

# MOTOTRBO™

Professional Digital Two-Way Radio System



CLARITY

PRODUCTIVITY

VERSATILITY

VALUE



Shift into digital.

# Introducing MOTOTRBO Professional Digital Two-Way Radio System. The future of two-way radio.

The next-generation professional two-way radio communications solution is here, with more performance, productivity and value, thanks to digital technology that delivers increased capacity and spectrum efficiency, integrated data communications and enhanced voice communications. MOTOTRBO is ideal for professional organisations that need a customisable, business-critical communication solution using licensed spectrum.



## Unique MOTOTRBO System Benefits for Enhanced Productivity

MOTOTRBO offers a private, standards-based, highly cost-effective solution that can be tailored to meet your unique coverage and feature needs. This versatile portfolio provides a complete system of portable radios, mobile radios, repeaters, accessories, services and a complete solution. MOTOTRBO:

- Uses Time-Division Multiple-Access (TDMA) technology to provide **twice the calling capacity** (compared to analogue or FDMA radios) for the price of one license. A second call doesn't require a second repeater, saving you equipment costs.
- **Doubles the number of users** you can have on a single licensed 12.5 kHz channel with no monthly fees.
- **Integrates voice and data** to increase operational efficiency and support a wide range of applications. Through Motorola's Application Partner Programme customers and system integrators can have access to advanced features and build on their investment.
- Provides **clearer voice communications** over a greater range than comparable analogue radios, rejecting static and noise.
- Offers **enhanced battery life**. Digital TDMA two-way radios can operate up to 40 percent longer between recharges compared to typical analogue radios.
- Enables **additional functionality** including dispatch data, and enhanced call signaling.
- Provides **easy migration** from analogue to digital with the ability to operate in both analogue and digital modes.
- Meets **demanding specifications** U.S. Military 810 C, D, E, and F, IP57 for submersibility (portable models), and Motorola standards for durability and reliability.
- Uses the **IMPRES™ Smart Energy System** to automate battery maintenance, optimise life cycle and maximise talk time.

# MOTOTRBO Integrated Data Enables Advanced Applications

MOTOTRBO is changing the way businesses communicate. New functionality, features and well-documented interfaces embedded in the radio opens up new possibilities. Through Motorola's Application Partner Programme customers and system integrators can have access to these advanced features and build on their investment and add new high-value capabilities published.

## MOTOTRBO Application Partner Programme

Customising communications technology to enhance safety and increase operational efficiency is important to customers in all industries. Third-party developers play an important role in supporting the market growth of the MOTOTRBO platform and in creating customised applications that will add value to customers in different vertical markets. Developers will extend the capabilities of MOTOTRBO and provide niche solutions that will satisfy a broad range of customer needs.

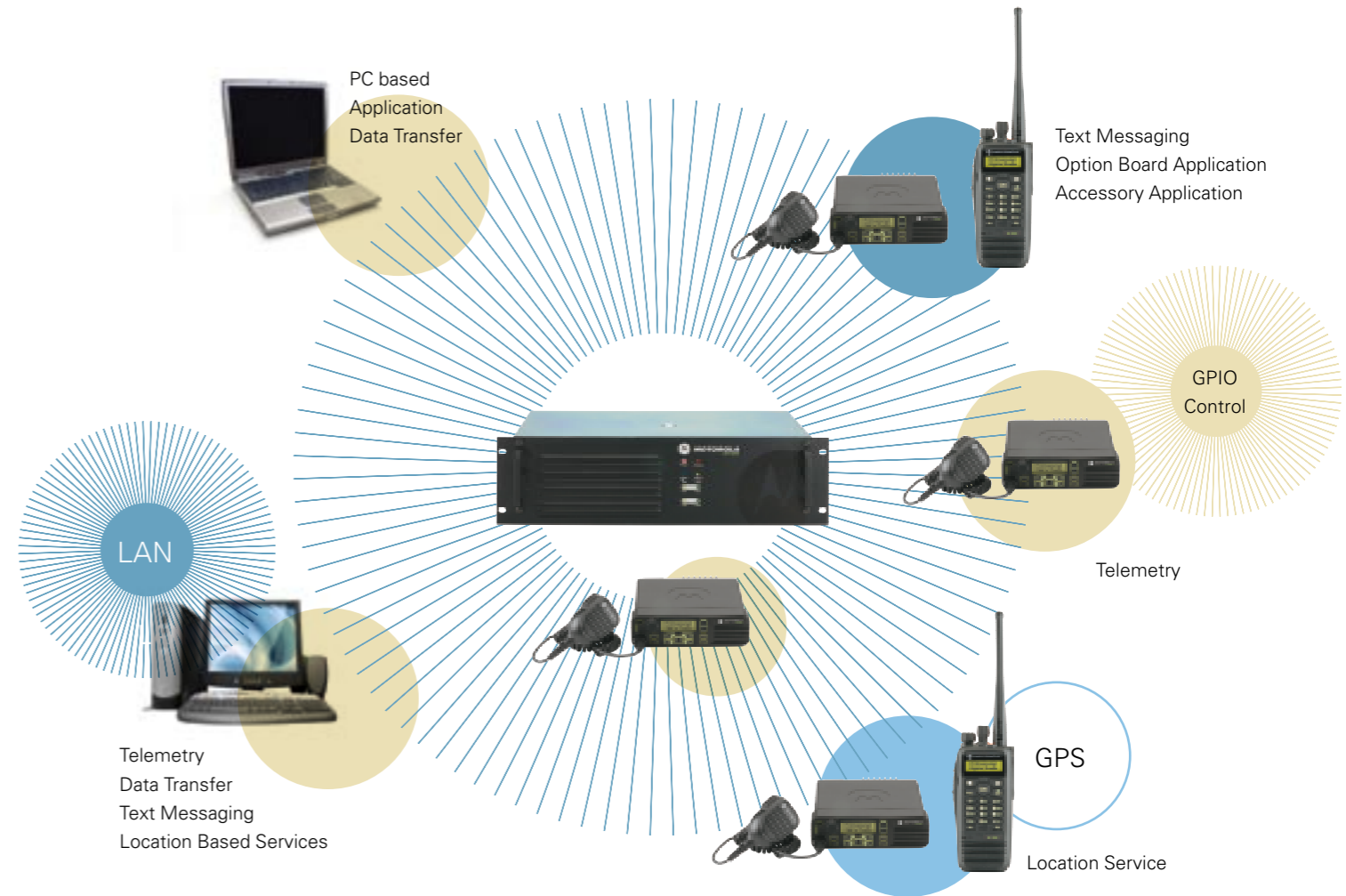
To encourage the development of a broad portfolio of customer-focused solutions and continuing innovation, MOTOTRBO is integrated in the successful running Professional Radio Application Partner Programme. Accredited partners get access to the protocol and Application Programming Interface (API) documentation as well as online support. Available and successful running solutions will be promoted through a joined partner and Motorola marketing.

