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# USER MANUAL

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**OneIP Multiviewer (P8-ONEIP-MLTV)**

**HDMI**<sup>®</sup>

**HDCP2.3**<sup>TM</sup>

## CONTENTS

Please note this manual is a setup guide for the physical unit, for a full guide to software, including the web interface please see the Software Guide which can be found at [support.pulse-eight.com](http://support.pulse-eight.com) under the OneIP product page.

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## INTRODUCTION

The OneIP Multiviewer is a versatile solution that brings multiple HDMI sources together on a single 4K screen, streamlining how content is displayed in residential, commercial and control environments. With flexible layouts, it allows fully customisable setups, while remote monitoring and intuitive web control provide effortless

Automatic EDID handling ensures quick, hassle-free configuration, and compatibility with major third-party control platforms provides easy integration. Engineered for simplicity and scalability, the OneIP Multiviewer is a powerful addition to the OneIP ecosystem, delivering seamless, high-quality multi-source viewing with dependable performance.

## FEATURES

- 4 HDMI 2.0 Inputs - Connect up to four HDMI sources with one input.
- 4K Ultra HD Output - supports up to 4K@60Hz 4:4:4 8-bit resolution.
- Flexible Screen Layouts - Display multiple sources simultaneously with customizable multiview layouts.
- Seamless Integration - Fully compatible with the Pulse-Eight OneIP ecosystem.
- Remote Monitoring & Web Interface
- Third-Party Control - Drivers available for integration with major control platforms.

## INSIDE THE BOX

- 1x OneIP Multiviewer
- 1x SP cable
- 1x 12V PSU
- 1x Quick Start Guide

Video Inputs	N/A
Video Outputs	N/A
HDCP Compliance	Up to HDCP 2.3
Input TMDS Signal	6Gbps per data lane (18Gbps total)
Bandwidth	18.0 Gbps
CEC	Yes - Bidirectional
Digital Audio Outputs	N/A
Audio Support	N/A
Network Ports	TX: 1x 1GbE RJ45 connector
Transmission (Network) Distance	Up to 100m*
Operating Modes	Transmitter (encoder)
Video Encoding/Decoding	IntoPix TicoXS (Jpeg XS)
Encoding Data Rate	850Mbps (configurable)
End-to-End Latency	1 video frame
Video Distribution Topologies	<ul style="list-style-type: none"> <li>Point-to-Point</li> <li>One-to-Many</li> <li>Any-to-Any (full-duplex)</li> </ul>
Chroma Subsampling	YCbCr4:4:4, YCbCr4:2:2, YCbCr4:2:0, RGB
Colour Space	YUV (rec. 601, rec709, rec2020), RGB
Colour Depth	8-bit, 10-bit, 12-bit per colour
HDR Formats	HDR10, HLG
LED Indicators	Various Debug LEDs for port and signal connectivity status
Material	Powder Coated Aluminium
Operating Humidity	5 to 90% RH (no condensation)
Operating Temperature	0 to +35°C (32 to +95°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Power Input	Power supply 12V 3A
Power Rating	12V 3.0A 50/60Hz
Power Consumption	Max 30W
Certifications	UKCA, CE, FCC (SDoC), RoHS
ESD Protection	Human Body Model: 15kV air, 8kV contact
Included Accessories	N/A
Drivers	Control 4. Others available – please enquire.
Dimensions (WxHxD)	154.5mm x 44mm x 440mm
Weight	1.1kg

\* 100m max distance between the switch and OneIP unit when using a single ethernet cable. You can extend HDMI over much longer distances with additional network hardware.

## SAFETY PRECAUTIONS

### Please read the instructions before attempting to install or operate this equipment.

#### Keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock, and injury.
- To prevent fire or shock hazards, do not expose the unit to rain, moisture or install this product near water.
- To protect the unit from overheating do not block any vents or openings in the unit housing that provides ventilation.
- Allow sufficient space for air to circulate around the unit.
- Use the OneIP power supply. If you require additional power supplies, please contact your Pulse-Eight representative.
- Never push any objects into this product through any openings or empty slots as you may damage parts inside and/or cause an electrical shock.
- Do not allow anything to rest on the power cabling and avoid putting weight of any kind on it.
- Never spill liquid of any kind on or into this product.
- This product is intended for use in a clean (dust-free) residential environment.

