



NA2-IO-DLINE

Line I/O to Dante™ Interface



NEUTRIK®

6 Appendix

6.1 Technical specifications

Dante™ specifications

Channels	2 INPUTS (line level), 2 OUTPUTS (line level)
Supported sampling rates	44.1 / 48 / 88.2 / 96 kHz
Bit depth	16, 24 and 32 Bit
Latency	Depending on the network configuration, 1 ms (standard)
Ethernet connection	100BASE-TX (PoE support)

Electrical specifications

Power consumption	< 2 watts
Power supply	PoE switch (Power over Ethernet) or PoE injector (according to IEEE 802.3af/at/bt)

Analog audio input

Input impedance	6.6 kOhm
Input level (balanced)	Max. 22 dBu
Frequency response	20 Hz to 20 kHz (+/-0.5 dB)
Dynamic range	> 100 dB
Signal-to-noise ratio	> 100 dB
THD + noise:	< 0.01 % @ + 4 dBu, A-weighting
Crosstalk	< -80 dB @ 20 kHz

Analog audio output

Output impedance	< 800 Ohm
Output level (balanced)	Max. 16 dBu
Frequency response	20 Hz to 20 kHz (+/-0.5 dB)
Dynamic range	> 100 dB
Signal-to-noise ratio	> 100 dB
THD + noise:	< 0.01 % @ + 4 dBu, A-weighting
Crosstalk	< -80 dB @ 20 kHz

Mechanical specifications

Weight	0.44 kg (1 pound)
Dimensions (with rubber protection)	L = 164 mm (6.3 inches) B = 82 mm (3.2 inches) H = 51 mm (2.0 inches)
Dimensions (without rubber protection)	L = 151 mm (5.9 inches) B = 66 mm (2.6 inches) H = 41 mm (1.6 inches)
Operating environment	Indoor
Operating temperature	-5°C to +70°C
Storage temperature	-40°C to +150°C

6.2 PoE (Power over Ethernet)

PoE stands for Power over Ethernet and describes a practice for using a single CAT5e (or higher) to incorporate both power and data in the single cable.

Few advantages:

- **Easy setup**
- **Single cable run up to 100 m**
- **Using PoE doesn't require certified electrician as the power loads are small**
- **Existing network infrastructure can be used**

6.2.1 Definitions

PD (Powered device) – device that is connected to PSE and thus is powered by it.

PSE (Power Sourcing Equipment) – device that provides power to PD, can be a network switch or injector.

PSE Types

In our case, we consider only following two types of PSE devices.

- **PoE Switch: a switch that offers possibility to power PD. Switches use PoE classification.**
- **PoE Injector: typically a single port device for powering 1 PD. These exist with classification (active) or without (passive). Neutrik's NPS-30W is a passive PoE injector.**

The term class refers to a maximal power output (see table below).

6.2.2 PoE Standards

These standards are part of IEEE 802.3 general standards.

802.3 af – defines PoE classes 0-3.

802.3 at – uses the same classes, but introduces class 4 as well.

802.3 bt – uses the same classes as 802.3 af and 802.3 at, but introduces class 5 to 8 as well.

6.2.3 Classes and discovery process

Discovery is a process of PSE, determining the power requirements of the PD. Once PD and PSE are connected, PSE sends out a short voltage impulse, reads the returned value and provides power accordingly. This is valid for PSE with class (also called active).

No class (passive) PSE, acts as a classic power supply, hence no discovery is implemented, and PSE supplies deliver current at all times.

Class	Standard	Power required by PoE class at the Powered Device (PD)
1	IEEE 802.3af	0.44 – 3.84 W
2		3.84 – 6.49 W
3		6.49 – 12.95 W
4	IEEE 802.3at	12.95 – 25.5 W
5	IEEE 802.3bt	25.5 – 40 W
6		40 – 51 W
7		51 – 62 W
8		62 – 73 W