Data Sheet

# APX™ 1000i

## Single-band P25 portable two-way radio


Product shown with optional stubby antenna

## Features and benefits

- Dual-Knob Solution
- Available in 700/800 MHz, UHF R1, UHF R2, VHF
- Supports:
  - APCO P25 Conventional
  - APCO P25 Phase 1 FDMA Trunking, Phase 2 TDMA Trunking
  - SmartNet® , SmartZone®, SmartZone Omni link
- Narrow and wide bandwidth digital receiver (6.25 kHz equivalent/ 12.5 kHz/ 25 kHz)[1]
- Embedded digital signaling (ASTRO and ASTRO 25)
- Available in models 2 and 3
- Radio Profiles
- Unified Call List
- User-programmable Voice Announcement
- Instant Recall
- Meets Applicable MIL-STD-810C, D, E, F and G
- Full Portfolio of Accessories, including IMPRES batteries, chargers and audio devices[2]

## Standard features

- Operational-Critical Wireless Bluetooth® 4.0 (LE)[3]
- Emergency Find Me
- ASTRO 25 Integrated Voice & Data
- Integrated GPS/GLONASS for Outdoor Location-Tracking
- Single-Key Advanced Digital Privacy (ADP) Encryption
- IP68 submersion (2 meters, 2 hours)
- IMPRES Battery (PMNN4491B)
- Embedded digital signaling (ASTRO and ASTRO 25)
- Text Messaging
- Software key

## Programming

- Utilizes Windows 7, 8 and 10 Customer Programming Software (CPS) with Radio Management

## Optional features

- AES 256-bit Software Encryption (AES-256)
- Enhanced Data
- Enhanced Noise Suppressor (Highly Recommended)
- Multi-Key
- Programming Over Project 25 (OTAP)
- RFID Volume Knob (Accessory only)
- Mission Critical Geofence
- P25 Authentication
- Digital Tone Signaling
- UL-certified

[1] Per the FCC Narrowbanding rules, new products submitted for FCC certification after January 1, 2011 are restricted from being granted certification at 25 kHz for United States - State and Local Markets only.

[2] Chargers and batteries for APX 1000 will interoperate with APX 1000i

[3] Compatible with BT 2.1, HSP, PAN, DUN and SPP Profiles found in off-the-shelf Bluetooth accessories and Bluetooth 4.x

MOTOROLA SOLUTIONS

## TRANSMITTER- TYPICAL PERFORMANCE SPECIFICATIONS

| | 700/800 MHZ | UHF RANGE 1 | UHF RANGE 2 | VHF |
|---|---|---|---|---|
| Frequency Range/Bandsplits | 764-776 MHz<br>794-806 MHz<br>806-824 MHz<br>851-870 MHz | 380-480 MHz | 450-520 MHz | 136-174 MHz |
| Channel Spacing[4] | 12.5/20/25 kHz | 12.5/20/25 kHz | 12.5/20/25 kHz | 12.5/20/25 kHz |
| Maximum Frequency Separation | Full Bandsplit | Full Bandsplit | Full Bandsplit | Full Bandsplit |
| Rated RF Output Power Adj[1] | 700 MHz 1-2.5 W<br>800 MHz 1-3 W | 1-5 W | 1-5 W | 1-5 W |
| Frequency Stability<br>(-30 °C to +85 °C; +25 °C Ref.) | ±1.0 ppm | ±1.0 ppm | ±1.0 ppm | ±1.0 ppm |
| Modulation Limiting<br>(12.5/20/25 kHz) | ± 2.5/4/5 kHz | ± 2.5/4/5 kHz | ± 2.5/4/5 kHz | ± 2.5/4/5 kHz |
| Audio Response[1] | +1, -3 dB | +1, -3 dB | +1, -3 dB | +1, -3 dB |
| Emissions[1]<br>(conducted and radiated) | 75 dBc | 75 dBc | 75 dBc | 75 dBc |
| FM Hum & Noise<br>(12 5/25 kHz) | 45/47 dB | 45/47 dB | 45/47 dB | 45/47 dB |
| Audio Distortion[1] (25 kHz) | 1.00% | 1.00% | 1.00% | 1.00% |

## RECEIVER- TYPICAL PERFORMANCE SPECIFICATIONS

| | | 700/800 MHZ | UHF RANGE 1 | UHF RANGE 2 | VHF |
|---|---|---|---|---|---|
| Frequency Range/Bandsplits | | 764-776 MHz<br>851-870 MHz | 380-480 MHz | 450-520 MHz | 136-174 MHz |
| Channel Spacing | | 12.5/20/25 kHz | 12.5/20/25 kHz | 12.5/20/25 kHz | 12.5/20/25 kHz |
| Maximum Frequency Separation | | Full Bandsplit | Full Bandsplit | Full Bandsplit | Full Bandsplit |
| Audio Output Power<br>@ 1 % Audio Distortion<br>(Rated Power)<br>@ 3% Audio Distortion<br>(Max Power) | | 500 mW<br><br>1W | 500 mW<br><br>1W | 500 mW<br><br>1W | 500 mW<br><br>1W |
| Frequency Stability (-30 °C to<br>+85 °C; +25 °C Ref.) | | ±1.0 ppm | ±1.0 ppm | ±1.0 ppm | ±1.0 ppm |
| Analog Sensitivity[3]<br>Digital Sensitity[4] | 12 dB SINAD<br>1% BER<br>5% BER | 0.250 µV<br>0.400 µV<br>0.250 µV | 0.234 µV<br>0.307 µV<br>0.207 µV | 0.234 µV<br>0.307 µV<br>0.207 µV | 0.216 µV<br>0.277 µV<br>0.188 µV |
| Selectivity[1]<br>(12.5/25 kHz) | | -67/-76 dB | -67/-76 dB | -67/-76 dB | -70/-76 dB |
| Intermodulation | | 75.0 dB | 77.0 dB | 77.0 dB | 79.5 dB |
| Spurious Rejection | | 76.6 dB | 80.3 dB | 80.3 dB | 79.3 dB |
| FM Hum & Noise<br>(12 5/25 kHz) | | -47/-53 dB | -45/-50 dB | -45/-50 dB | -45/-51 dB |
| Audio Distortion[1]<br>(12 5/25 kHz) | | 1.00% | 1.00% | 1.00% | 1.00% |