So when you recognise an opportunity to customise an end user solution through the use of an application, contact the Motorola Application Developer Programme manager for support.



## Extending functionalities

Embedded functionality together with the Application Partner Programme is the way to extend the MOTOTRBO product. A MOTOTRBO application partner will have access to the Application Development Kits allowing partners to customise a solution specifically to a customer's need. Several Application Development Kits are available to deliver a range of services.



## Location Services

A location service provides the ability to track people and assets, such as vehicles. This advanced approach takes advantage of the GPS-receiver integrated within both the portable and mobile radios, combined with the software applications from one of the many MOTOTRBO application partners.

GPS-equipped portable and mobile radios can be configured to transmit their geographical coordinates at pre-programmed intervals, on demand and in case of an emergency. Software applications provide dispatchers with a real-time display of fleet activity on a customised, high-resolution, colour-coded map. Using a location service application and MOTOTRBO's integrated GPS, your customers can enjoy the benefits of location tracking.

### Text messaging services

A text messaging service allows communication between radios and dispatch systems, between radios and email-addressable devices, and to remote PC clients attached to radios.

Through an application from a MOTOTRBO application partner, the computer software application adds a PC-based, client/server software application for dispatch-oriented messaging to the system, which extends the capabilities of messaging to include communications between radios and dispatcher PCs. Furthermore, the dispatcher PC can act as a gateway to email, enabling messaging between email-addressable devices and radios.

### Basic telemetry services

MOTOTRBO can be configured and customised for telemetry operation. A PC application interoperating with a MOTOTRBO radio can control inputs and outputs of the radio. This allows for a range of basic telemetry services such as automated readings, monitoring & control and equipment monitoring.

# DP 3600/3601

## Display Portable Radios



- 1 Flexible, menu-driven interface with user-friendly icons or two lines of text for ease of reading text messages.
- 2 Tri-color LED indicator for clear, visible feedback of calling, scanning and monitoring.
- 3 Emergency button to alert supervisor or dispatcher in an emergency situation. With DP 3601, location coordinates can be sent to dispatcher using GPS.
- 4 New accessory connector meets IP57 submersibility specifications and incorporates RF, USB and enhanced audio capability.
- 5 DP 3601 includes integrated GPS module.
- 6 Large, easy-to-use navigation buttons allow easy access to intuitive menu-driven interfaces.
- 7 Radio housing meets IP57 specifications; submersible in 1 metre of water up to 30 minutes
- 8 Powerful, front projecting speaker.
- 9 Three side and two front programmable buttons for easy access to favourite features. New features such as one-touch calling and quick text messaging are made even easier through programmable button access.
- 10 Large, textured push-to-talk button. Provides good tactile response and easy access, even when wearing gloves.
- 11 160 channels.

### Display Portable Radio Standard Package

- Display Portable Radio
- Antenna - Standard whip included with DP 3600; GPS Monopole included with DP 3601
- NiMH 1300 mAh Battery
- IMPRES™ Single Unit Charger
- 2.5" Belt Clip
- Quick Reference Guide

### Additional Features

- Enhanced call management  
Encode/decode: emergency, remote monitor, push-to-talk ID, radio check, all call, radio disable
- Dual-mode analogue/digital scan - facilitates a smooth migration from analogue to digital
- Free-form and quick text messaging

# DP 3400/3401

## Non-display Portable Radios



- 1 Tri-color LED indicator for clear, visible feedback of calling, scanning and monitoring.
- 2 Emergency button to alert supervisor or dispatcher in an emergency situation. With DP 3401, location coordinates can be sent to dispatcher using GPS.
- 3 New accessory connector meets IP57 submersibility specifications and incorporates RF, USB and enhanced audio capability.
- 4 DP 3401 includes integrated GPS module.
- 5 Radio housing meets IP57 specifications; submersible in 1 metre of water up to 30 minutes.
- 6 Powerful, front projecting speaker.
- 7 Three side programmable buttons for easy access to favourite features. New features such as one-touch calling and quick text messaging are made even easier through programmable button access.
- 8 Large, textured push-to-talk button. Provides good tactile response and easy access, even when wearing gloves.
- 9 32 channels.

