Mission Ready When It Matters Most

APX™ 4000 Project 25 Portable Radio

Chemical spill. Catastrophic storm. Power outage. When every minute matters, you must communicate instantly with other agencies and responders. But how do you prepare for a disaster and keep control of operating costs? That’s where the APX 4000 P25 portable radio answers the call, expertly and affordably.

The APX 4000 delivers all the benefits of TDMA technology in the smallest P25 capable portable in the industry. Easy to use, tough as nails, a hard value to beat, it seamlessly connects agencies throughout your city for fast, interoperable communications.

Trusted APX Quality

The APX 4000 leverages the leading attributes of the APX family of P25 TDMA portables. From the 2-microphone design that reduces background noise so you can speak and hear clearly over heavy equipment, diesel engines and sirens to the high-spec RF performance for excellent coverage in challenging environments.

With its easy-to-use interface, color display, intelligent lighting and radio profiles, you get all the power of APX in a compact radio. Plus, you can extend the performance of your radio with a complete portfolio of industry-leading IMPRES™ smart energy and audio accessories.

Compact and Uncompromising

A compact P25 Phase 2 capable portable, the APX 4000 gets the job done without getting in the way. With two dedicated knobs for volume and channel control, the APX 4000 provides readiness for any type of work setting. And its standard IP67 and MIL-STD certified to withstand dust, heat, shock, drops and water immersion, so you can count on it wherever you need it — at the factory line, power line or fire line.

P25 Performance, Inside and Out

Loaded with key P25 features to increase safety, the APX 4000 features Mission Critical Wireless. This unique Bluetooth® solution provides an encrypted link to a high performance earpiece, GPS for quickly locating personnel outdoors, AES encryption for improved security, and over-the-air programming to program radios in the field without interrupting voice operation.

Improve Response and Expenses

The APX 4000 is P25 Phase 2 capable for twice the voice capacity so you can add more users without adding more frequencies or infrastructure. And it’s backwards and forwards compatible with all Motorola mission critical radio systems, so you can interoperate with confidence while you improve operating expenses.

Power Up with APX 4000 Accessories

- Designed, tested and certified for optimum performance with your radio.
- Complete portfolio of remote speaker microphones, headsets and Mission Critical Wireless Bluetooth® accessories.
- High-powered IMPRES™ batteries that have a slim design to fit the compact radio size.
### FEATURES AND BENEFITS
Available in 700/800 MHz, VHF, UHF R1, UHF R2 and 900 MHz bands
- Trunking standards supported:
  - Clear or digital encrypted ASTRO®25 Trunked Operation
  - Capable of SmartZone®, SmartZone Omnilink, SmartNet®
- Analog MDC-1200 and Digital APCO P25 Conventional System Configurations
- Narrow and wide bandwidth digital receiver (6.25 kHz equivalent / 12.5 kHz / 30 kHz / 25 kHz)
- Standard with 2 dedicated control knobs for volume and channel changes
- Embedded digital signaling (ASTRO & ASTRO 25)
- Man Down
- Available in 2 models
- Lightbar with Intelligent Lighting
- Radio Profiles
- Unified Call List
- Software Key
- ASTRO 25 Integrated Voice & Data
- User programmable Voice Announcement
- Meets Applicable MIL-STD-810C, D, E, F and G
- IP67 standard
- Rugged Submersible housing
- Superior Audio Features:
  - 0.5 W high audio speaker
  - 2-mic noise canceling technology
- Integrated GPS/GLONASS for outdoor location tracking
- Utilizes Windows XP, Vista and Windows 7 and 8 Customer Programming Software (CPS)
  - Supports USB communications
  - Built in FLASHport™ support
- Full portfolio of accessories including IMPRES batteries, chargers and audio devices
- Mission Critical Wireless Bluetooth

