TETRA MTP850
Delivering The Power Of TETRA Digital Radio
MTP850 – Industry’s smallest TETRA portable radio

- Dedicated Emergency Button
- Multi Function Rotary Knob
- Integrated GPS
- Programmable Side Buttons
- Push-To-Talk Button
- Cellular User Interface
- High Resolution Colour Display
- Built-in GPS with Intelligent Updates
- Asian Languages
- Power On/Off, End & Home Key
- Audio Accessories Side Connector
- Large Keypads

12.5 cm

4 Way Menu Navigation Button

MOTOROLA 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 safety users such as the police, fire, 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**

The MTP850 user friendly cellular 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 reproduction and delivery of photos, maps, or illustrations in various lighting conditions.

**Safety through location**

Safety and efficiency are critical factors for any business. The integrated GPS (satellite) location service, allows users to be located instantly, either to respond to help or location of an emergency call. Through multiple ways of triggering the GPS location service, it allows for more efficient use of resources or determining location in life-threatening situations.
Safety through design
Communications need to be quick and easy to be effective, so the MTP850 has been designed to protect users, delivering high quality voice call to its size. At only 12.5 cm height, it is easy to carry, but it is 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. With this in mind, the MTP850 has been designed to support the highest level of secure protection, from its Air Interface Encryption, Integrated End-to-End Encryption, 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 (MIL-STD 810) and industrial STD - IP54.

Designed to deliver. Designed for the future.
Building on Motorola’s data capabilities, the MTP850 is capable of supporting new and exciting applications such as WAP communications. With Multi-Slot Packet Data (MSPD) incorporated, high bandwidth connectivity for instant access to databases, directories or folders will be enhanced and as simple as using a computer for timely and dependable communication.
Features

Voice Service - Group:
- Local Site Trunking
- Announcement Talk Group call
- Emergency Call - DMO
- Emergency Call - TMO
- Emergency Call "Hot Mic"
- Site Wide Call
- Group Call - TMO/DMO
- Late Entry - TMO/DMO
- Dynamic Group Number Assignment (DGNA) - (up to 2047 Groups)
- Scanning
- Talking Party Identification
- Priority Monitor

Voice Service - 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
- Pre-emption Priority Call Voice Services - Telephony
- Full duplex operation
- Speakerphone
- Flexible dialling (list scroll, direct dial, alphabetic search, speed dial, one-touch dial, last number redial)
- DTMF overlay
- Calling line Identification Presentation

Data/Messaging Services:
- Short Data Service (SDS) - to individual / group target
- Built-in database enquiry templates
- Full WAP support
- Multi Slot Packet Data
- 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

Security Service:
- TETRA Air Interface Encryption:
  - TEA 1, TEA 3
- Authentication (Clear Mode, Secured Mode)
- Secure Key Provisioning Tool
- User crypto key deletion from keypad
- Radio Stun
- Packet data user authentication
- Security Class
  - Class 1: Clear
  - Class 2: Static Cipher Key (SCK)
  - Class 3: Derived Cipher Key (DCK) and Common Cipher Key (CCCK)
- PIN/PUK code access
- GCK/OTAR*
- 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

User Safety:
- Dedicated Emergency button
- Colour indication of Emergency Mode (Red Display)
- Editable Screensaver with logo option
- Talk Group lock
- Keypad lock
- Transmit Inhibit
- 'Hot' Microphone emergency
- Ambience Listening
- Separate front mounted main loud speaker and earpiece to prevent Acoustic Shock
- 1 Watt audio amplifier and speaker
- Site Wide Call

User Interface Features:
- 2 dedicated context sensitive menu softkeys
- 2 dedicated programmable function buttons
- One-touch functions on numeric key pad (10 entries)
- Flip Display
- 2 font sizes
- Display Contrasts
- Top Mounted multi-function Talk Group Selector and Volume Control
- 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
- Backlight options (disabled and automatic)
- Wallpaper
- Scan list edit via keypad
- Address book edit via keypad
- One-touch Private/PABX/Status/Talk Group/TXI/Database template/Test message template/Flip display
- Full access to menu system during calls
- Call history missed/received/dialed lists
- Fast access to functions using rotary knob

 Asians Languages:
- Languages supported include English, Korean, and Chinese (Simplified and Traditional)
- Alphanumeric Text Service (ATS)
  - English, Korean, and Chinese (Simplified and Traditional)
- Predictive Text Entry - English, Korean, and Chinese (Simplified and Traditional)

