

# Millennia

Music & Media Systems

## HV-316 Remote Control Microphone Preamplifier



## Owner's Manual

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## Introduction

Congratulations on your purchase of the Millennia Media HV-316 Remote-Controllable Microphone Preamplifier.



**We will refer to both the HV-316/8 8-Channel and HV-316 16-Channel as the HV-316 unless there is an operational difference.**

The HV-316 is the result of meticulous blind listening tests on innumerable circuit topologies and E/M designs. Your HV-316 is a finely tuned instrument intended for critical professional applications — we feel it offers the world's most sonically neutral microphone preamplification.

Up to 16 HV-316s can be simultaneously controlled plus an additional 16 HV-3Rs — a total of 384 channels on one system. A high-speed Ethernet control interface makes this possible without any significant system control latency, even if all 384 channels were to change parameters simultaneously.

Future Update: The MIDI control interface is compatible with Avid's Pro Tools® "PRE" remote microphone preamplifier protocol. As defined by Avid, up to 4 HV-316 (8 HV-316/8) units can be simultaneously controlled with MIDI in Pro Tools.

### FCC Notice Information for the User

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 this 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 or her own expense.

### Safety Precautions

For your safety and the safety of others, be sure to read and understand all safety and operational instructions before attempting to use the HV-316.



**WARNING:** The HV-316 internal circuitry carries lethal voltages. Carefully observe all warnings, precautions, and instructions on the HV-316 and as described in the instructions supplied with the unit.

**Water, Moisture, and Spillage** — Do not attempt to use the HV-316 in, near, or around water or in unusually moist environments, such as near a sink or swimming pool. Prevent liquids or any other materials or objects from spilling or falling into the HV-316 unit.

**Heat & Ventilation** — Be sure to allow adequate ventilation on both sides of the HV-316 and avoid blocking the fan air intake and exit vents.

**Power Sources & Power Cord Protection** — The HV-316 Power Supply should be connected to a power source only of the type described in the operating instructions or as marked on the Power Supply. Route the power cord so that it is not likely to be walked on or pinched by having objects placed on it. Pay particular attention to plugs, receptacles, and the point where the AC power cord exits the HV-316.

**Grounding** — For your safety, it is extremely important that the grounding pin of the 3-wire power cable (included with 110 Volt units) be inserted into a grounding type 3-pin power outlet. If you are unable to insert the plug into an existing outlet, contact an electrician to install a properly grounded 3-pin power outlet, preferably that with OFI / GFI protection, if available.

**Damage Requiring Service** — This unit should be repaired or serviced by qualified personnel whenever:

- The AC power cord has been damaged, or
- Objects have fallen or liquid has spilled into any HV-316 unit, or
- The unit does not function properly or exhibits a marked change in performance, or
- The unit has been abused, dropped, or damaged, or
- The unit has been exposed to rain or moisture.

**Servicing** — Lethal voltages are found inside the HV-316 chassis. The user should not attempt to repair or service this unit. All servicing and/or repairs should be referred to Millennia.

If, after reading all instructions, precautions, and warnings, you have remaining questions, please contact Millennia directly before attempting to use your HV-316.

The HV-316 enclosure measures approximately 17" wide x 1.75" high x 16" deep and is designed for mounting into a standard 1U, 19" equipment rack. If the HV-316 is mounted in a road case or other rack which is prone to strong vibration or shock, it is highly recommended that the rear of the HV-316 be supported or otherwise reinforced to withstand such conditions.

HV-316 is designed on a common ground topology. For high quality operation, and for your own safety and the safety of others, do not defeat the power cord earth grounding pin.

**HV-316 Front-End Protection** – Millennium Music & Media Systems enjoys a reputation for what many top engineers and producers call the world's most musically accurate and dynamically uniform microphone preamplifier — the HV-3. But this thoroughbred design is not achieved without certain operating criteria. To maintain top performance and protect the HV-316's sensitive HV-3 front-end, it is advised that you do not insert or extract microphones with phantom power on. Get in the habit of waiting about ten seconds for the phantom power to fully "ramp down" before inserting or removing a microphone. This is good advice for protecting your microphone investments, as well.



Any changes or modifications not expressly approved by MILLENNIA MEDIA, FPC (Millennia) could void your authority to operate this equipment under the EC, ICAN, or FCC rules.

**Copyright** – You acknowledge that no title to the intellectual property in the HV-316 is transferred to you.

**Inspection** – Inspect packing box(es), HV-316, and cable(s) for damage, unusual marks, or shortages. It is your responsibility to report damage, shortage, or mis-shipments in a timely manner. Millennium and/or its dealers will not be responsible for claims arising from damage in shipping, nor will claims for shortage or mis-shipments be honored, more than 10 days after ship date.

Read this manual carefully and completely before attempting to use the HV-316. Improper operation could result in damage to product. It is the user's responsibility to understand the safe use and operation of this device.

The shipping box of the HV-316 system will include:

- Quick Start Guide
- UL approved power cord (110 V countries only except Japan)

The material contained in this manual consists of information that is property of Millennium and is intended solely for use by the purchasers of the equipment described in this manual. Without express written permission, Millennium prohibits the duplication of any portion of this manual or the use thereof for any purpose other than the operation and/or maintenance of the equipment described in this manual. This manual may not be duplicated in whole or in part without the written consent of Millennium.

The HV-316 serial number is located on the rear and bottom of each unit. We suggest that you record the serial number in the space provided below. Refer to it whenever you call an authorized Millennium repair facility or the manufacturer. Make sure that you register your Millennium product(s) online.

Features and specifications subject to change without notice.

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Serial Number

---

Purchase Date

---

Where Purchased

---



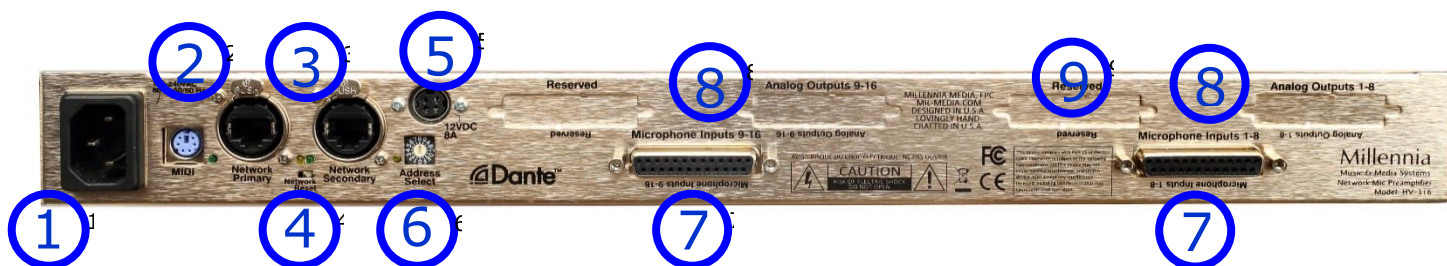
## Front Panel Functions

The 3/8" thick hand-machined aluminum front panel consists of 48 LED status indicators and a two-digit numerical display.

Ælogic software is required to operate the HV-316. The most current version can be downloaded at [Ælogic Weblink](#). Scroll down to the Downloads section. It requires a computer running MS Windows 10 or higher.

1. **Unit ID Display** – Indicates unit number assigned to preamp.

2. **Power Indicator** – Decimal point indicates unit has power. It takes about 20 seconds after power up before the Unit ID Display comes on.
3. **Input Level & Phantom Power Indicator** – Green indicates levels -46 dBFS and higher. Red indicates 0 dBFS. Amber indicates phantom power is on.
4. **Auxiliary Power** – Indicates 12V auxiliary (redundant) power source is powering unit.
5. **Power Switch** – Turns the unit on and off.