### Non-display Portable Radio Standard Package

- Non-display Portable Radio
- Antenna - Standard whip included with DP 3400; GPS Monopole included with DP 3401
- NiMH 1300 mAh Battery
- IMPRES™ Single Unit Charger
- 2.5" Belt Clip
- Quick Reference Guide

### Additional Features

- Enhanced call management  
Encode: emergency, push-to-talk ID  
Decode: radio check, remote monitor, radio disable, all call
- Dual-mode analogue/digital scan - facilitates a smooth migration from analogue to digital
- Send quick text messaging via programmable buttons

# DM 3600/3601

Enhanced Display Mobile Radios



- 1 Accessory connector supports USB and enhanced audio capability.
- 2 Multi-colored LED indicators for clear, visible feedback of calling, scanning and monitoring.
- 3 Large, easy-to-use volume knob.
- 4 DM 3601 includes integrated GPS module.
- 5 160 channels.
- 6 Powerful, front-projecting speaker.
- 7 Large, easy-to-use navigation buttons allow easy access to intuitive, menu-driven interfaces.
- 8 Flexible, menu-driven interface with user-friendly icons or two lines of text for ease of reading text messages.
- 9 Four programmable buttons for easy access to favourite features. New features such as one-touch calling and text messaging are made even easier through programmable button access.
- 10 Compact and ergonomically friendly microphone.

### Display Mobile Radio Standard Package

- Radio with Display Control Head
- Trunnion
- Cabling (power cord)
- Compact Microphone
- Quick Reference Guide

### Additional Features

- Enhanced call management  
Encode/decode: emergency, remote monitor, push-to-talk ID, radio check, all call, radio disable
- DM 3601 can transmit GPS coordinates
- Dual-mode analogue/digital scan - facilitates a smooth migration from analogue to digital
- Short free-form and quick text messaging

# DM 3400/3401

Numeric Display Mobile Radios



- 1 Accessory connector supports USB and enhanced audio capability.
- 2 Multi-colored LED indicators for clear, visible feedback of calling, scanning and monitoring.
- 3 Large, easy-to-use volume knob.
- 4 DM 3401 includes integrated GPS module.
- 5 Large, easy-to-use channel navigation buttons.
- 6 Powerful, front-projecting speaker.
- 7 32 channels; channel number is easy to read on large, clear numeric two-digit display.
- 8 Two programmable buttons for easy access to favourite features. New features such as one-touch calling are made even easier through programmable button access.
- 9 Compact and ergonomically friendly microphone.

### Numeric Display Mobile Radio Standard Package

- Radio with Numeric Display Control Head
- Trunnion
- Cabling (power cord)
- Compact Microphone
- Quick Reference Guide

### Additional Features

- Enhanced call management  
Encode: emergency, push-to-talk ID  
Decode: radio check, remote monitor, radio disable, all call
- DM 3401 can transmit GPS coordinates
- Dual-mode analogue/digital scan - facilitates a smooth migration from analogue to digital
- Send quick text messaging via programmable buttons

# DR 3000

Repeater



- 1 100% continuous full duty cycle at 25-40W
- 2 Supports two simultaneous voice or data paths in digital TDMA mode.
- 3 Integrated power supply.
- 4 Operates in analogue or digital mode, bright, clear, colored LEDs indicate mode.
- 5 LEDs clearly indicate transmit and receive modes in both channel slots.
- 6 Sturdy handles make installation and handling easier.

### Repeater Standard Package

- Repeater
- Power Cord

# New Audio Accessory Interface Enables Enhanced Performance and Capabilities

Motorola digital technology enables breakthrough radio performance and features. And our new audio interface means MOTOTRBO accessories can offer your customers new performance and capabilities, too, now and in the future.

- Accessory programmable buttons can be programmed to any feature available in the radio, rather than being linked to radio programmable button programming. This allows the accessory programmable buttons to have independent programmable features.
- The new portable connector design meets IP57 submersibility requirements. This allows for use with submersible accessories such as the submersible remote speaker microphone.
- The new portable interface design incorporates the antenna signal within the audio connectors, which allows for easy use of accessories that require an RF signal, such as public safety speaker microphones.
- The new connector design also incorporates USB capability, which allows for the development of USB-capable accessories.
- The new audio accessory interface is the Motorola standard audio accessory interface for two-way portable and mobile radios.
- In addition, the interface incorporates the capability for enhanced audio functionality, industry unique technology that allows for communication between the radio and the audio accessory. Accessory identification is sent to the radio enabling the radio to help optimise its output for each type of audio accessory. This results in more consistent output across all audio accessory types.



