

# Smart *pi* ECOsystem



## Smart *pi* NAM

### USER GUIDE

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Version: 1.1.66

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# 1. INTRODUCTION

Thank you for purchasing Smart pi Network Amplifier Module (NAM).

NAM is a network-enabled four loudspeaker amplifier equipped with four power amplifiers (each 12 W RMS / 8  $\Omega$ ), internal DSP for audio filter and delay functions, and four autodetecting gigabit LAN ports (2 x Ethernet and 2 x SFP). Optionally, one LAN interface can be configured as a redundancy port to facilitate the 'fall-over' redundancy\* capabilities of Dante™ network audio.

There are many optional modules available, please see [www.smart-pi.info](http://www.smart-pi.info) for more information.

NAM seamlessly integrates with Dante™ and Ethernet to distribute Unicast and Multicast network audio streams to PA endpoints. The NAM can 'subscribe' to any available Dante™ audio streams and route them independently or in combination to any one of its four amplified outputs. Importantly, with some simple changes, existing analog PA systems can also be made networkable with NAM via an IT network infrastructure.

NAM is fully compatible with Dante™ Domain Manager and is configured via web browser.

The Smart pi NAM (Network Amplifier Modules) are commercial and industrial amplifiers that can be installed in the field and close to the speaker location, this allows ease of changing audio zoning, sources, priorities and volume for every single speaker within the system.

Indoor and Outdoor (IP66) NAMs are available for each model.

Each NAM has 4 x 12-Watt RMS class D amplifiers, an Ethernet switch with 2 fibre and 2 ethernet ports, and built in DSP (EQ, FIR, delay and gain). The NAM-HP has 4 x 75-Watt RMS class D amplifiers further offering the ability to incorporate TCoil and induction loops into PA systems for the hearing impaired.

Please read this manual fully before operating your new NAM.

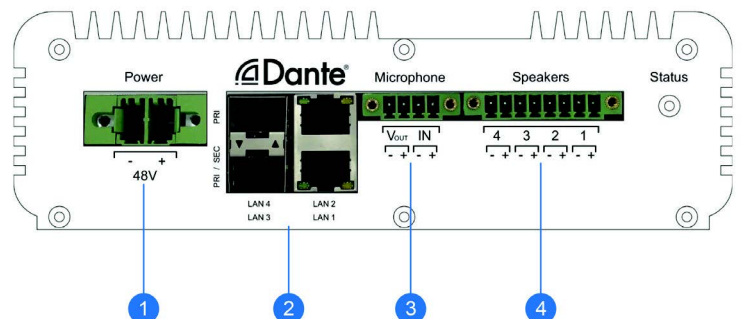
For the latest version information and downloads please visit the Smart pi portal.

## 2. HARDWARE OVERVIEW

Dimensions:



NAM 603 Connection Details:



- 1 Power**
- 
- 2 1
- 1: 36V – 52V +  
2: 36V – 52V -

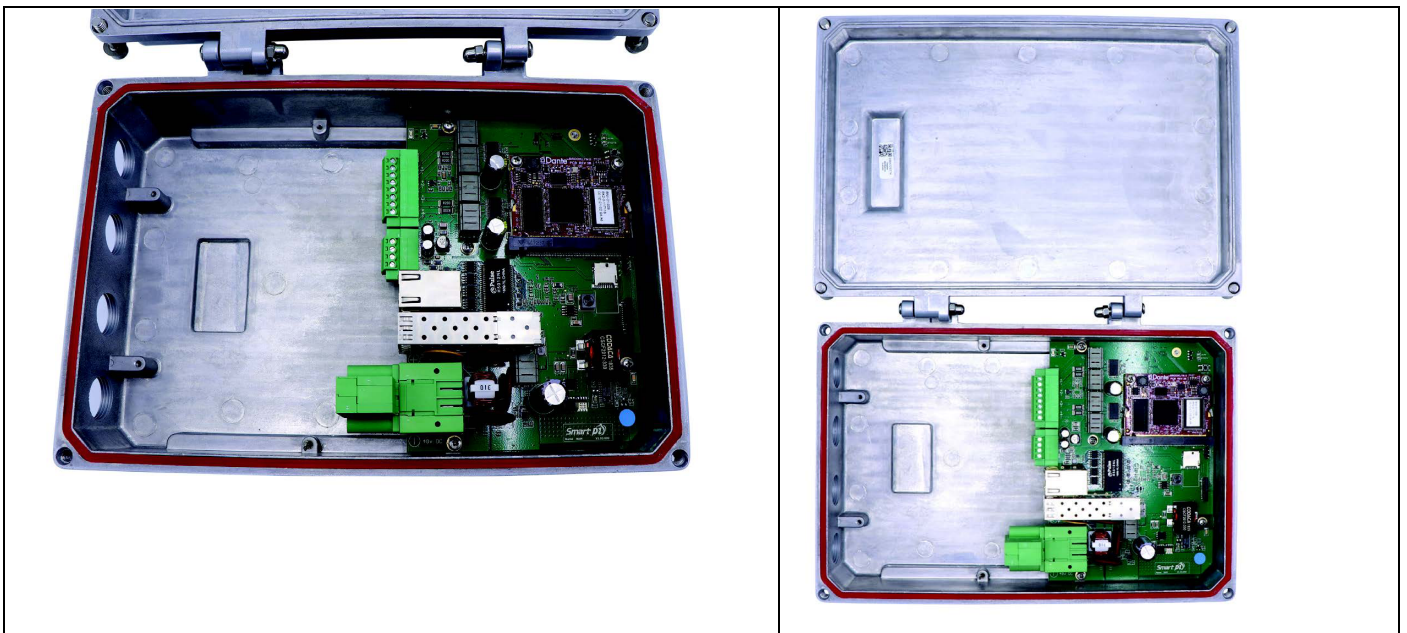
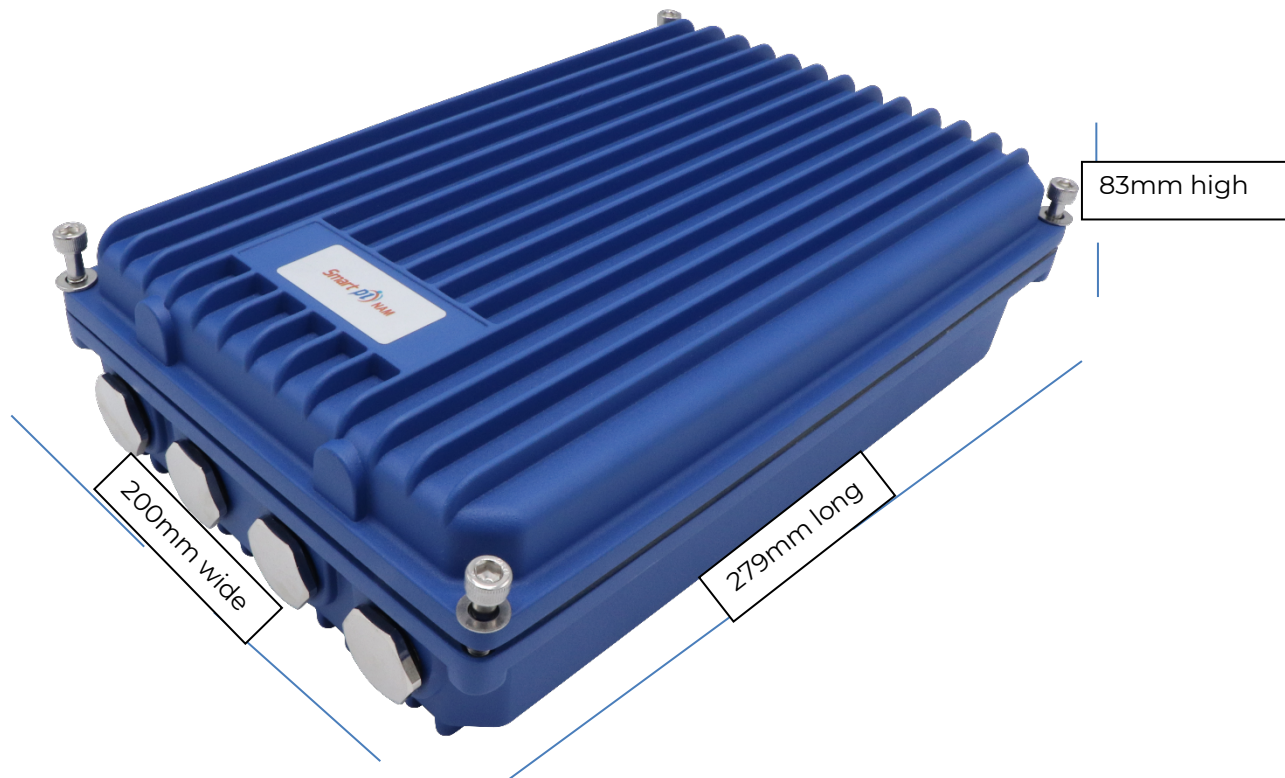
- 2 LAN**
- 
- 4 2  
3 1
- 1: LAN 1  
2: LAN 2  
3: LAN 3 (SFP)  
4: LAN 4 (SFP)

- 3 Microphone**
- 
- 4 3 2 1
- 1: Microphone +  
2: Microphone -  
3: Volts +  
4: Ground

- 4 To Speakers**
- 
- 8 7 6 5 4 3 2 1
- |                |                |
|----------------|----------------|
| 1: Speaker 1 + | 5: Speaker 3 + |
| 2: Speaker 1 - | 6: Speaker 3 - |
| 3: Speaker 2 + | 7: Speaker 4 + |
| 4: Speaker 2 - | 8: Speaker 4 - |

The outdoor NAM

Dimensions:

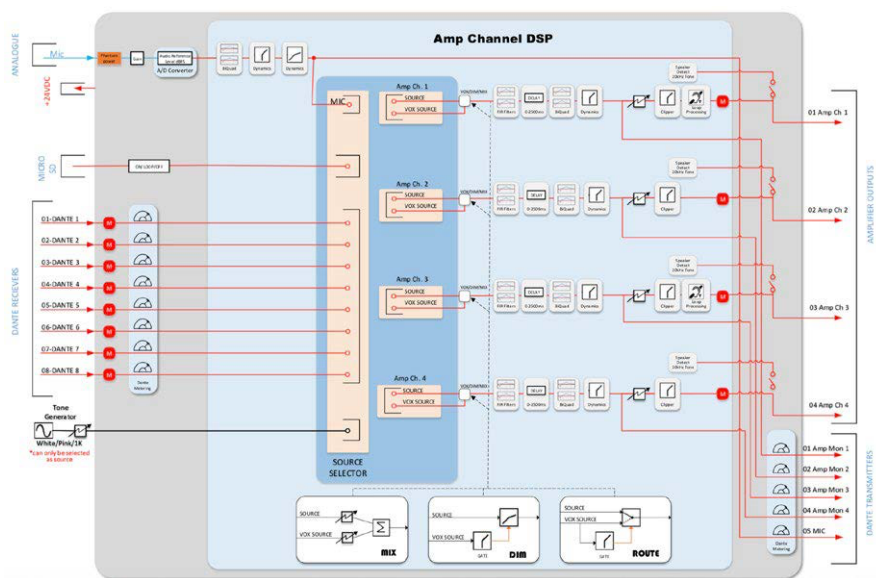
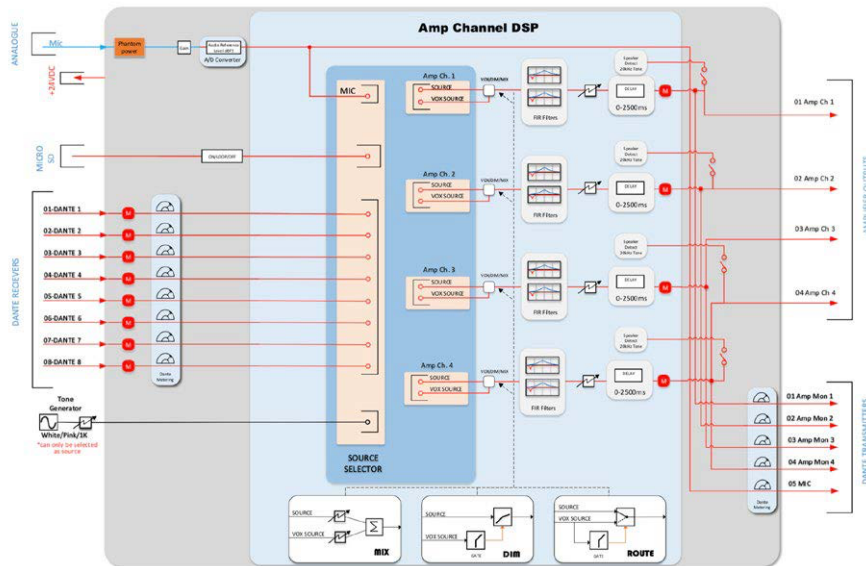


### 3. AT A GLANCE

<b>HARDWARE</b>	
Power	36 – 52 VDC (1.5 A) – with real-time monitoring
Network	2 x Gigabit Ethernet and 2 x Small form-factor pluggable (SFP) ports.
AutoDetecting	One of each type assigned per LAN in redundancy config.
Amplification	NAM: 4 x 12 W RMS (8 $\Omega$ ) NAM-HP: 4 x 75 W RMS (8 $\Omega$ )
AES-3 IN (PLUS)	24 bit, sample rate conversion, Input Max 7:1, max range 139 DNR.
Analogue I/O (PLUS)	Up to 2 in and 2 out at +4 dBu Line Level
GPIO (PLUS)	Vox sources for GPIO triggers.
Microphone Input	48v Phantom, ref level -18 / -20 dBfs, gain -2.5 to +41.5 dB, max in +18 dB
SD Card	Audio files = 48k / 16 bit mono (card FAT32 : allocation unit size 512 bytes).
Status	Amp status LED Indicator. AES 'Lock' LED Indicator (PLUS option).
Management	Web browser interface (up to 20 users). API for remote integration. Dante™ Domain Manager (DDM). Backup / Restore Remote update

## AUDIO FEATURES

- Linear Dante Support
- SIP (OPUS) option available for Wide Area and Internet based connectivity
- 7 Band Parametric Equalisers
- Ambient Noise Sensing Microphone input
- Mix, Mute and DIM options built in for smaller installatons
- Low Noise High Quality Class D Amplifiers



## PROCESSING

- Speaker Impedance Measurement with definable tolerance range
- Amp status with fault codes
- Onboard tone generator – White, Pink, 1 k Sine, 400 Hz Sine – adjustable level
- Selectable DSP per output and input – AES, Dante™ 1-8, Mic, AES (L,R),
- Tone and SD Card.
- 2500 ms delay per channel in 1 ms steps.
- VOX control triggers – Dante™ 1-8, Mic, AES (PLUS option)
- Latency settings
- 1000 point FIR filter per channel

## DANTE FEATURES

Dante Domain Manager (DDM) Ready

Enhanced Dante Wide Area Support for low bandwidth and large systems.

