



**UNCOMPROMISING QUALITY. UNBEATABLE SIZE.**

# APX™ 2000 PROJECT 25 PORTABLE RADIO

Your people work in the toughest conditions, in some of the noisiest places – at mines, near manufacturing machinery and on street patrol. Communicating with them clearly is imperative for their safety.

They need a radio that is exceptionally durable, overcomes external noise and outlasts the longest shifts. The APX™ 2000 radio combines the feature-rich technology public safety and industrial users rely on with the real-world affordability they require.

The APX 2000 is big on the attributes you expect from APX in the smallest P25 phase 2 portable in the industry. Flexible and versatile, it's easy to use, extremely durable, with advanced features for improved safety and exceptional noise suppression for clear communications. So you can interoperate with other crews, agencies, responders and P25 systems the moment you need to.

## APX PERFORMANCE, INSIDE AND OUT

The APX 2000 leverages the industry-leading hallmarks of the APX family of P25 TDMA portables. Starting with an innovative 2-microphone design that produces outstanding voice quality and suppresses background noise so users can speak and hear clearly above diesel engines, sirens and heavy equipment.

Simplified controls and an enlarged multifunction knob are easy to turn on or off, set volume and switch talk groups, even while wearing gloves. And high-spec RF performance ensures excellent coverage in challenging environments.

## FIRST TO WORK, LAST TO LEAVE

Reporting from a fire line or a power line, the compact APX 2000 stands up to challenging conditions. It's IP67 and MIL-STD certified to withstand dust, heat, drops and water immersion, with a tempered glass display that resists scratches, abrasions and chemical solvents.

Loaded with advanced P25 features – including Mission Critical Wireless Bluetooth® that increase communication flexibility, GPS for quickly locating personnel and assets, and additional language support for international users – the APX 2000 improves safety, from the moment it's powered on until the last person heads home.

## AFFORDABILITY MEETS PORTABILITY

The APX 2000 is P25 Phase 2 capable for twice the voice capacity, so you can add more users without adding more frequencies or infrastructure. Backwards and forwards compatible with all Motorola mission critical radio systems, the APX 2000 portable keeps communications running without running up costs.

## ACCESSORIES AS POWERFUL AS APX 2000

- Complete portfolio of remote speaker microphones, headsets and Mission Critical Wireless Bluetooth® accessories
- Designed, tested and certified for optimum performance with your radio
- 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, and UHF R2 bands

Trunking standards supported:

- Clear or digital 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 / 20 kHz / 25 kHz)

Embedded digital signaling (ASTRO & ASTRO 25)

Available in 2 models

Integrated GPS capable

Software-based ADP Privacy

Lightbar with Intelligent Lighting

Radio Profiles

Unified Call List

User programmable Voice Announcement

International Language Support: Spanish, French, Portuguese,  
Russian, and Traditional Chinese

Meets Applicable MIL-STD-810C, D, E, F and G

IP67 standard  
(submersible 1 meter, 30 minutes)<sup>1</sup>

Superior Audio Features:

- 0.5 W high audio speaker
- 2-mic noise canceling technology

Utilizes Windows XP, Vista and Windows 7 Customer  
Programming Software (CPS)

- Supports USB communications
- Built in FLASHport™ support

Full portfolio of accessories including IMPRES batteries,  
chargers and audio devices<sup>2</sup>

### OPTIONAL FEATURES:

Mission Critical Wireless

Programming Over Project 25

Tactical Over the Air Rekey only

Text Messaging

AES Encryption - Factory Installed

DVP-XL, DES/DES-XL/DES-OFB Encryption -

Flashport Upgrade Only

Intrinsic Safety (FM)

<sup>1</sup> Radios meet industry standards (IPx7) for immersion.



