



MTM5400

TETRA MOBILE RADIO

Enabling Current and Future Critical Communications



Key Benefits Include

Extended Operational Range

- Up to 10W transmit power, with class leading receiver sensitivity delivers comprehensive network coverage
- Integrated DMO Gateway, DMO Repeater capabilities ensure resilient communications where needed most

Superior Audio Performance

- Next generation audio architecture delivering the loudest and clearest audio performance of any Motorola TETRA mobile available on the market*

High Speed Data Connectivity

- TEDS Ready hardware - with a simple software license upgrade, enables 20x faster data connectivity for accessing back-office systems and databases
- Integrated USB 2.0 PEI, enabling rapid radio programming and standardised interfacing to data terminals and accessories. For additional flexibility, USB host and slave modes are also supported

Low User Migration Costs

- Familiar cellular style user interface and VGA colour display for enhanced usability and reduced staff training costs
- Same user interface as market proven MTP850 portable and MTM800 Enhanced mobile radios
- Re-use of MTM800 Enhanced accessories using GCAI connector

Enhanced End to End Encryption Options

- Integrated hardware for SIM based end to end encryption
- Hardware Encryption (AES128 or AES256 MACE) option

Advanced Terminal Management

- USB 2.0 interface for fast radio programming via Motorola's integrated Terminal Management solution
- Hardware ready for Over-The-Air terminal management
- Enabled via a software update, background programming will allow the radio to be programmed whilst staying fully functional

Flexible Installation Options

- Fully DIN-A compatible and available in Dash, Desk, Remote Head and Motorcycle mount formats
- Supports multiple control heads - an ideal solution for installations in trains, ambulances and fire vehicles where more than one control point might be required
- Works seamlessly with existing MTM800 Enhanced control head accessories

Rugged Design with Exceptional Reliability

- Includes IP67 control head option, for exposed and challenging environments
- Front and Rear rugged GCAI connector for reliable connection of audio and data peripheral equipment
- Mobile radio and accessories are performance matched for enhanced reliability

The first of a new generation of TETRA radios, the MTM5400 underlines Motorola's commitment to meeting the current and future needs of critical communications. This new radio supports a number of advanced capabilities including TEDS high speed data connectivity, integrated Direct Mode Gateway-Repeater, over the air programming and Background Programming, that combine to enhance operational efficiency and to enable users to make more informed decisions in the field.

*Assuming the appropriate audio accessory is used.

Specifications

MODELS - COMPLAINT WITH DIN 75490 (ISO 7736)		
Dash	Compact radio for fast vehicle installation	
Desk	Compact radio, for use in the office. Optional range of accessories such as desk tray with integrated loudspeaker	
Multiple Remote Control Head	Radio with multiple remote mount control head capability. Range of installation options enable use in cars, vans and other vehicles	
Motorcycle	Environmentally enhanced radio meeting IP67 specification. Suitable for demanding environments such as motorcycle, fire appliance and marine installations	
Expansion head "Databox"	Radio without a control head, for data applications, or customised application development	
GENERAL		
	Dimensions HxWxD (mm)	Weight Typical (g)
Dash and Desk models (transceiver + control head)	60x188x198	1300
Transceiver only	45x170x169	1070
Standard control head	60x188x31	230
Remote control head	60x188x39	300
Motorcycle control head	60x188x39	320
USER INTERFACE & DISPLAY		
Display	Diagonal dimension	2.8"
	Type	VGA - 640x480 pixels Transflective TFT, 65,000 colours
	Backlight	Variable backlight, User configurable
	Font sizes	Standard & Zoom mode (90 pixels, 4.5mm high) characters
Buttons & Keypad	Numeric	Integral backlit numeric keypad of 12 keys, with keypad lock option
	International keypad versions	Roman, Arabic, Cyrillic, Korean, Chinese, Taiwanese characters
	Programmable function keys	3 programmable function keys (plus 10 programmable numeric keys)
	Navigation	4-way navigation key, menu and soft keys
	Emergency	Emergency button with backlight
	Shortcuts	User configurable shortcuts to menus and common features using "One-Touch-Button" feature
Rotary	Dual function	Talkgroup and volume change with lock option
Indication	LED	Tri-colour LED
	Tones	Configurable notification tones
User Interface Languages	Standard Options	Arabic, Chinese Simplified, Chinese Traditional, Croatian, Danish, Dutch, English, French, German, Greek, Hebrew, Hungarian, Italian, Korean, Lithuanian, Macedonian, Mongolian, Norwegian, Portuguese, Russian, Spanish, Swedish
	User defined	User programmable, using ISO 8859-1 character
Menu	Tailored to user needs	
	Menu Shortcuts	
	Menu Configuration	
Contacts Management	Cellular Type	
Contact List	Up to 1000 contacts	
	Up to 6 numbers per contact, Max 2000 numbers	
Multiple Dialling Methods	User selects how to dial	
Fast/Flexible Call Response	Private Call Response to a Group Call via One Touch Button	
Multiple Ring Tones		
Message Manager	Cellular Type	
Text message list	20	
Intelligent Keypad Text Input		
Status list	100	
Country/Network Code List	100	
Scan lists	40 lists of 20 groups	
Discrete Mode		
Screen Saver	GIF image & text (any user's selection)	
Universal Time Display		
Keypad Lock		
Talkgroup Folders	Dual layer folder structure (folder/subfolder)	
	256 folders	
Favourite Folders	Up to 3 (to store any favourite talkgroup)	
ENVIRONMENTAL SPECIFICATIONS		
Operating Temperature (°C)	-30 to +60	
Storage Temperature (°C)	-40 to +85	
Not in use - Storage	ETSI 300 019-1-1 CLASS 1.3	Non-Weather Protected Storage Locations
Not in use - Transportation	ETSI 300 019-1-2 CLASS 2.3	Public Transportation
Stationary use - Weather Protected Locations	ETSI 300 019-1-3 CLASS 3.2	Partly Temperature Controlled Locations
Mobile use - Ground Vehicle Installation	ETSI 300 019-1-5 CLASS 5.2	Climatic Tests
Mobile use - Ground Vehicle Installation	ETSI 300 019-1-5 CLASS 5M3	Mechanical Tests
MIL STD	810 C/D/E/F Specifications	All 11 categories met (or exceeded)
Dust and Water Ingress Protection	IP54 (dust cat. 2)	Dash/Desk/Remote models
	IP67	Motorcycle model (only control head is IP67; transceiver is IP54)

