes			Yes			Yes		Yes	Yes		Yes[8]		Yes	Yes	
PL / DPL Signalling	Analogue Private Line / Digital Private Line compatible	Yes	Yes		Yes		Yes			Yes			Yes		Yes	Yes		Yes		Yes	Yes	
Quick Call II Signalling	Analogue Quick Call II compatible	Yes	Yes		Yes		Yes			Yes			Yes		No	Yes		Yes		Yes	Yes	
MDC Signalling	Analogue MDC compatible	Yes	Yes		Yes		Yes			Yes			Yes		Yes	Yes		Yes		Yes	Yes	
5 Tone Signalling	Analogue 5 tone compatible	No	Yes		Yes		Yes			No			Yes		No	Option	Yes	No		Yes	Yes	
DTMF Hot Keypad	DTMF tone compatible	No	No		No		No	No	Yes	No	No	Yes	No	Yes	No	No		Yes[8]		Yes[8]	Yes[4]	
MPT1327 Signalling	Analogue MPT1327 compatible (requires option board)	No	No		No		Option[3]			No			No	Option[7]	No	No		No		No	Option	
Option Board Capability	Supports option boards for third party applications	No	No		Yes		Yes			No	Yes		Yes		No	No		No		Yes	Yes	
IMPRES™ Audio Compatible	IMPRES™ audio ensures your voice is heard clearer and louder	No	Yes		Yes		Yes			Yes			Yes		Yes	No		No		No	Yes	
SINC+ Noise Cancellation	Integrated, advanced noise cancellation for noisy environments	No	Yes		Yes		Yes			Yes			Yes		Yes	No	Option	No		Yes	Yes	
Automatic Gain Control	Modifies microphone performance to produce the best voice quality	Yes	Yes		Yes		Yes			Yes			Yes		Yes	Yes		Yes		Yes	Yes	
Microphone Distortion Control	Automatic microphone gain adjustment to reduce distortion	No	No		No	Yes	Yes			Yes			Yes		Yes	No		No		No	No	
Trill Enhancement	Additional processing to enhance rolling "r" sound so speech is clearer	Yes	Yes		Yes		Yes			Yes			Yes		Yes	Yes		Yes		Yes	Yes	
IMPRES™ Energy Compatible	Use IMPRES™ batteries for longer life and optimal performance	No	Yes		Yes		Yes			Yes			Yes		Yes	No		n/a		n/a	n/a	
IMPRES™ OTA Battery Management	Automatic collection of battery data over the air with radios still in use	No	Yes[10]		Yes[10]		Yes[10]			Yes			Yes[10]		Yes	No		n/a		n/a	n/a	
ATEX Certified	ATEX certified for use in potentially explosive environments	No	No		No		No			No			Gas: Class II 2G Ex ib IIC T4 Gb Dust: Class II 2D Ex ib IIIC T130 °C Db Mining: I M2 Ex ib I Mb		No	No		No		No	No	
IEC Ex Certified	IEC Ex certified for use in potentially explosive environments	No	No		No		No			No			Gas: Ex ib IIC T4 Gb / Dust: Ex ib IIIC T130°C Db / Mining: Ex ib I Mb		No	No		No		No	No	
TIA4950 Certified	Telecommunications Industry Association (TIA) approved for IS use	No	Yes		Yes		Yes			Yes			No		Yes	No		No		No	No	
SOLAS, MED/5.20, UK/5.20	Meets requirements of Marine Equipment Directive 2014/90/EU Item 5.20 and Merchant Shipping (Marine Equipment) Regulations 2016 Item 5.20	No	No		No		No			No			Yes (UHF)		No	No		No		No	No	
IP Rating	Rated sealing for dust and water ingression	IP54	IP67		IP68		IP68			IP66 / IP68			IP67		IP68	IP54		IP54		IP54	IP54	
MIL-STD 810	Rated to withstand environmental conditions	C, D, E, F & G	C, D, E, F & G		C, D, E, F & G		C, D, E, F & G			C, D, E, F, G & H			C, D, E, F & G		C, D, E, F, G & H	C, D, E, F & G		C, D, E, F & G		C, D, E, F & G	C, D, E, F & G	
Dimensions (HxWxL) mm	Physical size	128 x 62 x 39[3]	122 x 56 x 36[3]	122 x 56 x 36[3]	100 x 55 x 30[3]	100 x 55 x 36[3]	130 x 55 x 34[3]	130 x 55 x 36[3]	130 x 55 x 36[3]	132 x 56 x 31 mm	132 x 56 x 31 mm	132 x 56 x 35 mm	138 x 57 x 38[3]	138 x 57 x 40[3]	143 x 70 x 29[3]	126 x 55 x 22[3]	126 x 55 x 23[3]	44 x 169 x 134		44 x 169 x 134	53 x 175 x 206	
Dimensions (Weight)	Physical weight	341g[3]	265g[3]	282g[3]	254g[3]	290g[3]	295 g[3]	330 g[3]	330 g[3]	289 g	289 g	316 g	456g[3]	456g[3]	414g[3]	U:166g[3] V:169g[3]	190g[3]	1.3kg		1.3kg	1.8kg	
FEATURES AND FUNCTIONS																					
Intelligent Audio	Automatic volume control based on background noise levels	No	Yes		Yes		Yes			Yes			Yes		Yes	No	Yes	No		Yes	Yes	
User Selectable Audio Profiles	Optimises audio for specific environments and personal preferences	No	Yes		Yes		Yes			Yes			Yes		Yes	No	Yes	No		Yes	Yes	
