

NBB-020P Stereo Networked Audio Transmitter

NBB-020A Stereo Networked Audio Receiver



Overview:

The NBB-020P transmits stereo audio to Dante network while NBB-020A receives stereo audio from Dante network. Both NBB-020P and NBB-020A are direct powered by PoE which means you don't need to find AC outlets for device deployment.

The NBB-020P accepts wide range of analog audio signal from MIC to LINE level and it also can deliver 48V phantom power to condenser microphones connected. The NBB-020A has high analog output capability which fully meets the industrial standard up to 24dBu.

Features:

- Dante-enabled networked Audio Transmitter (NBB-020P) or Receiver (NBB-020A)
- Streaming audio in robust standard Ethernet cable (a.k.a., Digital Snake)
- Easily organize and expand network topology with regular Ethernet switches
- Uncompressed 24-bit PCM coding with sample rate up to 96KHz
- Powered by Ethernet PoE without the need of AC outlet
- Analog Gain (NBB-020P) or Attenuate (NBB-020A) control for each channel
- Phantom power engagement control per input channel (NBB-020P)
- Signal clip indicator for both analog inputs (NBB-020P)
- XLR Combo sockets for both XLR and TRS phone plugging (NBB-020P)
- Routing and other configuration are set with Dante Controller software

Description:

The NBB-020P/NBB-020A adopts Audinate Dante networking technology for audio transceiving, and is very network friendly with unlimited flexibility in topology of deployment. It supports up to Layer 3 of IEEE 802.3 network standard, enabling you to organize your audio network with the on-the-shelf Ethernet switches or to immediately transport streaming audio by taking advantage of your existing installed network facility with no hassle. Accompanied by Ethernet switches, you can flexibly expand territory of device deployment in audio networking with NBB-020P/NBB-020A.



Audio routing among each NBB-020P/NBB-020A and all the other Dante-enabled devices is configured via computer with dedicated Dante Controller software which is available free from Audinate website. With Dante Virtual Soundcard software, you are even able to have your DAW software direct record/play stereo streaming audio from NBB-020P or to NBB-020A.

The analog audio input/output interfaces of NBB-020P/NBB-020A fully meet the requirements of the professional audio industry. Audio is encoded(NBB-020P)/decoded(NBB-020A) with the latest and uncompressed 24-bit PCM encoder(NBB-020P)/decoder(NBB-020A) with sample rate in 44.1KHz, 48KHz, or 96KHz. The NBB-020A outputs are peculiarly buffered with amplifiers of high-rail-voltage which can drive the lines up to 24dBu. Besides the high-level of drive capability, the output of NBB-020A can also be attenuated to meet the narrower reception range of inputs of some semi-professional devices. Both inputs of NBB-020P accept signal of level from mic to line with individual gain and phantom power control. The NBB-020P is also equipped with a clip indicator for both the inputs to warn audio technicians of any signal overload on inputs.

The NBB-020P/NBB-020A is assembled in a sturdy metal chassis with elegant style of aluminum front panel. They are very slim in height which allows them to insert in a 1U space in a regular 19" mount-rack.

Getting Started Guide:

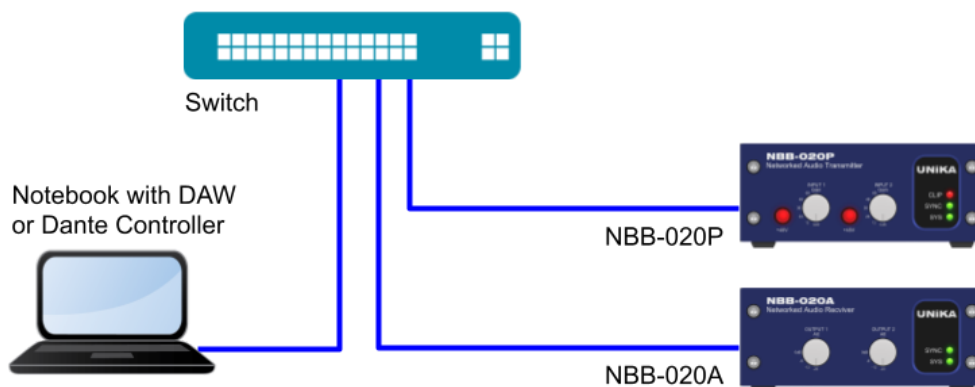
Powering

The NBB-020P/NBB-020A is direct powered by PoE from Ethernet switch with PoE PSE capability.



Settings & Operations

Once your NBB-020P/NBB-020A is powered, you can configure your NBB-020P/NBB-020A from anywhere in the same LAN network. That is to say that the NBB-020P/NBB-020A can talk to your computer via a Ethernet switch anywhere in the same LAN network. See picture below for an illustration.



