![Motorola logo] **MOTOROLA**
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UNLEASHING THE FULL POWER OF TETRA

The flexibility of the Motorola TETRA Handportable MTH800 terminal enhances safety and security across a diverse range of real-world needs.

MTH800
THE FUTURE OF TETRA, TODAY

THE DRIVING FORCE BEHIND TETRA

For over seventy five years, Motorola has led the way in the wireless communications marketplace. From the first walkie-talkie to the first ever moon landing, we have consistently delivered to our customers' exacting needs. Developing the potential of TETRA was just one of Motorola's many 'firsts' over the years.

UNLEASHING THE FULL POWER OF TETRA

Having recognised the demand for a secure, flexible communications technology, we now have more contracts and live TETRA networks than any other manufacturer globally. In the public safety, transportation and industrial markets, Motorola has won nearly half of all contracts awarded to date.

Motorola demonstrated the world's first TETRA radio call at 380-400 MHz and was the first company to secure a commercial contract for TETRA equipment, back in 1997. Motorola's other TETRA firsts include:

- The first operational multi-site TETRA system
- The first demonstration of a TETRA 'group call'
- The first manufacturer to support cross-border TETRA communications
- The first trial system to demonstrate voice and short data
- The first manufacturer to ship a system with Air Interface Encryption

- The first ever 800MHz TETRA contract
- The first wide-area, fully TETRA over IP network to MM02 Airwave
- The first ever TETRA system available to order via the web (Compact TETRA)

We remain at the cutting edge of TETRA technology due to our continuing commitment to deliver the innovative communication solutions that you tell us you need.

MTH800

The latest addition to our market-leading suite of TETRA terminals, the MTH800, offers the widest range of capabilities including support for state of the art E2E encryption, a high-resolution colour display as well as a revolutionary GPS based Location Service. And now, with a new user interface, the benefits of TETRA have never been easier to manage.

ADAPTING TO SUIT OUR CUSTOMERS' NEEDS

Our customers' continually evolving businesses ensure that we are constantly developing new TETRA applications and features to meet their operational needs.

The MTH800 boasts the very latest technological advances – developed in response to a myriad of real-world requirements.

From public sector users such as the emergency services and military, to commercial enterprises in industries as diverse as utilities, retailing, construction, logistics and transport – the need for greater security has never been more important.

From the E2E encryption to the integrated GPS Location system, the MTH800 offers an unrivalled set of tools for personal safety and security.

In addition, the MTH800's ability to send and receive clear, high contrast images provides even greater flexibility to the end-user as well as another addition to Motorola's long list of TETRA 'firsts'.

The Motorola TETRA Handportable MTH800 terminal is the benchmark against which all others will be judged.

Additional benefits:
Performance:

- The MTH800's impressive power and memory capacity anticipate future developments in TETRA including the adoption of services such as WAP and Java for access to information services

- Using a wide-band RF platform offers flexibility for future radio frequency assignments

Audio:
- The larger, 1 Watt speaker provides improved, undistorted sound – 4 times louder than comparable terminals on the market (user customizable sound level).

THE FUTURE OF TETRA, TODAY

POWER THROUGH INNOVATION

True colour. Truly original

For ease of use and to optimise its raft of new TETRA applications including image sharing, the MTH800 includes a ground-breaking high-resolution true colour display. With a resolution of 130 x 130 pixels and over 65,000 colours, the display provides accurate reproduction of faces and other images. Coupled with the latest backlighting technologies, the display provides maximum image definition in a wide range of lighting conditions.

Making full use of the new colour display, the MTH800 incorporates the latest in graphical user interfaces with intuitive navigation and a wide range of customizable features including scalable fonts.

GPS Location Service

Safety and efficiency are critical factors for many modern organisations. The MTH800's ground-breaking GPS Location Service gives users the ability to transmit their location to a dispatcher, allowing more efficient use of resources or determining location in life-threatening situations.

The MTH800 incorporates the latest integrated GPS technology to offer low current consumption whilst maintaining a high sensitivity and speedy time-to-fix. The in-built, GPS receiver also benefits from a new, patented, antenna to help ensure optimal coverage – even in vehicles.

