



Dante® / AES67 Audio Monitor

BELLA 32 32 Channel Dante / AES67 Audio Monitor

Highlights

32 Dante/ AES67 & 2 Analogue Audio Channels

Two Preset Mix groups available

Dante® / AES67 Network Audio

Each Input has a Signal Present Indicator

Adjustable input Gain Levels

1U 19" Rack Mount

Overview

Bella 32 is a 2 buss summing matrix confidence monitor designed for outside broadcast trucks, studios, theatre and professional audio applications. It is perfect for easy and cost effective monitoring of multiple network audio sources, ideal for busy production environments and perfect for monitoring multiple network intercom & programme feeds.

The 2 front panel loudspeakers (originally designed as a modern full range flat screen TV driver) are driven from a DSP to compensate for their size, the result is surprisingly good, with clear crisp vocals and highly intelligible reproduction of wider band audio sources. They are driven from a class D amplifier and have sufficient output level for most environments.

Robust proven construction techniques, simple reliable interface and excellent specification will help make your technician's life hassle free. Whilst the low cost and long asset life will keep the accountant satisfied.



BELLA 32

Network & Analogue Inputs

- **32 Network Audio Inputs**

There are in total 32 network audio inputs that can be routed to the Bella 32. Each input has its own illuminated front panel selection switch and presence indicator.

- **2 Analogue Audio Inputs**

In addition to the 32 network audio inputs there are two mono line level balanced inputs available on rear panel XLRs. These two inputs have their own front panel selection switches and presence indicators.

- **Channel On/Solo Select Switches**

Each of the 34 inputs has its own channel on/ off switch, that also acts as a solo selector. These switches are bright yellow illuminated push switches and operate in two ways. A short press turns the channel on/ off or a long hold solos that channels inputs.

These switches are also used for panning and input gains of the channels.

- **Panning**

Each of the 24 inputs can be panned between the left and right loudspeaker outputs. Whilst being panned the bottom of the two front panel PPMs indicates the current panned position making very easy for an operator to setup.

- **Level Control**

To produce a monitor mix suitable for the operator's application each of the 34 input channels can have its input gain adjusted to suit. Whilst the gain is being adjusted the bottom of the two front panel PPMs indicates the current gain position making very easy for an operator to setup.

- **Presence Indication**

In order to allow the operator to quickly identify which of the 34 audio inputs are currently active, green presence LEDs are provided next to each channels select switch. The channel's LED will only illuminate if the incoming audio level is above -28dBFs and to prevent lots of annoying flashes as programme levels change the presence LED stays on for 3 seconds after the input drops below the on threshold.



BELLA 32

Loudspeaker & Mix Outputs

- **Front Panel Loudspeakers**

Two front panel elliptical loudspeakers are fitted. These feature the very latest technology from one of Europe's leading loudspeaker manufacturers. We believe these are the best sounding single cone drive unit that can fit on a front panel of a 1RU subrack.

It is possible to completely turn off the front panel loudspeakers in case you're using external speakers for monitoring. In this case the Dim and Cut controls still work as expected.

- **Digital Signal Processing of Internal Loudspeakers**

However good they are small loudspeakers have fundamental acoustical limitations, to provide the best possible audible solution for you we carefully measured the speakers fitted in the complete Bella 32 MKII enclosure and provide advanced multi-point digital filtering to enhance the sound as much as possible.

- **Output Level Control**

A front panel shaft encoder acts as the overall volume/ level control. This adjust the overall output level to the loudspeakers, headphone and main mix outputs. The bottom of the two PPMs indicates its current gain state as it is turned to enable an operator to immediately and intuitively see their current volume setting.

- **Dim & Cut Controls**

Front panel illuminated switches are provided to Cut and Dim the outputs. External GPI loop inputs are also provided to allow the outputs to be cut or dimmed from external switches.

- **Headphone Output**

A front panel 6.35mm stereo headphone jack socket is provided to allow the operator to monitor the Bella's output on headphones. Plugging in a pair of headphones automatically cuts the loudspeaker & analogue mix outputs.

