



# DIVINE

## PoE Powered Network Audio Loudspeaker

### User Guide

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# GlenSound Electronics Ltd

Thank you for choosing a new GlenSound product.

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Information contained in this manual is subject to change without notice, if in doubt please contact us for the latest product information.

If you need any help with the product then we can be contacted at:

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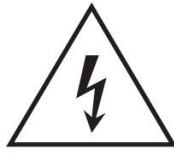
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## IMPORTANT SAFETY INSTRUCTIONS



This symbol is intended to warn that dangerous voltages within the product are present and constitute a risk of electric shock.

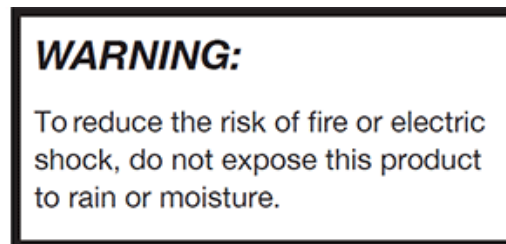
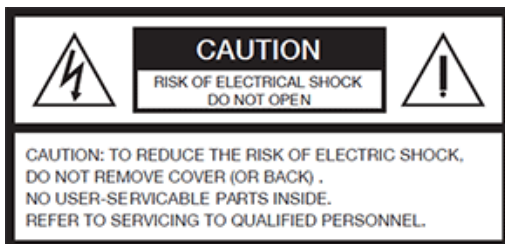


This symbol is intended to highlight that there are important operating & maintenance instructions in the literature accompanying this unit.

- 1) Read these instructions
- 2) Keep these instructions
- 3) Heed all warnings
- 4) Follow all instructions
- 5) Do not use this apparatus near water
- 6) Clean only with a dry cloth
- 7) Do not block any ventilation openings. Install in accordance with manufacturer's instructions
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat
- 9) Protect the network cord from being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from the apparatus
- 10) Only use attachments/ accessories specified/ supplied by the manufacturer



- 11) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/ apparatus combination to avoid injury from tip over
- 12) Unplug this apparatus during lightning storms or when unused for long periods of time
- 13) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as physical damage, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped
- 14) Do not attempt to modify this product. Doing so could result in personal injury and/ or product failure



## **PRODUCT WARRANTY**

All equipment is fully tested before dispatch and carefully designed to provide you with trouble free use for many years.

We have a policy of supporting products for as long as possible and guarantee to be able to support your product for a minimum of 10 years.

For a period of one year after the goods have been despatched the Company will guarantee the goods against any defect developing after proper use providing such defects arise solely from faulty materials or workmanship and that the Customer shall return the goods to the Company's works or their local dealer.

All non-wear parts are guaranteed for 2 years after despatch and any defect developing after proper use from faulty materials or workmanship will be repaired under this warranty providing the Customer returns the goods to the Company's works or their local dealer.

**CE**

## **EU DECLARATION OF CONFORMITY**

### **DIVINE**

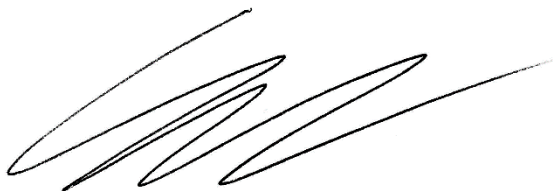
*PoE Powered Network Audio Monitor Loudspeaker*

This declaration of conformity is issued under the sole responsibility of the manufacturer.

This equipment is manufactured by Glensound Electronics Ltd of Brooks Place Maidstone Kent ME14 1HE is CE marked and conforms to the following Union harmonisation legislation:

Emissions:	BS EN55032:2015
Immunity:	BS EN55035:2017

Signed for and on behalf of Glensound Electronics Ltd.



Gavin Davis, Managing Director  
Maidstone, Kent, England

Date: 03/10/2019





**FEDERAL COMMUNICATIONS COMMISSION (F.C.C.)  
DECLARATION OF CONFORMITY**

**Name & Address of Manufacturer:**

GlenSound Electronics Ltd,  
6 Brooks Place, Maidstone, Kent, ME14 1HE, United Kingdom

**Product Name:** Divine

**Product Type/ Model:** Active Loudspeaker/ Divine

**Batch/ Serial Number:** 000001

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**Place of Issue:** Maidstone, England, U.K.

**Name of Authorised Person:** Gavin Davis

**Signature of Authorised Person:**

**Date of Issue:** 09 October 2019

**TEST REPORT NO:** ETS/Z2977/FCC

## RoHS DIRECTIVE

RoHS 2 Directive 2011/65/EU restricts the use of the hazardous substances listed below in electrical and electronic equipment.

This product conforms to the above directive and for these purposes, the maximum concentration values of the restricted substances by weight in homogenous materials are:

Lead	0.1%
Mercury	0.1%
Hexavalent Chromium	0.1%
Polybrominated Biphenyls	0.1%
Polybrominated Diphenyl Ethers	0.1%
Cadmium	0.01%

## **WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT REGULATIONS 2006 (WEEE)**

GlenSound Electronics Ltd is registered for business to business sales of WEEE in the UK our registration number is:

**WEE/JJ0074UR**



# DIVINE

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## **OVERVIEW**

Divine is a new concept in powered network audio monitors. It is housed in a hardwearing fully sealed diecast enclosure, is powered by Power over Ethernet (PoE) and boasts the very latest low noise high output class D power amplifier.

Internally a Digital Signal Processor (DSP) takes careful care of the audio signals, including state of the art compression and limiting circuits, while a microprocessor provides full setup and control via a small rear panel LCD. Control of setup and day to day operation of the Divine will also be available on our Windows 10 application GlenController including the ability to group multiple Divines together and control their level simultaneously.

Divine can receive up to four Dante (AES67 compliant) audio over IP (AoIP) inputs. These inputs can be selected by the user on a large clear front panel select switch. The four audio inputs can also be easily mixed together and their individual levels adjusted.

A priority system is provided to allow one (or more) of the inputs to automatically duck another. This can be very useful if you want to monitor one source but also listen to another when audio is present, such as sending show relay to dressing rooms in a theatre but having the stage managers call and building fire alarm take precedence when they're active.

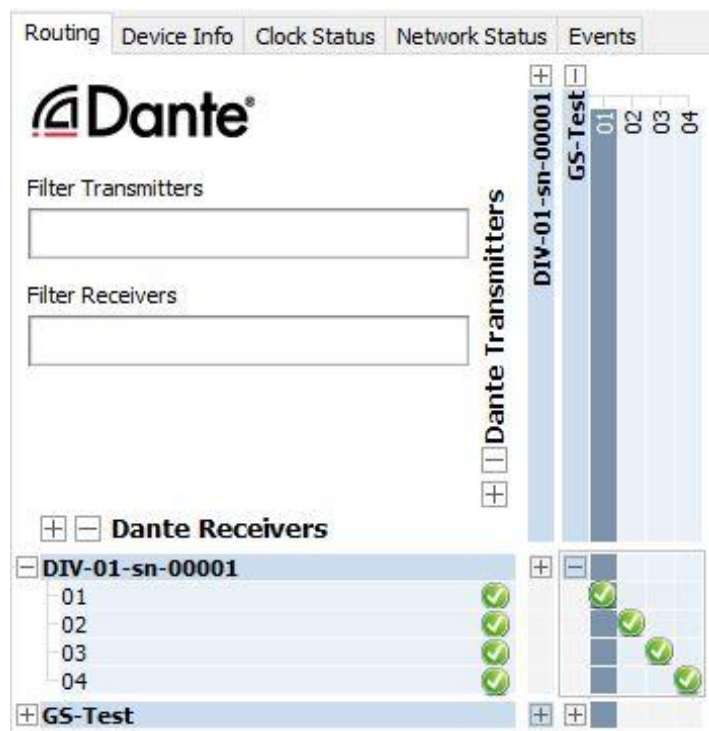
The diecast enclosure has been carefully designed to provide full protection of all control knobs, switches and ports to prevent damage. The housing also uniquely features a standard PC screen Vesa mount, meaning that you can purchase any standard Vesa mounting solution to hang/ mount your Divine on, saving you lots of money. Standard microphone stand threads are also provided in the base for an alternative support solution.

