GCT - IP Link

Radio VoIP gateway system

System Overview

Transformer isolated 4-wire audio

Voice Activity Detection (VAD)

Point to Point and Multipoint Architecture

DTMF Signalling

Embedded call manager for automatic call routing

Web browser configuration

GCT-IP Link provides voice over IP (VoIP) communications between mobile radio, telecom systems and VoIP networked communication terminals over internet or other TCP/IP networks. GCT-IP Link is a single channel frontend device.

GCT-IP Link is designed to supports a variety of configurations, from simple point to point extension of radio networks over Intermediate links such as LAN, Internet or satellite to complex networks of multi-site connectivity.

The system provides next generation radio and intercom communications capabilities while dramatically reducing size, weight and power requirements over previous generation technology.

GCT-IP Link integrates 1 Radio / Audio port, a VoIP Gateway, Client-Server, Communications switch and Call Manager into a single compact, light weight and low power system. It runs on embedded Linux platform and provide seamless interface between radios using open standards Voice over IP technology.

GCT-IP Link has been designed to work on signalling schemes such as DTMF .

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

The system analog radio/audio port feature transformer isolated 4-wire audio, Carrier Operated switching (COS) inputs and relay operated PTT transmit control.
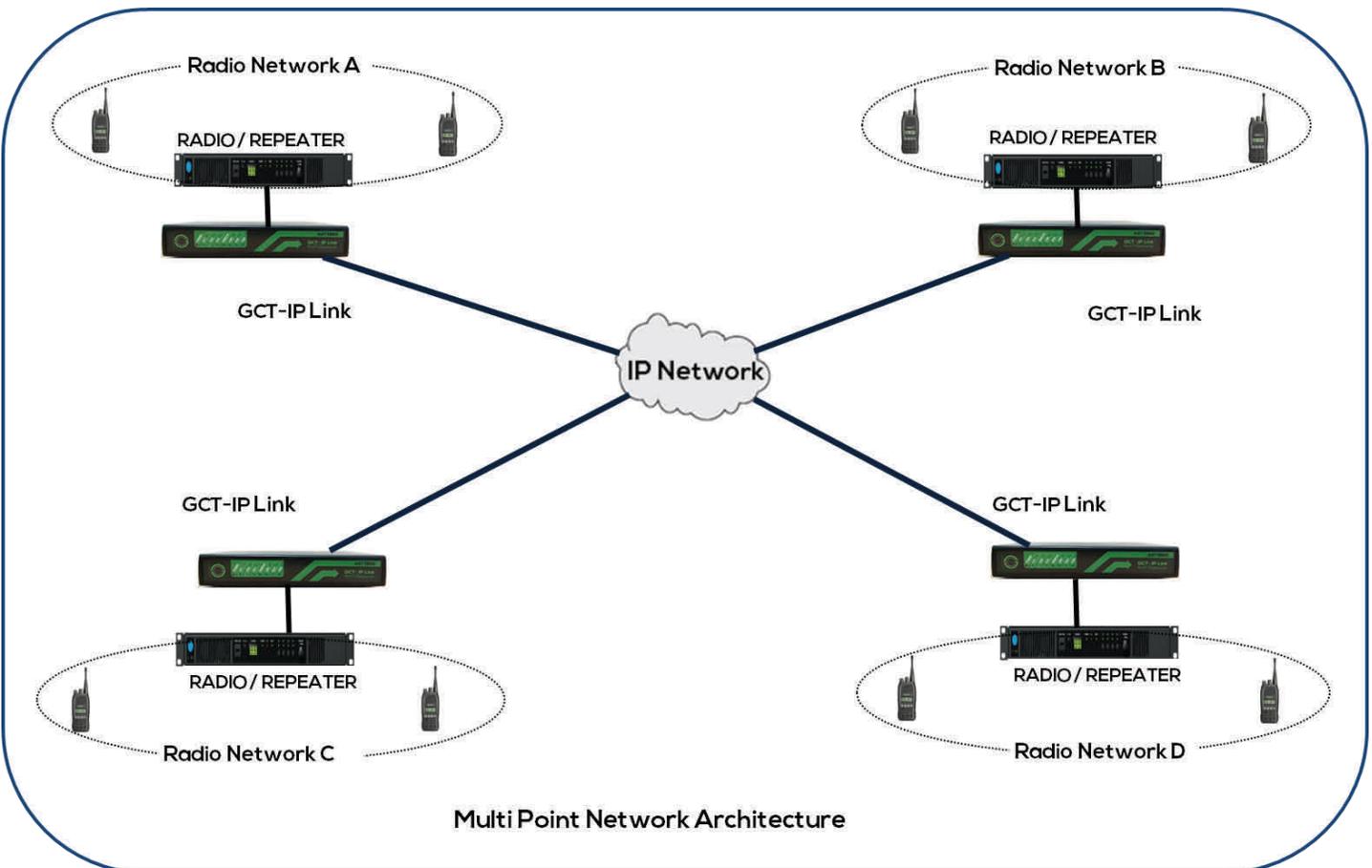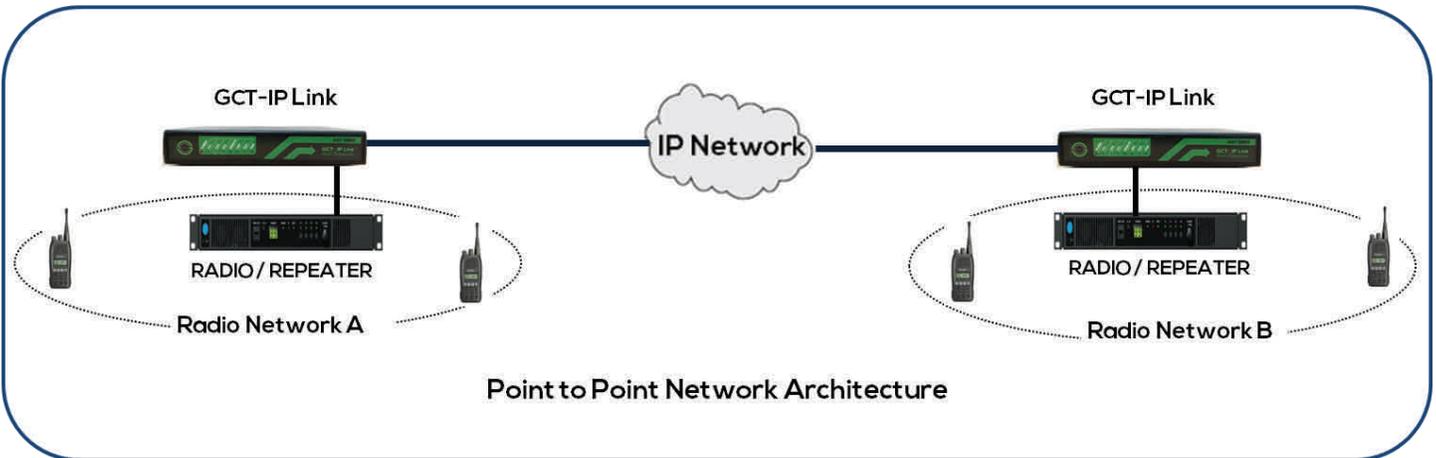
It also provides Voice Activity Detection (VAD). VAD is useful when connecting to communication equipments that do not provide a COS or Mute output. It performs a VOX function.

