

*Challenging Communication Boundaries*



# *Audio Bridging*

*for radio communications interoperability*

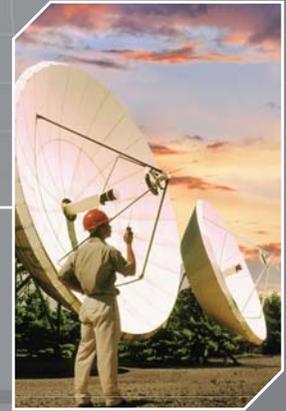
619DSRI

619EI/GI



**omnitronics**

# Audio Bridging



***“ The Omnitronics range of Audio Bridges offer the perfect affordable interoperability solution to communications integrators. ”***

**B**etween the communications center operators and the mobile users in the field, organizations rely on an infrastructure that is made up of reliable links and repeaters. Omnitronics has forged an enviable reputation over many years in designing equipment that is used to build and manage this infrastructure.

The 619 range of Audio Bridges are a group of products that provide a uniform way to interconnect radio equipment from different manufacturers and in different bands. Typically, Omnitronics' Audio Bridges are used to interconnect multiple repeaters together at a remote site and to provide multiple paths within a radio network providing ultimate interoperability. The devices are manufacturer independent, allowing you to interface to existing equipment and future equipment.

This ability is paramount to the mission of all organizations that are involved in providing a service to our communities. However, radio networks can become so complex that providing interoperability can seem daunting. The Omnitronics' range of Audio Bridges makes this simple, providing you with the choice and flexibility your organization requires:

- **619DSRI** - This sophisticated eight-port digital bridge provides the highest level of functionality including the ability to dynamically re-configure radio networks to suit operational requirements
- **619EI/GI** - These devices offer the most affordable and simple way to interconnect disparate radio systems. The 619GI has four ports whilst the 619EI has six.

The 619 range has evolved over many years of proven service and offers the perfect affordable interoperability solution to communications integrators.

# 619DSRI



Setting a new standard in audio bridging, the 619DSRI provides enhanced audio performance, increased functionality and simplified interfacing and application configuration. The 619DSRI provides the communications integrator with powerful features that can be used to substantially increase the effectiveness of new and existing radio networks using dynamic configuration.

## Key Functions

The 619DSRI can perform three main functions:

- Provide a means of easily bridging (or cross banding) a number of different radio transceivers (mobile or base), regardless of manufacturer or frequency band
- Enable organizations to pre-configure a number of different user groups and network structures to suit various operational scenarios then switch to the appropriate structure according to operational needs
- For ultimate flexibility, provide a method of auto steering voice calls to different sub-networks using either CTCSS or tone signaling

## Advantages

- System integrators can design de-centralized interoperable networks that don't rely on central control room intervention
- Incompatible radio types can be interconnected without the need for expensive and additional external equipment
- Authorized users and subscribers can temporarily bridge networks on-demand and control who they talk to
- Talk groups can be invoked on a call by call basis through CTCSS
- Engineers have a convenient way to balance audio between the different transceivers

## Benefits

- Saves considerable time and effort in interfacing disparate radio equipment
- Significantly reduces the cost of adding additional hardware
- Provides added system flexibility at any repeater site
- Improves organizational effectiveness by allowing networks to be re-configured to meet operational needs
- Reduces maintenance costs by enabling remote diagnosis and configuration of repeater equipment