<sup>2</sup> Chargers and batteries for the APX 2000 radios do not interoperate with other APX radios

### TRANSMITTER - TYPICAL PERFORMANCE SPECIFICATIONS

	700/800		VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandsplits	700 MHz 800 MHz	763-776, 793-806 MHz 806-825, 851-870 MHz	136-174 MHz	380-470 MHz	450-520 MHz
Channel Spacing		25/12.5 kHz	30/25/12.5 kHz	25/12.5 kHz	25/12.5 kHz
Maximum Frequency Separation		Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Rated RF Output Power Adj <sup>1</sup>		1-3 Watts Max	1-5 Watts Max	1-5 Watts Max	1-5 Watts
Frequency Stability <sup>1</sup> (-30°C to +60°C; +25°C Ref.)		±0.00010 %	±0.00010 %	±0.00010 %	±0.00010 %
Modulation Limiting <sup>1</sup>		±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) <sup>1</sup>		-75 dB	-75 dB	-75 dB	-75 dB
Audio Response <sup>1</sup>		+1, -3 dB	+1, -3 dB	+1, -3 dB	+1, -3 dB
FM Hum & Noise	25 kHz 12.5 kHz	-47 dB -45 dB	-47 dB -47 dB	-47 dB -45 dB	-47 dB -45 dB
Audio Distortion <sup>1</sup>	25 kHz 12.5 kHz	1.00%	1.00%	1.00%	1.00%

### BATTERIES FOR APX 2000

Battery Capacity / Type	Dimensions (HxWxD)	Weight	Battery Part Number	Battery Capacity
Li-Ion IMPRES 1900 mAh IP67 Non-FM	114.5x55.04x17.85	150 grams	NNTN8128	1900 mAh
Li-Ion IMPRES 2300 mAh IP67 Non-FM	114.5x55.04x23.15	160 grams	PMNN4424_R	2300 mAh
Li-Ion IMPRES 2300 mAh IP67 FM	114.5x55.04x23.15	160 grams	NNTN8129	2300 mAh

RADIO MODELS		
	 <b>MODEL 2</b>	 <b>MODEL 3</b>
Display	Full bitmap color LCD display 3 lines of text x 14 characters 1 line of icons 1 menu line x 3 menus White backlight	Full bitmap color LCD display 3 lines of text x 14 characters 1 line of icons 1 menu line x 3 menus White backlight
Keypad	Backlight keypad 3 soft keys 4 direction Navigation key Home and Data buttons	Backlight keypad 3 soft keys 4 direction navigation key 4x3 keypad Home and Data buttons
Channel Capacity	512	512
FLASHport Memory	64 MB	64 MB
700/800 MHz (763-870 MHz)	H52UCF9PW6AN Q360GJ/Q360GK	H52UCH9PW7AN Q360GJ/Q360GK
VHF (136-174 MHz)	H52KDF9PW6AN Q360GW/Q360GX	H52KDH9PW7AN Q360GW/Q360GX
UHF Range 1 (380-470 MHz)	H52QDF9PW6AN Q360GM/Q360GL	H52QDH9PW7AN Q360GM/Q360GL
UHF Range 2 (450-520 MHz)	H52SDF9PW6AN Q360GZ/Q360HA	H52SDH9PW7AN Q360GZ/Q360HA
Buttons & Switches	Large PTT button ■ Multi-function knob ■ Orange emergency button ■ 3 programmable side buttons	
TRANSMITTER CERTIFICATION		
700/800 (764-869 MHz)	AZ489FT7050 (Basic)/AZ489FT7049 (Expanded)	
VHF (136-174 MHz)	AZ489FT3825 (Basic)/AZ489FT3828 (Expanded)	
UHF Range 1 (380-470 MHz)	AZ489FT4907(Basic)/AZ489FT4905 (Expanded)	
UHF Range 2 (450-520 MHz)	AZ489FT4909 (Basic)/AZ489FT4910 (Expanded)	
FCC EMISSIONS DESIGNATORS		
FCC Emissions Designators	11K0F3E, 16K0F3E, 8K10F1D, 8K10F1E, 8K10F1W, 20K0F1E	
POWER SUPPLY		
Power Supply	One rechargeable Li-Ion 1900 mAh battery standard, or 2300 mAh high cap Li-Ion.	

