

*The Interoperability Gateway is a multi-channel analog voice interface for OpenSky, NetworkFirst, and Project 25 packet-switched digital networks. Its modular design supports up to 12 audio channels and is used to connect existing analog equipment, such as consoles and analog voice base stations, to the Internet Protocol (IP) digital network.*



## Product Overview

The Interoperability Gateway is a software-based multi-channel codec module designed to interface the IP digital network with analog equipment. Applications include connection to dispatch console equipment and to analog voice base station equipment. In both cases, control of the Interoperability Gateway is implemented in software and may be customized easily for specific requirements.

### Dispatch Console Interface

Each Interoperability Gateway receives and transmits packetized digital voice over a serial link IP (SLIP) interface for connection through an access server to the Ethernet backbone.

Interoperability Gateway modules offer a 4-wire balanced line level interface for the audio connection. Audio amplitude may be adjusted under software control, and signaling lines are opto-isolated and may be operated in "open collector" mode.

### Interoperability

When used to provide interoperability with other communications systems, network users are automatically connected to legacy system users by selecting them as designated voice groups. This provides capabilities for cross-band inter-system operation.

### Digital Voice Coding

Digitized voice within the digital network is coded using Advanced Multiband Excitation (AMBE™) or Improved Multiband Excitation (IMBE™). AMBE/IMBE digital voice is then encapsulated into IP packets and sent along with control messages into the IP digital network.

### Hardware Design

The Interoperability Gateway is a rack-mounted card cage designed to accept multiple VME circuit cards. It contains an integrated power supply and

provides forced ventilation for up to 12 Interoperability Gateway cards.

The Interoperability Gateway uses a VME-based backplane design for power and signal routing, and offers rear mounting expansion slots for additional interface expansion.

### PSTN Interconnection

The Interoperability Gateway is available with an optional Public Switched Telephone Network (PSTN) interface which provides telephone interconnect capability for mobile and portable users.

### 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).

## OpenSky

M/A-COM's OpenSky Wireless Private Network is a fully interoperable digital trunked communications network for public safety, utility, federal, transit, and industrial markets. OpenSky is a complete end-to-end Voice over Internet Protocol (VoIP) solution and employs packet technology to provide integrated voice and data. The OpenSky radio network is the only private land mobile radio communications system that provides clean integration of data messaging with trunked digital voice on the same RF channel. Integrated voice and data over Time Division Multiple Access (TDMA) allows users to perform multiple communication functions at the same time on one radio. The use of TDMA doubles call capacity by allowing two simultaneous voice calls per 25 kHz channel.

## NetworkFirst

Public safety communications in today's world faces unprecedented challenges. More than ever, Homeland Security and Situation Readiness depend heavily on effective communication among federal, state, county, and local agencies. M/A-COM's NetworkFirst answers the call for an emergency communications network that provides local, regional, state, and even nationwide connectivity. NetworkFirst uses cost-effective Internet Protocol (IP) packet switched technologies to provide a fast, cost-effective means of achieving multi-agency interoperability, regardless of radio type, frequency, or mode. NetworkFirst creates the most technologically advanced permanent communications network available in the industry today, providing a technology backbone that is extremely flexible, allowing communications requirements to expand – without a wholesale system changeout.

## P25<sup>IP</sup>

M/A-COM's P25<sup>IP</sup> (P25 to the power of IP) is the first completely Internet Protocol (IP)-based mobile radio communications system developed for users requiring the secure digital voice and data capabilities of Project 25 (P25). P25<sup>IP</sup> is part of a portfolio of solutions that M/A-COM offers for wide-area communication systems – each of which is capable of meeting the communications requirements of public safety, public service and first responders. Within the M/A-COM portfolio, the P25<sup>IP</sup> network provides an excellent fit for those agencies which have lower user densities (few users covering larger geographic areas) but still require feature-rich secure voice and data communications. P25<sup>IP</sup> is also particularly appropriate for users operating with non-exclusive VHF and UHF frequencies. For federal users, P25<sup>IP</sup> meets the Congressional and NTIA mandates for the narrowband (12.5 kHz) migration.

## General Specifications

### Dimensions (H x W x D):

12.25 x 22 x 19.25 in.  
31.11 x 55.88 x 48.85 cm

### Rack:

Standard 19 inch

### Interoperability Gateway Codec Module

Option 1: With PSTN interface  
Option 2: With analog base station interoperability

### Connectors

DB-15: Isolated audio in/out and Tx/Rx signaling  
RJ45: Serial RS-232 interface  
RJ11: Telco jack  
Tri-color LEDs: Test (Tx/Rx), interface, network

### Audio

Audio I/O: Balanced transformer isolated  
Line Impedance: 600/10K ohm selectable  
Nominal Input Range: -40 to 0 dBm in 1.5 dB steps  
Nominal Output Range: -60 to 0 dBm in 1.5 dB steps  
Frequency Response: 300 Hz to 3.5 kHz  $\pm$  3.5 dB

### Communications

Data Interface: Multi-mode configurable as async RS-232 SLIP or ASCII  
Async Mode Data Rate: 38.4 kbps  
Remote Control: In-band over data network

### Interoperability Gateway Chassis Interface

Backplane Connectors: VME  
Power: 110 VAC nominal, 50-60 Hz  
Current Consumption: 2A maximum  
Cooling: Redundant forced air with exhaust at rear of chassis

### Environmental

#### Operating Temperature:

-22 to +140°F (-30 to +60°C)

#### Storage Temperature:

-40 to +158°F (-40 to +70°C)

#### Humidity:

Not to exceed 95% and relative humidity at 122°F (+50°C)

## M/A-COM Wireless Systems

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