## UNLIMITED MOBILITY. UNCOMPROMISING PERFORMANCE.

# APX™ 8000 ALL-BAND P25 PORTABLE RADIO


Take command with a 4-in-1 radio that offers limitless interoperability, the clearest, loudest audio and seamless Wi-Fi® connectivity. The compact, rugged and secure APX 8000 redefines mission critical communications.

### ALL BANDS, NO BOUNDARIES

With four RF bands and multi-mode system access, the APX 8000 knows no limits when it comes to interoperability. Communicate across borders using a single device. Use analogue MDC 1200 or digital P25 mode, conventional or trunked operation, SmartNet® or SmartZone® legacy systems, clear or secure - all across 7/800MHz, VHF and UHF Range 1 & 2 bands.

### HEAR AND BE HEARD MORE CLEARLY

Whether it's loud or windy, whether you whisper or yell, the APX 8000 adaptive audio engine and ultra-loud speaker brings clarity into every conversation. The radio dynamically changes the level of noise suppression, microphone gain, windporting and speaker equalisation on the fly to consistently produce the loudest, clearest audio in any environment.

### VOICE AND DATA, ALL AT ONCE

With Wi-Fi access, the APX 8000 can quickly receive new codeplugs, firmware and software features in order to redeploy the radio fleet with ease as users keep talking without interruption. Mission Critical Wireless Bluetooth® connects quickly and securely with remote speaker microphones, surveillance kits and the LEX L10 Mission Critical LTE Handheld for radio remote control.

### FIT FOR THE MISSION

Intuitively designed with a familiar look and feel, the compact APX 8000 is always comfortable to use, from your holster to your grip. It contains 4 radio bands packaged into the award-winning design of the APX 6000. The all-band antenna is flexible so it doesn't get in the way.

### RUGGED, ROBUST & RELIABLE

With a water-tight seal, drop-resistant dual battery latch, pressure-tested tempered glass display and a shock-absorbing aluminum alloy endoskeleton, the APX 8000 is ready for unpredictable environments. It can survive 2 metre water submersion for 2 hours (IP68) and Motorola Solutions' renowned Accelerated Life Test.

### DESIGNED TO SECURE & PROTECT

The APX 8000's voice and data is secured by multiple hardware encryption algorithms (AES, DES, ADP), up to 128 keys and the ability to re-key over the air so that sensitive information stays protected from scanners and eavesdroppers. P25 Radio Authentication ensures only valid users can access the system while two-factor authentication allows users to securely log in to databases.

**PRODUCT DATA SHEET**
APX 8000 PORTABLE RADIO


## RF BANDS:
VHF, UHF Range 1 & 2, 700/800 MHz

## OPERATION MODES:
9600 Baud Digital APCO P25 Phase 1 FDMA and Phase 2 TDMA Trunking

3600 Baud SmartNet, SmartZone, SmartZone, Omnilink Trunking

Digital APCO 25, Conventional, Analogue MDC 1200, Quick Call II System Configurations

Narrow and wide bandwidth digital receiver (6.25 kHz equivalent/25/20/12.5 KHz)

## STANDARD FEATURES:
Mission Critical Wireless Bluetooth*

ASTRO™ 25 Integrated Voice & Data

Software Key

Text-Messaging

Voice Announcements

ISSI 8000 Roaming

Radio Profiles, Dynamic Zone

Intelligent Lighting

Single-key ADP Encryption

IP68 submersion (2 metres, 2 hours)

IMPRES 2 Battery

## ADAPTIVE AUDIO ENGINE:
3 Watt Speaker with Adaptive Equalisation

Adaptive Dual-sided Operation

Adaptive Noise Suppression Intensity

Adaptive Gain Control

Adaptive Windporting

## PROGRAMMING:
Utilises Windows Customer Programming Software (CPS) with Radio Management

## OPTIONAL FEATURES:
Wi-Fi® 802.11 b/g/n

GPS Outdoor Location Tracking

RFID Volume Knob

Multi-key for 128 keys and multi-algorithm

Programming Over Project 25 (OTAP)

Over the Air Rekey (OTAR)

Digital Tone Signaling

LEX L10 Collaboration

P25 Authentication

Man Down Sensor

Rugged submersible option: MIL-STD 512.X/I, IP68 (2 metres, 4 hours)

* Compatible with BT 2.1, HSP, PAN, DUN and SPP Profiles found in off-the-shelf BT accessories