- **Peak Programme Meters**

Left and right output PPMs are provided and are a useful tool for checking audio levels on your network. The 15 LEDs show a range from Full Scale down to -48dBFs



BELLA 32

Audio Outputs

- **Three Analogue Outputs**

Three balanced line level XLR analogue outputs are provided on the rear panel. There is a left and right output of the main mix/solo and a mono output (which is a sum of the left and right outputs). These outputs are all post front panel level control and Dim and Cut circuits.

- **Balanced AES3 Output**

A balanced AES3 output is also provided. This is the left and right output mix/solo.

- **Network Audio Mix Outputs**

There are 3 sets (left/ Right & Mono) of mix outputs sent to the Dante/ AES67 network. These are post front panel select/solo switches and also post input gain and panning circuits. They are also post output volume control.

One set of outputs is post dim and cut, another is pre dim and cut whilst the third is post dim but pre cut.

In addition to the above there are 3 sets of post front panel select switch outputs (but pre gain/pan/dim/cut).

The 3 outputs are:

- 1) Mix out of Dante inputs 1 - 12
- 2) Mix out of Dante inputs 13 - 24
- 3) Mix out of Dante inputs 25 - 32 + Analogue inputs 1 and 2

As well as the above Dante/ AES67 network mix outputs there are a further 12 fixed ratio permanently on mix outputs being sent to the network. These can be especially useful to help build large network audio systems

- **Analogue 1 and 2 Outputs**

In case you want to use the two analogue inputs as sources on your network both analogue inputs 1 and 2 are presented on the network as individual sources, each after its input gain control.

- **Tone & White Noise**

A very useful hidden feature of the Bella 32 for an engineer are 1kHz tone and white noise outputs. Both of these are available at three different line up levels on the Dante/ AES67 network.



BELLA 32

Network/ Power/ GPIO/ Other

- **GPIO**

There are two solid state relay outputs active when the front panel Cut LS or Dim LS switches are operated, ideal for connecting to external loudspeaker cut/ dim circuits if required.

A number of inputs are also available. One is very useful if your not using the internal loudspeakers as it cuts them, but does not affect the dim and cut busses. The other inputs are for external triggering of the Dim and Cut busses, very useful if you're working in an area with live mics.

- **Network Interface**

Our widely used Dante®/ AES67 network interface is implemented in the Bella 32. It features 4 network ports, 2 x copper and 2 x SFP slots (normally used for fibre). These network ports can be set to operate in fully redundant mode or as a network switch for connecting other equipment to.

- **AES67 & SMPTE 2110 Compliant**

The Bella 32 uses the much acclaimed Brooklyn module from Audinate as its network audio processor. Audinate have made this module both AES67 and SMPTE 2110 compliant. We provide the firmware to enable the module to work with these standards.

- **Power**

For versatility & redundancy there are 3 power options. An internal wide range mains supply & either of the 2 copper network interfaces can power the unit if connected to a PoE source.

- **Groups**

Two front panel group switches are available making it very easy for an operator to switch between two commonly used sets of audio circuits for monitoring. It is very easy for an operator to add/ remove sources from the groups.

