

TECH TOOLS

1-2 HDMI® SPLITTER
& DOWNSCALER
BY PULSEEIGHT



USER MANUAL

P8-HDMI2-SP2-DS

HDMI® HDCP2.3

CONTENTS

Introduction	3
Features	3
Inside The Box (Kit)	3
Specifications	4
Safety Precaution	5
Panel Descriptions	6
Installation	7
Wiring Guidelines	7
Troubleshooting	8
Manual Version History	8
Warranty Procedure	9
Warranty Terms & Conditions	10
Notes	12

INTRODUCTION

The Tech Tools P8-HDMI2-SP2-DS is an 18Gbps HDMI® 1-2 Splitter with built-in downscaler that enables the distribution of a single 4K source signal to 2 HDMI® display devices simultaneously.

It supports resolutions up to 4K@60Hz (4:4:4) and offers audio extraction from a HDMI® source to optical and analogue outputs.

The Tech Tools 1-2 HDMI® Splitter and Downscaler offers comprehensive EDID management via the dial switch on panel.

FEATURES

- 1-to-2 HDMI® 2.0 splitter
- Ultra HD 4K Video Transmission
- Supports 18Gbps video bandwidth
- Supports resolutions up to 4K@60Hz (4:4:4)
- 4K>1080p Downscaler function on each output
- Flexible EDID Management
- ARC and CEC pass-through (output 1 only)
- Supports HDMI® audio format: LPCM, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD

INSIDE THE BOX (KIT)

- 1 x 18Gbps HDMI® 1x2 Splitter
- 1 x Power Supply Adapter
- 1 x Quick Start Guide



18Gbps HDMI® 1x2
Splitter



Power Supply
Adapter



Quick Start Guide

SPECIFICATIONS

Video Resolution	All HDMI® 2.0 formats up to 4K, 1080p, 1080i, 720p, 576p, 480p @24/25/30/50/59.94/60Hz.
Video Input	1 × HDMI® 2.0a/b
Video Outputs	2 × HDMI® 2.0a/b
HDMI® Input	1
HDMI® Outputs	2
Audio Output Connectors	1 x 3.5mm Jack Analogue and 1 x Optical Audio Breakout
Input TMDS Signal	6 Gbps per data lane (18 Gbps total)
Bandwidth	18 Gbps
HDMI-CEC	Yes - Passthrough on Output 1
Voice Control	No
HDMI® Compliance	HDMI® 2.0 (up to 600 MHz TMDS clock)
HDCP Compliance	Up to 2.3 (Pass-through)
Transmission Distance	4K up to 3m (10ft) and 1080p up to 8m (25ft)
Chroma Subsampling	YCbCr4:4:4, YCbCr4:2:2, YCbCr4:2:0, RGB
Colorspace	YUV (rec. 601, rec709, rec2020), RGB
Color Depth	8-bit, 10-bit, 12-bit
Audio Return Channel (ARC)	Yes - Passthrough on Output 1
Remote Monitoring	No
Web Interface/Android App	No
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Power Consumption	Max 2.8W
Power Inlet	1 x 5V @ 2A
Certifications	UKCA, CE, FCC (SDoC), RoHS
ESD Protection	Human Body Model: 8kV air, 4kV contact
Included Accessories	Power Supply Adapter.
Dimensions (W x H x D)	13cm x 1.5cm x 6.3cm
Weight	0.10kg
Box Dimensions (W x H x D)	19cm x 9cm x 14cm

SAFETY PRECAUTION

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

Please 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, or moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Please use the included mounting kit where applicable, avoid blocking any vents on the product and follow best practices in rack design to help avoid overheating.
- Only use the supplied power supply adapter.
- Never push any objects into this product through any openings or empty slots in the unit 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 the weight of any kind on it.
- 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.
- This product is intended for use in a clean (dust-free) residential environment.

Ventilation

It's important to keep the product well ventilated when installing this Pulse-Eight splitter.

Any electronic equipment will generate heat. A well-ventilated area helps to disperse the heat. If placed in a poorly ventilated area, your equipment may heat up and cause irreparable damage to the circuitries.