ELECTRICAL SPECIFICATIONS		
Voltage Range	10.8 to 15.6 V DC	
Current Consumption (A, typ.)	Idle / Rx / Tx @ 10W	0.5 / 1.0 / 1.2 (TX 3.4A Peak)
	Idle / Rx / Tx @ 3W	0.5 / 1.0 / .9 (TX 2.2A Peak)
	Tx - Multi Slot PD (4 slots) @ 5.6W	2.7
	Tx - TEDS @ 3W	2.3
	Using USB host	Adds 0.5A
RF SPECIFICATIONS		
Frequency Bands (MHz)	380 - 430	
Transmit / Receive Separation (MHz)	10	
TMO Switching Bandwidth (MHz)	50	
DMO Switching Bandwidth (MHz)	50	
RF Channel Bandwidth (kHz)	25	
Transmitter RF Power	TETRA Release 1	Adjustable to Class 2 (10W), Class 2L (5.6W), Class 3 (3W) Note: MSPD limited to Class 2L (5.6W)
	TETRA Release 2 (TEDS)	Class 3 (3W)
RF Power Control	6 Power Step Levels (steps of 5 dBm)	Starting at 15 dBm; finishing at 40 dBm
RF Power Level Accuracy	+/- 2dB	
Receiver Class	A & B	
Receiver Static Sensitivity (dBm)	-114 minimum, -116 typical	
Receiver Dynamic Sensitivity (dBm)	-105 minimum, -107 typical	
GPS SPECIFICATIONS		
Simultaneous Satellites	12	
Mode of Operation	Autonomous or assisted (A-GPS)	
GPS Antenna	Supports active antenna (5V, 25mA supply)	
Autonomous Acquisition Sensitivity	-143 dBm / -173 dBW	
Tracking Sensitivity	-159 dBm / -189 dBW	
Accuracy	<5m (50% probable) <10m (95% probable)	
TTFF (HOT Start - Autonomous)	<1s	
TTFF (WARM Start - Autonomous)	<36s	
TTFF (COLD Start - Autonomous)	<36s	
Location Protocols	ETSI Location Information Protocol (LIP)	
	Motorola LRRP	
VOICE SERVICES		
Talkgroups	2048 (TMO) & 1024 (DMO)	
Phone book entries	1000 persons. Up to 6 numbers per entry (mobile, office etc). Max 2000 entries	
Scan lists	40 lists of 20 talkgroups	
Trunked Mode (TMO) Services	Group call	Late Entry, TMO/DMO Mapping
	Private call	Half / Full Duplex
	Telephony (PABX, PSTN, MS-ISDN)	Full Duplex
	DGNA	Up to 2047 groups
	Scanning	Attachment signalling, supports SWMI initiated attachment/detachment
Direct Mode (DMO) Services	Group call Private call	
Emergency (tailored by users)	Tactical	Emergency Group Call to ATTACHED talkgroup
	Non-Tactical	Emergency Group Call to DEDICATED talkgroup
	Individual	Emergency Call to PREDEFINED party (half/full duplex)
	Smart emergency	TMO/DMO/DMO to TMO automatic switching options
	Hot Mic	Configurable timers for automatic open mic (talk without PTT)
	Location	Location (GPS) sent with emergency
	Target Address	Sent to individual or group address (selected or dedicated)
Alarm (status message)	Emergency Status (or other pre-defined status)	
DATA SERVICES		
Status	Alias messages	400 Entries
	Options	Can be sent via One-Touch or via menu
Short Data Service (SDS)	Inbox	200 Entries (short messages), 40 Entries (long messages of up to 1000 characters)
	Cellular style iTAP predictive text entry	
	Target Address	Sent to individual or group address (selected or dedicated)
	Voice Call Interaction	SDS messages can be sent and received during a voice call
Packet Data (PD)	Multi-slot PD	Data transmission with up to 4 slots supporting up to 28.8 kbit/s gross
	TETRA Enhanced Data Service (TEDS) (via software upgrade)	Supporting 25kHz and 50kHz channel bandwidths and enabling practical data rates of up to 80kbit/s
TEDS (capable)	QAM Channels: 25 kHz and 50 kHz (but not D8PSK channels) QAM modulation/coding modes: 4-QAM R1/2, 16-QAM R1/2, 64-QAM R1/2, and 64-QAM R2/3	
WAP	Integrated WAP browser (including WAP-PUSH)	Integrated Openwave browser
		WAP 1.2.x and WAP 2.0 compatibility for UDP/IP Stack
Peripheral Equipment Interface (PEI)	Interface Protocol	AT Commands - Full Set ETSI Mandatory Compliant
		AT Multiplexer - 4 Virtual Physical Port (simultaneous PD, SDS, AT commands and Air Tracer SESSIONS)
		TNP1; enables simultaneous PD and SDS sessions
Terminal Management	Programmable via Motorola Integrated Terminal Management (iTm) solution	
	Over-The-Air Programming (OTAP) Mode* Capable	Background Mode Programming (BMP) capable* - while radio is operational (providing TETRA services) it is being programmed/configured. * Planned features with software upgrade

GATEWAY SERVICES		
DMO/TMO Gateway (Specific services are software release dependent)	Group voice calls from DMO to TMO	
	Group voice calls from TMO to DMO	
	Emergency group call from DMO to TMO	
	Emergency group call from TMO to DMO	
	Transmission of Gateway Presence Signal	
	Automatic detection and management of co-located Gateways	
	Call Pre-emption (in either direction)	
	SDS messaging from DMO to TMO (including GPS) or from TMO to DMO	
	Configurable routing of SDS to console or PEI	
Management of point to point calls and SDS messages whilst operating as a Gateway		
REPEATER SERVICES		
DMO Repeater (Specific services are software release dependent)	Repeats DMO voice and tone signalling on selected talkgroup	
	Repeats SDS and Status messaging on selected talkgroup	
	ETSI type 1A DMO Repeater for channel efficient operation	
	Transmission of Repeater Presence Signal	
	Priority Call	
	Emergency Call (Pre-emptive Priority Call)	
	E2EE Encrypted DMO traffic	
	Monitoring of and participation in calls whilst in Repeater mode	
Configurable Repeater Power Levels		
INTERFACES		
RS232	For PEI (Four Virtual Ports via AT Multiplexer enable PC applications to run simultaneously Packet Data, AT Commands, SDS, SCOUT)	
USB	USB 2.0 support for PEI (Two Virtual Ports via standard Windows drivers enable PC applications to run simultaneously Packet Data and AT Commands)	
	USB 2.0 support for PEI (Four Virtual Ports via AT Multiplexer enable PC applications to run simultaneously Packet Data, AT Commands, SDS, SCOUT); rapid programming	
	USB On-The-Go (host & slave) capability for intelligent PEI applications	
	USB 1.1 support (Host Mode) to manage USB Slave Devices (e.g. SIM CARD READER)	
Rugged Accessory Connector (GCAI)	GCAI - Motorola accessory and ancillary interface for connection of accessories, data terminals and programming	
General Purpose Input/Output	Digital I/O	7 (4 on remote and motorcycle control head, 3 on transceiver)
	Analog input	4 (1 on remote and motorcycle control head, with 4 levels)
SECURITY FEATURES		
Air Interface Encryption	Algorithms	TEA1, TEA2, TEA3
	Security Classes	Class 1 (Clear), Class 2 (SCK), Class 3 (GCK) [Encryption support on DMO/TMO Gateway and DMO Repeater requires specific software release]
	Authentication	Infrastructure initiated and made mutual by terminal
Provisioning	Secure provisioning tool via Key Variable Loader (KVL)	
User Access Control	PIN/PUK code access	
	Service Profile Selection for Radio User Assignment / Radio User Identity (RUA/RUI) Operation	Based on login credentials, a radio user can be limited to only those radio capabilities defined in pre-installed service profiles, selected by the infrastructure
Data	Packet Data user authentication	
End to End Encryption (EtEE)	Voice E2EE	Enhanced End to End Encryption with OTAR supported through AES128 or AES256 Hardware or SIM (via integrated card slot)
	Packet Data E2EE	
	Short Data (SDS) E2EE	
REGULATORY COMPLIANCE		
Radio (R&TTE Article 3.2)	EN 303 035-1	
	EN 303 035-2	
	ETSI EN 300-394-1	
	ETSI EN 300-392-2	
EMC (R&TTE Article 3.1.b)	EN 301 489-1 V1.3.1	
	EN 301 489-18 V1.3.1	
Electrical Safety (R&TTE Article 3.1.a)	EN 60950-1 (2001)	
	EN50360:2001 EME	
Environmental	Directive 2002/96/EC WEE	
	Directive e2002/95/EC RoHS	
Automotive	E-mark, Automotive EMC Directive 95/54/EC	