## TRANSMITTER - TYPICAL PERFORMANCE SPECIFICATIONS

| | | 700/800*** | VHF | UHF Range 1 | UHF Range 2 |
|---|---|---|---|---|---|
| Frequency Range/Bandsplits | | 764-776, 794-806 MHz<br>806-825, 851-870 MHz | 136-174 MHz | 380-470 MHz | 450-520 MHz |
| Channel Spacing | | 25/20/12.5 kHz | 25/20/12.5 kHz | 25/20/12.5 kHz | 25/20/12.5 kHz |
| Maximum Frequency Separation | | Full Bandsplit | Full Bandsplit | Full Bandsplit | Full Bandsplit |
| Rated RF Output Power Adj[1] | | 700 MHz: 1-2.5 Watts<br>800 MHz: 1-3 Watts | 1-6 Watts | 1-5 Watts | 1-5 Watts |
| Frequency Stability[1]<br>(–30°C to +60°C; +25°C Ref.) | | +/- 1.0 ppm | +/- 1.0 ppm | +/- 1.0 ppm | +/- 1.0 ppm |
| Modulation Limiting[1] | | ±5 kHz / ±4 kHz / ±2.5 kHz | ±5 kHz / ±4 kHz / ±2.5 kHz | ±5 kHz / ±4 kHz / ±2.5 kHz | ±5 kHz / ±4 kHz / ±2.5 kHz |
| Emissions (Conducted and Radiated)[1] | | -75 dBc | -75 dBc | -75 dBc | -75 dBc |
| Audio Response[1] | | +1, -3 dB | +1, -3 dB | +1, -3 dB | +1, -3 dB |
| FM Hum & Noise<br>(25kHz / 12.5kHz)[1] | 700 MHz<br>800 MHz | -49 dB/-47 dB<br>-49 dB/-46 dB | -51 dB/-51 dB | -51 dB/-51 dB | -51 dB/-47 dB |
| Audio Distortion<br>(25kHz / 12.5kHz)[1] | 700 MHz<br>800 MHz | 0.90 % / 0.90 %<br>0.60 % / 0.90 % | 0.50 % / 0.90 % | 0.50 % / 0.90 % | 0.60 % / 0.90 % |

## BATTERIES FOR APX 8000

| Battery Capacity / Type | Dimensions (HxWxD) | Weight | Battery Part Number | Battery Capacity |
|---|---|---|---|---|
| Li-Ion IMPRES 2150 mAh IP68 | 3.39" x 2.34" x 1.45" | 5.07 oz | PMNN4403 | 2150 mAh |
| Li-Ion IMPRES 3100 mAh IP68** | 3.39" x 2.34" x 1.65" | 6.61 oz | NNTN7038 | 3100 mAh |
| Li-Ion IMPRES 4200 mAh IP68 | 5.12" x 2.34" x 1.65" | 11.43 oz | NNTN7034 | 4400 mAh |

## KEY AUDIO ACCESSORIES

| Name | Type | Part Number | Features |
|---|---|---|---|
| Extreme Policing (XP) RSM | Wired | NMN6271 | Dual-Mic Noise Suppression, Emergency, Volume Control, Prog Button, IP68 |
| Mission Critical Wireless (MCW) RSM | Bluetooth | RLN6554 | Windporting, Audio Jack, Emergency, Volume Control, Task Light, IP55, 12 hour 5/35/60 Duty Cycle |

**Ships standard with radio
***Use of the 700/800MHz band is dependent on in-country spectrum regulations.

## RADIO MODELS

| | MODEL 1.5  | MODEL 2.5  | MODEL 3.5  |
|---|---|---|---|
| Display | Full bitmap monochromatic LCD top display<br>1 line text x 8 characters<br>1 line of icons<br>No menu support<br>Multi-colour backlight | **Top display plus:**<br>Full bitmap colour LCD display<br>4 lines of text x 14 characters<br>2 lines of icons<br>1 menu line x 3 menus<br>White backlight | **Top display plus:**<br>Full bitmap colour LCD display<br>4 lines of text x 14 characters<br>2 lines of icons<br>1 menu line x 3 menus<br>White backlight |
| Keypad | None | Backlit keypad<br>3 soft keys<br>4 direction Navigation key<br>Home and Data buttons | Backlit keypad<br>3 soft keys<br>4 direction navigation key<br>4x3 keypad<br>Home and Data buttons |
| Channel Capacity | 1200 | 3000 | 3000 |
| FLASHport Memory | 2 GB | 2 GB | 2 GB |
| 700/800 MHz (764-870 MHz)<br>VHF (136-174 MHz)<br>UHF Range 1 (380-470 MHz)<br>UHF Range 2 (450-520 MHz) | H91TGD9PW5AN | H91TGD9PW6AN | H91TGD9PW7AN |
| Buttons & Switches | Large PTT button ▪ Angled On/Off volume control ▪ Orange emergency button ▪ 16 position top-mounted rotary switch ▪ 2-position concentric switch ▪ Multi-colour backlight ▪ 3-position toggle switch ▪ 3 programmable side buttons | | |
| **Regulatory Information** | | | |
| FCC ID | AZ489FT7061 | | |
| Industry Canada | 109U-89FT7061 | | |
| Emission Designators | LMR: 8K10F1D, 8K10F1E, 8K10F1W, 11K0F3E, 16K0F3E***, 20K0F1E***<br>Bluetooth: 852KF1D, 1M17F1D, 1M19F1D<br>WLAN (Wi-Fi ): 13M7G1D, 17M0D1D, 18M1D1D | | |

