Motorola MTM5400
Enabling current and future critical communications
When user safety and operational efficiency are paramount, fast and reliable communication becomes non-negotiable. This is the essence of critical communications and forms the basis of Motorola’s commitment to empowering operatives, from public safety and commercial enterprises, with technology that’s second nature.

In the new MTM5400, you have a TETRA mobile radio that addresses both your current and future critical communication needs. The MTM5400 leverages the market proven rugged design of the MTM800 Enhanced radio, while introducing a platform ready for many advanced capabilities that set new standards for performance and usability.
KEY REQUIREMENTS OF FIRST RESPONDERS AND PROFESSIONAL USERS

Extended Operational Range
Tunnels. Indoor locations. Remote rural areas. Such environments are often challenged by weak network coverage, posing a hindrance to communications and compromising personnel safety.

Proposition: With its best in class RF sensitivity and 10W transmit power capability the MTM5400 sets a new landmark for TETRA RF performance. Through this exceptional RF capability, the MTM5400 delivers up to a 14% increase in the network’s reach compared to similar radios in its class*.

This class leading RF performance can be combined with the radio’s integrated DMO repeater and gateway functions to extend the operational range even further.

Flexible Installation
To meet the diversity of needs across critical communications users, solutions must offer flexible installation and configuration options.

Proposition: The MTM5400 mobile offers comprehensive and flexible installation options. The radio is fully DIN-A compatible, ideal for vehicle dash mount installations. It also supports a wide range of configurations including customised multiple control head, desk, and motorcycle install variants.

Efficient Data Sharing
Armed with data, first responders can be better prepared to detect, prevent and respond to incidents. Access to data can also transform the productivity of field operatives by enabling remote access to databases and the ability to send critical information to colleagues.

Proposition: In addition to supporting all the common TETRA data services including Short Data, Packet Data and Multi Slot Packet Data, the MTM5400 with its TEDS capability can transform workforce productivity with more than 20 times faster** data connectivity compared to TETRA Single Slot Packet Data. Mobile users can utilise existing data services and migrate to TEDS as service is rolled out across TETRA networks. The radio is also hardware ready for advanced local area networking applications including support for Ethernet, Wi-Fi and Bluetooth®.

Long Term Operational Performance
Professional users need to protect current investments in critical communications technology and must therefore ensure that new radio purchases not only operate efficiently but also are able to benefit from the latest advances in technology.

Proposition: The MTM5400 is compatible with all MTM800 Enhanced control heads and their associated accessories. With Over-the-Air Programming (OTAP) and background mode software update capabilities planned in future releases, MTM5400 radios will be remotely programmed in the field while still active - ground-breaking features that will soon transform work processes and drive step changes in productivity.

Direct Mode Gateway Mode
The MTM5400 features an integrated gateway that connects users operating in Direct Mode with control room staff and other colleagues on the trunked radio network. A comprehensive set of gateway services are supported, including configurable handling of individual and group calls.

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* This estimate of trunked mode operational range extension is based on the Hata urban propagation model, with no intermediate obstructions, based on published data specifications for competing radios; 400MHz channel; Mobile antenna +1dBi gain at 1.8m max height; 40dBm (10W) transmit power.

** Theoretical data rates for TEDS are in the TETRA standards.
The MTM5400 supports multiple modes of operation that enable enhanced workflow management and improved communications in areas where network coverage is weak or unpredictable. The integrated DMO Repeater is Type 1A compliant, operating on a just a single RF carrier for efficient spectrum usage.

Combining its best in class receive sensitivity with its 10W transmit power capability enables a DMO range extension of up to 12%* relative to the TETRA standard reference. Furthermore, with its scalable transmit power output, the MTM5400 allows users to balance the competing requirements of extended coverage and spectrum efficiency.