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MTM5400/SPEC-UK(04/11)

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MTP3000 SERIES SAFER, TOUGHER, EASIER TO USE



INTRODUCING MOTOROLA'S NEW TETRA RADIO





MOTOROLA TETRA SOLUTIONS DESIGNED TO WORK IN THE TOUGHEST, MOST DEMANDING ENVIRONMENTS, DAY IN, DAY OUT.

The MTP3000 Series is continued sign of the evolution of TETRA. This radio is the pinnacle of 15 years of focus on improving user safety, enhancing efficiency and improving communications. We believe the MTP3000 Series will do more than any other radio in helping our customers meet their operation goals and targets.

THE KEY BENEFITS OF THE MTP3000 SERIES

STAY IN TOUCH

Be safer and more effective with greater coverage and in-building performance with the high-sensitivity receiver and Class 3L (1.8W) power.

HEAR AND BE HEARD

Outstanding audio means you can be safe and effective in the most noisy and difficult environments.



SAFER

SUPERIOR AUDIO AND INCREASED RANGE



TOUGHER

DURABLE CONNECTORS AND RUGGED DESIGN



EASIER TO USE

INTUITIVE HARDWARE AND SOFTWARE FEATURES

SAFER

Where safety is paramount, these TETRA radios are optimised for excellent audio performance in all types of noisy and demanding situations. Audio through both the speaker and accessories is clearer even at full volume. The Slimport speaker ensures even distribution of sound all around the radio wherever it is worn. Intelligent microphone eliminates the need for audio profiles as it adapts very loud or soft speech for onward transmission through the TETRA network.

With high receiver sensitivity, the MTP3000 Series has the capability for maintaining communications in the most demanding situations at long range, in built up areas and in buildings. Providing higher power will further increase range and in-building performance, and so Motorola has added industry challenging Class 3L (1.8W) power output option.

TOUGHER

The MTP3000 Series are fitted with two new connectors to provide excellent corrosion resistance, ruggedness, conductivity and low insertion resistance. The side connector has excellent pull strength. The bottom connector has a self cleaning mechanism to resist dust and dirt, is easy to clean, and is protected inside the radio.

The MTP3000 Series has been made to the highest quality levels and exceeds all 11 categories in the MIL-810 standard. Further, like all Motorola TETRA radios, MTP3000 Series has been designed to pass an Accelerated Life Test simulating over 5 years use; these tests ensure it will withstand tough conditions and provide durability that helps to drive down lifecycle support costs.

EASIER

The two knob interface will suit users migrating from an analogue radio, or are familiar with 2 control knobs. Also the new side connector is very easy and fast to connect and detach. The wide trans reflective screen displays additional characters and is easy to see in both low light and direct sunlight. Accessory profiles are built into the radios for the wide range of Motorola supplied accessories.

The keypad uses angled keys to make it easy to use and avoid pressing the wrong keys.

To minimise staff training costs, MTP3000 Series leverages an instantly familiar cellular phone style user interface. It also includes a large colour (or greyscale) display that supports 262,144 vivid colours and large scalable fonts. Usability is further enhanced through a customisable menu and simplified keypad that combine to make device interaction fast and intuitive.

MTP3000 Series also comes with optional colour identification bands around the antenna. This identifies the radio for user groups with different tasks, coverage area, shift, etc.



BUILT FOR A TOUGH WORLD

Robust connectors withstand hard use and dirty environments. IP65 for all weather and water jet protection.

PICK IT UP AND USE IT FAST

Transition quickly from analogue radios with two control knobs. Navigate quickly through the simple user interface on the clear screen.

CUSTOMISE FOR THE END USER

Tough and effective range of audio and energy accessories suitable for the same rough use as the radio.

MTP3000 SERIES

The **MTP3000 Series** radios are packed with features which are essential for safe and effective operations, as well as significant improvements in areas such as audio and ruggedness. The user interface is optimised for those making the transition from analogue radios and includes two controls for group and volume.

MTP3100, the entry level radio, packing-in all the TETRA essentials.

MTP3200, the radio which adds features such as SIM card encryption option, Bluetooth and GPS.

MTP3250, the radio for users who require a fully-featured TETRA radio with a full keypad.



MTP3250

MTP3100/MTP3200

SAFETY AT THE HEART



The MTP3000 Series has been designed and tested to enhance the safety of all types of personnel. As well as being built for exceptional reliability and ruggedness, the high power ultra-clear audio means that the message will get through in very noisy situations. The Slimport feature means that the radio speaker can be heard from a wide range of directions whether held in the hand or attached to a vest or belt.

Enhanced receiver sensitivity and DMO repeater functionality means excellent coverage in buildings and over extended areas.



Hard leather case with 3" swivel belt loop, fits simple and full keypad models.



Enhanced large remote speaker microphone with noise-canceling microphone, loud audio, audio jack and emergency button, IP54.



Dual-muff over the head headset with boom microphone and in-line push-to-talk, 24 dB NRR.

YOUR LIFELINE WHEN TIME IS CRITICAL

MTP3000 SERIES ACCESSORIES EXCEPTIONAL PERFORMANCE. EVERYDAY TOUGHNESS.

Whether chasing a suspect down a busy street or calling maintenance to a bustling metro station, you depend on communications that perform in demanding environments.

