

### Dante™ 8x8 Breakout Box



## Bob™ Breakout box

- 8 balanced line level analog inputs
- 8 balanced line level analog outputs
- Dante™ primary and secondary ports
- 8 Dante network outputs
- 8 Dante network inputs
- Uses standard ethernet hardware
- Gigabit compatible
- AVB ready

BOB 88 is a high quality, general purpose interface to transmit and receive line level analog audio signals via a Dante network. Analog inputs are converted to digital and appear on the network as transmit channels. Audio for the analog outputs is taken from subscriptions to transmit channels on the network from other sources. When connected to a network, each break out box will appear as a separate device in the Dante Controller software interface.

Audio delivered to input 1 appears as Dante transmit channel 1 for that device on the network. Input 2 appears as Dante transmit channel 2, and so on. Any Dante device on the same network can then subscribe to the transmit channels and process or route the audio as needed. In a similar manner, each receive channel can subscribe to any transmit channel on the network, and the received audio will be delivered to the analog output of the same number. Receive channel 1 appears at analog output 1, receive channel 2 to output 2, and so on.

Applications are numerous, such as creating a bidirectional digital snake for stage productions, or sending audio to a remote recording location in a courtroom complex, or delivering audio to remote amplifiers and loudspeakers in a stadium.

The unit operates as a native Dante device with automatic device discovery and clock configuration using standard ethernet hardware. High quality A/D and D/A converters ensure excellent audio quality.



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## Technology Overview

Dante delivers a no hassle, self configuring, true plug-and-play digital audio network that uses standard Internet Protocols over Gigabit Ethernet. Patent-pending Dante technology distributes digital audio plus integrated control data with sub millisecond latency, sample-accurate playback synchronization, extreme reliability and high channel counts.

## Plug-and-Play Networking for Media Professionals

With Dante's Zero configuration protocol, you won't need a networking specialist to enter numerical IP or MAC addresses, or set up DNS or DHCP servers. Dante makes networking a true plug-and-play process with automatic device discovery and system configuration. Dante-enabled devices find each other on the network and will configure themselves, so you can skip those complicated, error-prone set-up procedures. Instead of "magic numbers," you label networked devices and their input and output signals with names that make sense to you.

## IP Standards Based Technology

Dante is built on global networking standards including Internet Protocols — not just Ethernet. With true IP routing, Dante technology works as an IT network capable of transporting professional quality audio and high definition video with no limits on your layout options. Dante delivers sample-accurate playback synchronization, even over multiple switch hops. Latency is extremely low whether you choose to run your Dante network with fixed latency or optimized latency. Dante makes it easy to set up robust, flexible digital audio networks with performance that scales with your network.

## Media Networking over Existing Infrastructure and Hardware

Dante runs on inexpensive off-the-shelf computer networking hardware, and does not require dedicated network infrastructure. Ethernet switches transmit Dante digital media streams alongside ordinary data traffic, so you can integrate professional media operations into properly designed pre-existing networks. And with Dante Virtual Soundcard (DVS), your Mac or Windows computer looks and acts like any other Dante-enabled device. Just plug in to the standard Ethernet port to use digital audio processing, recording or playback software on the network.

## Sample Accurate Timing with Inaudibly Low Latency

Dante uses audio independent, high accuracy network synchronization standards to ensure all Dante devices are synchronized at all times. Sample accurate playback with extremely low latency and jitter is achieved without limiting your audio sample rates and network layout options.

## Summary of Dante Benefits

Dante is a high performance digital audio networking solution that offers many benefits to users and manufacturers of equipment for Live Sound, Install, Recording or other Pro Audio markets.