### OPTIONAL FEATURES
- AES Encryption
- Programming Over Project 25
- Text Messaging
- Man Down
- Site Selectable Alert Tones
- P25 Over the Air Re-Keying
- P25 Link Layer Authentication
- Enhanced Data
- Rugged Option: Mil Std 512.X, Delta - T

### TRANSMITTER - TYPICAL PERFORMANCE SPECIFICATIONS

<table>
<thead>
<tr>
<th>700/800</th>
<th>VHF</th>
<th>UHF Range 1</th>
<th>UHF Range 2</th>
<th>900 MHz¹</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency Range/Bandsplits</strong></td>
<td>763-776, 793-806 MHz</td>
<td>136-174 MHz</td>
<td>380-470 MHz</td>
<td>450-520 MHz</td>
</tr>
<tr>
<td><strong>Channel Spacing</strong></td>
<td>25/12.5 kHz</td>
<td>25/12.5 kHz</td>
<td>25/12.5 kHz</td>
<td>25/12.5 kHz</td>
</tr>
<tr>
<td><strong>Maximum Frequency Separation</strong></td>
<td>Full Bandsplit</td>
<td>Full Bandsplit</td>
<td>Full Bandsplit</td>
<td>Full Bandsplit</td>
</tr>
<tr>
<td><strong>Rated RF Output Power Adj.²</strong></td>
<td>1-3 Watts Max</td>
<td>1-5 Watts Max</td>
<td>1-5 Watts Max</td>
<td>1-5 Watts Max</td>
</tr>
<tr>
<td><strong>Frequency Stability</strong> (³⁻³⁰°C to +60°C, +25°C Ref.)</td>
<td>±0.00010 %</td>
<td>±0.00010 %</td>
<td>±0.00010 %</td>
<td>±0.00010 %</td>
</tr>
<tr>
<td><strong>Modulation Limiting³</strong></td>
<td>±5 kHz / ±4 kHz / ±2.5 kHz</td>
<td>±5 kHz / ±4 kHz / ±2.5 kHz</td>
<td>±5 kHz / ±4 kHz / ±2.5 kHz</td>
<td>±5 kHz / ±4 kHz / ±2.5 kHz</td>
</tr>
<tr>
<td><strong>Emissions (Conducted and Radiated)¹</strong></td>
<td>-75 dB</td>
<td>-75 dB</td>
<td>-75 dB</td>
<td>-75 dB</td>
</tr>
<tr>
<td><strong>Audio Response²</strong></td>
<td>+1, -3 dB</td>
<td>+1, -3 dB</td>
<td>+1, -3 dB</td>
<td>+1, -3 dB</td>
</tr>
<tr>
<td><strong>FM Hum &amp; Noise</strong></td>
<td>-47 dB</td>
<td>-47 dB</td>
<td>-47 dB</td>
<td>-47 dB</td>
</tr>
<tr>
<td><strong>Audio Distortion²</strong></td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
</tr>
</tbody>
</table>

### BATTERIES FOR APX 4000

<table>
<thead>
<tr>
<th>Battery Capacity / Type</th>
<th>Dimensions (HxWxD)</th>
<th>Weight</th>
<th>Battery Part Number</th>
<th>Battery Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Li-Ion IMPRES 1900 mAh IP67**</td>
<td>114.5 x 55.0 x 17.85</td>
<td>150 grams</td>
<td>NNTN8128A</td>
<td>1900 mAh</td>
</tr>
<tr>
<td>Li-Ion IMPRES 2300 mAh IP67 Non-HazLoc</td>
<td>114.5 x 55.0 x 23.15</td>
<td>160 grams</td>
<td>PMNN4448AR</td>
<td>2300 mAh</td>
</tr>
<tr>
<td>Li-Ion IMPRES 2300 mAh IP67 HazLoc*</td>
<td>114.5 x 55.0 x 23.15</td>
<td>210 grams</td>
<td>NNTN8560A</td>
<td>2500 mAh</td>
</tr>
<tr>
<td>Li-Ion IMPRES 2700 mAh IP54 Non-HazLoc</td>
<td>114.5 x 55.0 x 23.15</td>
<td>160 grams</td>
<td>PMNN4448AR</td>
<td>2700 mAh</td>
</tr>
</tbody>
</table>