## Rear Panel Functions

1. **AC Power** – IEC power inlet, 80-264 VAC 47-63 Hz
2. **MIDI Connection** – Allows remote control of the HV-316 using MIDI protocol. Use with Yamaha break-out cable ZP893500
3. **Ethernet** – Dante audio networking and Ælogic control. Ælogic is only available on the Network Primary connector
4. **Network Reset** – Restore to factory default settings. Static IP address 192.168.1.221, Netmask 255.255.255.0

HV316 must be powered off.

Insert a small non-metallic object into the reset opening on the rear of the unit. You should feel a slight click when the reset button is depressed.

Turn on the unit while continuing to hold the reset button.

When the unit processor has reset it will display "00" in the Unit ID display on the front of the unit.

Release the reset switch on the rear. The unit will continue to boot.

When the ID Display switches to the selected Unit ID, the device is ready to use. It will have the factory profile and will be set to Static IP address 192.168.1.221, Netmask 255.255.255.0.

5. **12 Volt Redundant (Auxiliary) Power** – 12 Volt Redundant (Auxiliary) Power – Connect only Millennia approved optional backup power supply here (Meanwell GST120A12-R7B).



**Use of 12V battery requires external 8A inline fuse. Do not connect non-fused battery.**

6. **Unit ID Selector** – Address Select Rotary Switch sets Unit ID. The front panel numeric display changes to reflect the value selected here. If connected to a network, the power needs to be cycled for the change to take effect in Ælogic.

Address	1	2	3	4	5	6	7	8
Unit ID	1	2	3	4	5	6	7	8
Address	9	A	B	C	D	E	F	0
Unit ID	9	10	11	12	13	14	15	16

7. **Mic Inputs** – Eight channels of microphone-level input wired in the AES59/[Tascam format](#).
8. **Analog Output Option** – DB25s wired in the AES59/Tascam format for analog outputs. This option must be added at the factory.
9. **Reserved DB25** – for future options.

## Getting Started

Millennia's Ælogic software (Windows 10 only, other versions may work but are not supported) is used to control the unit and should be installed on your computer before connecting the HV-316 to the network. It can be downloaded at [Ælogic Software](#). Scroll down to the Downloads section.



**Installing the Ælogic Software** – Turn off virus protection software before installing. Remember to turn the protection software on when finished.

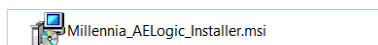


You need to allow Ælogic all permissions to access your network. Failing to do so will prevent the software from seeing the Millennium Preamps connected.



If you are using Wi-Fi®, turn it off and use the wired Ethernet connection to be sure all the permissions are applied to it so you connect the HV-316 directly to your computer to initialize its IP address.

Extract the zipped files and Open

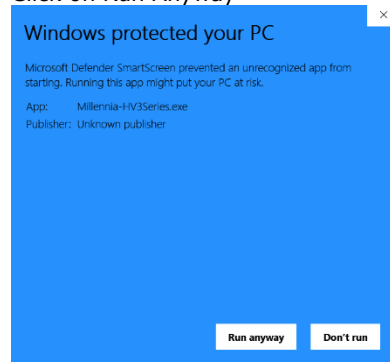


The following screen will appear.

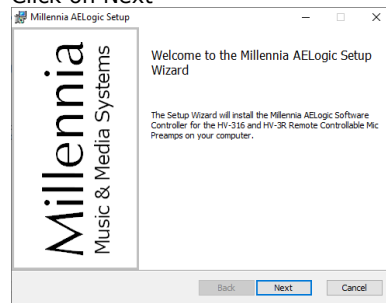
Click on more info.



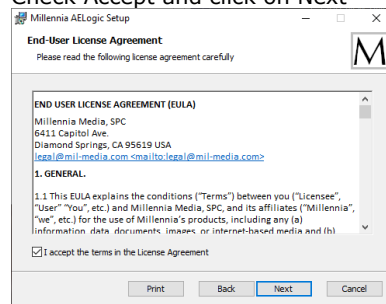
Click on Run Anyway



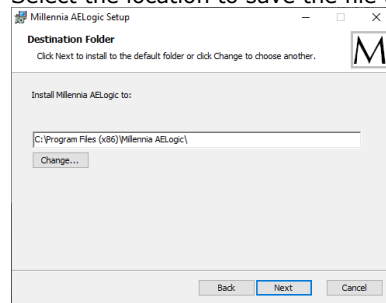
Click on Next



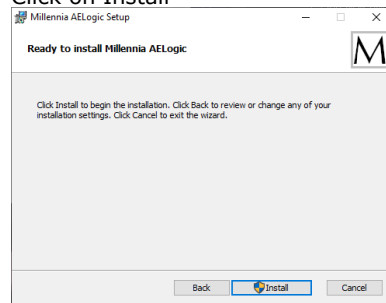
Check Accept and click on Next



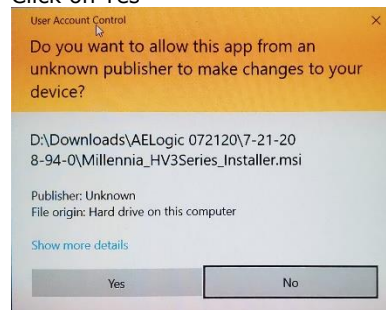
Select the location to save the file and click Next



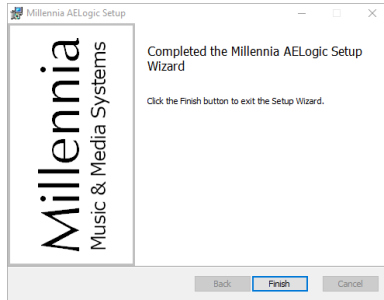
Click on Install



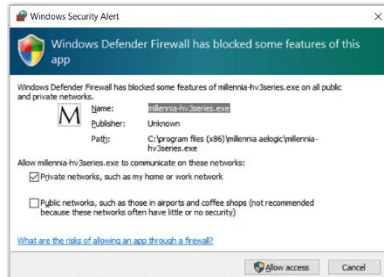
Click on Yes



Click on Finish



Select Private Network and Click on Allow Access



**Setting Unit ID(s) and IP Addresses** – Each HV-316 needs to be set to its own unique Unit ID and IP address. If units have the same ID or IP addresses there will be a conflict and the system will not work properly.



**You can not use the same IP address for Ælogic and Dante.** Use Dante Controller for setting the IP address for the audio connection.



Set the Unit ID using the [Address Select Rotary Switch](#) on the rear panel before connecting the HV-316 to the computer or network.

The table below is a suggested addressing scheme.

IP Address	Unit ID
192.168.1.200	Host Computer
192.168.1.221	HV-316 ID 01
192.168.1.222	HV-316 ID 02
192.168.1.223	HV-316 ID 03
192.168.1.2nn	HV-316 ID nn

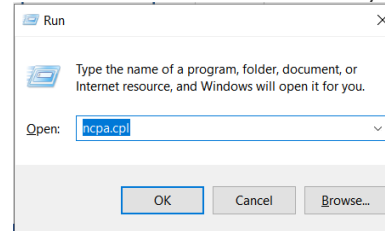


Be sure the computer's wired Ethernet connection is set to IP address 192.168.1.200.

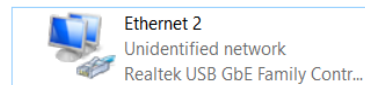
There are many ways to do this and Microsoft occasionally changes the setup menus. As of this writing, this method allows quick IP address setting.

### Setting the Host Computer's IP Address (Windows 10 and 11)

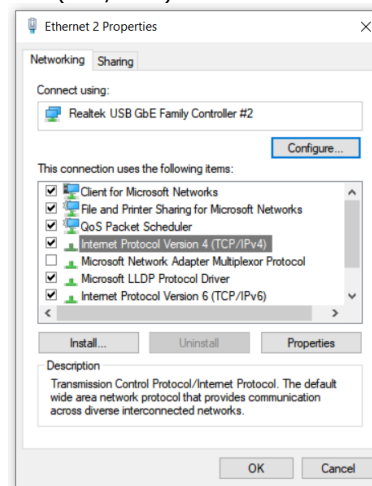
1. Press the **Windows** key and the **R** key at the same time to open the Run box. Type **ncpa.cpl** and press Enter to access Network Connections immediately.