**BASIC SOFTWARE PACKAGE**

3600 or 9600  
Conventional Trunking  
512 Channel Capacity

**EXPANDED SOFTWARE PACKAGE**

Full P25 Interoperability  
GPS Activation  
Mission Critical Wireless (Bluetooth) Activation  
Man Down Functionality  
870 Channel Capacity

RECEIVER - TYPICAL PERFORMANCE SPECIFICATIONS					
		700/800	VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandsplits	700 MHz 800 MHz	763-776 MHz 851-870 MHz	136-174 MHz	380-470 MHz	450-520 MHz
Channel Spacing		25/12.5 kHz	30/25/12.5	25/12.5 kHz	25/12.5 kHz
Maximum Frequency Separation		Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Audio Output Power at Rated <sup>1</sup>		500mW	500mW	500mW	500mW
Frequency Stability <sup>1</sup> (-30°C to +60°C; +25°C Ref.)		±0.00010 %	±0.00010 %	±0.00010 %	±0.00010 %
Analog Sensitivity <sup>3</sup>	12 dB SINAD	0.266µV	0.216µV	0.234µV	0.234µV
Digital Sensitivity <sup>4</sup>	1% BER (800 MHz) 5% BER	0.400µV 0.266µV	0.277µV 0.188µV	0.307µV 0.207µV	0.307µV 0.207µV
Selectivity <sup>1</sup>	25 kHz channel 12.5 kHz channel	76 dB 67 dB	76 dB 70 dB	76 dB 67 dB	76 dB 67 dB
Intermodulation		75 dB	76 dB	77 dB	77 dB
Spurious Rejection		76.6 dB	85 dB	80.3 dB	90 dB
FM Hum and Noise	25 kHz 12.5 kHz	-53 dB -47 dB	-51 dB -45 dB	-50 dB -45 dB	-50 dB -45 dB
Audio Distortion <sup>1</sup>		1.00%	1.00%	1.00%	1.00%

**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/Basic Hot	501.5	I/A1, II/A2
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	510.1	1 Proc	510.2	II	510.3	II	510.4	II	510.5	II
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	516.3	IV	516.4	IV	516.5	IV	516.6	IV

**GPS SPECIFICATIONS**

Channels	12
Tracking Sensitivity	-159 dBm
Accuracy <sup>5</sup>	<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**

	Inches	Millimeters
Length	5.26	133
Width Push-To-Talk button	2.37	60.2
Depth Push-To-Talk button	1.72	43.6
Width Top	2.56	65
Depth Top	2.13	43
Weight of the radios without battery	9.17 oz	260 g

**ENCRYPTION**

Supported Encryption Algorithms	ADP, AES, DES, DES-XL, DES-OFB, DVP-XL
Encryption Algorithm Capacity	Single Algorithm
Encryption Keys per Radio	Module capable of storing 1024 keys. Programmable for 64 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

**ENVIRONMENTAL SPECIFICATIONS**

Operating Temperature <sup>6</sup>	-30°C / +60°C
Storage Temperature <sup>6</sup>	-40°C / +85°C
Humidity	Per MIL-STD
ESD	IEC 801-2 KV
Water and Dust Intrusion	IP67
Housing Availability	Black only

<sup>1</sup> Measured in the analog mode per TIA / EIA 603 under nominal conditions

<sup>2</sup> When used with an FM approved intrinsically safe radio

<sup>3</sup> Measured conductively in analog mode per TIA / EIA 603 under nominal conditions.

<sup>4</sup> Measured conductively in digital mode per TIA / EIA IS 102.CAAA under nominal conditions.

<sup>5</sup> Accuracy specs are for long-term tracking (95th percentile values >5 satellites visible at a nominal -130 dBm signal strength).

<sup>6</sup> Temperatures listed are for radio specifications. Battery storage is recommended at 25°C, ±5°C to ensure best performance.

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

For more information, please visit [www.motorola.com/caribbean/astro](http://www.motorola.com/caribbean/astro)

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