# MOTOTRBO Accessories

## Portable Radio

The MOTOTRBO radio portfolio is supported by a range of genuine Motorola accessories to enhance functionality and ensure the highest performance of the radio solution. Whether it is harsh working conditions, noisy environments, long shifts or the focus is on discrete communication, the MOTOTRBO accessories range will meet the need. The versatile range of accessories allows users to focus on the job at hand whether that is ensuring the safety of people or equipment, maintaining production efficiency or moving goods or people. All accessories are engineered and tested to the same demanding standards as the radios. They are designed with the user in mind and the ergonomic and easy to use accessories helps ensure the team keeps in contact.



### Audio Solutions

Remote- and Public Speaker Microphones are versatile and reliable accessories allowing users to remain in full contact without removing the radio from its position at the belt, in a case or a charger. The range of Speaker Microphones offered with MOTOTRBO utilises different technologies to offer enhanced background reduction, reduced water intrusion and enhanced coverage along with ear-jack and programmable buttons.

A versatile range of audio accessories ensures that users have full advantage of the services offered by MOTOTRBO. Tailored solutions ensure efficiency for safety organisations, covert, commercial and industrial users.



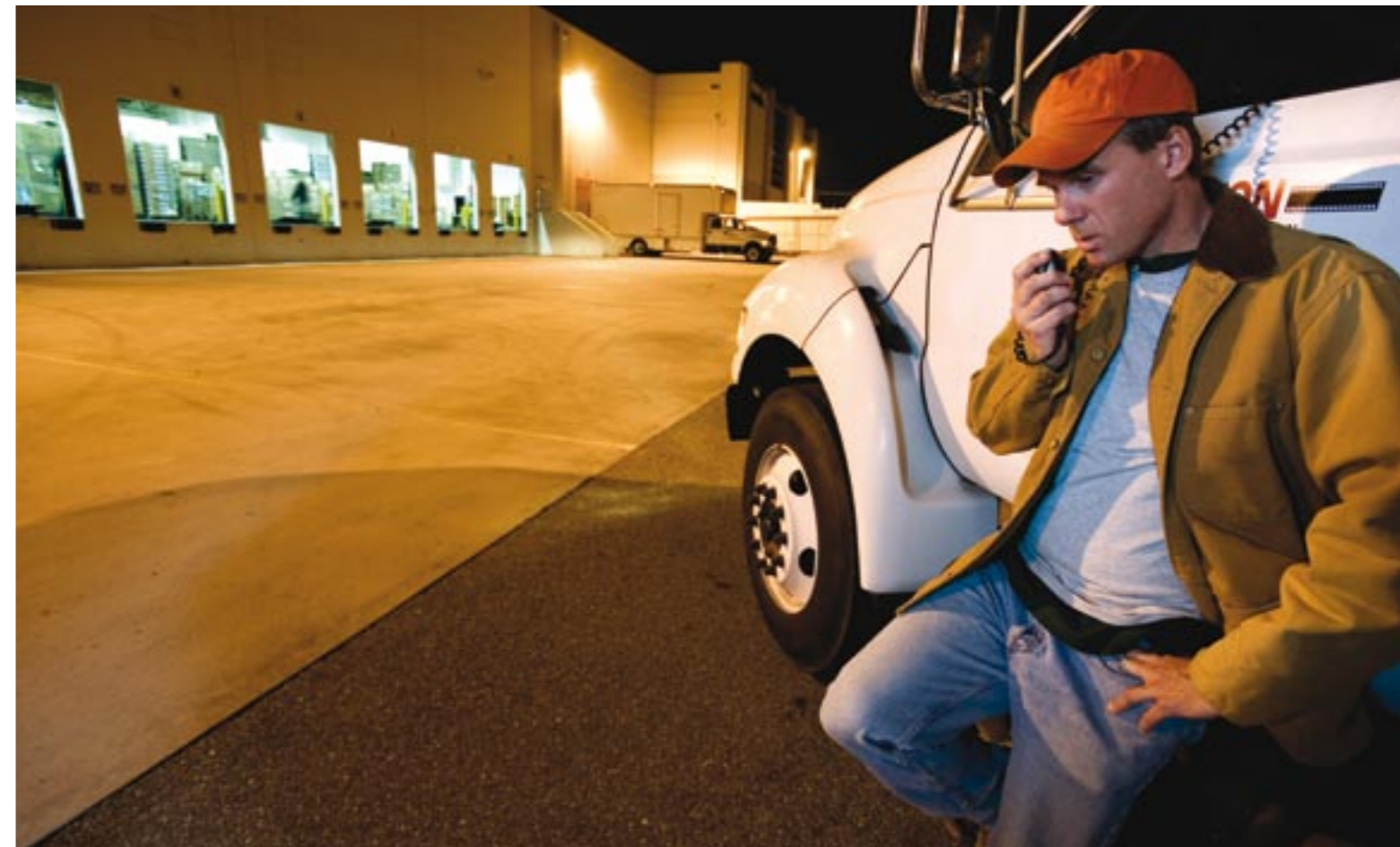
### Battery and Charging Solutions

The power to communicate is vital and requires efficient battery and charging solutions. MOTOTRBO offers different types of battery solutions depending on customer requirements.



### Carrying solutions

The ability to perform the job while staying in contact requires good carrying solutions. MOTOTRBO offers a wide range of solutions including belt clips, nylon- and leather carry cases, shoulder straps and chest packs. All designed to optimise user performance and enhance functionality such as ruggedness as well as water and dust resistance.