Allowing systems to run for prolonged periods under high temperatures will break down circuitry and electrical component. It also applies if the device is left in the path of direct sunlight or near any heat source.

Dust tends to accumulate and will disrupt any fan and/or electronics system. Dust particles contain various compositions like water, oil, and other minerals or chemicals. Having them in your electronic device can sometimes cause a signal error or degradation to the internal chips and circuitries. Because we cannot accurately predict how or when they can affect your device, we highly recommend that you keep Pulse-Eight products not only in a well-ventilated area but also as clean as possible.

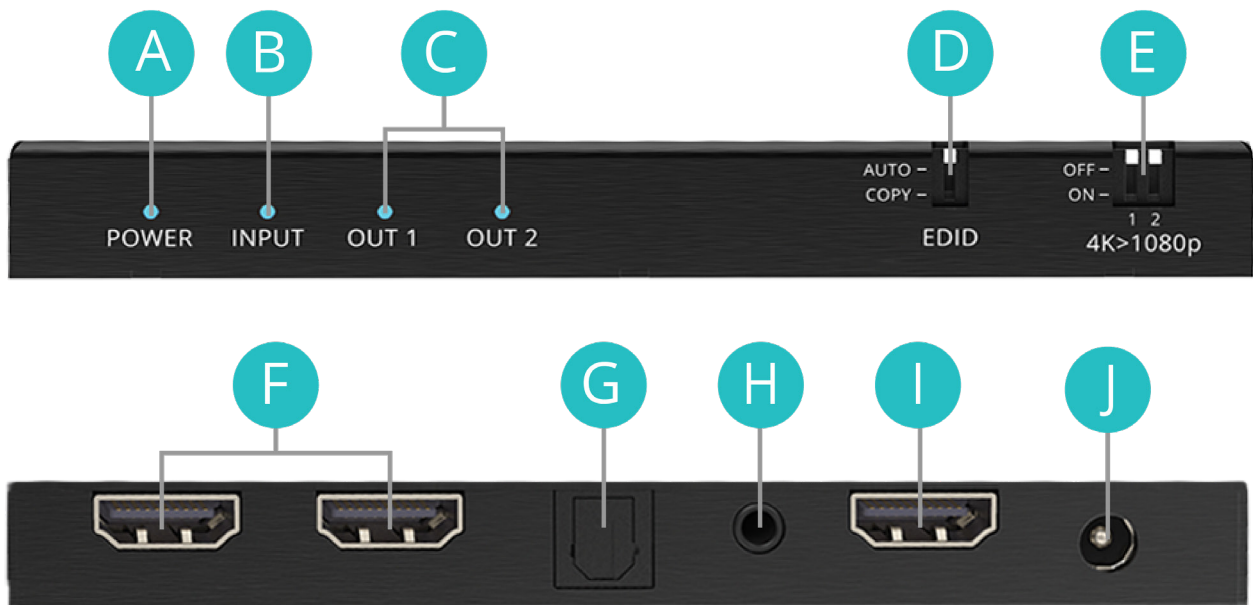
In some cases, insects or reptiles can make nests near or inside the electronic casing. Whilst we design our products to maximize the protection of internal electronics, please be aware that insects and reptiles can be drawn to these types of habitats. In the unlikely event, this does happen, this will lead to poor ventilation inside the unit, and it will be unable to disperse heat effectively.

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:

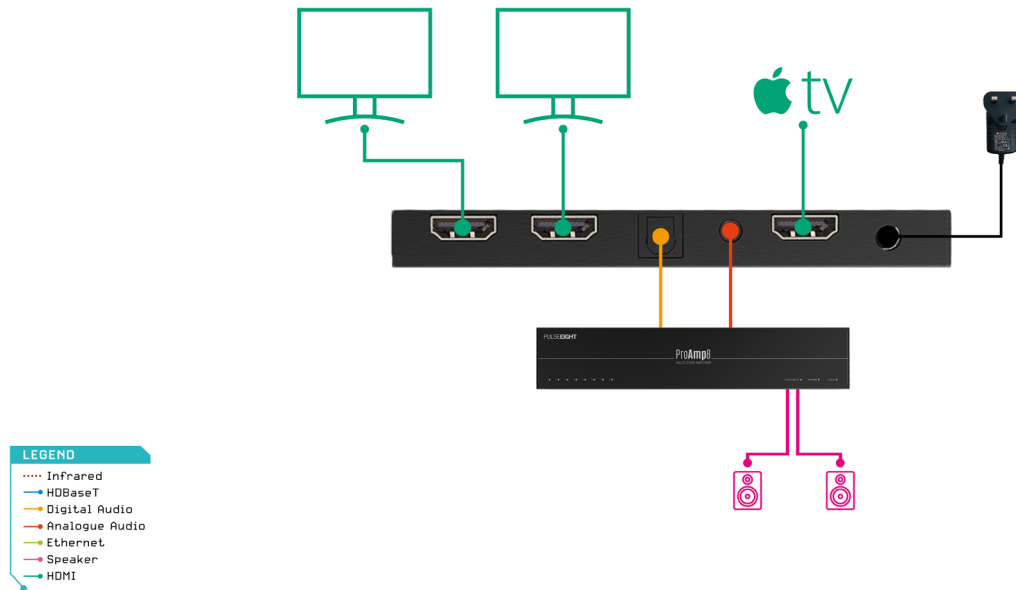
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

PANEL DESCRIPTIONS



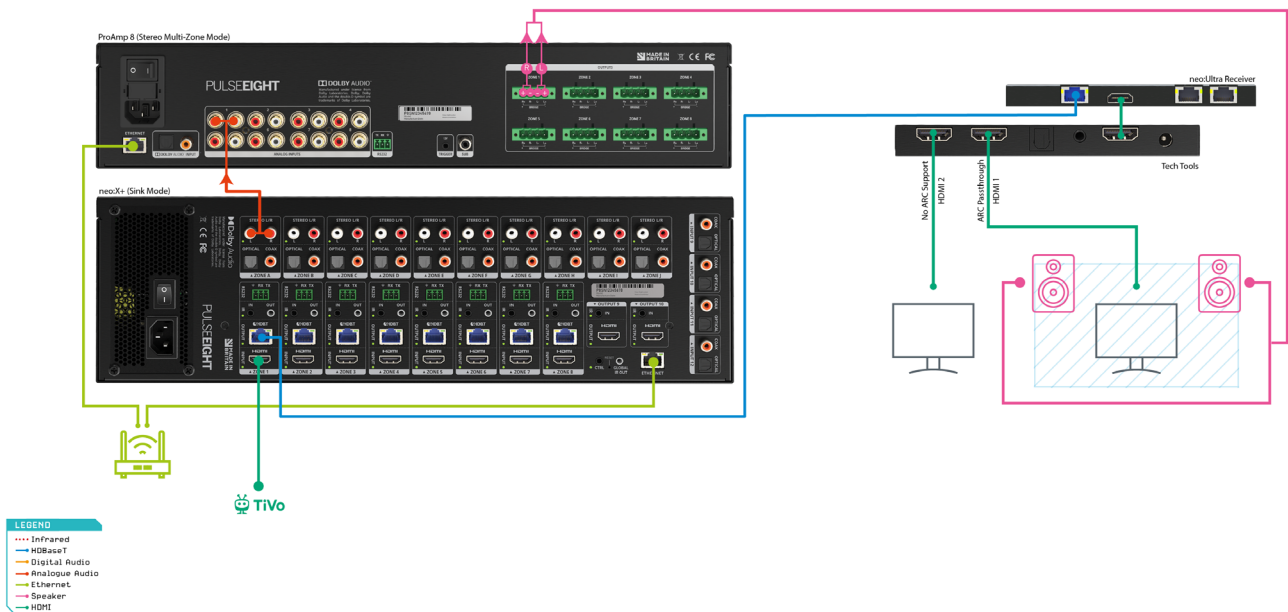
- A Power LED** - Indicates if the 1x2 HDMI® Splitter & Downscaler is on or off.
- B Input LED** - Indicates if HDMI® input is active.
- C Output LED** - Indicates if HDMI® output is active.
- D EDID** - **Auto:** Automatically selects the best common resolution of the connected outputs.
Copy: Clones the EDID on the display connected to Output 1.
- E 4K>1080p** - Switch the downscale function on/off for HDMI® out 1 and 2.
- F HDMI Out 1 and 2** - Connect the appropriate high speed HDMI® cable to the outputs. These cables should then be directly connected to each Sink device (TV/Amplifier etc.).
- G Optical Audio Out** - Digital audio (SPDIF) extraction output. Support Dolby 5,1 audio format.
- H Analogue Audio Out** - 3.5mm stereo audio jack, Supports 2 channel only.
- I HDMI Input** - Connect the appropriate high speed HDMI® cable to the input. The cable should then be connected to the Source device (Blu-Ray player etc.).
- J DC 5V** - Power port. Use the provided 5V/2A DC power adapter.

