PAM2-IP-3G Quick Start Guide ST-2110 and Dante/AES67

Notes:
This document is intended to be a Quick Start Guide for customers looking to use the PAM2-IP-3G with Dante and/or SMPTE 2110 Sources and should be read in conjunction with the PAM2-MK2 Handbook.

A separate Quick Start Guide is available for customers looking to use the PAM2-IP-3G with Dante and/or SMPTE 2022-6 Sources.

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Version History

Issue	Date	Change Details
1	5/11/18	First Issue

Contents

Introduction

Congratulations on your purchase of the PAM2-IP-3G!

This Quick Start Guide will take you through the necessary steps required to use your PAM2-IP-3G when monitoring either of the following sources:

- ST-2110
- Dante/AES67 AoIP

To realise the full benefits of your PAM2-IP-3G, including the monitoring of SDI, AES and Analogue audio sources, this Quick Start Guide should be read in conjunction with the PAM2 MK2 Handbook.

Note: A separate Quick Start Guide is available for customers looking to use the PAM2-IP-3G with Dante and/or SMPTE 2022-6 Sources.

Updating your PAM2-IP-3G Software

Before setting up your PAM2-IP-3G for the first time, we recommend your visit our Support portal at www.tslproducts.com.

From here you will be able to download the latest PAM2-IP-3G software and accompanying Release Notes.

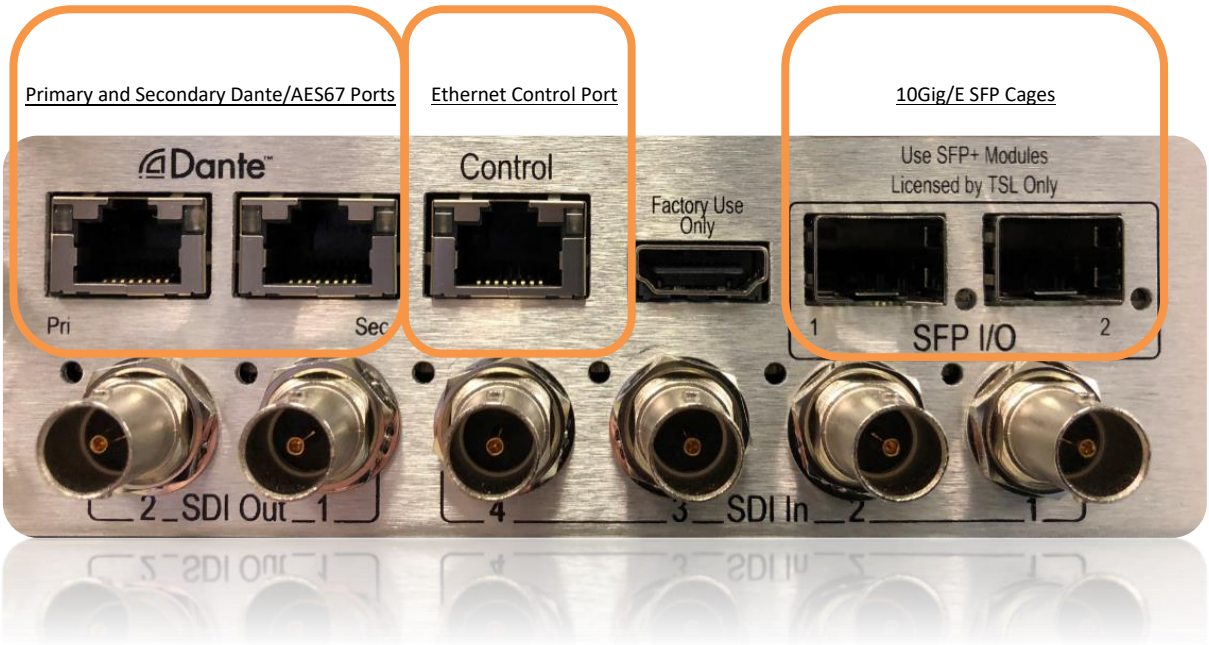
As part of TSL Products commitment to the continual improvement of its products, regular software and firmware updates are made available on our Support portal.

Please make sure your PAM2-IP-3G is running the latest software release so that you can benefit from the latest features and functionality offered by the PAM2-IP-3G.

Instructions on upgrading the software on your PAM2-IP-3G can be found later in this Quick Start Guide.

Getting Connected

Alongside the more traditional 3G/HD/SD-SDI, AES and Analogue connectivity typically found on TSL Audio Monitoring Units, the PAM2-IP-3G carries the following dedicated ports for connection into IP networks.



Note: When connecting your PAM2-IP-3G to a 10Gig/E network, please ensure that you use SFP modules supplied by TSL Products only. SFP modules sourced from other suppliers will not function and may even damage your PAM2-IP-3G.

Note: The Primary and Secondary Dante ports are only active if the accompanying Dante option has been purchased from TSL.

Fitting the optional SFP Modules

The PAM2-IP-3G can monitor uncompressed SMPTE 2022-6 and 2110 Multicast IP streams when equipped with optional SFP modules purchased from TSL Products.

1 or 2 10Gig/E SFP modules can be fitted as shown here.

Note: When connecting your SFP modules to your local network, please ensure that only multi-mode fibre cable is used. Single mode cable is not supported at this time.

With the SFP modules fitted, attach you PAM2-IP-3G to your network using multimode fibre with LC connectors.

How to navigate the PAM2-IP-3G Menu

To configure the PAM2-IP, it is necessary to make several settings using the PAM2-IP-3G Setup Menu.

Accessing the Setup Menu on the PAM-2-IP-3G is achieved with a single button push of the rotary encoder shown here:

Rotating the encoder allows you to navigate to the sub-menu or element you wish to change, with the currently selected element shown by a yellow highlight.

Having navigated to your desired sub-menu or element, a further button push on the rotary encoder will activate your choice.

Active elements that can be modified are highlighted in green, allowing them to be changed by rotating the rotary encoder. A further push of the encoder will make the element inactive, thereby allowing you to continue navigating through the menu to other elements within the Setup Menu.

You can step back through the Menu structure and ultimately Exit the Menu by repeatedly pressing the red button as shown.

Using the PAM2-IP-3G to Monitor ST-2110

Several configuration steps are required to prepare the PAM2-IP-3G for use in a network to monitor 2110 signals.

Note: The following steps are only applicable when monitoring ST-2110 Multicast Sources. To configure the PAM2-IP-3G for use with ST-2022-6 Multicast Sources, please skip to Page 22.