## Mobile Radio

A range of Motorola accessories are available to support the MOTOTRBO mobile radios. Mobile accessories are an important piece of the mobile solution in terms of installation and operational requirements. MOTOTRBO's range of mobiles is supported by accessories enabling flexible installation and operation in vehicles or desktop use.



### Audio Solutions

Mobile Microphones enhances functionality of the mobile solution and helps ensure contact with the user and the team. Various microphones are available for different needs including standard microphone, keypad microphone to allow users to navigate menus and heavy duty microphone with enhanced durability and easier handling while wearing gloves. A visor microphone with enhanced audio is also available to be used with external PTT accessories to allow users hands free operation.



Other accessories are available for MOTOTRBO with specific needs in mind. An emergency foot-switch is available allowing users to discretely notify about an emergency situation. External speaker and push-button PTT are available when operating in noisy environments or if hands free operation is required.

# MOTOTRBO Portable Radio Specifications

## DP 3600/3601 Display Portable Radios

### Specifications

GENERAL SPECIFICATIONS		TRANSMITTER	
Channel Capacity	160	Frequency	403-470 MHz
Frequency	403-470 MHz	Channel Spacing	12.5 kHz/ 25 kHz
Dimensions (HxWxL)		Frequency Stability	+/- 1.5 ppm (DP 3600)
with NiMH Battery 1300mAH	131.5 x 63.5 x 37.2 mm	(-30° C, +60° C, +25° C)	+/- 0.5 ppm (DP 3601)
with Lilon Std Battery 1500mAH	131.5 x 63.5 x 35.2 mm	Power Output	
with Lilon FM Battery 1400mAH	131.5 x 63.5 x 37.2 mm	Low Power	1 W
Weight		High Power	4 W
with NiMH Battery	430 g	Modulation Limiting	+/- 2.5 kHz @ 12.5 kHz
with Lilon FM Battery	370 g		+/- 5.0 kHz @ 25 kHz
with Lilon Std Battery	360 g	FM Hum and Noise	-40 dB @ 12.5 kHz
Power Supply	7.2V nominal		-45 dB @ 25 kHz
Average battery life at 5/5/90 duty cycle with battery saver enabled in carrier squelch and transmitter in high power.		Conducted / Radiated Emission	-36 dBm < 1 GHz
IMPRES Lilon Std Battery Analogue: 9 hrs / Digital: 13 hrs			-30dBm > 1GHz
IMPRES FM Lilon Battery Analogue: 8.5 hrs / Digital: 12 hrs		Adjacent Channel Power	-60 dB @ 12.5 kHz
NiMH Battery Analogue: 8 hrs / Digital: 11 hrs			-70 dB @ 25 kHz
<b>RECEIVER</b>		Audio Response	+1, -3 dB
Frequency	403-470 MHz	Audio Distortion	3%
Channel Spacing	12.5 kHz/ 25 kHz	Digital Vocoder Type	AMBE++
Frequency Stability	+/- 1.5 ppm (DP 3600)	Digital Protocol	ETSI-TS102 361-1
(-30° C, +60° C, +25° C)	+/- 0.5 ppm (DP 3601)	<b>GPS</b>	
Analogue Sensitivity	0.35 uV (12 dB SINAD)	Accuracy specs are for long-term tracking (95th percentile values > 5 satellites visible at a nominal -130 dBm signal strength)	
	0.22 uV (typical) (12 dB SINAD)	TTFF (Time To First Fix) Cold Start	< 1 minute
	0.4 uV (20 dB SINAD)	TTFF (Time To First Fix) Hot Start	< 10 seconds
Digital Sensitivity	5% BER: 0.3 uV	Horizontal Accuracy	< 10 meters
Intermodulation	65 dB	<b>ENVIRONMENTAL SPECIFICATIONS</b>	
Adjacent Channel Selectivity	60 dB @ 12.5 kHz, 70 dB @ 25 kHz	Operating Temperature*	-30° C / +60° C
Spurious Rejection	70 dB	Storage Temperature	-40° C / +85° C
Rated Audio	500 mW	Temperature Shock	Per MIL-STD
Audio Distortion @ Rated Audio	3% (typical)	Humidity	Per MIL-STD
Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 25 kHz	Water Intrusion	EN60529 - IP57
Audio Response	+1, -3 dB	Packaging Test	MIL-STD 810D and E
Conducted Spurious Emission	-57 dBm	* With Lilon battery, operating temperature specification is -10° C / +60° C. With NiMH battery, operating temperature specification is -20° C / +60° C	
<b>MILITARY STANDARDS</b>			
	810E		810F
Applicable MIL-STD	Methods	Procedures	Methods
Low Pressure	500.3	II	500.4
High Temperature	501.3	I/A, II/A1	501.4
Low Temperature	502.3	I/C3, II/C1	502.4
Temperature Shock	503.3	I/A, 1C3	503.4
Solar Radiation	505.3	I	505.4
Rain	506.3	I,II	506.4
Humidity	507.3	II	507.4
Salt Fog	509.3	I	509.4
Dust	510.3	I	510.4
Vibration	514.4	I/10, II/3	514.5
Shock	516.4	I, IV	516.5

**FACTORY MUTUAL APPROVALS** - DP family of radios are certified by Factory Mutual Approvals as intrinsically safe for use in Division 1, Class I,II,III, Groups C,D,E,F,G, when ordered with the Factory Mutual approved battery option.