That's why it's critical to choose accessories designed, tested and certified to work optimally with Motorola TETRA radios. Our comprehensive portfolio of MTP3000 Series accessories delivers on that promise – with improved connectors and new enhancements for exceptional audio.

STRONGER, SECURE CONNECTIONS

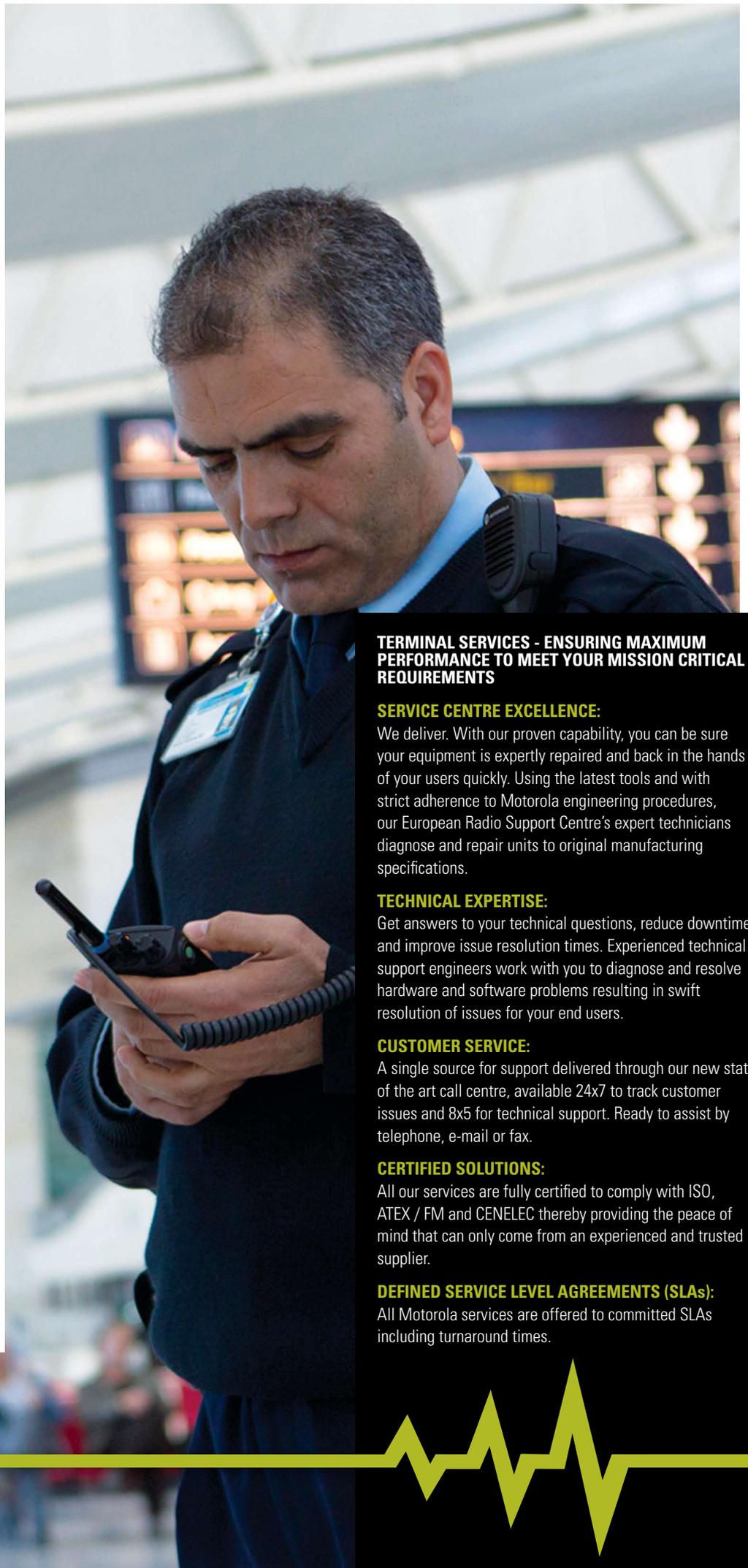
From the pipeline to the fire line, our MTP3000 Series accessories are so robust and reliable, tough enough for your most action packed days. A newly designed, durable, compact, 8-pin connector ensures the accessory stays attached – whether you're jumping over barriers or climbing up ladders. With its tightly sealed radio interface and IP65 rating, your accessory can be exposed to water without losing the connection. Yet the connector is so slim, it won't add bulk to the radio.

EXCEPTIONAL AUDIO EVERY DAY

The audio profiles on our MTP3000 Series accessories make hearing clearly almost effortless. They ensure you get the best performance possible by adapting the audio to how the accessory is worn – in the ear, on your shoulder and more. Simply plug in the accessory and select your accessory from the menu to experience exceptional audio. When it comes to high performing accessories at an affordable price, count on Mag One, the only value-line accessories tested and certified by Motorola.

IMPRES PROVIDES INSTANT IDENTIFICATION

Plug in an accessory from our IMPRES line – such as the remote speaker microphone (RSM) – and your radio automatically identifies it and loads the correct profile to optimise audio performance. What's more, our IMPRES large-speaker RSM matches the high-powered speaker on your radio for even better communications in high-noise environments – essential for noisy crowds or heavy traffic.



TERMINAL SERVICES - ENSURING MAXIMUM PERFORMANCE TO MEET YOUR MISSION CRITICAL REQUIREMENTS

SERVICE CENTRE EXCELLENCE:

We deliver. With our proven capability, you can be sure your equipment is expertly repaired and back in the hands of your users quickly. Using the latest tools and with strict adherence to Motorola engineering procedures, our European Radio Support Centre's expert technicians diagnose and repair units to original manufacturing specifications.

TECHNICAL EXPERTISE:

Get answers to your technical questions, reduce downtime and improve issue resolution times. Experienced technical support engineers work with you to diagnose and resolve hardware and software problems resulting in swift resolution of issues for your end users.

CUSTOMER SERVICE:

A single source for support delivered through our new state of the art call centre, available 24x7 to track customer issues and 8x5 for technical support. Ready to assist by telephone, e-mail or fax.

CERTIFIED SOLUTIONS:

All our services are fully certified to comply with ISO, ATEX / FM and CENELEC thereby providing the peace of mind that can only come from an experienced and trusted supplier.

DEFINED SERVICE LEVEL AGREEMENTS (SLAs):

All Motorola services are offered to committed SLAs including turnaround times.