To configure your PAM2-IP-3G to monitor ST-2110 Sources, TSL recommends that the following three settings are made first:

- **Module Setup** (allows the setting or changing of the IP address for each SFP Module)
- **Global Options** Setup (allows the setting or changing of the expected video format, sender type and multicast filtering method for each SFP Module)
- **PTP Setup and Status** (allows the setting or changing of the PTP Domain for each SFP Module)

Module Setup

To set or change the Control IP addresses for each SFP Module, follow these steps:

1. Push the rotary encoder once to enter the **Main Menu**

2. Rotate the rotary encoder to Select the **SVIP Main Menu**

3. Push the rotary encoder to enter the **SVIP Main Menu**

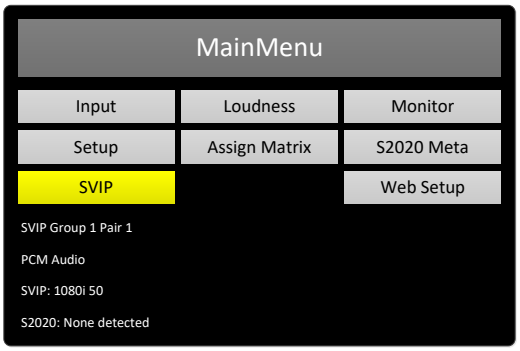
4. Select and enter the **SVIP Module Setup** Menu

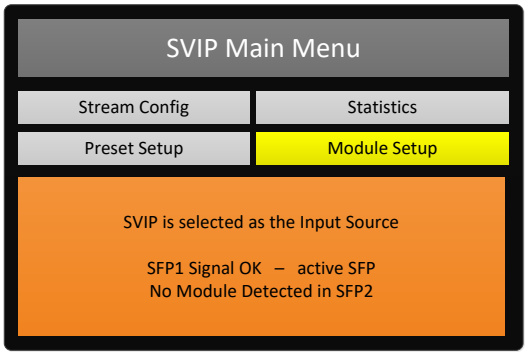
5. Select the SFP Module you wish to configure (either SFP1 or SFP2), enter the IP Address, Subnet Mask and Gateway address as required.

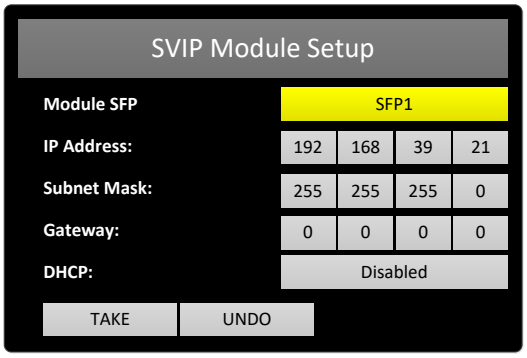
6. Once done, Select **TAKE** and push the rotary encoder once to apply the changes.

7. Repeat for the other SFP Module as required.

8. Press the red button as shown on Page 8 of this Quick Start Guide to exit the **SVIP Module Setup Menu**.

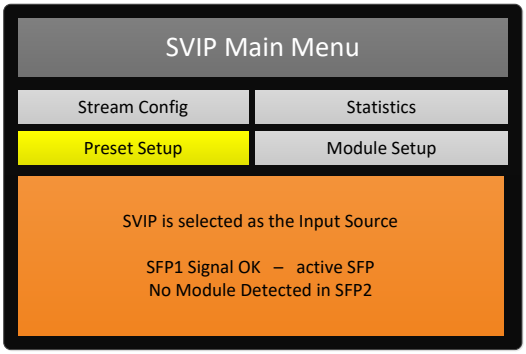


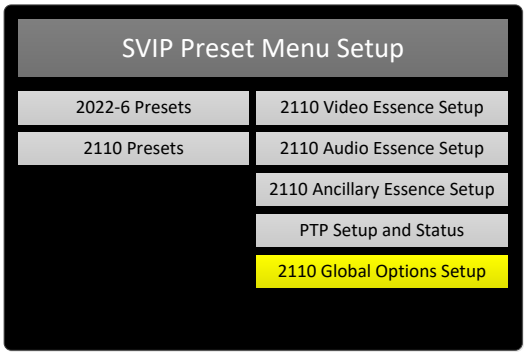


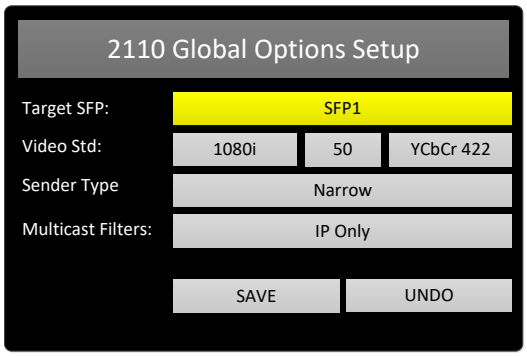


2110 Global Options Setup

1. From the **SVIP Main Menu**, navigate to **Preset Setup.**
2. Push the rotary encoder to enter the **SVIP Preset Setup Menu**
3. Select and enter the **2110 Global Options Setup** Menu
4. Select the SFP Module you wish to configure (either SFP1 or SFP2)
5. Set the Video Standard, Sender Type (Narrow, Narrow-Linear or Wide) and Multicast Filtering as required.
6. Once done, Select **Save** and push the rotary encoder once to apply the changes.
7. Repeat for the other SFP Module if required.
8. Press the red button as shown on Page 8 of this Quick Start Guide to exit the **2110 Global Options Setup** Menu.







PTP Setup and Status Information

1. From the **SVIP Main Menu**, navigate to **Preset Setup.**

2. Push the rotary encoder to enter the **SVIP Preset Setup Menu**

3. Select and enter the **PTP Setup and Status** Menu

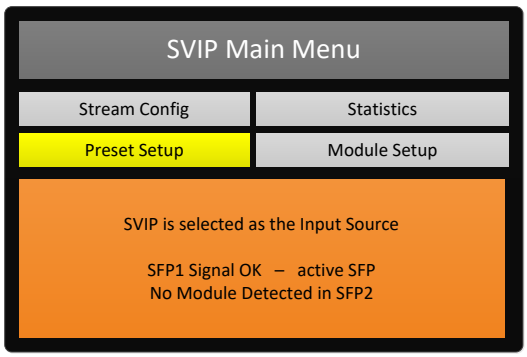
4. Set the PTP Domain number for each SFP and apply using the **TAKE** option

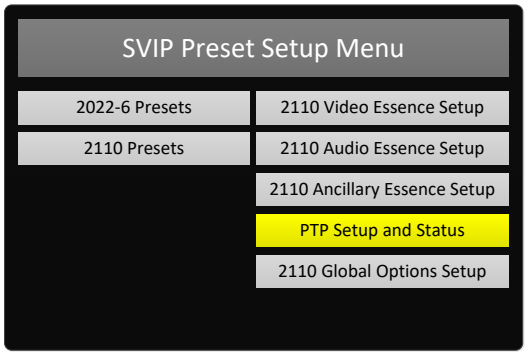
5. With the correct PTP Domain number set and applied, the PAM2-IP-3G will report one of the following statuses for each SFP Module present.

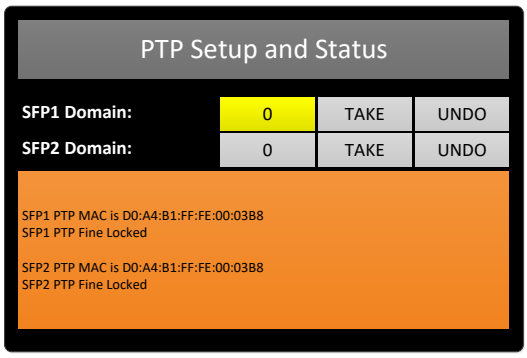
- Fine Locked
- Coarse Locked
- Not Locked

   The MAC Address(es) of the PTP Source(s) are also reported for each SFP Module present.