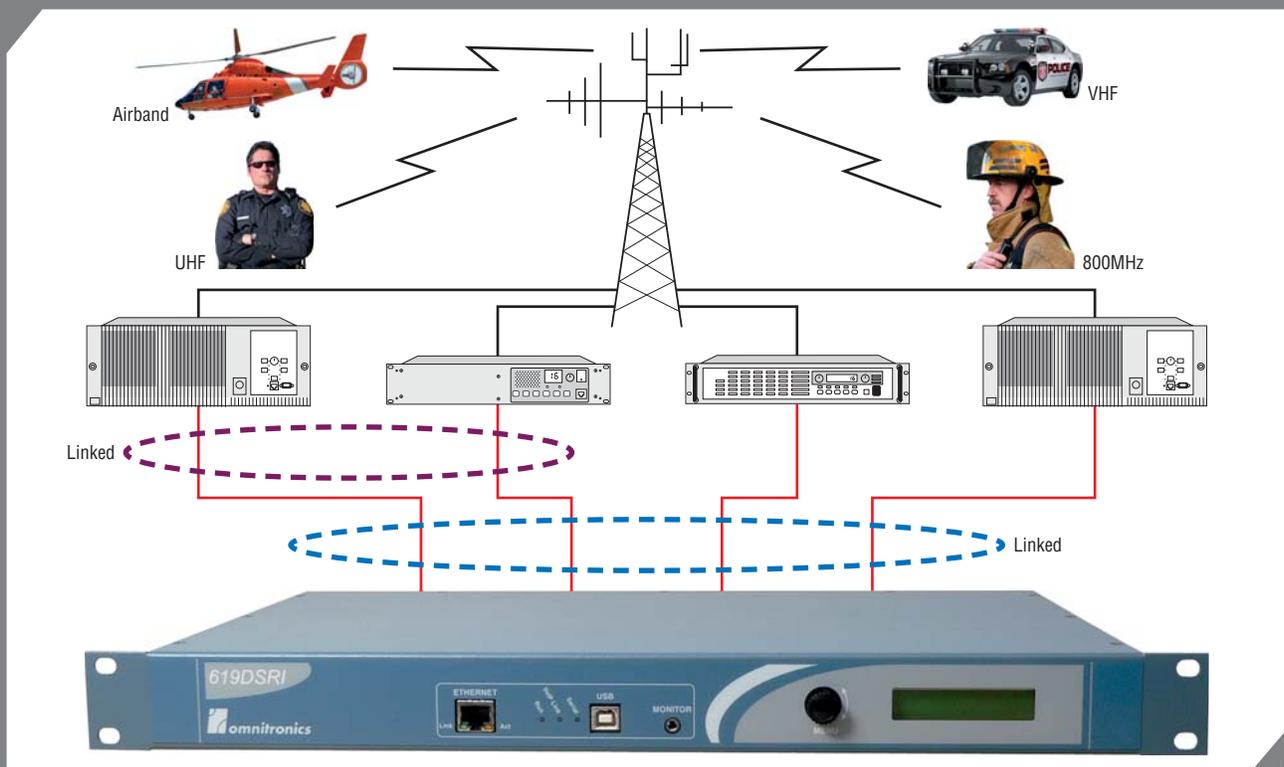
Quite simply, the 619DSRI is the most cost effective method of interconnecting multiple radios on the market and is equally effective in commercial applications such as utilities, transport and resources as it is in Public Safety.

## Features

- Single 1RU 19" enclosure with **eight** analog 4-Wire E&M ports; all with opto-isolated inputs, relay isolated outputs and with contact, voltage and switched power options
- 600 Ohms transformer isolated line audio with **digital gain** and **attenuation**
- Simultaneous signal detection and generation on each port
- **Selective Calling** (using CCIR or similar) and **DTMF** remote control
- **Eight programmable configurations** that provide control of the basic Busy (COS) to PTT linking. Six of these are programmable overlays that can be invoked dynamically to make or break link paths. **Omnitronics' proprietary eDHC (enhanced Dynamic Hub Configuration) technology** allows this to occur as a result of digital inputs, CTCSS tones, inband (keying) tones, DTMF or Selective Calling
- Software options that support fast CTCSS keying, soft CTCSS key-off and audible PTT tail tones
- Ethernet port for remote configurability
- Device re-configuration through Windows-based DSRI Graphical User Interface and/or a **new web interface** both allowing for **local or remote interfacing**
- Real-time clock that allows the scheduling of **heartbeat/voting tones**
- Auxiliary inputs and outputs for monitoring and controlling the security and the health of repeater sites
- **LCD panel** for basic configuration, status and diagnostics
- 12 to 24VDC operation

