

# ZIGEN

COMPLETE HD/IP  
CONNECTIVITY SOLUTIONS

## ZIG-POEWP-100TX

HDMI/VGA Auto-switching wall plate  
HDBase-T Transmitter Over Single CAT5e/6/7  
100m, IEEE POE Powered, 4K, Audio, IR, RS232, LAN, ZigNet



ZIG-POEWP-100TX USER MANUAL

# Important Safety Instructions

1. Do not use this product near water.
2. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
3. Do not install or place this product near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
4. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
5. Only use attachments/accessories specified by the manufacturer.
6. To reduce the risk of electric shock and/or damage to this product, never handle or touch this unit or power cord if your hands are wet or damp. Do not expose this product to rain or moisture.
7. Unplug this apparatus during lightning storms or when unused for long periods of time.
8. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, 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.
9. Batteries that may be included with this product and/or accessories should never be exposed to open flame or excessive heat. Always dispose of used batteries according to the instructions.

# Warranty Information

## Powered Product Warranty

Zigen warrants its powered products against any defects in materials and workmanship for a period of three years from the date of invoice. Touchscreen displays carry a one year parts and labor warranty. If a malfunction occurs during the warranty period, Zigen will repair or replace a product to its original operating condition. A return authorization number must be obtained from Zigen before products are returned for service.

## Non-Powered and Cable Products - Lifetime Limited Performance Warranty

Zigen warrants that its non-powered products and cable products will be free from defects in material and workmanship for as long as you or your customer owns the product. All Zigen non-powered products and cables are designed and engineered to meet and exceed performance specifications. If, at anytime, the product fails due to manufacturer defect, Zigen will repair or replace the product to ensure that it meets original performance specifications. Reduced performance due to normal wear and tear, or damages caused by misuse or negligence will not be covered. Zigen will test and evaluate all non-powered and cable products claimed defective. Products must be shipped to Zigen, prepaid along with proof of purchase only after obtaining a Return Merchandise Authorization (RMA) number from Zigen. This statement of policy is in lieu of any other policy expressed or implied and no representative or person is authorized to assume any other liability or adopt any other policy for Zigen without our written consent.

## Return Policy

If you would like to return a Zigen product, it can be done within 30 days of purchase for a full refund, less shipping and handling. Zigen will not be responsible for shipping and handling of product returns. Returns will only be accepted of products with proof of purchase, products in the original packaging with zero to minimal use and a Return Merchandise Authorization RMA number provided by Zigen.

# Contacting Zigen

## Technical Support

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## Email

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USA

# Features

- HDMI and VGA w/Audio input – VGA can be configured as Component or Composite video.
- Auto-Switching function – if you remove an active source – and another source is connected then it will switch to the new source immediately.
- IEEE POE – remote or source – can connect to IEEE POE device for power or can connect directly to a 5VDC source via 2-pin phoenix style connector on the back.
- ZigNet setup and control – or control from ZIG-POE-RXAV hand-held remote – simple automation or integrate into 3<sup>rd</sup> party controller.
- Supports HDMI 1.2, 1.3 and 1.4 with 48-bit deep color
- Supports digital video formats up to Ultra HD 4K/2K, 60Hz, 4:2:0 pixel format
- Supports uncompressed PCM 2- Ch., 5.1, 7.1, Dolby Digital, DTS, Dolby TrueHD, DTS HD-Master Audio and more.
- Supports IR, RS-232 commands
- Supports HDCP 1.4 & 2.2

# Specifications

## **Inputs**

HDMI x 1

VGA x 1 – multi-port – supports YPbPr and Composite video

3.5mm Audio port – follows VGA port

Power – On back – 5VDC direct or IEEE POE from RX or switch

## **Outputs**

HDBaseT x 1 – RJ45 – note port is dual use so it can be used as an Ethernet port when programming or controlling the device.

## **Distance between TX and RX**

Full HDBaseT - 328' or 100M @ 2160P60 4:2:0 8-bit

## **Copy Protection Compliance**

HDCP – Yes – 1.4 & 2.2

## **Video Bandwidth**

10.2 Gbps

Video Timings: 480i, 480p, 720p, 1080i, 1080p, 1920x1200, 2K and 4K. 4K/2K, 30Hz 24bpp.