* This estimate of DMO range extension is based on mobile radio to mobile radio communication, using the Hata urban propagation model, with no intermediate obstructions, in a 400MHz channel; Mobile antenna +1dBi gain at 1.8m max height; 40dBm (10W) transmit power.
FLEXIBLE INSTALLATION OPTIONS

Vehicle dashboard configuration
A compact installation option - allows the MTM5400 to be deployed as a self-contained transceiver unit and control head in the vehicle dashboard. The configuration is fully compliant with the DIN-A standard for installation on car dashboards, making it easy to deploy.

Desktop configuration
A fully-integrated solution that is ideal for office environment, it features a base tray with a built-in loudspeaker and a sleek desk microphone. A wide range of other desktop accessories are also available.

Remote head configuration
By allowing multiple control heads to be installed remotely from the transceiver, the remote head option offers additional flexibility for vehicle and small control room installations. For fixed installations such as small control rooms, it allows the transceiver to be installed close to roof mounted antennas, enabling enhanced RF performance. Space constrained vehicle installations are also simplified through the separation of the transceiver and control head modules.

Weather Resistant ‘Motorcycle’ model
This solution features an IP67 ruggedized control head, making it ideal for any user requiring an environmentally-hardened, weather-resistant installation such as for motorcycles, fire-engine pump bays or inshore patrol boats.

Usability is enhanced by allowing control of the radio via external devices such as the control box next to the handgrip - simplifying common tasks such as talkgroup and volume level changes.
CUSTOM INSTALLATIONS. OPTIMISED PERFORMANCE.

Pump Bay Voice Terminals for Fire & Rescue
Custom Voice Terminals can be installed in the pump bay of a fire engine, providing an additional control point for Fire & Rescue teams.

Pump Bay Voice Terminal switch
Transfers control of the transceiver to the PBVT.

Integrated Vehicle Installations
By leveraging the Expansion Head’s hardware and software API’s, specialist integrated car solutions can be implemented, including customised control heads.

Customised Passenger Voice Terminals
Custom push to talk control points can be installed in train cabins, allowing communication between passengers and control room operators.

Integrated Passenger Information Systems
With its support of multiple PEI’s (Peripheral Equipment Interface), the MTM5400 is capable of simultaneously updating Passenger Information Displays whilst also relaying GPS and status information to a control room.
Our vast experience in delivering mobile radios to professional users is reflected in the quality and range of accessories available. With the MTM5400, you can re-use many of the accessories from the MTM800 Enhanced radio, including all those that use our smart Global Common Accessory Interface (GCAI) connector - helping users to maximise investments while extracting benefits from the latest technology.

AN EXTENSIVE LINE OF MOTOROLA ORIGINAL ACCESSORIES

- RF Antennas
- Expansion Head
- Microphones
- PTT Switches
- Trunion Mounting Brackets
- Flat Microphones
- Loudspeakers
ENHANCED SAFETY. ELEVATED PERFORMANCE.

ENHANCED CONTROL HEAD*

- 640 X 480 PIXEL COLOUR VGA DISPLAY AND TACTILE KEYPAD
- USER CONFIGURABLE SHORTCUTS TO MENUS AND COMMON FEATURES
- 3 PROGRAMMABLE FUNCTION KEYS
- SUPPORT FOR DUAL CONTROL HEAD CONFIGURATIONS
- 4 X DIGITAL I/O, 1 X ANALOG I/O FOR CUSTOM INSTALLATIONS SUCH AS INTEGRATED VEHICLE SYSTEMS
- MOTOROLA GCAI SUPPORTING ENHANCED AUDIO
- RUGGEDIZED IP67 CONTROL HEAD VARIANT AVAILABLE, PROVIDING INCREASED DUST AND WATER RESISTANCE
- DUAL FUNCTION ROTARY WITH LOCK OPTION FOR TALKGROUP AND VOLUME CHANGES
- EMERGENCY BUTTON WITH BACKLIGHT

* This is the same control head as that used for the MTM800 Enhanced radio.