¹ Per the FCC Narrowbanding rules, new products (APX7000 UHFR1 with UHFR2 combination) submitted for FCC certification after January 1, 2011 are restricted from being granted certification at 25kHz for United States - State & Local Markets only.
² Compatible with BT 2.1 HSP, PAN, DUN and SPP BT Profiles.
³ CPS version R12.00.00 and greater ordered after June 2014 will only support Windows 7 and 8
⁴ Chargers and batteries for the APX 4000 radios are not compatible with other APX radios.

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**NOTE:**
- **Rugged Submersible housing:** (2 meters for 2 hours)
- **Superior Audio Features:**
  - 0.5 W high audio speaker
  - 2-mic noise canceling technology
- **Integrated GPS/GLONASS** for outdoor location tracking
- **Utilizes Windows XP, Vista and Windows 7 and 8**
- **Customer Programming Software (CPS):**
  - Supports USB communications
  - Built in FLASHport™ support
- **Full portfolio of accessories including IMPRES batteries, chargers and audio devices**
- **Mission Critical Wireless Bluetooth**

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**PRODUCT DATA SHEET | APX™ 4000**

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**PAGE 2**
## RADIO MODELS

### MODEL 2
- **Display**
  - Full bitmap color LCD display
  - 3 lines of text x 14 characters
  - 1 line of icons
  - White backlight
- **Keypad**
  - Backlight keypad
  - 3 soft keys
  - 4 direction Navigation key
  - Home and Data buttons
- **Channel Capacity**
  - 512
- **FLASHport Memory**
  - 64 MB
- **700/800 MHz (763-870 MHz)**
  - H51UCF9PW6AN
- **VHF (136-174 MHz)**
  - H51KDF9PW6AN
- **UHF Range 1 (380-470 MHz)**
  - H51QDF9PW6AN
- **UHF Range 2 (450-520 MHz)**
  - H51SDF9PW6AN
- **900 MHz (886-902, 935-941 MHz)**
  - H51WCF9PW6AN
- **Buttons & Switches**
  - Large PTT button
  - Angled On/Off Volume Control
  - Orange emergency button
  - 3 programmable side buttons

### MODEL 3
- **Display**
  - Full bitmap color LCD display
  - 3 lines of text x 14 characters
  - 1 line of icons
  - White backlight
- **Keypad**
  - Backlight keypad
  - 3 soft keys
  - 4 direction navigation key
  - 4x3 keypad
  - Home and Data buttons
- **Channel Capacity**
  - 512
- **FLASHport Memory**
  - 64 MB
- **700/800 MHz (763-870 MHz)**
  - H51UCH9PW7AN
- **VHF (136-174 MHz)**
  - H51KDH9PW7AN
- **UHF Range 1 (380-470 MHz)**
  - H51QDH9PW7AN
- **UHF Range 2 (450-520 MHz)**
  - H51SDH9PW7AN
- **900 MHz (886-902, 935-941 MHz)**
  - H51WCH9PW7AN

## TRANSMITTER CERTIFICATION
- **700/800 MHz (764-869 MHz)**
  - AZ489FT7049
- **VHF (136-174 MHz)**
  - AZ489FT3828
- **UHF Range 1 (380-470 MHz)**
  - AZ489FT4905
- **UHF Range 2 (450-520 MHz)**
  - AZ489FT4910
- **900 MHz (896-902, 935-940 MHz)**
  - AZ489FT5864

## FCC EMISSIONS DESIGNATORS
- **FCC Emissions Designators**
  - 11K0F3E, 16K0F3E, 8K10F1D, 8K10F1E, 8K10F1W, 20K0F1E*

## POWER SUPPLY
- **Power Supply**
  - One rechargeable Li-Ion 1900 mAh battery standard, with alternate battery options available.