### Indoor NAMs

Standard 4 x 24 Watt NAM and NAM-HP 4 x 75 Watt versions available

Supports up to 4 zones with built in DSP (EQ, Dynamics, Mixer)

Speaker Monitoring

Hearing and Inducton Loops (NAM-HP only)



### Outdoor IP66 NAMs

NAM and NAM-HP options available

NAMplus boards for GPIO, AES/IP and sip available

4 port switch 2 x Ethernet RJ45 and 2 x SFP

Custom Colours Available



## 4. SETTING UP

Open the packaging and make sure all accessories are present. The box will contain:

- 1 x NAM unit
- 1 x Quick start guide

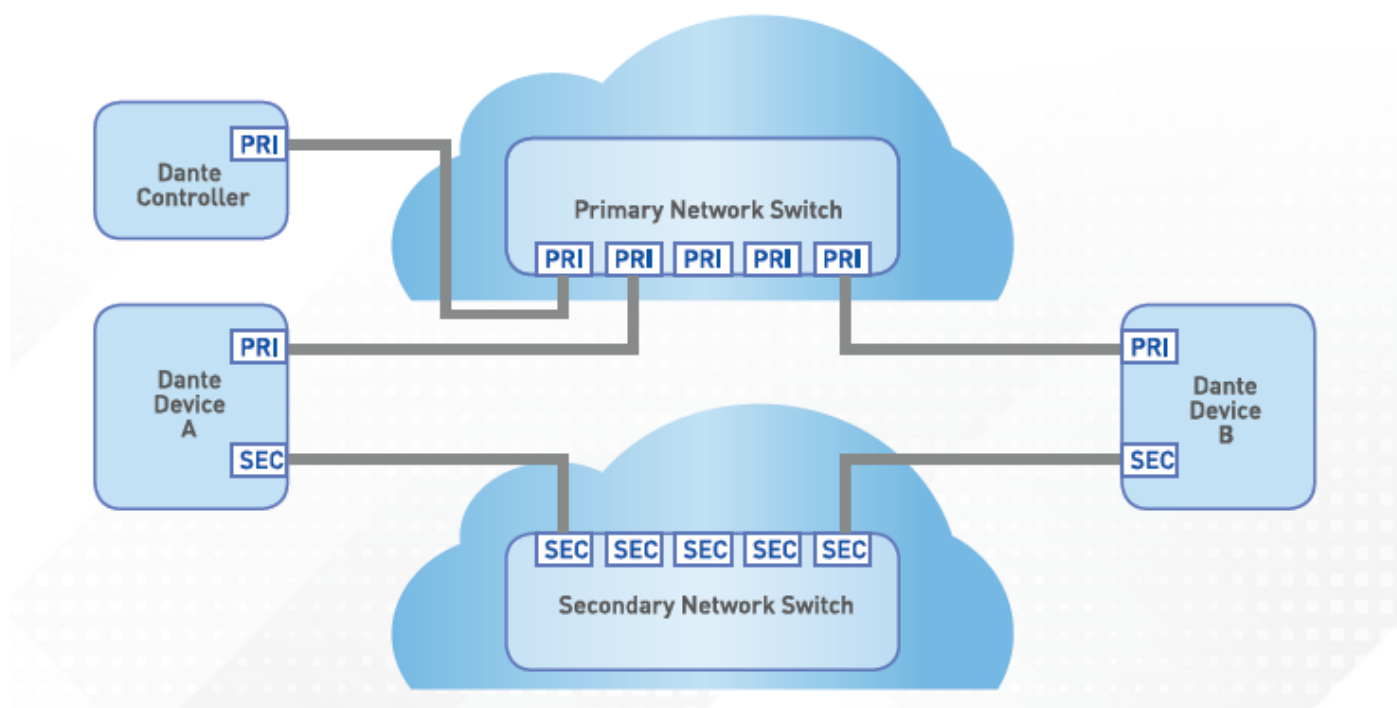
The casing side brackets have pre-drilled holes for flat surface mounting, such as a wall or ceiling. Install the unit in a dry and well ventilated area that is not subject to extreme heat. Take care that the mounting position allows for clear access for cable connections to the unit.

NAM requires a 24 - 54 VDC 1.5 A power source (Phoenix receptacle). NAM features real-time monitoring of the DC power supply - see STATUS view - page 6.

Connect the NAM for your LAN / PA setup. In a basic network configuration, all 4 of NAM's network ports (copper and fibre) will operate together, much like a 4 port switch. However, this automatically changes if a redundancy configuration is opted for.

### 4.1 OPTIONAL REDUNDANCY

As a fully featured Dante™ device, the NAM can be connected to a secondary network via its designated secondary LAN port. If needed, redundancy is facilitated by the Dante™ Controller. A redundancy configuration is recommended, but is not mandatory.



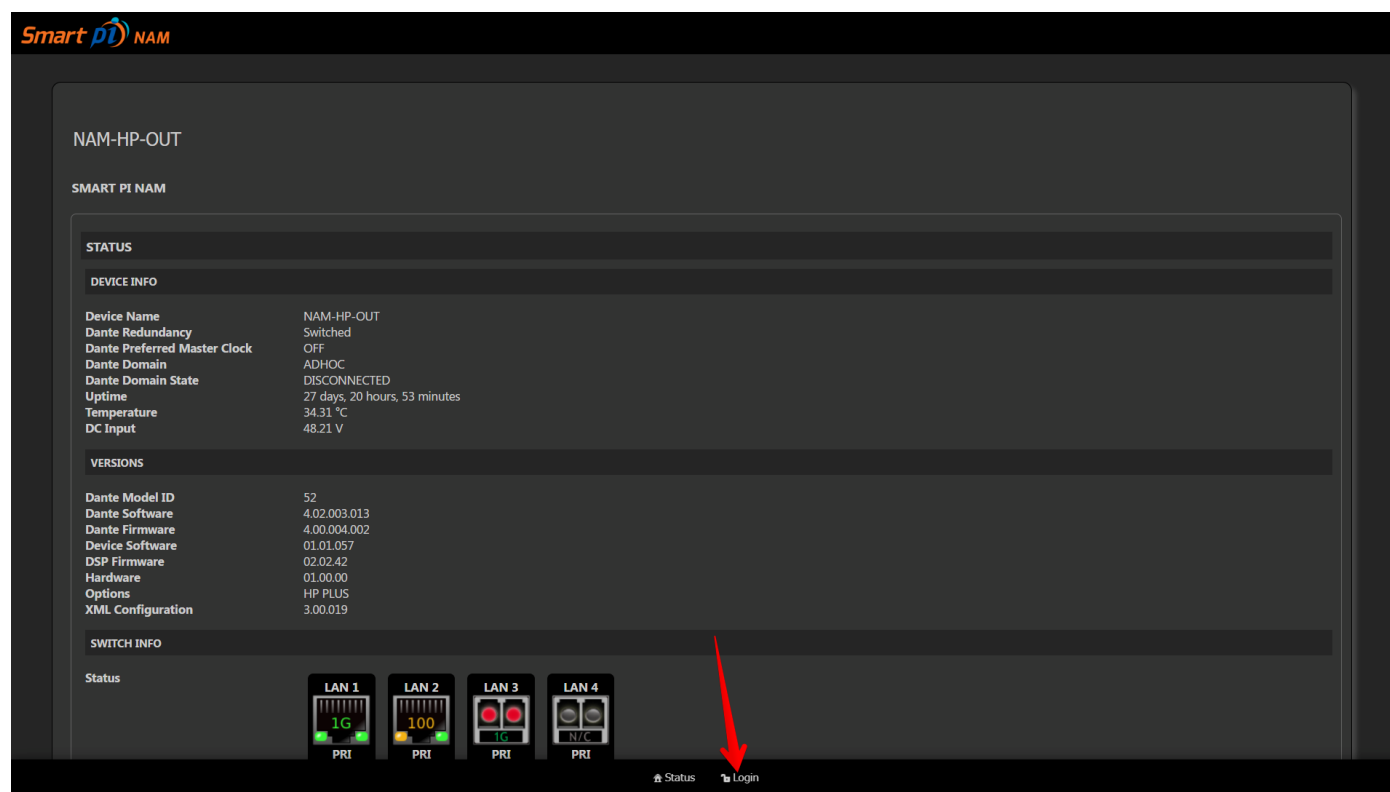
In a redundancy set up (above), the NAM only needs to be configured as a Dante™ device within the Primary network, and **both networks must have the same link speed**. If the primary network transmits at 1 Gb sec<sup>-1</sup>, this must be matched by the redundant secondary network.

**IMPORTANT: In this configuration, the NAM will assign 1 x Gigabit port and 1 x SFP to each network.**

## 5. STATUS VIEW

After powering up the NAM will acquire a network IP address via DHCP. Dante™ Controller management software can be used to discover this IP address, or you can employ other methods of IP discovery. A web browser can then be used to navigate to the NAM's web interface.

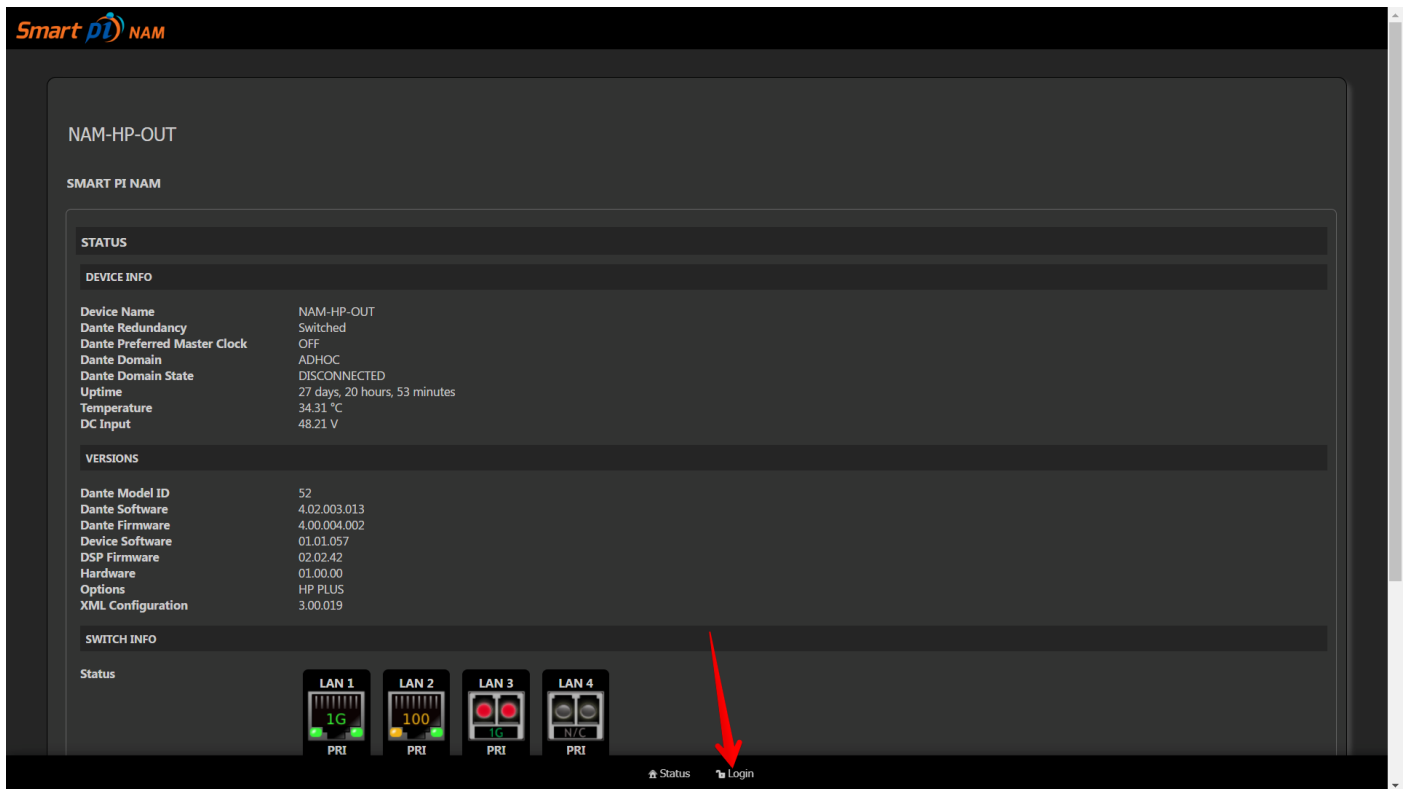
The initial STATUS page displays an overview of the NAM's current operational status, including current versions of hardware and firmware, network configuration, and realtime monitoring of the DC power supply input.



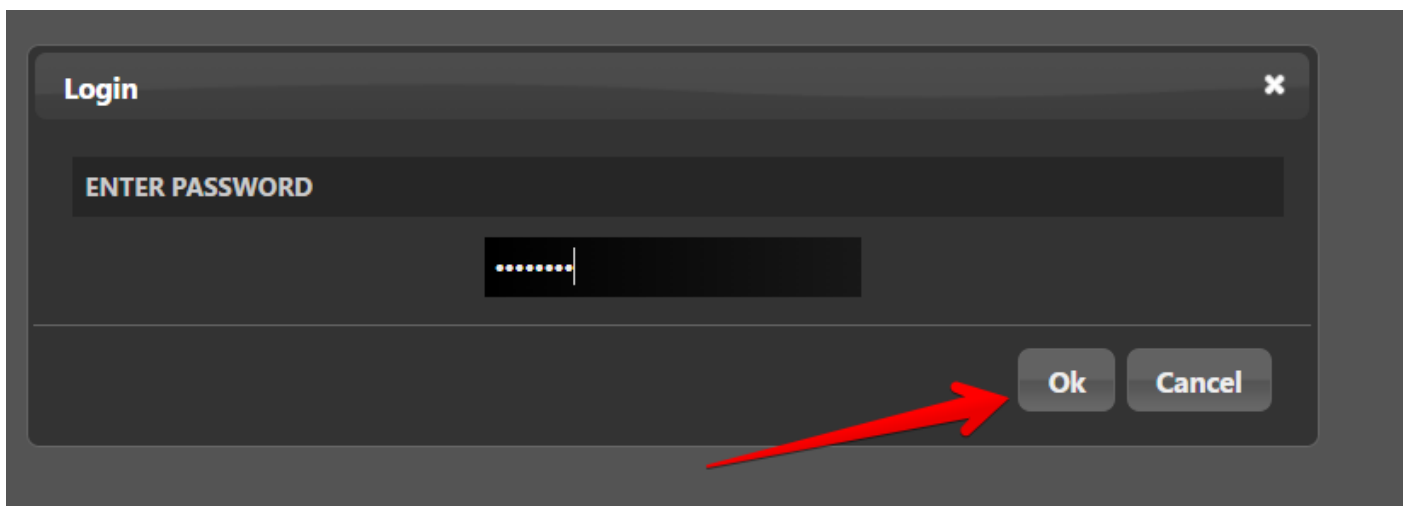
To make any configuration changes, Users must first Login.

## 6. LOGGING IN

From your main screen, you'll arrive at the **Status** tab. Here can click on **Login** to access the master portal for your Smart Pi NAM.



Enter your password and hit **Ok** to continue. The default password is password.



## 7. MASTER INTERFACE

After successfully logging in, you'll arrive at the master interface with all the tabs available.

### 7.1 STATUS

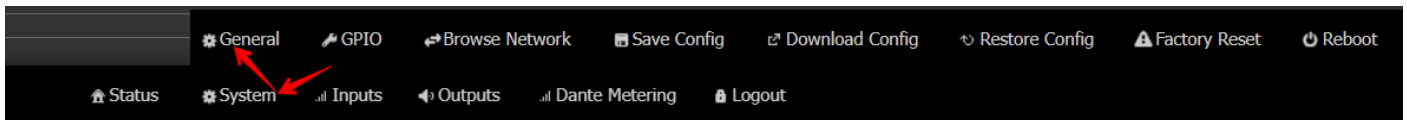
By default, you'll have the **Status** tab open that shows the statuses, devices info, versions and switch info.

### 7.2 SYSTEM

Click on 'System' to access core Dante™ network configuration options. This includes 8 tabs as described below.

#### 7.2.1 GENERAL

Hover your mouse over **System** and choose **General** to access the general settings.



Over here, you'll find the following configurable options:

**Smart pi NAM**

NAM-HP-OUT

SMART PI NAM

**GENERAL**

**General** | Dante Network

**DEVICE**

Device Name (A to Z, 1 to 9 or -) NAM-HP-OUT

Password .....

