

One of M/A-COM's latest generation software-defined digital radios, the P7100^{IP} is designed to excel in the challenging public safety environment. The P7100^{IP} portable is a digital two-way radio that operates in multiple applications – Enhanced Digital Access Communications System (EDACS) or ProVoice trunked modes, Project 25 digital trunked mode, and conventional analog mode. A rugged and lightweight mechanical package ensures that the P7100^{IP} will stand up to rough handling and be ready when needed in critical situations.



P7170^{IP}

P7150^{IP}

P7130^{IP}

Product Overview

The P7100^{IP} portable provides digital voice and IP data for the critical communication demands of public safety users.

One Radio – Multiple Applications

The P7100^{IP} uses a high-speed digital signal processor and the latest RF components to support multiple applications in one package:

- Project 25 Digital Conventional
- P25 Trunking
- ProVoice Digital Trunking
- EDACS Trunking (Aegis[™] is optional)
- DES Encryption
- Advanced Encryption Standard (AES) for P25
- Complete Analog Conventional features

Maximum RF Performance

The radio operates over the entire VHF band from 136 to 174 MHz, including 7.5 kHz offset channels, and combines digital and analog operation in one radio. Such versatility maximizes interoperability.

- TIA-603 compliance – the highest analog RF performance
- TIA-102 Class-A compliance – the highest level of P25 RF performance available on the market

Lightweight with Heavy-Duty Performance

The P7100^{IP} is more than just new electronics and software, it is the most robust mechanical package ever offered in a M/A-COM portable radio.

- MIL-STD-810F rugged – including 1-meter drop per TIA (even the knobs)
- Optional Immersion – 1 meter for 4 hours per MIL-STD-810F
- Non-Slip grips on the side

- Knobs with large blades for excellent tactile feel, yet rounded and with set-screws to prevent accidental changes
- Tx/Rx LED and improved clarity display for more visible signaling (including new features such as a battery-level gauge)
- Large speaker and amplified microphone for loud and clear audio
- At 21 ounces with battery, the same weight as an LPE-200[™] or M-RK[™]
- Intrinsically safe certification (optional)
- Jaguar[™] accessory compatibility – including batteries, chargers, vehicular chargers, carrying accessories, and audio accessories.

Flexible and Efficient Design

With the software-based design, the P7100^{IP} portable is readily configurable and easily expandable with software upgrades.

- Stores up to 1,024 trunked system/group combinations and up to 1,024 conventional channels
- Stores 99 individual call numbers and 99 telephone numbers in memory
- ProFile[™] offers easy over-the-air programming for efficient updates
- ProScan[™] provides smooth, automatic roaming between sites
- Full conventional feature set, including dual priority scan and various tone signaling formats
- EDACS Security Key (ESK) prevents unauthorized users from programming radios or accessing the system.

Advanced Digital Voice

The P7100^{IP} portable is available with M/A-COM's third-generation digital voice technology, ProVoice. ProVoice utilizes the acclaimed IMBE[™] vocoder to allow the P7100^{IP} portable to deliver exceptional voice quality in areas where the repeater signal strength is weak.

Radio TextLink Text Messages

With this option, users may receive, display, and respond to text messages sent from authorized users on the ProVoice, EDACS, or P25^{IP} network. This feature improves real-time situation intelligence and communications among first responders while also providing the capability to leave messages with users that are actively engaged in other critical activities.

Project 25 Interoperability

The P7100^{IP} portable is Project 25 compliant and provides P25 trunking and P25 digital conventional operation. The portable facilitates digital interoperability with other Project 25 users during critical communications situations. The P7100^{IP} portable is capable of supporting ProVoice or EDACS and P25 simultaneously.

For More Information

For more information about this or any other M/A-COM Wireless Systems product, call toll free in the U.S. 800-368-3277. From outside the U.S. call 1-434-455-9223 (Asia Pacific), 1-434-455-9229 (Latin America and Middle East), and 1-434-455-9219 (Europe).

General Specifications

P7100^{IP} Portables are available in 3 models:

P7170^{IP}: System Model with LCD and DTMF keypad

P7150^{IP}: Scan Model with LCD and limited keypad

P7130^{IP}: Select Model with LCD and no front keypad

Dimensions (H x W x D):

(Without Knobs and Antenna)

With battery:

6.75 x 2.58 x 1.79 in.

(171.4 x 65.5 x 44.7 mm)

Weight (with Battery):

NiCd: 21.3 oz (604g)

NiMH: 22.3 oz (633g)

Input Voltage:

7.5 VDC (nominal)

Vibration:

5 G (per U.S. Forest Service)

Shock:

1 meter drop (per TIA/EIA-603-A)

Immersion*:

1 meter for 4 hours with 49°F (27°C) differential (MIL-STD-810F)

*P7100^{IP} immersion model only.

