

INNOVATION THROUGH DESIGN



MTP850

Customers' continually evolving businesses ensure that Motorola is constantly developing new TETRA applications and features to meet their operational needs. As the latest addition to the Motorola market-leading suite of TETRA terminals, the MTP850 boasts a wide range of 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.

True colour. Truly original

Its sophisticated cellular user interface with high resolution colour display ensures that TETRA communications have never been as easy to manage. From data queries to image sharing, the MTP850 with its 65,000 vivid colours offers accurate delivery of photos, maps, or illustrations.

Safety through location

Safety and efficiency are critical factors for any business. The revolutionary GPS (satellite) location service, allows users to be located instantly, either to respond to help or location of an emergency call. Allowing for more efficient use of resources or determining location in life-threatening situations.

Safety through design

There are growing pressures to respond to crimes faster, improved staff visibility and increased use of lone workers. The consequences of which are ever-greater exposure to potential violence. The MTP850 has been designed to protect users, from its high quality voice call to its size. At only 12.5 cm it is easy to carry, but it's big where it matters, with large emergency and push to talk buttons.



Safety through secure communications

Maintaining private and secure communications is increasingly important as potentially sensitive information flows back and forth. By adding an MTP850 secure solution, voice and data transfer are no longer compromised through the provision of Motorola's 30 years of proven secure solutions.



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DELIVERING THE POWER OF TETRA

MTP850
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, Motorola has consistently delivered innovative solutions to customers' exacting needs. Developing the potential of TETRA was another of Motorola's many 'firsts'



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- 1995 First demonstration of a TETRA radio call
- 1996 First demonstration of TETRA 'group call'
- 1996 First operational multi site TETRA system
- 1997 First commercial contract
- 1999 First integrated voice and data TETRA solution
- 1999 First secure TETRA system
- 2001 First fully TETRA over IP public safety network
- 2002 First 800MHz TETRA contract
- 2002 First to support cross-border TETRA communications
- 2003 First packet switched TETRA system deployed over a satellite link

- 2003 First integrated GPS and colour screen radio
- 2004 First to launch increased data throughput with multi slot IP packet data
- 2004 First TETRA system used during an Olympics with the Motorola secure digital communications network



SEAMLESS MOBILITY



At the core of Motorola's Seamless Mobility solution is a simple idea: the organisation benefits when it provides tools to its workers and executives that empower them to be more productive. Enterprise Seamless Mobility can help contain costs as well as lead to organizational efficiencies, teams become free to focus on work while the solution makes intelligent decisions.

Motorola's TETRA solution and MTP850 starts this process by seamlessly linking voice and data, allowing users to find the people and information they need at any time and virtually everywhere.

- Improved resource management through;
- Satellite location of individuals or vehicles, with the potential to deliver maps and directions straight to the individual

Faster information exchange from images to slow scan video, reports to finger print capture. For example;

- Security staff efficiencies delivered through the Motorola finger identification system and MTP850, offers remote and timely access to valuable information such as fingerprints, facial images and records
- On line or embedded medical applications that allow front line staff to respond to a range of medical emergencies. From cuts, bleeding, Cardiopulmonary Resuscitation (CPR) or simple advice on the recovery position

Improved remote access to intelligence databases such as;

- Field staff can search data bases, send/request reports or to quickly receive images of missing or wanted persons

- Paramedics can link instantly to patient medical records and delivery of life saving advice
- Flight arrival information fed direct to ground staff

Improved productivity with;

- Instant access to report writing tools and to downloading of daily briefing reports
- Delivery of job reports and access to technical on line information



MTP850

THE FUTURE OF TETRA, TODAY

UNLEASHING THE FULL POWER OF TETRA

FEATURES & BENEFITS OVERVIEW

Customers' evolving needs require increasingly secure communication to protect staff safety and respond effectively to emergencies. In response to these needs Motorola has developed the MTP850 which offers the widest range of new and proven capabilities.