SPECIFICATIONS

SAFER

SUPERIOR AUDIO AND INCREASED RANGE

TOUGHER

DURABLE CONNECTORS AND RUGGED DESIGN

EASIER

INTUITIVE HARDWARE AND SOFTWARE FEATURES



	MTP3100	MTP3200	MTP3250
Bluetooth*	No	Yes	Yes
GPS*	No	Yes	Yes
Keypad	Simple	Simple	Full

GENERAL

Dimensions HxWxD mm	124 x 53 x 33.5 (with standard battery)
Weight	273g (radio with 1650mAh battery and antenna)
Battery Performance (Class 4 and 1650mAh battery)	Duty Cycle 5/5/90 > 16 Hours Duty Cycle 5/35/60 > 12 Hours
Battery (Li Ion 1650mAh and 2150mAh)	

RF SPECIFICATIONS

Frequency Bands	350-430 MHz
Transmitter RF	Power Class 3L (1.8W) & Class 4 (1W)
Receiver Class	A and B
Rx Static Sensitivity	-114dBm (min); -116dBm (typical)
Rx Dynamic Sensitivity	-105 dBm (min); -107 dBm (typical);

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature °C	-30 to +60
Storage Temperature °C	-40 to +85
Humidity	ETSI 300 019-1-7 class 7.3E
Dust and Water Ingress Protection	IP65 per IEC 60529
Shock, drop and vibration	ETSI 300-019 1-7 class 5M3; MIL-STD 810 D/E/F

LICENSES/OPTIONS

Efficiency

Language & Keypad Options

Bluetooth*

DMO Repeater

RUA/RUI*

MSPD*

SCCH

RMS*

Call Out*

WAP push*

Safety

GPS*

SECURITY SERVICES

Enhanced Security - OTAR/DMO SCK*

Authentication (Mutual)

Air Interface Encryption Class 1, 2, and 3

SIM Encryption (MTP3200 / MTP3250 only)

Permanent Disable*

Temporary Disable*

MAIN DATA SERVICES

MSPD*

SDS Messaging in TMO & DMO

AT Commands Full Set of AT Commands (including Voice Control)

Short Data Applications

TNP1 Simultaneous operation of Packet Data and Short Data Services over a common Peripheral Equipment Interface (PEI)

iTM Fleet Management (Remote Programming)

LOCATION SERVICES

Simultaneous Satellites	12
GPS antenna integrated into the external radio antenna	
Tracking Sensitivity	-160dBm
Accuracy	2 meter (50% probable) @ -130dBm
Protocols	ETSI LIP & Motorola LRRP

USER INTERFACE

Easy to use separate volume and talkgroup knobs	Contact List up to 1000 contacts up to 6 numbers per contact, max 2000 numbers
Colour Transflective Display 132x90 pixel screen with 262,144 vivid colours - viewable in bright sunlight	Multiple Dialling Methods user selects how to dial
Flip screen and large/x-large text & icon options Backlight	Fast/Flexible Call Response Private Call Response to a Group Call via One Touch Button
Screen Saver gif image & text (any user's selection)	Multiple Ring Tones
Universal Time Display	Message Manager Cellular Type (Flexible)
Multiple Languages	Text message list 20
Keypad Lock	Intelligent Keypad Text Input (MTP3250)
Talkgroup Management User friendly, flexible, efficient, fast	Status list 400
Talkgroups – TMO Folders 256, TMO Unique 2048, TMO Instances 4000	Country/Network Code List 100
Talkgroups – DMO Folders 128, DMO Groups 1024	Scan lists 40 lists of 20 groups
Favourite Folders Up to 3 (to store any favourite talkgroup)	User Controls
Menu Tailored to user needs	Multi-Rotary Knob Volume, List Scroll, and/or Talkgroup Selection (The MTP3000 Series have 2 separate knobs)
Menu Shortcuts	One touch Buttons & Keys each button key can be programmed with one of the multiple functions available
Menu Configuration	Covert Mode
Contacts Management Cellular Type (Rapid Search)	

MAIN VOICE SERVICES

Full Duplex TMO Private, PABX, PSTN, Emergency	Individual Emergency Call to PREDEFINED party (half/full duplex)
Half Duplex TMO Private, Group, Emergency	HOT MIC talk without need to PTT (user enabled)
Half Duplex DMO Private, Group, Emergency	Status Msg sent to dispatch console (user enabled)
Inter-MNI, Gateway, Repeater	DMO to TMO enter DMO emergency (with/without gateway) or enter TMO emergency
Dialling Direct, Scroll, Speed, One touch button/key,	Preemptive Priority Calls
AlphaNumeric Search, Call History Redial	Call Out*
Emergency Tactical Emergency Group Call to ATTACHED talkgroup (tailored by users) Non-Tactical Emergency Group Call to DEDICATED talkgroup	PTT Double Push
	Adaptive Audio Control

OTHERS

Robust and 'quick connect' side connector with high-performance matching accessories	SLIM connector Accessories interface
Robust bottom connector	Identification ring on antenna
Loud and clear Audio – 2Wrms Audio power (4W peak) through radio and accessories	

A full range of matching and high performance accessories are available on the MTP3000 Series Accessory Catalogue by visiting www.motorolasolutions.com/MTP3000



MTP3000 SERIES YOUR LIFELINE WHEN TIME IS CRITICAL

For more information on the MTP3000 Series radio, please visit us on the web at:
www.motorolasolutions.com/MTP3000

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MTP8000Ex SERIES TETRA ATEX RADIOS

WORK **SAFER.** WORK **SMARTER.** WORK **ANYWHERE.**





MTP8000Ex SERIES

POWER AND PERFORMANCE DESIGNED FOR EXTREME ENVIRONMENTS

The MTP8000Ex Series sets a new standard in TETRA ATEX radios. From their form to their function, these new radios have been carefully engineered to address workers' needs and offer the ultimate in safe, reliable and efficient communications in hazardous environments.

Meeting the latest ATEX and IECEx standards, this next generation of TETRA ATEX radios represents a significant step forward in improving worker safety, communications and efficiency.





MTP8550Ex
MTP8500Ex



MTP8550Ex

MTP8500Ex

Motorola has more than 20 years of experience in providing intrinsically safe two-way radios. Having shipped more than 100,000 TETRA ATEX radios, we are the leading supplier of TETRA radio communications solutions for use in hazardous environments.

We have used all of this knowledge and experience to develop the MTP8000Ex Series ATEX radios, giving workers the ability to work safer, work smarter and work anywhere with powerful audio, enhanced coverage, extended battery life, greater ruggedness, advanced ergonomics and increased usability.

DESIGNED FOR THE MISSION

The MTP8000Ex Series TETRA ATEX radios have been specifically designed for end-users who need to work in hazardous environments with potentially explosive gases or chemical vapours, flammable liquids or combustible dust.



FIRE & RESCUE

Fire and Rescue teams have long relied on two-way radios to provide effective communications and save lives. But when firefighters respond to a traffic accident involving a petrol tanker or an incident at a petrochemical plant, they need ATEX radios to communicate safely and prevent an incident from becoming an emergency.