The MTH800 incorporates a powerful application allowing users to:

• Control and reconfigure GPS parameters over-the-air

• Define location and event driven position updates

• Set 'profiles' to enable different location update rules in various scenarios such as emergency situations

For increased security the MTH800 also includes innovative authentication processes to ensure location information is only sent to authorised users.

Unparalleled safety and security

With a proven track record in delivering secure communication solutions, Motorola takes TETRA encryption to a new level with the MTH800. In addition to support for Class 3 Air Interface Encryption, the MTH800 is available with a fully integrated End-to-End (E2E) encryption* module which, when deployed, offers even greater security for the end-user and communications alike.

The MTH800 is part of a complete E2E solution from Motorola for customers requiring enhanced operational security, with support for multiple encryption algorithms and Over-the-Air-Keying using Motorola's Key Management Facility.

Designed to deliver. Designed for the future

Although the MTH800 offers a wide range of leading-edge technologies, the terminal has been designed with the user in mind. Having worked closely with end-users to identify future requirements, the MTH800 supports over 3,000 Talk Groups and has an integrated phonebook with capacity for 1,000 number entries.

The terminal can be customized by a Fleet Manager with up to 12 programmable keys and the end-user can even customize their individual requirements with assignable menu shortcuts.

* Future software upgrade

SPECIFICATIONS AND ACCESSORIES

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FEATURES OVERVIEW

GPS Location Service
Enhance user safety and efficiency with the MTH800. Incorporating the latest semiconductor technology, it includes a highly sensitive, low power consumption GPS receiver. The MTH800 uses a new patented antenna combining TETRA and GPS signal to help ensure optimal positioning of the antenna for GPS coverage. The solution includes a full terminal resident software application providing control of all GPS parameters over the air – no need to touch programmed terminals when changes are required.

Performance
The MTH800 comes packed with power, a new processor and Digital Signalling Processor (DSP) to ensure future applications such as Java, imaging etc will run smoothly and take advantage of the 16M byte flash memory. To allow flexibility for future RF assignments the MTH800 is a full wide band 380-430 MHz terminal.

Audio
While MTH800 includes many exciting new features it is important to not forget the basics – audio quality! To that effect MTH800 has two major improvements; a new larger and more effective 1 Watt speaker as well as a new class D audio amplifier, all together providing exceptional clarity of audio with minimal distortion, even at high audio levels (user customizable sound level).

Colour display
Display technologies are moving fast. Motorola now has a 65,000 colour display included in the MTH800 for ease of use to differentiate display information to the user. The 130 x 130 pixel display provides the ability to view high resolution pictures e.g. missing persons, mug shots etc.

User interface
To harness the power of MTH800 a new easy-to-use graphical user interface is included with assignable shortcuts to menu items, more that 3000 Talk Groups as well as a unified phonebook with 1000 number entries – enough to satisfy even the demanding user.

End-to-End encryption (E2E)*
While compact and lightweight, the MTH800 introduces full E2E encryption. Part of a complete E2E solution from Motorola for customers requiring enhanced operational security, the MTH800 offers support for multiple encryption algorithms and Over-the-Air-Keying using Motorola's Key Management Facility.

Subject to security requirements, the MTH800 may be factory fitted with E2E encryption, can be provisioned in-country or alternatively retrofitted at a later date.

* Future software upgrade

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GENERAL SPECIFICATIONS

Dimensions HxWxD mm	141 x 55 x 32
Weight g	196 Radio only 228 with standard 800mAh battery 239 with 1500mAh battery
Battery Capacity mAh	800 Standard Li Ion 1500 Extended Li Ion
Battery Performance	

Duty Cycle	Battery Capacity (mAh)	Operating Life
5/5/90	800	> 12 hours
	1500	> 20 hours
5/35/60	800	> 8 hours
	1500	> 16 hours

Talk time 800 mAh	2 hours
Talk time 1500 mAh	3 hours
Talk Groups – TMO	2048
Talk Groups – DMO	1024
Combined private call, phone and PABX phone book	1000 entries
Text message list	20
Status list	100
Country code/Network code list	100
Scan list	20 lists of 20 groups

