

M/A-COM's latest generation software-defined digital radio, 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 new 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
- New Advanced Encryption Standard (AES) for P25
- Complete Analog Conventional features

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 800 trunked system/group combinations and up to 400 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.

Text Messages

With this option, users may receive, display, and respond to text messages sent from authorized users on the EDACS 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

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 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. 1-800-368-3277. 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:

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.

Transmitter

	800
Frequency Range (MHz):	806-825, 851-870
Rated RF Power Trunked (W):	1, 3
Rated RF Power Talkaround (W):	1, 3
Frequency Stability (-30 to +60°C; +25°C Ref) (ppm):	±1.5
Modulation Deviation (kHz):	±5.0 (±4.0 NPSAPC)
FM Hum and Noise (Companion Receiver) (dB):	<-40 (non-NPSAPC), <-38 (NPSAPC)
Audio Response (dB):	+1/-3
Spurious and Harmonics (dBm/dBc):	<-16/-51
Frequency Separation (MHz):	Full bandwidth
Audio Distortion:	<3% (1 kHz tone @ 3 kHz deviation (non-NPSAPC)) <3%, (1 kHz tone @ 2.4 kHz deviation (NPSAPC))
P25 Modulation Fidelity (%):	<5
P25 Adjacent Channel Power (dBc):	>67

Receiver

	800
Frequency Range (MHz):	851-870*
Channel Spacing (kHz):	25/NPSAPC
Sensitivity (12 dB SINAD) (µV/dBm):	0.28/-118
P25 Reference Sensitivity (dBm):	<-116
Adjacent Channel Rejection @ 25 kHz (dB):	>72
P25 Adjacent Channel Rejection @ 12.5 kHz (dB):	>60
Offset Channel Selectivity @ NPSAPC (dB):	>20
Intermodulation (dB):	>72
Spurious and Image Rejection (dB):	>70
Frequency Stability (-30 to +60°C; +25 Ref) (ppm):	±1.5
Frequency Separation (MHz):	Full bandwidth
Rated Audio Output (mW):	500
Audio Distortion:	<3% @ rated power

*The following self-quieting frequency cannot be programmed as a receive frequency: 864.000 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
806-869	1-3	1.5	OWDTR-0018-E	15, 90	3636B-0018	RSS-119
806-869	1-3	1.5	OWDTR-0023-E	15, 90	3636B-0023	RSS-119

M/A-COM Wireless Systems

P. O. Box 2000
Lynchburg, Virginia 24501
Phone: 1-800-368-3277
www.macom-wireless.com

EDACS is a registered trademark and ProVoice, ProFile, Aegis, and ProScan are trademarks of M/A-COM, Inc. All other trademarks are the property of their respective manufacturers.

Copyright © 2005 M/A-COM, Inc. All rights reserved.