OIL & GAS

Workers in the Oil & Gas industry are constantly at risk of escaping flammable gases or liquids and they are often required to work in extreme conditions of heat and dust or cold and wet. Good communications are the key to operating effectively in these dangerous conditions and workers rely on ATEX radios to keep them safe.



MINING

Escaping flammable gases, such as methane, are a major risk in the mining industry. Communication is key to working effectively in such hostile and dangerous conditions and ATEX radios are needed to keep miners safe particularly when explosives are used.



AIRPORTS

Airports are complex facilities where effective and reliable communications are of great importance. But wherever there is a potential exposure to fuel, there is a risk of explosion. Increasingly, ATEX radios are used in areas where workers and on-site fire crews are in close proximity to aviation fuel to keep them safe.

UNCOMPROMISING SAFETY

All design aspects of the MTP8000Ex Series have been optimised to ensure the highest levels of safety, ease of use and ruggedness for users who work in hazardous environments.

MTP8000Ex Series

WORK SAFER WORK SMARTER WORK ANYWHERE

**WORK
SAFER**

PROTECT YOUR WORKERS AND KEEP THEM SAFE IN THE MOST HAZARDOUS ENVIRONMENTS

ENHANCED COVERAGE

High receiver sensitivity and high transmit power gives the MTP8000Ex Series greater coverage and enhanced in-building performance.

BUILT TO BE SAFE

Built to the latest ATEX and IECEx safety standards, the MTP8000Ex Series radios ensure that workers and firefighters can operate safely in the most hazardous environments.

BLUETOOTH AUDIO

A range of wireless accessories can be securely and reliably paired, from headsets and microphones for use in loud environments to large PTT buttons for use with protective clothing, reducing the risk of catching wires.

LOUD AND CLEAR AUDIO

The MTP8000Ex Series has loud and clear audio for use in noisy environments.

COVERAGE INDICATOR

For ultimate safety, the radio is fitted with an LED Coverage Indicator at the base of the antenna, clearly showing when coverage is poor.

LARGE EMERGENCY BUTTON

The MTP8000Ex Series includes an improved and larger emergency button, making it easier to use even with thick gloves.

INDUSTRIAL ACCESSORIES FOR THE MTP8000Ex

ACTIVE NOISE CANCELLING RSM



Communicate in the most demanding PetroChem and Industrial environments. Two PTTs (side and front), High/low volume control, emergency button, 1 programmable button. Supports Peltor helmet comms and 3.5mm discreet listening accessories.



TACTICAL HEADSETS*

For operations in noisy environments. Active noise cancellation protects hearing while maintaining peripheral listening and face-to-face conversations.

TWIN CUP HEADSETS*

For operations in very noisy environments. Provides the highest level of hearing protection with two layers of noise attenuation in each ear cup.



3.5MM ACOUSTIC TUBE

For in-ear audio, the 3.5mm listen only acoustic tube is secured to the Automatic Noise Cancelling RSM with push, twist and lock connection.



*Wired and wireless accessories available

MTP8000Ex SERIES KEY FEATURES



LOUD AND CLEAR AUDIO

The MTP8000Ex Series is optimised for excellent audio performance in all types of noisy environments. Audio through both the speaker and accessories is clearer, even at full volume, and the user can be heard clearly against the loudest background noise.



ENHANCED COVERAGE

High receiver sensitivity and high transmit power gives the MTP8000Ex Series greater coverage and enhanced in-building performance. For ultimate safety, the radio is fitted with an LED coverage indicator at the base of the antenna, alerting the user when coverage is poor.



RUGGED DESIGN

The MTP8000Ex Series radios are built to work in the toughest and most hazardous environments, in both the cold and wet or the dust and heat, with IP65, IP66 and IP67 ratings.

**WORK
SMARTER**

INCREASE EFFICIENCY AND MAINTAIN SAFETY WITH FEATURES DESIGNED WITH THE WORKER IN MIND

INTUITIVE USER INTERFACE

For simplicity, the interface makes use of icons and the menus can be configured to only show the options needed for particular groups of users.

TOP DISPLAY

The display panel on the top of the radio makes it easy to see emergency notifications, battery level, volume level and talkgroup when the radio is worn on the belt.

BLUETOOTH DATA

Smart Devices and tablet PCs can also be securely connected to the radios using Bluetooth for data collection or other applications, such as work scheduling.

ADVANCED ERGONOMICS

The T-bar grip makes the radio harder to drop and easier to hold, even for long periods. The exaggerated control knob to select volume and talkgroup, textured PTT button and tactile keypad make it easier to use.

NAMEPLATE

The use of stick-on labels or external markers to identify the radio can compromise the ATEX certification. Now, the MTP8000Ex Series radios can be easily identified without causing any risk to user safety.

FIRE ACCESSORIES FOR THE MTP8000Ex

ACTIVE NOISE CANCELLING RSM



Communicate in the most demanding Fire Ground environments. Two PTTs (side and front), High/low volume control, emergency button, 1 programmable button. Supports Dräger and Savox helmet comms and 3.5mm discreet listening accessories.

Dräger FPS COM PLUS

Includes integrated microphone and ear piece. Plugs directly into the Active Noise Cancelling RSM Nexus socket for optimised transmit and receive audio.



SAVOX HC-1

Helmet communications with HC-1 bone conductive microphone and ear piece.



3.5MM ACOUSTIC TUBE

For in-ear audio, the 3.5mm listen only acoustic tube is secured to the Automatic Noise Cancelling RSM with push, twist and lock connection.



INTEGRATED BLUETOOTH
Secure Bluetooth Wireless technology is integrated in to the MTP8000Ex Series, ensuring that a range of wireless accessories and collaborative devices can be securely and reliably paired with the radios.



ADVANCED ERGONOMICS
The MTP8000Ex Series has been engineered to redefine usability, from the T-Bar profile to the exaggerated control knob, tactile keypad, enlarged emergency button and textured PTT button.



EXTENDED BATTERY LIFE
With an extended battery life in excess of 16 hours, workers can be confident that the MTP8000Ex Series radios will be ready for a longer shift in the event of emergencies or unplanned situations.



EASIER TO USE
With intuitive user interface, innovative nameplate, large main display and the secondary top display making it easier to see emergency notifications, talk group status or battery condition, the MTP8000Ex Series is designed to be easier to use.



ENSURE SUPPORT FOR YOUR WORKERS WHEREVER THEY ARE AND WHATEVER THE CHALLENGE

ENHANCED COVERAGE

With high receiver sensitivity and high transmission power, urgent messages will be heard by the worker in locations where other radios would be out of coverage.

LOUD AND CLEAR AUDIO

Automatic Gain Control allows workers to hear and be heard in any situation without the worry of loud background noise or interference.

EXTENDED BATTERY LIFE

With an extended battery life in excess of 16 hours, workers can be confident that their radios will be ready for a longer shift in the event of emergencies or unplanned situations.



ADVANCED ERGONOMICS

The radios are designed with advanced ergonomics to be used easily by workers in protective clothing and heavy gloves.