Dante Redundancy Redundant Switched

Dante Redundancy after Reboot Redundant Switched

Dante Preferred Master Clock ON OFF

Dante Receive Latency (µs) 250 500 1000 5000 20000

Dante Channels per Flow 2 4 8

**Device Name:** Enter a name for your NAM on the network. This name will appear in Dante™ Controller / Domain Manager.

**Password:** The Login password can be changed here.

**Dante Redundancy:** Determines whether or not the unit will be configured to use a secondary redundant network (see 14 - Glossary of Terms).

NOTE: if no secondary LAN connection is detected, this option will be greyed out.

**Dante Redundancy after Reboot:** Advance selection of redundancy configuration post reboot.

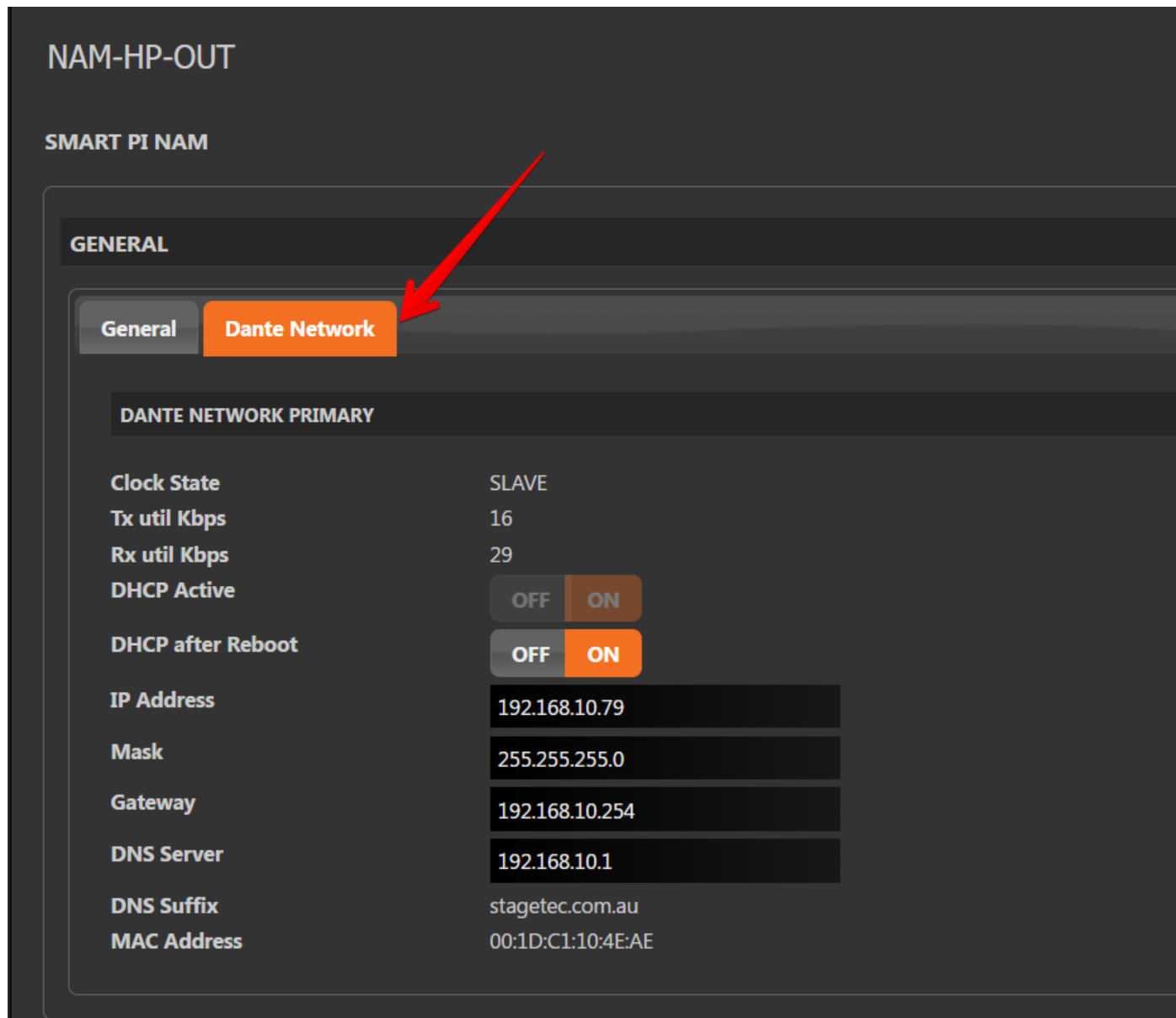
**Dante Preferred Master Clock:** Determines unit candidacy for the role of master digital clock.

**Dante Receive Latency ( $\mu$ s):** Sets the receive latency for this device. The default value is 1000  $\mu$ s.

**Dante Channels per Flow:** Set 2 or 4 channels per Flow (see 14. - Glossary of Terms).

## Dante Network

Click on **Dante Network** to access Dante™ Primary and Secondary (if used) network configurations.



The screenshot shows the 'NAM-HP-OUT' configuration page. Under the 'SMART PI NAM' section, there is a 'GENERAL' tab. Within this tab, the 'Dante Network' sub-tab is selected and highlighted in orange, with a red arrow pointing to it. Below the tabs, the 'DANTE NETWORK PRIMARY' section contains the following settings:

Clock State	SLAVE
Tx util Kbps	16
Rx util Kbps	29
DHCP Active	<input type="radio"/> OFF <input checked="" type="radio"/> ON
DHCP after Reboot	<input type="radio"/> OFF <input checked="" type="radio"/> ON
IP Address	192.168.10.79
Mask	255.255.255.0
Gateway	192.168.10.254
DNS Server	192.168.10.1
DNS Suffix	stagetec.com.au
MAC Address	00:1D:C1:10:4E:AE

Here you will find the following status displays:

**Clock State** - Indicates the NAM's clock ranking status. MASTER or SLAVE

**Tx util Kbps** - Indicates the NAM's current transmit network bandwidth usage.

**Rx util Kbps** - Indicates the NAM's current receive network bandwidth usage.

**DHCP Active** – Switches between automatic acquisition or manual configuration of a LAN

IP address. NOTE: the **OFF** and **ON** switches are greyed out (as above) if an IP address has already been manually entered and **DHCP after Reboot** is set to **ON**. A device reboot is necessary to re-enable the switch.

**DHCP after Reboot** – Selects whether or not the unit should acquire network address settings from a DHCP server after a reboot. If this is set to **OFF**, then the IP Address, Mask, Gateway and DNS Server fields will become active.

NOTE: A device reboot is necessary to implement the changes.

**DNS Suffix** - The applied network Domain DNS Suffix (see 14. - Glossary of Terms).

**MAC Address** - The unique media access control (MAC) network address of the Primary network interface controller (NIC).

And coming to the configurable options:

**IP Address** – IP address that you will provide.

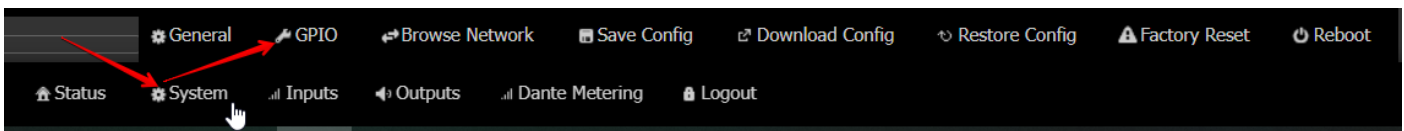
**Mask** – Subnet mask, if any.

**Gateway** – network node used in telecommunications that connects two networks with different transmission protocols together.

**DNS Server** – DNS Server address.

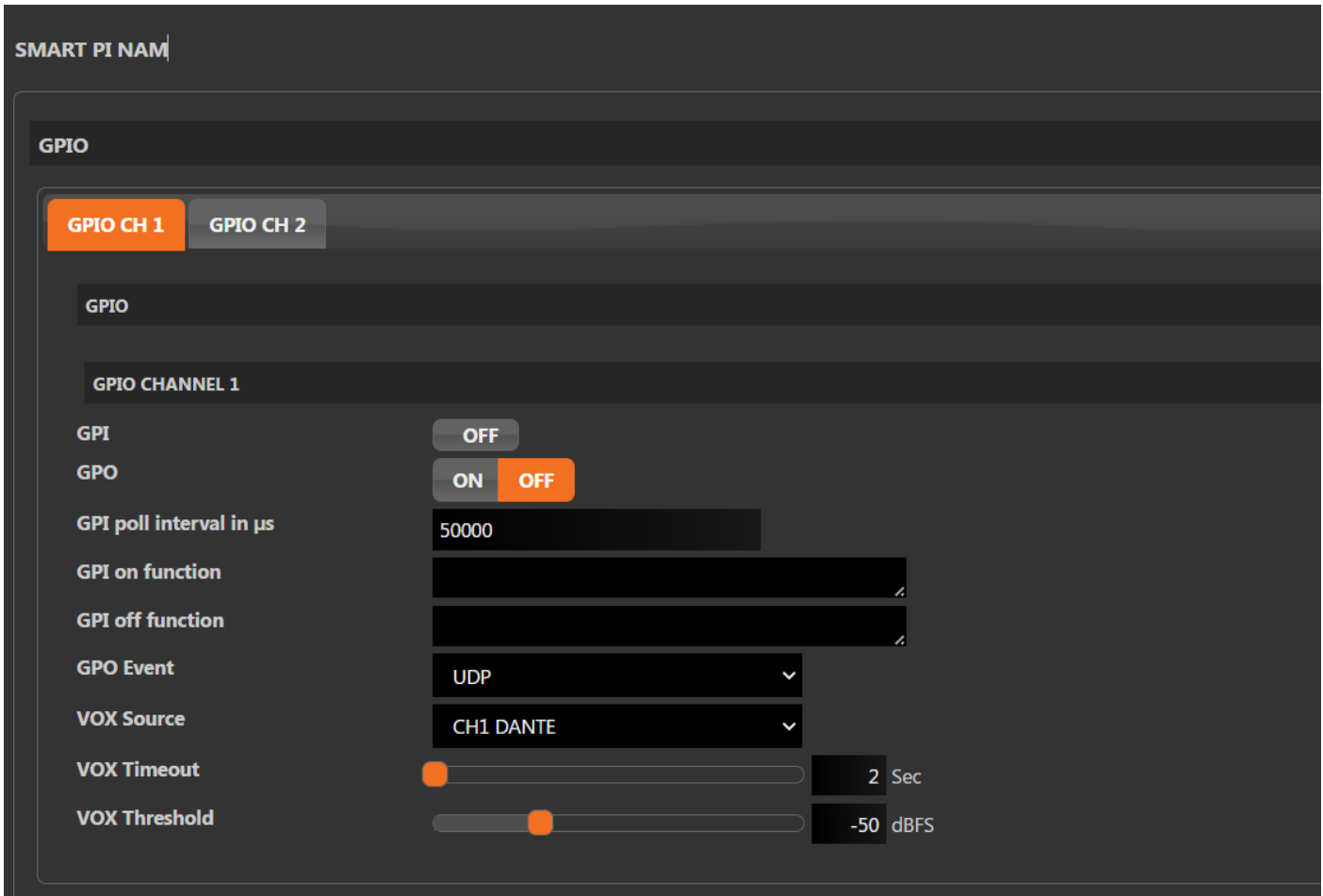
## 7.2.2 GPIO

Hover your mouse over **System** and then choose **GPIO** to access the GPIO options.



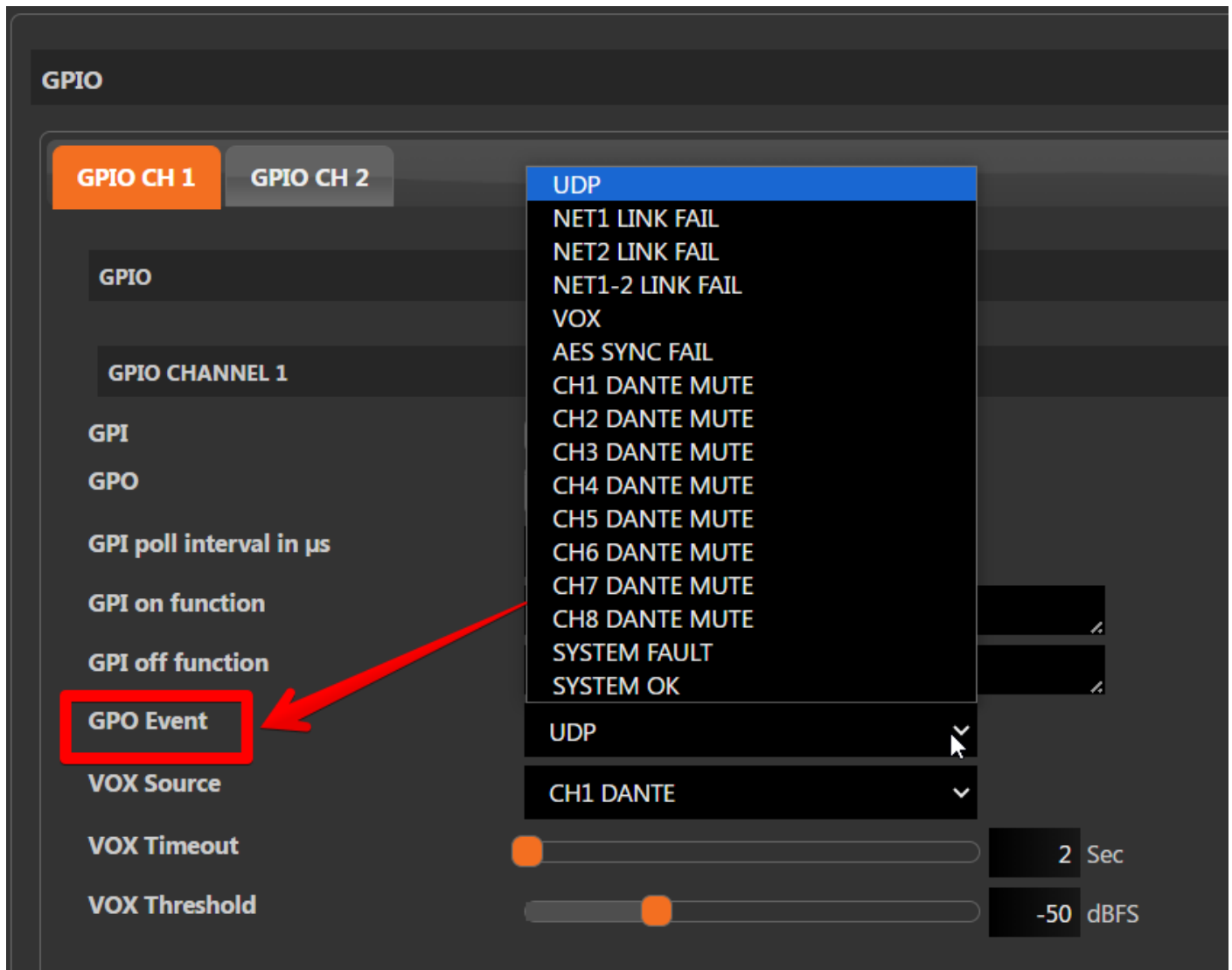
With NAM PLUS, a general-purpose input/output (GPIO) add-on is provided for extended control functionality, which is user definable.

Here, you will find the following options:



<b>GPI</b>	Displays the status of incoming GPI signal. Either ON or OFF.
<b>GPO</b>	When 'ON', audio output as defined by the configuration is enabled.
<b>GPI poll interval in µs</b>	How often NAM checks for a GPI signal. The default is every 50000 µs.
<b>GPI on function</b>	Can be used to trigger any API event within the device when set high.
<b>GPI off function</b>	Can be used to trigger any API event within the device when set low.
<b>GPO Event</b>	Select GPO triggers from the dropdown menu (see 12.1 - GPO options).
<b>VOX Source</b>	Select a VOX source from Dante™ channels 1-8, the microphone input, or AES L / R inputs (NAM PLUS).
<b>VOX Timeout</b>	This slider sets the time period after which the unit reverts to normal amplification operation after the <b>VOX source</b> input drops below its set threshold volume. The timeout period ranges from 2 to 20 seconds.
<b>VOX Threshold</b>	This slider sets the volume threshold that the <b>VOX Source</b> must breach in order to trigger VOX functionality. Range = -70 to 0 dBFS.