4K/2K, 60Hz, 24bpp with 4:2:0 pixel format

## **Audio**

Up to Dolby TrueHD and DTS Master Audio

## **Wall Mountable**

Yes – 2 gang Decora style

# Packing List

The ZIG-POEWP-100TX is a wall plate 100 meter (328 feet) HDBaseT transmitter. It can be powered with a 5 VDC supply or from a POE RX device that it is connected to like a ZIG-PS-61 or ZIG-POE-RXAV. It can be used stand-alone as an HDBaseT wall-plate transmitter, but really shines when paired with the ZIGPOE-RXAV receiver/scaler & audio amplifier. A perfect “no-control” control system using “on-connection” technology to fire up projectors, drop screens and control lighting in small rooms – BYOD and in seconds collaborate with your colleagues with full audio and video in stunning 4K UHD. A must for conference rooms and huddle spaces.

The ZIG-POEWP-100TX is packaged with the following items:

- 1 x ZIG-POEWP-100TX
- 1 x User Manual

If any of these products are not present upon first opening of the package, please contact Zigen or your reseller.

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# Front Panel

1. Source select – turns blue when HDMI is selected and off when VGA is selected. Source selection can happen 4 ways:
  - a. First source connected automatically is active and sent to display.
  - b. By pushing this button the source will toggle.
  - c. Via ZigNet
  - d. Via 3<sup>rd</sup> party control
2. HDMI Input – Connect HDMI cable from source, up to 4K UHD.
3. VGA Input – Connect VGA cable here from PC/MAC or use a breakout cable to connect Component, or composite (use Green wire) video sources.
4. CMD Button – this button can be used for almost anything you want – it is programmed via ZigNet and is accessible via 3<sup>rd</sup> party control or ZigNet. Use it to set lighting, trigger screen mask or drop screen. If using with RXAV use one of its relays.
5. Audio Input – 3.5MM stereo audio input jack. The audio going into this jack follows the VGA/Multi-port

Note: Auto-Switching function – if you remove an active source – and another source is connected then it will switch to the new source immediately. Additionally, as soon as you connect either source, if none are connected, that port will become active immediately.



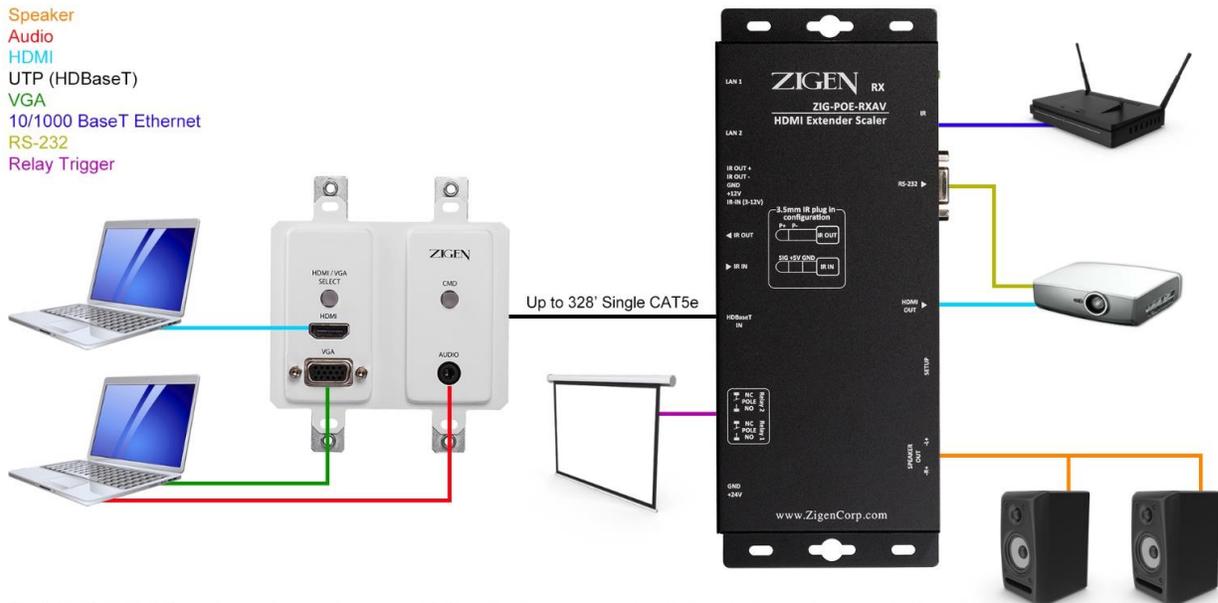
1. HDBaseT output/LAN Port (fallback) connection – Connect RJ45 up to 100 meters (328 feet) CAT5e, 6, 6a. This is the connection to an HDBaseT receiver such as the ZIG-POE-RXAV or ZIG-PS-61. You can also use this connection when accessing via WebOS.
2. 5 VDC Power connection – if NOT using POE power you can connect a 5VDC supply via phoenix style connectors.