RUGGED DESIGN

Built to the latest ATEX and IECEx safety standards for use in the toughest and most hazardous environments with IP65, IP66 and IP67 ratings.

BLUETOOTH SENSORS

Bluetooth can also be used to pair the radios with bio-monitors or gas sensors to automatically alert control and the workers to dangerous conditions.

STANDARD ACCESSORIES FOR THE MTP8000Ex



SINGLE UNIT CHARGERS
Designed for quick and easy charging and to maximise battery life performance.



BELT CLIP
Securely attaches the radio to a belt of up to 2.5 inches wide.



CARRY CASES
Protects the radio from being knocked, dropped or mislaid. Can be worn on a belt or shoulder strap for extra convenience and safety.

VEHICLE CHARGER
Designed for permanent installation in a vehicle. Charges and optimises battery life performance on the go.





MTP8000Ex Series REDEFINING THE ATEX RADIO



NAMEPLATE

FULL AND LIMITED KEYPAD

EXTENDED BATTERY LIFE



WORK SMARTER WITH INTEGRATED BLUETOOTH

The MTP8000Ex Series radios have integrated Bluetooth wireless technology, providing a secure link to devices, which can be matched to the specific needs of the worker. These collaborative solutions combine devices and applications to improve the safety, effectiveness and efficiency of your workers.



WIRELESS ACCESSORIES

Fast wireless Push-To-Talk buttons can be used when protective clothing and gloves make it difficult to reach the radio. Wireless headsets and mics can be worn under protective clothing so workers can communicate clearly in hazardous environments.

DATA COLLABORATION

A mobile computing device or tablet PC can be connected to the radio and used to collect information, such as meter readings, sending the data back to control through the radio.

HEART RATE MONITOR

A heart rate monitor can be connected to the radio and used to detect if the worker or firefighter is at risk of heart problems or failure during strenuous activity or has collapsed in a hazardous environment.

GAS SENSORS

Body-worn gas sensors can be linked to the radio to automatically alert control and the worker to build-up of dangerous gases. If one sensor picks up a gas leak the other workers and control can be warned immediately.

LOCATION SENSORS

Bluetooth beacons across the facility or in high-value buildings can be used to detect the presence of the radio and track the location of a worker during a shift or a firefighter during an incident.

SERVICE FROM THE START FOR TETRA TERMINALS ENSURING MAXIMUM PERFORMANCE TO MEET YOUR MISSION CRITICAL REQUIREMENTS

PROVEN PROTECTION

With our proven capability, you can be sure your equipment is expertly repaired and back in the hands of your users quickly. Using the latest tools and with strict adherence to Motorola engineering procedures, our expert technicians diagnose and repair units to original manufacturing specifications.

TECHNICAL EXPERTISE

Experienced technical support engineers work with you to diagnose and resolve hardware and software problems resulting in swift resolution of issues for your end users.

CUSTOMER SERVICE

A single source of support delivered through our state-of-the-art diagnostics equipment, repair tools, and an extensive inventory of replacement parts help us to provide expert repair on your TETRA terminals.

PEACE OF MIND

Our support programme protects your hardware investments from every angle, all designed to optimise device performance, minimise downtime and keep operations running smoothly and within budget.

MTP8000EX SERIES SPECIFICATIONS

GENERAL

Battery performance	Duty cycle 5/5/90 > 16 hours Duty cycle 5/35/60 > 12 hours
Loud and clear audio	> 1.2W Integrated audio howling suppression

RF SPECIFICATIONS

Frequency bands	350-470 MHz, 800 MHz
Transmitter RF	Power class 3L & class 4
Receiver class	A and B
Rx static sensitivity	-116dBm (min); -118dBm (typical)
Rx dynamic sensitivity	-107 dBm (min); -109 dBm (typical)

ENVIRONMENTAL SPECIFICATIONS

Operating temperature °C	-30 to +55
Storage temperature °C	-40 to +85
Humidity	ETS 300-019-1-7 Class 7.3E, MIL-STD 810 D, E, F, G
Dust and water ingress protection	IP64, IP65, IP66 & IP67 per IEC-60079-0:2011 & IEC-60529 Dust, water, rain, waterjet proof & submersible
Shock, drop and vibration	ETS 300-019 1-7 class 5M3; MIL-STD 810 D/E/F/G

MAIN VOICE SERVICES

Full duplex TMO private, PABX, PSTN, emergency
Half duplex TMO private, group, emergency
Half duplex DMO private, group, emergency
Inter-MNI, gateway, repeater
PTT double push
Adaptive audio control

EMERGENCY CALL MANAGEMENT

Tactical emergency group call to ATTACHED talkgroup
Non-tactical emergency group call to DEDICATED talkgroup
Individual emergency call to PREDEFINED party (half/full duplex)
HOT MIC emergency - hands free in moments that matter
Emergency status message sent to dispatch console
Smart TMO / DMO selection for emergency call set up - ensure call gets through
Preemptive priority calls

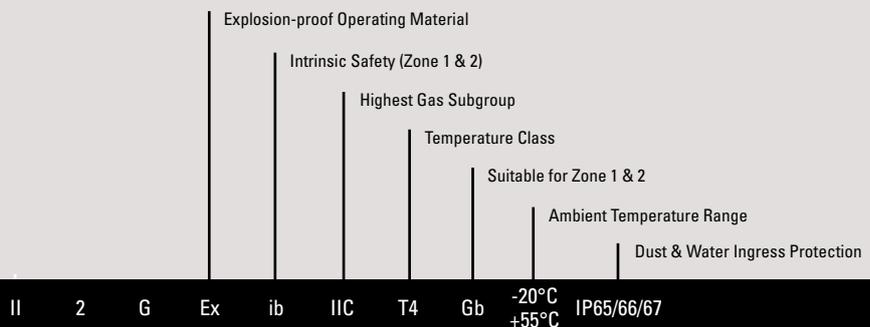
DMO REPEATER SERVICES

DMO repeater type 1A for efficient single channel operation
DMO presence support for effective channel management voice, status & SDS repeated
Emergency calls

BLUETOOTH AUDIO & DATA SERVICES

Bluetooth versions supported :	Bluetooth 2.1 +EDR, Bluetooth 4.0, Bluetooth Smart (BTLE)
Bluetooth security	Bluetooth 2.1 introduces mandatory encryption with secure simple pairing (SSP), easier pairing and preventing sniffing / hacking Bluetooth 4.0 supports Security Manager (SM) services with AES encryption
Bluetooth audio	Headset profile Serial Port Profile, Dial Up Networking Profile, Discovery mode, Generic Access Profile, Object Push Profile, Generic Attributes Profile (GATT), Heart Rate Profile, Battery Service Profile, Devices Info Profile.
Bluetooth data services	