Personnel Safety

Personal protection for staff is simply too important to be left to the individual. The MTP850 has been designed to protect users, with its high quality voice calls, large emergency button and its revolutionary location solution. The integrated satellite (GPS) location service provides the ability to automatically transmit user location direct to a dispatcher**. Ensuring life-threatening situations are identified, located and resources allocated quickly.

Secure Communications

Maintaining private and secure communications is increasingly important, with potentially sensitive information flowing back and forth. With this in mind the MTP850 has been designed to support the highest level of secure protection, from its integrated End-to-End encryption module to Motorola's industry leading key management facility.

Durable and Robust

Every Motorola TETRA terminal model passes an accelerated life testing process which simulates a 5 year life span; these vigorous tests ensure that the MTP850 meets some of the highest levels of military robustness.

Compact

Communications need to be quick and easy to be effective, so the MTP850 has been designed to improve operations, with its large emergency and push to talk buttons. Additionally, its 12.5 cm height makes the radio easy to carry whether on the belt or the shoulder.

True Colour Display

The MTP850 incorporates the latest in cellular user interfaces, ensuring intuitive operation and optimizing applications from data enquiries to image sharing. With over 65,000 vivid colours, its high resolution colour display provides accurate reproduction of photos, maps and images.

Designed to deliver. Designed for the future.

Building on Motorola's data capabilities, the MTP850 is capable of supporting new and exciting applications through the use of JAVA and WAP communications. Access to databases, directories or folders will be as simple as using a computer for timely and dependable communication.



MTP850

GENERAL SPECIFICATIONS

Dimensions HxWxD mm	125 x 50 x 33.5 (slim battery) 125 x 50 x 37.5 (standard battery)												
Weight g	189 (radio only) 237 (with slim battery) 250 (with standard battery)												
Battery Performance	<table><thead><tr><th></th><th>Slim Li Ion (900 mAh)</th><th>Standard Li Ion (1800 mAh)</th></tr></thead><tbody><tr><td>Duty Cycle (5/5/90)</td><td>> 10 hours</td><td>> 20 hours</td></tr><tr><td>Duty Cycle (5/35/60)</td><td>> 8 hours</td><td>> 16 hours</td></tr><tr><td>Talk Time</td><td>1.8 hours</td><td>3.5 hours</td></tr></tbody></table>		Slim Li Ion (900 mAh)	Standard Li Ion (1800 mAh)	Duty Cycle (5/5/90)	> 10 hours	> 20 hours	Duty Cycle (5/35/60)	> 8 hours	> 16 hours	Talk Time	1.8 hours	3.5 hours
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Talk Time	1.8 hours	3.5 hours											
Colour Display	130x130 pixel screen size with 65,536 vivid colours Flip screen and large text options												
Talk Groups TMO	2048												
Talk Groups DMO	1024												
Address book	1000 Persons Up to 6 numbers per entry Max 2000 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	-25 to +60
Storage Temperature °C	-40 to +85
Humidity	ETS300 019-1-7 class 7.3E, up to 95% for 8 hours
Dust and Water	IP54 (cat.2) - EC529 class
Shock, drop and vibration	ETS 300 019-1-7 class 7.3E (-25 to +60) Between 5-95% relative humidity, no condensation

RF Specifications

Frequency Bands MHz	806-870
RF Channel Bandwidth kHz	25
Transmitter/Receiver/Separation MHz	45
Transmitted RF Power Watt	1
RF Power of Accuracy +/-db	2
Receiver Class	A and B
Receiver Static Sensitivity dBm	-112 minimum (-115 typical)
Receiver Dynamic Sensitivity dBm	-103 minimum (-107 typical)

Integrated GPS Specifications

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

* Measured at -137 dbm

** Feature requires network support. Contact network operator for availability of support.

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ACCESSORIES

EXPANDING THE MTP850 CAPABILITIES

The MTP850 offers seamless and efficient co-ordination, control and response for staff operations. Motorola takes this a step further to maximize productivity through its accessory range to turn a great radio into a customized communications solution. Every Motorola accessory is designed to deliver peak performance, so adding the proper headsets, microphones, chargers and carry cases will ensure enhanced productivity.

