



HDS-21RS Owner's Manual

2 x 1 HDMI Switch with Scaling



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1-1 Package Contents

Please make sure all of the following items are included in the package:

- 1) HDS-21RS Unit
- 2) DC 5V 1A Power supply adapter
- 3) Owner's Manual
- 4) Remote controller

1-2 General Specification

Welcome!

Congratulations on your purchase of the PureLink HDS-21RS 2x1 HDMI switcher with scaling featuring picture in picture and side by side picture mode. This manual contains information that will assist you in installing and operating the product.

PureLink HDS-21RS HDMI switch allows two HDMI/DVI sources (with audio) to share one display. Our unique switch allows easy switching between different digital video sources with remote control unit and/or with a manual toggle button in front and/or via RS232 port. It is a perfect solution for home theater, presentation, and other multimedia applications.

Item	Description
Model	HDS-21RS
Input type	HDMI Single Link , 2 port
Output type	HDMI Single Link , 1 port
Supported Input Resolution	480i/p@60Hz, 576i/p@50Hz, 720p50/60Hz, 1080i50/60Hz, 1080p@24/30/50/60Hz, 800x600@60Hz, 1024x768@60Hz
Scaling Output Resolution	1080i, 1080p, 720p, 1024x768, 1360x768
Connector type	DC Power Jack HDMI 19 Pin Female Serial Female
Supported format	DDWG DVI 1.0 HDMI 1.3
HDCP Compliant	Yes
Audio format	PCM2, 5.1, 7.1 CH, Dolby 5.1, DTS 5.1
Power	DC +5V , 1A, Max 10W

Dimension (WxDxH)	2.76" x 5.51" x 0.98" (70 x 140 x 25 mm)
Weight	0.66 lbs (0.3 kg)

Connector Pin Assignment

Part No.	Pin No.	Description	Remarks
HDMI 19pin	1	TMDS DATA 2P	
	2	TMDS DATA 2 Shield	
	3	TMDS DATA 2M	
	4	TMDS DATA 1P	
	5	TMDS DATA 1 Shield	
	6	TMDS DATA 1M	
	7	TMDS DATA 0P	
	8	TMDS DATA 0 Shield	
	9	TMDS DATA 0M	
	10	TMDS Clock P	
	11	TMDS Clock Shield	
	12	TMDS Clock M	
	13	CEC	
	14	RESERVED	
	15	DDC Clock	
	16	DDC DATA	
	17	GND	
	18	+5v	
	19	Hot Plug Detect	

1-3 Operation and Reliability Specification

1. Operating Environment

Temperature : 32F ~ 104F (0°C~ 40°C)
Humidity : 20% ~ 90%
Altitude : 3,000m Max.

2. Transit Environment

Temperature : -13F ~ 140F (-25°C~ 60°C)
Humidity : 5% ~ 95%
Altitude : 15,000m Max.

3. Storage Environment

Temperature : -4F ~ -140F (-20°C~ 60°C)
Humidity : 20% ~ 90%
Altitude : 3,000m Max.

4. Reliability

MTBF: 90% at over 50,000 hours aging test

- In compliance with LCD Monitor reliability test standard

1-4 Main Features

1. High Quality Picture - No Signal Loss and Digital Noise Free

HDS-21RS is built to deliver the highest quality picture preserving the native resolutions of the video sources without any signal loss. At the same time, the digital noises that may affect the picture quality will be eliminated. Due to the nature of the digital signals and passing through multiple stages of connection when using distribution amplifiers, it is important to eliminate the digital noises and boost the signal strength to preserve/enhance the video signal quality.

2. Input Auto Switching

HDS-21RS detects input signal and automatically switch between inputs

3. Scaling Output with Don't blink™ Seamless Switching Technology

HDS-21RS is powered by HD upscaling and downscaling, frame rate conversion, smooth motion performance, crisp imaging, as well as auto-scaling for seamless switching.

4. Multi-View Output

HDS-21RS features multi-view output function enabling to show two input images to a single display, a perfect solution for sharing two information in one screen.

- Picture-in-picture
- Side-by-side

4. HDCP compliant

5. 3 ways to control

- Front panel buttons
- RS232C
- IR

6. Compact and Practical Design

HDS-21/41R has all of the HDMI ports, power supply jack and RS232 port in the back of the unit allowing it be mounted on any racks or with any other components. In the front, there will be a remote control sensor, selector switch, and function buttons for easy control of the unit.

