

iRIG

Intelligent Radio Interconnect Gateway

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Intelligent Radio Interconnect Gateway

The iRIG (Intelligent Radio Interconnect Gateway) represents a family of next generation IP based radio interconnect systems and components for use by Military, Paramilitary, Police and other Agencies to monitor, interconnect legacy radio-net system in difficult terrain. The system provides facility to bridge multiple radio-nets into single net and monitor the activities. The iRIG is a comprehensive solution to be installed in-vehicle or used as desktop solution for voice and optional data communication as well as tactical network connectivity. The system facilitates access of radio from longer distance to deceive the user location.

Designed and tested to MIL standards, the ruggedized iRIG interoperates with tactical as well as commercial radios. This allows setting up of joint-mission ops rooms to communicate with multiple agencies, field personnel, vehicles or command centers through HF, VHF, UHF, IP Radios.



Monitor Unit



IP Radio Interface Unit



Speaker Unit

iRIG with its built-in robust software-based noise-reduction technology and algorithm ensures clear voice and acoustic protection. As the iRIG can be used in high noise environment, it supports Active Noise Reduction (ANR) headsets with the monitor unit.

iRIG with built-in ED137-B/C protocol support, is capable of handling PTT/SQUELCH/COS-COR signal transport over RTP as well as secure RTP from IP radios. With its powerful voice processing library, it provides advanced voice features as noise reduction, VAD detection and voice enhancement facilities.

Applications

- Radio footprint reduction to set-up remote command ops room
- Deceive bunker/main deployment location
- Multiple radio-net interconnect to form single radio net and monitor
- Radio cross connect and monitor
- Virtual radio-bridge (Interconnection of radio nets over secure IP)
- Remote radio access over IP network
- Multicast RoIP – PTT/Squelch etc transmission using ED137B/C without SIP signaling
- Unicast RoIP – Faster PTT/Squelch/COR-COS transmission using ED137B/C without SIP
- Joint mission command operation

Functionality and features

- Cost effective, modular, scalable
- IP based broadband communication and networking
- Supports 1 Monitor, 1 speaker and 3 Radio interface Units to bridge 3 Radio nets with monitor facility
- All the Radio Interface units can be co-located or placed at different locations connected over IP network
- In-built VoX, VAD and noise cancellation
- Radio COR support for all radios
- Use of state of art, ANR headsets and regular passive headsets with Monitor unit for high noise environments
- All radio ports with data (RS232) interface for command and control
- Bridging or Independent selection and control of radio by Monitor unit
- Low power consumption by use of high efficiency power circuit and control circuits
- Compact, lightweight, ruggedized to suit mission critical requirements

Typical Applications

Application-1 : Remote Radio Net Interconnect – Radio bridge over IP

2 Radio nets at distant locations/cities can be interconnected with the help of iRIG. This way radio nets operating on 2 different radio frequencies or technologies stationed at distant remote locations can inter-operate by using iRIG RoIP gateway.



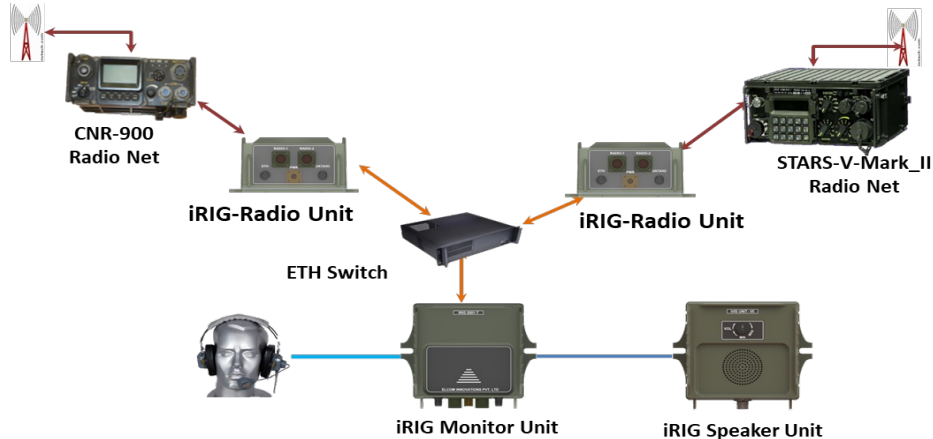
Application-2 : Remote Radio access – Fake/hide bunker location

A Radio can be accessed from a location up to 1 km distance over fibre or 2 wire ethernet using the radio monitor device with the help of iRIG. This way radio can be placed at far distance from the bunker to deceive bunker/deployment location.