INSTALLATION



1. Connect HDMI® cable from your video source (e.g. Blu-Ray player) to the HDMI® input of the Tech Tools Splitter.
2. Connect sink devices directly (i.e. TV) to the HDMI® Output 1 and 2 via high speed HDMI® cables.
3. Set EDID switch to either auto or clone.
4. If you wish to use the audio outputs from the Tech Tools, please connect cables to the audio output. There are 2 audio outputs, which are Analogue (stereo), and Optical options that can work simultaneously.
5. Ensure the sink devices are powered on before powering on the Tech Tools.
6. Insert the supplied power adapter to the Tech Tools and plug it into the AC mains. Then, turn ON the AC mains.

WIRING GUIDELINES



This is an example of a wiring diagram of Techtools 1-2 HDMI® splitter in combination with neo:X matrix supporting HDMI® ARC.

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 all HDMI®, and power cables are firmly connected into the correct ports and all devices are correctly powered.
- Cable length? Are you approaching the maximum distance of the HDMI® cable (e.g. 8m) if so, try adjusting the picture resolution/format. Cables bundled together may cause cross-talk and further degrade signal quality.
- Signal strength? The use of cable joins, stranded patch panels, wall outlands 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 over the Tech Tools. Try plugging and replugging (hotplug) the HDMI® cable on the transmitter that is connected to the video Source, or even rebooting the attached Source, 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.

No Sound on Speaker

- Check the source, if the output is channeled into HDMI®.
- Test the 3.5mm on other devices such as smartphones (if it is possible to verify the cable is working).
- Check the audio source setting and set it to Dolby 5.1 or S/PDIF.
- The analogue (stereo) output support 2 channel only. The Tech Tools Splitter does not support audio downmix.

MANUAL VERSION HISTORY

V2.0 - 21st July 2022. Update existing manual to new format

V2.1- 28th June 2023. Further updates and Included Revision History section.

V2.2 - 9th February 2024. Minor update on the Safety Precaution.

WARRANTY PROCEDURE

The following policies covers all Pulse-Eight products.

Unless otherwise instructed, please do not open any of our products. Doing so will invalidate your warranty. As part of the troubleshooting procedure, you may be instructed to open the device, but you can only proceed with this once consent has been given.

To open a support ticket, please visit: www.pulse-eight.com/support.

Please Note: Warranty cover for ALL products starts from date of receipt of goods NOT date of installation. Should we find that your product does need replacing, we will send your replacement directly to the distributor you purchased from, if not purchased directly from Pulse-Eight.

From 1st April 2022, any products purchased will have new warranty lengths. The length of warranty is determined by the type of product purchased. Our cover can be broken down into 3 categories:

Gold, Silver, and Bronze.