## Typical Applications

### 1. Cross-banding disparate radios

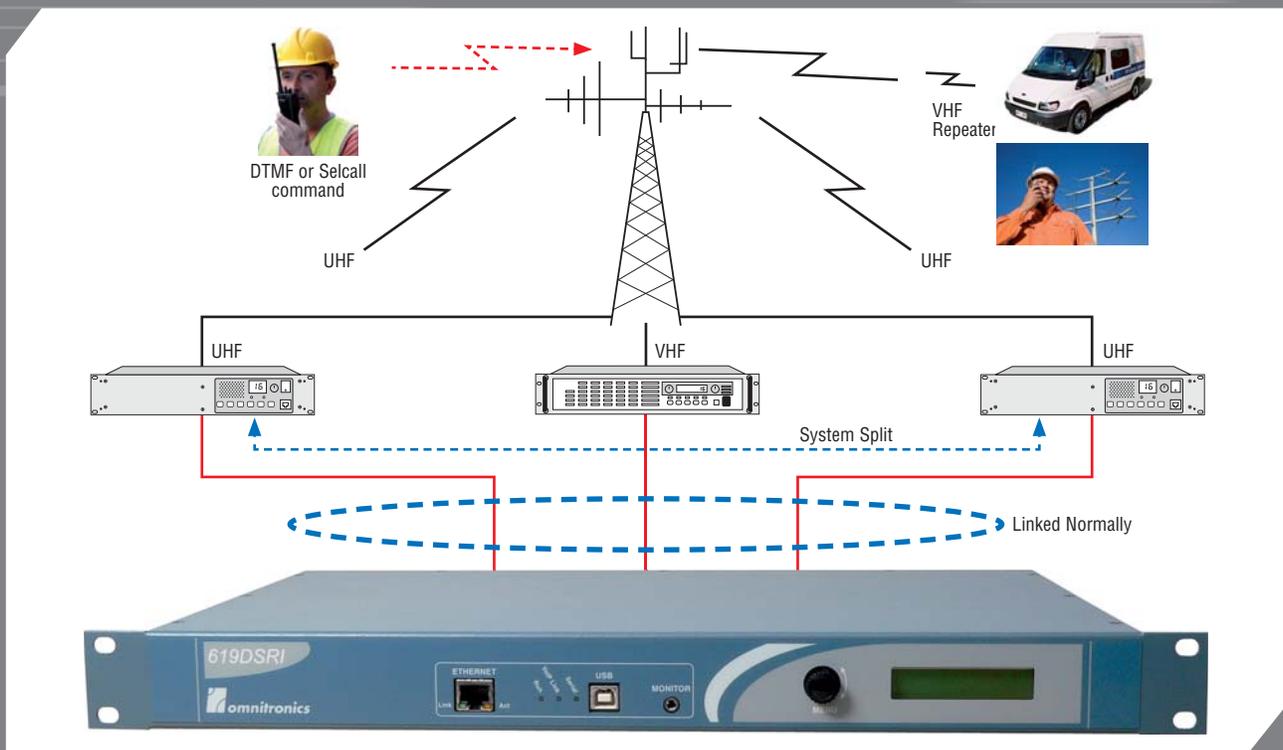


The 619DSRI can act as a hub where multiple radios can be conveniently interconnected regardless of manufacturer or frequency band. The radios can all be linked together as one talk group or linked in various combinations. Support is provided for radios with combinations of 4-Wire (balanced) and 2-wire (unbalanced) audio. The link paths between the radios are statically configured.

# 619DSRI

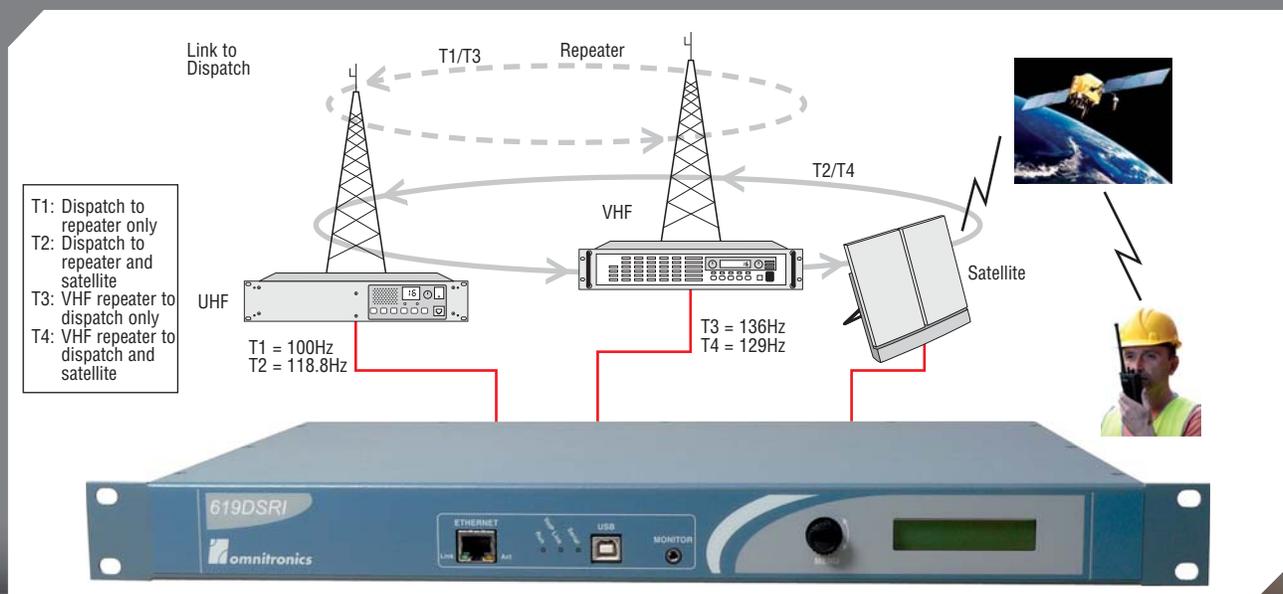
## Typical Applications cont.

