



Total Digital Connectivity Solutions

User's Manual ***HDMI Switcher*** ***HDS-21R/ HDS-41R***



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Cautions:

1. Digitalextennder logo is our own trademark of RTcom USA.,Inc.
2. Any of the products may be changed without any notice in order to improve the function of the product.
3. The design and specification of the product may be changed without any prior

Unpacking

Each HDMI Switch package includes the following items;
HDS-21R/41R HDMI LINK HDMI Switch Unit
5V Power Supply Adapter
User manual

Troubleshooting

Problem	Solution
Switch will not operate	Make sure the 5V 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	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 cables 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 RT Com. Model OC cables. 3.Use high quality HDMI cables. 4.If you are using computers, try other refresh rate settings. Most HDTVs have refresh rate of 48Hz and computer's video cards are usually set at higher refresh rate. Try lower refresh rates. 5.Makes sure all HDMI connectors are tightly secured to all HDMI ports. Loose screws on the HDMI connectors will results in no or poor picture. 6.Turn off all equipments(video source, switch and HDTV) and restart all equipments.
Remote control unit will not operate	Make sure the included batteries are correctly installed. Make sure the 5V power is plugged in the back of the unit. Check to see if the power LED light is on. Try rebooting the switch by unplugging and re-plugging in the AC plug of the 5V power adapter.
Programming Universal Remote Control	Our remote control units use unique codes. To program your own universal remote control, make sure to use "Learn" feature of your universal remote control unit's user manual.

Warranty Information

1 (One) Year Warranty

RT Com. warrants this HDMI Link HDMI Switch to be free from defects in workmanship and materials, under normal use and service, for a period of one (1) year from the date of purchase from RT Com or its authorized resellers.

If a product does not work as warranted during the applicable warranty period, RT Com 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 RT Com.

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.

RT Com. 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 RT Com for repair under warranty or not.

Warranty Limitation and Exclusion

RT Com. 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 RT Com 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.

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Description , General Specification

HDMI Link HDMI Switch allows number of digital video and digital audio sources to share one video display.

Our unique switch allows easy switching between different digital video and digital audio sources with remote control unit or with a manual switching button place on the unit itself.

Perfect for home theater systems. No more hassles of manually plugging in different HDMI connectors to view different video sources (e.g., DVD, Satellite receiver, computer, TiVo).

ITEM	DESCRIPTION	DESCRIPTION
Model Name	HDS-21R	HDS-41R
Input Signal	HDMI Single Link , 2 Port	HDMI Single Link , 4 Port
Output Signal	HDMI (TMDS)Single Link	HDMI (TMDS)Single Link
Resolution	VGA / SVGA / XGA /UXGA 480i/p , 720i/p , 1080i/p	VGA / SVGA / XGA /UXGA 480i/p , 720i/p , 1080i/p
Receptacle	DC Power Jack HDMI	DC Power Jack HDMI
HDCP Support	OK	OK
Power Consumption	DC +5V , 2W Max	DC +5V , 2W Max
Dimension	230x105x30 mm	330x105x30 mm

1-2 Description , General Specification

Technical Specification

Frequency bandwidth: 1.65 Gbps (Single Link)
 Supporting Graphic Resolution: UXGA (1600 X 1200 at up to 75Hz)
 1080p (1920 X 1080 at up to 60Hz)
 Inputs: HDMI Female (HDS-21R/ 2port , HDS-41R/ 4port)
 Output: HDMI Female port
 Power supply: DC 5V, 1.2A Adapter included.
 Infrared Remote Control Included
 HDCP (High-bandwidth Digital Content Protection) Compliant.

