

Just Add Power

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Home Theater



Finally, a home theater matrix distribution solution for HDMI® that can easily be "right-sized" to match any whole house requirements (practically any number of HDMI sources distributed to up to 100's of displays). The HD over IP™ Transmitter/Receiver solution is skew free, and can support sending 1080p content up to 330' on a single CAT5, and much farther (distances exceeding 1,000's of feet are possible) when using cascaded Ethernet LAN switches to distribute the signal.



Any HDMI source can simultaneously be displayed on any number of display devices (if multiple displays are permitted by the HDMI source) using VLAN isolation on a Managed Ethernet switch. Using the HTTP GUI a PC (wired or wireless) can control what signal is being watched at each location. Sophisticated Home Theater installations can use a programmable console to control the system using RS232 commands. The Managed switch must support IGMP and permit duplicate IP addresses across the VLAN domains.

NOTE: Support for multiple transmitters requires a Managed network switch with VLAN/IGMP support. Standard LAN switches can only support 1 transmitter.

Frequently Asked Questions:

What are the key benefits of the Just Add Power HDMI over IP Matrix solution compared to other Matrix Switchers?

- 1) Scalability - it is simple to right-size the switch for the customers immediate needs, and when they add another TV or HD source to their collection, all they need to purchase is another Transmitter or Receiver. With traditional Matrix switches you are buying into a fixed form factor that does not typically accommodate upgrading or expansion.
- 2) Flexibility - you can put all of your sources in one closet, or you can distribute them throughout the home. It is truly an anything anywhere to anything anywhere else solution.
- 3) More Flexibility - with the 1G models you can mix match different resolution HDTV monitors on the network without having to lower the quality of your HDMI sources. Other HD Matrix solutions typically require the owner to set the inputs to match the resolution of the least common denominator. Because the HD over IP Receivers have a built in scaler, you can go ahead and set your HDMI sources to their highest resolution supported (1080p, 1080i, 720p, whatever). This means the customer can enjoy their 1080p content on their main screens, and save some money by installing 720p screens for the kitchen or the kid's bedrooms.
- 4) Even More Flexibility - if the customer has some legacy VGA, Component, or DVI sources that they want to continue using, it is simply a matter of using an HDMI converter (i.e. VGA+Sound>HDMI, Component+Sound>HDMI, or DVI+Sound >HDMI) to connect the legacy device into the HD over IP Matrix solution.
- 5) Affordability - when you compare a legacy HDMI Matrix switch with all of the devices needed to distribute the signal throughout the home, the Just Add Power solution generally comes out as a better bargain. No to mention the frustration of wondering if the long HDMI cables or the finicky Baluns will work with the necessary cable distances. The Just Add Power solution can extend an HDMI source much farther than Baluns, and it is always reliable and consistent.

How do I become a Just Add Power dealer and purchase HD over IP at a discount?

Please send an email to sales@justaddpower.com and let us know where your business is located. We'll point you to a stocking distributor that will setup your company for DEALER pricing.

NOTE: We are currently stocking US 110V, AUS/NZ 220V, UK 240V, and EURO 220V power supplies. If your country using something else, please let us know and we will gladly add it to our stockpile. If you can't wait for us to get your specific power supply, just locate a 5V DC 1200ma adapter with positive tip polarity.

What type of Managed Ethernet Switch do I need?

It has been brought to our attention that some of the companies and individuals we are talking with are more A/V oriented than IT oriented, so they may not be familiar with the requirement for a Managed Ethernet Switch to support the Just Add Power "right-sized" matrix solution. The Just Add Power HD over IP matrix solution requires a Managed Ethernet Switch that supports port based VLAN's (Virtual Lans) and IGMP (a type of multi-casting protocol). It is best to select a switch that supports the IEEE 802.1Q Version of VLAN. For our demonstration at CEDIA we were using a 24port 100BT Cisco Catalyst 2960 that was generously provided by my neighbor who works for Cisco. Other switches that have been demonstrated to work well with our solution include Dell 352X, HP Procurve, and Extreme Networks. Recently DLINK and Netgear have come out with switches that are also compatible with the Just Add Power HD over IP solution for distributing HDMI over IP.