**IECEx SPECIFICATIONS
IEC 60079-0:2011
IEC60079-11:2011**



**ATEX SPECIFICATIONS
EN60079-0:2012
EN60079-11:2012**



GAS

LOCATION SERVICES

Constellations supported	GPS, Beidou, Glonass
Simultaneous satellites	12 integrated external antenna
Tracking sensitivity	-163 dBm
Accuracy	< 5 metre (50% probable) @ -130 dBm
Protocols	ETSI LIP & Motorola LRRP

USABILITY

Language and keypad options Full and Simplified Keypad, Multiple keypad languages supported
 Enhanced T-bar grip for confident handling
 Unique nameplate for simple identification of radio
 Large 360° signal / status indicator for high visibility

USER CONTROLS

Large multi-function knob for volume and talkgroup control
 User configurable one touch buttons and keys, extensive list of functions
 Keypad lock

CUSTOMISABLE, USER FRIENDLY MENUS

Menu shortcuts - user customisable
 Menu editor, simplify and tailor to user needs

DISPLAY

Dual displays: large front mounted display with scalable fonts for readability, top mounted display for easy interaction when worn on belt
 Colour Transflective Front Display, 240x320 pixel screen with 262,144 vivid colours - viewable in bright sunlight
 Colour Transflective Top Display, 200x112 pixel screen with 262,144 vivid colours - viewable in bright sunlight
 Flip screen, large/x-large text and icon options (front display only)
 Screen Saver gif image and text (any user's selection)
 Configurable smart backlight to optimise power use
 Universal time display
 Multiple display languages, user selectable

TALKGROUP & CALL MANAGEMENT - USER FRIENDLY, FLEXIBLE, EFFICIENT, FAST

Talkgroup capacity:
 TMO Talkgroups up to 10,000
 DMO Talkgroups up to 2,000
Folder capacity:
 TMO Folders - up to 1,500, each capable of holding up to 2,048 TMO Talkgroups
 DMO Folders - up to 128, each capable of holding up to 1,024 DMO Talkgroups
 Favourite folders - Up to 3
 Country/network code list - up to 100
 Scan lists: 40 lists of up to 20 groups
 Dialling direct, scroll, speed, one touch button/key
 AlphaNumeric search, call history redial

CONTACT MANAGEMENT - FAMILIAR CELLULAR STYLE INTERFACE FOR EASE OF USE

Up to 1000 contacts with 6 numbers per contact (max 2000 unique numbers)
 Multiple dialling methods to support multiple use cases
 Fast/flexible call set up/answer
 Set up a private call response to a group call via one touch button
 Multiple ring tones

TEXT & STATUS MESSAGING - FAMILIAR CELLULAR STYLE INTERFACE FOR EASE OF USE

Text message list: 20 message In/Out box
 Intelligent keypad text input (model specific)
 Status list: up to 400 pre-defined messages

USER SAFETY & WORKGROUP MANAGEMENT

RUA/RUI - Log on / ID management
 Call out

SAFETY

Man down sensor

SECURITY OPTIONS

Enhanced security - OTAR/DMO SCK
 Authentication (mutual)
 Air interface encryption (ETSI / SFGP TEA algorithms)
 Security class 1, 2, 3 and 3G support
 End to end encryption: Motorola CRYPTR micro hardware module, FIPS 140-2 level 3 validated
 BOS smart card support
 Permanent disable (ETSI, V2-customer restore)
 Temporary disable (stun)

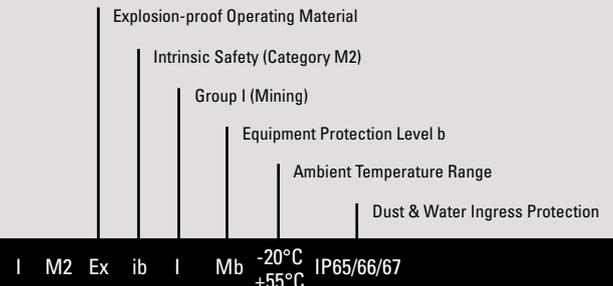
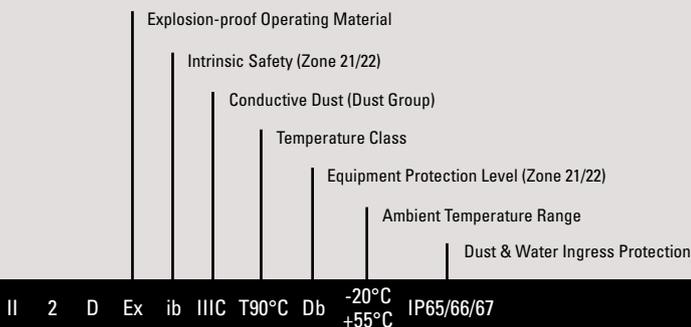
DATA & MESSAGING SERVICES

Single and multi slot packet data service
 Secondary control channel
 Radio messaging system (RMS)
 WAP browser / WAP push
 SDS messaging in TMO and DMO, incl concatenated messaging
 ETSI and enhanced AT commands (including voice control)
 Short data applications
 TNP1 - Support simultaneous packet data and short data services over PEI
 iTM fleet management (remote programming)

ACCESSORIES

Robust side connector with high-performance matching accessories
 Team ID antenna rings: efficient operations

Antenna	Whip 120mm (350-470MHz) Stubby 80mm (806-870MHz) Stubby 80mm (380-430MHz)
Audio - Wired	Active Remote Speaker Microphone (RSM) with volume control and emergency button Active Noise Cancelling RSM with Large Push-To-Talk with Nexus jack. Compatible with Savox HC1 headset RMN5123A. Peltor headsets distributed by Motorola and Motorola 3.5mm Receive only voice tube PMLN7188A. Dräger smoke mask.
Audio - Wireless	Any 3rd party ATEX Bluetooth wireless technology headset supporting Fast PTT and Headset Profile ATEX Belt clip 2.5 inch Shoulder wearing device
Carry Solutions - for shoulder and belt worn radio	All compatible Peter Jones Klick Fast docks and belt loops 2.5" or 3" Swivel belt loop Hard Leather Case with 2.5" or 3" Belt Loop for simple and full keypad models ATEX Small PTT nexus Adapter with selection of Heavy Duty Headsets, Twin Cup Heavy Duty Headset and Tactical Heavy Duty Headset.
Specialty and Third party	Savox ATEX IECEx C-C440 Large PTT. For use with the following Savox headsets: Savox HC1 Headset ATEX, Savox HC2 dual headset ATEX



DUST

MINING

POWER AND PERFORMANCE DESIGNED FOR EXTREME ENVIRONMENTS

WORK
SAFER
SMARTER
ANYWHERE

For more information on the MTP8000Ex Series TETRA ATEX radios,
please visit www.motorolasolutions.com/MTP8000Ex

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MTP8000Ex Series DataSheet 05/15



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