All the routing assignment and device configuration are set via Dante Controller software which is available free from the following Audinate webpage,

www.audinate.com/products/software/dante-controller

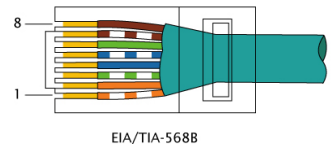
User's guide of Dante Controller can be found on the following webpage,

www.audinate.com/resources/technical-documentation

Besides the routing assignment, mostly, **you should set the operating sample rate of your NBB-020P/NBB-020A to align with the sample rate of your whole Dante network.** Basically, all the devices in the same Dante network should be synced to the same sample rate. You do not need to worry about the bit-depth of coding of your audio stream in the network. Although the NBB-020P/NBB-020A encodes/decodes audio in 24-bit PCM stream, it automatically does bit-depth converting when it streams audio to/from other Dante-enabled devices manipulating audio data in different bit-depth.

By default, the NBB-020A device transmits one or a couple of channels of audio in flow to each remote device respectively. The NBB-020A supports merely 2 audio flows simultaneously. When you need the audio from NBB-020A to be transmitted to more than 2 devices, you can assign the channels needed to be transmitted to more than 2 remote devices in a multicast flow by clicking the multicast button in the device view window in Dante Controller. A multicast flow is virtually distributed as broadcasting in Dante Audio Network so that more than 2 devices can receive the audio flow.

Usually, UTP (Unshielded Twisted Pair) Cat.5e cable should be good enough for all the network installation. However, STP (Shielded Twisted Pair) Cat.5e cable is strongly recommended if you plan to route the cable through noisy environment. The foil or braided screens in STP cable can provide great noise immunity from electromagnetic interference around. Also, make sure the EIA/TIA-568B standard is fully followed for the RJ-45 plug wiring.



Front Panel

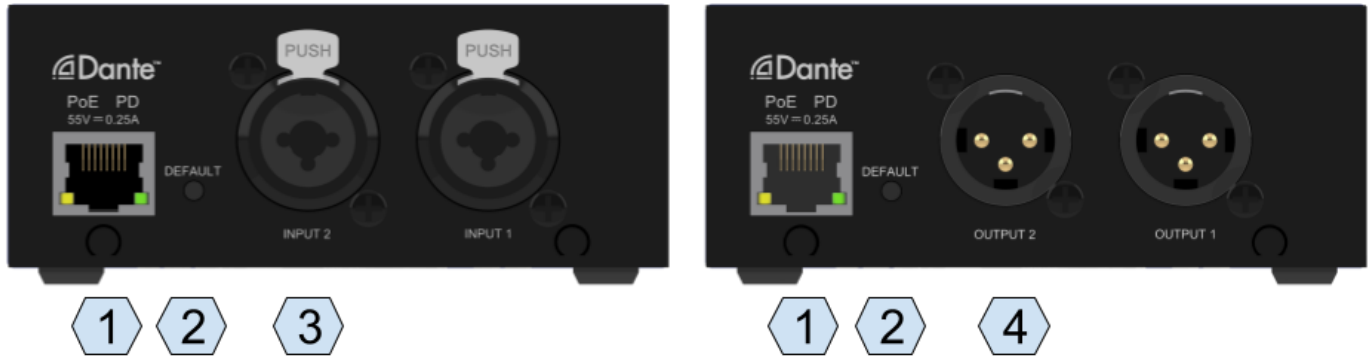
To accommodate all the variety of field installation, the front panel of NBB-020P/NBB-020A is equipped with rich control facilities as follows,



1. The Att control knobs can be used to attenuate output down to -20dB from nominal maximum.
2. The Gain control knobs can accommodate itself to accept all kind of sources with level from mic to line.
3. The +48V button to control whether to deliver phantom power to power audio source device or not.
4. The clip indicator flashes to warn audio technicians if any one of analog inputs is overloaded.
5. The SYS LED indicates system activity,
 - Red: system booting
 - Green: system ready
6. The SYNC LED indicates the PTP clocking status,
 - Green: PTP is synced
 - Amber: PTP is syncing
 - Red: PTP error
 - Green & flashing: the device is elevated to PTP clock master.

NOTE: The NBB-020P/NBB-020A supports firmware update from Dante Updater feature in Dante Controller software. Both SYS and SYNC LEDs flash during firmware upgrading by Danate Updater.