#### Ventilation

It's important to keep the product well ventilated. Any electronic equipment will generate heat. A well-ventilated area helps to disperse heat. If placed in a poorly ventilated area, this product may heat up and cause irreparable damage.

Allowing this device to run for prolonged periods under high temperatures may break down circuitry and electrical components. This risk also applies if the device is exposed to direct sunlight or placed near heat sources.

Over time, dust buildup can interfere with the functioning of the fan and electronics within this device. Dust particles contain various substances such as water, oil, minerals, and chemicals, which may lead to signal errors or degradation in internal chips and circuitry. Given the unpredictable nature of these effects, it is strongly advised to maintain Pulse-Eight products in a well-ventilated environment and ensure they remain as clean as possible.

In very rare occasions, insects or reptiles may establish nests in close proximity to or within the electronic casing. Although our products are engineered to provide optimal protection for internal electronics, it's important to note that these creatures are naturally attracted to such environments. In the unlikely event of such an occurrence, it can result in inadequate ventilation within the unit, impairing its ability to effectively dissipate heat.

Please avoid stacking OneIP devices together. Ensure there's ample space between each unit to allow for proper airflow. OneIP single and multiple racking systems are available separately.

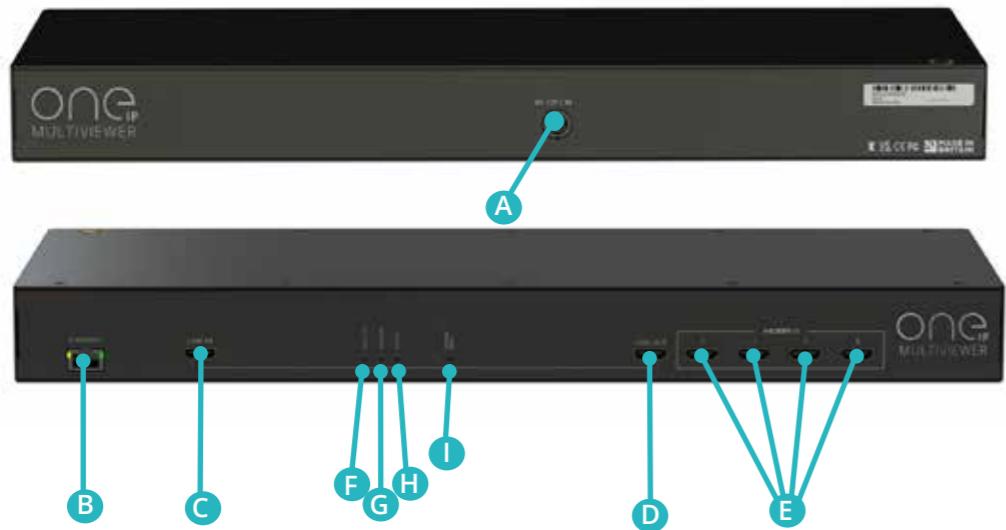
#### FCC Warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## PANEL DESCRIPTIONS

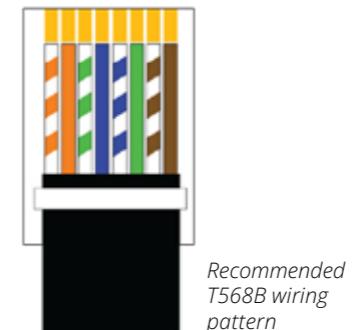


- A Power Connector:** The 4 pin DIN power supply connector is only to be used with the recommended 12V 3A DC power supply.
- B Ethernet Port:** Connect to the 1GbE network being used for the OneIP product using an Ethernet cable (Cat5e or better).
- C Link Input:** Receives a signal from the Multiviewer Link output.
- D Link output:** Transmits a signal to the OneIP Link input.
- E HDMI® In Ports:** Connect your source device to this port via an appropriate high speed HDMI cable.
- F Device ID LED:** This LED can be used to help identify OneIP devices by pressing the 'Locate Device' button within the web interface.
- G Network LED:** Indicates the status of the OneIP device network connection.
- H System LED:** Indicates the status of the OneIP device system health.
- I Factory Reset:** Restores the unit to its original out-of-the-box settings, erasing all user configurations.