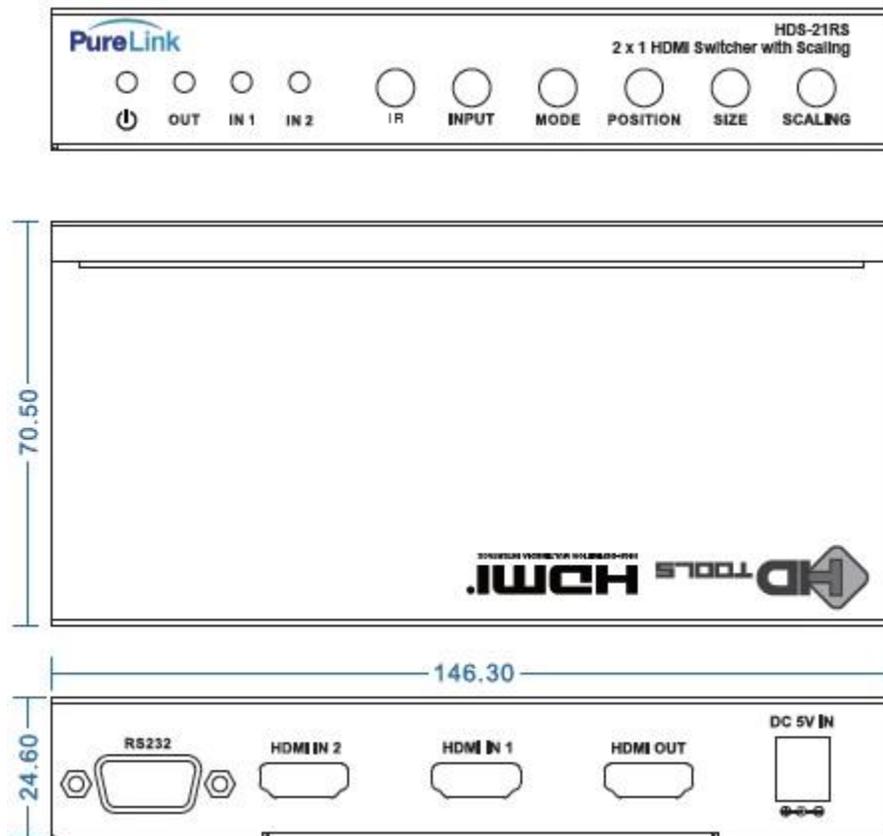
1-5 Operation Guide & Mechanical Specification

Hardware Connection

1. Turn off the whole system before connecting.
2. Connect your video source's HDMI output port to the HDS-21RS's HDMI input port using standard HDMI cables (not included)
3. Connect your HDMI display's HDMI input port to HDS-21RS's HDMI output port
4. Plug the 5V power supply to HDS-21RS
5. Plug the 5V wall mount power supply into the wall outlet
6. Turn on HDS-21RS
7. Turn on your monitor
8. Turn on your video source

Mechanical Specification

HDS-21RS dimension (WxDxH): 2.76'' x 5.51'' x 0.96'' (70 x 146 x 25mm) 0.66 lbs (0.3 kg)





<Front View>

- ⏻ - Power Status Indicator
- OUT – Output Status Indicator
- IN1 & IN2 – Input Selection Indicator
- INPUT – Input Select Toggle Button
- MODE – Multi-view Mode Select Toggle Button
- POSITION – PIP Image Position Select Toggle Button
- SIZE – Image Size Select Toggle Button
- SCALING – Scaling Output Resolution Select Toggle Button



<Rear View>

- HDMI IN 1: HDMI Input 1
- HDMI IN 2: HDMI Input 2
- HDMI OUT: HDMI Output
- RS232: For RS232 control

Operation Guide

Input Switching

Two active sources can be connected to the HDS-21RS at the same time. There are three ways to switch inputs.

1. Front panel button

INPUT toggle button

2. IR remote

Input 1 button for input 1

Input 2 button for input 2

3. RS232 command

Description	Command
Input 1 select	IN1!
Input 2 select	IN2!

* RS232 communication setting:

- Baud rate – 115200
- Data bits – 8
- Parity – none
- Stop bits – 1

MODE

There are total 4 output mode options in HDS-21RS.

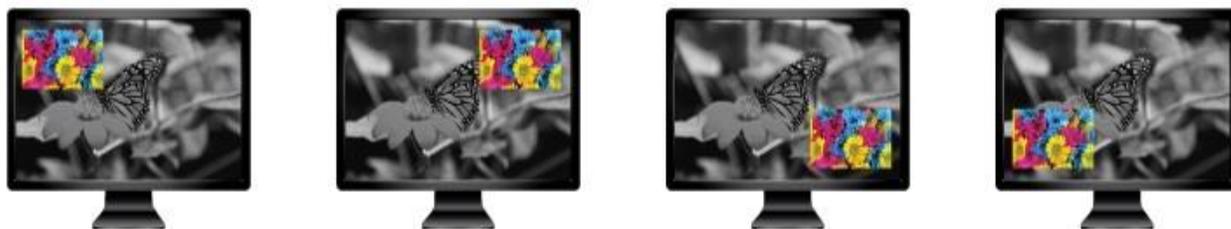
Mode 1

One full input image output mode



Mode 2

Picture in picture image output mode



Mode 3

Side by side #1 image output mode



Mode 4

Side by side #2 image output mode



POSITION

This function only works when the unit is in PIP mode (Mode 2)

You can change the position of small image of PIP mode

Available positions are Top left, Bottom left, Top right, and Bottom right

SIZE

This function only works when the unit is in PIP mode (Mode 2)

Press the button to change size of small image of PIP mode

SCALING

Press the button to change the output resolution.

