LBS-42H2

LINK BRIDGE™ 4x2 HDMI 2.0 Matrix Switcher

BROADATA COMMUNICATIONS, INC.

SAFETY INSTRUCTIONS AND COMPLIANCE DECLARATIONS

PLEASE OBSERVE THE FOLLOWING SAFETY PRECAUTIONS AS OUR

SURGE PROTECTION DEVICE RECOMMENDED

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

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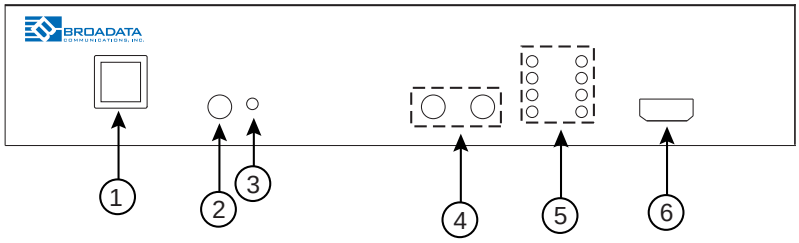
1.0 PRODUCT DESCRIPTION

Features:

- An 4x1 (LBS-41H2) or 4x2 (LBS-42H2) or 4x4 (LBS-44H2) HDMI 2.0 switcher with HDCP 2.2 compliance
- Supports video resolutions up to 3840×2160@60Hz and 4096×2160@60Hz with 4:4:4 YUV and HDR format
- Supports pass-through of audio formats including LPCM 2.0~7.1, Dolby Digital, DTS, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos and DTS-HD Master Audio
- Supports configurable EDID management via pre-defined internal EDIDs and user-defined EDID selections
- Multiple control interfaces including RS-232, Telnet, WebGUI and IR remote

2.0 OPERATION CONTROLS AND FUNCTIONS

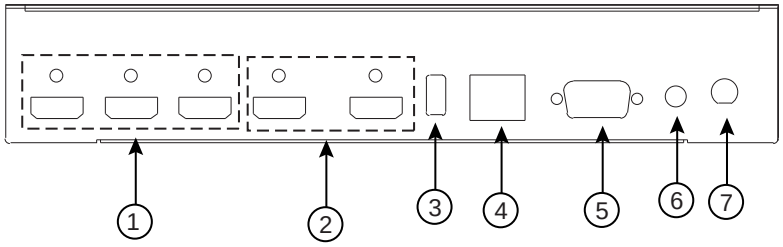
2.1 Front Panel



1. **IR WINDOW:** Accepts IR signals from the included IR remote for control of this unit only.
2. **POWER:** Press this button to power on the unit or place it into stand-by mode.

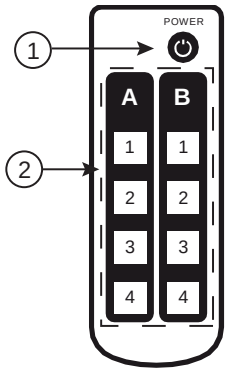
   Note: Ethernet and RS-232 remain active while the unit is in stand-by mode.
3. **POWER LED:** This LED will illuminate GREEN to indicate the unit is on and receiving power. When the unit is in stand-by mode the LED will illuminate RED.
4. **HDMI OUT A~B:** Press either of these buttons to sequentially switch through the available inputs for the associated output.
5. **HDMI OUT LEDs 1~4:** The LED in each column will illuminate GREEN to indicate which source is currently selected for each output.
6. **HDMI IN 1:** Connect to HDMI source equipment such as a media player, game console or set-top box. DVI sources are also supported with the use of an HDMI to DVI adapter.