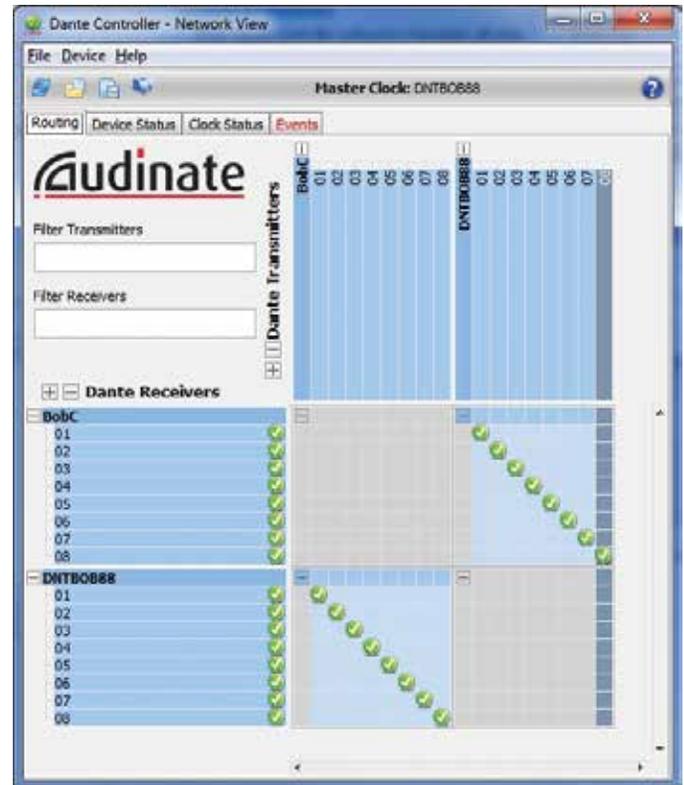
- Plug-and-play technology – automatic discovery and simple signal routing
- Reduced Cost & Complexity- No special skills required to set up audio networking
- Sample accurate playback synchronization
- Lowest latency available from any networking technology
- Add/remove/rearrange components at will
- Deterministic latency throughout the network
- Support mixed bit depths and mixed sample rates over one network
- Scalable, flexible network topology supporting a large number of senders and receivers
- Supports 1Gbps networks
- Supports a single integrated network for audio, video, control, monitoring
- Uses inexpensive, off-the-shelf computer networking equipment
- Direct connection to PCs for multi-channel recording, processing and playback using a Dante Virtual Soundcard for both PCs and Macs
- AVB Ready

## Dante controller Software

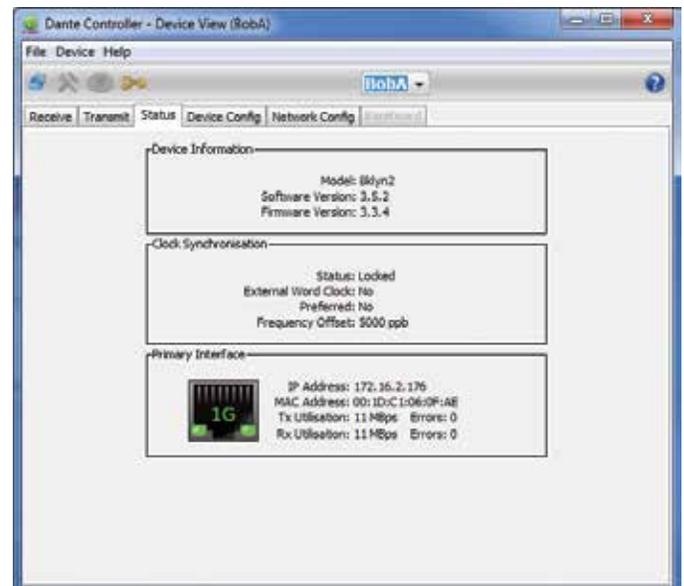
This software is provided by Audinate Pty. Ltd. and is the only interface needed to configure the channel assignments in the BOB 88 break out box. The software will run on Windows and Mac platforms and automatically identifies and displays all Dante devices connected to the same network as the computer.

Each device is presented on the screen with transmit channels shown across the top and receive channels shown in a column on the left side of the screen. Input and output channels for each BOB 88 break out box are numbered next to the label for each device.