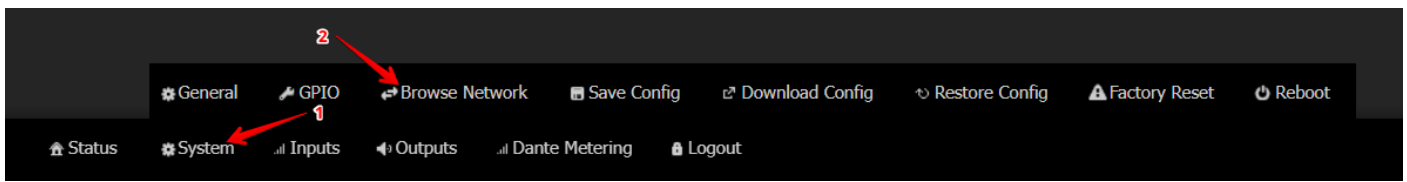
The following options are present under **GPO Event**:



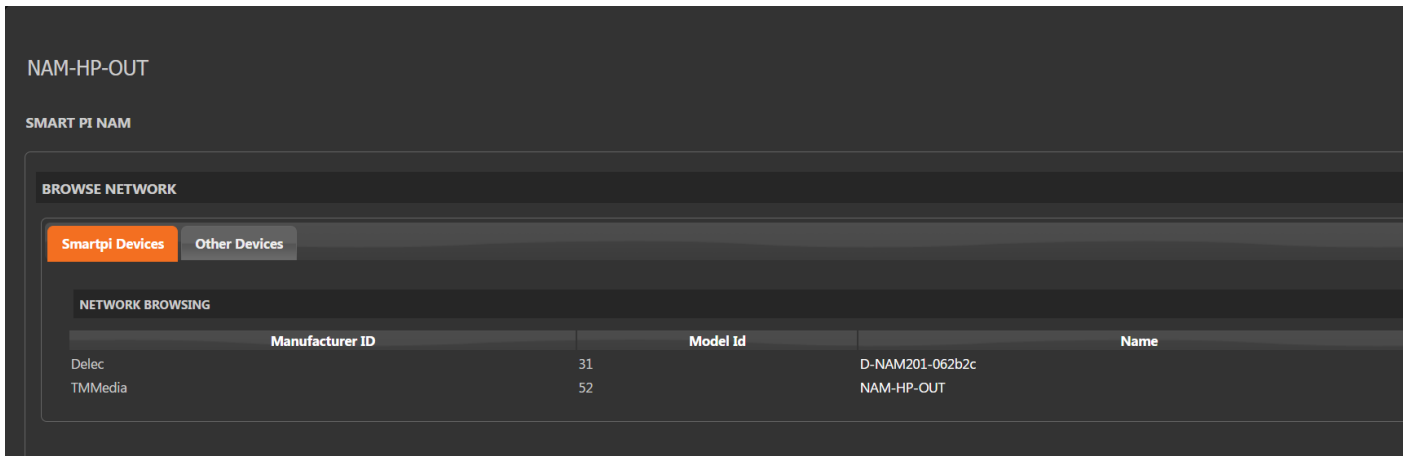
<b>UDP</b>	GPO is triggered by a UDP command via the LAN.
<b>NET1 LINK FAIL</b>	GPO is triggered by a network link failure.
<b>NET2 LINK FAIL</b>	GPO is triggered by a network link failure.
<b>NET1-2 LINK FAIL</b>	GPO is triggered by the failure of all network links.
<b>VOX</b>	GPO is triggered by
<b>AES SYNC FAIL</b>	GPO is triggered by a synchronisation failure of the the AES digital I/O.
<b>CH1 DANTE MUTE</b>	GPO is triggered by silence on the Dante™ Channel (Path Fail Alarm).

## 7.2.3 BROWSE NETWORK

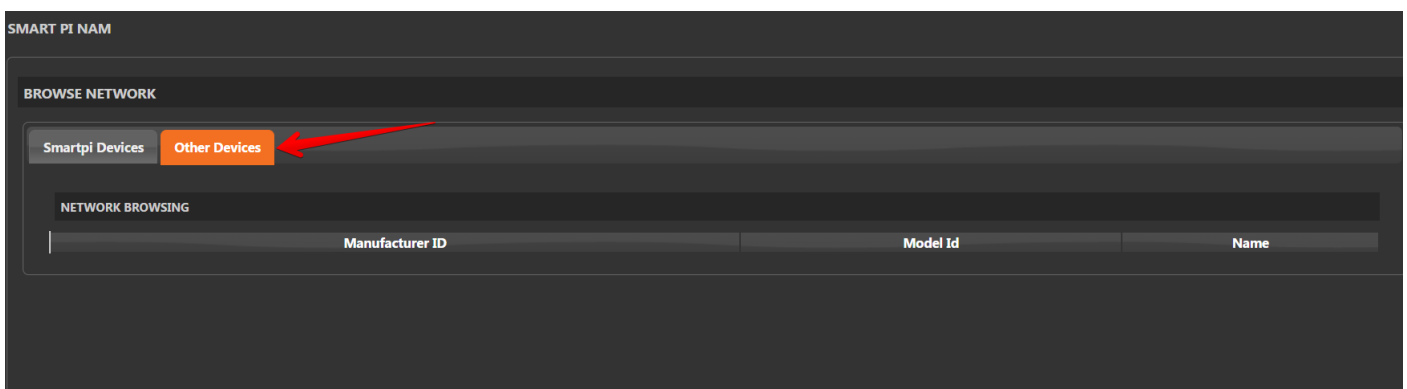
Select **Browser Network** from **Systems** tab.



This provides a list of Dante™ devices on the network (digitalPA Devices tab).

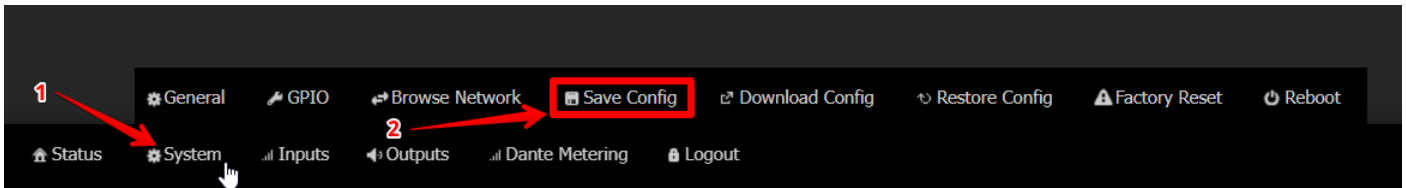


Click on **Other Devices** to check other visible devices.



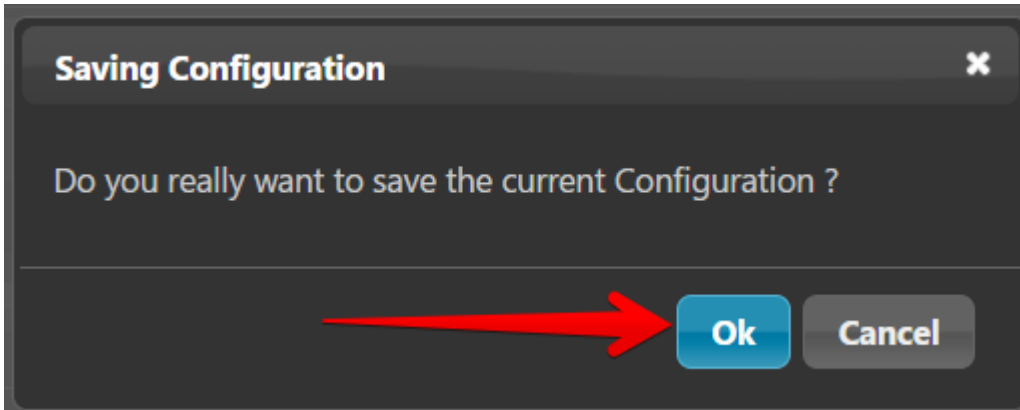
## 7.2.4 SAVE CONFIG

From **System** tab, click **Save Config** to open the menu.



This is used extensively in NAM, this single button function is used to save changes throughout the entire configuration process. When a 'Save Config' is necessary, a prompt window appears above the current window to inform the User.

Click **OK** to save changes.



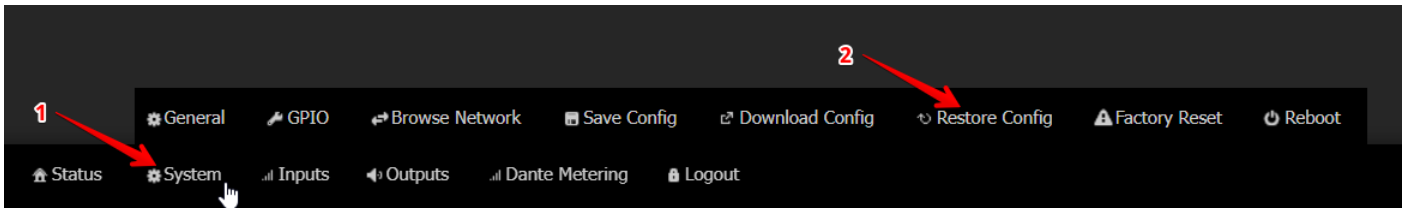
## 7.2.5 DOWNLOAD CONFIG

From **System** tab, click **Download Config** to download your configurations as an XML file.

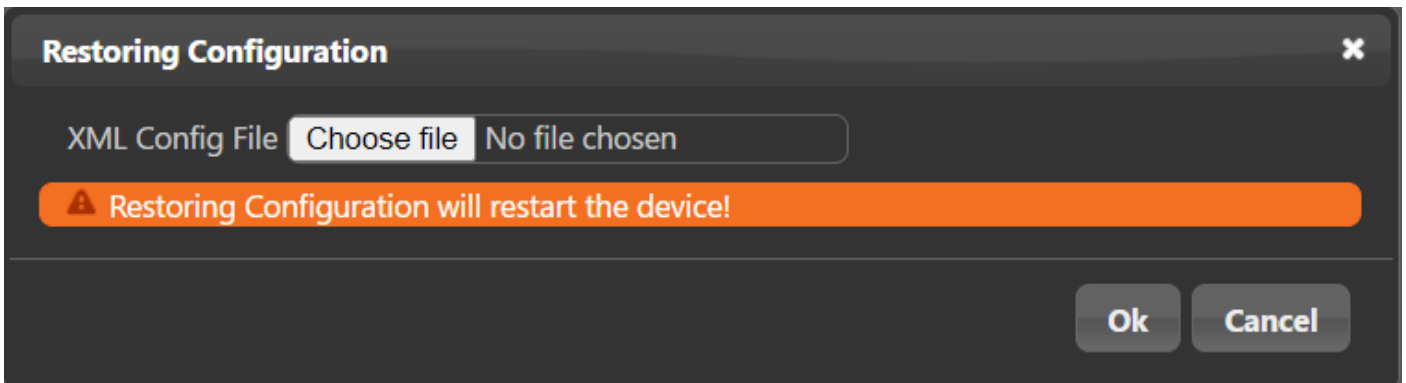


## 7.2.6 RESTORE CONFIG

From **System** tab, click **Download Config** to restore a previously saved .xml configuration file to be reloaded into NAM.

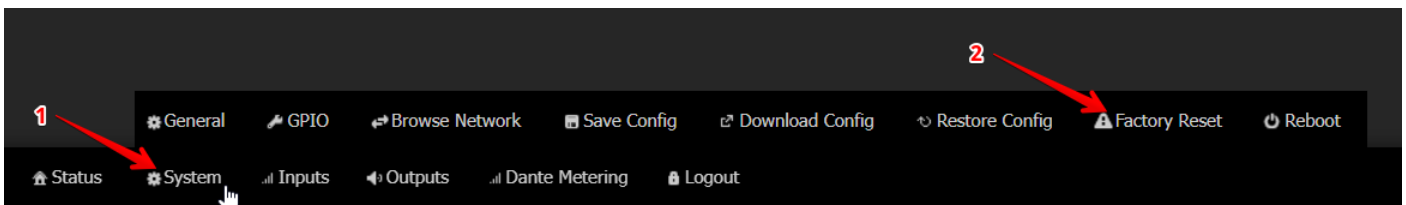


Select the desired action on the prompt window that opens.

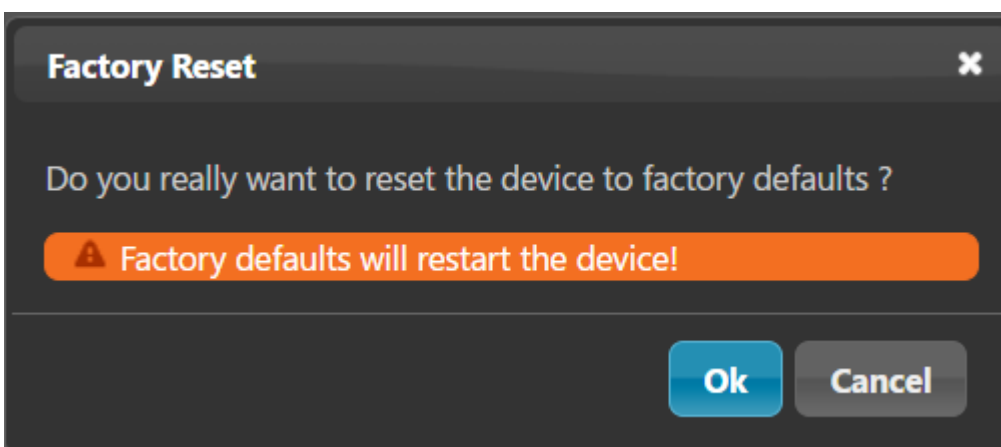


## 7.2.7 FACTORY RESET

From **System** tab, click **Download Config** to do a complete factory reset. Use with care. This function wipes the NAMs current configuration and reverts it to a factory default condition. There is no recovery of the previous configuration after doing this.

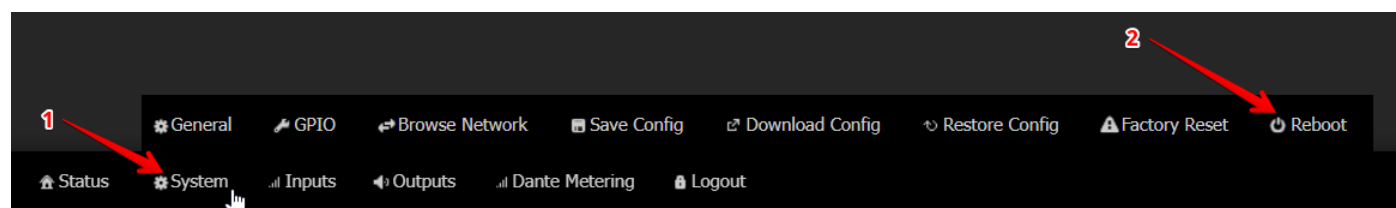


Click **Ok** to confirm or cancel to cancel and go back to the previous page.



## 7.2.8 REBOOT

From **System** tab, click **Download Config** to do a complete re-start of the NAM.