6. Press the red button as shown on Page 8 of this Quick Start Guide to exit the **PTP Setup and Status** Menu.







Registering 2110 Essences

The PAM2-IP-3G can store and recall 2110 Multicast Sources as required.

This can be thought of as a two-step process, the first of which is to Register the Multicast Addresses of the Video, Audio and Ancillary Essences you wish to monitor.

The second step is to group one or more of these essences within a Preset so that they can be quickly recalled using a single button push on the front panel of the PAM2-IP-3G.

The PAM2-IP-3G can store the following number of 2110 Essence types

- A maximum of 32 x 2110-20 Video Essences
- A maximum of 128 x 2110-30 Audio Essences
- A maximum of 32 x 2110-40 Ancillary Essences

Once registered, these 2110 essences can be grouped together to create up to 24 Presets that can be recalled directly from the front panel of the PAM2-IP-3G

Registering 2110-20 Video Essences

1. From the **SVIP Main Menu**, navigate to **Preset Setup.**

2. Push the rotary encoder to enter the **SVIP Preset Setup Menu**

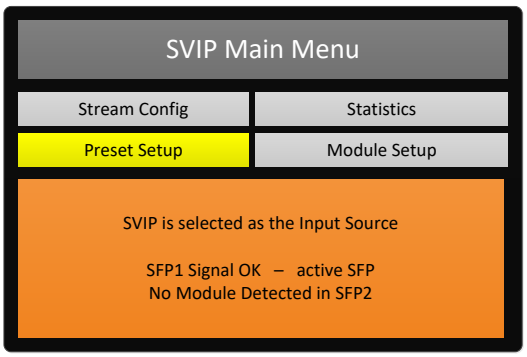
3. Select and enter the **2110 Video Essence Setup** Menu

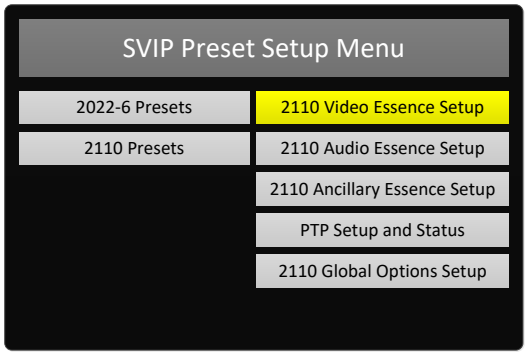
4. ***Preset:*** **-** The name of the currently selected Video Essence is shown in the uppermost field (labelled Preset). If this uppermost field is blank, then the changes you apply in this menu will result in a new Video Essence being registered. However, if this uppermost field already bears a name, the changes you make in this menu will overwrite an existing Video Essence. You can use the rotary encoder to scroll through and recall any Video Essence already registered.

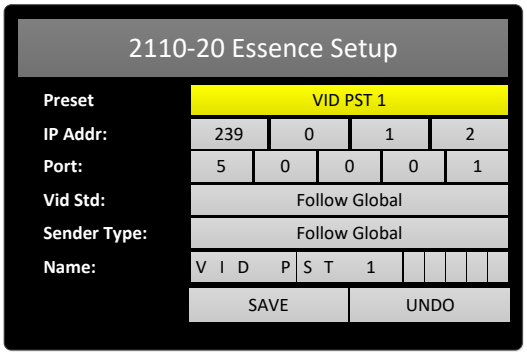
5. ***IP Addr:*** **-** Set the Multicast IP Address of the 2110 Video Essence you wish to register.

6. ***Port:*** **-** Set the Port of the 2110 Video Essence you wish to register.

7. ***Vid Std:*** **-** Set the Video Standard of the 2110 Video Essence you wish to register. The default 'Follow Global' setting will use the default setting previously defined in the Global Options Setup Menu (see Page x).







8. ***Sender Type:*** **-** Set the Sender Type of the 2110 Video Essence you wish to register. The default 'Follow Global' setting will use the default setting already defined in the Global Options Setup Menu (see page C).

9. ***Name:*** **-** Create a name for the Video Essence you wish to register.

10. Once done, Select **Save** and push the rotary encoder once to apply the changes.

11. Repeat this process for any other 2110 Video Essences you wish to register.

12. Press the red button as shown on Page 8 of this Quick Start Guide to exit the **2110-20 Essence Setup** Menu.

Registering 2110-30 Audio Essences

1. From the **SVIP Main Menu**, navigate to **Preset Setup.**

2. Push the rotary encoder to enter the **SVIP Preset Setup Menu**

3. Select and enter the **2110 Audio Essence Setup** Menu

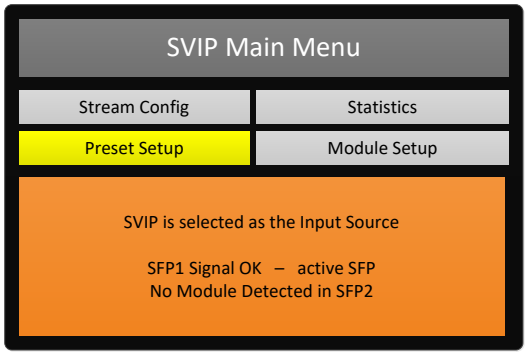
4. ***Name:*** **-** The name of the currently selected Audio Essence is shown in the uppermost field (labelled Preset). If this uppermost field is blank, then the changes you apply in this menu will result in a new Audio Essence being registered. However, if this uppermost field already bears a name, the changes you make in this menu will overwrite an existing Audio Essence. You can use the rotary encoder to scroll through and recall any Audio Essence that already registered.

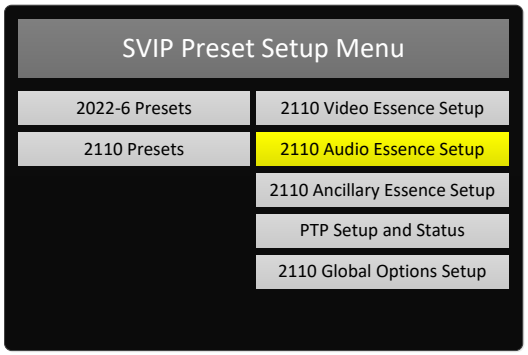
5. ***IP Addr:*** **-** Set the Multicast IP Address of the 2110 Audio Essence you wish to register.

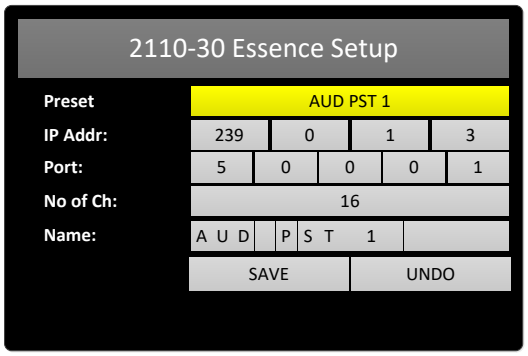
6. ***Port:*** **-** Set the Port of the 2110 Audio Essence you wish to register.

7. ***No of Ch:*** **-** Set the number of Audio Channels present in the 2110 Audio Essence you wish to register. (1 through to 16).

