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INFERNO

INFERNO

Commentary For Dante Audio Networks

Highlights

Dante Network
Audio Interface

Low Noise Mic
Amp with Referee
Compressor

AES67 Option

Redundancy On
Network Links &
Power Supplies

Copper & Fibre
Network Interface

Designed
For 24/7 Operation

Overview

Inferno is a commentary system for a single user, or for a large multi commentator system. Connections use standard network audio cabling, either directly connected to a Dante audio I/O unit such as our AoIP44, DARK88 or Dark1616, or across a structured network. The Dante audio protocol is used to transport the audio, making the system flexible and programmable as part of a larger Dante system.

The Inferno is easy to use for Commentators' who would rather be talking about the game than working out how the equipment works, and is also built to our exacting rugged & robust standard to make it a reliable piece of broadcast equipment for the busy engineer.

 **Dante™**



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Inferno Commentators Box

Key Points

Inferno Commentators Box

- Single user Dante commentary box
- System is scalable with multiple commentators as part of a Dante network
- Can connect to any Dante compatible network.
- Single low noise mic/line/48v input
- Our popular Referee compressor/limiter keeps even the loudest commentator sounding natural.
- Headphone mixer has 7 inputs supplied from the Dante network, plus the local input (sidetone)
- Each headphone input has left/both/right headphone switching
- 7 talkback circuits
- Multiple power options including PoE, Mains & External DC
- Network connections on Copper (Cat5) and Fibre (SFP slots)
- Primary & Secondary network connections allowing completely transparent network redundancy.
- Large bright PPM level meter
- Inbuilt web server for setup and remote control via web browser of mic gain & mic on/off switch
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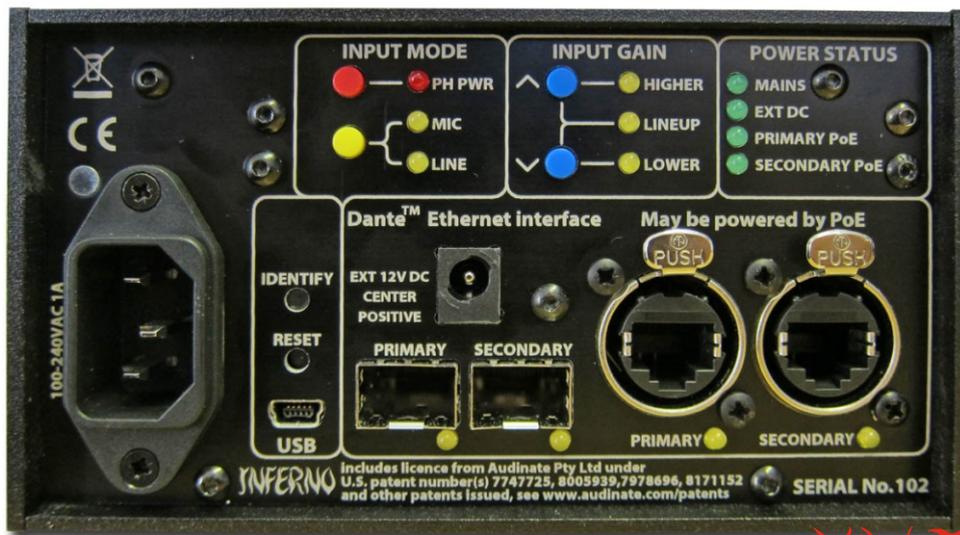
DANTE Audio Network

- AES67 Compliant
- Multi channel, digital media network technology
- Offers compatibility with hundreds of systems from other manufacturers
- Scalable from a pair up to thousands of channels.
- Fully redundant glitch free audio transport
- Easy, reliable & free routing software for Point to point or point to multipoint audio routes.
- Works across standard network switches

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Rear Panel Features

- Redundant Powering Options**

The Inferno can be powered from any of 4 different sources:

 - 1) Wide range Mains Input (suitable for Worldwide use)
 - 2) PoE on the Primary CAT5 Network link
 - 3) PoE on the Secondary CAT5 Network link
 - 4) External 12V DC

Four off rear panel LEDs show the availability of the 4 power sources.
- Primary & Secondary SFP Slots**

The SFP (Small Form-Factor Pluggable) fibre slots are standard networking ports that accept standard SFP modules. This means that you decide what type of fibre and connector style you want to use just by the SFP module that you insert. The primary & secondary network circuits allow for glitch free redundancy across both the Fibre & Copper network interfaces.
- Primary & Secondary Copper Network Connections with PoE**

Two CAT6 connections on Neutrik Ethercons (that accept standard networking cables) are provided to allow copper connections to local network switches to carry the Dante/ AES67 audio. Two connections are fitted to allow redundant circuits to be used if required.