Different preset EQs and an LF cut can all be set in the user menu to allow the Divine to be used for a variety of applications.

Divine is so much more than just  
another powered loudspeaker.

## QUICK START

- 1) Connect the Divine to a PoE enabled Ethernet switch or to a PoE midspan PoE injector and onwards to a network switch.
- 2) Connect a Dante® enabled device to provide source audio to your network (such as Dante® Virtual soundcard running on a PC)
- 3) Using Dante controller route audio from your Dante® audio source to one or more of the input channels of the Divine



- 4) Use the front panel Select switch on the Divine to select which of the Dante® audio inputs you want to monitor
- 5) Adjust the volume using the front panel Volume control.

## FRONT PANEL CONTROLS



### 1. Select Switch

The select switch has two main functions.

A) Each single press of the switch will scroll to the next available input channel(s), the currently selected channel(s) will be highlighted by the LEDs.

B) Pressing and holding the select switch will enable the currently selected input channel to have its gain adjusted by +/-16dB by using the front panel volume control. While the switch is being held down the inputs LED will turn orange to indicate that you are in the gain trim mode.

**NOTE:** It is possible to disable the select switch within in the menu system. If when you press the switch the input LEDs flash red, then this indicates that the switch has been disabled and the user cannot scroll through the input channels.

## 2. Input LEDs

The 4 input LEDs main role is to indicate which channel(s) is/ are currently being routed to the loudspeaker. Whichever channels' LED(s) is/ are on indicate which network audio input(s) is/are being routed to the loudspeaker.

The LEDs can also be set in the menu system to act as a PPM (either individually, or as a column). If in the mode then they will illuminate to indicate audio level, and the currently selected channel(s) LED will not be shown, unless the Select switch is pressed.

If all the LEDs flash red , then this provides an indication to the user that the current control they are operating (select switch or volume control) has been locked from within the menu system.

## 3. Volume Control

The volume control is used for adjusting the loudness/ volume of the loudspeaker. Turning it clockwise increases the volume and anti-clockwise reduces the volume.

It can also be used in conjunction with the select switch to adjust the gain of any of the input channels. (see Day to Day Operation...Input Trim Control for further details).

Using the menu system it is possible to set a minimum and/ or maximum output level from the loudspeaker. This will mean that although the operator can turn the volume control all the way up or down the actual output level may be being limited by the menu setting.

**NOTE:** It is possible to completely disable the volume control in the settings menu. If it has been disabled then when it is rotated all the input LEDs will flash red to warn the user that the control is disabled.

## REAR PANEL CONTROLS



### 1. VESA Mounts

VESA mount points to allow the Divine to be attached to and supported by a standard pc style monitor arm are provided.

They conform to the 75 x 75mm (2.95 x 2.95”) standard and accept 4mm metric threaded screws. The screw holes are blind tapped (i.e. are not open inside the Divine’s casing). The maximum length of screw that can be inserted is 9mm.



It is very important that any arm or VESA mounting system that the Divine is attached to is specified and capable of supporting the Divine’s weight which is 1.725Kg/ 3lb12oz.

### 2. Ethernet Port

The Ethernet port is physically a Neutrik EtherCON connector and can mate with XLR shelled EtherCON cables but also standard network RJ45 patch cables.

Both network audio (Dante®/ AES67) and power in the form of PoE are connected to the Divine using this connector, which should be connected to your network audio Ethernet infrastructure.

### 3. **Display**

The display is used in conjunction with the menu buttons to set the Divine's parameters. The display will turn itself off after 30 seconds of inactivity and can be awoken by pressing either of the menu buttons. See the menu section of this handbook for more details.

### 4. **Menu Buttons**

These two push buttons are used to navigate through and select different menu options.

The left-hand button is used to select different menus and the right-hand button is used to view and select different parameters within a menu.

The menu is setup as a vertical tree, with the left-hand button being used to select the next menu above or below the one currently visible.

**TIP:** There is an arrow in the left top corner of the display. This indicates which direction the menu system will navigate in when the left-hand menu button is next pressed. To change direction, then press and hold the left menu button until the arrow indicates a change of direction.

## DAY TO DAY OPERATION (and hidden functions)

### 1. Selecting a Source

Pushing the select switch will scroll the input source to the next available input (note available inputs can be set in the menu system).

If Sum (mixing) is enabled then the enabled sum options will be scrolled through after the individual inputs.

The select switch can be disabled in the menu system, if it has been disabled then if pressed it and all the front panel source LEDs will all flash red.

### 2. Front panel volume control

The volume control adjusts the output volume of the loudspeaker.

There are a few possible settings for the volume control that can be set in the menu system.

1) The volume control can be disabled.... i.e. the volume that it was set at when it was disabled will become fixed and turning the control up or down will not affect the output volume.

If it has been set as disabled when it is rotated the 4 input source LEDs will flash red to indicate a warning to the user that it is fixed.

2) It is also possible to set within the menu system a minimum (Min) volume.

This means that when the volume control is turned fully anti-clockwise it will not fully attenuate the volume and the source audio can never be completely turned off.

3) It can be used in conjunction with the source select switch to adjust a particular inputs level (see Input trim control).

**Note** if it has been used in this way then it must be turned to its previous volume position before it will again start effecting the output volume of the loudspeaker.

### 3. **Input trim control**

This function allows an individual input to have its level adjusted.

When a single channel is selected, press and hold the select button to trim the gain using the front panel volume pot (not available in channel sums).

The channel LED will show in orange, and the pot can then be used to set the gain value +/-16dB.

**Note:** On exit (i.e. once the channel select button has been released) the volume control reverts to the normal volume control but will only become active when turned to the current volume level. For example, if the volume was 3 before entering gain trim, and the volume control is moved to 10 in gain trim, on exit the volume will remain at 3 until the pot is turned back to 3 again.

### 4. **Source select LEDs**

The source select LEDs are used to show various states of the system including metering.

1) When yellow they indicate which of the sources is currently being routed to the loudspeaker.

2) If all flash red, then this indicates that the current control that is being operated has been disabled in the menu (select switch or volume pot)

3) If one LED indicates red, while another becomes dimmer, this indicates that the priority mode is currently active. The dimmed yellow LED indicates the currently selected audio channel and the brighter red LED indicates the priority channel that is currently receiving audio and is active and will be ducking the audio of the selected channel.

### 5. **LED PPM mode**

It is possible to enable two different Peak Programme Meter (PPM) modes in the menu.

'Bar' mode makes the 4 source LEDs work as a traditional meter, showing the output level of the currently selected source.

'Colour' mode makes the selected LED change colour to indicate its own source level. Whereby Blue = on with no audio, through green, yellow, then red to indicate high level.

### 6. **Dark mode**

It is possible in the menu system to set the front panel LEDs to 'dark' mode. This greatly reduces their output brightness. All functionality remains the same, the LEDs are just much dimmer for situations when bright LEDs are not desirable.

## **7. Rear Panel LCD**

The rear panel LCD can be used to setup the various parameters of the Divine. The rear panel display is normally off and will only turn itself on and show the menu system when either of the rear panel blue buttons are pressed.

The two blue buttons are used to navigate through the menu system. Whereby the left button selects the next available menu function and the right button selects the options within a menu.