## CABLING

### Ethernet Cable

The Ethernet ports on the Pulse-Eight OneIP product are designed to use standard Category (Cat) cables. The minimum cable used on a OneIP system is Cat5e, but it is recommended to use a higher tier cable such as Cat6 or Cat6A where possible because they have stricter twisted pair and shielding requirements that can reduce data loss. We do not recommend the use of CCA (copper clad aluminium) as this is known to cause PoE+ issues due to higher DC resistance.



**IMPORTANT:** Please note that local building regulations may apply to the installation of cabling in properties. It is important to check building regulations to guarantee that you are in accordance with the laws of your territory.

### HDMI® Cables

The HDMI® ports on the Pulse-Eight OneIP product are designed to use high-speed HDMI 2.0 cables.

Not every HDMI cable in the market is built the same. Cables can easily suffer from bent pins, poor soldering that fails under stress, substandard intra-pair twist ratios as well as other manufacturing issues. It is important to use high-speed HDMI 2.0 cables from reputable suppliers and to verify before any installation that each individual cable can support the full 18Gbps bandwidth reliably.

## NETWORK SWITCH REQUIREMENT

Pulse-Eight's OneIP is able to efficiently distribute bi-directional video and audio (full-duplex) over a Layer 2 managed network.

OneIP is compatible with a wide range of Gigabit Ethernet switches, supporting IGMP snooping and individual-port multicast settings.

*Note: Pulse-Eight has provided a OneIP Network Configuration Setup Guide and a list of switches tested and approved for use with OneIP. This can be found at: [support.pulse-eight.com](http://support.pulse-eight.com) under the OneIP product page. Please note our support team can only advise on approved switches.*

## INSTALLATION

### Installing OneIP Unit In A Remote Zone

1. The OneIP Multiviewer should be installed in a centralised rack.
2. It is important never to block or limit the air flow to both the fan vent on top of the unit or the vents on the sides of the unit. Doing so may cause overheating and potential failure.