2.2 Rear Panel



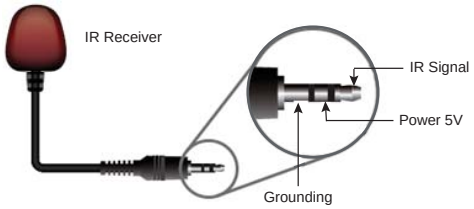
1. **HDMI IN 2~4 :** Connect to HDMI source equipment such as a media player, game console or set-top box. DVI sources are also supported with the use of an HDMI to DVI adapter.
2. **HDMI OUT A~B:** Connect to HDMI TVs, monitors or amplifiers for digital video and audio output. DVI displays are also supported with the use of an HDMI to DVI adapter.
3. **SERVICE:** This slot (USB 2.0) is reserved for firmware update use only.
4. **CONTROL:** Connect directly, or through a network switch, to your PC/laptop to control the unit via Telnet/WebGUI.
5. **RS-232:** Connect directly to your PC/laptop to send RS-232 commands to control the unit.
6. **IR IN:** Connect to the provided IR Extender to extend the IR control range of the unit. Ensure that the remote being used is within direct line-of-sight of the IR Extender.
7. **DC 5V:** Plug the 5V DC power adapter into the unit and connect it to an AC wall outlet for power.

2.3 Remote Control



1. **POWER:** Press this button to power on the unit or place it into stand-by mode.
2. **A1~A4 & B1~B4:** Press these buttons to change the routing of outputs A & B.

2.4 IR Cable Pin Assignments



2.5 RS-232 Protocol

LBS-42H2	
PIN	Definition
1	NC
2	TxD
3	RxD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Remote System	
PIN	Definition
1	NC
2	RxD
3	TxD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Baud Rates: 115200bps
Data Bits: 8
Parity Bits: None
Stop Bit: 1
Flow Control: None

2.6 RS-232 and Telnet Commands

COMMAND	DESCRIPTION AND PARAMETERS
HELP	Displays all available commands.
?	Displays all available commands.
P0	Turn unit's power off. (Stand-by mode)
P1	Turn unit's power on.
INNAME N1 N2	Set the name of input N1 to N2. N1 = 1~4 [Input number] N2 = {name} [8 characters max]
INNAME N1	Show the input name of N1. N1 = 1~4 [Input number]
INNAME	Show the names of all inputs.
OUTNAME N1 N2	Set the name of output N1 to N2. N1 = A~B [Output letter] N2 = {name} [8 characters max]
OUTNAME N1	Show the name of output N1. N1 = A~B [Output letter]
OUTNAME	Show the names of all outputs.
A N1	Set the input to be routed to output A. N1 = 1~4 [Input number]
A	Show the current input routing for output A.
B N1	Set the input to be routed to output B. N1 = 1~4 [Input number]
B	Show the current input routing for output B.
OUT N1	Set a single input to be routed to both outputs (A & B). N1 = 1~4 [Input number]

COMMAND	DESCRIPTION AND PARAMETERS
OUT	Show the current input routing for both outputs.
SOURCEDET	Show all source information.
SINKINFO	Show all sink information.
HDCPIN N1 N2	Set the HDCP mode for input N1. N1 = 1~4 [Input number] Available values for N2: 0 [Standard] 1 [Apple Mode]
HDCPIN N1	Show the HDCP settings for input N1. N1 = 1~4 [Input number]
HDCPIN	Show all current HDCP input settings.
EDIDMODE N1	Set the EDID mode. Available values for N1: 0 [Appoint] 1 [All]
EDIDMODE	Show the current EDID mode setting.
EDIDALL N1	Set the EDID to use in “All” mode. Available values for N1: 0 [SINK A] 1 [SINK B] 2 [720P] 3 [1080P] 4 [4K_3G] 5 [4K_Y420] 6 [4K_6G]
EDIDALL	Show the current EDID selection for “All” mode.

COMMAND	DESCRIPTION AND PARAMETERS
EDIDIN N1 N2	Set the EDID to use in “Appoint” mode.
	N1 = 1~4 [Input number] Available values for N2: 0 [SINK A] 1 [SINK B] 2 [720P] 3 [1080P] 4 [4K_3G] 5 [4K_Y420] 6 [4K_6G]
EDIDIN N1	Show the current EDID selection for input N1 in “Appoint” mode.
EDIDIN	Show the current EDID selections for all inputs in “Appoint” mode.
FADEFAULT	Reset the unit to the factory defaults.
REBOOT	Reboot the unit.
VER	Show the unit’s current firmware version.
IPCONFIG	Show the current IP configuration.
SIPADDR N1	Set the static IP Address. N1 = X.X.X.X [X = 0~255]
SNETMASK N1	Set the Ethernet netmask. N1 = X.X.X.X [X = 0~255]
SGATEWAY N1	Set the Ethernet gateway. N1 = X.X.X.X [X = 0~255]
HTTPPORT N1	Set the HTTP port. N1 = 0~65535
TELNETPORT N1	Set the Telnet port. N1 = 0~65535

