Model 6300

SPEC SHEET

Radio-over-IP Gateway

The Land Mobile Radio industry is increasingly relying on IP-based transport of two-way radio communications. But many users retain a large installed base of legacy control equipment not inherently capable of connecting directly to an IP network. Zetron's Radio-over-IP (RoIP) Gateway is designed to solve this problem. With the RoIP Gateway, you can continue to leverage your investment in operator control equipment, such as consoles and desktop remotes.

Zetron's RoIP Gateway allows legacy Tone Remote Control (TRC) or E&M wireline control equipment to operate over modern IP networks.

The RoIP Gateway is compatible with the following Zetron consoles and remotes:

- **Model 4010 Console**
- **Series 4000 Console, both Button-Based and Integrator RD**
- **DCS-5020 Console**
- **AcomEVO System**
- **Model 280/284 Desktop Remote**

The RoIP Gateway can also be used with many other manufacturer's TRC/E&M wireline control equipment, as well as many non-radio, specialty voice applications (e.g. hoot-n-holler and intercom lines). By connecting radios at both ends, it can also be used to bridge two geographically diverse radio systems together.

FEATURES

- Transports voice (3-wire unbalanced or 4-wire balanced), I/O (PTT & COR) and Data (RS-232) for up to two radio circuits
- Console IP Gateway version transports voice, I/O and data for a remote Series 4000 console position
- Handles Tone Remote Control (TRC) and Local/E&M radio circuits
- Remote PTT operation controlled by VOX or COR
- Use of TCP and Unicast UDP allows operation over standard IP networks
- Compatible with many IP-based RTP voice recorders

- Field-selectable voice compression includes PCM (64 kbps), and ADPCM (16-32 kbps)
- Fully configurable via web browser, including all audio levels
- Embedded operating system, and no moving parts. Designed for harsh, unattended radio site environments
- Optional 1U x 19" rack mount for two units
- Operates from 12 Volts DC.

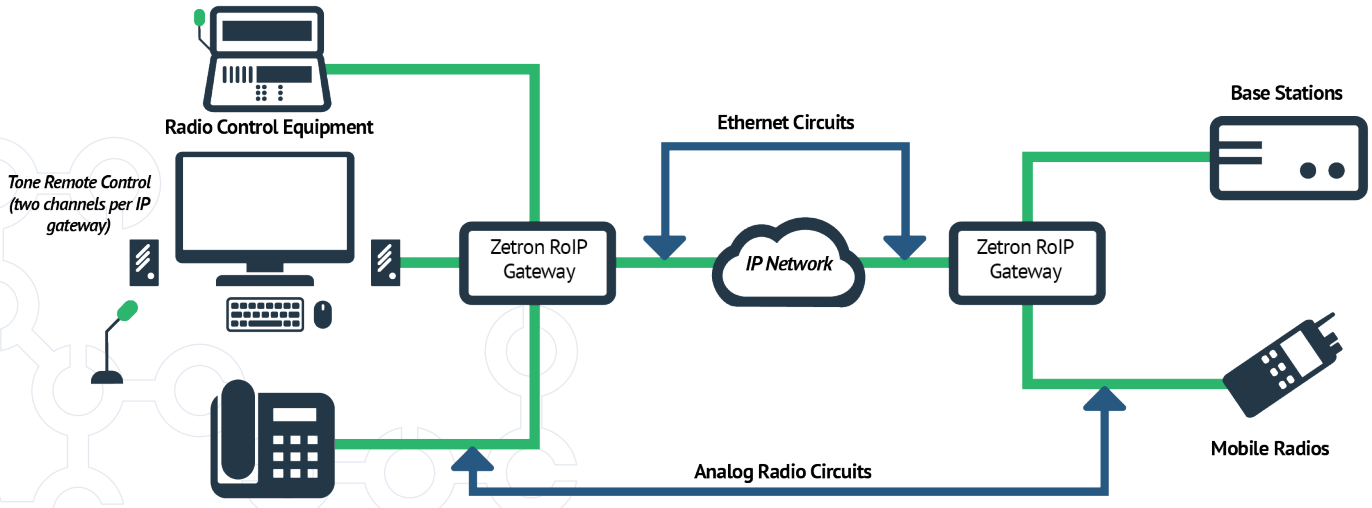
GENERAL

Zetron's RoIP (Radio-over-IP) Gateway is designed to transport analog wireline two-way radio control circuits over IP networks. Each RoIP Gateway connects to a radio circuit that supports analog audio, binary control (PTT & COR) as well as RS-232 serial data. The analog audio is field selectable between a balanced 4-wire connection suitable for most fixed station radios, and unbalanced transmit and receive audio suitable for direct connection to most mobile radios. In some cases, a mobile radio's programming and/or control head serial data can be transported over IP as well (contact Zetron for radio serial data compatibility).