CHARGERS AND VEHICLE SOLUTIONS

Designed to work as a total system with the MTP850 and battery, Motorola chargers maximize battery life.

FTN6575A	Dual pocket desktop charger base (requires travel charger/ power supply NNTN4250B)
NNTN4250B	Travel charger (power supply unit) US plug, just add country specific adapter (SYN7456A - Euro, SYN7455A - UK , SYN7460A - Korea, SYN8127B - Australia/New Zealand, SYN8039A - Argentina, SYN8040A - Hong Kong)
WALN4092A	Travel charger kit (includes UK and Euro adapters)
NPN6443A	Travel charger kit (includes Korean adapter)
NNTN5842A	Travel charger kit (includes Argentina adapter)
FLN9469A	Vehicle power adaptor

BATTERIES

Motorola batteries have been designed to work hand in hand with the MTP850 optimizing performance and staff operations.

FTN6573A	Slim battery 900 mAh - Lithium Ion
FTN6574A	Extended battery 1800 mAh - Lithium Ion

AUDIO ACCESSORIES

Miniature earpieces leave the hands free and face unobstructed. Motorola offers solutions, from in-door to high speech clarity requirements, for those in noisy environments, to those carrying out surveillance work.

FTN6596A	Earpiece receive only with coiled cord, suitable for shoulder worn radios
FTN6582A	Breeze headset with boom microphone and in-line Push-To-Talk
FTN6583A	Personal hands free kit (ear bud with in-line microphone and Push-To-Talk)
FTN6595A	Surveillance kit - 3 wire earpiece with separate Microphone and Push-To-Talk
FTN6707A	Surveillance kit -2 wire earpiece with combined microphone & Push-To-Talk
PMLN4605A	Acoustic tube for use with 2 wire kit FTN6707A

For use with FTN6595A and FTN6596:

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 OPTIONS

Carrying accessories are available in various options and materials to meet different operational needs. Coupled with the MTP850 audio accessories, the Motorola solution offers convenience and hands free mobility.

NTN5243A	Shoulder strap
RLN5717A	Belt worn hard leather case with swivel belt loop
RLN5718A	Belt worn nylon holster with fixed 3" belt loop
RLN5719A	Belt worn soft leather carry case with swivel 3" belt loop
RLN5720A	Belt worn soft leather carry case with integrated belt clip
HLN9767B	Wrist strap

ANTENNAS

Injection molded for use in rugged environments. Each antenna is tested and tuned to give maximum power and performance. The MTP850 patented antenna combines TETRA and GPS signal to help ensure optimal positioning for GPS coverage.

8587526V08	Helical Antenna 800-870 MHz with integrated GPS antenna
8587526V09	Whip Antenna 800-870 MHz with integrated GPS antenna



CABLES

FKN4897A	RS232 data cable
FLN9636A	Programming cable
NNTN4007B	USB programming cable

PERFORMANCE MATCHED ACCESSORIES

Motorola accessories are designed as an integral part of the radio system and tested to ensure they are "performance matched". All of which are created and built to rigorous standards, then Accelerated Life Tested to simulate years of service.

Peace of Mind supported by a Motorola warranty.



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FEATURES

VOICE SERVICES - GROUP:

- Group call - TMO/DMO
 - Late Entry
 - Group call via DMO Gateway
 - TMO / DMO Talkgroup mapping
 - Talk Group INDEX entry dialling via Keypad*
 - Hidden Talkgroups
- Direct Mode (DMO)
 - DMO Gateway compatibility
 - DMO Repeater compatibility*
- Announcement Talk Group call
- Smart Emergency call - TMO / DMO (including "Hot Mic" option in TMO/DMO*)
 - to selected group, pre-defined group*,
 - to individual or telephone/ PABX subscriber
- Dynamic Group Number Assignment (DGNA) - (up to 2047 Groups)
 - Accept DGNA assignment with attachment
- Local site trunking
- Scanning
 - Background Scanning (Always Scan)
 - Scan group attachment signaling
 - Scan on/off status
 - Support SwMI initiated attachment/detachment
- Talking Party Identification
- Priority Monitor
- Site Wide Call
- Idle Dual Watch*