What is a VLAN?

A VLAN is a virtual LAN that lives on a network switch along with a number of other virtual LAN's. From the devices perspective, an HD over IP Receiver can only see a Transmitter if it is on the same VLAN. Managed switches can support anywhere from 24 to 4096 VLAN's (varies by make/model).

The number of VLAN's a switch supports determines the maximum number of HD over IP Transmitters that can exist on the "right sized" Matrix. From an HD over IP perspective, think of each VLAN as a separate HDMI Channel on the network. For example, you could have the SkyHD box on one VLAN, a Blu-Ray player on another VLAN, a DVR on another, and so on. There's practically no limit, as customers will likely run out of HDMI sources to purchase before the switch runs out of available VLAN's. Each of the Receivers must be installed in it's own port in the Managed Switch. The owner simply tells the switch to put the desired ports (and the attached HD over IP Receiver) into the same VLAN. The number of Receivers per LAN is currently limited to 200 for the 1G models, but we can expand that IP pool if you have a large system that requires support for more than 200 screens.

What is IGMP

IGMP stands for Internet Group Management Protocol. This is the vehicle that allows our IP devices to join an already in progress data stream broadcast. From an HDMI over IP perspective, this is what allows us to instantly switch an HD over IP Receiver between Transmitter "channels". When you tell a Receiver to change to a different VLAN, it joins the already in progress video instantly - there are no glitches. If the Receiver is the first/only device to connect to a Transmitter, there is a few seconds delay for the initial HDCP negotiation. You can read more about IGMP at

http://en.wikipedia.org/wiki/Internet_Group_Management_Protocol

What is IEEE 802.1Q about?

From an HDMI over IP perspective, selecting an IEEE 802.1Q switch means you can easily expand the system if the customer outgrows their first switch. When both switches cooperate with IEEE 802.1Q protocol, you can create VLAN's that exist across multiple switches. Without an IEEE 802.1Q Managed Switch the owner is pretty much stuck with keeping all of their Transmitters and Receivers plugged into a single Managed Switch. On the other hand, you can find stand alone managed switches with 48 ports. A 48 port Managed Switch could accommodate every permutation from 1 TX and 47 RX devices to 47 TX and 1 RX device. We are working with on one project where there will be 10 Satellite Receivers connected to a 48 port Managed switch, and 30 HDTV's. This is a Sports Bar that is wanting to broadcast the NFL Sunday Ticket which can show up to 10 American Football games at the same time. With the Just Add Power HDMI over IP solution, they will be able to individual switch any of the 30 screens to any of the 10 games instantly, and there is still room in the switch to add 8 more devices (TX and/or RX) in the future. For most Home Theater users we expect a 24 port switch will be more than adequate to fill their needs for many years to come. Keep in mind that they can use this same Managed Switch for all of their home networking needs, as they can put the home Internet traffic and the router to the outside world on it's own VLAN.

How complicated is this to administer?

The answer to this question will vary with the switch selected, and the type of interface the customer is interested in choosing. For starters, a Managed Switch comes with a built in HTTP Interface. Any computer on the LAN (wired or wireless) can simply point their browser to the URL for the Managed Switch (typically something like <http://10.0.0.1>) and they will be able to log into the switch and tell it to change the port VLAN assignments. The process is very fast. Some switches offer a very friendly HTTP interface, while others are not so acceptable to the whole family. Fortunately, most Managed Switches have an RS232 port and/or a TELNET interface that can be used to externally control the switch. This opens the door for home automation systems. We currently have drivers available for AMX, Control4, Crestron, M-Control, RTI, Savant, Vantage, and URC remote control. It is our intention to provide drivers to support as many of the popular home automation systems as possible. Understand the these drivers will be specific to the make/model of the managed switch, so we will publish a list of Managed Switches that can be supported with these home automation systems. You may also be interested in our MediaSwitcher standalone software to manage the HD over IP Matrix using a Windows, Mac, or Linux PC.

