



ACU-1000™

Interoperability NOW.™



With a growing focus on protecting our citizens and infrastructure, a coordinated command and control response has become a top priority for governments around the world. From homeland security to local public safety, from mission critical military applications to the latest commercial requirement, the ACU-1000 offers a robust and proven interoperability solution for incident command management.

Benefits

- Modular interoperability system employing proven JPS Radio over IP (RoIP) technology.
- Sophisticated DSP algorithms provide adaptive hybrid, VOX, VMR (voice modulation recognition), noise reduction, audio delay, and more.
- Easily deployed in tactical, transportable, fixed, and mobile applications.
- Remotely change radio channel with the purchase of channel changing option.
- ACU Controller software provides full system status and control from a PC, locally or remotely over an Ethernet network.
- Connects up to twelve (12) audio devices with the ability to expand to twenty-four (24) audio devices.

ACU-1000 Overview

The ACU-1000 offers unsurpassed local and wide area interoperability by directly connecting or networking any of the following devices:

- UHF, VHF, HF, P25 radios
- iDEN
- Cellular
- Land line telephones

The ACU-1000 enables communications between users of these devices by cross-connecting each device's base-band audio. The ACU-1000 offers a rich set of operational features and wide scale adaptability with virtually any voice communications device.

The ACU-1000 includes VoIP/RoIP technology to provide a means for regional, state, multi-state, and national interoperability. The unit is completely scalable and field configurable to meet the customer and application's needs

and it is easily controlled using the ACU Controller software provided. It provides three different methods of operation for system redundancy and is neither computer nor network dependent for its operation.

Local Interoperability Overview

During local response, first responders are responsible for ensuring real time communications across multiple platforms with a moments notice. They require an interoperable communications system that provides day-to-day operations along with meeting the demands of large scale incident management. The ACU technology provides a fast, reliable and easy-to-use solution that can be deployed to any scene and be operational within minutes. This rapid deployment capability, paired with the means for expansion, makes the ACU-1000 the preferred interoperability for local response.

Wide Area Interoperability

During times of national emergencies resulting from acts of terrorism or natural disasters, homeland security professionals should have the ability to communicate with onsite first responders, local and federal law enforcement, and other federal and state resources. The ACU-1000 leverages VoIP/RoIP technology to achieve a coordinated response regardless of geographical boundaries.

Multiple ACU-1000's can be integrated into a wide area interoperability system (WAIS) using a new or existing IP network. The WAIS Controller software provides an intuitive icon-based GUI to monitor and control local and wide area cross-connections by simple point-and-click procedures.

Solution Summary

- Voice prompts provide connection status and help guide operation
- Can interconnect radios in any band including HF, VHF, UHF, 800 trunked, P25; also cell phone, Landline PSTN, and iDEN
- Radio templates for supported devices simplify and speed system setup
- Connection to a Wide Area Interoperability System using the WAIS Controller

Applications

- Tactical
- Mobile
- Transportable
- Fixed Site
- Wide Area System

Mission Support

- 24/7 support
- Optional extended warranty (additional charge)
- Interface cables available for over 300 radio makes/models



Photo caption: Left: A typical ACU-1000 fixed site configuration. Top Right: ACU controller software. Bottom Right: WAIS controller software.

Local Operator Interface Module

Front Panel:	Handset jack, Headphone jack, Speaker, Volume, and Speaker on/off.
Voice Prompts:	English language standard, others available. 80 messages typical, 254 possible.
Keypad:	Provides manual ACU-1000 programming and local system control.

Control Module

Handset Interface:	RJ-12 Connector: Microphone input, Earphone driver, PTT input.
Interfaces:	Async Full Duplex RS-232, Baud Rates 300 bps to 115.2 kbps. RJ-45 Connector, 10/100 Base-T Ethernet.
Program and Control:	Ethernet (built-in web page), Telnet, RS-232, ACU Controller, WAIS Controller.

Radio/ 4-wire Interface Module

Audio Input:	Balanced or Unbal 600 ohms or Hi-Z; -46dBm to +12dBm levels; 100Hz to 3200Hz.
Audio Output:	Balanced or Unbal 600 ohms; -26dBm to +12dBm levels; 100Hz to 3200Hz.
Digital I/O:	COR/Squelch and AUX inputs, PTT and AUX outputs.
Serial Interface:	Async Full Duplex RS-232, Baud Rates 300 bps to 115.2 kbps. RJ-45 Connector, 10/100 Base-T Ethernet.
Configuration:	Ethernet (built-in web page), Telnet, RS-232, ACU Controller.
Algorithms:	VOX or VMR Voice Detection; Noise Reduction; DTMF; Audio Equalizer, Audio Delay and more.

Phone System Module

Phone Line:	RJ-11 Connectors ; -24 dBm to 0 dBm levels.
Algorithms:	DTMF Detection and Generation; DSP Adaptive Hybrid, DSP VOX, and Recorder Tones.

Local Phone Module

Phone Set Interface:	RJ-11 Connectors; -20 mA loop current; on/off hook detection; ring generator.
Call Progress Tones:	Dial, Busy, and Ringback tones.
Algorithms:	DTMF Detection; Adjustable-level VOX, Audio Delay.

General/Environmental

AC Input Power:	115/230 VAC ± 15% 47-63 Hz, 80 VA Typical, 100 VA Maximum.
DC Input Power:	+11 to +15 VDC @ 4A Nominal.
Size:	5.25" H x 19"W x 11"D (13.3 x 48.3 x 28 cm).
Temperature:	Operating: -20 to +60 degrees C. Storage: -40 to +85 degrees C.
Humidity:	Up to 95% @ 55 degrees C.

Raytheon Company
Civil Communications Solutions
 5800 Departure Drive
 Raleigh, NC 27616
 acu.sales@raytheon.com

www.raytheon.com
 Keyword: ACU