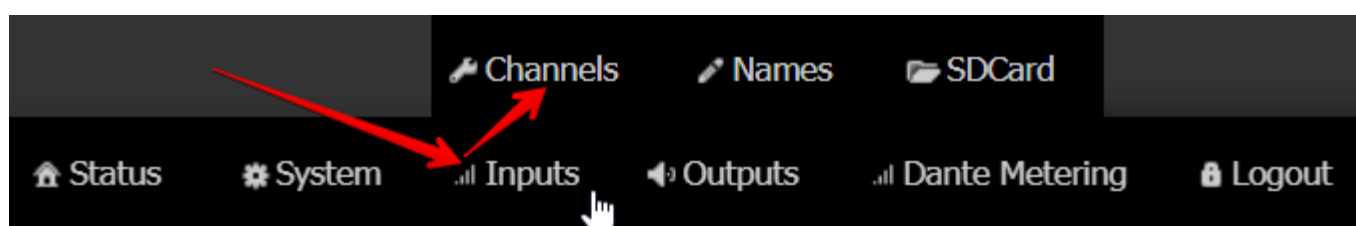


## 7.3 INPUTS

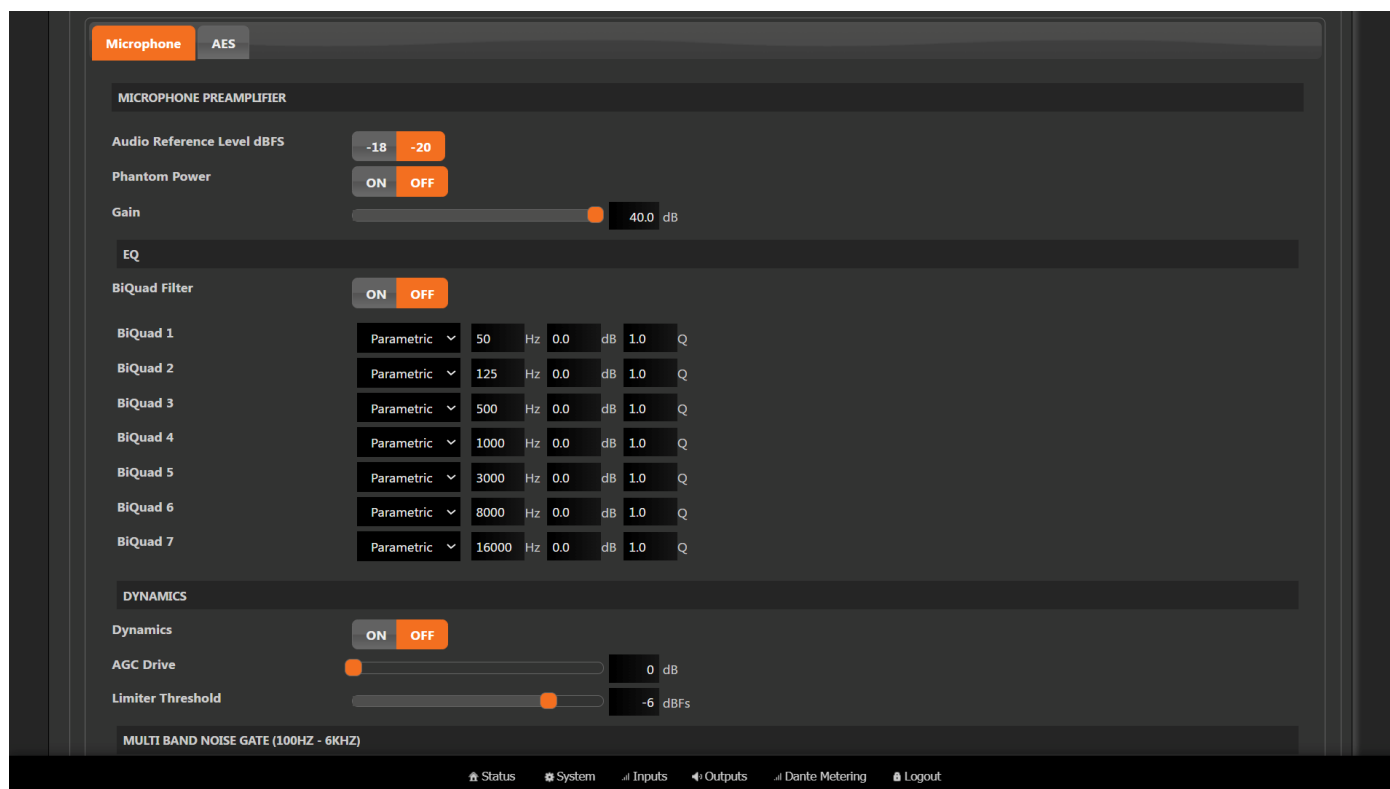
From the main menu at the bottom, selecting **Inputs** gives access to configuration options for available **Channels**, their customizable **Names** and **SD Card**.

### 7.3.1 CHANNELS

Hover your mouse over **Inputs** and choose **Channels**.



The NAM's inbuilt microphone preamplifier and AES are configurable in this tab. Let's first discuss **Microphone**.



Here's a summary of the configurable options:

**Audio Reference Level dBFS:** Depending on your working environment standard, the audio reference level can be set to either -18 or -20 dBFS.

**Phantom Power:** When 'ON' is selected, the NAM will supply 48 VDC to the microphone input.

**Gain:** The slider can be used to apply or reduce microphone gain within the range of -2.5 dB to 41.5 dB.

**BiQuad Filter:** This is a second order recursive linear filter, containing two poles and two zeros.

**Dynamics:** Dynamics processors alter an audio signal based upon its frequency content and amplitude level; hence the term "dynamics".

**AGC Drive:**

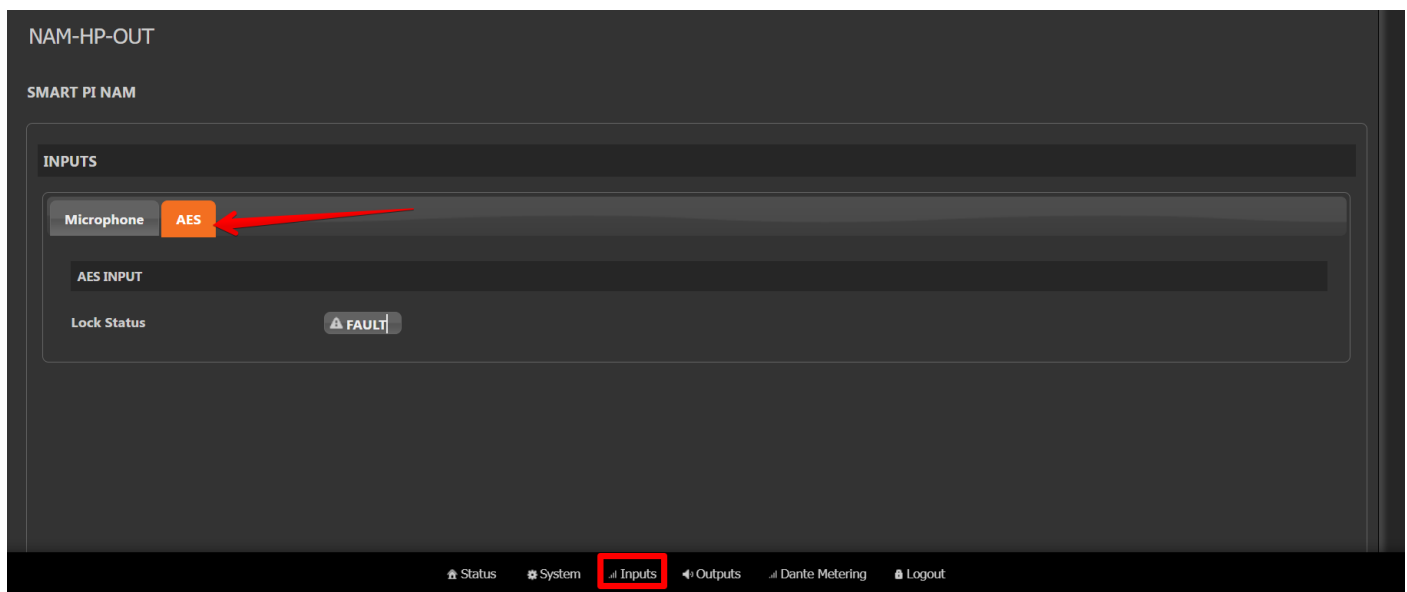
**Limiter Threshold:**

**Noise gate:** A noise gate is an audio processor that works to eliminate sounds below a given threshold in a recording. Noise gates are similar to compressors in that they both reduce the volume of audio.

**Decay:** This is also known as "Release time". This is the complement of Attack. Whereas Attack sets the time taken for the gate to open, Decay sets the time taken for the gate to close.

**Depth:** Determines how much attenuation is applied to the signal when the gate is active

The AES tab provides information about the current **Lock Status** of the AES input connection.



## 7.3.2 NAMES

From **Inputs** menu, select **Names**.


Inputs can be assigned user friendly names for ease of operation and administration later on.

### NAM-HP-OUT

SMART PI NAM

DANTE TRANSMITTERS

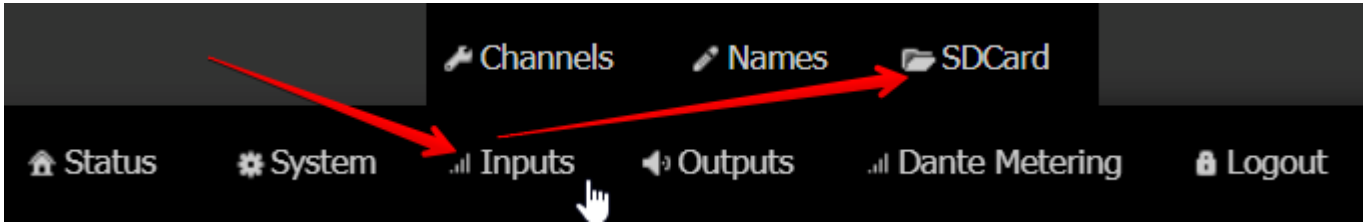
Channel names

NAME / TYPE	LABEL
AMP Mon 1	
AMP Mon 2	
AMP Mon 3	
AMP Mon 4	
MIC	
None	
AES L	
AES R	

### 7.3.3 SD CARD

Smart Pi NAM comes with an onboard SD Card for the purpose of storing and playing user generated .wav files (48 kHz, 16 bit, mono).

From **Inputs** menu, select **SD Card**.



Here you can configure the following options:

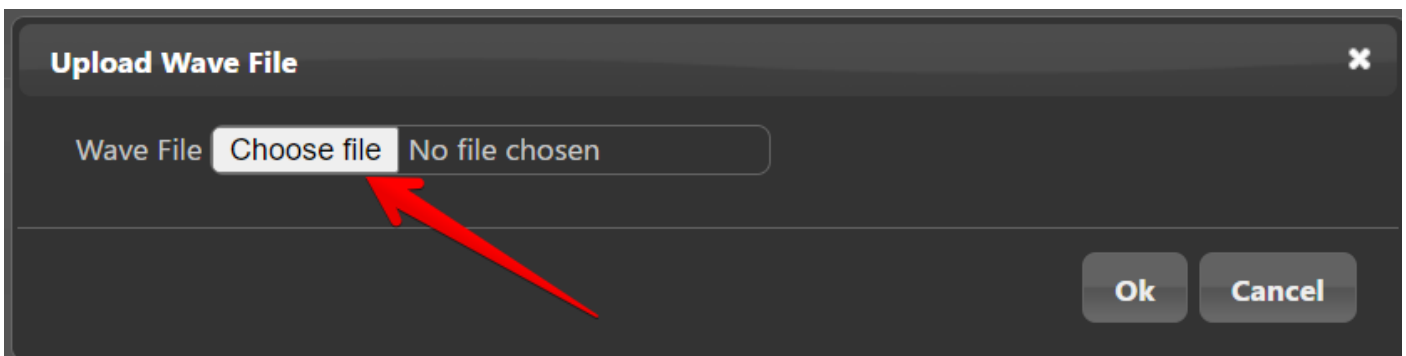
**Play State:** When '**ON**' is selected, any audio file selected from the Audio Files drop down menu will play immediately upon selection - and once only. In this mode, a selected audio file can also be triggered via GPIO or UDP protocol.

When '**LOOP**' is selected, any audio file selected from the Audio Files drop down menu will play over and over continuously until the Play State mode is changed.

When '**OFF**' is selected, the SD Card audio file functionality is disabled.

**Audio Files:** The drop-down menu lists all audio files stored on the SD Card, and is used to select a file for payout.

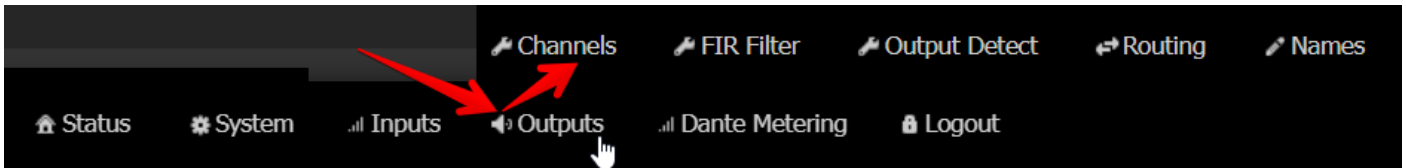
Click the **Upload Audio File** button to upload a new file from your computer. A file search dialog will facilitate the upload process.



Click the **Delete Audio File** button to delete the currently selected audio file from the SD Card. A confirmation dialog will warn you before the deletion process.

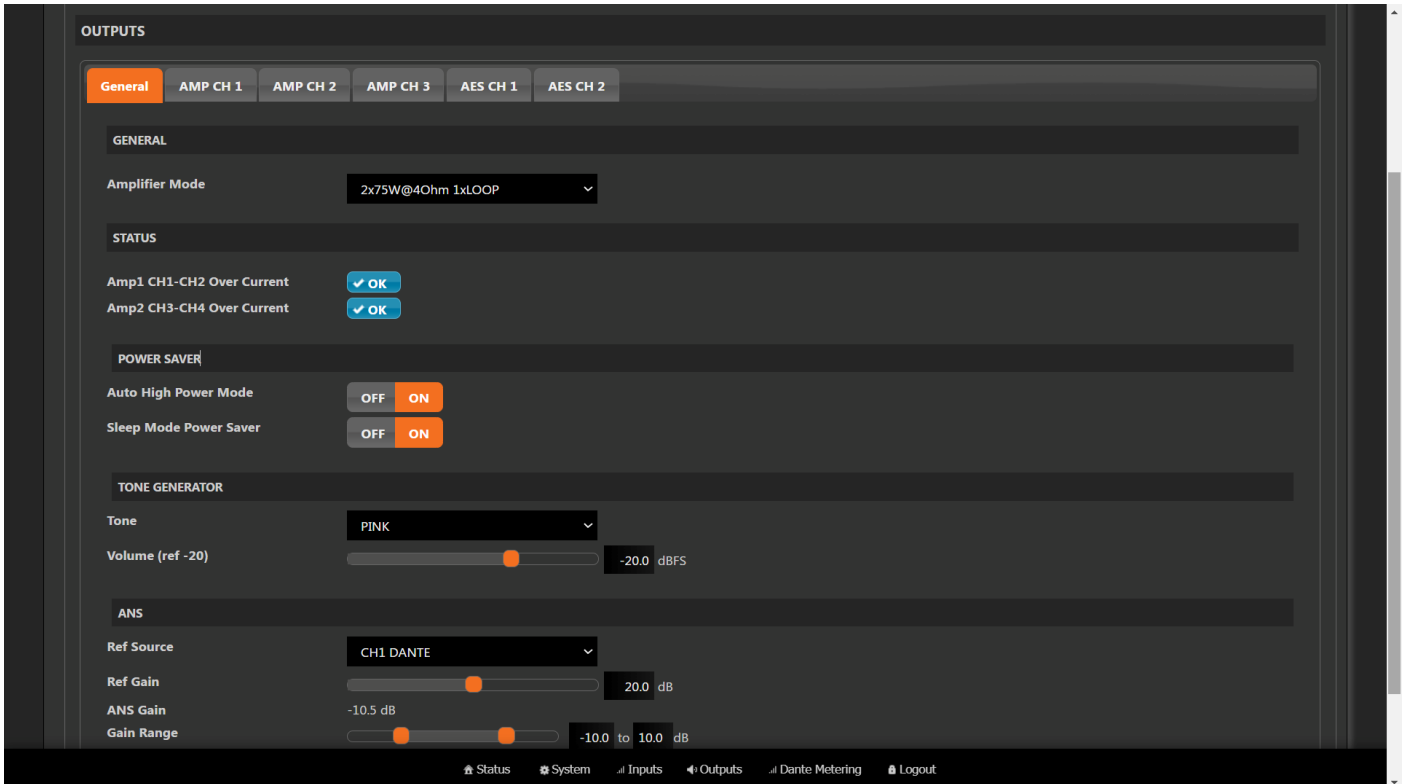
## 7.4 OUTPUTS

To explore the outputs option, hover your mouse over **Outputs** and select the relevant option. Let's start with the first sub-option i.e. **Channels**.