VOICE SERVICES - 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
- Leading Digit Dialling*

VOICE SERVICES - TELEPHONY:

- 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)
- Leading Digit Dialling*

DATA/MESSAGING SERVICES:

- Short Data Service (SDS)
 - to individual / group target
- Alphanumeric Text Service (ATS)

- Predictive Text Entry (iTAP)
- Built-in database enquiry templates
- One-touch status messaging
- Keypad entry of status values
- Peripheral Equipment Interface (PEI) for external RS232 short and packet data devices
- New text message notification during calls
- Automatic status message sent on entering/exiting Transmit Inhibit mode
- Full WAP support*
- Multi Slot Packet Data*
- Java Application Support*
- TNP1*
- Erasure of SDS Inbox when Stunned*

SECURITY SERVICES:

- 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
- User crypto key deletion from keypad
- Radio Stun (temporary disable)
- PIN/PUK code access
- Packet data user authentication
- DMO SCK*

E2E SECURITY SERVICES:

- End to End (E2E) encryption module with full tamper protection
- Factory or field install (including in-country) of E2E module
- Multiple Algorithm support
 - AES algorithm supported
 - Support for National algorithm development
- Multiple simultaneous algorithms supported
- Over The Air Keying (OTAK) of encryption keys

USER SAFETY:

- Dedicated Emergency button
- Colour indication of Emergency Mode (Red Display)
- Editable Screensaver with logo option
- Talk Group lock
- Keypad lock
- Transmit Inhibit (TXI) - enhanced version
- 'Hot' Microphone emergency (TMO / DMO*)
- Automatic Microphone Gain adjustment during 'Hot' microphone emergency
- Ambience Listening



MTP850

- Separate front mounted main loudspeaker and earpiece to prevent Acoustic Shock
- 1 Watt audio amplifier and speaker
- Site Wide Call
- DMO to TMO Emergency Switching*
- 911/112 Emergency Dial*

USER INTERFACE FEATURES:

- Top Mounted multi-function Talk Group Selector and Volume Control:
 - Combined operation of Talk Group Selection, list navigation and volume control
 - Talk Group Selection only
 - Volume Control only
- Side & 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
- Quick access to Menu items via editable Menu Shortcuts
- Keypad tones on/off
- Alert tones on/off
- Configurable Notification tones
- User Profiles*
- Backlight options (disabled and automatic)
- Wallpaper
- Scan list edit via keypad
- Address book edit via keypad
- Language options include English, French, German, Spanish, Dutch, Chinese, Korean Greek and Arabic*
- 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 missed/received/dialled lists
- Display flip (inverts text 180 degrees)
- Fast access to functions using rotary knob
- 2 font sizes (normal, zoom)
- Display Contrasts (7 levels)

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*
- GPS disable option for special operations
- Authentication of GPS Location Service dispatchers
- Full programmable position update triggers including:
 - On request
 - Delta distance
 - Emergency Alerting
 - Delta time
 - On power-up/power down
 - Transmit Inhibit (TXi) enable/disable
 - DMO/TMO switching
 - Low battery
 - With status transmission*
 - With message transmission*
 - With site handover*
 - On group attachment*
 - Insertion/removal from vehicle adaptor*
 - Full over the air programmability of all GPS Location Service parameters*

OTHER:

- Side connector for audio accessories and lock 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
- Programming interface via USB and RS232
- Enhanced Mobility operation (including subscriber classes)
- Modeless Operation
- Favourite Talk Group (DMO/TMO Talk Groups)
- Unified Address Book (contacts)
- Continuous rotary or end-stop Talk Group selection

*Future software upgrade

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