## RECEIVER - TYPICAL PERFORMANCE SPECIFICATIONS

<table>
<thead>
<tr>
<th>Frequency Range/Bandsplits</th>
<th>700/800 MHz</th>
<th>VHF</th>
<th>UHF Range 1</th>
<th>UHF Range 2</th>
<th>900 MHz (896-902, 935-941 MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>700 MHz</td>
<td>763-776 MHz</td>
<td>136-174 MHz</td>
<td>380-470 MHz</td>
<td>450-520 MHz</td>
<td>900 MHz (896-902, 935-941 MHz)</td>
</tr>
<tr>
<td>800 MHz</td>
<td>851-870 MHz</td>
<td>25/12.5 kHz</td>
<td>25/12.5 kHz</td>
<td>25/12.5 kHz</td>
<td>12.5 kHz</td>
</tr>
<tr>
<td>Channel Spacing</td>
<td>Full Bandsplit</td>
<td>Full Bandsplit</td>
<td>Full Bandsplit</td>
<td>Full Bandsplit</td>
<td>Full Bandsplit</td>
</tr>
<tr>
<td>Maximum Frequency Separation</td>
<td>±0.00010 %</td>
<td>±0.00010 %</td>
<td>±0.00010 %</td>
<td>±0.00010 %</td>
<td>±0.00010 %</td>
</tr>
<tr>
<td>Frequency Stability¹</td>
<td>12 dB SINAD</td>
<td>0.250μV</td>
<td>0.216μV</td>
<td>0.234μV</td>
<td>0.234μV</td>
</tr>
<tr>
<td></td>
<td>1% BER (800 MHz)</td>
<td>0.400μV</td>
<td>0.277μV</td>
<td>0.307μV</td>
<td>0.307μV</td>
</tr>
<tr>
<td></td>
<td>5% BER</td>
<td>0.250μV</td>
<td>0.186μV</td>
<td>0.207μV</td>
<td>0.207μV</td>
</tr>
<tr>
<td>Selectivity¹</td>
<td>25 kHz channel</td>
<td>-76 dB</td>
<td>-76 dB</td>
<td>-76 dB</td>
<td>-76 dB</td>
</tr>
<tr>
<td></td>
<td>12.5 kHz channel</td>
<td>-67 dB</td>
<td>-67 dB</td>
<td>-67 dB</td>
<td>-67 dB</td>
</tr>
<tr>
<td>Intermodulation</td>
<td>-75 dB</td>
<td>-79 dB</td>
<td>-77 dB</td>
<td>-77 dB</td>
<td>-75 dB</td>
</tr>
<tr>
<td>Spurious Rejection</td>
<td>-76.6 dB</td>
<td>-80.5 dB</td>
<td>-80.3 dB</td>
<td>-80.3 dB</td>
<td>-80 dB</td>
</tr>
<tr>
<td>FM Hum and Noise</td>
<td>25 kHz</td>
<td>-53 dB</td>
<td>-51 dB</td>
<td>-50 dB</td>
<td>-50 dB</td>
</tr>
<tr>
<td></td>
<td>12.5 kHz</td>
<td>-47 dB</td>
<td>-45 dB</td>
<td>-45 dB</td>
<td>-45 dB</td>
</tr>
<tr>
<td>Audio Distortion¹</td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
</tr>
</tbody>
</table>
ENCRYPTION

Supported Encryption Algorithms: AES/ADP
Encryption Algorithm Capacity: 8
Encryption Keys per Radio: Module capable of storing 1024 keys. Programmable for 48 Common Key Reference (CKR) or 16 Physical Identifier (PID)
Encryption Frame Re-sync Interval: P25 CAI 300 mSec
Encryption Keying: Key Loader
Synchronization: XL – Counter Addressing, OFB – Output Feedback
Vector Generator: National Institute of Standards and Technology (NIST) approved random number generator
Encryption Type: Digital
Key Storage: Tamper protected volatile or non-volatile memory
Key Erasure: Keyboard command and tamper detection
Standards: FIPS 140-2 Level 3; FIPS 197