While the MTM5400 retains the same user-friendly, cellular-style user interface found on portable and mobile product range, it also introduces innovations that will enhance safety of your personnel and enable high operational efficiency.
Enhanced Integrated GPS
Knowing where your resources are enables you to allocate tasks in an efficient manner as well as to enhance the safety of your staff. Available as a licensable feature, the integrated GPS receiver provides accurate resource location information to control rooms via ETSI Location Information Protocol (LIP) or via the Motorola LRRP protocol.

Alternatively, GPS information can be interrogated via the comprehensive AT command set on the Peripheral Equipment Interface (PEI) to support user applications such as navigation.

Comprehensive Encryption
The MTM5400 supports a flexible suite of TETRA security functions, from Air Interface to End to End Encryption using either a Smartcard (internal or external) or Motorola’s proven hardware based crypto engine.

Exceptional Audio Performance
The MTM5400 is built on our next generation audio architecture that delivers the loudest and clearest audio performance of any Motorola TETRA mobile available on the market.

Faster Connectivity
The integrated USB 2.0 PEI interface enables rapid radio programming and offers a high speed connection to data terminals and peripheral equipment.

Future Readiness
The transceiver interface has been designed with the necessary flexibility to support future connectivity and integration scenarios. This includes support for Ethernet and Wi-Fi local area networking and secure Bluetooth® wireless connectivity.
20 x TETRA Data Connectivity Speeds
The use of data applications such as database lookups, picture sharing and form filling is gaining in popularity among professional users. To date, support of these requirements has been based on Multi Slot Packet Data transmission and Short Data services.

With its built-in support for TETRA Enhanced Data Service the MTM5400 takes secure data connectivity to a whole new level. Through a simple software upgrade, the radio can now provide 20 x faster TETRA data connectivity to back office systems, allowing transformed work processes and increased personnel productivity.

Over-The-Air Remote Terminal Management
Enabled via a future software release, this ground-breaking feature allows the radio to stay live while being remotely programmed and software upgraded. This capability maximises productivity by effectively eliminating radio downtime.

Enabling Field Dispatch Applications
From the powerful SDS Remote Control feature to the simultaneous support of Packet Data and AT commands on the PEI, the MTM5400 is packed with advanced features that are critical for developers of custom mobile command and control solutions.

Exemplifying the flexibility of these capabilities, Motorola has worked with a specialist partner to develop advanced mobile radio control applications for public safety agencies. Alongside tasks of controlling one or several TETRA digital radios, such applications can be used to process GPS position data interrogated from relevant radios and offer a variety of options for displaying the information on a mobile data terminal.

Smarter Solutions for Enhanced Productivity
Reflecting our commitment to innovation, we have introduced unique features such as Call Out that can help you drive efficient resource mobilisation as well as enable immediate incident alerts and management. Our radio and infrastructure solutions can also enable the efficient use of pooled terminals and access control on a per user basis using the RUA/RUI Feature. You can use the WAP Push feature with the integrated WAP browser to deliver the right information to the right person at the right time and through our Radio Messaging Solution, allow improved operational efficiency in the field.
**USER INTERFACE & DISPLAY**

- **Display**
  - Diagonal dimension: 2.8
  - Type: VQA - 640x480 pixels Transflective TFT, 65,000 colours
  - Backlight: Variable backlight, User configurable
  - Font sizes: Standard & Zoom mode (9 pixels, 4.5mm high) characters

- **Buttons & Keypad**
  - International keypad versions: Roman, Arabic, Cyrillic, Korean, Chinese, Thai/Chinese characters
  - Programmable function keys: 3 programmable function keys (plus 10 programmable numeric keys)
  - Navigation: 4-way navigation key, menu and soft key options
  - Emergency: Emergency button with backlight
  - Shortcuts: User configurable shortcuts to menus and common features using “One-Touch-Button” feature