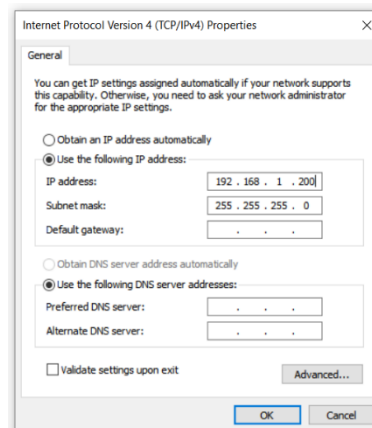
2. Double click on the HV-316 Ethernet Connection to open its properties.



3. Double Click on Internet Protocol Version 4 (TCP/IPv4)



4. Select "Use the following IP addresses".
5. Enter 192.168.1.200 in IP Address.
6. Enter 255.255.255.0 in Subnet mask.
7. Click OK and continue to exit Network Connections.



8. Connect the Host Computer directly to the HV-316's Ethernet Port
9. Run the Ælogic Software.



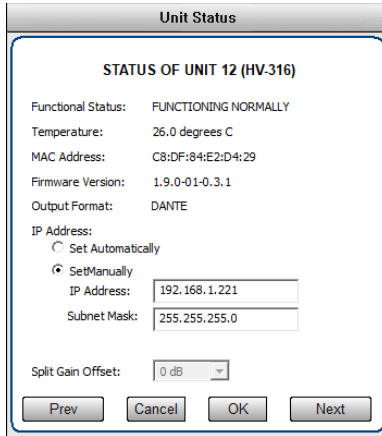
If you have everything set correctly when Ælogic opens, the icon of the HV-316's Unit ID in the Unit Status window will turn green. Double click on it to open the Unit Status dialog box.



**Default Settings** – The HV-316 is shipped to startup with the default settings:

- All functions turned off (POL, PAD, 48V, MUTE, SPLIT, SAFE, RBN and HPF).
- IP Address set to 192.168.1.221
- Netmask 255.255.255.0
- Unit ID 1

Set the HV-316 IP address and click OK



**You will lose connection if you select an IP Address other than 192.168.1.xxx** and will need to change your computer's IP Address to access the network that you have chosen to use your HV-316s.



**Dynamic Host Configuration Protocol (DHCP)** is also an option for "IP Address", but we don't recommend using it unless you are familiar with networking and have the proper network hardware that supports it.

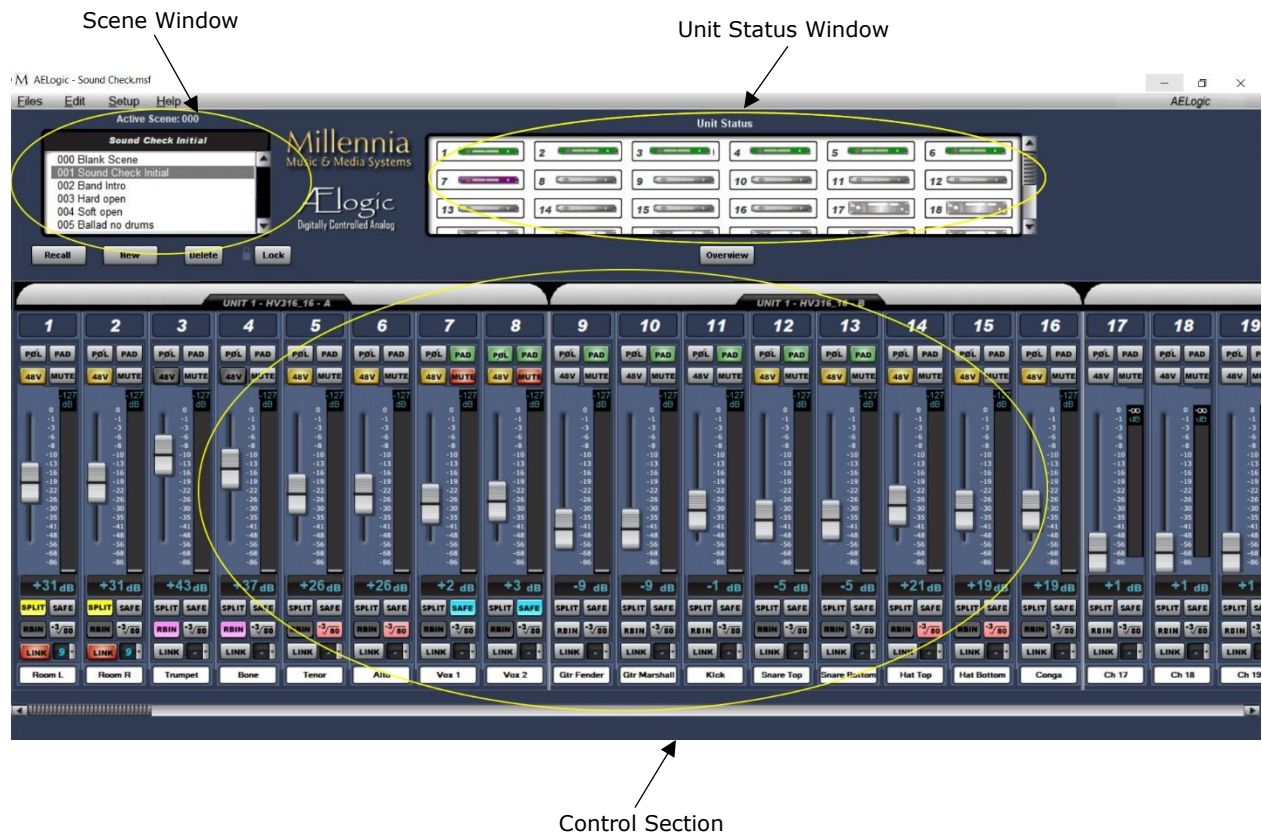


**Ethernet and MIDI control cannot be used simultaneously** – only one remote control protocol can be used in an HV-316 network.



**Running more than one instance of Ælogic on the same network can cause gain errors and other issues.**





## Ælogic Operation

Millennia's Ælogic remote control software is intuitive. What follows is an in-depth description of its available functions. [Refer to Appendix for a list of keyboard shortcuts.](#)

**Unit Status Window** – The example screen above shows a Unit Status window in which seven HV-316 units (112 channels) are connected to the remote network. The Unit Status window displays an icon of each HV-316 unit on the network. The status of each HV-316 is represented by its icon's color code, as follows:

**Red Icon** – "Unit ID Has a Conflict with Another Unit". If two or more HV-316s share the same Unit ID number or IP address, their icons will turn red and will show identical IDs or IP addresses until the conflict is resolved.

Setting a Unit ID or IP address must be done locally on each HV-316. Other errors could also cause a red icon, such as over-temperature, power supply out of range, other networking errors, etc.

**Green Icon** – "Functioning Normally". Remote unit functioning normally.

**Flashing Green Icon** – HV-3R only. "Functioning Normally, Local Mode". Remote unit is functioning normally but is in the local mode.

HV-3R only: if the unit is in Local mode when Ælogic is started, it won't appear. Be sure to change the

## Unit Status Window

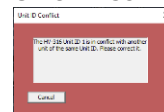
unit to Remote mode so the software can recognize the HV-3R.

**Purple Icon** – "Unit ID Is Offline". A unit was previously connected to the network and set to this Unit ID but is missing from the network. It was either turned off or the Ethernet was disconnected or both.

**Blue Icon** – The Redundant Power Supply is powering the unit and the internal power supply is offline due to either failing or losing AC mains power.

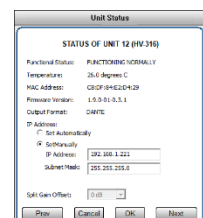
**Gray Icon** – "Unit ID Is Inactive". No unit is connected to the network and set to this Unit ID.