Captive Screw Connector – pin outs are also located on the unit.  
2-pin connector – for power

- Power – connect black wire to negative terminal (-)
- Power – connect white wire to positive terminal (+)



# Connection Example



The ZIG-POEWP-100 can be used stand alone as an HDBaseT wall-plate transmitter, but really shines when paired with the ZIG-POE-RXAV receiver, scaler, and audio amplifier. A perfect "no-control" control system using "on-connection" technology to fire up projectors, drop screens and control lighting in small rooms - BYOD and in seconds collaborate with your colleagues with full audio and video in stunning 4K UHD. A must for conference rooms and huddle spaces.

Example is showing our HDBaseT transmitter (ZIG-POEWP-100) connected to the HDBaseT receiver (ZIG-POE-RXAV) Amplified audio output for direct connection to speakers, LAN ports for almost anything you choose and for controlling/setting up the devices, relays, a 4K scaler and IR and RS232 control and functionality.

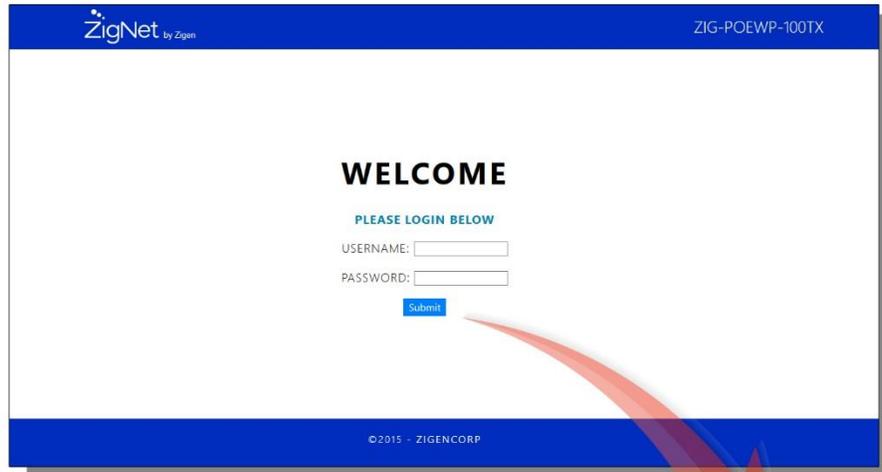
1. Connect sources to POEWP – HDMI and VGA w/Audio
2. Connect RXAV to Display via HDMI
3. Connect Ethernet cable between HDBaseT transmitter (ZIG-POEWP-100) and RXAV (HDBaseT) Ports – this will also provide power on the ZIGPOEWP-100
4. Connect LAN switch/router to LAN 1 port – this is the switch or router that issues IP address (DHCP server)
5. Connect your PC or MAC to the same switch/router. The DHCP server will issue IP addresses to both devices separately.
6. Turn on the Source, TV and RXAV
7. Locate the serial number sticker on each RXAV and make note of it. The web address for the given unit is <http://rxav-xxxx/> where the xxxx are the last 4 digits of the serial number. Ex. If the serial number is 15432000015, then the web address is <http://rxav-0015/>. This is necessary to distinguish multiple units from colliding in the network before their names are changed by the customer. The ZIG-POEWP-100 operates similarly...i.e. <http://poewp-xxxx/>.
8. You can also locate the devices with Bonjour. If you do need to connect directly from a PC or Mac to the LAN 1 or 2 port in the RXAV without a router (LAN) you can expect up to 5 minutes for the address to be resolved.
9. Once connected the user interfaces will be available for you to evaluate, change, enter commands, etc.

# Accessing ZigNet

ZigNet provides easy management of all features used by the ZIG-POEWP-100TX.