3. Complete the connection by connecting the other end of the Ethernet cable to the port of the Ethernet switch.

### Connecting the HDMI Input and Output

4. Connect the Multiviewer Link Input to the Multiviewer Link Output using the provided Link cable.

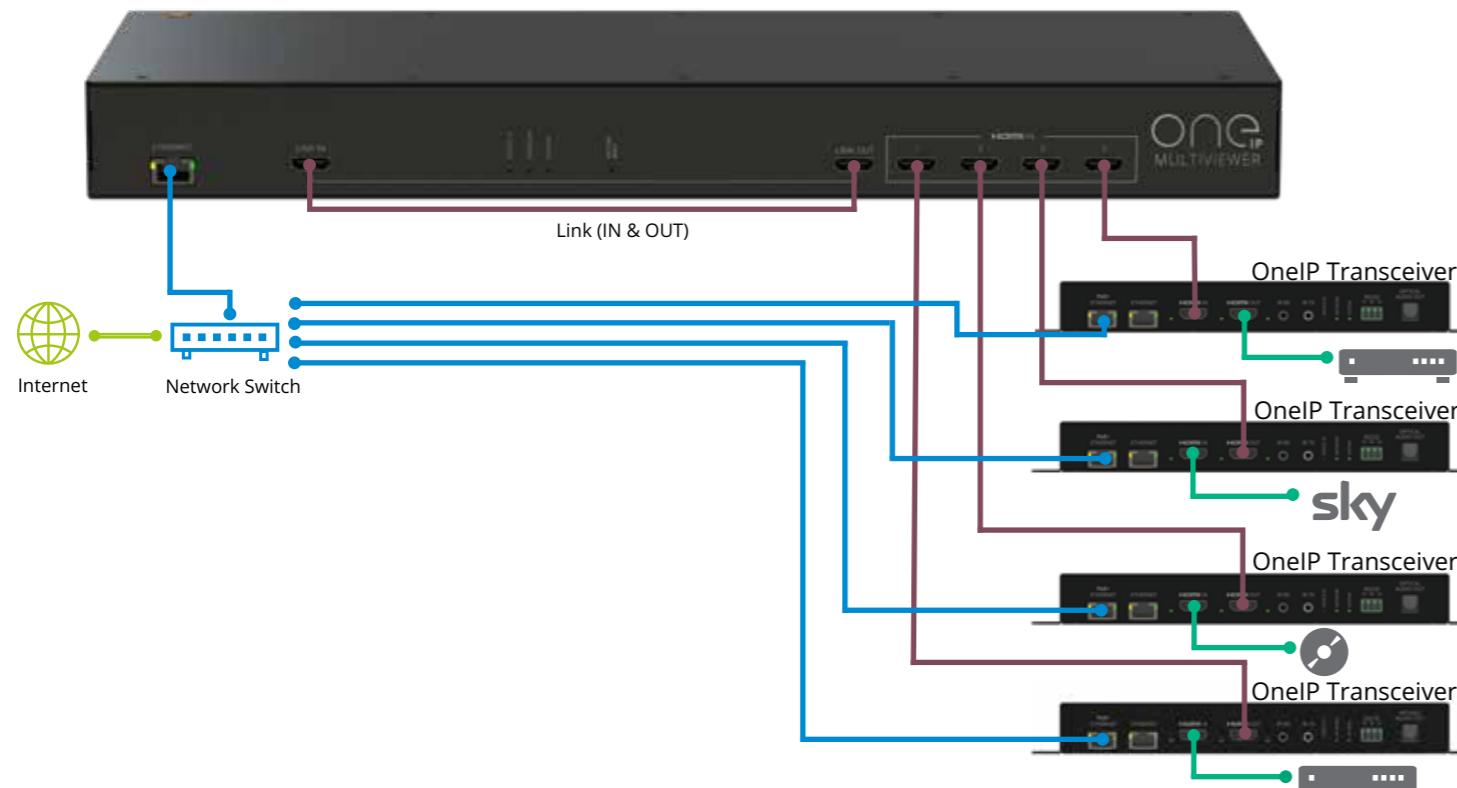
**Note:** Please make sure that the Ethernet switch is configured as per our setup guides before making this connection.

### Connecting the HDMI Input and Output

Up to 4 Transceivers can be connected to the OneIP Multiviewer connected from the HDMI IN to each separate Transceiver's HDMI OUT.

Once you have connected your Transceivers to the HDMI Inputs you need to configure the Multiviewer.

5. In the controller, go to the Admin section, open the Mesh Setup page, and click Configure.
6. At the bottom of the dialogue box, select the connected inputs. This tells the Multiviewer which OneIP inputs are connected to each input (identified by their serial numbers).
7. (Optional) You can change the order of the Multiviewer windows. For example, input 2 can be displayed in Multiviewer window 3.
8. These settings are typically configured once. The top of the dialogue box displays options you may change more frequently, such as audio source, volume, and TV layout.



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Inputs		Outputs
Hardware ID	Name	Configure
	Chromecast	
P9SN66662803	Apple TV	
P9SN66662813	Multiviewer	<span>Configure</span>

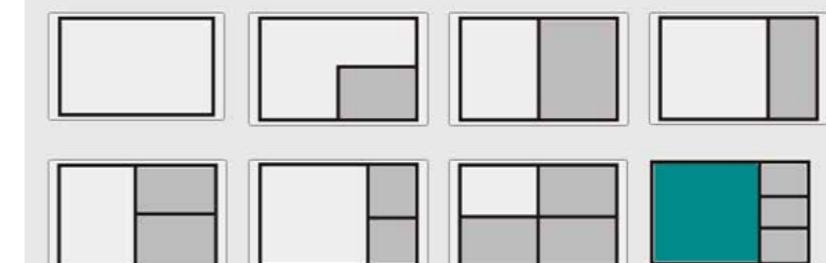
## Multiviewer Inputs 6

Input 1	P9SN66662904
Input 2	P9SN66662905
Input 3	P9SN66662902
Input 4	P9SN66662915