| RADIO MODEL | | |
|---|---|---|
| | MODEL 2 | MODEL 3 |
| Display | Full bitmap color LCD display, 3 lines of text x 14 characters, 1 line of icons, 1 menu line x 2 menus, White backlight | |
| Keypad | Backlit keypad, 2 soft keys, 4-direction navigation key, Home and Back buttons | Backlit keypad, 2 soft keys, 4-direction navigation key, 4x3 keypad, Home and Back buttons |
| Channel Capacity | 512 | |
| FLASHport Memory | 2 GB | |
| VHF | H92KDF9PW6ANI | H92KDH9PW7ANI |
| UHF Range 1 (380-480 MHz) | H92QDF9PW6ANI | H92QDH9PW7ANI |
| UHF Range 2 (450-520 MHz) | H92SDF9PW6ANI | H92SDH9PW7ANI |
| 700/800 MHz | H92UCF9PW6ANI | H92UCH9PW7ANI |
| Buttons & Switches | PTT button • Two-knob (volume + channel/talkgroup) • Orange emergency button • 3 programmable side buttons | |

| BATTERIES FOR APX 1000i | | | | |
|---|---|---|---|---|
| BATTERY CAPACITY / TYPE | DIMENSIONS (H X W X D) | WEIGHT | BATTERY PART NUMBER | BATTERY CAPACITY |
| IMPRES Standard Li-Ion 2100 mAh, slim high density battery (IP68) | 113 x 52 x 18 mm | 135 g | PMNN4491_ | 2100 mAh |
| IMPRES Hi-Cap Li-Ion 3000 mAh battery, low voltage (IP68) | 113 x 52 x 23 mm | 155 g | PMNN4493_ | 3000 mAh |
| IMPRES Hi-Cap Li-Ion 2900 mAh low voltage battery (IP68, UL-rated[6]) | 113 x 52 x 23 mm | 210 g | PMNN4489_ | 2900 mAh |

| BLUETOOTH | |
|---|---|
| Version | Bluetooth 4.0 (LE) |
| Encryption | 96-bit for pairing<br>128-bit for voice, data and signaling |
| Connections | Up to 6 data + 1 audio |

| DIMENSIONS: RADIO WITH BATTERY | | |
|---|---|---|
| | STD BATTERY | HI-CAP BATTERY |
| Length | 5.1 in (130 mm) | 5.1 in (130 mm) |
| Width | 2.2 in (55 mm) | |
| Thickness | 1.4 in (36 mm) | |
| Weight | 11 oz (315 g) | |

| GPS/GNSS SPECIFICATIONS | |
|---|---|
| Constellations | GPS and GLONASS |
| Tracking Sensitivity | -154 dBm |
| Accuracy[5] | <10 m (95%) |
| Cold / Hot Start | <60 / <5 s (95%) |
| Mode of Operation | Autonomous (non-assisted) GPS |

| ENCRYPTION | |
|---|---|
| Supported Encryption Algorithms | Advanced Digital Privacy (ADP), AES 256-bit Software Encryption |
| Encryption Keys per Radio | 48 |
| Encryption Frame Re-sync Interval | P25 CAI 360 ms |
| Encryption Keying | Key Loader |
| Vector Generator | National Institute of Standards and Technology (NIST) approved random number generator |
| Encryption Type | Digital |
| Key Storage | Non-volatile Memory |
| Key Erasure | Keyboard Command |
| Standards | FIPS 140-3 Level 1; FIPS 197 |

| ENVIRONMENTAL SPECIFICATIONS | |
|---|---|
| Operating Temperature | -30 °C to +60 °C |
| Storage Temperature[6] | -40 °C to +85 °C |
| Humidity | Per MIL-STD |
| ESD | IEC 61000-4-2 |
| Water and Dust Intrusion | IP68 (2 meters, 2 hours) |
| Housing Color Availability | Black only |

| PORTABLE MILITARY STANDARDS 810 C, D, E, F AND 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 | 1 Proc | 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 | 516.3 | I, VI | 516.4 | I, VI | 516.5 | I, VI | 516.6 | I, VI |
| Shock (Drop) | 516.2 | II | 516.2 | IV | 516.4 | IV | 516.5 | IV | 516.6 | IV |

[1] Measured in the analog mode per TIA/ EIA 603 under nominal conditions

[2] When used with an UL-approved intrinsically safe radio

[3] Measured conductively in analog mode per TIA/ EIA 603 under nominal conditions.

[4] Measured conductively in digital mode per TIA/ EIA IS 102.CAM under nominal conditions.

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

[6] 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.

To learn more, visit:
**www.motorolasolutions.com/apx**

MOTOROLA SOLUTIONS

Motorola Solutions, Inc. 500 West Monroe Street, Chicago, IL 60661 U.S.A. **motorolasolutions.com**

**Available in Australia and Europe.**