Both these connectors can accept a PoE power source for providing the power to the Inferno.
- Input Mode & Gain**

One pair of push buttons selects the input type of the front panel XLR to be either microphone, line or microphone with 48V phantom power. 3 LEDs indicate which input mode is selected.

Two push buttons are used to alter the gain of the input. LEDs indicate if the gain setting is above or below our pre-configured 'lineup' levels. The front panel PPM of course provides an accurate indication of the input level.

The gain can also be altered remotely by a web browser pointing at the Inferno's web page.



Pictured in Optional Case

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Front Panel Features

- 7 off Incoming Audio Volume Controls**

On the top panel are 8 rotary headphone volume controls. 7 of these are connected to 7 incoming audio circuits from the Dante/ AES67 network. These are normally used for such sources as mixed programme, cue, international sound, talkback to director, talkback to producer, talkback to engineer etc.
- Sidetone Volume Control**

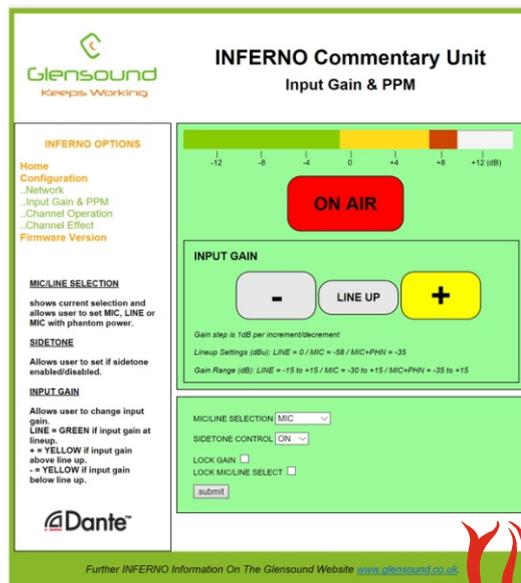
The 8th front panel rotary headphone volume control is 'sidetone'. Sidetone is the commentators' own voice in their own ears.
- Headphone Routing**

All of the 8 headphone volume controls has an associated left ear, right ear, both routing switch located next to the volume knob. This single push button switch routes the associated source to just the left, just the right or both channels of the stereo headphone amplifier.

To enable the commentator to know how they are routing a circuit the first time a routing switch is pressed a pair of LEDs on the front panel indicate its current routing arrangement. The next time the routing switch is pressed then the next routing option is selected.
- Robust Mic on and Talkback Buttons**

There are 7 off round bright illuminated talkback buttons and 1 large square illuminated mic on button. These switches route the outgoing microphone circuit onto 8 different Dante/ AES67 network audio circuits. The operation of these switches (momentary, latching etc) and the interaction of these switches (i.e. pressing a talkback switches mutes the main mic) can be fully configured via the web page.
- 15 segment LED PPM Meter**

Audio input level is indicated on the 15 segment PPM meter.



PPM & Mic On Web Page

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Audio Technology

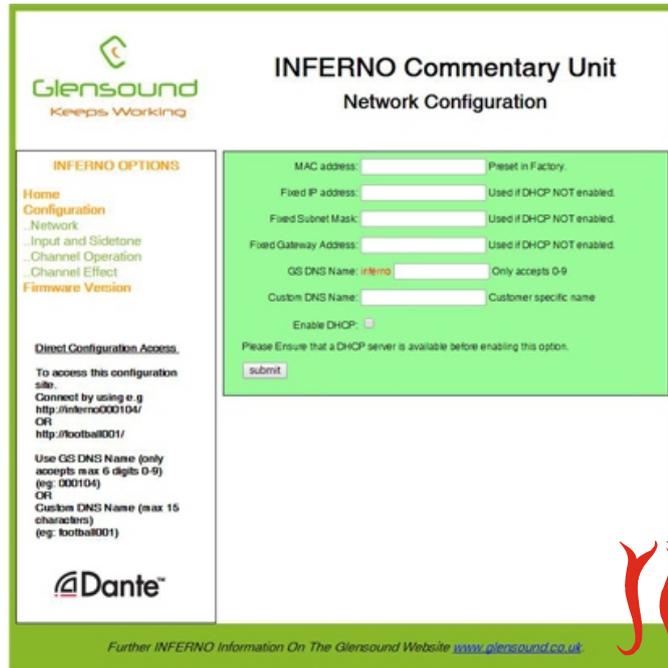
- Low Noise Microphone Amplifier With Remote Gain**