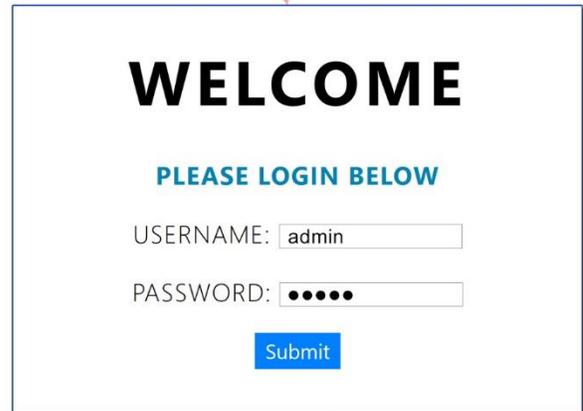
ZigNet is a highly functional web server that is accessible either remotely across the Internet or directly with a connection between a personal computer on a local area network, or a connection directly to the Ethernet connector on the back panel of the unit.

The following is the Welcome page for ZigNet, requesting login information.



## Logging In

1. Launch web browser.
2. Type the IP address of the unit in the address bar.
3. The login page will be displayed.
4. Enter Username and Password.  
Default Username: admin  
Default Password: Zigen
5. Press Submit.



## Navigation Bar

From the navigation bar, select the appropriate link to get to the corresponding page. The blue bar below the link indicates that the page is selected.



## Control Page

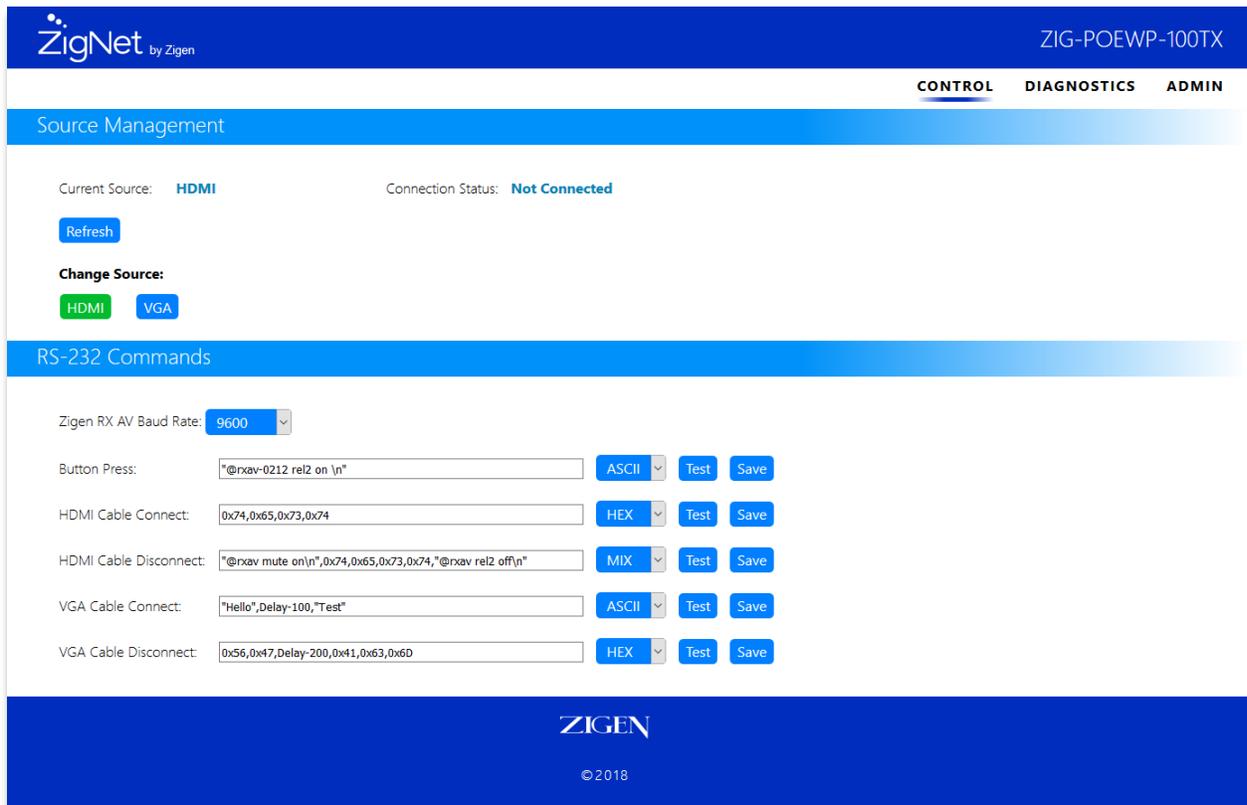
Allows the user to switch the inputs for the outputs, change EDID settings and adjust audio settings.

## Diagnostics Page

Allows the user to monitor video signals and system vitals.

## Admin Page

Allows the user to change administration settings and save installation notes.