**Unit ID Conflict** – If more than one unit has the same ID number this warning will appear. You must correct the problem before you can continue.



**Unit Status Dialog** – Double left mouse click on any icon brings up that unit's Unit Status dialog box displaying the following information:

1. Unit Functionality
2. 48v Monitor (HV-3R)
3. 24v Monitor (HV-3R)
4. 5v Monitor (HV-3R)
5. 3.3v Monitor (HV-3R)
6. Temperature
7. MAC Address
8. Firmware Version
9. Output Format
10. IP Address
11. Split Gain Offset





**Overview** – This is the default view. It expands the channel control area to show multiple units. Virtual switches are replaced by small virtual LEDs. Link switch is replaced by link group number only. Other attributes are shrunk to fit. All functions remain accessible and adjustable on the Overview Screen.

Above is a screen-shot of the OVERVIEW.

## Control Section

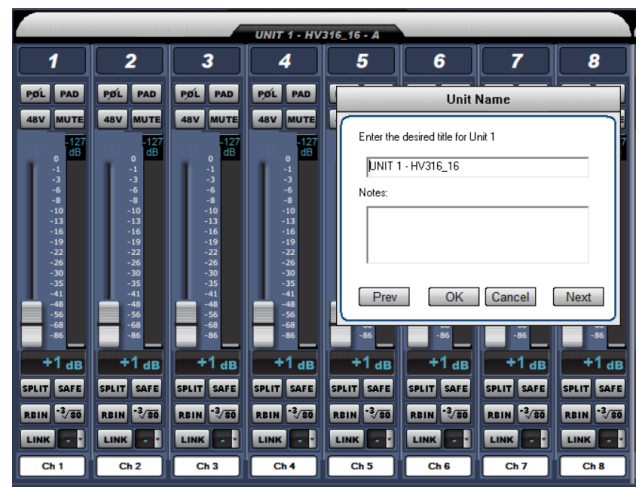
### Basic Navigation & Behavior

The channel controls are grouped into their respective HV-316 8-channel Units. The screen shot on the previous page shows units #1 through #7. You can left-click on any unit icon shown in the Unit Status window to immediately bring that unit's channel controls into the main screen.

Note the scroll bar at the bottom of the screen. It allows the user to quickly scroll to any unit in the network. You can also move the Control Section by using the Left and Right arrow keys on the keyboard. Pressing an arrow key once corresponds to scrolling in that direction by one channel strip.



HV-3R only: AElogic is always the master control when the unit is in Remote Mode. Any changes made to the unit's front panel in Local mode will be overwritten when the HV-3R is put back into Remote Mode.



## Control Layout

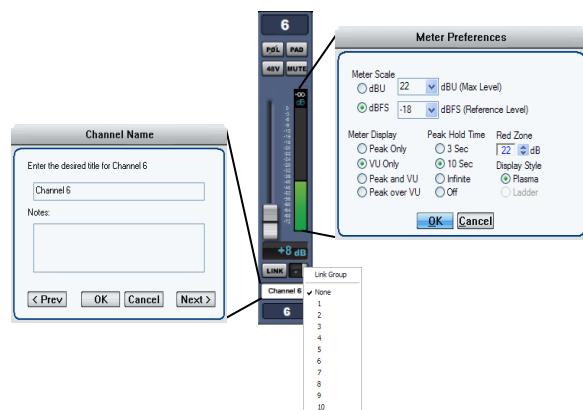
The main control section, starting from the top down, graphically represents these features:

1. Unit Name
2. Channel Number
3. Polarity Invert Button
4. Pad (20 dB Attenuator) Select Button
5. 48V Phantom Select Button
6. Mute Select Button
7. Gain fader
8. Plasma-type Metering
9. Channel Gain numeric
10. Split Gain Mode
11. Safe
12. Ribbon
13. High Pass Filter
14. Link Assignment
15. Scribble Strip

### Unit Naming and Unit Name Dialog Box

(right-click on unit name) – Each Unit's name is shown above its eight-channel grouping. The default name for each unit is its Unit ID. For instance, "UNIT 1" corresponds with channels 1-16 and "UNIT 2" corresponds with channels 17-32. Right-clicking on the Unit Name area opens the Unit Name dialog (shown above) which allows textual naming of that unit. A section for notes is also available to include any supplementary information about the unit.

In order to name multiple units quickly, the "Prev" and "Next" buttons allow the user to scroll through units without closing the dialog box. If a unit has been re-named from the default, the new Unit Name will now be displayed in the Unit Name box. The Naming Window can also be accessed from the pull-down menus (Edit>Unit Naming).



### Channel Strip Display and Functions

**Channel Number** – Channel numbers appear at the top of the channel strip.

The preamp (HV-316) with Unit ID 1 will be assigned channels 1-16. Unit ID 2 will be assigned channels 17-32 etc. The HV-316/8 and HV-3R are assigned 8 channels. Each HV-316 8-ch group is assigned "A" or "B".

**POLarity Flip** – Inverts channel audio output polarity (180 degrees). The channel's output waveform becomes a mirror of the input signal. This is not a "phase adjustment" as the output signal does not shift in time relative to the input signal. Button illuminates green.

**PAD** – Attenuates channel output by 20 dB (14 dB HV-3R). The gain setting reflects the change. Button illuminates green.

**48V** – Applies 48-volt phantom power to the respective mic input channel. Phantom power is applied equally to both pin 2 and pin 3 of that channel's mic input. Button illuminates yellow. You must disable RBN before 48V can be enabled.



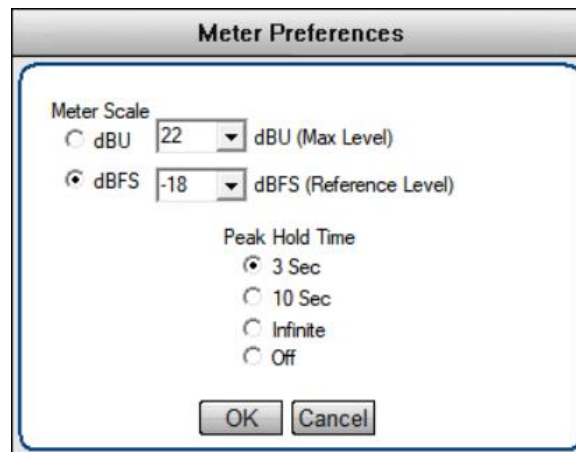
**Caution – do not insert or extract a mic with the phantom power on. It can damage the microphone and/or the preamp input**

**MUTE** – Mutes channel output. When channel is muted, the meter will continue to operate allowing

the user to view audio activity on that channel without passing live audio. Mute parameter is linkable. Button illuminates red.

**Channel Gain Faders/Gain Display** – A traditional looking "mixer fader" that adjusts preamp channel gain. A text box below the fader indicates the actual channel gain setting in decibels.

HV-316 gain range is 1 dB to 64 dB (HV-3R gain range is 8 dB to 69 dB with 80 dB optional). Gain is segmented in 1 dB steps. The Up and Down keyboard arrow keys can also be used to adjust the channel gain in 1dB steps.



**Meter Preferences Dialog** – The Meter Preferences dialog box provides for customization of meter display and functions.

You can select **Meter Scale** as dBU (usually for an analog system) or dBFS, typically for digital systems.

**Peak Hold Time** affects the numerical level indicator above the meter and the floating line over it.

**SPLIT** – Future update: For the HV-316/8 and HV-316 only. Provides two Dante outputs per channel, this turns on the split's gain compensation to provide an inverted (constant) level (within +/- 12dB) of the channel. Typically used to split signals between FOH console and stage monitor console.

**SAFE** – The channel is not modified when a new scene is loaded. All settings remain as they currently are.

**RBN** – Turns off the 48V phantom power and DC-couples the mic to the gain stage. Use with any Ribbon or Dynamic mic (like an SM-57). A mic requiring phantom power will not work in this mode. You must disable 48V before RBN can be enabled.