We spent a long time optimising the performance of the THAT corporation microphone amplifier used in the Inferno. It features very low noise & distortion circuit that we remote control the gain of in 1dB steps, which allows us to provide the remote webpage gain control as well as the rear panel gain push buttons. We also optimised the circuits to allow correct source impedance switching depending on whether the input has been set as a mic or line input.
- Referee Compressor Limiter**

As with all our commentary units the Inferno features our very popular Referee compressor limiter circuit. This circuit starts to compress the commentator's voice gradually and slowly increases the compression ratio as the input level becomes overly high resulting in a very natural sounding and distortion free audio output capable of taming even the loudest of commentators.
- High Quality Analogue To Digital Converter (ADC)**

Dante/ AES67 network audio is a digital circuit and as such the best analogue microphone amplifier would be wasted if we hadn't paired it up with the best analogue to digital converter. The ADCs job is fairly simple when if you look at our tech spec you'll see that we've made ours work incredibly well.
- Unique Headphone Amplifiers**

The commentator's headphones are a vitally important tool so we take as much care with our headphone amplifiers as with our on air microphones. Our unique headphone amplifier provides the correct output level regardless of the impedance of the attached headphones, meaning that broadcasters can now pick and choose between low impedance 'cheap' headphones and high impedance traditional broadcast ones.



Web Page Remote Control

- Web Page Remote Control**

The Inferno has an internal web server that provides web pages for an operator to view when pointing a web browser at the Infernos address. The Inferno uses a very useful network protocol called DNS (Domain Name System) allowing just 'Inferno and the units serial number' to be entered in a browser's address bar to connect. This is very useful if the ip address is not known. The wepages provide full setup & on air controls for the Inferno.
- Mic ON/OFF, Gain & Meter**

One of the web pages allows access to the gain of the microphone meaning that the input gain can be adjusted completely remotely. The same page also provides the ability to turn the microphone on/off (and of course see its current state). A level meter is also provided on the same page so as any gain adjustments can be accurately monitored.
- Channel Operation Configuration Page**

Full control of how each of the 8 (7 talkback & 1 main mic) switches operate is provided. Each switch can be set to operate in the following modes: off, momentary on, latching, intelligent, momentary off (cough). The routing of the associated headphone input can also be forced or locked and the ability to fully attenuate the incoming source is also available.
- Channel Effect Configuration**

The Inferno's channel effect page allows the interaction between the talkback & mic switches to be set. Each channel can be set individually to either temporarily or permanently suppress (or not) any of the other channels that are already active when it is operated.



Dante Controller Route Audio & Configure Devices On A Dante Network

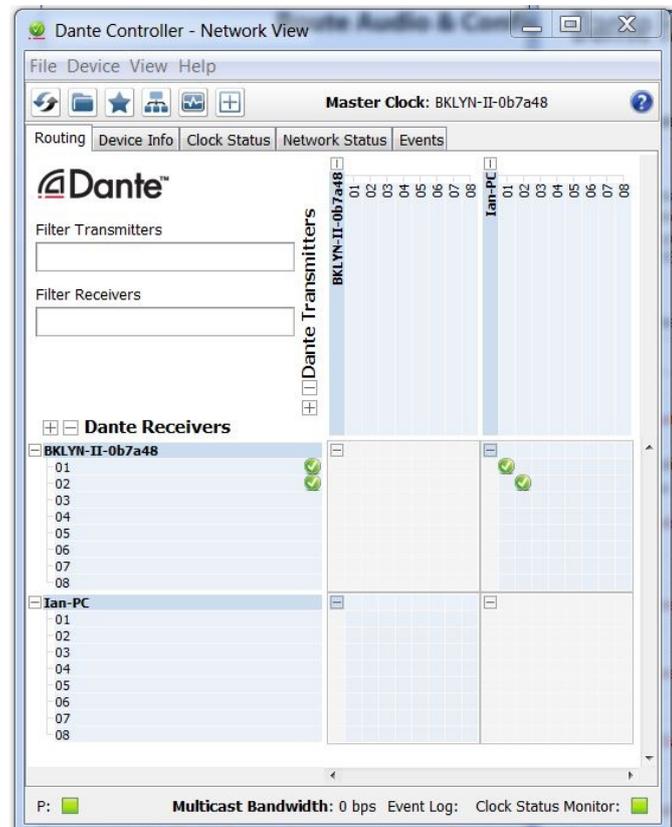
Overview

Dante Controller

Dante Controller is a free software application that enables you to route audio and configure devices on a Dante network. With automatic device discovery, one-click signal routing and user-editable device and channel labels, setting up a Dante network couldn't be easier. See the overview for more detail on Dante audio networking.