In this example, the receive channels are assigned in a simple 1:1 pattern so that the numbering is consistent. Receive channel 1 on BobA will receive audio from transmit channel 1 on BobB. Receive channel 2 from transmit channel 2, and so on. Since a receive channel cannot be assigned to its own transmit channels, these areas are grayed out in the display.



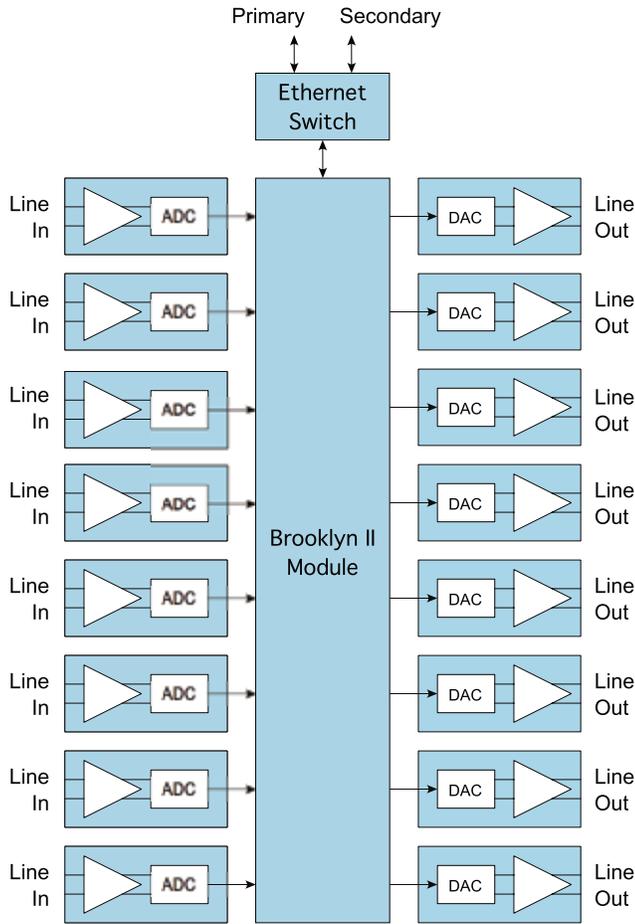
Multiple break out boxes can share network bandwidth with many other devices. The total number of channels available will vary with network capacity, sampling rate and varying utilization, however, with a gigabit network it is unlikely there would ever be a limitation. A status screen in the Dante Controller software indicates the utilization with the selected receive channels.



## Block diagram

Signal flow through the break out box is configured so that each input is the signal source for each Dante transmit channel of the same number. The analog audio at input 1 appears at Dante transmit channel 1, analog input 2 appears at Dante transmit channel 2, and so on.

Each output receives its audio content from the Dante receive channel of the same number. Analog output 1 contains the audio from Dante receive channel 1, output 2 from Dante receive channel 2, and so on.



## Specifications

Analog inputs:	
Type	Floating balanced
Level	0 dBu; 20 dB headroom
Impedance	15k ohm (differential); 3.75k ohm (common)
Connector	5-pin Phoenix
Analog outputs:	
Type	Floating balanced
Level	0 dBu; 20 dB headroom
Impedance	50 ohms
Connector	5-pin Phoenix
Sampling Rate:	48 kHz
Network Interface:	Dante
Latency:	
Analog in to Dante network:	0.721 ms
Dante network to analog out:	Network latency + 0.521 ms
THD + Noise:	0.02%; analog in to analog out
Audio Frequency Response:	20Hz to 20kHz; $\pm 0.1$ dB
Input to Output Gain:	0 dB; $\pm 1$ dB
Ambient Operating Temperature:	-20 C to +50 C; -36 F to +90 F
Power Requirements:	15 VDC; 800 mA
Power Switch:	Illuminated rocker
Power Consumption:	12 Watts
Dimensions (overall):	1.73 x 13.36 x 4.6 in. 44 x 339 x 117 mm.
Weight:	22.3 ozs.; 631 grams