## Source Management

Refresh:

Refreshes the current source and connection status

Change Source:

Click the desired input (source). The active input is indicated by a green button.

## RS-232 commands:

Zigen RX AV baud rate

Change baud rate for RXAV. Coming soon in future RXAV revisions. Disclaimer: RXAV with current firmware baud rates need to be changed on the rxav web interface.

RS-232 commands can take ASCII, HEX, or a mixture of ASCII and HEX.

To send an ASCII command, make sure the dropdown is in ASCII or MIX modes.

## ASCII command formatting:

To send an ASCII command, make sure the command is surrounded by quotes.

Example: “@rxav rel1 on\n”

Note: special characters such as ‘\n’, ‘\r’, and ‘\t’ will be interpreted as ONE character, not two.

## HEX command formatting:

To send a HEX command, make sure the dropdown is in HEX or MIX modes.

HEX command formatting:

To send a hex command, the formatting is as follows:

0xZZ,

where ‘Z’ is a character from 0-9, A-F, a-f. NOTE: hex commands need to start with 0x.

MIX allows a mixture of ASCII and HEX commands to be sent over RS232.

If there are multiple commands, use a comma to separate each command.

We can delay a command by using the Delay keyword.

The formatting is as follows:

Delay-xxxx, where “xxxx” is the delay in milliseconds.

# ZigNet: Control Page (continued)

We can delay a command by using the Delay keyword.

The formatting is as follows:

Delay-xxxx, where “xxxx” is the delay in milliseconds.

Commands not specified will be ignored.

Example:

ASCII will ignore HEX values.

## **Test:**

Tests the command in the input box

## **Save:**

Save the command in the input box. Note: be sure to press save before leaving the page.

Button Press:

Sends a command when the CMD button is pressed.

HDMI Cable Connect:

Sends a command when an active HDMI cable is connected

HDMI Cable Disconnect:

Sends a command when an active HDMI cable is disconnected

VGA Cable Connect:

Sends a command when an active VGA cable is connected

VGA Cable Disconnect:

Sends a command when an active VGA cable is disconnected

ZigNet by Zigen ZIG-POEWP-100TX

CONTROL **DIAGNOSTICS** ADMIN

### Inputs

HDMI: **Not Connected**  
VGA: **Not Connected**  
Audio: **Not Connected**  
Current Source: **HDMI**

### Outputs

Local HDBaseT		Remote HDBaseT	
Valens Version ID:	<b>v19.9.33.16</b>	Valens Version ID:	<b>v19.9.33.0</b>
Valens Version Date:	<b>2014, Dec. 17</b>	Valens Version Date:	<b>2014, Dec. 17</b>
Link Status:	<b>Low Power Partial Functionality</b>	Link Status:	<b>Low Power Partial Functionality</b>
Output Status:	<b>No Active Source</b>	Output Status:	<b>No Active Source</b>
Operation Mode:	<b>Standby - Low Power Mode 2</b>	Operation Mode:	<b>Standby - Low Power Mode 2</b>
Cable Length:	<b>Low Power Mode</b>	Cable Length:	<b>Low Power Mode</b>
Hot Plug Detect:	<b>HPD Off</b>		

### System Monitoring

Runtime: **10:15:21**

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## Inputs Section

Diagnostics displays the status of the inputs. If an input is active and connected, the source will display connected.

## Outputs Section

The output displays the status of the Valens chip, further details can be found below

## System Monitoring

Displays runtime in between factory resets.

## Link Status:

Type	Description
No Link	The device is currently not connected to LAN
HDBaseT	The device is receiving and outputting a video source
Low Power Partial Functionality	Standby Mode. The device is currently not outputting a video source.
Fallback Link	The device is not connected to a compatible receiver, but through LAN.

## Output Status:

Type	Description
No Active Source	There is currently no active source.
Active	The device is outputting an active source.
Active – HDCP On	The device is outputting with HDCP an active source.