### 7.4.1 CHANNELS

The General tab provides a **STATUS** display for important functional attributes of each amplifier channel and selectable options for **Amplifier Mode** and a **Tone Generator**.



Here's a breakdown of each of the above statuses and configuration options:

**Amp(n) CH(n)-CH(n) Communication** - 'OK' = control signals are working

**Amp(n) CH(n)-CH(n) Over Current** - 'OK' = no power overloading

**Amplifier Mode:** There are 11 amplification load modes:

- 4x75W @40Ω
- 4x75W @80Ω
- 4x50W @160Ω
- 2x150W @40Ω
- 2x100W @80Ω
- 2X LOOP
- 1XPhased\_LOOP
- 2x75W @40Ω 1XLOOP

- 2x50W @80Ω 1XLOOP
- 2x25V-LINE @75W 1XLOOP
- 4x25V-LINE @75W

## Power saver

**Auto high power mode** means that the system will switch to high power mode when needed.

**Sleep mode power saver** will enable the system to switch to sleep mode when needed.

## Tone Generator

**Tone:** There are 4 tone types. White noise, pink noise, 1kHz sine and 400 Hz sine.

**Volume (ref -20):** Use the slider to apply gain or gain reduction to the tone within the range of -57 dBFS and 0 dBFS.

NOTE: a number can be typed directly in the 'dBFS' box.

## ANS

**Ref source:** If using local Microphone input or a dante based one

**Ref gain:** Gain for the input

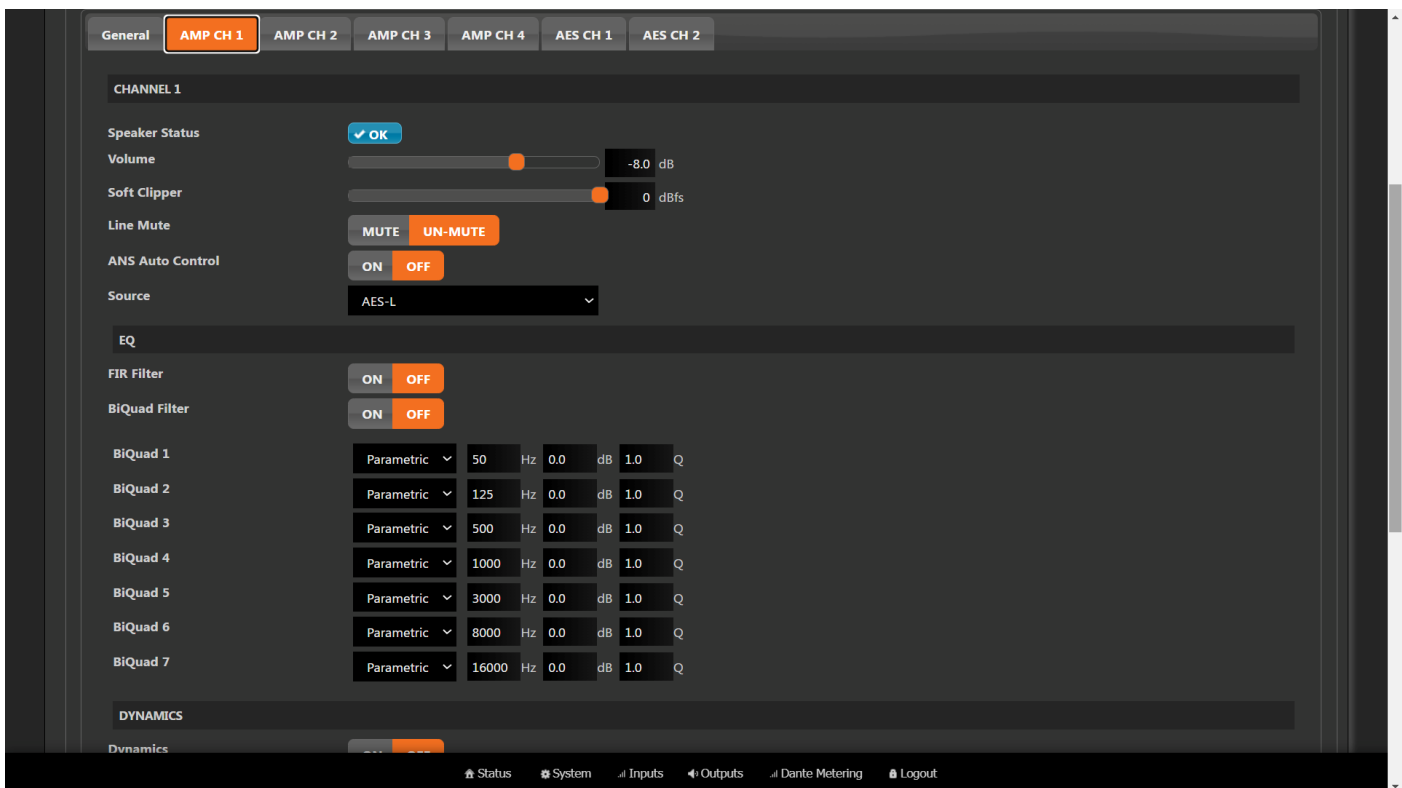
**ANS Gain:** The current gain / trim level.

**Gain Range:** The minimum and maximum volume that can be changed.

**Ratio:** The ratio to manage how fast the gain changes.

## AMP CH(n)

The four **AMP CH(n)** tabs and two **AES CH(n)** have the same configuration options.



**Speaker Status:** For the channel speaker, this will indicate either 'OK' or 'FAULT'.

**Volume:** The slider sets the output volume of the amp channel. The range is -72 dB to 24 dB. NOTE: a numeric setting can also be typed in directly to the 'dB' box.

**Soft clipper:** A type of distortion effect where the amplitude of a signal is saturated along a smooth curve,

rather than the abrupt shape of hard-clipping.

**Line Mute:** MUTE or UNMUTE the amp channel output.

**ANS auto control:**

**Source:** Select an audio source for the amp channel from the drop down menu.

**Delay:** An adjustable channel output delay of up to 1.8 seconds can be defined in either milliseconds, metres or imperial feet.

**µDelay:** A sample accurate (max 48) delay can be specified for phase based line arrays.

**FIR Filter:** Enable (ON) or disable (OFF) the amp channel Finite Impulse Response (FIR) filter.

**BiQuad Filter:** Enable (ON) or disable (OFF).

**VOX Source:** Use the drop down menu to select a VOX source from Dante™ channels 1-8, the microphone input, the AES left or the AES right inputs (NAM PLUS).

**VOX Enable:** Enable (ON) or disable (OFF) the VOX side chain functionality.

**VOX Mode:** Choose which VOX mode to operate in (see Note on VOX function, above).

**VOX Timeout:** This slider sets the time period after which the unit reverts to normal amplification operation after the VOX source input drops below its set threshold volume. The timeout period ranges from 2 to 20 seconds.

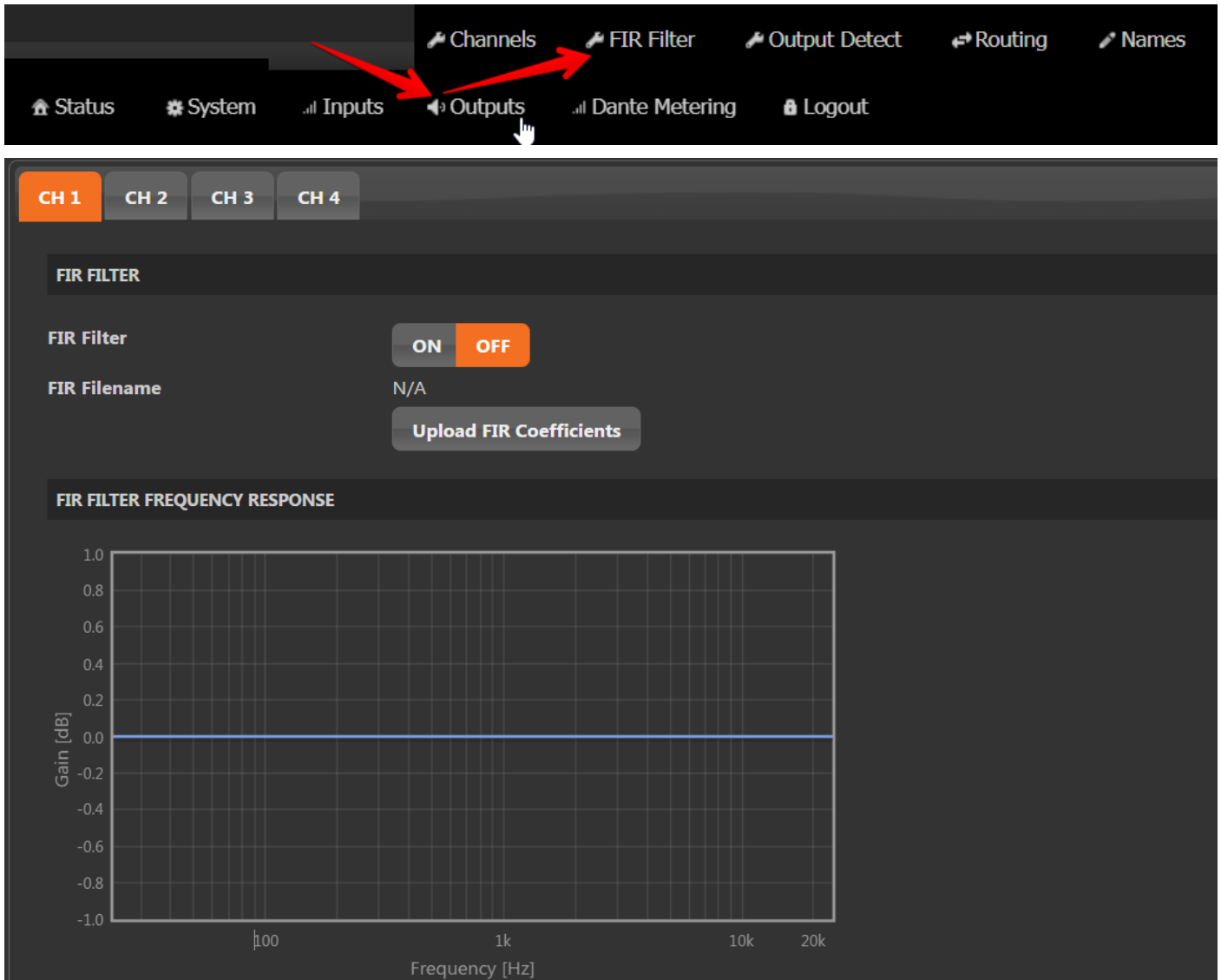
**VOX Threshold:** This slider sets the volume threshold that the VOX Source must breach in order to trigger VOX functionality. Range = -70 to 0 dBFS.

**VOX Dim Level:** This slider sets the volume attenuation level for the main channel output when the unit is in VOX Mode 2 (DIM). Range = -144 to -6 dB.

## 7.4.2 FIR FILTER

Each of the NAM's four outputs boasts an independent 1000 point FIR filter, and the ability to upload FIR preset curves.

Click **Outputs** and choose **FIR Filter** to access these options.



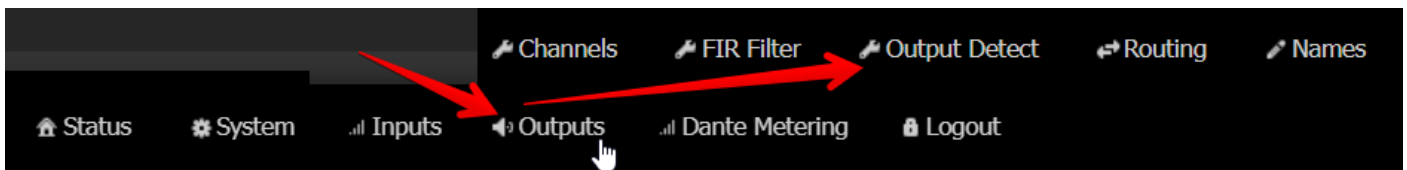
**FIR Filter:** Enable (**ON**) or disable (**OFF**) the amp channel Finite Impulse Response (FIR) filter.

**FIR Filename:** Click **Upload FIR Coefficients** to access a .fir file upload dialog. The preset file can be uploaded to the channel and its filename will be displayed. The frequency response chart will also update to display the curve of the uploaded FIR preset.

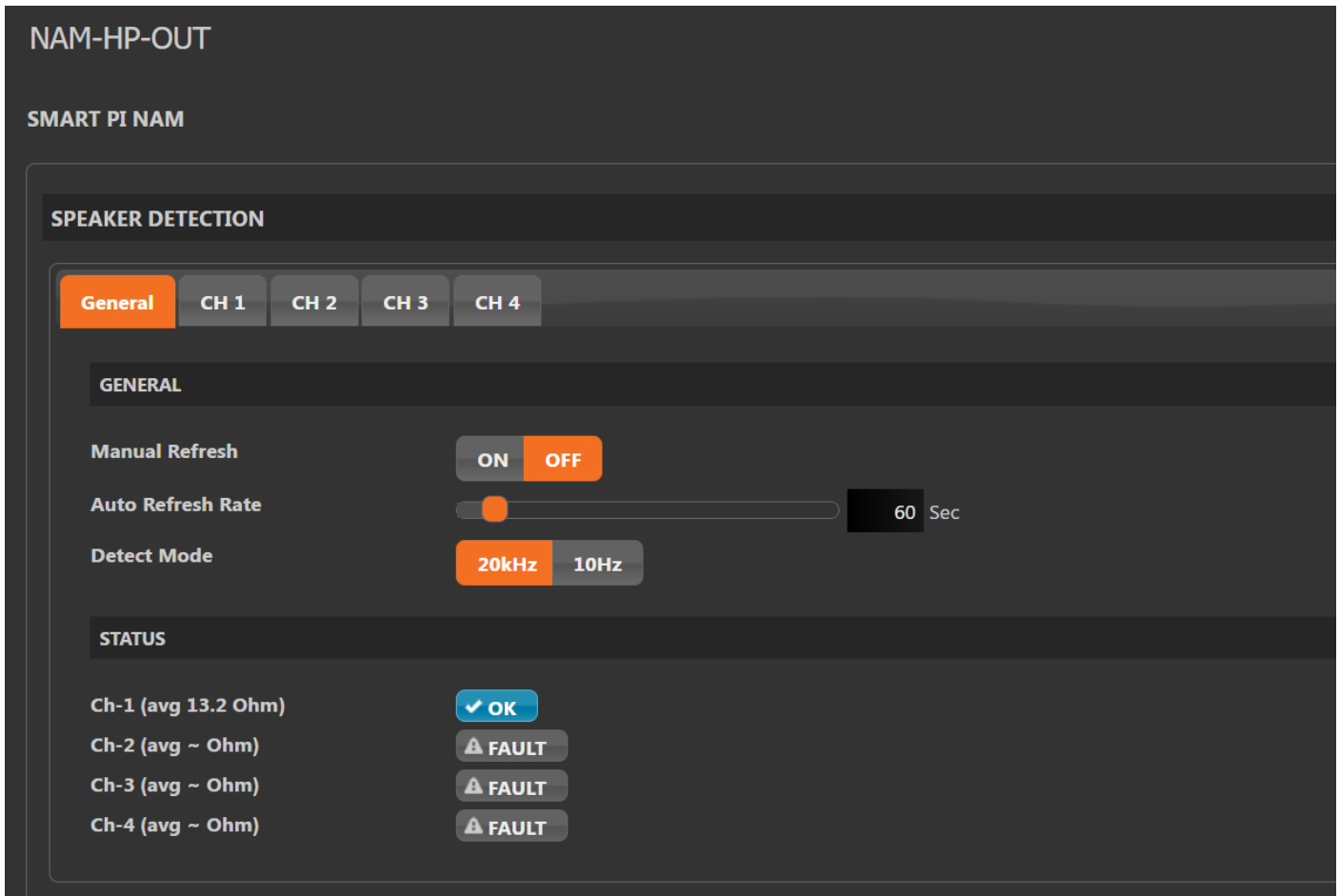
**NOTE:** A curve can only be fully cleared by uploading a replacement .fir file or factory resetting the NAM.