*** In accordance with FCC mandate, the APX 8000 all band radio is restricted to 12.5kHz operation only and does NOT support 25kHz in the VHF and UHF Bands (excluding T-Band). This applies to customers under Rule Part 90.

## RECEIVER - TYPICAL PERFORMANCE SPECIFICATIONS

| | | 700 | 800 | VHF | UHF |
|---|---|---|---|---|---|
| Frequency Range/Bandsplits | | 764-776 MHz | 851-870 MHz | 136-174 MHz | 380-520 MHz |
| Channel Spacing | | 25/20/12.5 kHz | 25/20/12.5 kHz | 25/20/12.5 kHz | 25/20/12.5 kHz |
| Maximum Frequency Separation | | Full Bandsplit | Full Bandsplit | Full Bandsplit | Full Bandsplit |
| Audio Output Power at Rated[1] | | 1 Watt | 1 Watt | 1 Watt | 1 Watt |
| Frequency Stability[1]<br>(–30°C to +60°C; +25°C Ref.) | | +/- 1.0 ppm | +/- 1.0 ppm | +/- 1.0 ppm | +/- 1.0 ppm |
| Analogue Sensitivity[1]<br>Digital Sensitivity[2] | 12 dB SINAD<br>1% BER<br>5% BER<br>5% BER Faded | 0.224 uV<br>0.316 uV<br>0.211 uV<br>0.562uV | 0.224 uV<br>0.316 uV<br>0.211 uV<br>0.562 uV | 0.168 uV<br>0.251 uV<br>0.149 uV<br>0.562 uV | 0.199 uV<br>0.282 uV<br>0.158 uV<br>0.530 uV |
| Selectivity (25 kHz / 12.5 kHz)[1, 5] | | 79 dB / 72 dB | 78 dB / 72 dB | 82 dB / 77 dB | 80 dB / 74 dB |
| Intermodulation Rejection[1] | | 81 dB | 80 dB | 82 dB | 80 dB |
| Spurious Rejection[1] | | 98 dB | 98 dB | 92 dB | 98 dB |
| FM Hum and Noise<br>(25 kHz / 12.5 kHz)[1] | | -55 dB / -53 dB | -54 dB / -52 dB | -57 dB / -55 dB | -56 dB / -54 dB |
| Audio Distortion[1] | | 0.9 % | 0.9 % | 0.9 % | 0.9 % |

**PRODUCT DATA SHEET**
APX 8000 PORTABLE RADIO

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

| | MIL-STD 810C | | MIL-STD 810D | | MIL-STD 810E | | MIL-STD 810F | | MIL-STD 810G | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Method | Proc./Cat. | Method | Proc./Cat. | Method | Proc./Cat. | Method | Proc./Cat. | Method | Proc./Cat. |
| Low Pressure | 500.1 | I | 500.2 | II | 500.3 | II | 500.4 | II | 500.5 | II |
| High Temperature | 501.1 | I, II | 501.2 | I/A1, II/A1 | 501.3 | I/A1, II/A1 | 501.4 | I/Hot, II/Hot | 501.5 | I/A1, II/A1 |
| Low Temperature | 502.1 | I | 502.2 | I/C3, II/C1 | 502.3 | I/C3, II/C1 | 502.4 | I/C3, II/C1 | 502.5 | I/C3, II/C1 |
| Temperature Shock | 503.1 | I | 503.2 | I/A1C3 | 503.3 | I/A1C3 | 503.4 | I | 503.5 | I/C |
| Solar Radiation | 505.1 | II | 505.2 | I | 505.3 | I | 505.4 | I | 505.5 | I/A1 |
| Rain | 506.1 | I, II | 506.2 | I, II | 506.3 | I, II | 506.4 | I, III | 506.5 | I, III |
| Humidity | 507.1 | II | 507.2 | II | 507.3 | II | 507.4 | 1 Proc | 507.5 | II/Aggravated |
| Salt Fog | 509.1 | I | 509.2 | I | 509.3 | I | 509.4 | 1 Proc | 509.5 | 1 Proc |
| Blowing Dust | 510.1 | I | 510.2 | I | 510.3 | I | 510.4 | I | 510.5 | I |
| Blowing Sand | 1 Proc | 1 Proc | 510.2 | II | 510.3 | II | 510.4 | II | 510.5 | II |
| Immersion[6] | 512.1 | I | 512.2 | I | 512.3 | I | 512.4 | I | 512.5 | I |
| Vibration | 514.2 | VIII/F, Curve-W | 514.3 | I/10, II/3 | 514.4 | I/10, II/3 | 514.5 | I/24 | 514.6 | I/24 |
| Shock | 516.2 | I, III, V | 516.3 | I, V, VI | 516.4 | I, V, VI | 516.5 | I, V, VI | 516.6 | I, V, VI |
| Shock (Drop) | 516.2 | II | 516.2 | IV | 516.4 | IV | 516.5 | IV | 516.6 | IV |