GOLD: Pulse-Eight Audio and Video Matrices

- 5-year warranty as standard
 - 3-year advanced replacements
 - 2-year return to base for repair

SILVER: Pulse-Eight Amps, Extender Sets, and Accessories

- 3-year warranty as standard
 - 1-year advanced replacements
 - 2-year return to base for repair

BRONZE: IR, Cables, Brackets, and our Tech Tools

- 1-year advanced replacements

Pulse-Eight Current Product—Within the advanced replacement warranty year(s)

1. Contact support via phone or a support ticket. Pulse-Eight will try to help troubleshoot and resolve the issue remotely.
2. If unable to resolve the fault remotely and the unit needs replacing an advanced replacement will be raised with the installer who purchased it. If you purchased from a distributor you will need to return to your distributor and they will contact Pulse-Eight to get the RMA raised. All distributor advanced replacements will be sent to the distributor and cannot be sent directly to their installer.

Pulse-Eight Current Product—Within return to base warranty

1. Contact support via phone or a support ticket. Pulse-Eight will try to help troubleshoot and resolve the issue remotely.
2. If unable to resolve the fault remotely and the unit needs to be repaired, an RMA will be raised with the installer if purchased direct from Pulse-Eight. Or if purchased from a distributor, the installer will be directed back to their distributor who will raise an RMA.

Pulse-Eight Products Purchased Before 1st April, 2022.

Please visit: Warranty Page. Or Contact support via phone, opening a support ticket or emailing support@pulse-eight.com.

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 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.

5. DISCLAIMER OF WARRANTIES

Except as stated above in this limited warranty, and to the maximum extent permitted by applicable law, Pulse-Eight disclaims all express, implied, and statutory warranties and conditions with respect to the product, including the implied warranties of merchantability, fitness for a particular purpose. To the maximum extent permitted by applicable law, also limits the duration of any implied warranties or conditions to the duration of this limited warranty.

6. LIMITATION OF DAMAGES

In addition to the above warranty disclaimers, in no event will Pulse-Eight be liable for any consequential, incidental, exemplary, or special damages, including any damages for lost data or lost profits, arising from or relating to this limited warranty or the product, and Pulse-Eight's total cumulative liability arising from or related to this limited warranty or the product will not exceed the amount actually paid for the product by the original purchaser.

7. LIMITATION OF LIABILITY

Pulse-Eight disclaims all liability of any kind of Pulse-Eight's suppliers. The Pulse-Eight online services ("services") may provide you with information ("product information") regarding your product's performance and/or peripherals connected to your product ("product peripherals"). The type of product peripherals that may be connected to your product may change from time to time. Without limiting the generality of the disclaimers above, all product information is provided for your convenience, "as is", and "as available". Pulse-eight does not represent, warrant, or guarantee that product information will be available, accurate, or reliable. You use all product information, the services, and the product at your own discretion and at risk. You will be solely responsible for (and Pulse-Eight disclaims) any and all loss, liability, or damages, including to your HVAC system, plumbing, home, product, product peripherals, computer, mobile device, and all other items and pets in your home, resulting from your use of the product information, services, or product. The product information provided by the services is not intended as a substitute for direct means of obtaining the information.

8. VARIATIONS THAT MIGHT APPLY TO THIS LIMITED WARRANTY

Some jurisdictions do not allow limitations on how long an implied warranty lasts or exclusions/limitations on incidental or consequential damages, so some of the limitations set out above may not apply to you.

COPYRIGHT NOTICE

No part of this document may be reproduced, transmitted, transcribed, stored in a retrieval system, or any of its parts translated into any language or computer file, in any form or by any means (electronic, mechanical, magnetic, optical, chemical, manual, or otherwise) without express wrote permission and consent from Pulse-Eight Limited.

© Copyright 2024 Pulse-Eight Limited. All Rights Reserved.

Dolby and Dolby Atmos are either trademarks or registered trademarks of Dolby Laboratories in the United States and/or other countries.

The Adopted Trademarks, HDMI High-Definition Multimedia Interface, HDMI trade dress, and HDMI Logos are trademarks or registered trademarks of HDMI Licensing Administrator, Inc. in the United States and other countries.

Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Pulse-Eight disclaims any proprietary interest in the marks and names of others.