Dante Controller is much more than just a configuration and routing matrix. Dante Controller provides essential device status information and powerful real-time network monitoring, including device-level latency and clock stability stats, multicast bandwidth usage, and customized event logging, enabling you to quickly identify and resolve any potential network issues. You can also quickly and easily backup, restore, move, and reuse Dante network configurations using Presets, and edit Dante routing configurations offline.

Dante Controller is available for Windows and Mac OS X.



Features

- View all Dante-enabled audio devices and their channels on the network
- View and edit device clock and network settings
- Route audio between devices, and view the state of existing audio routes
- Rename devices and channels using your own friendly names
- Customize the receive latency (latency before playout)
- Save and reapply audio routing presets
- Edit presets offline, and apply as configurations for new network deployments
- Change sample rates and clock settings
- View multicast bandwidth across the network
- View transmit and receive bandwidth for each device
- View device performance information, including latency stats, clock stability stats and packet errors
- View comprehensive, configurable event logs



DANTE The DANTE Audio Network Overview

Overview

Based on industry standards, Dante is an uncompressed, multi-channel digital media networking technology, with near-zero latency and synchronization. Dante is the preferred audio networking solution that has been adopted by more pro-audio AV manufacturers than any other networking technology. Interoperability is not a dream of the future, but a reality today. Hundreds of Dante-enabled products are available from the world's leading manufacturers, enabling you to mix devices from multiple manufacturers.

Economical and Versatile

One cable does it all. Dante does away with heavy, expensive analog or multicore cabling, replacing it with low-cost, easily-available CAT5e, CAT6, or fiber optic cable for a simple, lightweight, and economical solution. Dante integrates media and control for your entire system over a single, standard IP network.

Dante systems can easily scale from a simple pairing of a console to a computer, to large capacity networks running thousands of audio channels. Because Dante uses logical routes instead of physical point-to-point connections, the network can be expanded and reconfigured at any time with just a few mouse clicks.

Outstanding Quality

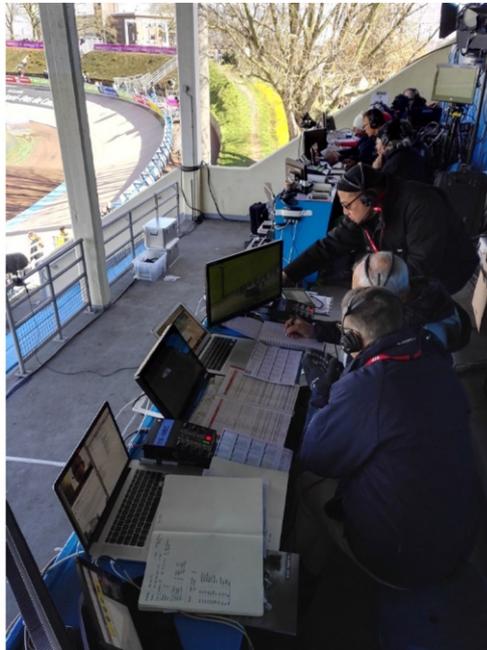
Since audio is transmitted digitally, you don't have to worry about the common analogue challenges of interference from other electrical equipment, crosstalk between cables, or signal degradation over long cable runs.

Easy To Install

Setting up Dante networks couldn't be easier. You no longer have to shudder when considering the deployment of an audio network. Even the most complex networks can be set up and configured quickly and easily with Dante, making system integration simple. Dante automatically handles the technical complexities for you.

Signal routing and system configuration with Dante is fast, simple, and incredibly flexible. Dante Controller is a powerful software application that manages devices on the network. Setting up a Dante network is typically just a matter of plugging devices into an Ethernet switch and connecting a computer to the network. All Dante devices are automatically discovered and displayed in Dante Controller, so you can be up and running in seconds. channels; multicast sends an audio stream to multiple devices simultaneously.