**HPF <sup>-3</sup>/80** – High Pass Filter, when engaged, is -3dB down at 80Hz, with 6 dB per octave roll off.

**Link Assignment** – The Link parameter provides a Gain and Mute linking utility. Linking applies to Gain and Mute parameters only; no other parameters are linkable.

The LINK button links and unlinks a channel from a selected "link group". There are ten selectable link groups that can be chosen from the drop-down box next to the LINK button or the [Link Matrix](#). When a link group is chosen, the LINK button is automatically selected and illuminates red. One link group can be assigned per channel. If no link group is selected, a depressed LINK switch will effectively do nothing.

**Linked Gain** – Linked Gain faders move together maintaining the same distance they had when first linked together. Once one fader reaches the upper or lower extreme, the other faders in the same link group stop moving in that direction.

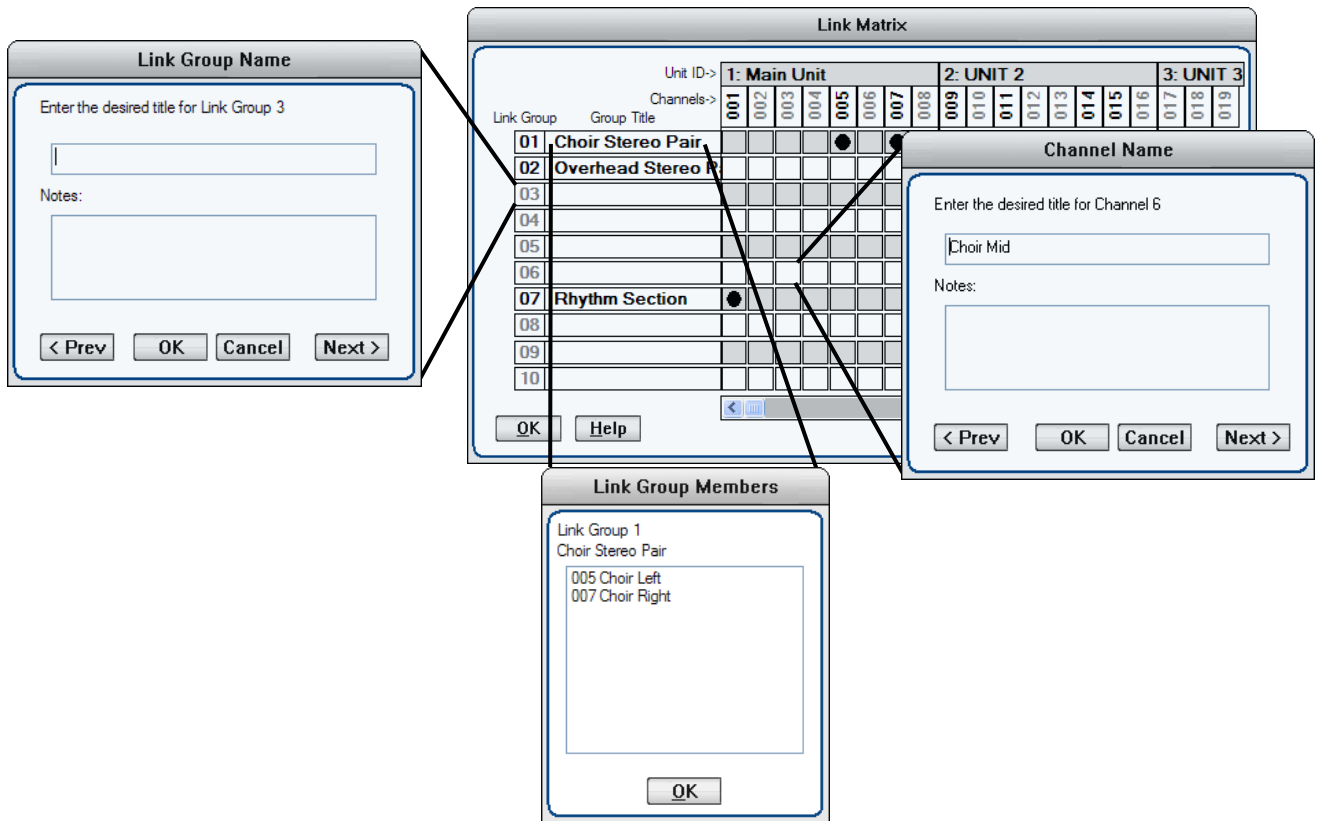
Linked Gains can be trimmed by holding down the Alt key while using the left mouse button. When the

Alt key is released, the channel reverts to linked mode.

**Linked Mute** – Linked Mute parameters will turn on and off together unless "Mute linked channels" is unchecked in the Preferences dialog box (Setup> Preferences>"Mute linked channels"). If this box is unchecked, the mute parameters will act independently just like the other parameters.

**Scribble Strip** – (right-click on scribble strip)  
A text box in which channels can be named and notes can be written and stored. See the [screenshot](#) on the previous page.

To name multiple channels quickly, "Prev" and "Next" buttons allow the user to scroll through channels without closing the dialog box. If a channel has been re-named from the default, the new Channel Name will now be displayed in the Unit Name box. The Naming Window can also be accessed from the pull-down menus (Edit>Channel Naming).

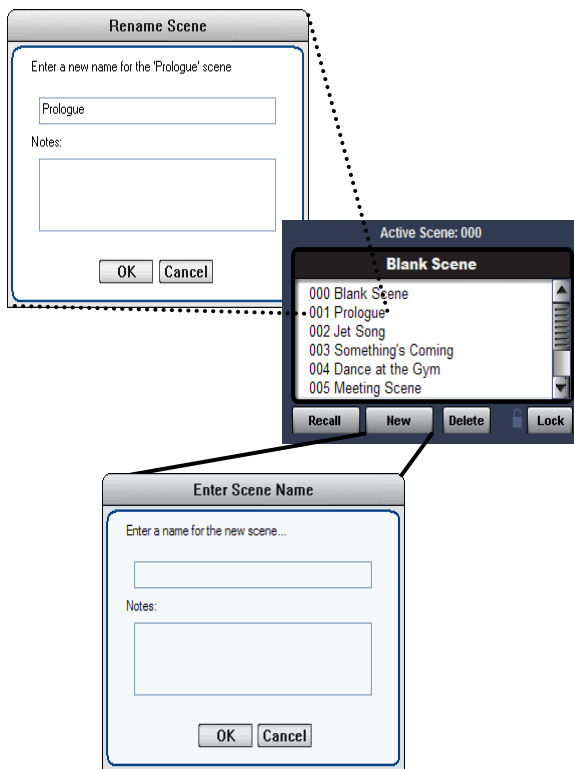


## Link Matrix

The Link Matrix dialog box provides for easier linking and unlinking of channels and can be accessed via shortcut ctrl-L or from the pull-down menus (Edit>Link).

- Name a Link Group by right clicking a Link Group number.
- See the members of a group by double clicking the group's name.
- Right click a link to bring up the channel naming dialog box.





## Scene Window

The Scene Window is found in the upper left corner of the screen. A Scene remembers and recalls all parameters of the current software environment (gains, mutes, links, etc.). Scenes are used for applications such as concerts or stage plays in which new acts or set changes require different microphone gains, mutes, links, metering, etc.

There are a few physical aspects to the scene window worth noting before creating new scenes and projects:

**"Active Scene: ###"** – The active scene number displays the number of the scene that is currently active.

**Scene Name Display** – Just below the active scene number is a text display that defaults to "Blank Scene." This area displays the user designated name of the currently active scene.

**"000 Blank Scene"** – The default scene that is automatically opened when the ALogic is first loaded or when a Project, New or Saved, is opened. The Blank Scene is to be used as a null starting point. Selecting scene 000 will force all parameters of all networked units to their "off" or "lowest" settings. This default scene cannot be overwritten.