Application-3 : Setting Up of Remote Ops/Control room

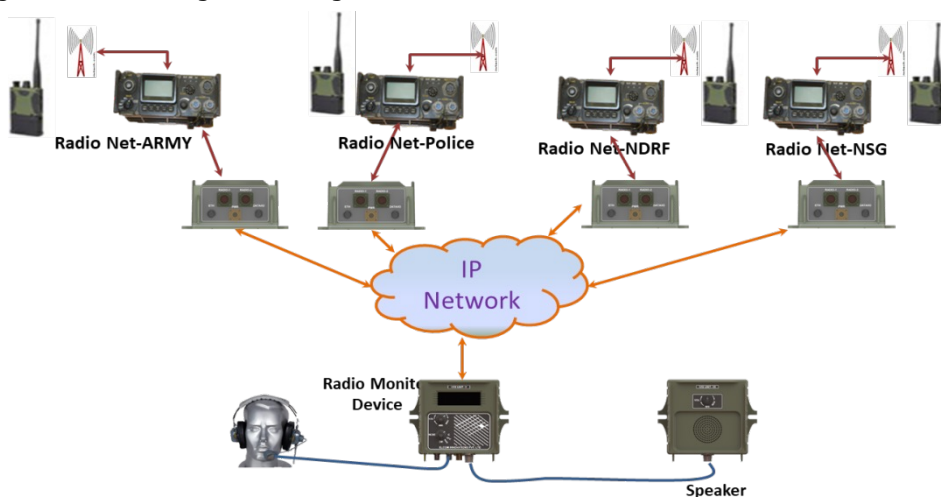
To hide the radio footprint for Ops room and allow access and monitor of various radios from Ops room, multiple radio can be interfaced and monitored from ops room using Radio Net Monitor device. Physically, radios can be distantly located from the ops room there is no radio footprint of actual ops room.



Application-4 : Joint Mission Command Operation

To manage and handle any emergency/disaster event, it involves many departments and individuals including disaster management services, fire services, medical services, police, field personnel and emergency managers in an office far away from the scene. Joint Command and operation in such a situation is always a challenge.

With iRIG RoIP gateway, municipal, state, federal, public safety, medical and paramilitary radios can all be plugged into the radio interface to allow joint communication instantly, in the field, without requiring much of cabling and configuration.



Specifications

System and Maintenance

Field scalable by use of add on/removal of units

Built In Test Equipment (BITE)

Built-in protections and filters

Monitor Unit

4x20 day visible OLED display

Option to bridge/un-bridge all the configured radios and monitor all radios

Direct selection and monitoring of desired radios in un-bridged mode

Option of up to multi position Radio selector for accessing Bridged and un-bridged Radio's

Rotary volume control for connected headset's volume control

Provision for connection to Speaker unit

Binaural headset compatibility

Ethernet connection to connect to IP network through ETH switch

IP Radio GW Unit

1 radio interfaces per unit

Interfaces with multiple types of HF/VHF/UHF legacy and CNR

Optional provision of RS232/485 interface for command and control

Ethernet connection to connect to IP network through ETH switch

Speaker Unit

Option of Speaker

Volume control for speaker volume

Connects to and powers from Monitor Unit

Power Supply

DC in (nominal) 24V DC

MIL-STD for iRIG

MIL-STD-810-G

MIL-STD-461-F

EN-61000-4-2

EN-61000-4-5

Interfaces/Cables

ETH-IN 100Base-T Ethernet

Radio One per Radio

Data/IO One per Radio

Power DC 24V power input

Headset For connection of headset

Protocol Support

Voice Codecs 16 bit Uncompressed, G.711 A/U.

Networking Support IPv4, TCP,UDP,ICMP,ARP

VoIP Protocol Stacks RTP, ED137

Radio Signalling Press To Talk (PTT), COS-COR signalling, VAD/VoX, Silence Suppression

Security (Optional) TLSv1.2, SRTP, mTLS

Environmental Compliance

Operating Temp. -30°C to +60°C

Storage Temp. -40°C to +71°C

Relative humidity 0 - 95 %

EMI/EMC MIL-STD-461E

Ruggedization MIL-STD-810G

Dimension (LxBxH)

Monitor, Radio Interface, Speaker units 147x156x84 mm
180x156x84 mm with mounting



Monitor Unit



IP Radio Interface Unit



Speaker Unit



Headset with PTT