DANTE The DANTE Audio Network Overview

Overview (cont...)

Easy to Use

With Dante Controller you can easily edit device names and channel labels, control sample rates, and set device latencies. There is no longer any need to remember device IDs or channel numbers. Instead, a single audio channel is referred to just like an email address: "commentatorA @ studio" or "news_mic @ voboothA". Set it and forget it. Once the network is configured, the computer running Dante Controller can be removed from the network, and reconnected only if changes are required or system monitoring is desired. Signal routing and other system settings are stored safely in the Dante devices themselves, so they are automatically restored if a device is power-cycled.

Network Health and Management

Real-time information about the health of your network is essential for a proper understanding of its performance. There are a rich suite of diagnostic tools within Dante Controller, providing visibility into the network health status through features such as device latency monitoring, active clock health monitoring, packet error reporting, and bandwidth usage statistics.

Glitch-Free Redundancy

Many Dante-enabled devices support 'glitch-free' redundancy, enabling a secondary physical network to be provided, duplicating the audio traffic on the primary network. This automatically prevents any audio loss or interruption in the event of a connectivity problem on the primary network.

Unicast or Multicast

Dante audio channels can be configured as unicast or multicast as appropriate, to make best use of available bandwidth. Unicast provides a direct point-to-point stream for unique channels; multicast sends an audio stream to multiple devices simultaneously.

Fully Integrated with Windows and Mac OS X

With Dante Virtual Soundcard, your computer becomes a Dante audio interface for multitrack recording and media playback, using the computer's existing Ethernet port — no additional hardware is required. Digital Audio Workstations, software-based media players, Skype, iTunes, Pandora, Spotify and other applications are easily integrated into your network via Dante Virtual Soundcard.

INFERNO

Designed For Sport News & Events

Specification

AUDIO

Mic Input Gain Range

-30dB to +15dB

Dynamic Mic Line Up

58dB

Mic + Phantom Power Line Up

35dB

Line Input Line Up

0dBu (Gain range +/-15dB)

Mic Input Impedance

2k4

Line Input Impedance

100k

Equivalent Input Noise

127dBu (22-22kHz RMS terminated 300 Ohms)

Maximum Input Level Before Clipping

Dynamic Mic: +10dBu

Mic + 48V PH: +18dBu

Line: +18dBu

Frequency Response

Mic: > +/-0.25dB 50Hz to 22kHz
(-2 @ 25Hz)

Line: >= -0.1dB 22Hz to 22kHz

THD + Noise (Ref +8dBu)

100Hz = 0.023%

1kHz = 0.012%

10kHz = 0.014%

POWER

Internal Mains PSU

Filtered IEC, 100 to 240VAC (+/-10%)

47 - 63Hz

AC Consumption

<8 Watts

DC Input

2.5mm Barrel, Centre +Ve, 9 - 15 Volts

Power On LED

Bright Blue

INCLUDED ITEMS

Handbook

Physical A4 (download also available)

Mains Cable

UK & EU Only, 2 metre mains plug to IEC

Rj45 Network Cable

2 metre Cat5 Rj45plug /Rj45plug cable

Headphone Impedance

16 to 1000 Ohms

(Auto output level to match impedance)

Maximum Headphone Output

+16.8dB into 600 Ohms

Headphone Frequency Response

>= -0.1dB 22Hz to 22kHz

Headphone Noise

-76.6dB @ lineup (residual noise)

Headphone THD + Noise (ref =8dBu)

0.008% @ 1kHz

Headphone Volume Pot Range

+10dB to Off (+10dB to -30dB configuration option)

Headphone Impedance

200 - 2000 Ohms

Dante/AES67 Network Interface

Sample Frequency: 48kHz

Resolution: 24 Bit

Can be configured for AES67

PHYSICAL

Size

137 x 210 x 86mm (WxDxH)

Weight

1.25Kg

Mechanics

All aluminium construction, anodized and laser etched, powder coated sides

Shipping Carton

Rugged export quality cardboard carton

610 x 420 x 170mm (WxDxH)

Shipping Weight

2.8Kg

OPTIONAL ITEMS

Carrying Case

Long life Polypropylene Carrying Case

SFP Fibre Modules

Multi Mode & Single Mode standard modules

Bi-directional single fibre module

External Power Supply

Desktop style switch mode PSU

specification

 Dante™



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E & OE