Pressing and holding the left blue button for two seconds changes the direction that the menu system is being scrolled through. An arrow next to the Menu Function Name indicates the current direction of scrolling through the menus.

The menu times out after 10 seconds and all current selections will be remembered and stored in non-volatile RAM.

# MENU & SETUP

## (Listed in order)

### Menu Function Name: Audio EQ

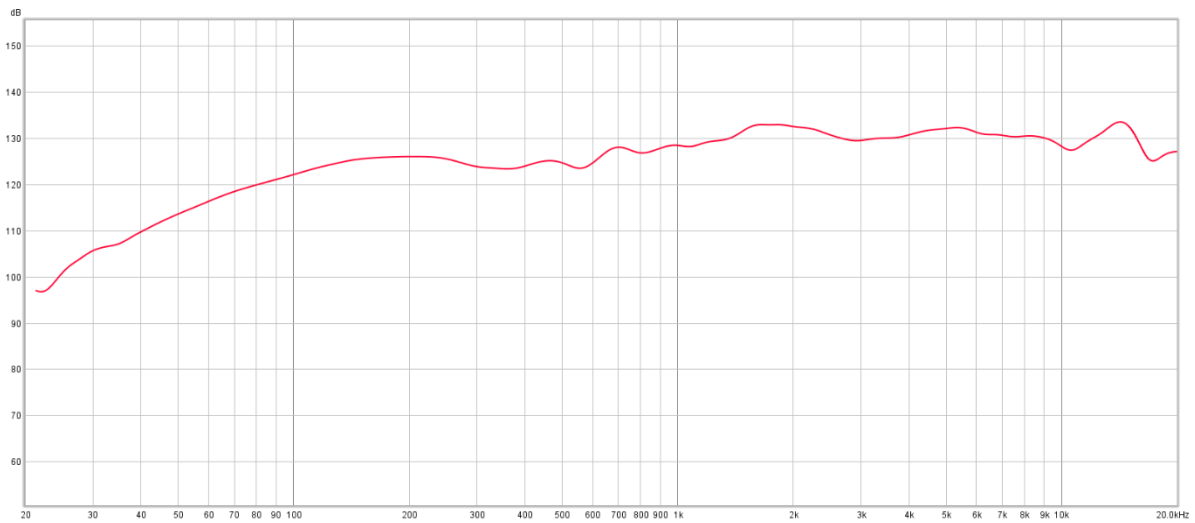
*Options within menu:*

Off, Natural, Normal, Pop

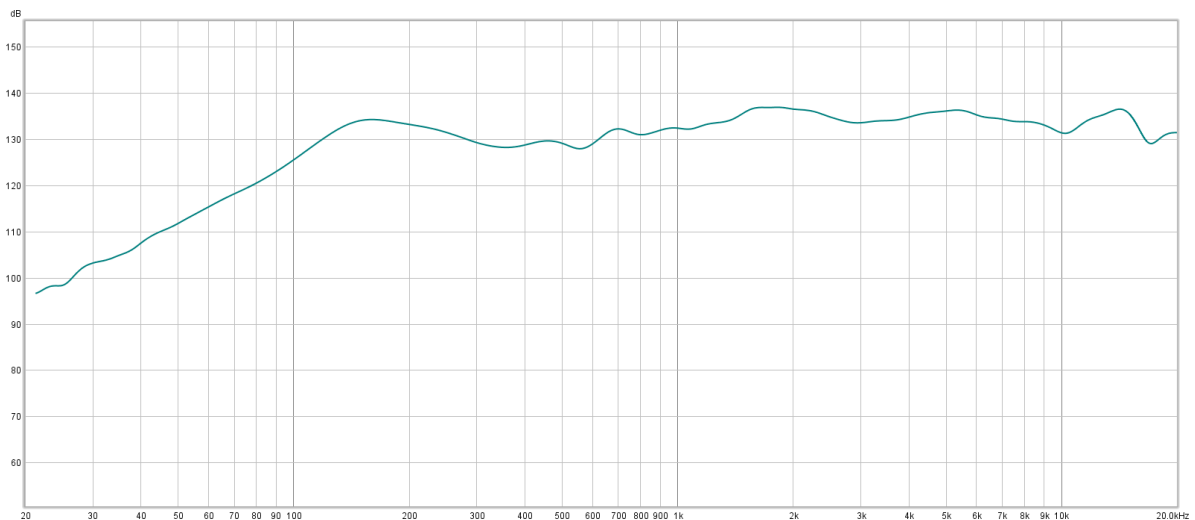
*Description:*

These three eq settings alter the output frequency response of the loudspeaker.

**Natural** has a frequency/ level response as per the graph below.

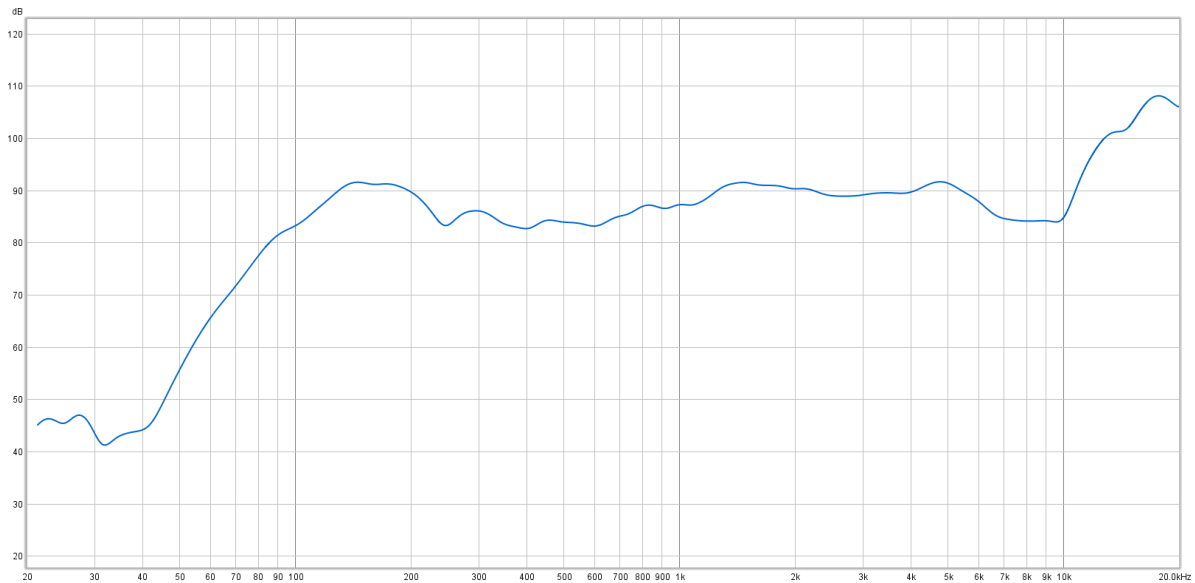


**Normal** is a set of filters designed to emulate the sound of the traditional analogue powered monitors. The frequency/ level output is as per the below graph.





**Pop** is a set of filters that our software engineer developed that he liked while he was writing code for the Divine and listening to the unit 8 hours a day. You can tell from the extended HF response that our developer is not straight out of university! The frequency/level output is as per the below graph.