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

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VoIP Gateway :

The GCT –IP Link has built-in Gateway and Server capability which can handle a large number of nodes and an unlimited number of separate channels (peer to peer). This means that GCT-IP Link client has lower bandwidth requirements, compared to the centralized server based system. All voice communication over the network is full duplex.

GCT-IP Link — IP Network — GCT-IP Link

RADIO / REPEATER — Radio Network A

RADIO / REPEATER — Radio Network B

Point to Point Network Architecture

Radio Network A — RADIO / REPEATER — GCT-IP Link

Radio Network B — RADIO / REPEATER — GCT-IP Link

IP Network

GCT-IP Link — RADIO / REPEATER — Radio Network C

GCT-IP Link — RADIO / REPEATER — Radio Network D

Multi Point Network Architecture

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Features :

- Audio interface : 4 wire transformers isolated 600 Ω balanced audio interfaces

- Software adjustable audio quality

- Software adjustable Audio input and output gain

- 10/100 BaseT 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.

- Network link control: Enable or disable network linking with a DTMF command, i.e. capable of connecting to the target RoIP Converter / Gateways through DTMF code of respective site.

- 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. Conference with up-to 5 nodes under standard conditions

- Connect or disconnect stations or channels with just a few DTMF codes

- Supports Dispatcher based call management

- COS/PTT facility : Manual activation through COS and PTT can be used to key the remote radios

- Voice Activity Detection (VAD)

- Jitter Buffer: This is used to counter 'jitter' introduced by packet networks so that a continuous play-out of audio transmitted over the network can be ensured.

- Voice Codec: low-latency and high-quality Opus codec

- Highly Secured/Encrypted data communication (128 bit or 256 bit Encryption) over IP network

- LED Indications in Front Panel for various parameters.

- Multiple Serial ports : Versions are available with 1, 2 or 3 serial ports. The serial ports can be used to change channel of a remote radio which supports RS 232 base remote control. It can also be used to connect other serial devices such as M2M telemetry data for transmission over the IP network. This can be used for various applications to connect SCADA devices and other sensor devices.

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Technical Specifications:

- Maximum Network Loading: 6- 16 kbps per channel (Typical) (32 kbps Max)

- Audio Bit rate: 6 Kbps - 256 Kbps, User Programmable .

- Number of Radio ports supported: 1 , (Optional expansion capacity up to 4 ports)

- Maximum number of Conferencing nodes : 5 (in base model)

- Power Input: 12 V DC Typical (10.8 V - 30 V Max) @750mA Max.

- Connections:

    - Maintenance Port: Ethernet
    - Radio connection: 4 Wire transformers isolated 600 Ω balanced audio interfaces with PTT & Squelch
    - Network: 10/100base-T Ethernet Port

- UART / Serial Server (Optional) : 1 , 2 or 3 Asynchronous RS 232

- Vocoders: Low-latency and High-quality Opus

- Security: 128 bit/ 256 bit Encryption, User Programmable

- User Interface : Web based Graphical User Interface (GUI)

- Form Factor: Desktop

- Weight: Less than 500 g

- Operating Temperature (0 - 55°C)

- Humidity 0-95% non-condensing

Specifications are subject to change without notice

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