## DP 3400/3401 Non-display Portable Radios

### Specifications

GENERAL SPECIFICATIONS		TRANSMITTER	
Channel Capacity	32	Frequency	403-470 MHz
Frequency	403-470 MHz	Channel Spacing	12.5 kHz/ 25 kHz
Dimensions (HxWxL)		Frequency Stability	+/- 1.5 ppm (DP 3400)
with NiMH Battery 1300mAH	131.5 x 63.5 x 37.2 mm	(-30° C, +60° C, +25° C)	+/- 0.5 ppm (DP 3401)
with Lilon Std Battery 1500mAH	131.5 x 63.5 x 35.2 mm	Power Output	
with Lilon FM Battery 1400mAH	131.5 x 63.5 x 37.2 mm	Low Power	1 W
Weight		High Power	4 W
with NiMH Battery	400 g	Modulation Limiting	+/- 2.5 kHz @ 12.5 kHz
with Lilon FM Battery	340 g		+/- 5.0 kHz @ 25 kHz
with Lilon Std Battery	330 g	FM Hum and Noise	-40 dB @ 12.5 kHz
Power Supply	7.2V nominal		-45 dB @ 25 kHz
Average battery life at 5/5/90 duty cycle with battery saver enabled in carrier squelch and transmitter in high power.		Conducted / Radiated Emission	-36 dBm < 1 GHz
IMPRES Lilon Std Battery Analogue: 9 hrs / Digital: 13 hrs			-30dBm > 1GHz
IMPRES FM Lilon Battery Analogue: 8.5 hrs / Digital: 12 hrs		Adjacent Channel Power	-60 dB @ 12.5 kHz
NiMH Battery Analogue: 8 hrs / Digital: 11 hrs			-70 dB @ 25 kHz
<b>RECEIVER</b>		Audio Response	+1, -3 dB
Frequency	403-470 MHz	Audio Distortion	3%
Channel Spacing	12.5 kHz/ 25 kHz	Digital Vocoder Type	AMBE++
Frequency Stability	+/- 1.5 ppm (DP 3400)	Digital Protocol	ETSI-TS102 361-1
(-30° C, +60° C, +25° C)	+/- 0.5 ppm (DP 3401)	<b>GPS</b>	
Analogue Sensitivity	0.35 uV (12 dB SINAD)	Accuracy specs are for long-term tracking (95th percentile values > 5 satellites visible at a nominal -130 dBm signal strength)	
	0.22 uV (typical) (12 dB SINAD)	TTFF (Time To First Fix) Cold Start	< 1 minute
	0.4 uV (20 dB SINAD)	TTFF (Time To First Fix) Hot Start	< 10 seconds
Digital Sensitivity	5% BER: 0.3 uV	Horizontal Accuracy	< 10 meters
Intermodulation	65 dB	<b>ENVIRONMENTAL SPECIFICATIONS</b>	
Adjacent Channel Selectivity	60 dB @ 12.5 kHz, 70 dB @ 25 kHz	Operating Temperature*	-30° C / +60° C
Spurious Rejection	70 dB	Storage Temperature	-40° C / +85° C
Rated Audio	500 mW	Temperature Shock	Per MIL-STD
Audio Distortion @ Rated Audio	3% (typical)	Humidity	Per MIL-STD
Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 25 kHz	Water Intrusion	EN60529 - IP57
Audio Response	+1, -3 dB	Packaging Test	MIL-STD 810D and E
Conducted Spurious Emission	-57 dBm	* With Lilon battery, operating temperature specification is -10° C / +60° C. With NiMH battery, operating temperature specification is -20° C / +60° C	
<b>MILITARY STANDARDS</b>			
	810E		810F
Applicable MIL-STD	Methods	Procedures	Methods
Low Pressure	500.3	II	500.4
High Temperature	501.3	I/A, II/A1	501.4
Low Temperature	502.3	I/C3, II/C1	502.4
Temperature Shock	503.3	I/A, 1C3	503.4
Solar Radiation	505.3	I	505.4
Rain	506.3	I,II	506.4
Humidity	507.3	II	507.4
Salt Fog	509.3	I	509.4
Dust	510.3	I	510.4
Vibration	514.4	I/10, II/3	514.5
Shock	516.4	I, IV	516.5

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# MOTOTRBO Mobile Radio Specifications