COMMAND	DESCRIPTION AND PARAMETERS
IPMODE N1	Set the current IP address mode. Available values for N1: 0 [Static IP] 1 [DHCP]
READMAC	Show the unit's MAC address.
UPDATE	Update firmware.

Note: Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive.

2.7 Telnet Control

Before attempting to use Telnet control, please ensure that both the unit and the PC/Laptop are connected to the same active networks.

To access Telnet in Windows 7, click on the “Start” menu and type “cmd” in the search field, then press “Enter”. Under Windows XP go to the “Start” menu, click on “Run”, type “cmd” then press “Enter”. Under Mac OS X, go to “Go’!Applications’!Utilities’!Terminal”. See below for reference.

Once in the CLI (Command Line Interface) type “Telnet” followed by the IP address of the unit and “23”, then hit “Enter”.

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\Users\Administrator>telnet 192.168.1.50 23
```

This will connect us to the unit we wish to control. Type “help” to list the available commands.

Notes:

- *Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive.*
- *If the IP address is changed then the IP address required for Telnet access will also change accordingly.*

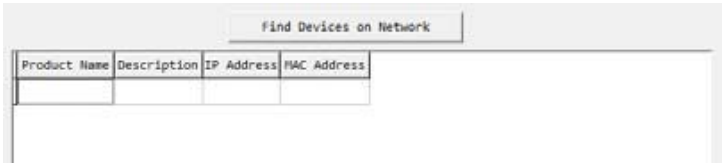
2.8 WebGUI Control

2.8.1 Device Discovery APP

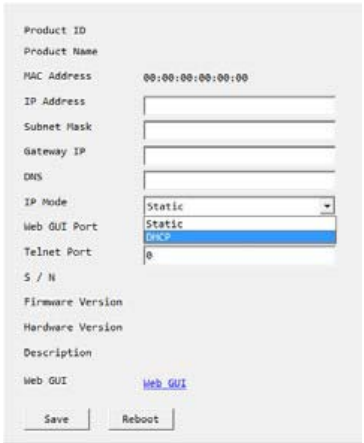
Please obtain the “Device Discovery” software from your authorized dealer and save it in a directory where you can easily find it.

Connect the unit and your PC/Laptop to the same active network and execute the “Device Discovery” software. Click on “Find Devices on Network” and a list of devices connected to the local network

will show up indicating their current IP address. (The unit’s default IP address is 192.168.1.50)



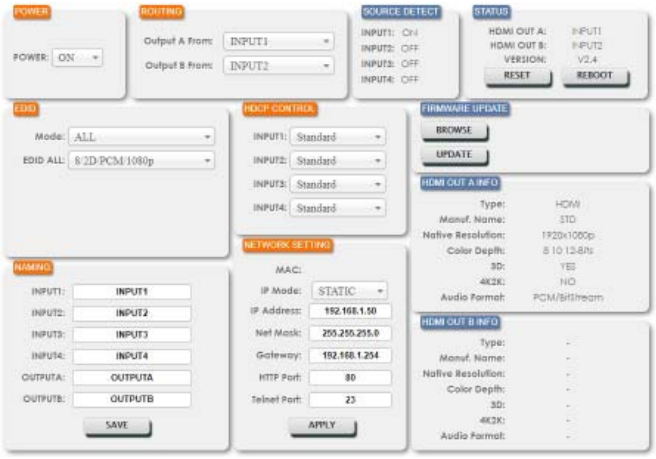
By clicking on one of the listed devices you will be presented with the network details of that particular device.



- **IP Mode:** If you choose, you can alter the static IP network settings for the device, or switch the unit into DHCP mode to automatically obtain proper network settings from a local DHCP server. To switch to DHCP mode, please select DHCP from the IP mode drop-down, then click “Save” followed by “Reboot”.
- **WebGUI:** Once you are satisfied with the network settings, you may use them to connect via Telnet or WebGUI. The network information window provides a convenient link to launch the WebGUI directly.

2.8.2 WebGUI Control Page

All functions, including power, input selection, EDID management, HDCP management, Ethernet settings, and reset/ firmware functions, are presented on a single web page to allow for intuitive operation. The individual functions will be introduced in the following sections.