**Audio EQ Default = Normal**

**Menu Function Name: LF Cut**

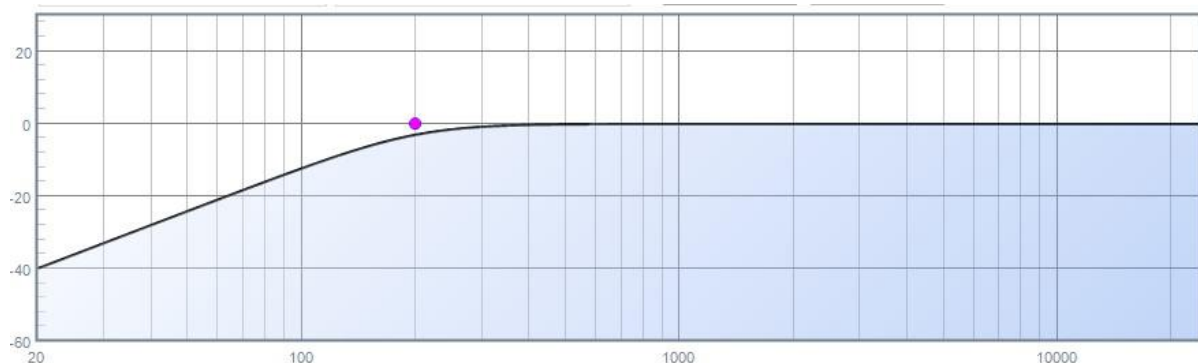
*Options within menu:*

On, Off

*Description:*

LF cut is a filter that is applied to the lower frequency output of the speaker. It is useful to help with unwanted extended resonating low frequencies when the Divine is placed tight in a corner or close against a wall. The LF Cut starts at 200 Hz and rolls off at 12dB per Octave.

**LF Cut Default = Off**



## **Menu Function Name: Gain Boost**

### *Options within menu:*

0dB, 6dB, 12dB, 18dB, 24dB

### *Description:*

The internals of the Divine have been carefully designed such that even when audio input signals are getting close to full scale there won't be distortion within the internal electronics. Although this a perfect design in the real World most programme audio signals are well below digital full scale and as such this design limits the overall volume available from the loudspeaker. As such we have included Gain Boost, to increase the incoming signals by a set amount, to allow the full audio output of the Divine to be achieved. Compressor/ limiter circuits are built in so even when gain boost is on and input levels are high the audio output will be as good as possible.

**Gain Boost Default = +6dB**

## **Menu Function Name: Meter Mode**

### *Options within menu:*

Off, Bar, Colours

### *Description:*

This mode enables the front panel source select LEDs to act as simple audio level meters. There are two different styles of meters available.

**Bar:** operates like a normal vertical level meter, with increases in level increasing the number of LEDs on.

**Colour:** provides individual meters on each of the single source LEDs, indicating their own source input level. The LED will change colour depending upon the level, starting at blue (off), going through green, amber and then red all at different intensities to indicate the incoming signal level.

**Meter Mode Default = Off**

## **Menu Function Name: Input Enable**

### *Description:*

Input enable sets what input sources can be selected by the front panel select switch. If the input number is highlighted i.e. '1' then it is enabled.

To add/ remove inputs from being enabled, scroll to the input by a quick press of the right-hand blue button and then press and hold the right hand blue button until it changes state.

**Note:** *If an input is not enabled in this menu it will not prevent it from working if set as a priority circuit.*

**Input Enable Default = All 4 inputs enabled**

### **Menu Function Name: Sum Enable**

*Options within menu:*

1+2, 3+4, 1+2+3+4

*Description:*

Sum enable sets which (if any) inputs can be mixed together. Whichever options are set in this menu will appear as a source as the user scrolls through the available sources using the front panel select switch.

To add/ remove inputs from being sum enabled, scroll to the inputs by a quick press of the right-hand blue button and then press and hold the right-hand blue button until it changes state.

**Sum Enable Default = No sums enabled**

### **Menu Function Name: In 1 Delay**

*Options within menu:*

0, 5, 10, 15, 20, 25, 30 35, 40ms

*Description:*

This menu affects the inbuilt delay for input channel 1. The menu is designed to allow the input channel's audio to be delayed internally within the Divine to match your working environment (i.e. aligning sound to a processed vision feed).

The delay time is in milliseconds.

### **Menu Function Name: In 2 Delay**

*See In 1 Delay*

### **Menu Function Name: In 3 Delay**

*See In 1 Delay*

### **Menu Function Name: In 4 Delay**

*See In 1 Delay*

**Delay Defaults = 0 ms (no delay)**

### **Menu Function Name: Input Filter**

*Description:*

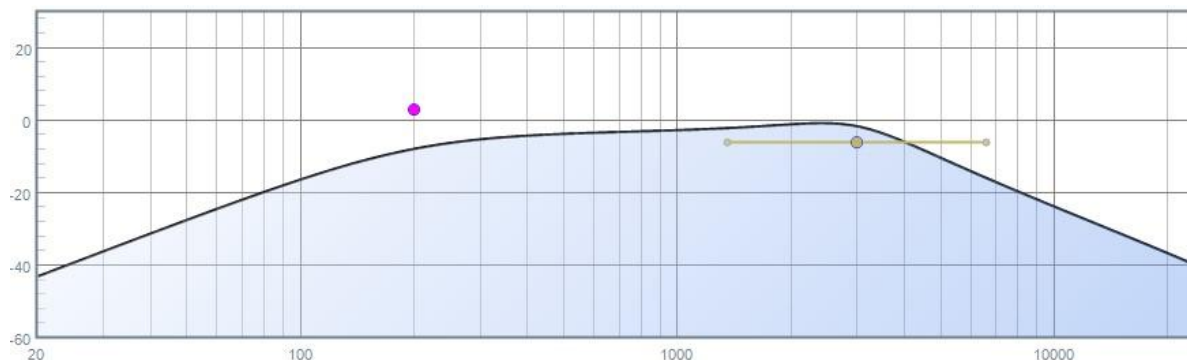
Input filter allows a bandpass filter optimised for voice to be set on any of the input circuits.

If the input number is highlighted i.e. '1' then the filter is in circuit for that input.

To add/ remove filters from input channels, scroll to the input by a quick press of the right-hand blue button and then press and hold the right-hand blue button until it changes state.

The filter setting is designed to make a voice circuit very clear and intelligible. It has two coarse filters, one at 300Hz and the other at 3kHz. This provides a significant amount of presence to a contributing voice.

When enabled the frequency/ level output of a filtered channel is as per the below graph.



**Input Filter Default = No filters set**

### **Menu Function Name: Priority 1**

*Options within menu:*

Ch 1, Ch 2, Ch 3, Ch 4, None

*Description:*

In priority mode when audio is detected on a priority channel the currently selected channel is dimmed by the dim level (see dim level menu) and the priority channel is turned on and mixed with the currently selected channel.

The LED of the priority channel will show in red whilst active. After 2 seconds of inactivity the previously selected channel is returned to normal level and the priority channel is muted.

Priority 3 is the highest priority and whichever channel has been set in the priority 3 menu will dim priority 1 and 2 channels (if set)

**Priority 1 Default = None**

### **Menu Function Name: Priority 2**

*Options within menu:*

Ch 1, Ch 2, Ch 3, Ch 4, None

*Description:*

In priority mode when audio is detected on a priority channel the currently selected channel

is dimmed by the dim level (see dim level menu) and the priority channel is turned on and mixed with the currently selected channel.

The LED of the priority channel will show in red whilst active. After 2 seconds of inactivity the previously selected channel is returned to normal level and the priority channel is muted.

Priority 3 is the highest priority and whichever channel has been set in the priority 3 menu will dim priority 1 and 2 channels (if set)

**Priority 2 Default = None**

### **Menu Function Name: Priority 3**

*Options within menu:*

Ch 1, Ch 2, Ch 3, Ch 4, None

*Description:*

In priority mode when audio is detected on a priority channel the currently selected channel is dimmed by the dim level (see dim level menu) and the priority channel is turned on and mixed with the currently selected channel.

The LED of the priority channel will show in red whilst active. After 2 seconds of inactivity the previously selected channel is returned to normal level and the priority channel is muted.