Connector Pin Assignment

HDMI Input , Output

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	

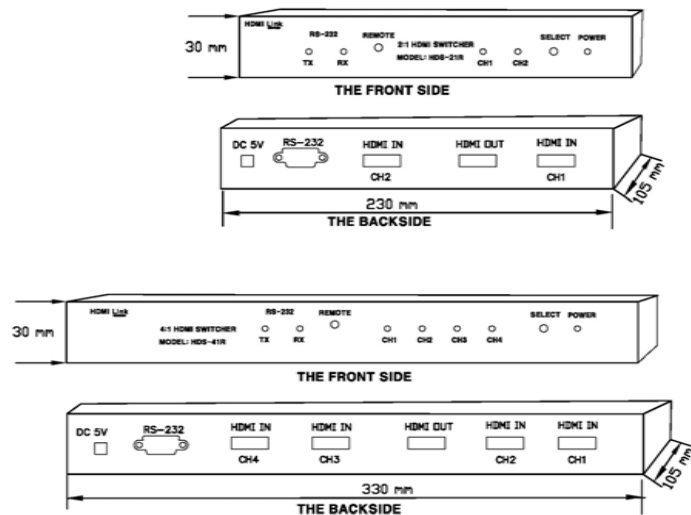
1-7 Technical Specification

Mechanical Specification

Dimensions

HDS-21R : 230x105x30 mm

HDS-41R : 330x105x30 mm



DC 5V : DC Power 5V Input

RS-232 : Com Port For Switch Function Control

HDMI IN CH1~4 : HDMI Input Signal

HDMI OUT : HDMI Output Signals

LED CH1~4 : Selected Channel Indication

REMOTE : IR Remote Signal Window

SELECT : Each Channel Manual Select

1-6 Mechanical Specification

Environmental and Reliability Specifications

1 Operating Conditions

Temperature : 10°C ~ 40°C

Humidity : 10% ~ 80%, non-condensing

Altitude : maximum 3,000m

2 Transportation Conditions

Temperature : -25°C ~ 60°C

Humidity : 5% ~ 95%, non-condensing

Altitude : maximum 15,000m

3 Storage Conditions

Temperature : -20°C ~ 45°C

Humidity : 5% ~ 95%, non-condensing

Altitude : maximum 3,000m

4 Reliability Specifications

MTBF : more than 50,000 hours at 90% confidence level

Reliability specification and items : refer to "Specification of reliability test for LCD monitor"

1-3 Environmental and Reliability Specifications

Main Features

High Quality Picture - No Signal Loss and Digital Noise Free

Our switchers are 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 switchers, it is important to eliminate the digital noises and boost the signal strength to preserve/enhance the video signal quality.

Signal Amplification for signal reliability and long length signal transmission. Our 5V power adapter supplies adequate power to amplify the video signals from different video sources. This is necessary as the overall length from the video source to the displays is longer when using the switches (distance from the video source to the switch + distance from the switch to the display). In most cases, the overall distance that the HDMI signal will need to travel is over 10ft. Due to the nature of HDMI signals, amplification is necessary to warrant the video quality and reliability. (Without amplification, there may be occasional blackouts or blinking effects) With this amplification feature, your video display can be extended up to 330ft using our fiber optical HDMI cables.

Compact and Practical Design

Our switchers have 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, RS232 LED indicators and channel indicators.

Remote Control Unit with Discreet Channel selections

Remote Control Units with discreet channel selection feature is included in all our switches. The channel buttons on the remote control unit will allow you to change video sources easily and quickly.

RS232 Control

Our switches also feature RS232 Control. Our switches are capable of being controlled by a remote computer. This is extremely helpful for many applications where you need to automatically switch the video inputs. Example: If you connect a PC to our switcher, you can program it to automatically switch the sources. If you want to display input 1 for 1 hour and then switch to input 2, you can do this with the PC. The RS232 LED indicators in the front will allow you to check the communication between the PC and the switch. Most other products require additional control box for this function.

1-4 Main Features

Video Connection

1. Connect your video source's HDMI output port to the HDMI switch's HDMI input port using standard HDMI cables (not included). Make sure all your HDMI sources and the display is turned off before connecting the cables)
2. Connect your HDMI display's HDMI input port to HDMI switch's HDMI output port. Make sure your HDMI display is turned off before connecting the cables)
3. Plug the 5V power supply into the switch's power input port.
4. Plug the 5V wall mount power supply into the wall outlet.
5. Turn on your display.
6. Turn on your video sources.
7. Use your remote control unit to switch channels. Or use the select button on the front panel of the switch to change channels.

RS232 CONTROL CONNECTION

RS232 connection allows the user to interface the HDMI LINK switch with a serial port on a computer or other control device. The computer or other control device may require additional software for various control functions. (Control software not included)

**RS232C Control Command with HDS-21R//41R Switcher

RS232C interface the HDS-21R/41R switcher with a serial port on a control computer or other remote control devices.

Our HDS-21R and HDS-41R use pin#2 and #3 and the assignments are as follows;

Baud Rate : 9600bps

Control computer's RS232 pin# 2 is connected to our HDMI switcher's pin#3

Control computer's RS232 pin# 3 is connected to our HDMI switcher's pin#2

The control protocols are as follows;

Channel 1 request is ASCII code "@001*" and the response back to the computer is "!"

Channel 2 request is ASCII code "@002*" and the response back to the computer is "!"

Channel 3 request is ASCII code "@003*" and the response back to the computer is "!"

Channel 4 request is ASCII code "@004*" and the response back to the computer is "!"