Battery Life (at 5% Tx, 5% Rx, and 90% standby):

NiCd: 8 hours (1600 mAh)

NiMH: 11 hours (2400 mAh)

Operating Temperature Range:

NiCd: -22 to +140°F

(-30 to +60°C)

NiMH: +14 to +122°F

(-10 to +50°C)

Relative Humidity:

90% @ 122°F (+50°C)

Altitude:

Operational: 15,000 ft (4,572 m)

In Transit: 50,000 ft (15,240 m)

Color (case):

Black

Options and Accessories

Headset, earpiece, speaker microphones, PC programming software and cables, subminiature surveillance accessories, antennas, cases, straps, belt loops and swivel mounts, desk chargers, wall chargers, and vehicular chargers.

Intrinsically Safe Options

Factory Mutual Intrinsically Safe for Class I, II, and III, Division 1, Groups C, D, E, F, and G, Temp T3C, TA=+60°C; Nonincendive for Class I, Division 2, Groups A, B, C, and D, Temp T4, TA=+60°C.

CSA Intrinsically Safe for Class I, Groups C and D; Class II, Group G (Coal Dust); Class III; Nonincendive for Class I, Division 2, Groups A, B, C, and D.

Encryption Standards

FIPS 140-2 Level 2 for P7170^{IP}

FIPS 140-2 Level 1 for P7150^{IP} and P7130^{IP}

Transmitter

	VHF Typical Performance Specifications
Frequency Range (MHz):	136-174
Rated RF Power (W):	1, 5
Frequency Stability (-30 to +60°C; +25°C Ref) (ppm):	±1.5
Frequency Separation (MHz):	Full Bandwidth
Modulation Deviation (kHz):	5.0 (wideband), 2.5 (narrowband)
FM Hum and Noise (Companion Receiver) (dB):	-44 (wideband), -39 (narrowband)
Spurious and Harmonics (dBm/dBc):	-38/-75
Audio Response (dB):	+1/-3
Audio Distortion (1 kHz tone):	1% (3 kHz deviation (wideband)) 1% (1.5 kHz deviation (narrowband))
Project 25 Modulation Fidelity (%):	<5
Project 25 ACP (dBc):	>67

Receiver

	VHF Typical Performance Specifications
Frequency Range (MHz):	136-174*
Frequency Separation (MHz):	Full Bandwidth
Channel Spacing (kHz):	25/30 (wideband), 12.5/15 (narrowband)
Frequency Stability (-30 to +60°C; +25°C Ref) (ppm):	±1.5
Sensitivity (12 dB SINAD) (µV/dBm):	0.20/-121
Squelch Sensitivity (dB SINAD):	8 ± 2
Adjacent Channel Selectivity (dB):	79 @ ±25 kHz (wideband) 66 @ 12.5 kHz (narrowband)
Intermodulation (dB):	77
Spurious and Image Rejection (dB):	80
Audio Output (mW):	500 rated (1390 maximum)
Audio Distortion:	1.5% @ rated power
Project 25 Reference Sensitivity (µV/dBm):	0.20/-121
Project 25 Adjacent Channel Rejection (dB):	>60

*The following self-quieting frequencies cannot be programmed as receive frequencies: 144.000, 153.600, 163.200, and 172.800 MHz.

Environmental Specifications

Standard	Parameter	Methods & Procedures
MIL-STD-810F*	Low Pressure	500.4/1,2
	High Temperature	501.4/1,2
	Low Temperature	502.4/1,2
	Temperature Shock	503.4/1
	Solar Radiation	505.4/2
	Blowing Rain	506.4/1
	Humidity	507.4
	Salt Fog	509.4
	Blowing Dust	510.4/1
	Immersion**	512.4/1
	Vibration (Minimum Integrity)	514.5/1, Category 24
	Vibration (Basic Transportation)	514.5/1, Category 4
	Shock (Functional/Basic)	516.5/1
	Shock (Transit Drop)	516.5/4
IP67	Dust-tight and Water Immersion	IEC 60529
U.S. Forest Service	Vibration (10-60 Hz)	USDA LMR Standard, Section 2.15
TIA/EIA-603-A	Shock	Paragraph 3.3.5.3

*Also meets equivalent superseded MIL-STD-810C, -D, and -E.

**P7100^{IP} immersion model only.

Digital Operation

Vocoding Method:	Improved MultiBand Excitation (IMBE)
Data Rate:	9600 bps
Modulation:	GFSK for ProVoice, C4FM for P25

Regulatory Data

Frequency Range (MHz)	RF Output (W)	Frequency Stability (ppm)	FCC Type Acceptance Number	Applicable FCC Rules	Industry Canada Certification Number	Applicable Industry Canada Rules	NTIA Certification Number
136-174	1-5	1.5	OWDTR-0013-E	15, 22, 74, 80, 90	3636B-0013	RSS-119 RSS-182	JF-1208072



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