## DM 3600/3601 Enhanced Display Mobile Radios

### Specifications

GENERAL SPECIFICATIONS		TRANSMITTER	
Channel Capacity	160	Frequency	403-470 MHz
Typical RF Output		Channel Spacing	12.5 kHz / 25 kHz
Low Power	1-25 W	Frequency Stability	+/- 1.5 ppm (DM 3600)
High Power	25-40 W	(-30° C, +60° C, +25° C)	+/- 0.5 ppm (DM 3601)
Frequency	403-470 MHz	Power Output	
Dimensions (HxWxL)	51 x 175 x 206 mm	Low Power	1-25 W
Weight	1.8 kg	High Power	25-40 W
Current Drain:		Modulation Limiting	+/- 2.5 kHz @ 12.5 kHz
Standby	0.81 A max		+/- 5.0 kHz @ 25 kHz
Rx @ Rated Audio	2 A max	FM Hum and Noise	-40 dB @ 12.5 kHz
Transmit	1-25W: 11.0A max		-45 dB @ 25 kHz
	25-40W: 14.5A max	Conducted / Radiated Emission	-36 dBm < 1 GHz
			-30 dBm > 1 GHz
		Adjacent Channel Power	-60 dB @ 12.5 kHz
			-70 dB @ 25 kHz
		Audio Response	+1, -3 dB
		Audio Distortion	3%
		Digital Vocoder Type	AMBE++
		Digital Protocol	ETSI-TS102 361-1
RECEIVER		GPS	
Frequency	403-470 MHz	Accuracy specs are for long-term tracking (95th percentile values	
Channel Spacing	12.5 kHz/ 25 kHz	> 5 satellites visible at a nominal -130 dBm signal strength)	
Frequency Stability	+/- 1.5 ppm (DM 3600)	TTFF (Time To First Fix) Cold Start	< 1 minute
(-30° C, +60° C, +25° C)	+/- 0.5 ppm (DM 3601)	TTFF (Time To First Fix) Hot Start	< 10 seconds
Analogue Sensitivity	0.30 uV (12 dB SINAD)	Horizontal Accuracy	< 10 meters
	0.22 uV (typical) (12 dB SINAD)		
	0.4 uV (20 dB SINAD)		
Digital Sensitivity	5% BER: 0.3 uV		
Intermodulation	70 dB		
Adjacent Channel Selectivity	60 dB @ 12.5 kHz,		
	70 dB @ 25 kHz		
Spurious Rejection	70 dB		
Rated Audio	3 W (Internal)		
	7.5 W (External - 8 ohms)		
	13 W (External - 4 ohms)		
Audio Distortion @ Rated Audio	3% (typical)		
Hum and Noise	-40 dB @ 12.5 kHz		
	-45 dB @ 25 kHz		
Audio Response	+1, -3 dB		
Conducted Spurious Emission	-57 dBm		
ENVIRONMENTAL SPECIFICATIONS			
		Operating Temperature	-30° C / +60° C
		Storage Temperature	-40° C / +85° C
		Temperature Shock	Per MIL-STD
		Humidity	Per MIL-STD
		Water and Dust Intrusion	IP54, MIL-STD

### MILITARY STANDARDS

Applicable MIL-STD	810E		810F	
	Methods	Procedures	Methods	Procedures
Low Pressure	500.3	II	500.4	II
High Temperature	501.3	I/A, II/A1	501.4	I/Hot, II/Hot
Low Temperature	502.3	I/C3, II/C1	502.4	I/C3, II/C1
Temperature Shock	503.3	I/A, 1C3	503.4	I
Solar Radiation	505.3	I	505.4	I
Rain	506.3	I,II	506.4	I, III
Humidity	507.3	II	507.4	-
Salt Fog	509.3	I	509.4	I
Dust	510.3	I	510.4	I
Vibration	514.4	I/10, II/3	514.5	I/24
Shock	516.4	I, IV	516.5	I, IV

## DM 3400/3401 Numeric Display Mobile Radios

### Specifications

GENERAL SPECIFICATIONS		TRANSMITTER	
Channel Capacity	32	Frequency	403-470 MHz
Typical RF Output		Channel Spacing	12.5 kHz / 25 kHz
Low Power	1-25 W	Frequency Stability	+/- 1.5 ppm (DM 3400)
High Power	25-40 W	(-30° C, +60° C, +25° C)	+/- 0.5 ppm (DM 3401)
Frequency	403-470 MHz	Power Output	
Dimensions (HxWxL)	51 x 175 x 206 mm	Low Power	1-25 W
Weight	1.8 kg	High Power	25-40 W
Current Drain:		Modulation Limiting	+/- 2.5 kHz @ 12.5 kHz
Standby	0.81 A max		+/- 5.0 kHz @ 25 kHz
Rx @ Rated Audio	2 A max	FM Hum and Noise	-40 dB @ 12.5 kHz
Transmit	1-25W: 11.0A max		-45 dB @ 25 kHz
	25-40W: 14.5A max	Conducted / Radiated Emission	-36 dBm < 1 GHz
			-30 dBm > 1 GHz
		Adjacent Channel Power	-60 dB @ 12.5 kHz
			-70 dB @ 25 kHz
		Audio Response	+1, -3 dB
		Audio Distortion	3%
		Digital Vocoder Type	AMBE++
		Digital Protocol	ETSI-TS102 361-1
RECEIVER		GPS	
Frequency	403-470 MHz	Accuracy specs are for long-term tracking (95th percentile values	
Channel Spacing	12.5 kHz/ 25 kHz	> 5 satellites visible at a nominal -130 dBm signal strength)	
Frequency Stability	+/- 1.5 ppm (DM 3400)	TTFF (Time To First Fix) Cold Start	< 1 minute
(-30° C, +60° C, +25° C)	+/- 0.5 ppm (DM 3401)	TTFF (Time To First Fix) Hot Start	< 10 seconds
Analogue Sensitivity	0.30 uV (12 dB SINAD)	Horizontal Accuracy	< 10 meters
	0.22 uV (typical) (12 dB SINAD)		
	0.4 uV (20 dB SINAD)		
Digital Sensitivity	5% BER: 0.3 uV		
Intermodulation	70 dB		
Adjacent Channel Selectivity	60 dB @ 12.5 kHz,		
	70 dB @ 25 kHz		
Spurious Rejection	70 dB		
Rated Audio	3 W (Internal)		
	7.5 W (External - 8 ohms)		
	13 W (External - 4 ohms)		
Audio Distortion @ Rated Audio	3% (typical)		
Hum and Noise	-40 dB @ 12.5 kHz		
	-45 dB @ 25 kHz		
Audio Response	+1, -3 dB		
Conducted Spurious Emission	-57 dBm		
ENVIRONMENTAL SPECIFICATIONS			
		Operating Temperature	-30° C / +60° C
		Storage Temperature	-40° C / +85° C
		Temperature Shock	Per MIL-STD
		Humidity	Per MIL-STD
		Water and Dust Intrusion	IP54, MIL-STD