GPS Location Service:
- Fully integrated single chip GPS receiver
  - GPS disable option for special operations
  - Authentication of GPS Location Service dispatchers
  - Low current and high sensitivity GPS
  - Autonomous GPS support
  - Multiple GPS protocol support
  - Patented Helical GPS antenna integrated into TETRA antenna
  - Full programmable position update triggers including:
    - On request
    - Emergency Alerting
    - Low battery
    - Loss of GPS
    - Over the air programmability of all GPS Location Service parameters

Other:
- Side connector for audio accessories and lock function
- Dedicated connector for digital car kit, remote speaker mic (RSM), programming, upgrading, packet and short data
- VibraCall®
- Programming interface via USB and RS232
- Modeless Operation
- Favourite Talk Group (DMO/TMO Talk Groups)
- Unified Address Book (contacts)
**Pathfinder Accessories**

**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 five years of service.

**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 maximise productivity through its accessory range to turn a great radio into a customised 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.

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

- FTN6573  Standard capacity battery 950 mAh - Lithium Ion (> 10hr for 5/5/90 duty cycle)
- FTN6574  Ultra high capacity battery 1850 mAh - Lithium Ion (> 20hr for 5/5/90 duty cycle)

**Chargers and Vehicle Solutions**
Designed to work as a total system with the MTP850 and battery, Motorola chargers maximise battery life.

- FTN6575  Dual pocket desktop charger base (requires travel charger/power supply NNTN4250B)
- NNTN4250  Travel charger (power supply unit) US plug, add on country specific adaptor: (SYN7456A - Euro, SYN7455A - UK, SYN7460A - Korea, SYN8127B - Australia/New Zealand)
- WALN4092  Travel charger kit (includes UK and Euro adapters)
- NPN6443  Travel charger kit (includes Korean adapter)
- FLN9469  Vehicle power adaptor

**Multi-unit Chargers**
Suitable for large fleet of radio users as it allows charging of six batteries at one go. Two factory fitted configurations are available - a 6 radio pocket configuration and a 6 battery pocket configuration.

To have a mix of radio and battery pockets, order the radio pocket inserts or battery pocket inserts separately.

- NNTN6899  Multi-unit Charger with Radio Pocket insert Korean plug
- NNTN6901  Multi-unit Charger with Radio Pocket insert UK plug
- NNTN6900  Multi-unit Charger with Radio Pocket insert Euro plug
- NNTN6904  Multi-unit Charger with Radio Pocket insert US plug
- NNTN6906  Multi-unit Charger with Battery Pocket Insert Korean plug
- NNTN6907  Multi-unit Charger with Battery Pocket Insert UK plug
- NNTN6908  Multi-unit Charger with Battery Pocket Insert Euro plug
- NNTN6911  Multi-unit Charger with Battery Pocket Insert US plug

Optional accessories for Multi-unit Charger:
- NNTN6844  Wall Mount Bracket
- NNTN6845  Radio Pocket (RP) Insert
- NNTN6846  Battery Pocket (BP) Insert
Audio Accessories
Remote microphone and functional 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.

- PMMN4057 Remote speaker microphone with emergency button, no earjack
- PMMN4015 Remote speaker microphone with emergency button and earjack
- RLN4941 Optional Receive-only earpiece for use with PMMN4015:
- AARLN4885 Earbud style receive earpiece
- FTN6596 Earpiece receive only with coiled cord, suitable for shoulder worn radios
- PMLN5140 Short cord soft D-shell earpiece, suitable for shoulder worn radios
- FTN6582 Breeze headset with boom microphone and in-line Push-To-Talk
- FTN6583 Personal hands free kit (ear bud with in-line microphone and Push-To-Talk)
- FTN6595 Surveillance kit - 3 wire earpiece with separate Microphone and Push-To-Talk
- FTN6707 Surveillance kit -2 wire earpiece with combined Microphone & Push-To-Talk
- PMLN4605 Acoustic tube for use with 2 wire kit FTN6707A

Optional add-on accessories for use with FTN6595 and FTN6596:
- NTN8371 Acoustic tube for low noise environments
- (clear voice tube with rubber ear tip)
- NTN8370 Acoustic tube for extreme noise environments
- (clear voice tube with foam earplug)
- WADN4223 Ear shell, large with grommet insert
- WADN4224 Ear shell, small with grommet insert

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.