So, what switch should I buy?

If you are able to write your own RS232 or IP driver to control a managed switch, it is pretty much up to you. Otherwise we recommend you choose your switch based on the availability of drivers to

match your home automation solution. Each driver will be documented to include the make/model of Managed Ethernet switches they support. We currently have drivers available to support AMX, Control4, Crestron, M-Control, RTI, Savant, Vantage, and URC solutions. Most drivers support the Dell and Cisco switches, and it is usually a simple matter to adjust the driver for other common switches.

Are Managed Switches expensive?

No, they don't have to be very expensive at all. While we did all of our proof of concept development on a fairly expensive Cisco Catalyst 2960, you can find some very budget friendly compatible devices. The list of compatible switches includes Dell, HP, Packedge, and Extreme Networks brand Managed Ethernet Switches. The only brand of Managed Ethernet switches we have not been able to make work are from Netgear (if somebody does figure out how to make a Netgear switch work, please let us know).

Does the image quality get degraded over the Ethernet LAN?

With the 2G models there is no impact on the image quality. With the 1G models, if you do a side by side comparison of an identical screen connected directly to a 1080p source, and a second screen connected through the network you will detect a minor difference. We are using a live JPEG2000 CODEC which we've optimized for motion. Our biggest headache is with Text and large areas of the same color (i.e. a solid black screen will show some artifacts). However, the vast majority of people who witnessed the 1G solution being demonstrated at CEDIA said the image quality would be more than sufficient for most of their customers. We've done our best to be up front about the 1G models not being a "perfect" solution, just a pretty darned good solution that opens up a new market for distributed video. We don't need to offer any excuses for the 2G solution, as it is a visually lossless solution.

What about the IR ports I see in the pictures?

The 1G models currently send a RETURN IR signal from the Receiver back to the HDMI source. Several systems integrators have told us we got this backwards. We also want to make sure that you understand that this is not a full spectrum IR channel. We will post the specifics on what IR is supported as soon as possible. We also understand the importance of trying to reverse this channel, or even better, provide bi-directional RS232 support. The Return IR Control function is best suited for a Point-To-Point application, and is of limited value in a Point-To-Many environment. For installations in a Many-To-Many environment it is necessary to use a third party home automation solution to provide distributed remote control functionality

What about the sound quality?

The HDover IP solution distributes the the PCM audio (2.0 and Dolby Pro Logic II) in the HDMI DataStream. We do not distribute the surround sound and lossless audio. We recommend you connect your Blu-Ray player directly to the main Home Theater AVR to take advantage of the surround sound and lossless audio, and then use an HDMI splitter to distribute the output into the HDMI over IP matrix.

How long does it take to switch between HDMI sources?

We can support instant seamless switching. There is a demonstration video available on YouTube that shows us switching between HDMI sources at the CEDIA convention. The videos are posted at <http://www.youtube.com/user/TheSOHOShop#play/all/uploads-all/0/Z0LNaUdWnCA> (HD and SD versions available for your viewing pleasure). In this video you will see that we are able to deliver instant seamless switching between HDMI inputs at multiple resolutions. The first source in the seamless switching demonstration is a PlayStation 3 Blu-Ray disc that we were running at 1080p60 showing the Mummy movie. The second source was an Xbox 360 running at 720p playing the new Batman video game. The 3rd source was a Vudu XL running at 1080p24 showing a one of the Chronicles of Riddick movies. The 4th source was a Vudu BX100 running at 1080p24 showing The Hitchhikers Guide to the Universe. The last source was a Sony HD Camcorder running at 1080i30. Because the Just Add Power HDMI over IP solution uses a SCALER in the receivers, we don't

experience the delays in switching caused by the EDID negotiation that is inherent in most other companies offerings. As far as we know, no other company comes close the speed of the Just Add Power solution.

