



GCT - IP Link

Radio VoIP Gateway System



- **Transformer isolated 4-wire balanced audio**
- **Point to Point and Multi Point Architecture**
- **Embedded Call Manager for Automatic Call Routing**
- **Web browser Configuration**
- **DTMF Signalling**
- **Built in Dual SIM 3G/4G Modem with auto SIM change-over facility**
- **Up to 2 nos. of Serial Ports (Optional)**
- **Analogue & Digital IO Ports (Optional)**
- **LED Indications in Front Panel for various parameters.**
- **Optional Call Box & 4 Wire Phone interface available**

GCT-IP Link is a single channel frontend Radio Over IP (RoIP) device.

It provides Voice over IP (VoIP) communications between Land Mobile Radios, Telecom systems and various VoIP networked communication terminals over Internet or other TCP/IP networks.

The system is designed to support a variety of configurations, from simple point to point extension of radio network to complex networks for multi-site connectivity over intermediate links such as LAN, WAN, Internet.

GCT-IP Link integrates 1 Radio/Audio port, a VoIP Gateway, Client-Server, and Call Manager into a single compact, light weight and low power system.

It runs on embedded Linux platform & provide seamless network interface between radios using open standards Voice over IP technology. Version is available with 2 radio/audio ports.

The system has been designed to work on signaling schemes such as DTMF.

GCT-IP Link is capable of producing exceptional audio quality at a very low bandwidth.

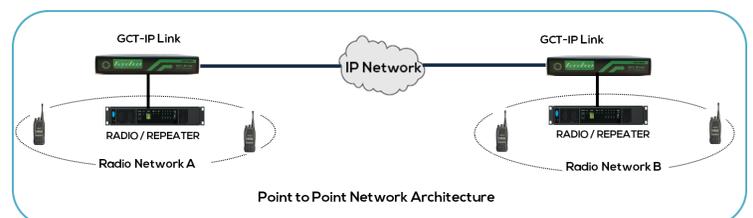
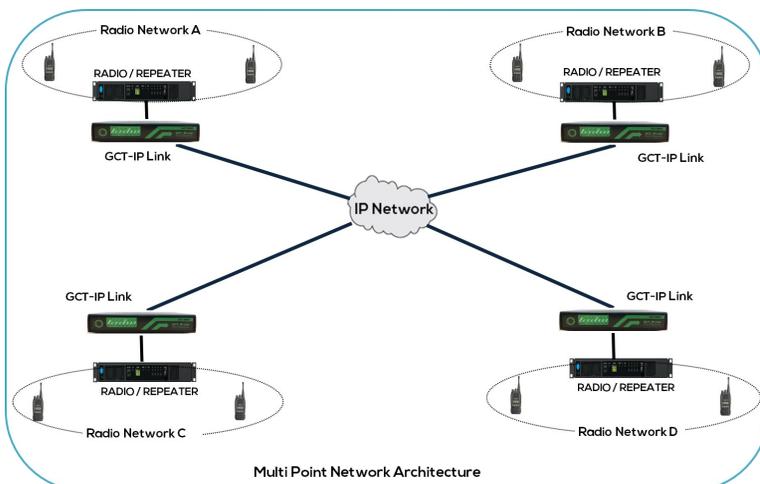
The system can operate with one static IP anywhere in the network and the balance nodes could use dynamic IP's.

GCT IP link has the provision of inbuilt dual 3G/4G engine with GPS/GNSS and auto network changeover facility. In case wired IP/ LAN / WAN link is not available, the device can work on 3G/4G network.

GCT-IP Link is configurable via in-built web server for system parameter configuration.

It also has a PC based Despatcher through which various RoIP Gateways in a network can be configured, monitored & managed with calling functionality.

The GCT IP link also has facility of Voice Recording of the Radio communication as a optional facility if required.



Features:

- Audio interface: 4 wire transformers isolated 600 Ω balanced audio interfaces
- Software adjustable Audio quality & Audio input /output gain
- 10/100 Base-T Ethernet port via RJ-45 connector
- Support for single Point to Point and distributed Multi-site Topology
- Multi site Configuration without any Central Server to avoid any single point of failure
- Supports Unicast (point-to-point) and Multicast (Point to Multipoint) communication
- Automated call routing feature allows networked user dial access to multiple radios networks and conference call
- Support DTMF signaling to connect or disconnect stations / nodes with just a few DTMF codes
- Optional inbuilt dual SIM 3G / 4G Modem with auto network change over facility. This modem comes with GPS/GNSS and Diversity Gain to resist fading and multipath effect in high speed motion
- Highly Secured Encrypted (TLS negotiation cypher suite with AES 128) data communication over IP network
- COS / PTT facility: Manual activation through optically isolated COS and PTT can be used to key the remote radios
- Voice Activity Detection (VAD)
- Voice Codec: Low-latency and high-quality Opus codec
- Silence suppression capability to reduce the amount of bandwidth used. Noise suppression to filter out distractions in the background and keep attention on the voice
- Jitter Buffer: To counter 'jitter' introduced by packet networks so that a continuous play-out of audio transmitted over the network can be ensured
- LED Indications in Front Panel for various parameters. Additional OLED display for Model with 3G/4G Modem
- Compact Transportable version & Mobile RoIP suitable for Vehicular applications also available.
- Versions available with Radio Channel Changer facility from Remote node. Channel changer is supported for radios having option for channel change.
- Optional ports available : Versions are available with 1 or 2 serial ports (RS232) and 4 Digital I/O ports(2 in /2 out). These can be used for remote Telemetry.

Technical Specifications:

- Maximum Network Loading: 16 – 32 kbps per channel (Typical) (64 kbps Max)
- Number of Radio ports supported: 1
- Power Input: 12 V DC Typical (10.8 V - 30 V Max) @750mA Max (2 A max, for Model with 3G /4G Modem & GPS)
- Connections:
 - Maintenance Port: Ethernet
 - Radio connection: 4 Wire transformers isolated 600 Ω balanced audio interfaces with PTT & Optically isolated COS Signaling
- Network: 10/100base-T Ethernet Port
- UART / Serial Server (Optional): 1 or 2 Asynchronous RS 232
- Digital I/O Port (Optional): Optically isolated 2 input & 2 output
- USB Port : 2 ; USB 2.0 type A Female ports
- Vocoder: Low-latency and High-quality Opus
- Security: TLS negotiation cypher suite with AES 128
- User Interface: Web based Graphical User Interface (GUI)
- Form Factor: Desktop
- Weight: Less than 1000 g
- Operating Temperature : 0°C - 55°C
- Humidity 0-95% non-condensing

All Specifications are subject to change without notice

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Emergency Control Communication

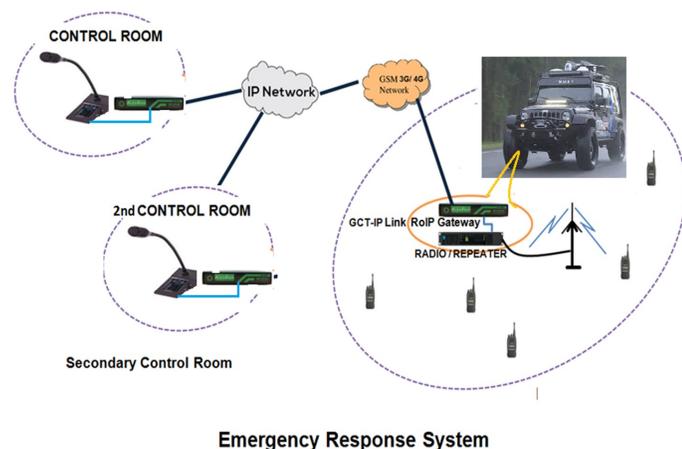
Mobile RoIP units with inbuilt 3G/4G engine could be used to transfer local Radio communication in and around these mobile units to distant Control Centre, when direct communication is not possible.

In this application, Control Room RoIP Gateway is connected to Internet. On the other side. Field mobile RoIPs are connected to 3G /4G cloud for wide area communication.

Mobile RoIP Gateway with internal dual SIM 3G/4G modem is interconnected to a Radio in the vehicle. At the Control room there would be a RoIP Gateway connected to the Voice Paging Console or another Radio. This RoIP gateway would be terminated to the internet cloud with a static IP.

Operators at control room can now talk through Voice Paging console or local Radio network to the remote radio network around the mobile RoIP unit.

Voice communication from the Control room would be transferred through the RoIP Gateway into the Internet Cloud and delivered through the 3G / 4G network to the mobile ROIP in the vehicle. Radio connected to the mobile RoIP would deliver this voice communication to it's local network. In this way, local radios in the vicinity of the vehicle can communicate to the Control room



Transportable Node

Transportable version is also available with Radio, RoIP, PSU, Battery and other accessories integrated in a compact rugged carrying case to act as a remote node.

Radios around these remote nodes can also communicate to each other through the telecom cloud or to the Control Center.



STATIC RoIP



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