PORTABLE MILITARY STANDARDS 810 C, D, E, F & G

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Pressure</td>
<td>500.1</td>
<td>500.2</td>
<td>500.3</td>
<td>500.4</td>
</tr>
<tr>
<td>High Temperature</td>
<td>501.1</td>
<td>501.2</td>
<td>501.3</td>
<td>501.4</td>
</tr>
<tr>
<td>Low Temperature</td>
<td>502.1</td>
<td>502.2</td>
<td>502.3</td>
<td>502.4</td>
</tr>
<tr>
<td>Temperature Shock</td>
<td>503.1</td>
<td>503.2</td>
<td>503.3</td>
<td>503.4</td>
</tr>
<tr>
<td>Solar Radiation</td>
<td>505.1</td>
<td>505.2</td>
<td>505.3</td>
<td>505.4</td>
</tr>
<tr>
<td>Rain</td>
<td>506.1</td>
<td>506.2</td>
<td>506.3</td>
<td>506.4</td>
</tr>
<tr>
<td>Humidity</td>
<td>507.1</td>
<td>507.2</td>
<td>507.3</td>
<td>507.4</td>
</tr>
<tr>
<td>Salt Fog</td>
<td>509.1</td>
<td>509.2</td>
<td>509.3</td>
<td>509.4</td>
</tr>
<tr>
<td>Blowing Dust</td>
<td>510.1</td>
<td>510.2</td>
<td>510.3</td>
<td>510.4</td>
</tr>
<tr>
<td>Blowing Sand</td>
<td>1 Proc</td>
<td>1 Proc</td>
<td>1 Proc</td>
<td>1 Proc</td>
</tr>
<tr>
<td>Vibration</td>
<td>514.2</td>
<td>514.3</td>
<td>514.4</td>
<td>514.5</td>
</tr>
<tr>
<td>Shock</td>
<td>516.2</td>
<td>516.3</td>
<td>516.4</td>
<td>516.5</td>
</tr>
<tr>
<td>Shock (Drop)</td>
<td>516.2</td>
<td>516.2</td>
<td>516.4</td>
<td>516.5</td>
</tr>
</tbody>
</table>

GPS SPECIFICATIONS

Channels: 12
Tracking Sensitivity: ~159 dBm
Accuracy: <10 meters (95%)
Cold Start: <60 seconds (95%)
Hot Start: <10 seconds (95%)
Mode of Operation: Autonomous (Non-Assisted) GPS

DIMENSIONS OF THE RADIOS WITHOUT BATTERY

<table>
<thead>
<tr>
<th>Inches</th>
<th>Millimeters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>5.42</td>
</tr>
<tr>
<td>Width Push-To-Talk button</td>
<td>2.42</td>
</tr>
<tr>
<td>Depth Push-To-Talk button</td>
<td>1.41</td>
</tr>
<tr>
<td>Width Top</td>
<td>2.62</td>
</tr>
<tr>
<td>Depth Top</td>
<td>1.84</td>
</tr>
<tr>
<td>Weight of the radios without battery</td>
<td>10.05 oz</td>
</tr>
</tbody>
</table>

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature: -30°C / +60°C
Storage Temperature: -40°C / +85°C
Humidity: Per MIL-STD
ESD: IEC 801-2 KV
Water and Dust Intrusion: Mil Std 512.X, Delta - T

Specifications subject to change without notice. All specifications shown are typical. Radio meets applicable regulatory requirements.

Motorola Solutions, Inc. 1301 East Algonquin Road Schaumburg, Illinois 60196, U.S.A. 800-367-2346
motorolasolutions.com

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