Emergency Alarm	Radio can initiate an Emergency call process	Yes	Yes		Yes		Yes			Yes			Yes		Yes	Yes		Yes		Yes	Yes	
Lone Worker	Initiates emergency if user does not respond to periodic alerts	Yes	Yes		Yes		Yes			Yes			Yes		Yes	Yes		Yes		Yes	Yes	
Remote Monitor	Radio can remotely activate another radio's microphone	Decode Only	Decode Only	Yes	Yes		Decode Only	Yes	Yes	Yes			Yes		Yes	Decode Only	Yes	Decode Only		Yes	Yes	
VOX (supported on radio)	Voice activated calling allows handsfree operation	Yes	Yes		Yes		Yes			Yes			Yes		Yes	Yes		Yes		Yes	Yes	
Audio Feedback Suppressor	Blocks feedback from other radios to eliminate "howling"	Yes	Yes		Yes		Yes			Yes			Yes		Yes	Yes		No		Yes	Yes	
Freeform Text Messaging	User can enter and send free-form text messages	No	No		No		No	No	Yes	No	No	Yes	No	Yes	Yes	No		No		No	Yes[4]	
Pre-programmed Text Messaging	Radio can send pre-programmed text messages	Yes	Yes		Yes		Yes			Yes			Yes		Yes	Yes		Yes		Yes	Yes	
Extended Texting	Maximum text message length is 280 character	No	Yes		Yes		Yes			Yes			Yes		Yes	No	Yes	No		Yes	Yes	
Vibrate Alert	Vibrate silently alerts the user to an incoming call	No	Option		No		Option			No			No		No	No		No		No	No	
Covert Mode	Disable display, LEDs and audible tones for ultimate discretion	No	No		No		No			Yes			No		No	No	Yes	No		No	No	
All Call	One-way call to all radios on a logical channel	Decode Only	Yes		Yes		Yes			Yes			Yes		Yes	Decode Only	Yes	Decode Only		Decode Only	Yes	
Radio Check	Check if another radio is active on a system without notifying the user	Decode Only	Decode Only	Yes	Decode Only	Yes	Decode Only	Yes	Yes	Yes			Decode Only	Yes	Yes	Decode Only	Yes	Decode Only		Yes	Decode Only	Yes
Digital Telephone Patch	Ability to connect to telephone system (requires additional hardware)	No	Option		Yes		Yes			Yes			Yes		No	No	Option	No		Option	Yes	
Transmit Interrupt Encode	Radio can interrupt transmissions from other radios	Decode Only	Yes		Yes		Yes			Yes			Yes		Yes	Decode Only	Option	Decode Only		Yes	Yes	
Basic Privacy	MOTOTRBO 16-bit encryption for protection against eavesdropping	Yes	Yes		Yes		Yes			Yes			Yes		Yes	Yes		Yes		Yes	Yes	
Enhanced Privacy	MOTOTRBO 40-bit encryption for more robust protection	No	Yes		Yes		Yes			Yes			Yes		Yes	No	Option	No		Yes	Yes	
AES256 Encryption	Advanced Encryption Standard (AES) 256-bit encryption	No	No		Option		Option			Option			Option		Yes	No		No		No	Option	
Default Voice Announcement	Audible confirmation of selected operations of the radio	Yes	Yes		Yes		Yes			Yes			Yes		Yes (Text to Speech)	Yes		Yes		Yes	Yes	
Programmable Voice Announcement	Ability to use customised recordings for voice announcements	Yes	Yes		Yes		Yes			Yes			Yes		Yes (Text to Speech)	Yes		Yes		Yes	Yes	
Text-to-Speech Voice Announcement	Radio "reads out" Channel, Zone, Functions, Text Messages, Job Tickets	No	No		Yes		Yes			Yes			Yes		No	No		No		No	Yes	
Radio Management	Centralised radio configuration and code plug management	Yes	Yes		Yes		Yes			Yes			Yes		Yes (Radio Central)	Yes		Yes		Yes	Yes	
Over the Air Programming (OTAP)	Remote, over-air programming using Radio Management	No	Yes		Yes		Yes			No	Yes[17]		Yes		Yes (Wi-Fi Only)	No	Yes	No		Yes	Yes	
Integrated Wi-Fi	Enables remote software updates for easier radio management	No	No		Yes		Yes			No	Yes[17]		No		Yes	No	Yes	No		No	Yes	
Indoor Location Tracking	Use built-in Bluetooth with iBeacons and suitable apps to locate and track radios	No	No		Yes		Yes			No	Yes[17]		No		Yes	No	Option	No		No	Yes	
Restricted Access to System	Prevents unauthorised users from communicating through the repeater	Yes	Yes		Yes		Yes			Yes			Yes		Yes	Yes		Yes		Yes	Yes	
Radio Enable / Disable	Radio can remotely disable and re-enable another radio	Decode Only	Decode Only		Decode Only	Yes	Decode Only	Yes	Yes	Yes			Decode Only	Yes	Yes	Decode Only	Yes	Decode Only		Yes	Decode Only	Yes