8. ***Name:*** **-** Create a name for the Audio Essence you wish to register.







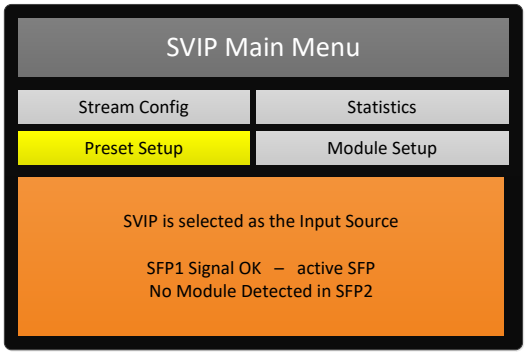
9. Once done, Select **Save** and push the rotary encoder once to apply the changes.

10. Repeat this process for any other 2110 Audio Essences you wish to register.

11. Press the red button as shown on Page 8 of this Quick Start Guide to exit the **2110-30 Essence Setup** Menu.

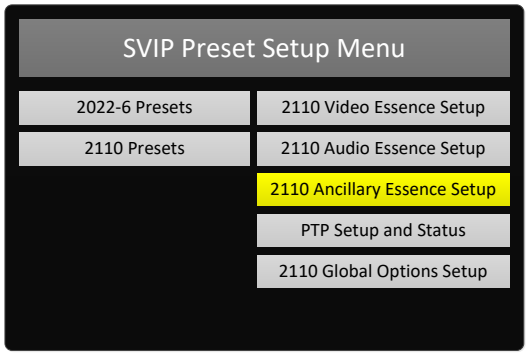
Registering 2110-40 Ancillary Essences

1. From the **SVIP Main Menu**, navigate to **Preset Setup.**



2. Push the rotary encoder to enter the **SVIP Preset Setup Menu**

3. Select and enter the **2110 Ancillary Essence Setup** Menu



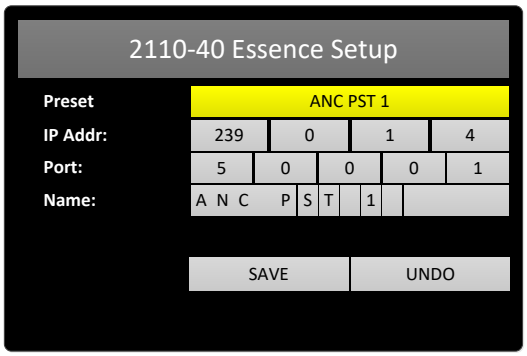
4. ***Name:*** **-** The name of the currently selected Ancillary Essence is shown in the uppermost field (labelled Preset). If this uppermost field is blank, then the changes you apply in this menu will result in a new Ancillary Essence being registered. However, if this uppermost field already bears a name, the changes you make in this menu will overwrite an existing Ancillary Essence. You can use the rotary encoder to scroll through and recall any Ancillary Essence already registered.

5. ***IP Addr:*** **-**Set the Multicast IP Address of the 2110 Ancillary Essence you wish to register.

6. ***Port:*** **-** Set the Port of the 2110 Ancillary Essence you wish to register.

7. ***Name:*** **-** Create a name for the Ancillary Essence you wish to register.

8. Once done, Select **Save** and push the rotary encoder once to apply the changes.



9. Repeat this process for any other 2110 Ancillary Essences you wish to register.

10. Press the red button as shown on Page 8 of this Quick Start Guide to exit the **2110-40 Essence Setup** Menu.

2110 Presets

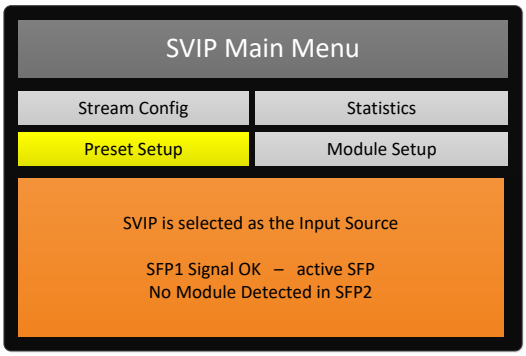
Having registered your chosen ST-2110 Essences, it is possible to group one or more of these essences within a single preset.

Up to 24 Presets can be created, each of which can be used to quickly recall the following with a single button push:

- 1 x Registered Video Essence
- 4 x Registered Audio Essences
- 1 x Registered Ancillary Essence

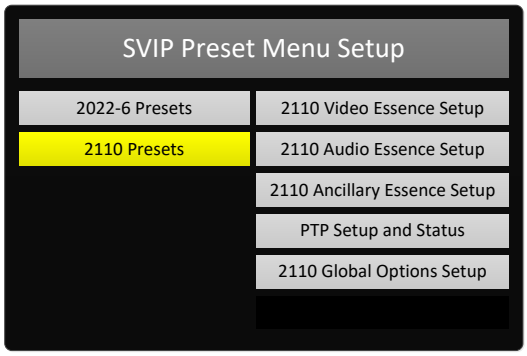
Creating a 2110 Preset

1. From the **SVIP Main Menu**, navigate to **Preset Setup.**



2. Push the rotary encoder to enter the **SVIP Preset Setup Menu**

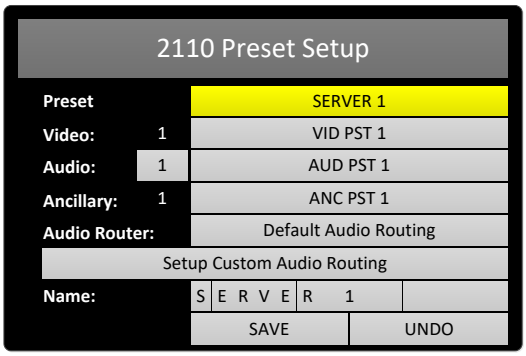
3. Select and enter the **2110 Presets** Menu



4. ***Preset:*** **-** The name of the currently selected 2110 Preset is shown in the uppermost field (labelled Preset). If this uppermost field is blank, then the changes you apply in this menu will result in a new 2110 Preset being created. If this uppermost field already bears a name, the changes you make in this menu will overwrite an existing 2110 Preset. You can use the rotary encoder to scroll through and recall any existing 2110 Preset.

5. ***Video:*** **-** Select the registered Video Essence you wish to recall as part of this 2110 Preset.

6. ***Audio:*** **-** Select the any registered Audio Essence you wish to recall as part of this preset. Up to four registered Audio Essences can be stored and recalled within a single 2110 Preset, simply change the Audio Slot field from 1 through to 4 as required. Please note that when recalling multiple Audio Essences as part of a 2110 Preset, the combined Audio Channel Count must not exceed 16 Channels.



7. ***Ancillary:*** **-** Select any registered Ancillary Essence you wish to recall as part of this 2110 Preset.

8. ***Audio Router:*** **-** The Audio Router defaults to 'Default Audio Routing'. Please check the PAM2-IP-3G Release Notes re: the availability of the 'Setup Custom Audio Routing' option.