- RLN5717 Belt worn hard leather case with swivel 2” belt loop
- RLN5718 Belt worn nylon holster with fixed 3” belt loop
- RLN5719 Belt worn soft leather carry case with swivel 2” belt loop
- RLN5720 Belt worn soft leather carry case with integrated belt clip
- NTN5243 Shoulder strap (for use with above carrying cases)
- HLN9767 Wrist strap
- HLN9844 Belt clip (for 1.5” belt width)
- HLN9714 Belt clip (for 2.5” belt width)
- RLN5721 Soft leather carry case for use in combination with PMLN5004 Shoulder Wearing Device
- PMLN5004 Shoulder wearing device with stud; requires GMDN0386 Sew On Dock
- GMDN0386 Sew on dock

Antenna
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 Compact Antenna 800-870 MHz with integrated GPS antenna
- 8587526V09 Enhanced Performance Antenna 800-870 MHz with integrated GPS antenna
- 8587526V14 Compact Antenna 380-430 MHz with integrated GPS antenna
- 8586381J11 Enhanced Performance Antenna 380-430 MHz with integrated GPS antenna
- 8566504A03 Compact Antenna 350-390 MHz with integrated GPS antenna
- 8566504A04 Enhanced Performance Antenna 350-390 MHz with integrated GPS antenna

Cables
- PMKN4025 RS232 data cable
- FLN9636 Programming cable
- PMKN4026 USB programming cable
### GENERAL SPECIFICATIONS

#### General

<table>
<thead>
<tr>
<th>Dimension HxWxD mm</th>
<th>125 x 50 x 33.5 (standard capacity battery)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>125 x 50 x 37.5 (ultra high capacity battery)</td>
</tr>
<tr>
<td>Weight (g)</td>
<td>189 (radio only)</td>
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<tr>
<td></td>
<td>230 (with standard capacity battery)</td>
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<tr>
<td></td>
<td>243 (with ultra high capacity battery)</td>
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<tr>
<td>Battery Performance</td>
<td>Standard capacity Li Ion</td>
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<tr>
<td></td>
<td>Ultra high capacity Li Ion</td>
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<tr>
<td></td>
<td>(950 mAh)</td>
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<tr>
<td></td>
<td>(1850 mAh)</td>
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<tr>
<td>Duty Cycle (5/5/90)*</td>
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<tr>
<td></td>
<td>&gt; 20 hours</td>
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<tr>
<td>Colour Display</td>
<td>120x130 pixel screen size with 65,536 vivid colours</td>
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<td></td>
<td>Flip screen and large text options</td>
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<td>Talk Groups TMO</td>
<td>2048</td>
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<td>Talk Groups DMO</td>
<td>1024</td>
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<tr>
<td>Address book</td>
<td>1000 Persons</td>
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<td>Text Message List</td>
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<tr>
<td>Status List</td>
<td>100</td>
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<tr>
<td>Country code/Network code list</td>
<td>100</td>
</tr>
<tr>
<td>Scan list</td>
<td>40 lists of 20 groups</td>
</tr>
</tbody>
</table>

#### 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) - EC329 class |
| Shock, drop and vibration| ETS 300 019-1-7 class 5M3 |
|                         | MIL-STD 810 D/E/F |

#### RF Specifications

| Frequency Bands MHz | 380 - 430 / 350 - 390 / 806 - 870 |
| Transmitted RF Power Watt | 1 |
| RF Power of Accuracy +/db | 2 |
| Receiver Class          | A and B |
| Receiver Static Sensitivity dBm | -115 typical |
| Receiver Dynamic Sensitivity dBm | -107 typical |

#### GPS Specifications

| GPS antenna | Helical integrated into TETRA antenna |
| Sensitivity | 152dBm/182dBW |
| Accuracy    | 5 - 10 meter* |

* Available in future release
* Measured under specific controlled environment

The information contained in this document may be subject to change without further notice

- All product features are subject to infrastructure support
- Selected features are subject to optional software upgrade
- The availability of accessories included in this document are subject to change without notice

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### 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’.

### Motorola TETRA firsts:

- **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
- **2005** - First industry’s smallest ruggedised cellular-style TETRA portable
- **2005** - First TETRA-based nationwide Government Radio Network in Asia
- **2005** - First largest TETRA digital migration for World’s largest trans-shipment hub
- **2005** - First largest TETRA-based deployment for High-speed and Mass Rapid Transit communication systems in Asia