## Multiviewer Windows 7

Window 1	Input 1 - Apple TV 2
Window 2	Input 2 - Apple TV
Window 3	Input 3 - Multiviewer 2
Window 4	Input 4 - Sabine

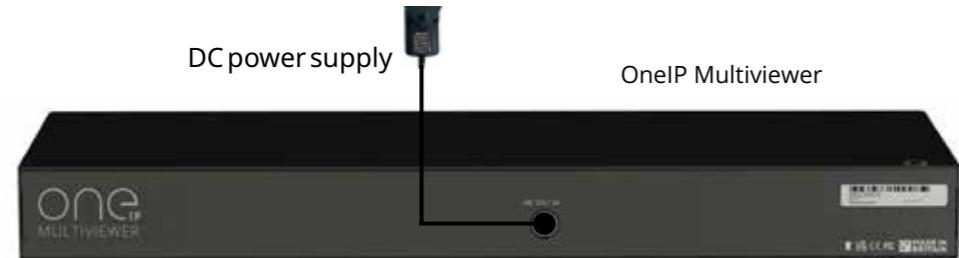
## Multiviewer Output 8



## Multiviewer Settings

Audio Source	Input 2 - Apple TV
Volume	<input type="range"/>
Remote Control	Input 2 - Apple TV
Output Mode	4096x2160p60
Aspect Ratio	16.9