## 7.4.3 OUTPUT DETECT

From **Outputs** menu, select **Output Detect**.



The Output Detection General tab provides status details of all connected speakers and allows adjustment of the Single Shot detection pulse timing.



**Manual Refresh:** Whether you'd like to have the option to manually refresh it or not.

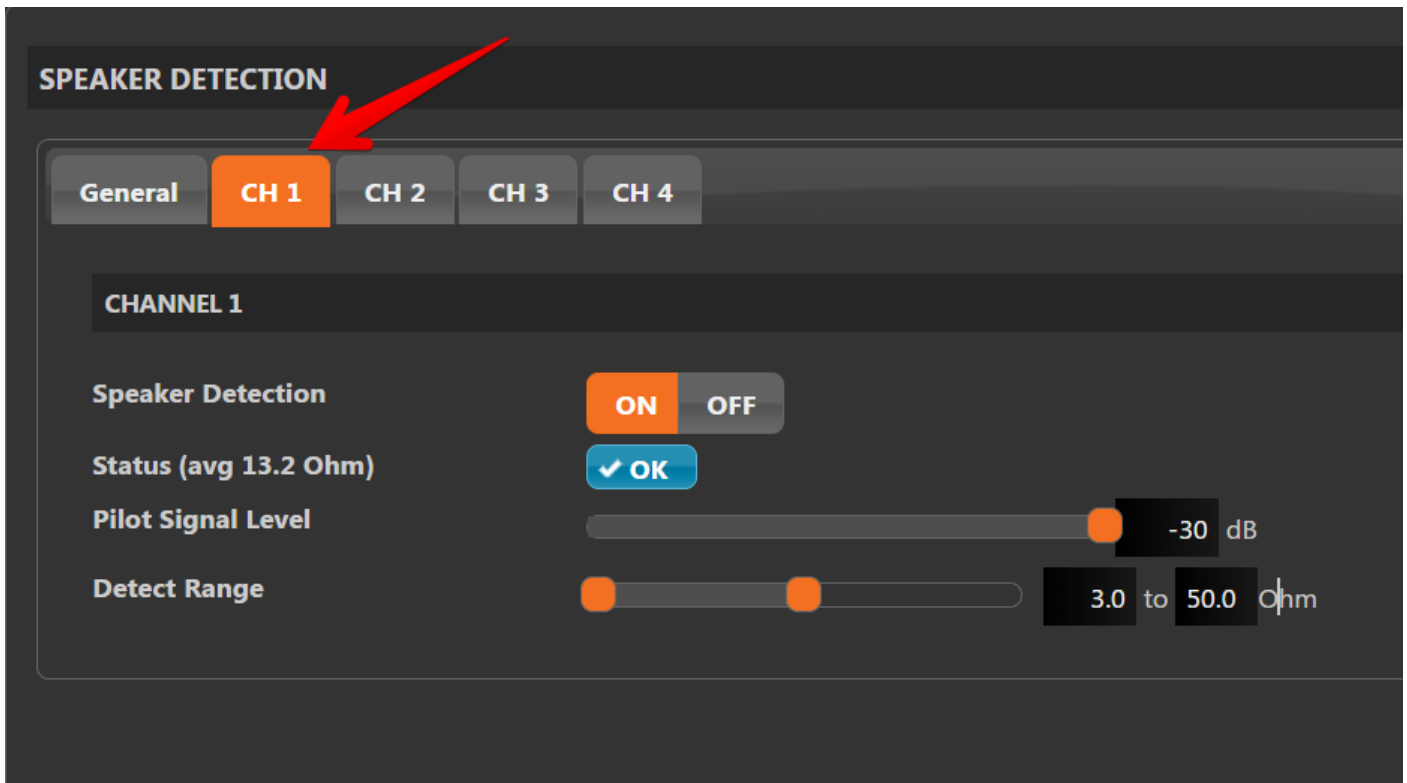
**Auto Refresh Rate:** Select the auto refresh rate (in seconds).

**Detect Mode:** Select between 20kHz and 10Hz.

**Ch(n) (avg Ohm):** After a Speaker Detection pass, an average impedance measurement for that speaker will be displayed in brackets in place of 'avg Ohm'. For example, Ch-1 (avg 8.1 Ohm).

The '**OK**' status display means that correct impedance is detected. Otherwise '**FAULT**' will be displayed.

Click any of the CH 1, CH 2, CH 3 or CH 4 tabs to open up the speaker detection options.



**Speaker Detection:** Switches speaker detect functionality on or off. Enable (**ON**) or disable (**OFF**).

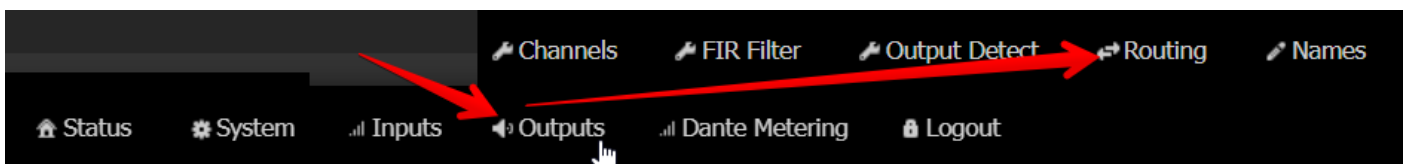
**Status (avg 13.2 Ohm):** Displays **OK** for all good, and **FAULT** if there is an error.

**Pilot Signal Level:** Adjust the pilot signal level in dBs.

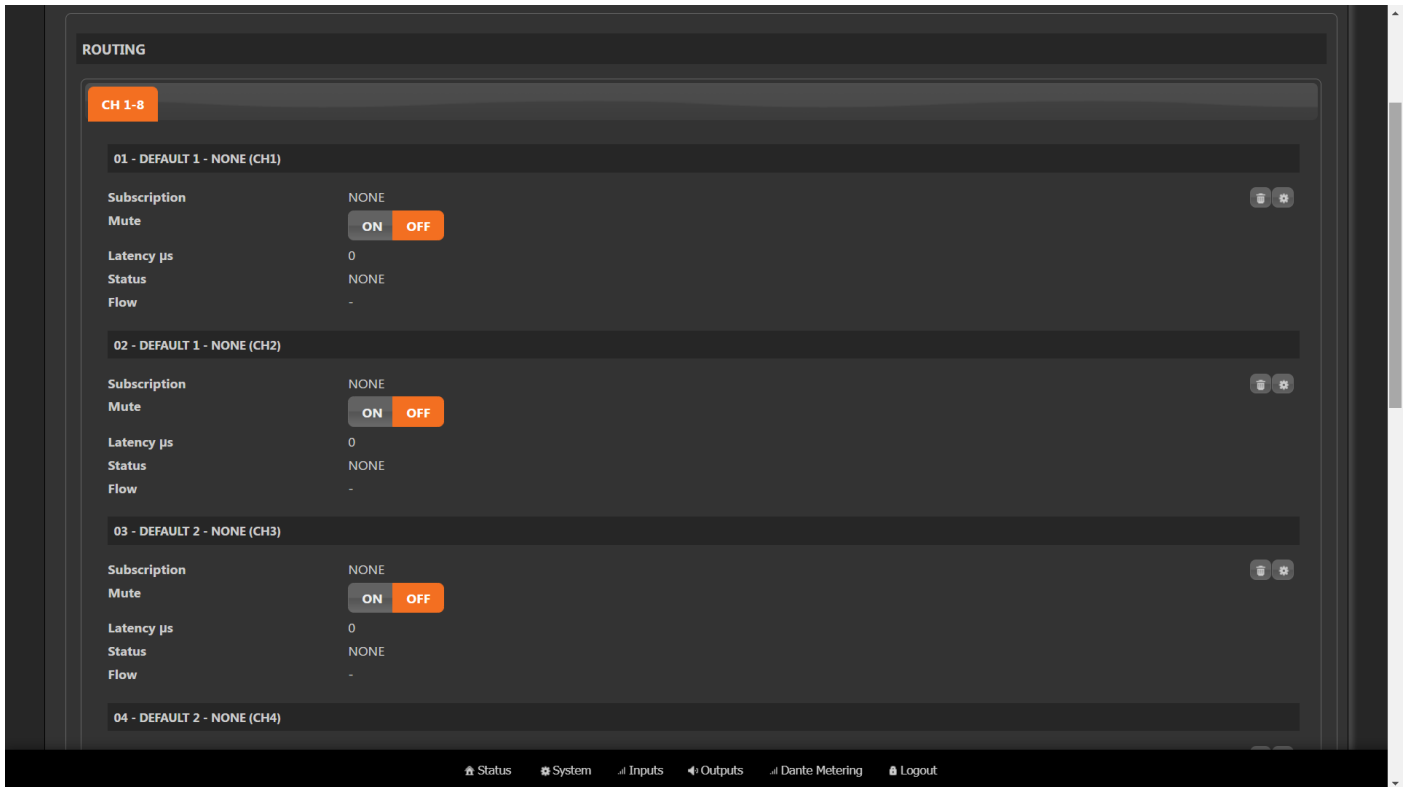
**Detect Range:** Define a detection range in Ohms.

## 7.4.4 ROUTING

This section sets the NAM's 8 possible Dante™ network audio subscriptions - which can be used as amplified outputs to speakers or as VOX side chain inputs.



It provides statuses and configuration options for all the channels:



**Subscription:** Displays the name of the current Dante™ subscription for the channel.

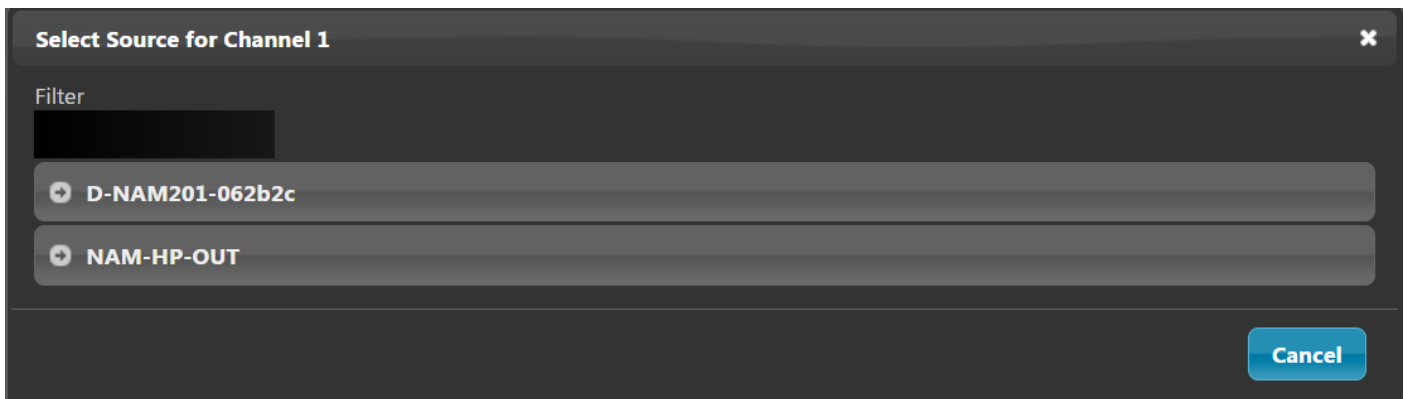
**Mute:** ON or OFF - enables or disables the stream.

**Latency  $\mu$ s:** Shows the current Latency setting applied to the Dante™ channel.

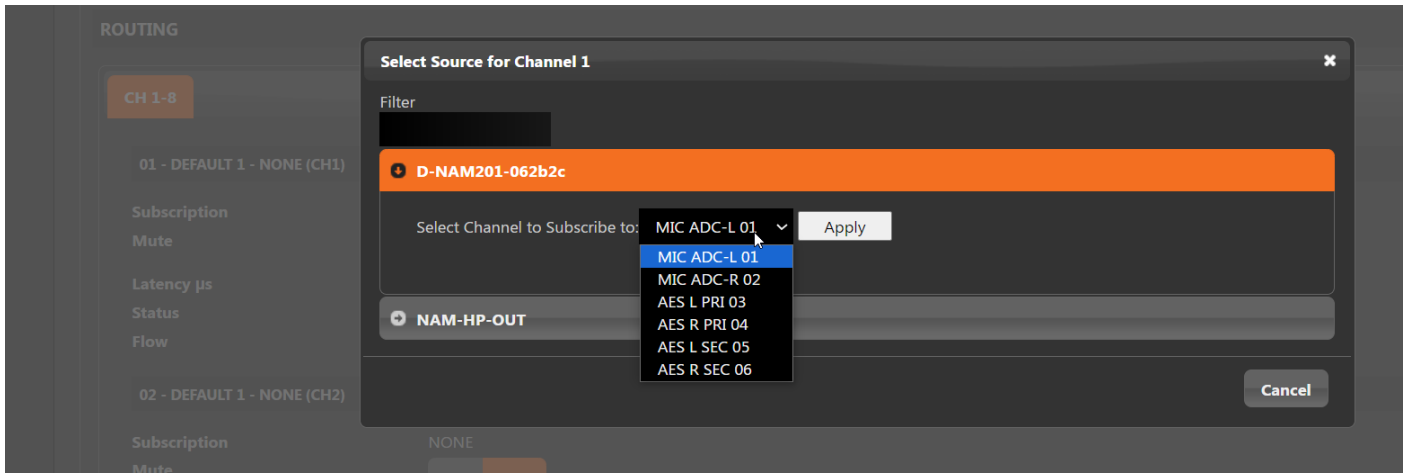
**Status:** The type of Dante™ route subscription.

**Flow:** Shows which Dante™ Flow (see - Glossary of Terms) the NAM is subscribed to.

The Add / Change Subscription button  displays a list of available Dante™ devices.

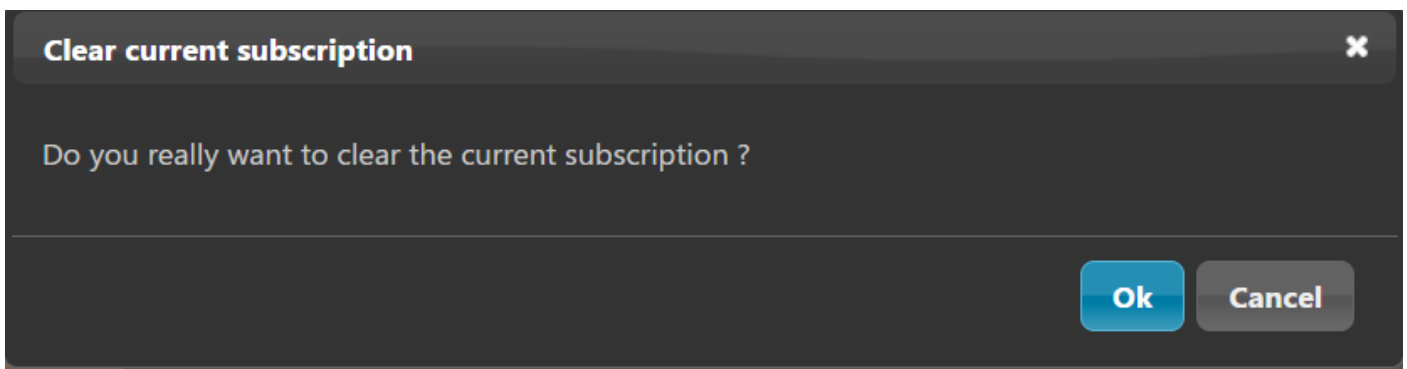


Clicking on a device will reveal a drop down menu featuring all available Dante™ streams being broadcast by that device.