### MILITARY STANDARDS

Applicable MIL-STD	810E		810F	
	Methods	Procedures	Methods	Procedures
Low Pressure	500.3	II	500.4	II
High Temperature	501.3	I/A, II/A1	501.4	I/Hot, II/Hot
Low Temperature	502.3	I/C3, II/C1	502.4	I/C3, II/C1
Temperature Shock	503.3	I/A, 1C3	503.4	I
Solar Radiation	505.3	I	505.4	I
Rain	506.3	I,II	506.4	I, III
Humidity	507.3	II	507.4	-
Salt Fog	509.3	I	509.4	I
Dust	510.3	I	510.4	I
Vibration	514.4	I/10, II/3	514.5	I/24
Shock	516.4	I, IV	516.5	I, IV

## DR 3000 - REPEATER

### Specifications

#### GENERAL SPECIFICATIONS

Channel Capacity	1
Typical RF Output	
Low Power	1-25 W
High Power	25-40 W
Frequency	403-470 MHz
Dimensions (HxWxL)	132.6 x 482.6 x 296.5 mm
Weight	14 kg
Voltage Requirements	100-240 V AC (13.6 V DC)
Current Drain: Standby	0.5A (1A DC typical)
Transmit	1.5A (11A DC typical)
Operating Temperature Range	-30°C to +60°C
Max Duty Cycle	100%

#### RECEIVER

Frequencies	403-470 MHz
Channel Spacing	12.5 kHz / 25 kHz
Frequency Stability	+/- 0.5 ppm
(-30° C, +60° C, +25° C)	
Analogue Sensitivity	0.30 uV (12 dB SINAD)
	0.22 uV (typical) (12 dB SINAD)
	0.4uV (20 dB SINAD)
Digital Sensitivity	5% BER: 0.3 uV
Intermodulation	70 dB
Adjacent Channel Selectivity	60 dB @ 12.5 kHz,
	70 dB @ 25 kHz
Spurious Rejection	70 dB
Audio Distortion @ Rated Audio	3% (typical)
Hum and Noise	-40 dB @ 12.5 kHz
	-45 dB @ 25 kHz
Audio Response	+1, -3 dB
Conducted Spurious Emission	-57 dBm < 1GHz

#### TRANSMITTER

Frequencies	403-470 MHz
Channel Spacing	12.5 kHz / 25 kHz
Frequency Stability	+/- 0.5 ppm
(-30° C, +60° C, +25° C)	
Power Output	
Low Power	1-25 W
High Power	25-40 W
Modulation Limiting	+/- 2.5 kHz @ 12.5 kHz
	+/- 5.0 kHz @ 25 kHz
FM Hum and Noise	-40 dB @ 12.5 kHz
	-45 dB @ 25 kHz
Conducted / Radiated Emission	-36 dBm < 1 GHz
	-30 dBm > 1 GHz
Adjacent Channel Power	-60 dB @ 12.5 kHz
	-70 dB @ 25 kHz
Audio Response	+1, -3 dB
Audio Distortion	3%
Digital Vocoder Type	AMBE++
Digital Protocol	ETSI-TS102 361-1

# IMPRES Smart Energy System - A Unique Battery Charging and Reconditioning Solution

IMPRES Smart Energy system automates battery maintenance, optimises cycle life and maximises talk time, so you can offer a radio system that's charged and ready to go whenever your customers need it.

#### No manual battery maintenance

Forget tracking and recording battery use. IMPRES uses a unique communications protocol to facilitate adaptive reconditioning that diminishes the memory effect that results when batteries are continually charged before they're fully discharged. No guesswork, no time wasted reconditioning batteries prematurely.

#### Optimised cycle life

IMPRES batteries may be left in IMPRES chargers for extended periods without heat damage. So IMPRES is ideal for applications requiring that batteries be always in a ready state.

#### Chargers that communicate

IMPRES multi-unit chargers are available with a two-line display module. This informs your customers of battery capacity and voltage while charging, time remaining to complete the rapid recharge process (NiCad and NiMH only), current battery status, as well as each battery's serial number, kit number and chemistry.

#### Charger compatibility with non-IMPRES batteries

Yet another way MOTOTRBO enables easy migration from legacy systems.

#### Extended battery warranties

When used exclusively with IMPRES chargers, IMPRES batteries have six months more capacity warranty coverage than Motorola Premium batteries.





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