## Operation Mode:

Mode	Video	Controls	Ethernet	Description
HDBaseT	Up to 1080p 48bpp 60Hz	HDMI Controls and PDIF	100BaseT	<ul style="list-style-type: none"> <li>• Full Bandwidth</li> <li>• Up to 100m</li> </ul>
Long Reach	Up to 1080p 24bpp 60Hz	HDMI Controls and PDIF	100BaseT	<ul style="list-style-type: none"> <li>• Long Reach, reduced Bandwidth</li> <li>• Up to 150m</li> </ul>
Low Power Mode 1	No Video	HDMI Controls and PDIF	No Ethernet	<ul style="list-style-type: none"> <li>• Standby</li> <li>• Up to 150m</li> </ul>
Low Power Mode 2	No Video	HDMI Controls and PDIF	100BaseT	<ul style="list-style-type: none"> <li>• Standby with Ethernet</li> <li>• Up to 150m</li> </ul>
Ethernet Fallback	No Video	None	100BaseT	<ul style="list-style-type: none"> <li>• Fast Ethernet</li> <li>• Up to 150m</li> </ul>

## Cable Length:

Approximates the cable length. If the wall plate is in standby, the cable length will not be displayed, instead will show Low Power Mode.

<b>Cable Length</b>	<b>Display</b>
Standby Modes	Low Power Mode
0-20 meters	< 20 meters
20 – 100 meters	X meters
> 100 meters	> 100 meters

## Hot Plug Detect:

Senses if there is an active source in the inputs.

## Remote HDBaseT:

If the wallplate is not connected to a receiver, the Remote HDBaseT will display N/A.

## User Notes

Allows the user to write and save notes for system configuration.



## Device Settings and Information

**Hostname:** type desired host name and press Change Name.

**Manual IP Address:** Use these fields to change the IP address used in static IP mode and the IP address used in DCHP mode when no IP address can be obtained. Settings will take place after reset.

**IP Mode:** The IP mode allows selecting between DHCP and Static IP mode.

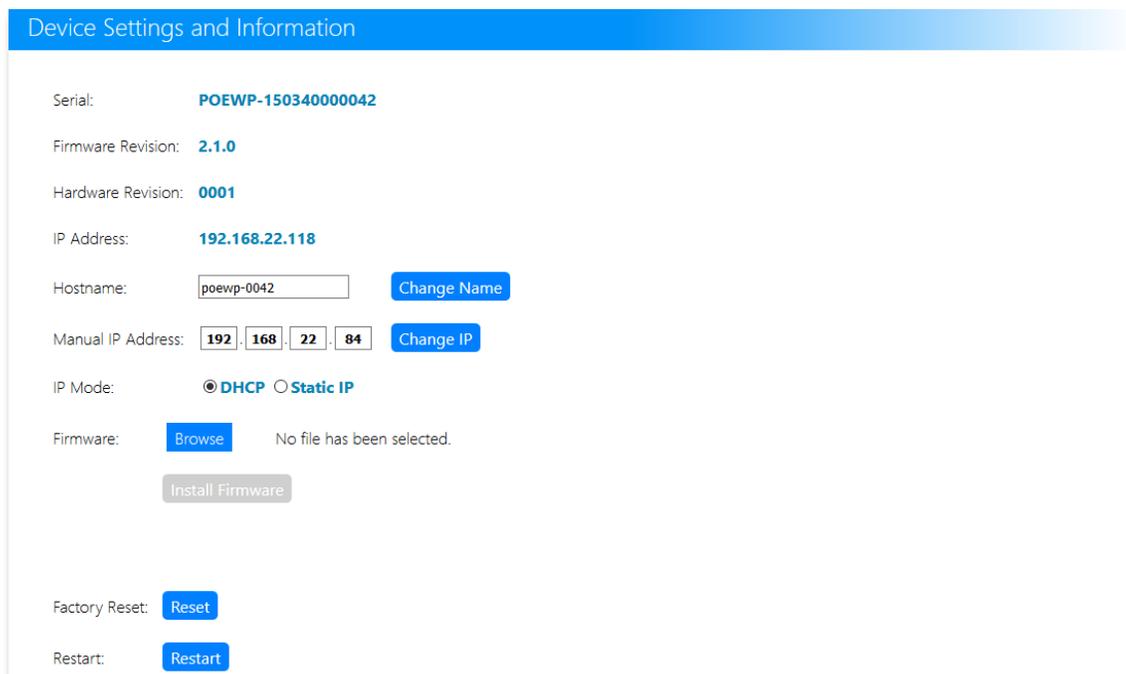
**Firmware:** Select browse to upload firmware updates.

Select the firmware update file and press Install Firmware. File type: \*.bin

A progress bar will show upload transfer process. Once the transfer is complete the unit will reset itself and commence the update.