Environmental

Operating Temperature °C	-20 to +60
Storage Temperature °C	-40 to +85
Humidity	ETS 300 019-1-7 class 7.3E, up to 95% for 8 hours
Dust and Water	IP54 (cat.2)
Shock, drop and vibration	ETS 300 019-1-7 class 5M3

RF Specifications

Frequency Bands MHz	380-430
RF Channel Bandwidth kHz	25
Switching Bandwidth TMO MHz	50
Switching Bandwidth DMO MHz	50
Transmitter/Receiver Separation MHz	10
Transmitter RF Power Watt	1
RF Power Control	3 steps of 5dB
RF Power Level Accuracy +/- dB	2
Receiver Class	A and B
Receiver Static Sensitivity dBm	-112 minimum (-116 typical)
Receiver Dynamic Sensitivity dBm	-103 minimum (-105 typical)

GPS Specifications

Simultaneous Satellites	12
Mode of operation	Autonomous or assisted (A-GPS)
GPS antenna	Helical integrated into TETRA antenna
Sensitivity	-152 dbm/-182dbW
Accuracy	5 meter (50% probable)* 10 meter (95% probable) * * Measured at -137 dbm

The information contained in this document may be subject to change without further notice
* Please note all product features are subject to infrastructure support
* Selected features are subject to optional software upgrade
* The availability of the accessories included in this document are subject to change without notice
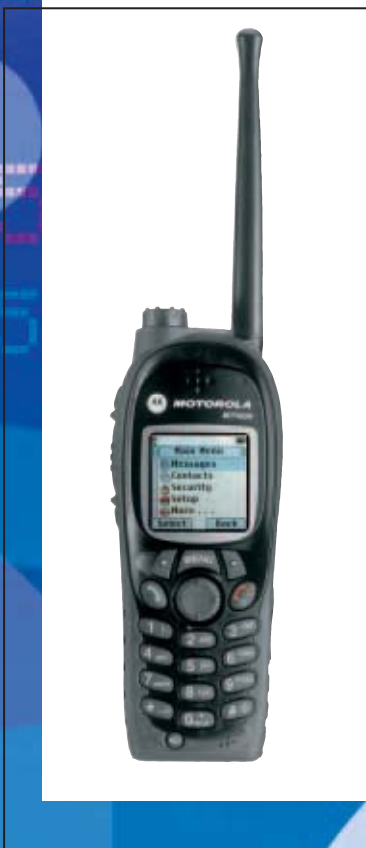
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ACCESSORIES

ENHANCE YOUR MTH800 TETRA HANDPORTABLE TERMINAL WITH A WIDE RANGE OF ACCESSORIES

Professional users of portable radios have specific needs, requirements and working conditions within a highly demanding environment. Motorola provides complete two-way radio communication solutions with a wide selection of robust and reliable accessories. This extensive portfolio of accessories allows professional users to further customize their MTH800 TETRA Terminal and satisfy their individual communications needs above and beyond those already incorporated in the standard package.

CHARGERS

FTN6306A	Dual Pocket Desktop Charger (requires the use of Travel Charger WALN4092A)
WALN4092A	Travel Charger (including UK and Euro plugs)
WPLN4175A	Multi Unit Charger 6 pockets – Euro Plug 220V
WPLN4176A	Multi Unit Charger 6 pockets – UK Plug 240V
WPLN4177A	Multi Unit Charger 6 pockets – US Plug 110V
RLN5643A	Wall mounting tray for multi-unit charger

BATTERIES

SNN5705B	800 mAh – Lithium Ion (requires the use of standard battery door 0102709K05)
NNTN4655A	1500 mAh – Lithium Ion (requires the use of extended battery door 0102709K08)
0102709K05	Standard battery door (for use with standard battery SNN5705B)
0102709K08	Extended battery door (for use with extended battery NNTN4655A)

IN-VEHICLE SOLUTIONS

FTN6307A	Digital Car Kit (kit includes cradle, junction box, remote visor microphone, remote Velcro PTT, external 5W speaker, installation cables, user guide and installation manual)
FLN9469A	Vehicle Power Adaptor

AUDIO ACCESSORIES

For shoulder worn terminal:

FTN6388A	Earpiece with in-line Microphone and coiled cord, short cable

For belt worn terminal:

RMN5042A	Remote Speaker Microphone (RSM) with 2.5mm jack socket
RLN4939A	Earpiece, receive only, short cable for use with Remote Speaker Microphone
WADN4184A	Breeze Headset with Boom Microphone and in-line Push-To-Talk (recommended only for use in indoor normal ambient noise)
NNTN4033A	Personal Hands Free Kit (ear bud with in-line microphone and Push-To-Talk)
FTN6304A	Surveillance Kit – 3-wire earpiece with separate Microphone and Push-To-Talk

The following accessories can be used to further personalise your communication:

GMLN1081A	Audio jack adapter (kit of 10 units) (side connector with lock function for use with any audio accessory that plugs into the terminal audio side connector – allows more rugged connection)

For use with FTN6304A and FTN6388A:

NTN8371A	Acoustic Tube for low noise environments (clear voice tube with rubber ear tip)
NTN8370A	Acoustic Tube for extreme noise environments (clear voice tube with foam earplug)
WADN4223A	Ear shell, large with grommet insert
WADN4224A	Ear shell, small with grommet insert

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ACCESSORIES

CARRY ACCESSORIES

Shoulder Worn:

FTN6355A — Shoulder Wearing Device (bracket with stud – to use in conjunction with Sew-On Dock GMDN0386A)

GMDN0386A — Sew-On Dock (from Peter Jones Ltd)

The Shoulder Wearing Device interfaces with all female docks from Peter Jones Ltd, but is particularly intended for use with the above Sew-On Dock, sewn onto the uniform/clothing.

Belt Worn:

RLN4892A — Hard Leather Case with swivel 3" belt loop
RLN4891A — Soft Leather Case with swivel 3'' belt loop
FTN6302A — Bracket with U-slot (to use in conjunction with belt clip HLN9714A or HLN9844A)
HLN9714A — Spring belt clip – long 2" (requires bracket with U-slot FTN6302A)
HLN9844A — Spring belt clip – short 1.5" (requires bracket with U-slot FTN6302A)

Other:

HLN9767A — Wrist Strap

ANTENNAS

** — New Whip Antenna 380-430 MHz with integrated GPS antenna
** — New Helical Antenna 380-430 MHz with integrated GPS antenna
FAE5528A — External Roof Antenna, 380 - 400 MHz
FAE5529A — External Roof Antenna, 410 - 430 MHz

** Part number unavailable at time of print

CABLES

FKN4897A — RS232 Data Cable
FLN9636A — Programming Cable

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FEATURES

VOICE SERVICES SUPPORTED – GROUP:
- Group call – TMO/DMO
- Group call – TMO/DMO via a DMO Gateway
- TMO/DMO Programmable Talk Group mapping
- Late Entry – TMO/DMO
- Emergency call – TMO/DMO
  (including 'Hot Microphone' option)
- Smart emergency call, set up to selected
  group, pre-defined group, individual or
  telephone/PABX subscriber
- Announcement Talk Group call
- Hidden Talk Groups
- Dynamic Group Number Assignment (DGNA)
  – (up to 2047 Groups)
- Local site trunking
- Scanning
- Talking Party Identification
- Priority Monitor
- Site Wide Call

**VOICE SERVICES SUPPORTED –
PRIVATE CALL:**
- Half duplex/full duplex operation
- Flexible dialling (list scroll, short number
  dial, direct entry, alphabetic search,
  last number called)
- Loud/discreet audio mode
- Calling line Identification Presentation
- Busy User Pre-emption
  (Pre-emption Priority Call – PPC)
- Speakerphone

**VOICE SERVICES SUPPORTED –
TELEPHONE CALL (PABX/PSTN):**
- Full duplex operation
- Speakerphone
- Flexible dialling (list scroll, direct dial,
  alphabetic search, speed dial, one-touch
  dial, last number redial)
- DTMF overdial
- Calling line Identification Presentation
- Busy User Pre-emption (Pre-emption Priority
  Call – PPC)

SECURITY SERVICES SUPPORTED:
- Air Interface Encryption:
- Algorithms
  - TEA1, TEA2, TEA3*
- Security Class
  - Class 1: Clear
  - Class 2: Static Cipher Key (SCK)
  - Class 3: Derived Cipher Key (DCK)
    and Common Cipher Key (CCK)