## DIMENSIONS OF THE RADIOS WITHOUT BATTERY

| | Inches | Millimetres |
|---|---|---|
| Length | 5.47 | 139 |
| Width Push-To-Talk button | 2.39 | 60.7 |
| Depth Push-To-Talk button | 1.40 | 35.6 |
| Width Top | 2.98 | 75.7 |
| Depth Top | 1.58 | 40.1 |
| Depth Bottom of Battery | 1.24 | 31.5 |
| Weight of the radios without battery | 11.25 oz | 319 g |

## ENCRYPTION

| | |
|---|---|
| Supported Encryption Algorithms | ADP, AES, DES, DES-XL, DES-OFB, DVP-XL, Localised Algorithm |
| Encryption Algorithm Capacity | 8 |
| Encryption Keys per Radio | Module capable of storing 1024 keys. Programmable for 128 Common Key Reference (CKR) or 16 Physical Identifier (PID) |
| Encryption Frame Re-sync Interval | P25 CAI 360 mSec |
| Encryption Keying | Key Loader and Over the Air Rekeying (OTAR) |
| Synchronisation | XL – Counter Addressing<br>OFB – Output Feedback |
| Vector Generator | National Institute of Standards and Technology (NIST) approved random number generator |
| Encryption Type | Digital and SecureNet |
| Key Storage | Tamper protected volatile or non-volatile memory |
| Key Erasure | Keyboard command and tamper detection |
| Standards | FIPS 140-2 Level 3<br>FIPS 197 |

## GPS/GNSS SPECIFICATIONS

| | |
|---|---|
| Constellations | GPS & GLONASS |
| Tracking Sensitivity | –164 dBm |
| Accuracy[3] | <5 metres (95%) |
| Cold Start[3] | <60 seconds (95%) |
| Hot Start[3] | <5 seconds (95%) |
| Mode of Operation | Autonomous (Non-Assisted) |

## ENVIRONMENTAL SPECIFICATIONS

| | |
|---|---|
| Operating Temperature[4] | -30ºC / +60ºC |
| Storage Temperature[4] | -40ºC / +85ºC |
| Humidity | Per MIL-STD |
| ESD | IEC 801-2 KV |
| Water and Dust Intrusion | IP68 (2 metres, 2 hours) |

## RUGGED OPTION SPECIFICATIONS

| | |
|---|---|
| Leakage (immersion)[6] | MIL-STD-810 C, D, E, F and G Method 512.X Procedure I, IP68 (2 metres, 4 hours) |

## HOUSING COLOR

Black (Standard), Public Safety Yellow, and High Impact Green

[1] Measured conductively in analogue mode per TIA / EIA 603 under nominal conditions.
[2] Measured conductively in digital mode per TIA / EIA IS 102.CAAA under nominal conditions.
[3] Measured conductively with >6 satellites visible at a nominal –130 dBm signal strength. Specs provided are 95th percentile values.
[4] Temperatures listed are for radio specifications. Battery storage is recommended at 25°C, ±5°C to ensure best performance.
[5] Measured using the TIA-603 single-tone method.
[6] Rugged option only. Specifications subject to change without notice.

All specifications shown are typical.
Radio meets applicable regulatory requirements.

## WIRELESS CONNECTIVITY & SECURITY

Frequency Range/Bandsplits:
Bluetooth: 2402 - 2480 MHz, WLAN (Wi-Fi®): 2400 - 2483.5 MHz

WLAN (Wi-Fi) 802.11 b/g/n supports WPA-2, WPA, WEP security protocols; radio can be pre-provisioned with up to 20 SSIDs

Mission Critical Wireless Bluetooth 2.1 uses 96 bit encryption for pairing & 128 bit encryption for voice, signaling and data. The radio BT supports up to 6 data connections and 1 audio connection.

**Motorola Solutions Australia Pty Limited** www.motorolasolutions.com.au



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