Priority 3 is the highest priority and whichever channel has been set in the priority 3 menu will dim priority 1 and 2 channels (if set)

**Priority 3 Default = None**

### **Menu Function Name: Dim Level**

*Options within menu:*

-6 dB, -12 dB, -18 dB, -24 dB, -30 dB, MUTE

*Description:*

This menu is used in combination with the Priority menus. If a priority channel receives audio then the currently selected channel will dim by the amount of dBs set in this menu. The menu levels refer to decibels of dimming.

If set to MUTE then the currently selected channel's audio will be turned off while the priority circuit is in use.

**Dim Level Default = -12dB**

### **Menu Function Name: Input Select**

*Options within menu:*

Unlocked, Locked

*Description:*

This feature allows the front panel Input select switch to be disabled (locked). If it is disabled then the currently set input source cannot be changed by the front panel select switch.

If the control is pressed when in locked mode, then the front panel input LEDs will flash red to provide a visual indication to the user that it is currently locked and they cannot change it.

**Input Select Default = Unlocked**

**Menu Function Name: Volume Pot**

*Options within menu:*

Unlocked, Locked

*Description:*

This feature allows the front panel volume pot (potentiometer (knob)) to be disabled (locked). If it is disabled then the currently set volume cannot be changed by the front panel volume control.

If the control is turned when in locked mode, then the source select LEDs will flash red to provide a visual indication to the user that it is currently locked and they cannot change it.

**Volume Pot Default = Unlocked**

**Menu Function Name: Min Volume**

*Options within menu:*

-52 dB, -46 dB, -40 dB, -34 dB, -28 dB, -Inf

*Description:*

This function adds a virtual 'end stop' resistor to the end of the volume pot. This means that the front panel volume pot cannot be fully attenuated and therefore cannot fully turn down the incoming audio.

The figures in dB are the maximum attenuation allowed, i.e. the -52 dB setting will allow the output level to be much quieter than the -28 dB setting.

-Inf (infinity) will allow the speaker to be fully turned off.

**Min Volume Default = -Inf**

**Menu Function Name: Vol. Limit**

*Options within menu:*

0 dB, -3 dB, -6 dB, -9 dB, -12 dB

*Description:*

The options in this menu sets a limit to the maximum output level from the front panel volume control. In normal use when it's turned fully up the output is '0dB'. If you have set this control for one of the '-' figures then that will be the amount of dBs below maximum volume available from the volume control.

**Vol. Limit Default = 0 dB**

**Menu Function Name: Line-up**

*Options within menu:*

-24 dBFs, -20 dBFs, -18 dBFs

*Description:*

The above figures represent the 0dBu level in comparison to the digital full scale level 0dBFS. This should be set to match the rest of your AoIP audio infrastructure.

**Line-up Default = -18 dBFs**

**Menu Function Name: Power Save**

*Options within menu:*

Off, 10 sec, 30 secs, 60 secs, 5 min, 15 min, 30 min, 60 min

*Description:*

The power save menu, if enabled, allows the Divine to turn off the power to its power amplifier and save energy when no audio is present. During power saving its network interface will continue to run and the microcontroller will also continue to monitor the incoming audio channels and will quickly turn the power amplifier back on when audio has been detected.

The sec or minute time are the length of time that no audio must be detected for before entering power saving mode.

**Power Safe Default = 5 min**

**Menu Function Name: Dark Mode**

*Options within menu:*

Off, On

*Description:*

Dark mode relates to the front panel source select LEDs. The light output of these have been set to be useable during normal working environments. Turning on dark mode, dims the front panel source LEDs (not the select switch), such that they are only visible in a dark room.

**Dark Mode Default = Off**

### **Menu Function Name: Enable Pass.**

*Options within menu:*

Enabled, Disabled

*Description:*

Enable Pass. stands for Enable Password and allows the menu to be protected by our default password/ key press.

If enabled then before accessing the menu system the user must enter the password by pressing the blue buttons in the correct order which is:

RIGHT, RIGHT, LEFT

This combination is the letter G in Morse code (dash, dash, dot).

**Enable Pass. Default = Off**

### **Menu Function Name: Fact. Reset**

*Options within menu:*

No, Reset?

*Description:*

If the 'Reset?' option is selected by a quick press of the right hand blue button and then the same button is pressed and held for 2 seconds then a factory reset will be performed.

When complete this will be indicated by the display showing 'Done!'.

The factory reset returns all menu functions to their default value.

### **Menu Function Name: Info**

*Options within menu:*

DFU, DNT, SR, Temp C &F, Amp,

*Descriptions:*

**DFU:** This shows the currently installed firmware version in our own internal microprocessor.

**DNT:** This shows the currently installed DNT firmware version in the Ultimo chipset.  
Note: The Ultimo chipset is a device from Audinate that provides the Dante® network audio processing.

**SR:** SR = This shows the current digital audio sample rate operating within the Divine and being received from the network.

**Temp:** The internal temperature of the Divine's microprocessor can be shown in both degrees Celsius and degrees Fahrenheit

**Amp:** The internal power amplifier is digital and communicates with the microprocessor, if the microprocessor receives an error message from the amplifier it will be shown here.

## REMOTE CONTROL

The Divine can be remote controlled via the GlenController.

The Divine can also receive UDP packets via the Device IP address and port which can be used for changing the input selection type. This can be done using systems like the QSC Q-SYS.

In the remote you can set up to eight groups of Divine's which allows 1 user on their remote or at one speaker to control all speakers in the group

## POWERING THE DIVINE

Divines are Ethernet network devices that require a Power over Ethernet (PoE) power source to supply them with power to allow them to turn on and operate.

PoE is a standard technique for powering equipment from an Ethernet network and the Divine conforms to IEEE 802.3af-2003.

The Divine requires a PoE voltage at the source (i.e. network switch) of a minimum of 44 and a maximum of 57 Volts DC.

The PoE source must also be able to provide at least 15.4 Watts on the output that the Divine is connected to.

The Divine can be powered either from a network switch that provides PoE or from a Midspan (Mid-span) PoE power source. If your network switch does not supply PoE then a Midspan power supply can be connected between your switch and the Divine to provide it with power.

**NOTE:** The Divine has no on/ off switch, if it is connected to a suitable PoE enabled network switch or Midspan power source then it will automatically turn on. It does have a power saving mode that can be setup in the menu.

## **CONNECTING THE DIVINE TO A DANTE® NETWORK**

The Divines are network audio devices utilizing the reliable and versatile Dante® audio over IP protocol. Dante® is a proprietary system (although very widely used) the originators of which are Audinate.

The information below is only meant as a very basic guide. Full details of the power of Dante® network audio and instructions for using it can be found at [www.audinate.com](http://www.audinate.com)

### **Getting Dante® Controller**

If you are connecting the Divine to a new Dante® network the first thing you will need to do is to get the free Dante® controller software from Audinate.

This can be downloaded by visiting Audinate's web site at [www.audinate.com](http://www.audinate.com)

### **Connecting Divine device to the network**

The Divine can be connected to the network that you are going to use for your audio distribution simply by plugging in to the RJ45 network connection on the rear. Once connected to the network it will be possible to see the Divine from within the Dante® controller and route its' audio circuits.

**Note:** Please remember the Divine is powered by Power over Ethernet (PoE) so the RJ45 network cable must be connected to a network switch capable of providing PoE or a mid-span power supply (PoE Injector) must be used.