- Authentication
  - Infrastructure Initiated
  - Made mutual by Terminal
- Secure Key Provisioning Tool for customer use
- User crypto key deletion from keypad
- Radio Stun
- PIN/PUK code access
- Packet data user authentication

E2E SECURITY SERVICES SUPPORTED*:
- E2E encryption module with full tamper
  protection
- Factory or field install (including in-country)
  of E2E module
- Multiple Algorithm support
  - ETSI / IDEA algorithm supported
  - Support for National algorithm development
- Multiple simultaneous algorithms supported
- Over The Air Keying (OTAK) of encryption keys

USER SAFETY:
- Dedicated Emergency button
- New screensaver with customer logo option
- Talk Group lock
- Keypad lock
- Transmit Inhibit (TXI) – enhanced version
- 'Hot' Microphone emergency
- Ambience Listening
- Automatic Microphone Gain adjustment
  during 'Hot' microphone emergency
- Separate front mounted main loudspeaker and
  earpiece to prevent Acoustic Shock
- New 1 Watt audio amplifier and speaker
- Site Wide Call

DATA/MESSAGING SERVICES SUPPORTED:
- Short Data Service (SDS)
- Alphanumeric Text Service (ATS)
- Predictive Text Entry (iTAP)
- Built-in database enquiry templates
- One-touch status messaging
- Packet data service
- Peripheral Equipment Interface (PEI) for
  external RS232 short and packet data devices
- New text message notification during calls
- Database enquiry during calls
- Ability to read, compose and edit text
  messages during calls
- Ability to send text message from busy
  Talk Group
- Automatic status message sent on
  entering/exiting Transmit Inhibit mode
- WAP support using packet data services
  via PEI

*Future software upgrade

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USER INTERFACE FEATURES:
- Top Mounted Talk Group Selector and Volume Control with push function providing options:
  - Combined operation of Talk Group Selection, list navigation and volume control
  - Talk Group Selection only
  - Volume Control only
- Rugged bottom accessory connector
- 2 microphones
  - Top microphone for dispatcher calls
  - Bottom microphone for "one-to-one" calls
- Alphanumeric Talk Group search
- Loud/discreet audio mode toggle
- Keypad tones on/off
- Alert tones on/off
- Backlight options (disabled, automatic and manual)
- Wallpaper
- Multiple network support (100 network codes)
- Scan list edit via keypad
- Address book edit via keypad
- 5 pre-programmed languages (English, French, German, Spanish, Dutch)
- User definable display languages (ISO 8859-1 characters)
- 2 dedicated context sensitive menu softkeys
- 2 dedicated programmable function buttons
- One-touch functions on numeric keypad (10 entries)
- One-touch Phone / Private / PABX / Status / Talk Group / TXI / Database template / Text message template / Display flip
- Full access to menu system during calls
- Call history received/dialled lists
- Display flip (inverts text 180 degrees)
- Fast access to functions using rotary knob
- 2 font sizes (normal, zoom)

GPS LOCATION SERVICE:
- Fully integrated single chip GPS receiver
  - Low current and high sensitivity GPS
  - Autonomous and assisted GPS support
  - Location Request/Response Protocol (LRRP) for positioning data transportation
- Patented Helical GPS antenna integrated into TETRA antenna
- Storage of position data in terminal for post processing etc.
- GPS disable option for special operations
- Authentication of GPS Location Service dispatchers
- Full programmable position update triggers including:
  - On request
  - Delta distance
  - Delta time
  - With status transmission
  - With message transmission
  - With site handover
  - On power-up/power down
  - On group attachment
  - TXi enable/disable
  - DMO/TMO switching
  - Low battery
  - Insertion/removal from vehicle adaptor
  - Full over the air programmability of all GPS Location Service parameters

OTHER:
- Side connector for audio accessories and ock function, IP54
- Dedicated connector for digital car kit, programming, upgrading, packet and short data as well as Remote Speaker Microphone (RSM)
- VibraCall®
- Multiple software upgrade capability
- Programming software automatic logging of logistical information
- Customer Programming Software Codeplug Password enable
- Enhanced Mobility operation (including subscriber classes)
- Modeless Operation
- Favourite Talk Group
- Unified Address Book (contacts)