What about the HDCP Keys?

The Just Add Power HD over IP solution is fully HDCP compliant.

Is there any video lag caused by the HD over IP solution?

The Just Add Power HD over IP solution has no detectable lag from the live source. Our test of this was with gaming systems (Xbox and PlayStation 3). Some very serious gamers tested it thoroughly and were not able to detect any lag, making the system suitable for playing a game anywhere in the home. When we showed the Xbox on all 9 screens at CEDIA, nobody could tell the difference between the stations attached with a 5' cable and a 200' cable to the Ethernet Switch.

Are there any more Just Add Power HD over IP models planned?

We have several additional models planned for the HD over IP Family. It is our goal to develop specific new models to further leverage the value of the Just Add Power solution.

Are there manuals available for HD over IP?

Installing the Just Add Power HD over IP devices are about as complicated as installing a light bulb. If you can plug in an HDMI cable and an Ethernet Cable, you have all the knowledge needed to install the Transmitters and Receivers. However, some users feel better having a manual in hand. You can download the installation manual from this link:

http://www.justaddpower.com/component/option,com_rokdownloads/Itemid,80/id,78/view,file/

What you are probably wanting is a manual on how to implement the Right Sized Matrix using a Managed Ethernet Switch. Users interested in writing their own driver should send a request for details to support@justaddpower.com.

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1G HD over IP Mounting Wings
\$50.00

A complete set of 10 professional mounting wings for use with 1G HD over IP Transmitters and Receivers, including PoE Receivers. Includes 20 extended machine screws for easy installation. [\[Product Details...\]](#)



1G HD over IP Power over Ethernet Receiver
\$399.00

The Projector Connector HD/IP Power over Ethernet Receiver allows you to receive an HDMI 1.3 Signal (up to 1080p) over an Ethernet LAN and to return an IR Control Signal to the source using CAT5/6/7 cables. The same CATX cable can deliver Power over E [\[Product Details...\]](#)



1G HD over IP Rackmount Transmitter

\$1,299.00

The Projector Connectorâ„¢ HD over IP Rackmount Transmitter allows you to simultaneously send out up to 3 HDMI 1.3 Signals (up to 1080p) to one or more HDMI video projectors or LCD Panels and return an IR Control Signal to the source using CAT5/6/7 cabl [\[Product Details...\]](#)



1G HD over IP Receiver

\$299.00

The Projector Connectorâ„¢ HD over IP Receiver allows you to receive an HDMI 1.3 Signal (up to 1080p) over an Ethernet LAN and to return an IR Control Signal to the source using CAT5/6/7 cables. [\[Product Details...\]](#)



1G HD over IP Transmitter

\$350.00

The HD over IP Transmitter allows you to simultaneously send out an HDMI 1.3 Signal (up to 1080p) to one or more HDMI video projectors or LCD Panels and return an IR Control Signal to the source using CAT5/6/7 cables. [\[Product Details...\]](#)



IR Blaster/Emitter for use with HD over IP Transmitters

\$20.00



IR Blaster/Emitter for use with 1G HD over IP Transmitters in an HDMI over IP network. [\[Product Details...\]](#)



IR Receiver/Eye for use with HD over IP Receivers

\$20.00



IR Receiver/Eye for use with 1G HD over IP Receivers in an HDMI over IP network. [\[Product Details...\]](#)



MediaSwitcher Pro License

\$1,000.00

MediaSwitcher control software for HDMI over IP matrix implementation. Pro license supports virtually unlimited inputs/outputs. [\[Product Details...\]](#)



MediaSwitcher Standard License

\$149.00

MediaSwitcher control software for HDMI over IP matrix implementation. Standard license supports up to 8 inputs and 8 outputs. [\[Product Details...\]](#)

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