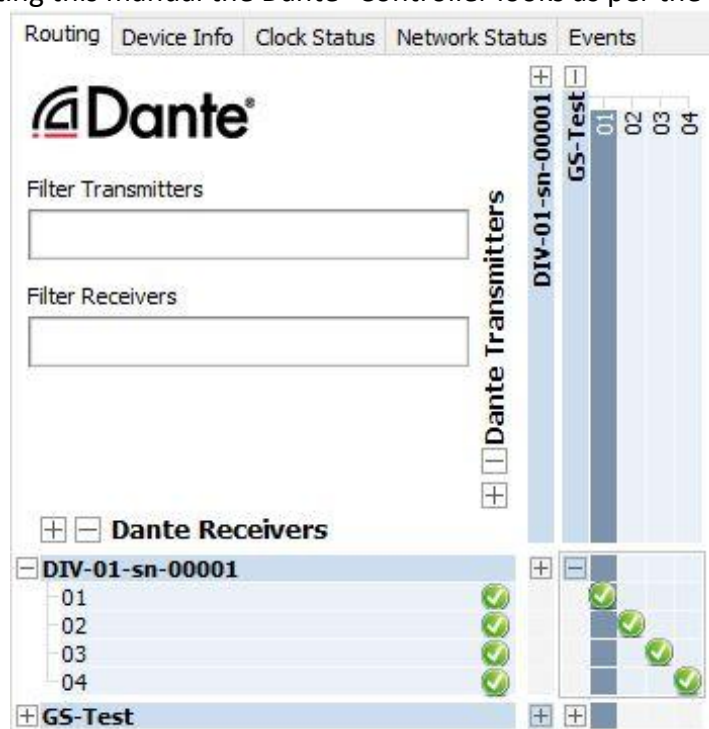
### **Audio Over IP Network**

We strongly recommend that you consider your network topology carefully and would not recommend sharing broadcast audio and general data on the same network.

For more details of audio over IP network structure please visit [www.audinate.com](http://www.audinate.com)

## Running Dante® Controller

At the time of writing this manual the Dante® Controller looks as per the screenshot below:



The Divine will have been named at the factory during test to allow them to be identified by the Dante® controller.

The format used for the factory name is:

'DIV-01-sn-XXXXX'

Where 'DIV-01' refers to the Glensound product i.e. Divine type 1.

The '-sn-XXXXX' refers to the serial number of the Divine which can be found printed on the rear label of the unit.

The unit may be renamed in Dante® controller by opening the 'Device view' window and selecting DIV-01-sn-XXXXX in the drop-down menu. Go to the 'Device Config' tab and change the name with the Rename Device box.

Note if you upload a new DNT file or clear the devices config then the name will change to DIV-01-xxXxXx whereby the 'X's refer to the devices MAC address.

### Dante® Controller TIP

If you have never run Dante® controller before then make sure that on the bottom left of the Dante controllers' screen 'P' or 'S' is next to a green square as this indicates that it is connected to a network. By clicking 'P' or 'S' a pop-up box opens to allow you to set what network interface the controller is using.

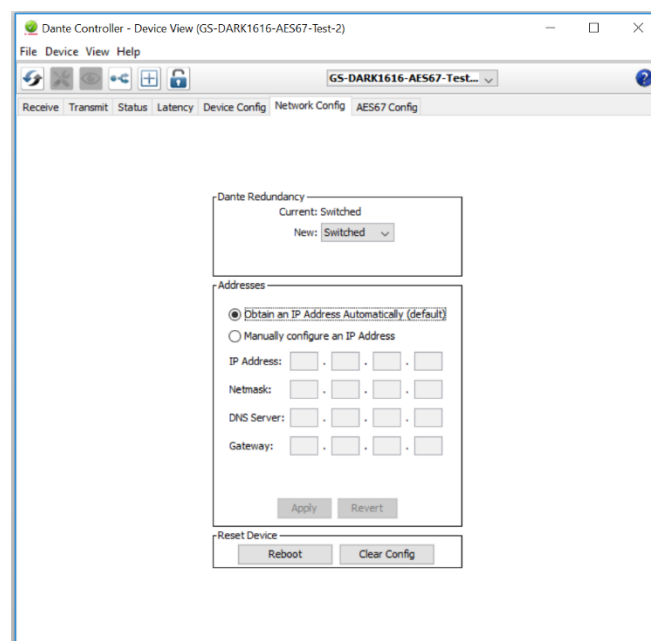
## Device not showing up in Dante® Controller

If your Dante® device does not show up in Dante® Controller then the most likely issue is that the device's IP Address is not appropriate for your network.

- A) It maybe that the device is set to obtain an IP address automatically using DHCP (this is the default configuration) and your network is setup for fixed IP addresses only and does not have a DHCP server.
- B) It maybe that the device has had a fixed IP address assigned but that this address is not suitable for your network.

The solution to both scenarios is basically the same.

- 1) You must connect your Dante® device directly to the Ethernet port of your computer using an Ethernet cable.
- 2) Make sure that your computer is set to 'Obtain an IP address automatically'
- 3) After a few minutes the Dante® device should now appear in Dante® Controller.
- 4) Double click the device name to open up device view.
- 5) Open up the 'Network Config' tab
- 6) Either turn on 'Obtain an IP Address Automatically' or correctly configure the 'Manually configure an IP Address' options for your network.
- 7) Click on 'Apply' to confirm the new settings, then disconnect the computer and reconnect the Dante® device to your network.



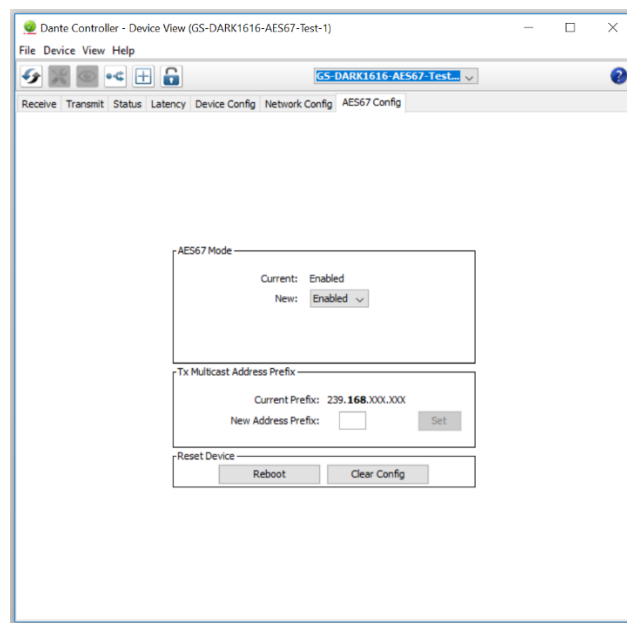
## **AES67 MODE**

The Divine uses a chipset from Audinate called 'Ultimo' for its network audio interface. Audinate are the company behind Dante<sup>®</sup> and as such the primary network audio protocol is Dante<sup>®</sup>, however Audinate have enabled their chip to comply with AES67 and therefore the Beatrice can be set to AES67 mode for interaction with other AES67 devices.

Please note however that Glensound are relying on Audinate's AES67 interface and are unfortunately not able to provide full AES67 support for the unit. AES67 support should be sought directly from Audinate.

### **Turning On AES67 Mode**

If you want to use your Divine on an AES67 network and it has not been set to AES67 mode then this can be set in Dante<sup>®</sup> controller by double clicking the Divine to open the Device View window where you will find an AES67 tab to enable AES67 support.

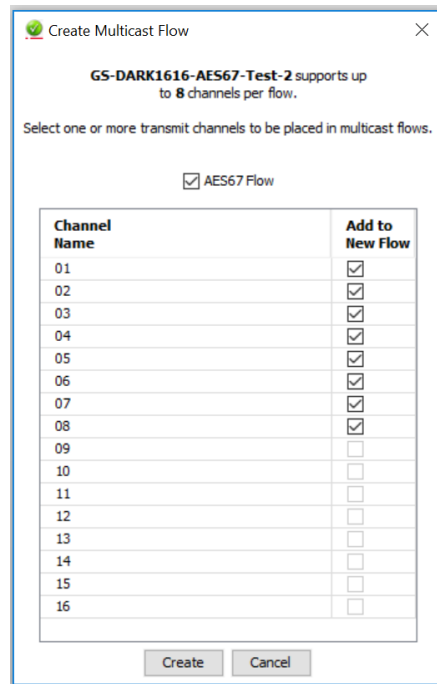


Once the AES67 drop down box has been enabled you'll have to reboot the Divine for the change to take effect. After the reboot go back to the AES67 tab and set the multicast prefix address to one that is suitable for your network.