- **Reset Button**

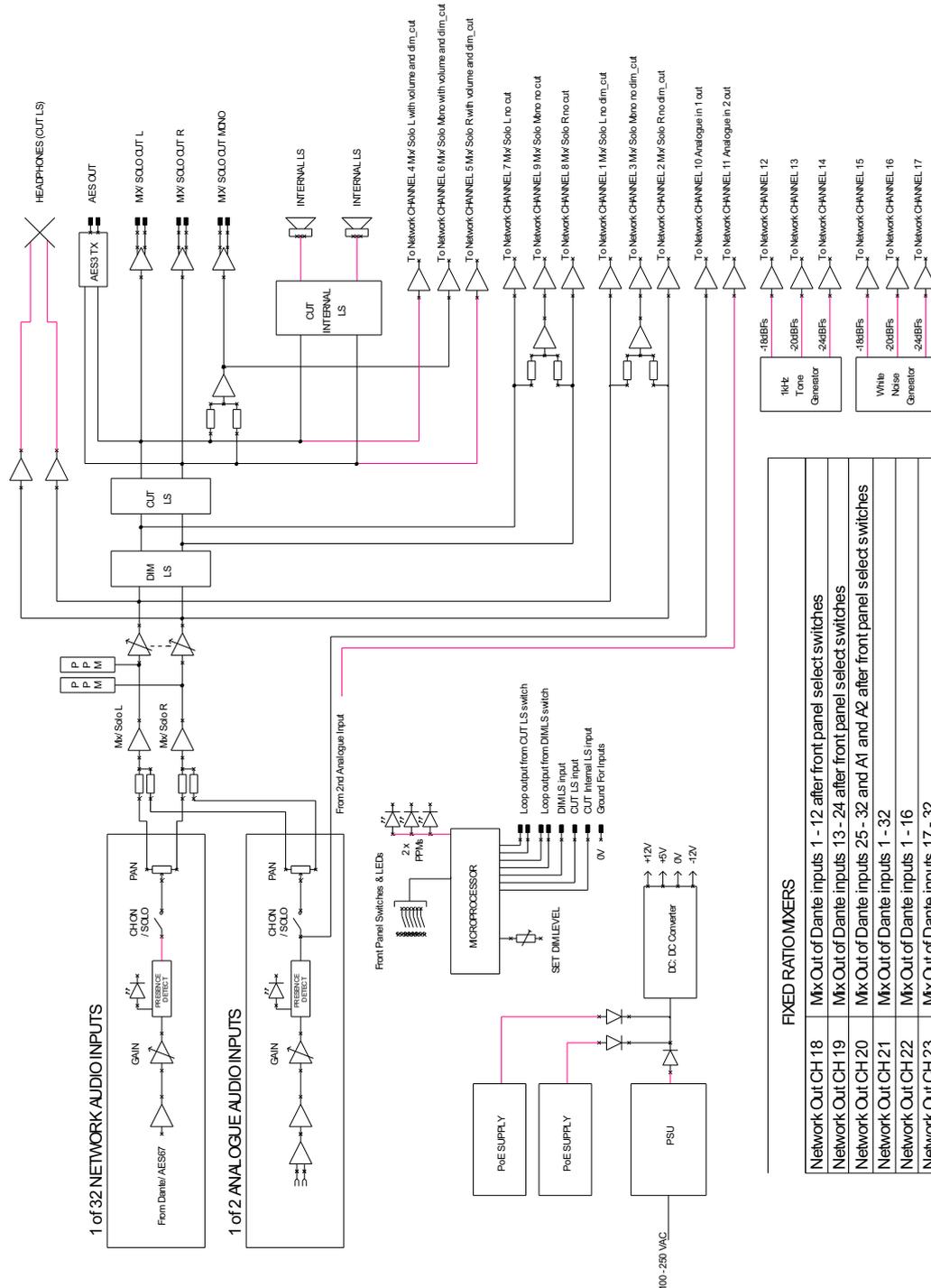
A reset button is provided for returning all the inputs to unity gain and panned centre. Very useful if the Bella 32 is being used by different operators at different events. To prevent accidental usage the reset button must be pressed for at least three seconds before a reset will be initiated.

In England there is a common phrase 'Listen To Your Mother' which as a child often means that you're in trouble!

Dante Alighieri's mother was Bella Abati.

We therefore hope that if you listen to our Bella 32 it will keep you out of trouble.