**The Scene List** – Scenes are arranged sequentially within the Scene Window (000, 001, 002, etc.). The Scene List is a scrollable list of all Scenes within the Scene Window. Left-clicking a Scene Number/Name will highlight it. No system functions will change until the Recall button is clicked or until the desired scene is double-clicked.

## Project and Scene Management

**Creating a Project** – Before anything (new scenes, changes to scenes, etc.) can be saved, a project itself must be created by doing a Save. Use File>Save to name the Project and find a location to save it. File>Save (ctrl-S) will save any updates or changes to the project unless a new name is desired (use File>Save As (shift+ctrl S)).

**Scene Window** – Underneath the Scene Window there are four buttons **"Recall"**, **"New"**, **"Delete"**, and **"Lock."** The functions of these buttons are explained below.

**Safety Prompts** – In order to exercise caution when using the Scene Window Functions, safety prompts are available in case buttons are pressed accidentally. Safety prompts can be enabled for:

- New Scene
- Recall Scene
- Scene Delete
- Scene Re-Ordering

To turn safety prompts on and off go to "Edit>Preferences" in the pull-down menus. The section labeled "Scene Prompts" will have check boxes for the four choices.

**Creating New Scenes** – Scenes are created by using the **"New"** button below the scene window. Once this button is pressed the "Enter Scene Name" dialog box appears.

The scene name can be entered in the upper text box and a section for Notes is also available to include any supplementary information about the scene. Once the scene is named it will be appended to the Scene Window (next available scene number).

A newly created scene will assume all parameters and settings of the active scene. Creating or naming a scene does not make it active. Only Recall or double-clicking can activate a scene.

**Renaming Scenes** – Once scenes are created, they can be renamed by right-clicking on them. A dialog box labeled "Rename Scene" will appear with the same choices as the "Enter Scene Name" dialog box.

**Reordering Scenes** – Scenes are moved by left-clicking and dragging them to the desired location. Once a scene is moved, ALogic will automatically update the numbers in front of each scene name.

**Recalling Scenes** – Scenes can be recalled two different ways:

1. Highlight the desired scene and click the "Recall" button.
2. Double click the scene name.

The scene's parameters will be transmitted to all of the units on the network.



**Scenes are not saved until you save the project.** ([see Saving Scene Changes below for information on how to save a scene](#))

**Deleting Scenes** – Scenes can also be deleted two different ways: either highlighting the desired scene and pressing the “Delete” button or highlighting it and pressing the delete key on the keyboard.



Be careful when deleting scenes as the “Undo” function does not work on deleted scenes.

When a scene is deleted, higher scene numbers will automatically decrement. If an attempt to delete the currently Active Scene is made, a prompt will pop up explaining that it is active and cannot be deleted.

**Locking Scene Window Functions** – Sometimes it may be necessary to disable the functions of the Scene Window. The “Lock” button serves this purpose. When the button is engaged, the other three functions will turn dark grey and will no longer be functional. Parameters in the Control Section (faders, Links, function buttons, etc.) will still be functional.

**Appending and Saving Scenes** – Whenever a change is made to any parameter or function, an asterisk (\*) will appear next to the active scene in the Scene Window (with the exception of the Blank Scene). The asterisk will remain visible until the Project is saved. The asterisk indicates a “dirty event” – meaning that changes have been made since the last Project save.

**Saving Scene Changes** – All Scenes shown in the Scene Window are saved each time the Project is saved (File>Save OR ctrl-S). Any changes to a Scene (a “dirty event”) will be lost if the Project is not saved before recalling another Project or if the Project is not saved before exiting the GUI.



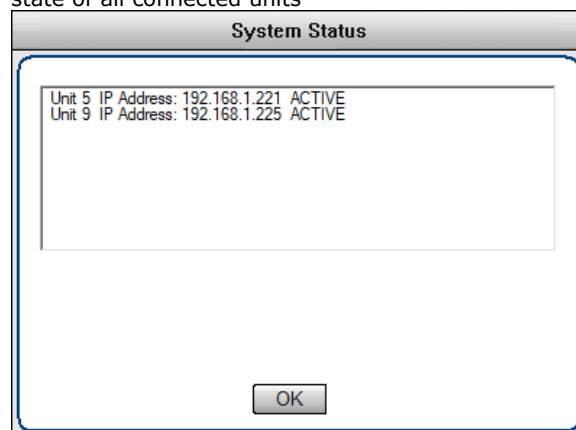
**Loss of Power** – If the HV-316 loses power or ÆLogic crashes it will come back online with the parameters set the same as when it went off except parameters Link, Safe and Split will be off.

## Setup Menu

Setup	Help
Diagnostics >	IP Address...
Soft Reset...	Unit Identity Check... Ctrl+I
Restart Program...	System Status...

**Diagnostics** – Check the IP Address, Flash the display and shows the IP addresses and state of all connected units

**Setup System Status** – shows the IP address and state of all connected units



**Soft Reset** – Allows you to select a unit and reset it to a state where all buttons are off and channel gain is set to minimum.

**Restart Program** – Restarts ÆLogic



## Avid PRE Emulation for Using with Pro Tools

You can control your HV-316 with Pro Tools because it uses the same MIDI control set as the Avid PRE. Please refer to the [Avid PRE manual](#) on the Avid website to learn how to set it up with Pro Tools.

### Setting MIDI Channels

The MIDI channels of the HV-316 are determined by its Unit ID. The HV-316 is equivalent to two Avid PREs so it appears as its unit ID and its unit ID +1 (Unit ID on the HV-316/8)

Don't choose an ID greater than 15 (16 on an HV-316/8)

The exceptions to the PRE controls are:

- Gains <8dB
- Gains >64dB
- Insert – not available
- Mic Type – not available
- Source Impedance – not available
- Pad is 20dB, not 18dB

The gain maps in the following manner:

Pro Tools dB	HV316 dB
0	1
3	1
6	1
9	1
12	1
15	15
18	18
21	21
24	24
27	27
30	30
33	33
36	36
39	39
42	42
45	45
48	48
51	51
54	54
57	57
60	60
63	63
66	64
69	64

## Yamaha R-Remote Compatibility

Gain, 48V and High Pass Filter (HPF) can be controlled using [Yamaha's R-Remote software](#) (web link as of January 7, 2023).

All of the HV-316's other parameters and network settings remain at the values last set by Ælogic so be sure everything is set the way you want them before you instantiate R-Remote.



If your HV-316 serial number is below 240, it will need a firmware update. Please contact Millennia for the update.

The HV-316 connects to R-Remote software via ethernet using the Yamaha SCP protocol.

Once a connection has been made to the R-Remote software, the HV-316 will ignore changes made with Ælogic until the unit is restarted without the R-Remote software present on the network.

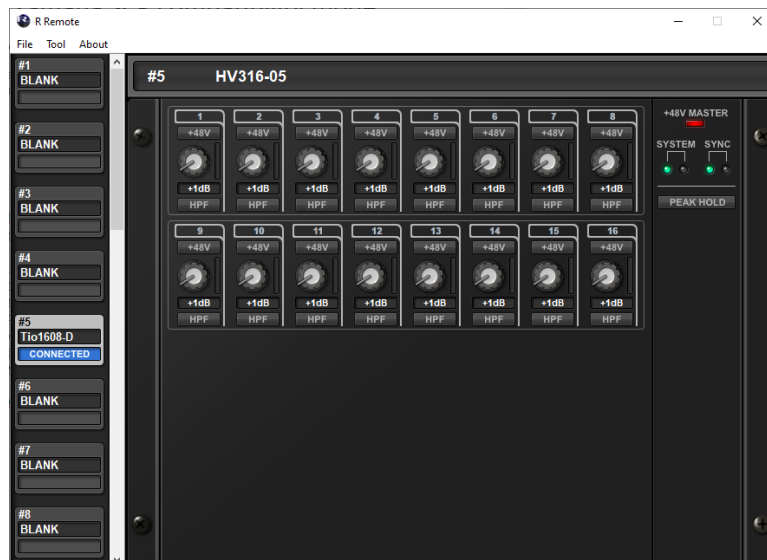
It can be controlled by multiple instances of R-Remote software. Changes made on one instance will propagate to the other instances.