## Sending AES67 Audio

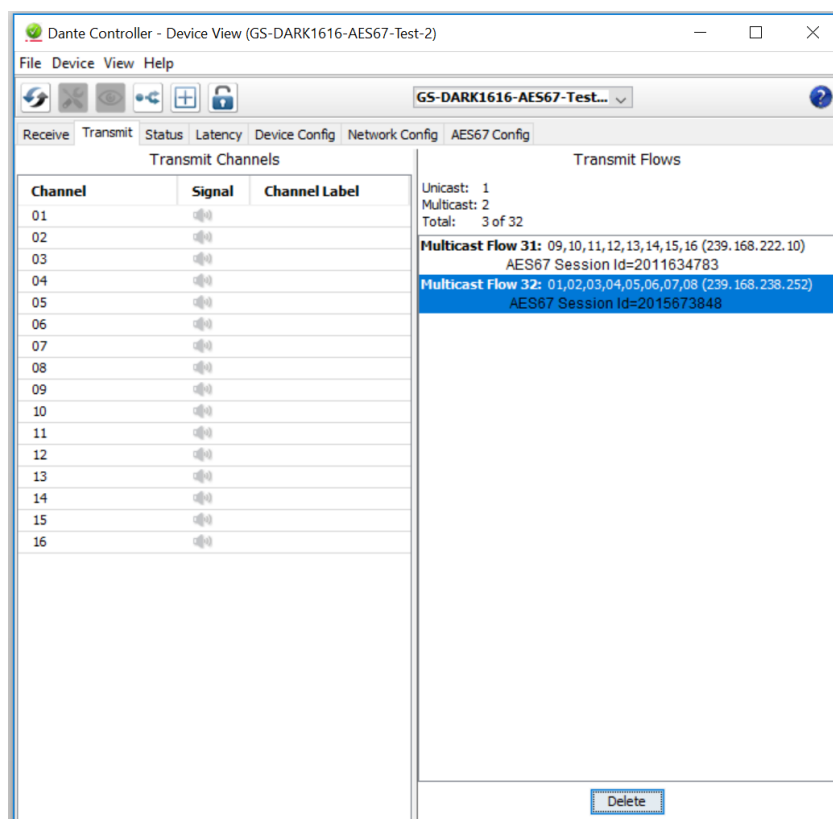
To transmit AES67 audio to the network a multicast flow must first be setup.

This is done by selecting the 'Create New Multicast Flow' Icon  in the Device View.



Tick the AES67 Flow check box, then select up to 4 channels to be included in the flow then click 'Create'

Once set the flows can be seen in the transmit tab of the device view.



## **Receiving AES67 Audio**

Once a compatible AES67 stream is detected on the network by Dante® Controller the AES67 flows will appear in the Dante® Transmitters section in the Routing tab.

## **AES67 Restrictions**

AES67 flows can only be generated with the following constraints:

- Multicast Only
- Destination address in range 239.nnn.0.0 to 239.nnn.255.255 (239.nnn/16), port 5004
- 48kHz sampling rate
- 24 bit linear (L24) encoding
- 1 msec packet time
- Up to 4 channels per stream

Received AES67 flows have the following constraints:

- Multicast Only
- Destination address in range 239.nnn.0.0 to 239.nnn.255.255 (239.nnn/16), port 5004. Must match destination address range.
- 48kHz sampling rate
- L16 or L24 encoding
- 125usec, 250usec, 333usec, 1 msec packet time
- Up to 4 channels per stream

# UPDATING FIRMWARE

## General

Internally the Divine runs two sets of firmware (integrated circuit device specific software).

A microprocessor deals with control of the buttons, pot, LEDs, volume control & menu system and communicates user inputs to the internal DSP to allow changes to the audio. This microprocessor runs its own firmware and the firmware file type is .DFU

Separate to the microprocessor is the Ultimo chipset which is chipset supplied by Audinate (the company behind Dante®). The Ultimo chipset performs all the complex distribution and receiving of audio packets from the Ethernet network and communications with the Dante® controller and network switches. The Ultimo chipset has its own firmware file type .DNT

## UPDATING THE MICROPROCESSOR .DFU FIRMWARE

The microprocessor's .DFU file is updated across the network using our GlenController windows 11 application.

Please see 'GlenController' section of this handbook for installation instructions.

### Finding out if the DFU needs updating:

There are two ways of finding out the current version of installed DFU and the latest available version.

1) Using the rear LCD screen and menu buttons on the rear of the Divine navigate down to '**INFO**' and then select '**DFU**' the currently installed DFU version will be displayed.

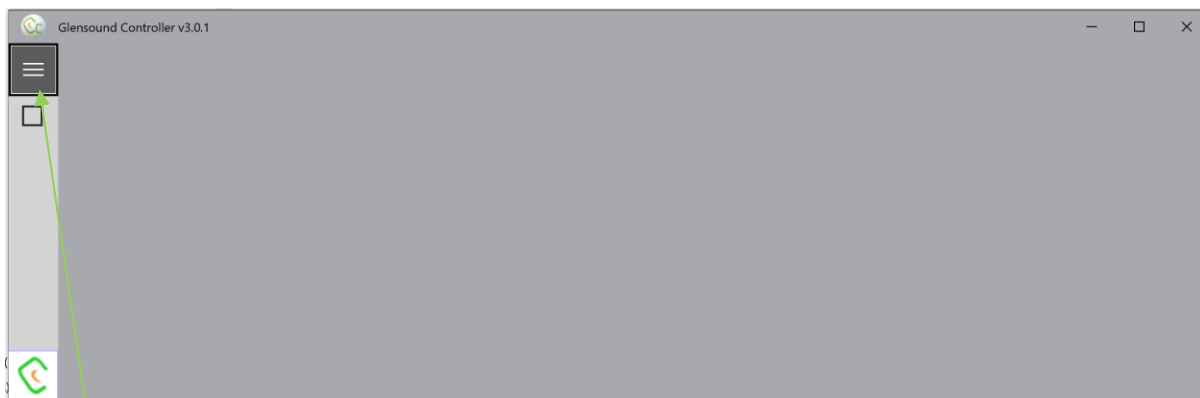
Go to the Divine's web page <http://www.glen sound.co.uk/product-details/divine-617/> and select the Firmware Latest Version tab, the latest version of the DFU & DNT files will be listed here.

2) Use GlenController and follow the updating instructions below, when you get to step 6, GlenController will display information about the Divine (and any other compatible device on your network).