9. ***Name:*** **-** Create a name for your 2110 Preset

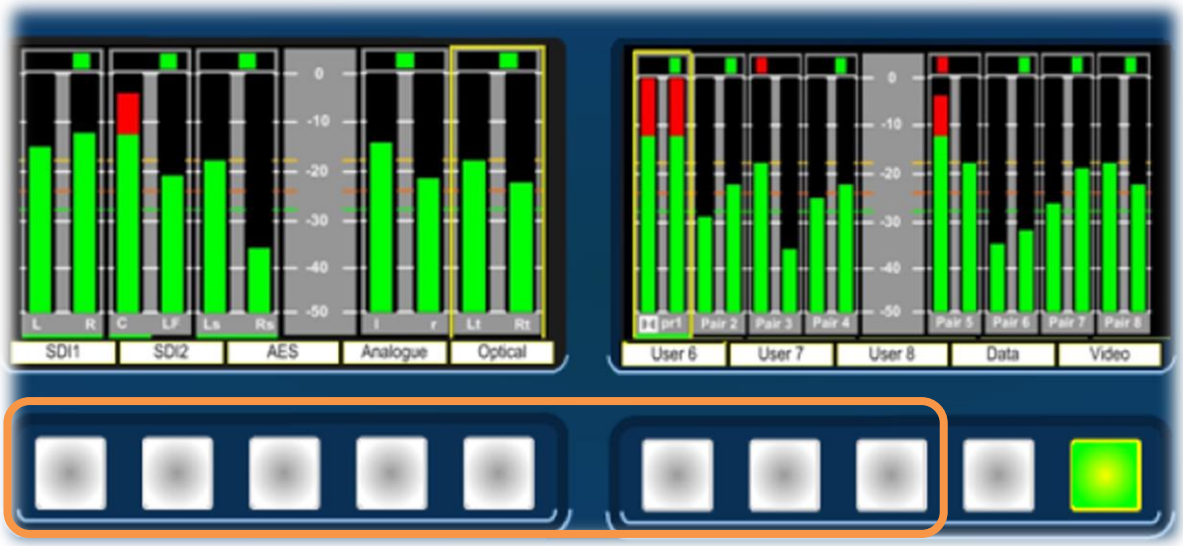
10. Once done, Select **Save** and push the rotary encoder once to apply the changes.

11. Repeat this process for any other 2110 Presets you wish to create.

12. Press the red button as shown on Page 8 of this Quick Start Guide to exit the **2110 Preset Setup** Menu.

Recalling 2110 Presets

2110 Presets can be assigned to Hot Keys on the front panel so that they may be quickly recalled, allowing Operators to quickly switch between the various 2110 Multicast sources feeding the PAM2-IP-3G.

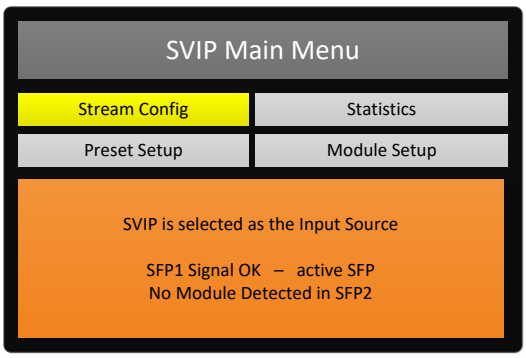


Up to 24 x 2110 Presets can be assigned to Hot Keys on the front panel and are presented as a series of 'banks' that can be cycled through by repeatedly pressing the Home button.

Note: Please download the latest PAM2-IP-3G software and Release Notes from the Support Portal at www.tslproducts.com if you intend to control the PAM2-IP-3G remotely using the PAM2-IP-3G Webpage or External Control Protocol.

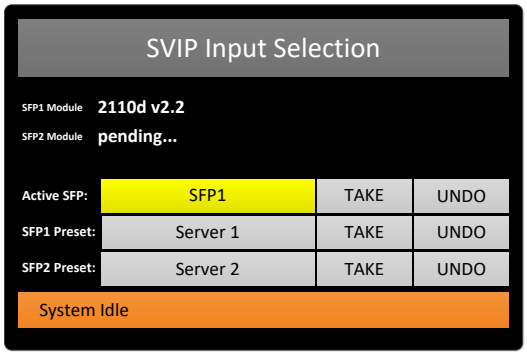
Loading a 2110 Preset from the front panel

1. From the **SVIP Main Menu**, navigate to **Stream Config.**



2. Push the rotary encoder to enter the **Stream Config Menu**

3. ***SFP1 Module:*** **-** The PAM2-IP-3G displays both the type (e.g. 2110 or 2022-6) and the firmware version number of the SFP Module currently inserted into SFP Slot 1 of the PAM2-IP-3G. If no valid module is present, the message 'pending…' will be displayed.



4. ***SFP2 Module:*** **-** The PAM2-IP-3G displays both the type (e.g. 2110 or 2022-6) and the firmware version number of the SFP Module currently inserted into SFP Slot 2 of the PAM2-IP-3G. If no valid module is present, the message 'pending…' will be displayed.

5. ***Active SFP:*** **-** The name of the currently active SFP Module is shown. Use of the TAKE and UNDO buttons provides manual switching between the Multicast Streams currently being subscribed to by SFP1 and SFP2.

6. ***SFP1 Preset:*** **-** The name of the 2110 Preset currently loaded into SFP Module # 1 is shown here. Any one of the 2110 Presets can be manually selected and applied here using the TAKE option. Please note, when loading a 2110 Preset into the Active SFP, the 2110 Essences associated with that preset will be displayed immediately on the front panel of the PAM2-IP-3G.

7. ***SFP2 Preset:*** **-** The name of the 2110 Preset currently loaded into SFP Module # 2 is shown here. Any one of the 2110 Presets can be manually selected and applied here using the TAKE option. Please note, when loading a 2110 Preset into the Active SFP, the 2110 Essences associated with that preset will be displayed immediately on the front panel of the PAM2-IP-3G.

8. Press the red button as shown on Page 8 of this Quick Start Guide to exit the **SVIP Input Selection** Menu.

Assigning a 2110 Preset to a Hot Key

1. From the **SVIP Main Menu**, navigate to **Stream Config.**

2. Push the rotary encoder to enter the **Stream Config Menu**

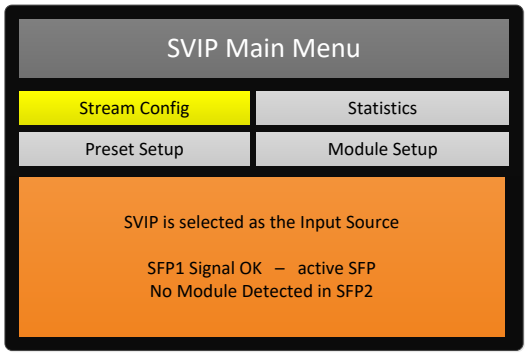
3. Load the 2110 Preset that you wish to assign to a Hot Key into the currently Active SFP

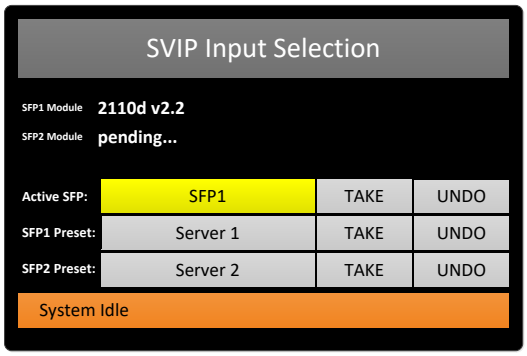
4. With the 2110 Preset loaded into the currently Active SFP you should now see your desired 2110 Sources on the front panel of the PAM2-IP-3G.