Rear Panel



1. There is a RJ-45 Ethernet port for Dante networking and control settings. The LEDs on the RJ-45 port reveal the network status described as follows,
 - Green: Network Linked and Activity if flashing
 - Amber: 100Mbps detected

NOTE: If the amber LED is not light, it means the network speed is lower than 100Mbps. The NBB-020P/NBB-020A does not support 10Mbps network, so please make sure the Amber LED is always solid light.

2. A default button next to RJ-45 port is used to restore the settings of NBB-020P/NBB-020A to factory default. Press and hold the button when you power up the device will restore the device to default state. Once you see both SYS and SYNC LEDs red, you can then re-power the device for the default settings to take effect. The cap of the default button is sunk to panel to avoid your accidentally triggering the action of default restoring.
3. The NBB-020P can accept analog input level up to 24dBu from the balanced XLR or TRS phone plug. The 0dBFS level is nominal to 24dBu to meet the professional audio standard.
4. The NBB-020A delivers analog output via balanced XLR socket, and its 0dBFS level is also nominal to 24dBu to meet the industrial standard. To get flat frequency response, please be informed that the balanced XLR outputs are all direct and transformerless coupling. **Please do not short either pin 2 or pin 3 of any output XLR to pin 1 of itself** if the output is destined at unbalanced input. You can, however, simply float pin 3 and drive the unbalanced input with pin 2 and pin 1 merely.

Bottom Panel

This is where you can find the serial number and the factory assigned Dante default name of your NBB-020P/NBB-020A. The Dante name of your device can be changed to whatever you like by using Dante Controller software.



Specifications:

Model	NBB-020P	NBB-020A
Dante Channel	x2 Transmit	x2 Receive
Audio Connector	XLR/TRS Combo	XLR
Clip Indicator	x1 for Both Channels	N/A
Gain/Volume Control	Gain: 0~60dB Rotary	Volume: -20~0dB Rotary
+48V Phantom Power	ON/OFF per Channel	N/A
Analog Level	24dBu max.	
Digitized Scaling	0dBFS @24dBu	
Encoding	Uncompressed 24-bit PCM	
Sample Rate	44.1KHz / 48KHz / 96KHz	
Ethernet	100Mbps RJ45 Port	
Audio Latency	< 2ms typical	
Node to Node Distance	100m with Cat.5e Cable	
Dante Flows	x2 (unicast + multicast)	N/A
Frequency Response	20Hz ~ 20KHz ± 0.5 dB	20Hz ~ 20KHz ± 0.5 dB
S/N Ratio (A-weighting)	> 110dB @0dBFS	> 110dB @0dBFS
THD + Noise (A-weighting)	< 0.002% @-10dBFS	< 0.002% @-15dBFS
Dynamic Range (A-weighting)	> 110dB	> 110dB
Crosstalk	< -110dB @10KHz	< -120dB @10KHz
Powered by PoE	55VDC, 0.25A (rated)	
Power Consumption	< 4Watts	
Operation Temperature	0 ~ 45°C	
Operation Rel. Humidity	0 ~ 90%	
Construction	Metal Chassis with Aluminum Front Panel	
Dimensions (HxWxD)	44mm x 111mm x 126mm	44mm x 111mm x 119mm
Weight	490g	455g

The above information is subject to change without notice.

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Cautions and Important Safety Instructions

- minimum distances around the apparatus for sufficient ventilation;
- the ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, table-cloths, curtains, etc.;
- no naked flame sources, such as lighted candles, should be placed on the apparatus;
- attention should be drawn to the environmental aspects of battery disposal;
- the use of apparatus in the tropical and/or moderate climates.

UNiKA products are designed and manufactured in Taiwan to the highest quality standard. However, if something does go wrong with a product, UNiKA Electronic Co., Ltd. will repair or replace such product in accordance with this warranty policy in any country served by an authorized UNiKA distributor. This warranty complements any national or regional law obligations of dealers, partners or national distributors and does not affect your statutory rights as a consumer. This warranty will only apply to products purchased from legal UNiKA distributor or dealer, partner etc. This warranty will be effective from the serial number and initial date of purchase and will be valid for the warranty periods detailed as distributor's sales and service document. No claim under this warranty will be valid unless accompanied by proof of purchase of the product to which the warranty claim relates. This warranty is transferable from owner to owner and will apply and remain with the product to which it relates from the initial date of purchase for the specified term in the distributor's Area, as long as it's supported with the original proof of purchase.

UNiKA Service and Warranty Form

Model	☐ NBB-020P ☐ NBB-020P	Date	
User/Buyer information			
Company		Contact	
Tel		Fax	
Website		eMail	
Distributor/Dealer			
Contact		Remark	
Warranty valid date			
Signature and Stamp			