- **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**
  - Tailoring to user needs
  - Menus: Menu Configuration, Cellular type
  - Contact List: Up to 1500 contacts
  - Multiple Dialing Methods: User selects how to dial
  - Fast/Flexible Call Response: Private Call Response to a Group Call via One Touch Button
  - Multiple Ring Tones: Cellular type
  - Message Manager: Cellular type
  - Text message list: 20
  - Intelligent Keypad Text Input: 100
  - Country Network Code List: 100
  - Scan lists: 40 lists of 20 groups

- **Screen Savers**
  - LED: Configurable notification tones
  - Menu: Dark background
  - Screen image: Text only

- **Universal Time Display**
  - User defined: User programmable, using ISO 8859-1 character

- **Keypad Lock**
  - Dual layer folder structure (folder/subfolder)

- **Menu Configuration**
  - Cell type: User configurable

- **Contact List**
  - Up to 6 numbers per contact, Max 2000 numbers

- **Dual Mode Telephone**
  - Private call: Cellular style
  - Group call: Emergency Group Call to ATTACHED talkgroup

- **Emergency (triggered by users)**
  - Hot Mic: Configurable times 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**

- **VoIP Services**
  - Protocol: Cellular style

- **Short Data Service (SDS)**
  - Target Address: Send to individual or group address (selected or dedicated)
  - Voice Call Interaction: VCI commands can be sent and received during a voice call

- **Packet Data (PD)**
  - GSM Channels: 15 kHz and 9.6 kHz (but not DRPS channels)

- **TEDS (capable)**
  - QAM modulation/coding modes: 4-QAM R1/2, 16-QAM R1/2, 16-QAM R2/3, and 64-QAM R2/3
  - Data transmission with up to 4 slots supporting up to 28.8 kbps total

- **WAP**
  - Integrated WAP browser (including WAP PUSH)

- **Peripheral Equipment Interface (PEI)**
  - AF: Auxiliary - 4 Virtual Physical Ports (simultaneous PD, QoS, AT commands and Voice Steer MMS/DNS)
  - AT Interface: 4 Virtual Physical Ports (simultaneous PD, QoS, AT commands and Voice Steer MMS/DNS)

- **Terminal Management**
  - Programmable via Motorola Integrated Terminal Management (ITM) solution

**ELECTRICAL SPECIFICATIONS**

- **Frequency Range (MHz)**
  - 15.6 to 15.8 with DDC
  - 10 to 10.2 GHz

- **Current Consumption (A, typ.)**
  - 0.5 / 1.0 / 2.1 (XAA Peak)
  - 11.0 / 10 / 9.2 (XAB Peak)

- **Scan lists**
  - 40 lists of 20 talkgroups

- **Keypad Lock**
  - Full Duplex

- **Trunked Mode (TMO) Services**
  - Group call
  - Voice Call Interaction: 1000 persons. Up to 6 numbers per entry (mobile, office etc). Max 2000 entries

- **Direct Mode (DMO) Services**
  - Private call

**SOFTWARE SPECIFICATIONS**

- **Menu Configuration**
  - Dark background

- **Screen image**
  - Text only

- **Universal Time Display**
  - User defined

- **Keypad Lock**
  - Dual layer folder structure

- **Menu Configuration**
  - Cell type

- **Contact List**
  - Up to 6 numbers per contact, Max 2000 numbers

- **Dual Mode Telephone**
  - Private call

- **Emergency (triggered by users)**
  - Hot Mic

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MOTOROLA TETRA TERMINALS ARE ENGINEERED TO LAST

Partnership
Choose a partner with the experience and expertise to work with you and deliver the solutions you need.

Integration
Maximise long term performance with integrated solutions enabled by a comprehensive portfolio of terminal accessories, applications and complementary technologies.

Design
Be able to call on a wide range of products designed to handle any specialist task... anywhere, anytime.

Longevity
Maximise the return on your investment with innovation, quality and product support that lasts well into the future.

To learn more about the MTM5400, visit motorola.com/mtm5400
American Communication Systems

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