Integrated Mandown	Built-in accelerometer enhances personnel safety by monitoring movement	No	No		Yes		Yes[13]			Yes			Yes		Yes	No		No		No	No	
Dual Capacity Direct Mode	Use both TDMA time slots to double system capacity without a repeater	Yes	Yes		Yes		Yes			Yes			Yes		Yes	Yes		Yes		Yes	Yes	
Telemetry Supported	Integrated basic telemetry capability	No	No		No		Yes			Yes			Yes		No	No		No		Yes	Yes	
Telemetry I/O Pins	Number of built-in input / output pins to support telemtery	n/a	n/a		n/a		3			No			3		No	n/a		n/a		4	5	
Telemetry Buttons	Number of buttons that can be configured for telemetry	n/a	n/a		n/a		3			No			3		No	n/a		n/a		3	3	
Fixed Installation	Mobile radios can be used in a fixed installation such as a control room	n/a	n/a		n/a		n/a			n/a			n/a		No	n/a		Yes		Yes	Yes	
Control Station	Mobile acts as the RF link between an Application Server and the radio network	n/a	n/a		n/a		n/a			n/a			n/a		No	n/a		No		Yes	Yes	
Remote Mount Control Head	Controls and display can be located separately from radio chassis	n/a	n/a		n/a		n/a			n/a			n/a		n/a	n/a		No		No	Option	
Data ADKs Available	Data Application Developer Kits are available to ADP members	No	No		Yes		Yes			Yes			Yes		Yes	No		No		No	Yes	
Certificate Based Wi-Fi Access	WPA / WPA2 Enterprise Wi-Fi Support allowing Wi-Fi enabled MOTOTRBO radios to access certificate based Wi-Fi networks	No	No		Yes		Yes			No	Yes[17]		No		Yes	No	Yes	No		No	Yes	
Rental Timer	Supports the ability to set a timer where the radio will stop functioning after the timer expires	Yes	No		No		No			No			No		No	No		No		No	No	
SYSTEM CONFIGURATIONS																					
Direct Mode Operation	Direct radio-to-radio operation	Yes	Yes		Yes		Yes			Yes			Yes		Yes	Yes		Yes		Yes	Yes	
Single-Site Conventional	Single-site conventional operation (channel selection by users)	Yes	Yes		Yes		Yes			Yes			Yes		Yes	Yes		Yes		Yes	Yes	
Extended Range Direct Mode	Single-site conventional range extention via single channel repeater	Yes	Yes		Yes		Yes			Yes			Yes		Yes	Yes		Yes		Yes	Yes	
IP Site Connect	Multi-site conventional operation (channel selection by users)	Option	Yes		Yes		Yes			Yes			Yes		Yes	Option	Yes	Option		Yes	Yes	
Capacity Plus	Single- or multi-site MOTOTRBO trunking (channel selection managed by system)	No	Option		Yes		Yes			Yes			Yes		Yes	No	Option	No		Option	Yes	
Capacity Max	Multi-site, DMR Tier III compliant trunking with centralised controller	No	No		Option		Option			Option			Option		Yes	No		No		No	Option	

[1] Integrated Bluetooth, GPS, GLONASS and Wi-Fi are supported on DP4401e, DP4601e, DP4801e, DM4401e & DM4601e only
[2] Based on NiMH battery
[3] Based on standard Li-Ion battery
[4] Option board capability on SL4010e only
[5] SL4010e only
[6] Requires keypad microphone
[7] DP4401e, DP4801e, DP4801 Ex are available with MPT Option Board factory fitted
[8] DP1400, DM1400 and DM1600 analogue-only models can be upgraded to MOTOTRBO digital by purchasing a software license
[9] SL1600 Programmable Button can scroll through up to 7 features
[10] Requires IMPRES™ battery
[11] Event & distance driven location updates only supported on models with built-in GPS / GLONASS
[12] Only DP2400e, DP4401e, DP4801e, DM4401e and DM4601e available in 300MHz versions
[13] Integrated man down on DP4401e, DP4601e and DP4801e only
[14] VHF models: 45W / 300MHz & UHF models: 40W
[15] 20 kHz not supported for all 300MHz models or DM4000e 450-527MHz models
[16] Maximum output RF power is 2W for frequencies >470MHz
[17] Feature is standard on "Premium" models and optional on "Capable" models

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Motorola Solutions Ltd. Nova South, 160 Victoria Street, London, SW1E 5LB, UK.
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