A pair of RoIP Gateways, one at each end of the IP network, facilitates the conversion from radio to IP and back. Three variations are available:

- Model 6301 = supports one radio channel
- Model 6302 = supports two radio channels
- Model 6304 = supports a remote console for the Series 4000 dispatch system

RADIO-OVER-IP USING MODEL 6300 ROIP GATEWAY



Radio dispatch console or desktop remote (up to two positions) extended over IP.

ZETRON

Specifications

NETWORK REQUIREMENTS

Device Payload
1 Kbps idle, 104 Kbps active
(136Kbps Ethernet) using G.711 per channel

Network Loading:
- < 40% (< 30% mission critical).
- Bandwidth Ratio of IP bearer should be 2 to 3 times actual payload to ensure optimum voice quality

Packet Loss
< 0.1%

Packet Error
< 0.01%

Packet Delay
< 400 ms (< 40 ms mission critical)

Packet Jitter
< 50 ms (< 20 ms mission critical)

Network Type
Fully switched Ethernet, full-duplex, capable of passing unicast UDP. Sharing the network with other IP traffic may negatively impact voice quality and therefore should not be considered for mission-critical applications.

GENERAL

Dimensions (HxWxD)
Metric:
- 3.81 x 19.685 x 26.035 cm
- 4.445 x 48.26 x 26.035cm optional rack panel

Imperial:

- 1.5 x 7.75 x 10.25 inches
- 1.75 x 19.0 x 10.25 inches optional rack panel

Weight
Metric: 0.8618kg
Imperial: 1.9lbs

Operation Temperature Range
0 to +60 Celsius

Power Input
10.6 to 16 Vdc, 0.5 ampere max (initial power-on surge exceeds 2A)

Network Connection
- 10-Base-T Ethernet connection using RJ45
- HTTP compatible with Microsoft Internet Explorer 6 or later

Vocoder Support
G.711 (64 kbps) and G.726 (32-24-16 kbps) & GSM (13 kbps)

RADIO CIRCUIT AUDIO

Frequency Response
300 Hz to 3400 Hz +1/-3 dB

Hum, Noise & Cross-Talk
45 dB below full rated output

Distortion
3% or less

Line Balance
60 dB @ 1004 Hz

Line Impedance
Nominal 600 ohms for Tx and Rx pairs with alternate setting of 5000 ohms

Line Pairs
4-Wire (separate transmit and receive) or 2-Wire (combined transmit & receive), half or full duplex

Line Transmit Output Level
-35 dBm to +10 dBm

Line Receive Input Level
-35 dBm to +10 dBm

Line VOX Sensitivity
-35 dBm to 0 dBm

Local Receive Input
50K ohm impedance ground referenced, 40 mVpp to 5 Vpp

Local Transmit Output
50 ohm impedance ground referenced, 40 mVpp to 3.6 Vpp

RADIO CIRCUIT CONTROL

PTT/M-Lead Signal
50 mA maximum to ground, 24 volts open circuit max

COR/E-Lead Signal
Active < 0.8V, Inactive > 2.0V 100 pull-up to 5V

RADIO CIRCUIT DATA

Format
7-bit or 8-bit, serial, asynchronous data

Electrical
RS-232 or TTL compatible

Data Rate, Parity & Stop Bits
300 to 38.4k bps, odd-even-no parity, and 1 or 2 stop bits

ZETRON AMERICAS
6812 185th Ave. NE
Redmond, WA USA 98073
P: +1 425 820 6363
F: +1 425 820 7031
E: zetron@zetron.com

ZETRON EMEA
Minster Corner
South Church Side, Hull
HU1 1RR, United Kingdom
P: +01 482 686366
E: emea@zetron.com

ZETRON APAC
4/87 Webster Road
Stafford QLD 4053, Australia
P: +61 7 3856 4888
F: +61 7 3356 6877
E: au@zetron.com

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