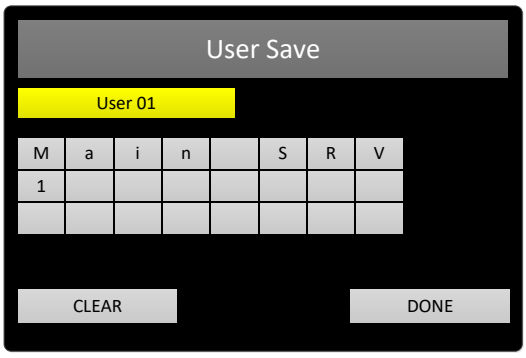
5. Push and hold the front panel Hot Key that you wish to assign the 2110 Preset to**.**

6. Using the rotary encoder, enter a label for the Hot Key (a maximum of 10 Characters including spaces is allowed) and Select Save to commit the 2110 Preset to your chosen Hot Key.

7. To exit the menu, press the red button as shown on Page 8 of this Quick Start Guide.







Please note that when assigning a 2110 Preset to a Hot Key, the Active SFP setting is also stored.

As an example, you could create two Hot Keys, both of which make use of the same 2110 Preset but use different SFP Modules.

This can prove useful if you wish to compare Main vs Backup sources or either 'side' of a redundant network.

It is also worth noting that when assigning a 2110 Preset to a Hot Key, the current contents of the right-hand screen on the PAM2-IP-3G are also stored.

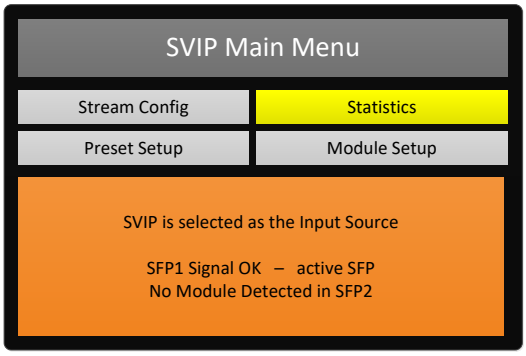
The contents of the right-hand screen are selectable from the front panel of the PAM2-IP-3G and are as follows:

- Audio Level Meters (to allow 16 Audio Level Meters to be displayed across both front-panel screens).
- Loudness/DialNorm Data
- Loudness Histogram
- Video

Troubleshooting and Diagnostics

The PAM2-IP-3G provides some basic Diagnostic information to help identify possible system issues

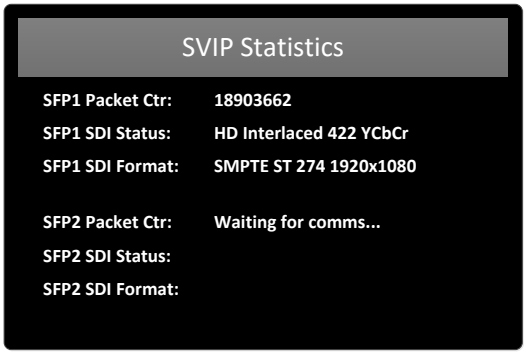
1. From the **SVIP Main Menu**, navigate to **Statistics.**



2. Push the rotary encoder to enter the **SVIP Statistics Menu**

3. ***SFP1 Packet Ctr:*** **-** The number of packets received on SFP1 since subscribing to the last 2110-20 video Essence.

4. ***SFP1 SDI Status:*** **-** The Video Format of the 2110-20 Video Essence currently being received on SFP1



5. ***SFP1 SDI Format:*** **-** The SDI Video Standard derived from the 2110-20 Video Essence currently being received on SFP1

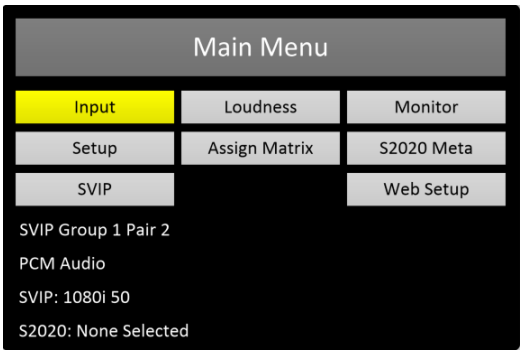
6. ***SFP1 Packet Ctr:*** **-** The number of packets received on SFP1 since subscribing to the last 2110-20 video Essence.

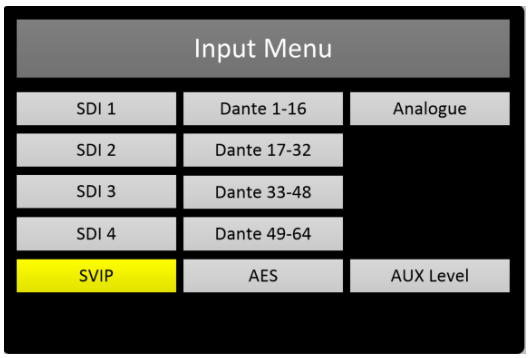
7. ***SFP1 SDI Status:*** **-** The Video Format of the 2110-20 Video Essence currently being received on SFP1

8. ***SFP1 SDI Format:*** **-** The SDI Video Standard derived from the 2110-20 Video Essence currently being received on SFP1

If the PAM2-IP-3G is successfully subscribed to a ST-2110 Source but it is not being displayed on either of the front panel displays, please check the following:

1. Exit the SVIP Main Menu and go to the **Main Menu**
2. Select and enter the **Input Menu**
3. Select **SVIP** as the Input Source.





Updating your PAM2-IP-3G Software

As part of TSL Products commitment to the continual improvement of its products, regular software and firmware updates are made available on our Support portal at www.tslproducts.com

From here you will be able to download the latest PAM2-IP-3G software and accompanying Release Notes.

Please make sure your PAM2-IP-3G is running the latest software release so that you can benefit from the latest features and functionality offered by the PAM2-IP-3G.