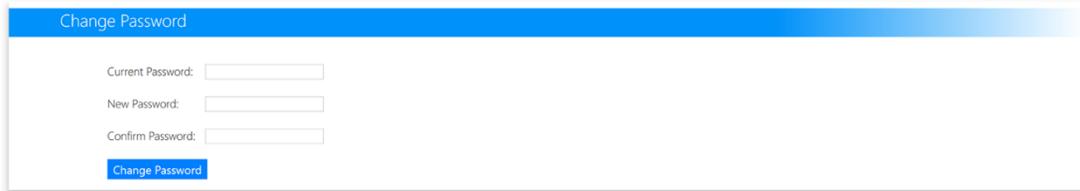
**Factory Reset:** Allows the unit to restore all settings back to factory defaults.

**Restart:** This feature restarts the unit.



## Change Password

To change the password, type the current password, the desired new password and confirm the new password.



The form is titled "Change Password" and contains three input fields: "Current Password:", "New Password:", and "Confirm Password:". Below the fields is a blue button labeled "Change Password".

Change Password	
Current Password:	<input type="text"/>
New Password:	<input type="text"/>
Confirm Password:	<input type="text"/>
<input type="button" value="Change Password"/>	

# RXAV Commands

Please look in RXAV manual further details

Command structure for ZIG-POEW-RXAV

<@hostname><space><command><space><parameter><end of command>

<@hostname> indicates the specific target RXAV device

<space> indicates a space or HEX 0x20

<command> defines the current operation

<parameter> is the variable or the value passed to the device

<end of command> newline char '\n'

Command	Syntax	Description
Help	@rxav-xxxx help	Shows a list of available commands
Uptime	@rxav-xxxx uptime	Shows elapsed time.
Version	@rxav-xxxx version	Provides firmware info release number, revision number, build date and serial number.
Discovery	@rxav-xxxx disco	Provides a list of other Zigen products on the network
Set Volume	@rxav-xxxx vol <-136 - 10>	Sets a fixed volume in dB on the RXAV
Increase Volume	@rxav-xxxx volup	Increase volume in 1dB steps
Decrease Volume	@rxav-xxxx voldn	Decrease volume in 1dB steps
Bass Level	@rxav-xxxx base <-10 - 10>	Set device bass level in 2dB steps
Treble Level	@rxav-xxx treb <-10 - 10>	Set device treble level in 2dB steps
Mute	@rxab-xxxx mute <on/off/toggle>	Enable/Disable mute on the rxav
Relay 1	@rxav-xxxx rel1 <on/off/toggle>	Enable/Disable relay 1 on the rxav
Relay 2	@rxav-xxxx rel2 <on/off/toggle>	Enable/Disable relay 2 on the rxav
Status	@rxav-xxxx st	Get device status such as power, volume, bass, treble, mute, relay1, relay2
Device Info	@rxav-xxxx man	Get device information
Power	@rxav-xxxx pwr <on/off>	Enable/Disable AV stream

## RXAV Commands (continued)

**To address a single unit, replace “xxxx” with the last four serial number located on the sticker.**

**To address a cluster of RXAV units, use only “rxav”**

Relay 1 Command Example:

- To power ON relay 1 on the RXAV, use command: “@rxav-xxxx rel1 on \n”
- To power OFF relay 1 on the RXAV, use command: “@rxav-xxxx rel1 off \n”

# POEWP-100TX Commands

Command	Syntax	Description
Help	@poewp-xxxx help	Shows a list of available commands
Uptime	@poewp-xxxx uptime	Shows elapsed time.
Version	@poewp-xxxx version	Provides firmware info release number, revision number, build date and serial number.
Source Switching	@poewp-xxxx insel <hdmi/vga>	Sets source to HDMI or VGA

**To address a single unit, replace “xxxx” with the last four serial number located on the sticker.**

**To address a cluster of poewp units, use only “poewp”**

Source Switching Command Example:

- To switch to HDMI source, use command: @poewp-xxxx insel hdmi \n
- To switch to VGA source, use command: @poewp-xxxx insel vga \n

# Telnet IP Commands

Command	Syntax	Description
Help	poewp-xxxx help	Shows a list of available commands
Uptime	poewp-xxxx uptime	Shows elapsed time.
Version	poewp-xxxx version	Provides firmware info release number, revision number, build date and serial number.
Source Switching	poewp-xxxx inset <hdmi/vga>	Sets source to HDMI or VGA

**To address a single unit, replace “xxxx” with the last four serial number located on the sticker.**

**To address a cluster of poewp units, use only “poewp”**

Source Switching Command Example:

- To switch to HDMI source, use command: poewp-xxxx inset hdmi \n
- To switch to VGA source, use command: poewp-xxxx inset vga \n