### R-Remote software maps as follows:

- 48V on or off.
- HPF on or off.
- Gain as shown in the table below

R-Remote	HV316 dB
-6	1
-5	1
-4	1
-3	1
-2	1
-1	1
0	1
1	1
2	2
3	3
One to One from 1 to 64	
63	63
64	64
65	64
66	64

## HV-316 display on R-Remote:



- The HV-316 will appear as a Tio1608-D in the side-bar.
- The unit-name will be set to HV316-[ID].
- System and Sync lights will be fixed to green.
- +48V Master will be always on.
- No controls will appear for Polarity, Pad, Ribbon, or Mute

## MADI Option

A screenshot of the Dante Controller - Network View window. The window displays a table with columns for Device Name, Sync, Mute, Clock Source, Domain Status, Primary v1 Multicast, Primary v2 Multicast, Secondary v1 Multicast, Secondary v2 Multicast, Preferred Leader, and Enable Sync To External. The table lists four devices: HV316-16-1fc438, RD-LAB-PC, teerok-Main, and TylersTechBench. The HV316-16-1fc438 device is highlighted as the Primary Leader.

Device Name	Sync	Mute	Clock Source	Domain Status	Primary v1 Multicast	Primary v2 Multicast	Secondary v1 Multicast	Secondary v2 Multicast	Preferred Leader	Enable Sync To External
HV316-16-1fc438			Dante	N/A	Leader	Disabled	Link down	Link down	<input type="checkbox"/>	<input checked="" type="checkbox"/>
RD-LAB-PC			Dante	N/A	Follower	N/A	N/A	N/A	<input type="checkbox"/>	N/A
teerok-Main			Dante	N/A	Follower	N/A	N/A	N/A	<input type="checkbox"/>	N/A
TylersTechBench			Dante	N/A	Follower	N/A	N/A	N/A	<input type="checkbox"/>	N/A

**Initial Setup** – The MADI card is a factory-installed option enabling the HV-316 to function on a MADI network. You'll need to use Dante Controller to adjust clock parameters.

**Sample Rate** – If you are using a sample rate other than 48K, use Dante Controller's device set up window to change it. **The sample rate must match the MADI network's.**

[https://dev.audinate.com/GA/dante-controller/userguide/webhelp/content/device\\_config\\_tab.htm](https://dev.audinate.com/GA/dante-controller/userguide/webhelp/content/device_config_tab.htm)

**Sync to External** – The HV-316 receives the MADI clock through its Dante card. The HV-316 should already be set to sync external. If not, change it.

Here's a link to Audinate's documentation on how to use Dante Controller's Clock Status window to do this:

[https://dev.audinate.com/GA/dante-controller/userguide/webhelp/content/clock\\_synchronization.htm](https://dev.audinate.com/GA/dante-controller/userguide/webhelp/content/clock_synchronization.htm)

**Dante with MADI** – If you want to use the Dante outputs simultaneously, Dante network parameters need to be changed using Dante controller.

Use Dante Controller to set the HV-316 as preferred leader. The HV-316 should already be set to sync external. Here's the link again to Audinate's documentation on how to use Dante Controller's Clock Status window to do this:

[https://dev.audinate.com/GA/dante-controller/userguide/webhelp/content/clock\\_synchronization.htm](https://dev.audinate.com/GA/dante-controller/userguide/webhelp/content/clock_synchronization.htm)

### LED Indicators

**Solid green** indicates which MADI input is active, locked and in sync when not using external Clock.

**Flashing green** – In the process of syncing and locking to MADI input when not using external Clock.

**Solid yellow** – indicates which MADI input is active, locked and in sync when using external Clock.

**Alternating yellow/green** – In the process of syncing and locking to external Clock.

**Flashing Yellow** – Indicates external clock is connected but no MADI input.

**Clock Input** – Uses word clock for external synchronization. The system can run at sample rates up to 192kHz when using an external clock. You must use Dante Controller to set the HV-316 to match it.

**MADI XMT (Transmit) Out and RCV (Receive) In** – Multi-mode optical fiber with an SC-Plug (IEC 874-19) or 75 ohm coax with a BNC connector.

The optical connectors are under the removable black protective cover. Outputs (XMT, Transmit) are on the left, inputs (RCV, Receive) on the right.

Optical and coax XMT (Transmit) and RCV (Receive) can be connected simultaneously. The system will automatically switch between whichever RCV (Receive) input is actively carrying data. XMT (Transmit) outputs are always active

**Clocking and Sample Rate** – The MADI-2 board defaults to 48kHz when there is no MADI

input connected. For other sample rates, you must use Dante Controller to set the HV-316 to match it.

**MADI Channel Counts** are reduced by half when running at 96kHz sample rates and one quarter at 192kHz. Be sure to take this into account when planning your system capacity.

**MADI Throughput Delay** – Latency is three samples per MADI card at 48kHz, 6 samples at 96kHz and 12 samples at 192kHz (the amount of time is the same for all).

A 64-channel system would have 21 samples between channel 1 and 64. Take this into account when using stereo mics. Keep them in the same preamp if possible.

**MADI Channel Assignment – Ch 1-16** is the unit with its transmitter (output) closest to the mixer. 17-32 would be the next etc. If you are using the 8-channel version of the HV-316, it would be 1-8, 9-16 etc.

# Appendix

## Ælogic Keyboard Shortcuts

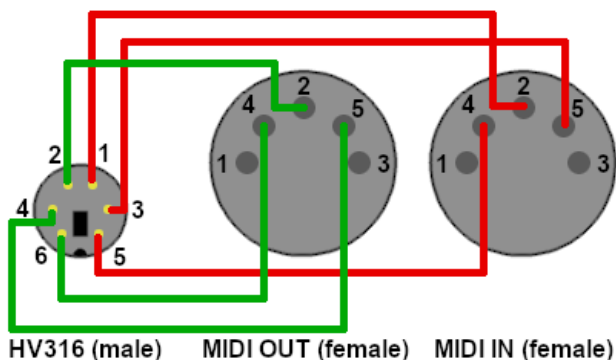
Keys	Function
Alt Click-and-Drag fader of linked group	Allows you to trim member of group
Alt E	Edit Menu
Alt F	File Menu
Alt F4	Close program
Alt S	Setup Menu
Click and Drag on Link Matrix	Drag across to link/unlink channels
Click and Drag POL or Pad or 48V or Mute or Split or Safe or RBIN or HPF or Link	Drag across channel buttons to select or unselect
Click and Drag Scene name	Drag to new place in list
Ctrl H	Help Menu
Ctrl I	Unit identity check
Ctrl L	Brings up Link Matrix
Ctrl M	Meter preferences
Ctrl N	Create new project
Ctrl O	Open project
Ctrl S	Save
Ctrl Z	Undo (10 levels)
Double Click Group Title in Link Matrix	Lists channels that are members of the group
Double Click on unit icon in Unit Status box	Gives voltage, temperature and network data of unit.
Double Click Scene name	Loads Scene
F1	Help Menu
Left/Right keys (on controls)	Move channels one over
Right Click Group title name in Link Matrix	Edit name
Right Click link box in Link Matrix	Edit channel name
Right Click on channel name below fader	Edit channel name
Right Click on meter	Edit meter settings
Right Click on unit name above faders	Edit unit name
Right Click scene name	Edit scene name
Shift Ctrl S	Save as
Up/Down keys (on controls)	Increment/Decrement gain by 1dB

## Microphone input wiring diagram – DB-25 to XLR Female AES59/Tascam Format

Channel	1	2	3	4	5	6	7	8
+ Pins	24	10	21	7	18	4	15	1
– Pins	12	23	9	20	6	17	3	14
Gnd Pins	25	11	22	8	19	5	16	2

## MIDI Cable Wiring Diagram

The HV-316 MIDI port is a PS/2 style 6 pin mini-DIN. It is wired the same as the Yamaha ZP893500 MIDI Breakout Cable.