## Powering Up

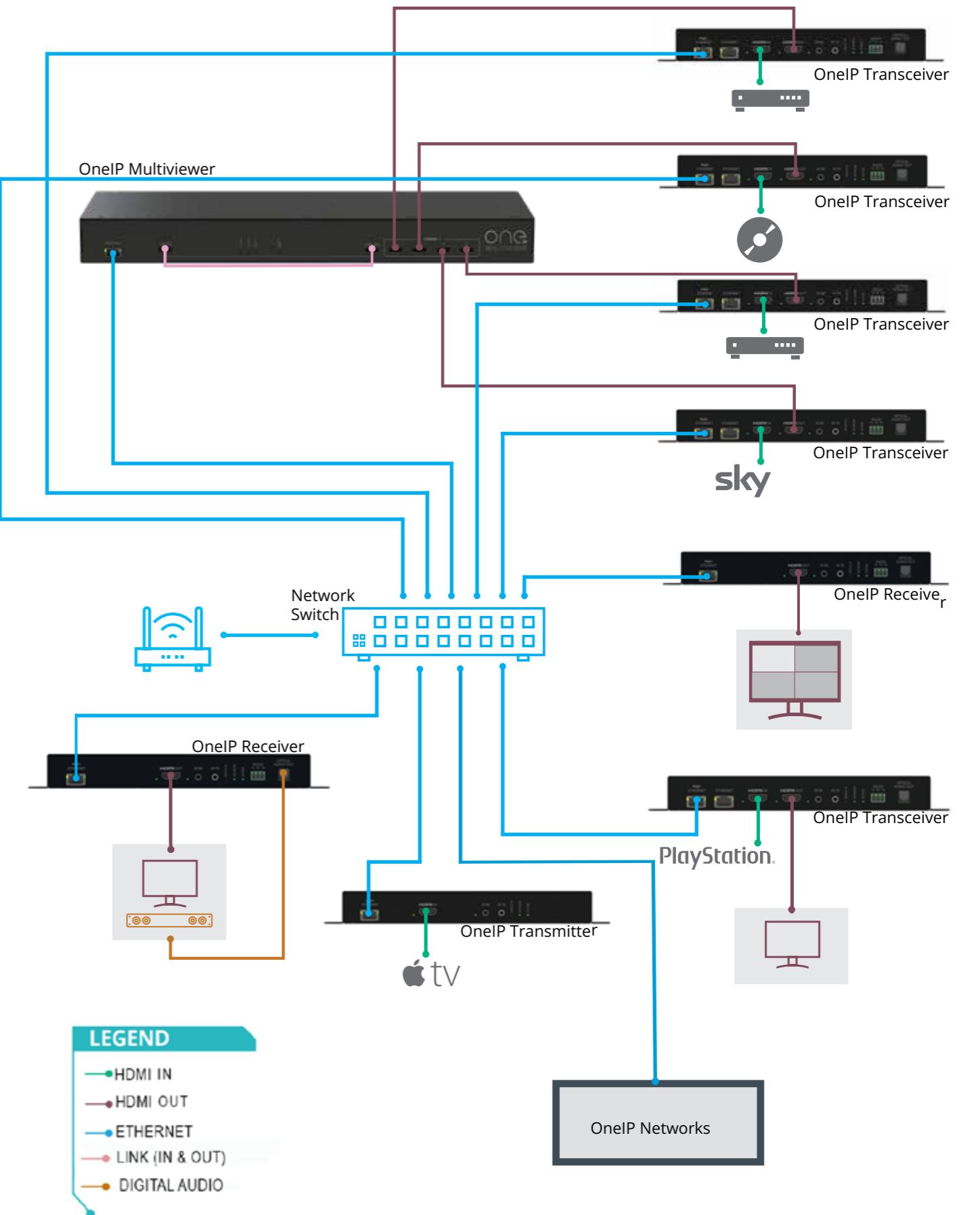


## Detecting OneIP Units on the Network

9. Once all the OneIP units are connected and have powered on, you can access the system Web Interface.
10. The OneIP system can be found using a computer connected to the same router/network by visiting [www.gotomatrix.com](http://www.gotomatrix.com) in a web browser. Please refer to the OneIP software manual.

## WIRING CONCEPT

Multiviewer, Transceiver, Transmitter and Receiver



## TROUBLESHOOTING

Should you encounter installation difficulties or issues with device communication, the following checklist of common issues and causes should help resolve your issues. If you still continue to experience issues, please contact your local representative for further assistance.

### No or Poor Picture Quality

- Connected and powered? Double check that all HDMI, Ethernet and power cables are firmly connected to the correct ports and all devices are correctly powered.
- Cable length? Are you approaching the maximum distance of the Cat cable (e.g. 100m). Cables bundled together may cause cross-talk and further degrade signal quality.
- Signal strength? The use of cable joins, stranded patch panels, wall outlets and stranded patch leads as interconnects between them can significantly reduce signal strength. Use solid core straight through connections wherever possible.
- If you reduce the resolution of the source (e.g. from 4K to 1080p), do you get a picture? If so, this suggests a conflicting resolution between source and display or a bandwidth capacity issue with your cable. Check all inputs and outputs share the same resolution capabilities.
- Pink or off-colour picture? This could be caused by an invalid EDID or the source device failing to read the EDID from the unit. Try re-booting the unit and all source devices to force the re-reading of the EDID.
- Cable quality and condition - HDMI cable/connectors can easily be damaged and the quality of material can vary. Always use good quality leads and cables and try swapping cables that are known to be working into the solution to see if this improves your image.

### EDID Handshake

There may be times you will need to perform an EDID Handshake on your unit. This is often after a new piece of equipment has been introduced to your setup or any changes have occurred.

To do an EDID Handshake:

- Turn off the unit and all sources
- Turn on all TVs, and make sure these are not set to standby
- Wait 45 seconds
- Power on units and wait for 2 Green Lights on the front panel
- Wait a further 2 minutes
- Turn on all sources



## WARRANTY TERMS & CONDITIONS

### IMPORTANT INFORMATION ABOUT YOUR RIGHTS AND OBLIGATIONS, AS WELL AS LIMITATIONS AND EXCLUSIONS THAT MAY APPLY TO YOU. YOUR RIGHTS AND THIS LIMITED WARRANTY

This Limited Warranty gives you specific legal rights. You may also have other legal rights that vary by country, state, province, or jurisdiction. The disclaimers, exclusions, and limitations of liability under this Limited Warranty will not apply to the extent prohibited by applicable law. For a full description of your legal rights, you should refer to the laws applicable in your jurisdiction and you may wish to contact a relevant consumer advisory service.