Available resolutions are;

Description	Resolution
Timing 1	1080p@60Hz
Timing 2	720p@60Hz
Timing 3	1080i@60Hz
Timing 4	1360x768@60Hz
Timing 5	1024x768@60Hz

Command Line Operation

This section is designed for programmers who wish to create their own control programs using the command code. HDS-21RS provides a simple character stream

control used by external control devices attached to a PureLink device. Command codes are used primarily for control, during system installation, setup, and for diagnostic purposes.

Command code is a set of alphanumeric characters that combine to form control commands. Command code strings are entered into a terminal emulation program (such as windows HyperTerminal) running on an external control device. The control device (PC, third-party controller) sends the commands to the system. Control devices must be able to send and receive ASCII or HEXA code via an RS-232.

* RS232 communication setting:

- Baud rate – 115200
- Data bits – 8
- Parity – none
- Stop bits – 1

Protocol

Description	Command	Feedback
Output Timing 1 (1080p@60Hz)	T1!	
Output Timing 2 (720p@60Hz)	T2!	
Output Timing 3 (1080i@60Hz)	T3!	
Output Timing 4 (1360x768@60Hz)	T4!	
Output Timing 5 (1024x768@60Hz)	T5!	
Input 1 Select	IN1!	
Input 2 Select	IN2!	
Mode 1 (One input)	ONEINPUT!	
Mode 2 (PIP)	PIP!	
Mode 3 (Side by side #1)	SIDEBYSIDE1!	
Mode 4 (Side by side #2)	SIDEBYSIDE2!	

1-8 Warranty

3 (three) Year Warranty

Dtrovision warrants this PureLink UHD-280 to be free from defects in workmanship and materials, under normal use and service, for a period of two (3) year from the date of purchase from Dtrovision or its authorized resellers.

If a product does not work as warranted during the applicable warranty period, Dtrovision shall, at its option and expense, repair the defective product or part, deliver to customer an equivalent product or part to replace the defective item, or refund to customer the purchase price paid for the defective product.

All products that are replaced will become the property of Dtrovision.

Replacement products may be new or reconditioned.

Any replaced or repaired product or part has a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer.

Dtrovision shall not be responsible for any software, firmware, information, or memory data of customer contained in, stored on, or integrated with any products returned to Dtrovision for repair under warranty or not.

Warranty Limitation and Exclusion

Dtrovision shall have no further obligation under the foregoing limited warranty if the product has been damaged due to abuse, misuse, neglect, accident, unusual physical or electrical stress, unauthorized modifications, tampering, alterations, or service other than by Dtrovision or its authorized agents, causes other than from ordinary use or failure to properly use the Product in the application for which said Product is intended.

1-9 Troubleshooting

Problem	Solution
Distribution Amplifier does not operate	Make sure the 12V power is plugged in the back of the unit. Check to see if the power LED light is on.
No picture(or signal) Or Poor picture	<ol style="list-style-type: none"> 1. In case your video source is HDCP enabled, make sure your video display (HDTV) is HDCP compliant. 2. If you are using copper based HDMI cable, overall length of the cables (length of the cable from video source to switch and length of the cable from switch to display) should not exceed 20ft. Exceeding 20ft. with copper based cables will result in no or poor picture quality. To extend beyond 20ft, please use fiber optical HDMI extension cables such as PureLink EZ series. 3. Use high quality HDMI cables. 4. If you are using computers, try other refresh rate settings. Most HDTV's have refresh rate of 48Hz and computer's video cards are usually set at higher refresh rate. Try lower refresh rates. 5. Make sure all HDMI connectors are tightly secured to all HDMI ports. Loosened screws on the HDMI connectors will result in no or poor picture. 6. Turn off all equipment (video source, switch and HDTV) and restart all equipment.
Incorrectly sized picture /resolution or No picture	Please remember that your video source will only transmit one resolution setting. To connect varying resolution displays (1920x1200 resolution display and 1024 x 768 resolution display) the resolution setting of your video source must be set to the lowest resolution setting (1024 x 768).

1.1 FCC/CE Statement

This device complies with part 15 of FCC Rules and EN 55022/55024/61000-3 for CE certification. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must not accept any interference received, including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 and 2 of FCC Rules and EN 55022/55024/61000-3 for CE certification. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction guide, 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:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult a service representative for help.

Properly shielded and grounded cables and connectors must be used in order to comply with FCC/CE emission limits. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

1.2 UL Statement

This device has completed a UL Commercial Inspection and Testing Services for the multimode HDMI cable complied with VW-1 under UL 758. It is validated by the UL file number SV2038 and project number 04CA05353.