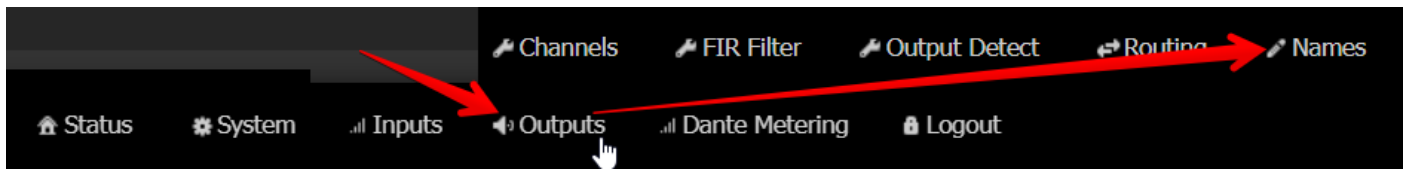
After selecting a stream, click '**Apply**' to subscribe to it.

To remove a stream, click the clear icon near the Dante™ channel. A confirmation dialog will ask you to confirm.

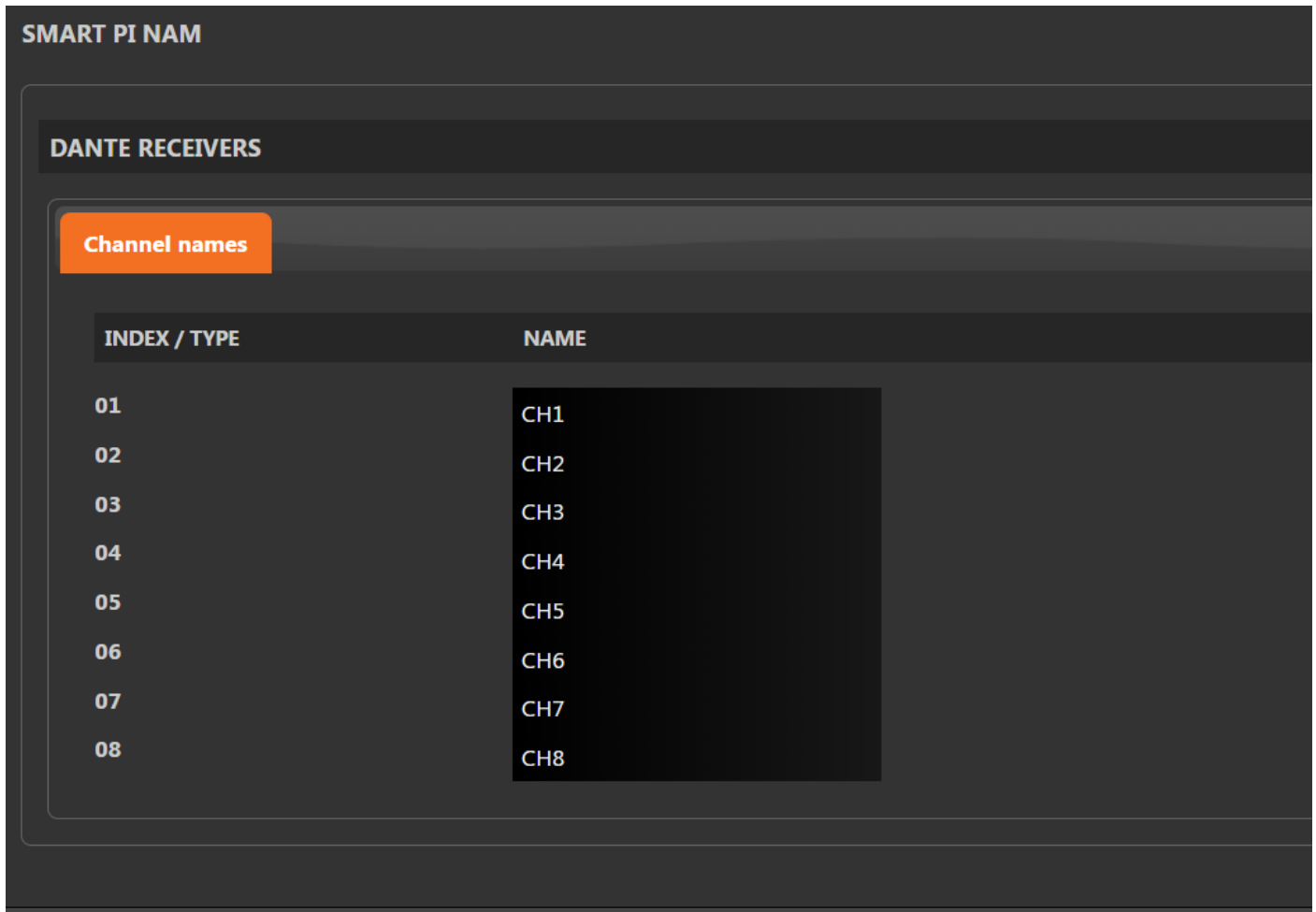


## 7.4.5 NAMES

From **Outputs** menu, select **Names**.

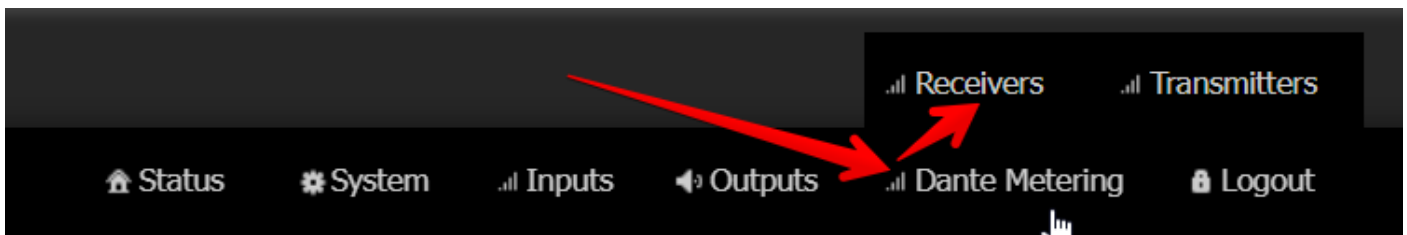


The 8 Dante™ network audio subscriptions can be assigned user friendly names for ease of operation and administration later on.



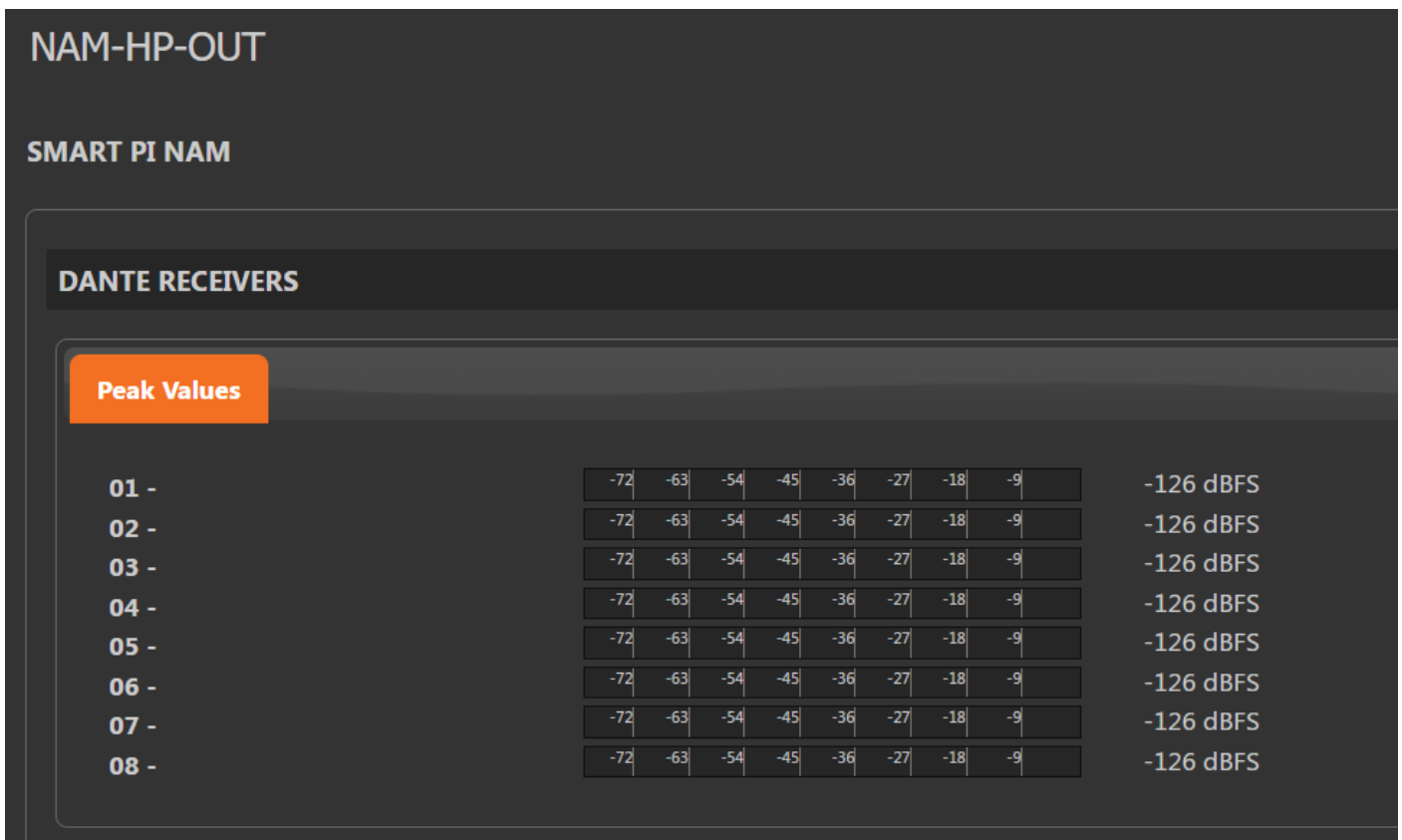
## 7.5 DANTE METERING

From the main menu at the bottom, select **Dante Metering** and choose **Receivers**.



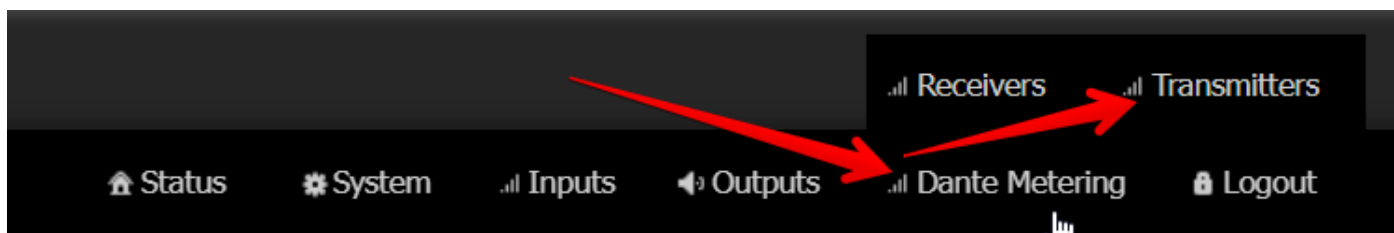
### 7.5.1 RECEIVERS

NAM provides real-time level metering of the audio volume of all Dante™ network audio streams that the NAM is currently subscribed to. Notice that where they have been assigned, user defined names for the streams are used in the display.

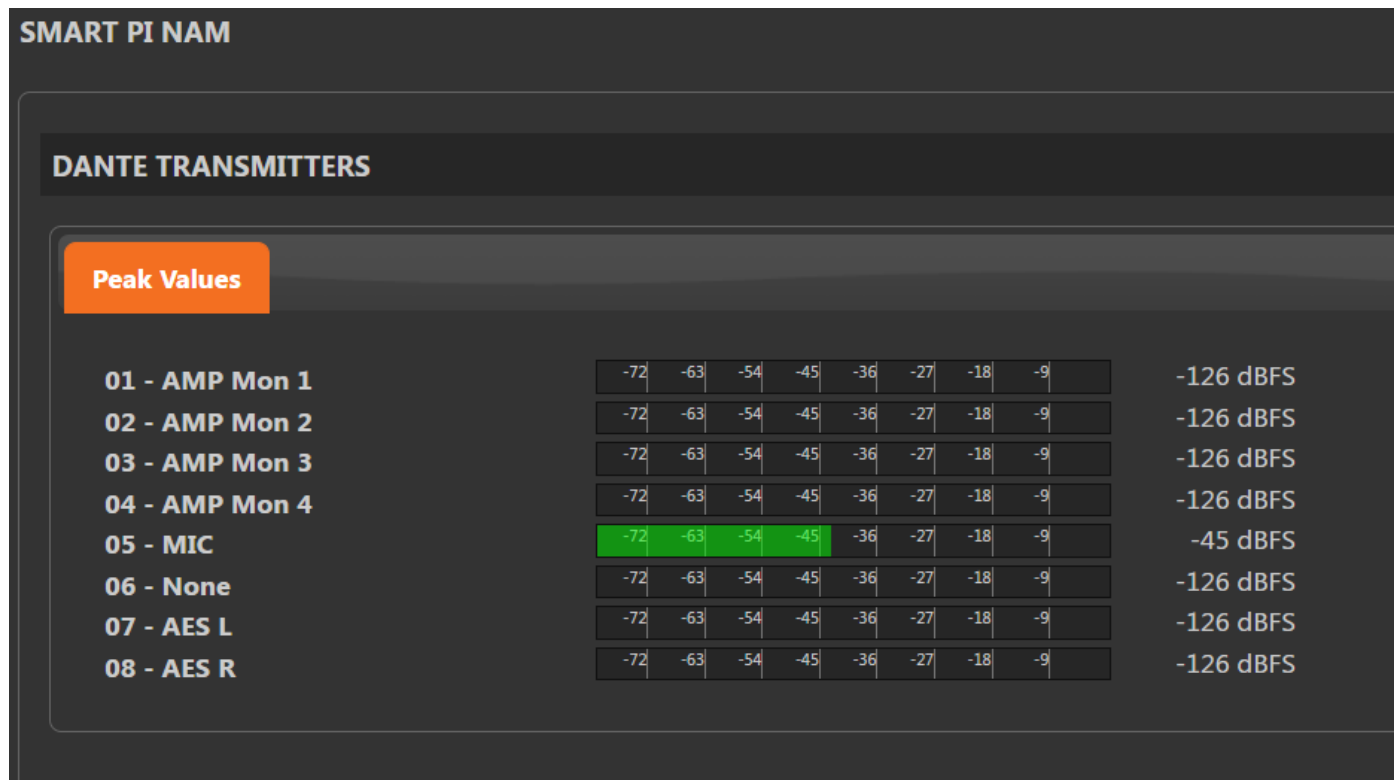


## 7.5.2. TRANSMITTERS

From the main menu at the bottom, select **Dante Metering** and choose **Transmitters**.



NAM also provides real-time level metering of the audio volume of all physical input sources: the microphone input, SD Card audio files, Tone generator and AES L+R (NAM PLUS). Notice that where they have been assigned, user defined names for the input sources are used in the display.



## 7.6 LOG OUT

Click **Logout** any time from the main menu at the bottom to log out of the system.