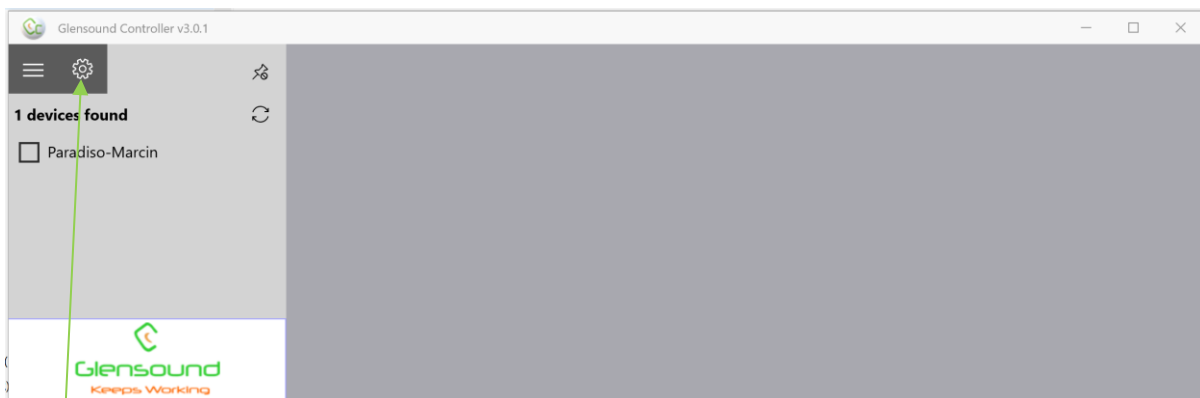
The column called 'DFU version' shows the currently installed DFU firmware and the column called 'DFU latest' shows the most up to date available version of firmware for your device.

**NOTE:** To update the Divine, the PC that is running GlenController must be on the same network as the Divine and must have internet access. This is because GlenController automatically accesses our website and gets the latest .DFU firmware file from it to load into the Divine.

# 1) Open GlenController



# 2) Click the 3 lines

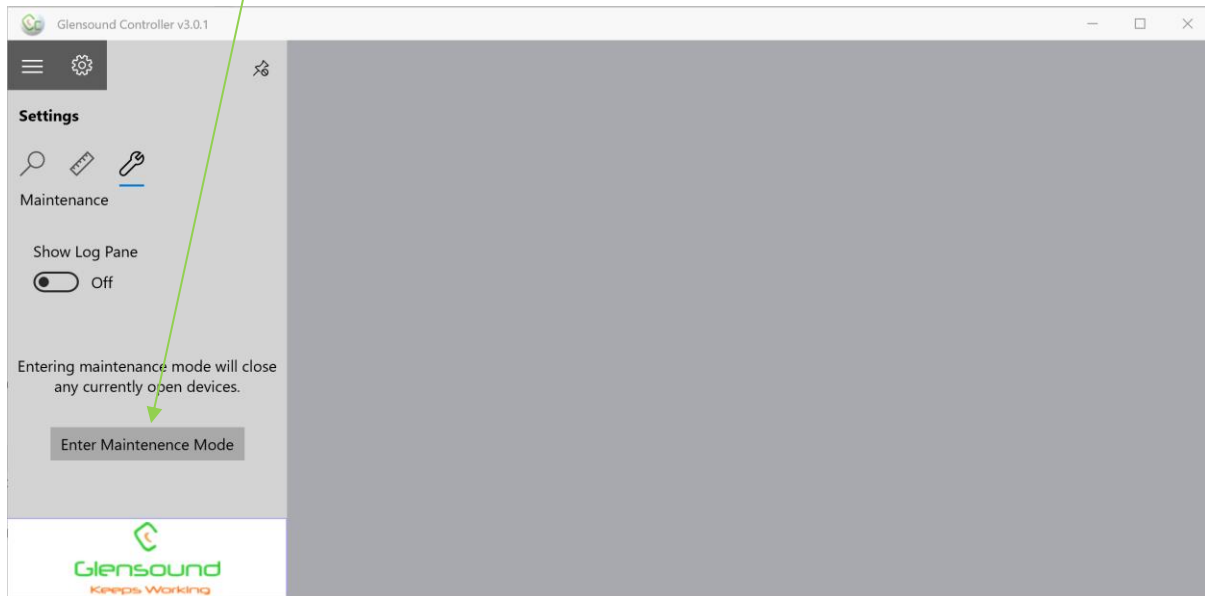


# 3) Click the settings ICON



# 4) Click the 'Maintenance' spanner

5) Click 'Enter Maintenance Mode'

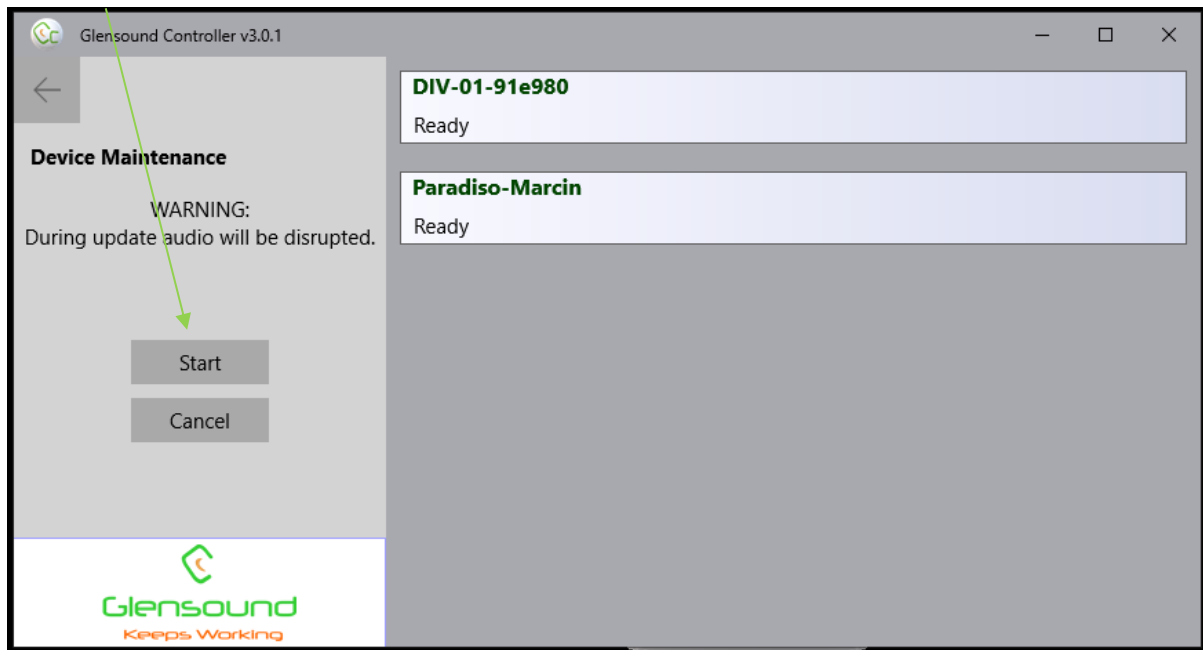


6) Select the device to be updated



7) Click Update Selected

## 8) Click Start



Your device will now have the latest .DFU file loaded.

## **UPDATING THE ULTIMO .DFU FIRMWARE**

The Ultimo Chipset is a device supplied by Audinate that does most of the processing for the actual Dante® / AES67 network audio streams. There is one Ultimo Chipset in each Divine. We supply special code (a .DNT file) that sets up/ initiates the Ultimo Chipset and makes it work in particular way that is compatible to the Divine.

### **Finding Out Current Installed Version**

Using Dante® controller double click on the Divine device name in the routing tab to open the Device View box.

In the Device View box open the Status Tab.

The 'Product Version:' shows the currently installed version of Ultimo Chipset dnt code.

Alternatively using the rear LCD screen and menu buttons on the rear of the Divine navigate down to 'INFO' and then select 'DNT' the currently installed DNT version will be displayed.

### **Finding Out What The Latest Available Version Is**

Go the Divine's web page at Glensound.com and open the 'Firmware Latest Version' Tab.

This will give both the latest version numbers/ file names and also the location to download the file from.

### **Updating the device**

The firmware that runs in the Ultimo Chipset is updated using Audinate's Firmware updating tool. The updating tool and a user guide can be downloaded from Audinate's website:

<https://www.audinate.com/products/firmware-update-manager>

### **NOTE:**

Please note we strongly advise that when you do the update that only your PC and the Dante device that you want to update are on the network to save accidentally updating the wrong Dante device.