### 2. Network re-configuration on-demand



The 619DSRI is pre-configured with a number of link paths that can be activated by an authorized user over an RF link. This application shows a repeater site with two UHF links. In the normal configuration, subscribers on the VHF repeater can communicate through the links. However, given a situation that requires a high degree of communication amongst the VHF users, an alternate configuration can be activated to "split" the repeater from the links. The 619DSRI will accept a DTMF or Selective call from an authorized user to perform this style of dynamic linking.

### 3. Auto Steering



The 619DSRI can steer a transmission through a particular path according to a CTCSS tone associated with the voice signal. In this example, traffic through the satellite link needs to be minimized. To achieve this, the 619DSRI can examine the CTCSS tone on an incoming port and route audio to the satellite link only when a specified tone is detected.

# 619EI & 619GI



**Let the 619EI or GI provide all your interconnections, simply and reliably.**

For more basic applications, the 619EI or 619GI will provide you with a simple solution that is easy to install and configure. Providing full 4-Wire bridging facilities on all ports the 619EI and 619GI have a huge range of applications, such as HF/VHF/UHF radio networks, audio bearer systems, data, modem splitters/combiners, public address systems, etc. Independent ports (four ports on the 619GI and six on the 619EI) allow the bridge to be configured in any combination providing the system designer with greater flexibility.

All audio inputs and outputs are transformer coupled and have a wide adjustment range to cater for most landline and radio applications. The signaling leads are isolated using opto-couplers (E mute lead) and relays (M PTT lead).

Audio routing and level adjustments for both inputs and outputs are made from the front panel. Initial setup and maintenance plans are now far easier to implement. A protective cover provides access to these points and prevents inadvertent configuration changes.

An LED level meter has been provided to allow simple setup of internal audio levels without the requirement for other test equipment. LED bars are calibrated in 3dB steps. This meter can also be used as a diagnostic tool to monitor the bridge's audio in conjunction with POWER, BUSY (COS) and PTT status LEDs.

The mute enable facility allows audio bearer circuits to be mixed, without the requirement of a mute control. This is very useful in circuits without a control signal or where control facilities are incompatible i.e. 4-Wire circuits.

The bridge is powered from a single 12VDC source and has optional plug in DCjack or two-part screw terminal connections. The 1RU 19" sub-rack housing provides a convenient and minimal profile solution for integrating into existing or new systems.

# Challenging Communication Boundaries

## Advantages

- Allows simple interfacing of various types of radios and audio equipment
- Provides isolation between connected devices
- Configuration can be done on site using simple tools and the built-in LED display
- Proven reliability (>10,000 units sold worldwide)
- Low power consumption
- Low cost