## MIDI Controller Table

X=MIDI Channel

CC Hex	Function	Values (Hex)
X2h	Pad	00h = OFF 7Fh = ON
X4h	Phantom	00h = OFF 7Fh = ON
X5h	Phase	00h = OFF 7Fh = ON
X6h	High Pass Filter	00h = OFF 7Fh = ON
X7h	Mute	00h = OFF 7Fh = ON
X9h	Gain	See Gain Table

## MIDI Gain Table

Decimal	Pro Tools dB	HV316 dB
0	0	1
1	3	1
2	6	1
3	9	1
4	12	1
5	15	15
6	18	18
7	21	21
8	24	24
9	27	27
10	30	30
11	33	33
12	36	36
13	39	39
14	42	42
15	45	45
16	48	48
17	51	51
18	54	54
19	57	57
20	60	60
21	63	63
22	66	64
23	69	64

<b>Specifications</b>	
Minimum Gain	1 dB
Maximum Gain (1 dB per step)	64 dB
Attenuator Pad	-20 dB
Frequency Response (analog output option) (+0 / -3 dB)	sub 3 Hz to beyond 300 kHz
Noise (60 dB Gain, 10 Hz - 30 kHz, Inputs common)	-130 dB EIN
Total Harmonic Distortion + Noise (35 dB Gain, 10 Hz - 20 kHz bandwidth, 0 dBFS Out)	< .005%, Typ.
Intermodulation Distortion (50 Hz & 7 kHz), 35 dB Gain, 0 dBFS	< .0009%
Phase Response (35 dB Gain, 50 Hz - 20 kHz bandwidth, 0 dBFS)	< 2 degrees deviation
Common Mode Rejection Ratio (35 dB Gain, 10 Hz - 20 kHz bandwidth, 100 mV C.M.)	> 65 dB, Typ > 85 dB
Slew Rate (35 dB Gain)	> 25 Volts per microsecond
Maximum Input Level (20 Hz - 40 kHz)	+34 dBu (pad in)
Maximum Output Level (20 Hz - 40 kHz) (analog output option)	+22 dBu (analog option)
Phantom Input Impedance (1 kHz)	6,750 ohms
Output Impedance	24.3 Ohms (analog option)
Phantom Powering	+48 V dc, +/- 2 V dc, 15 ma per channel
Power Consumption	100 watts maximum AC: Universal 90-240V, 50/60 Hz DC: 12V
Dimensions/Shipping Weight	19" W x 1.75" H x 16" D, 10 lbs (16ch), 9 lbs (8ch)

## DANTE

Physical Layer	Ethernet
Connectors	Dual RJ-45
Cable Quality	CAT-5e or better
Transmission Speed	1Gbps
Supported Sample Rates	44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
Minimum Dante Latency	250 $\mu$ S
Supported Modes	Redundant / Switched
AES67 Support	Planned
Certifications	FCC CFR 47 Part 15 Subpart B, Class A ICES-03 Issue 6 (Canada) ANSI C63.4-2014
Compliance	CE (EN55022 / EN55024) RoHS 2002/95/EC WEEE 2012/19/EU REACH
Environmental	-10° to +65°C / +15° to +150°F 10% to 80% Relative Humidity

Millennia Media reserves the right to change specifications, delivery, and pricing without notice.



## Architects and Engineers Specification

The Dante/AES67 interface will have 16 balanced mic/line inputs available on DB-25 connectors.

The mic/line inputs for each channel will support up to 64dB of digitally-controlled gain in 1dB increments.

Each input will have phantom powering available.

Each input will provide a selectable DC-coupled "ribbon mic" path.

A DIN-type hardware MIDI control input will be provided.

A switchable attenuator will provide support for signal levels up to +34dBu, when activated.

The front panel will include a power switch, along with display that will show power active, aux power active, network unit number, and LED status for each channel's phantom, signal present, and overload.

All mic/line input channels will have optional analog output channels in addition to Dante output.

The device will support multiple digital-audio sample rates, namely 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, and 192kHz.

The device will have a 16-position rotary switch to select its network ID number.

The device will have a reset button to restore all settings to factory default.

The Dante interface will support a switched or redundant network mode.

The device will have two integrated Gigabit Ethernet ports on RJ-45 connectors.

The device will support Ethernet and power redundancy.

The device will operate from either 12 VDC power or 80-264 VAC power, 47 to 63 Hz.

All parameter settings shall be non-volatile and self-restoring in the event of a power interruption.

The device will be compliant with FCC CFR47 Part 15 Class A, ICES-03 Issue 6, ANSI 63.4-2014, CE EN55022 Class A and EN 55024 Class A, RoHS 2002/95/EC, WEEE 2012/19/EU, and REACH.

The device will be accompanied by Windows-based control software called AELogic, offering visual access to hardware control, functionality, and scene management.

The device shall be the Millennia HV-316.

## World Wide Warranty

We will repair our products, free of charge, in the event of defect of materials or workmanship for two (2) years following date of purchase.

This limited warranty covers failures due only to defects in materials and workmanship which occur during normal, intended use and does not cover damage which occurs in shipment or failures which are caused by products not supplied by Millennia Media.

This limited warranty does not cover failures which arise from accident, misuse, abuse, neglect, mishandling, misapplication, faulty installation, improper adjustment, alteration or modification of product, incompatibilities, line-power surges, lightning strikes, acts of God, or service performed by anyone other than Millennia Media or its authorized agent.

Limits and Exclusions – There are no express warranties except as listed above. Millennia shall not be liable for special, subsequent, incidental, consequential, or punitive damages, including, but not limited to: damage to recordings, broadcasts, microphones, mixing consoles, or any associated equipment, downtime costs, loss of goodwill, or claims of any party dealing with purchaser for such damages resulting from the use of this product. All warranties express and implied, including the warranties of merchantability and fitness for a particular purpose are limited to the applicable warranty period set forth above.

Vacuum tube and bulb failures are not covered under warranty. Shipping costs to/from factory are not covered under this warranty. International warranty law may vary from country to country, and Millennia will abide by the law of each country from which the product was initially sold.

For North American repairs and service, contact Millennia (tech@mil-media.com) to obtain a Return Authorization number. Please include your shipping address, daytime phone number and description of the problem. Outside of North America, please contact your local Millennia Distributor.

## Discarding Units

In the event that any Millennia equipment manufactured after July 1, 2006 needs to be discarded, you must return it to Millennia, at our headquarters in California, USA. Please contact the distributor in your country or Millennia directly for instructions. We will make arrangements to have the equipment shipped to us at no cost to you, and we will dispose of it in a manner that complies with whatever regulations are in existence at that time.



# Millennia

Music & Media Systems

Millennia Media, SPC  
6411 Capitol Avenue  
Diamond Springs, CA 95619 USA  
TEL: 001-530-647-0750

## EU DECLARATION OF CONFORMITY

Brand: Millennia

Equipment Type: Commercial Audio Microphone Preamplifier

Family Name: HV-3


Model Name: HV-316 including all variants

We, Millennia Media, declare under our sole responsibility that the product, to which this declaration relates, is in conformity with the following standards.

Directive	Applicable Standards
Low Voltage Directive 2014/35/EU	EN 60065
EMC Directive 2014/30/EU	EN 55032:2015 EN 55035:2017 EN 61000-3-2:2014 EN 61000-3-3:2013
RoHS: 2011/65/EU (and delegated directive (EU) 2015/863)	Refer to Statement found at: <a href="https://www.mil-media.com/community.html">https://www.mil-media.com/community.html</a>

And therefore complies with the essential requirements and provisions of the applicable directives. The technical documentation is kept at Millennia corporate headquarters, noted above.

Manufacturer: Millennia Media, SPC (a California Special Purpose Corporation)

Signed:   
Name and Title: John La Grou, President

Date: 5 April 2021

Declaration Number: V057394