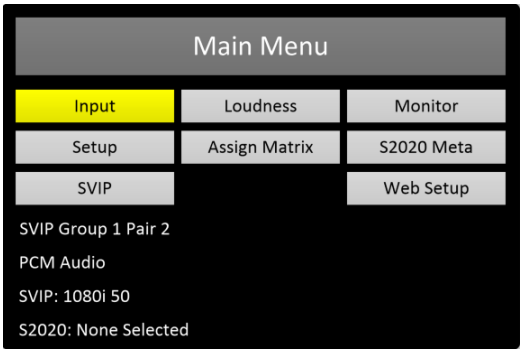
Having downloaded the latest PAM2-IP-3G software release from www.tslproducts.com, you will be presented with a .ZIP file with a file name like the example below:

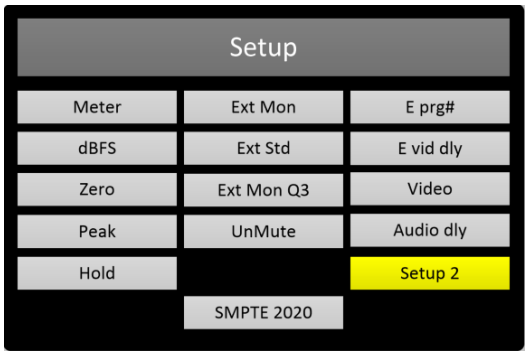
PAM2-IP_v204_C02_Z26a_v283_20sep2018.zip

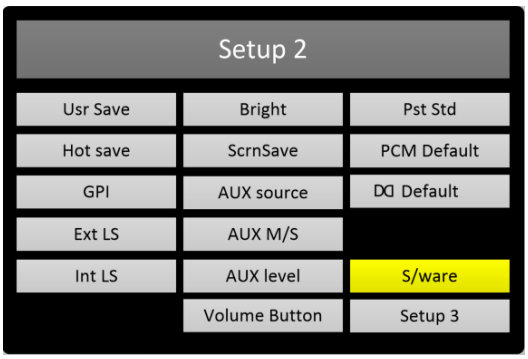
Unzip this file and locate the directory named 'PAM2-IP', copy the directory and its contents into the root of a USB thumb drive.

1. Navigate to the **Main Menu** and select **Setup.**
2. Navigate to and select **Setup 2**
3. Navigate to and select **S/ware**
4. Finally, navigate to and select 'Perform Update'.
5. Updating the PAM2-IP-3G can take up to 5 minutes.
6. Once complete, power recycle the PAM2-IP-3G

Note: Further information re: updating your PAM2-IP-3G can be found in the PAM2-MK2 User Manual







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Using the PAM2-IP-3G to Monitor Dante/AES67 AoIP

In order to use the PAM2-IP-3G within a Dante/AES67 network, you will need to make use of Audinate's Dante Controller.

Dante Controller can be downloaded from Audinate's Website using the following link:

https://audinate.com/products/software/dante-controller

If you are connecting your PAM2-IP-3G to a non-redundant network, please make sure to connect the Primary port only on your PAM-2-IP-3G.

If you are connecting your PAM2-IP-3G to a redundant network, then both Primary and Secondary ports should be used.

Note: When connecting your PAM2-IP-3G to a redundant Dante network, please ensure that both Primary and Secondary ports are connected using the same link speed. If the primary interface is connected to a 1 Gbps switch port, the secondary interface must also be connected to a 1 Gbps switch port.

Understanding Dante/AES67 Ports

Both PAM2-IP-3G Primary and Secondary 1Gig/E ports are set to default to DHCP. If no DHCP server is present, the ports will auto-assign an IP address.

When auto-assigning IP addresses, the Primary and Secondary ports will adopt an IP address in the following ranges:

Primary Port	169.254.x.x
Secondary Port	172.31.x.x

In cases where no DHCP server is present, both the Primary and Secondary Ports will continue to search for DHCP.

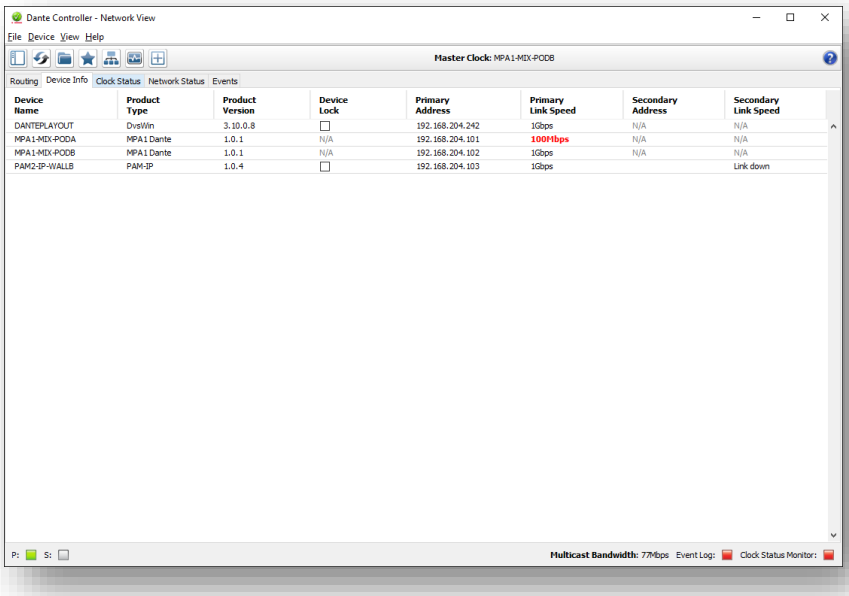
Using Dante Controller, it is also possible to assign a static IP address to the Primary and Secondary Dante/AES67 ports if required.

Note: It is not possible to either set or discover the IP addresses of the Primary and/or Secondary Dante/AES67 ports using the front panel controls on the PAM2-IP-3G. TSL Products recommends that customers use Dante Controller for this purpose. More information on how to use Dante Controller can be found on the Audinate Website at the following link:

https://audinate.com/resources/technical-documentation

Using the 'Device Info' tab in Dante Controller, it is possible to see the IP addresses currently in use by the Primary and Secondary Dante/AES67 ports on the PAM2-IP-3G.

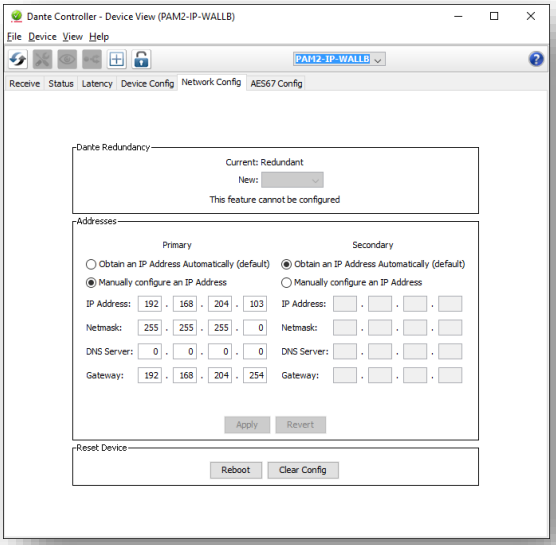
The example below shows a PAM2-IP-3G being identified on the network (see PAM-IP under the Product Type Column) using an IP address of 192.168.204.103 on the Primary port.



In this example, the Secondary port is not connected.

The 'Device Name' column shows the current user assignable name given to the PAM2-IP-3G.