# Diagnostics Specifications

- Source:** Indicates if a source is connected to the unit.
- Video Link:** Indicates if video is being passed from the source.
- Source Type:** Indicates if the source is connected through an HDMI or DVI interface.
- 18G Signal:** Indicates if the HDMI signal being transmitted is greater than 3.4 GBPS.
- HDCP Status:** Indicates the HDCP authentication status.
- HDCP version:** Shows the HDCP version (2.2 / 1.4).
- HDCP attempts:** Show the number of times HDCP authentication has been attempted.
- Input Resolutions:** Displays the incoming resolution.
- Output Resolutions:** Displays the outgoing resolution.
- Pixel Clock:** Displays the Pixel Clock frequency.
- Colorspace:** Displays HDMI signal colorspace (RGB, YUV, etc).
- Bit Width:** Displays the bit width of the video (8, 10, 12 or 16 bit).
- 3D Video Format:** Displays the 3D video format packing.
- Audio Frequency:** Displays the audio frequency (32, 44.1, 48, etc)
- Audio Word Length:** Display the length of the audio sample (16, 20, or 24 bits).
- Audio Format:** Displays audio format (PCM, S/PDIF, etc).
- Audio Channels:** Displays the number of channels in the audio.
- Scan Type:** Indicates whether the video is interlaced or progressive.
- Sink:** Indicates if a sink (monitor/TV) is connected.
- Video Link:** Indicates whether video is being sent to the sink or not.
- 12V Meter:** Displays the voltage level from the power supply captured in real-time.
- 3.3V Meter:** Displays the regulated 3.3 voltage in real-time.
- 1.1V Meter:** Displays the regulated 1.1 voltage in real-time.
- Runtime:** Displays how long the unit has been running.
- Temperature:** Displays the temperature inside the box captured in real-time.
- Humidity:** Displays the humidity inside the box captured in real-time.

[This section details the parameters on the Diagnostics Page \(pg.17\).](#)

# Glossary

**4:4:4** – Type of chroma subsampling. 4:4:4 defines 12 unique values of color per 4 pixels.

**4:2:2** – Type of chroma subsampling. 4:2:2 defines 8 unique values of color per 4 pixels.

**4:2:0** – Type of chroma subsampling. 4:2:0 defines 6 unique values of color per 4 pixels.

**4K60** – defines a video format of 3840 x 2160 pixels at 60 Hz.

**CEC** – Consumer electronics control. A channel in the HDMI connection that allows consumer electronics to control other media.

**S/PDIF** – Digital audio interconnect delivering digital audio over a coaxial cable with RCA connectors.

**DHCP** – Dynamic Host Configuration Protocol is a standardized network protocol used to designate IP addresses to media.

**DIP Switch** – dual in-line package switch is a manual electric switch that is packaged with others in a group.

**Dolby TruHD** – High performance audio codec from Dolby.

**DTS-HD Master** – High performance audio codec from DTS.

**EDID** – Extended Display Information Data is used to relay specifications and capabilities of a sink device to a source device.

**HDCP** – High-bandwidth Digital Content Protection is a form of digital copy protection to prevent copying of digital audio and video content across connections.

**HDMI** – High Definition Multimedia Interface is a proprietary audio/video interface for transmitting video data and audio data.

**HDR** – High Dynamic Range refers to a technique in imaging to reproduce a greater range of luminosity.

**HPD** – Hot plug detect is a signal in the HDMI interface that allows a sink device to notify a source that a connection is valid.

**IR** – Infrared

**LAN** – Local Area Network.

**Null Modem** – Null modem is referred to as a device or implementation that allows the receiver and transmitter lines of the RS232 protocol to be swapped.

**RCA** – also called a phono connector is an electrical connector used to carry audio and video signals.

**RGB** – A color format in which color data is represented as a combination of Red, Green, and Blue.

**RS-232** – RS-232 is a standard for serial communication transmission of data. It is commonly used with a DB-9 connector.

**SMPTE** – SMPTE is a foundation that has set standards for television and digital cinema formats. In this manual it is used to refer to cinema formats such as 4096 x 2160.

**Static IP** – In contrast to DHCP, static IP refers a to unit or device that has a set IP address and configured to attempt connect with the predefined IP address.

**UHD** – Ultra High Definition. This is commonly referred to the video format 3840 x 2160.

**VESA** – Video Electronics Standards Association is a technical standards organization for computer display formats.

**ZigNet** – Proprietary web control developed by Zigen, Inc.