BLOCK DIAGRAM



FIXED RATIO MIXERS

Network Out CH 18	Mix Out of Dante inputs 1 - 12 after front panel select switches
Network Out CH 19	Mix Out of Dante inputs 13 - 24 after front panel select switches
Network Out CH 20	Mix Out of Dante inputs 25 - 32 and A1 and A2 after front panel select switches
Network Out CH 21	Mix Out of Dante inputs 1 - 32
Network Out CH 22	Mix Out of Dante inputs 1 - 16
Network Out CH 23	Mix Out of Dante inputs 17 - 32
Network Out CH 24	Mix Out of Dante inputs 1 - 8
Network Out CH 25	Mix Out of Dante inputs 9 - 16
Network Out CH 26	Mix Out of Dante inputs 17 - 24
Network Out CH 27	Mix Out of Dante inputs 25 - 32
Network Out CH 28	Mix Out of Dante inputs 1 - 4
Network Out CH 29	Mix Out of Dante inputs 5 - 8
Network Out CH 30	Mix Out of Dante inputs 9 - 12
Network Out CH 31	Mix Out of Dante inputs 13 - 16
Network Out CH 32	Mix Out of Dante inputs 17 - 20
Network Out CH 33	Mix Out of Dante inputs 21 - 24
Network Out CH 34	Mix Out of Dante inputs 25 - 28
Network Out CH 35	Mix Out of analogue 1 in and analogue 2 in

AUDIO

Channel Input Gain Controls

+21 to -21dB (In 1.5dB steps)

Loudspeaker/ Headphone Gain Control

+10.6dB to Off

Channel Off Switch

Fully muted (- infinity dB) when off

PPM Range/ Resolution

0dBfs to -48dBfs

3dB Resolution 0 to -36dBfs

6dB Resolution -36 to -48dBfs

Channel Output Pan

Fully Off to Fully On

Analogue Input Type

Electronically balanced

(can be wired unbalanced)

Analogue Input Impedance

>20kOhms

Analogue Input Connectors

Neutrik XLRs

Analogue Input Line Up

Line level (0dBu (-18dBfs))

Analogue Input Frequency Response

>= 0.5dB 22Hz to 22kHz

Measured at Mix Output Mono

Analogue Input THD + Noise (ref +8dBu)

>= 0.004% @ 1kHz

Analogue Output type

Electronically balanced

Analogue Output Connectors

Neutrik XLRs

Analogue Output Impedance

<50 Ohms

Maximum Analogue Output Level

+17.4dBu

Analogue Output Frequency Response

>= -0.1dB 22Hz to 22kHz

Analogue Output Noise

-91dB @ lineup (residual noise)

Analogue Out THD + Noise (ref =8dBu)

0.002% @ 1kHz

Headphone Impedance

100 - 1000 Ohms

Maximum Headphone Level

+17dBu into 600 Ohms

Present LED Threshold

-20dBu

Present LED Hold Time

3 seconds

Present LED Clip Indication

Flashes when within 1dB of clip point

SIZE & POWER

Dimensions

19" wide 1RU high 185mm deep (chassis)

Weight

1800g (3.95 Pounds)

Mains Input

100 to 240VAC 50/60Hz

Power Consumption

<10 Watts

PoE (Power Over Ethernet)

Maybe powered on either copper network port

Complies to: IEEE 802.3af-2003

Classification Class 0

Shipping Weight

4Kg

Shipping Carton

Export quality cardboard carton

62 x 41 x 12 cms

INCLUDED ITEMS

Rj45 Cable

1 x 2M Rj45 network cable

Handbook

A4 user guide (download also available)

Mains Cable

1 x IEC Mains cable

(UK & Europe Only)

NETWORK AUDIO

Primary Network Protocol

Dante®

AES67

Compliant

SMPTE 2110

Compliant

DDM

Certified

Sample Frequency

48kHz

Resolution

24 Bit

Network Interface Type

Gigabit Ethernet

Network Interface Physical

2 x Rj45 copper

2 x SFP Slots (SFP Modules Not Included)

ENVIRONMENTAL

Operating Temperature

0 to +50°C (32 to 122°F)

Storage Temperature

-20 to +70 °C (-4 to 158°F)

Relative Humidity

0 to 95% non-condensing