Double clicking on the device in the Device Info window will result in the 'Device View' the pop-up window being shown:

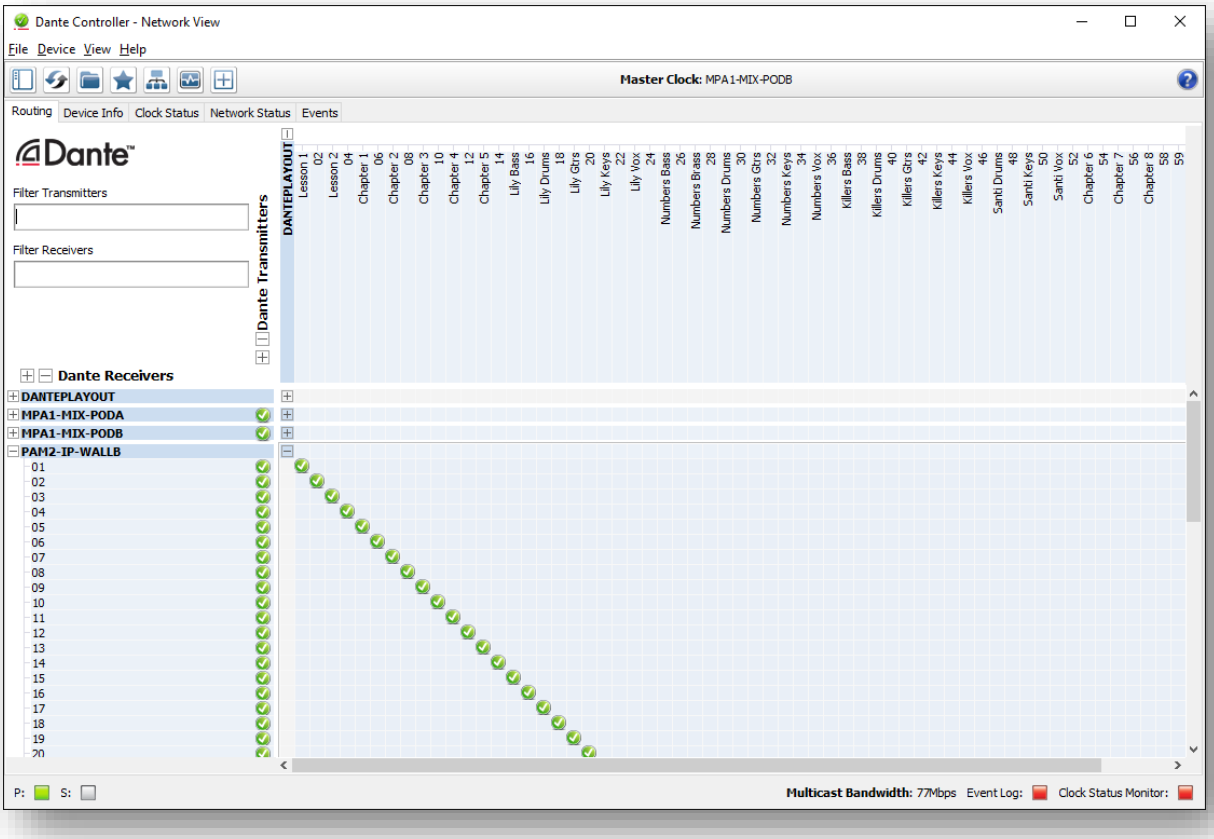


In the Device Info window, it is possible to switch the Primary and Secondary Ports between DHCP (recommended) or Static IP mode using the 'Network Config' tab.

Routing Dante/AES67 Audio Sources

All Dante/AES67 sources routed to the PAM2-IP-3G must be made using Dante Controller.

The example below shows a PAM2-IP-3G named ‘PAM2-IP-WALLB’ subscribing to audio channels being transmitted from a Dante device named ‘Dante Playout’.

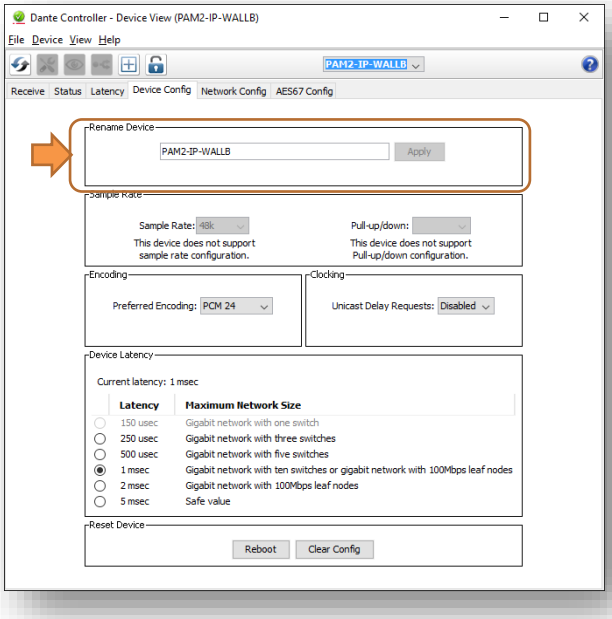


Naming your PAM2-IP-3G

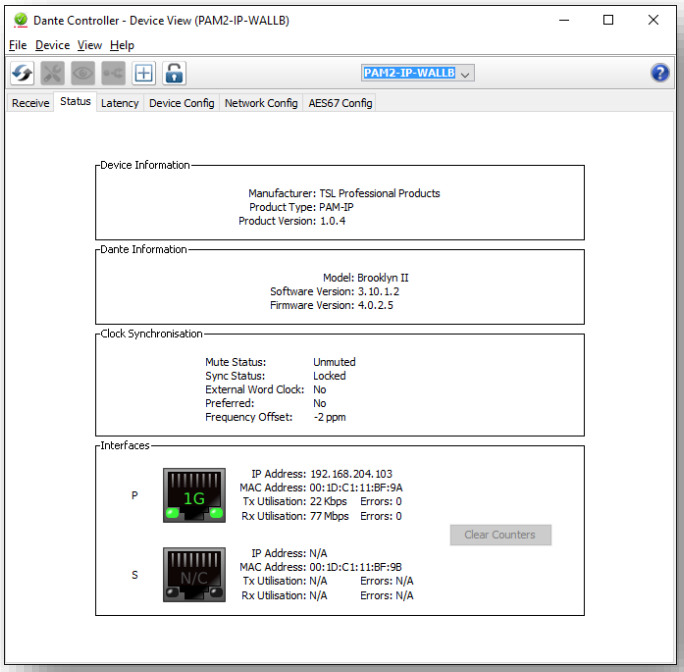
When connecting multiple PAM2-IP-3G Audio Monitoring units to the same network, you can use Dante Controller to assign each of them with unique names based on location, task, owner etc.

This example shows the Device Config tab in the 'Device View' pop up window for the Device named 'PAM2-IP-WALLB'.

You can name your PAM2-IP-3G device as required using the 'Rename and Apply' function shown here.



DANTE/AES67 Port Status on your PAM2-IP-3G



Further details regarding the PAM2-IP-3G Dante/AES67 ports can be found by clicking on the 'Status' tab in the 'Device View' pop-up window.

In this example we can see the Product Type, Product Version, Dante Software and Firmware Versions, Clock Status, IP and MAC address(es).

Note: As the owner of the PAM2-IP-3G, you are entitled to regular free of charge software updates as and when they become available. Software updates and Release Notes for the PAM2-IP-3G are available from the Support portal at www.tslproducts.com.

From time to time it may also prove necessary to upgrade the software and firmware of the Dante Module in order to enable extra functionality. Full instructions for doing so are contained within the PAM2-IP-3G Release Notes.

Updating your PAM2-IP-3G Software

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