#### 1. WHAT THIS LIMITED WARRANTY COVERS; PERIOD OF COVERAGE

Pulse-Eight Limited ("Pulse-Eight"), 8-12 Alder Hills, Poole, BH12 4AL, UK, warrants to the owner of the enclosed product that the product contained in this box ("Product") will be free from defects in materials and workmanship for a period of three years from the date of delivery following the original purchase (the "Warranty Period"), or if this product has been professionally installed, the warranty start date is from the date your installer purchased the item, not your system commissioning date. Please check with your installer for their purchase date. If the Product fails to conform to this Limited Warranty during the Warranty Period, Pulse-Eight will, at its sole discretion, either (a) repair or replace any defective Product or component; or (b) accept the return of the Product and refund within 45 days of return the money actually paid by the original purchaser for the Product. Repair or replacement may be made with a new or refurbished product or components, at Pulse-Eight's sole discretion.

If the Product or a component incorporated within it is no longer available, Pulse-Eight may replace the Product with a similar product of similar function, at Pulse-Eight's sole discretion. This is your sole and exclusive remedy for breach of this Limited Warranty. Any Product that has either been repaired or replaced under this Limited Warranty will be covered by the terms of this Limited Warranty for the longer of ninety (90) days from the date of delivery or the remaining Warranty Period. This Limited Warranty is transferable from the original purchaser to subsequent owners, but the Warranty Period will not be extended in duration or expanded in coverage for any such transfer.

#### 2. TOTAL SATISFACTION RETURN POLICY

If you are the original purchaser of the Product and you are not satisfied with this product for any reason, you may return it in its original condition within thirty (30) days of the original purchase and receive a full refund. If this is a professionally installed product, you must check with your installer regarding their own returns policy.

#### 3. WARRANTY CONDITIONS; HOW TO GET SERVICE IF YOU WANT TO CLAIM UNDER THIS LIMITED WARRANTY

Before being able to claim under this Limited Warranty, the owner of the Product must (a) notify Pulse-Eight of the intention to claim by emailing support@pulse-eight.com during the Warranty Period and providing a description of the alleged failure, and (b) comply with Pulse-Eight's return shipping instructions, and (c) ship the Product at owner's cost (except where prohibited by applicable law) to Pulse-Eight for repair or replacement. Pulse-Eight will have no warranty obligations with respect to a returned Product if it determines, in its reasonable discretion after examination of the returned Product that the Product is an Ineligible Product (defined below). Pulse-Eight will bear all costs of return shipping to the owner, except with respect to any Ineligible Product, for which the owner will bear all shipping costs.

#### 4. WHAT THIS LIMITED WARRANTY DOES NOT COVER

This warranty does not cover the following (collectively "Ineligible Products"): Products marked as "sample" or sold "AS IS"; or Products that have been subject to: (a) modifications, alterations, tampering, or improper maintenance or repairs; (b) handling, storage, installation, testing, or use not in accordance with the Installation Guide or other instructions provided by Pulse-Eight; (c) abuse or misuse of the Product; (d) breakdowns, fluctuations, or interruptions in electric power or the telecommunications network; or (e) Acts of God, including lightning, fire, flood, tornado, earthquake, or hurricane. This warranty does not cover consumable parts, including batteries unless damage is due to defects in materials or workmanship of the Product, or software (even if packaged or sold with the product). Pulse-Eight recommends that you use only authorized service providers for maintenance or repair. Unauthorized use of the Product or software can impair the Product's performance and may invalidate this Limited Warranty. Pulse-Eight does not warrant that operation of the Product will be error-free or uninterrupted or that the Product will in every case process all data correctly.

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