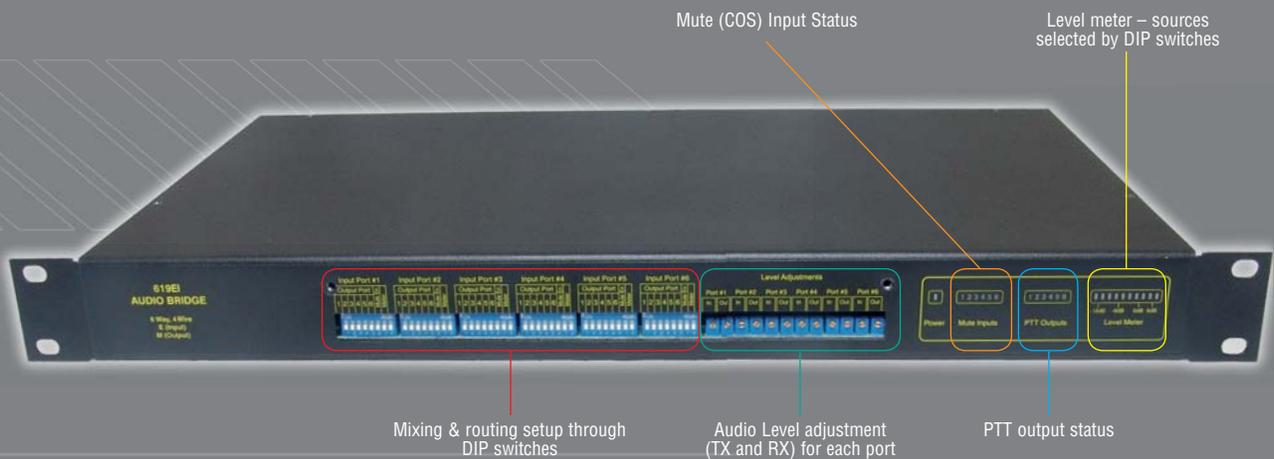
## Benefits

- Standardized method of interfacing radio equipment
- Affordable interoperability that is easy to install

## Features

- Single 1RU 19" enclosure
- Four or Six analog 4-Wire E&M Ports
- LED level meter
- Mute enable function
- Set-up link paths
- Adjustable TX & RX levels
- VU Meter & Status indicators
- 12Vdc
- Balanced 600ohm TX & RX interface with E & M Signaling

## Easy to Install & Monitor



# Audio Bridging

## Specifications

### No of Ports

### Power Supply

### Current Draw

### Radio Port

### Audio

#### Frequency Response

#### Audio Latency

#### Distortion

#### Cross Talk

#### Input Impedance

#### Input Level

#### Output Impedance

#### Output Level

### 4-Wire E&M

#### Mute/PTT Latency

#### 'E' Signal Input Range

#### 'E' Signal Internal Supply

#### 'M' Signal Relay Voltage

#### 'M' Signal Relay Current

#### 'M' Signal Relay Power

### Signaling

#### SELCALL Detection Level

#### DTMF Detection Level

### CTCSS

#### Detection Level

#### CTCSS Tone Rejection

#### Tone Detection Latency

#### Output Level (67Hz)

#### Output Level (254.1Hz)

#### External CTCSS O/P range

### In-Band Key Tone

#### Detection Level

#### In-band Tone Rejection

#### Tone Detection Latency

#### Output Level

### Monitor

#### Output Level

### Digital I/O Interface

#### Analogue Input Voltage

#### Digital Input Range

#### Output Relay Voltage

### Network Interface

#### Ethernet

### Dimensions

### Weight

### 619DSRI

8

11 to 28 Vdc

330mA @ 12V (350mA max)

67 to 3600Hz

22ms

1.3 to 2.0%

-60dB

600Ω

-25 to +5dBm max

600Ω

-27 to +3dBm

22ms

3V to 30V (dc)

10 Vdc

100 Vdc max

100 mA max

0.5 W

-32 to +4dBm

-25 to +5 dBm

-25 to 0 dBm

-40 dB Max @ 100Hz

50 to 126 ms @ -18dBm Input CTCSS Level

-27 to -7.4 dBm

-25 to +3.0 dBm

-50 to +3dBm

-30 dBm min @ 2500Hz

-40 dB min

80 to 124 ms @ -30dBm Input

-30 to +3dBm

-3.35 dBm max

0 to 16V (dc)

5 to 30 Vdc

30Vdc @ 1A (max)

10/100 BASE TX

(H x W x D) 44mm x 482mm x 255mm (1RU)

Or 1.7" x 19" x 10"

1.8kg (4lb)

### 619EI/GI

6 (EI) or 4 (GI)

11.5 to 16 Vdc

150mA @ 12V (300mA max)

300 to 3kHz

-

<2%

-63dB min

600Ω

-25 to +5dBm

600Ω

-25 to 0dBm

-

5V to 30V (dc)

10 Vdc

30 Vdc

1A max

30 W

N/A

(H x W x D) 44mm x 482mm x 255mm

(1RU) Or 1.7" x 19" x 10"

3.5kg (7.7lb)



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