1. Power

The unit can be powered on or off (stand-by mode) from this tab.

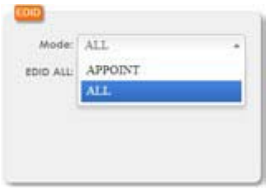
2. Routing

This tab allows for the selection of the input source for each output. Four HDMI inputs and two HDMI outputs are available for selection.

3. EDID

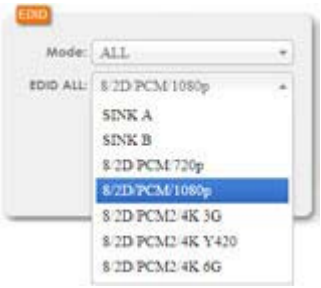
This tab controls EDID management for the unit. All inputs can share the same assigned EDID, or each input can have a discrete EDID assigned to it.

- **ALL:** Selecting the “ALL” mode will send the selected EDID to all inputs.
- **APPOINT:** Selecting the “APPOINT” mode allows for each input to have a different EDID assigned to it.



The available EDID options are:

- **SINK A:** EDID is passed from the currently connected display
- **SINK B:** EDID is passed from the currently connected display
- **8/2D/PCM/720p:** 720p@60Hz, 8-bit & LPCM 2.0
- **8/2D/PCM/1080p:** 1080p@60Hz, 8-bit & LPCM 2.0
- **8/2D/PCM2/4K 3G:** 4K@30Hz, 8-bit & LPCM 2.0
- **8/2D/PCM2/4K Y420:** 4K@60Hz (4:2:0), 8-bit & LPCM 2.0
- **8/2D/PCM/4K 6G:** 4K@60Hz (4:4:4), 8-bit & LPCM 2.0



4. HDCP Control

This tab allows for the HDCP mode to be switched between “Standard” and “Apple” mode. “Apple” mode allows for the display of non- HDCP required content from Apple, and similar, devices on non-HDCP displays. This setting can be assigned individually to each input.

5. Naming

This tab allows for the renaming of the four HDMI input ports and the two HDMI output ports. Please click the “SAVE” button to store the changes.

6. Network Setting

This tab provides control over the unit's network settings. The IP mode can be set to DHCP for automatic IP configuration, if your local network supports it, or it can be placed into STATIC mode. When in STATIC mode the IP address, netmask and gateway can be defined manually. The HTTP and Telnet ports can also be changed from their defaults here.

7. Source Detect

When a live input source is detected on one of the 4 HDMI inputs the corresponding input in this tab will display "ON". If no source is detected on that input, it will display "OFF".

8. Status

This tab displays the currently selected HDMI input sources for each output and the unit's firmware version. It also provides a way to reset or reboot the unit.

- **RESET:** To perform a factory reset on the unit, please click the "RESET" button.
- **REBOOT:** To reboot the unit, please click the "REBOOT" button.

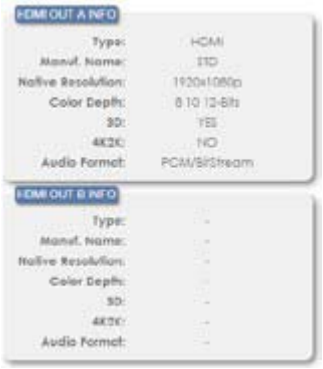
9. Firmware Update

This tab provides a way to update the firmware of the unit.

- **BROWSE:** Click the "BROWSE" button to select the firmware update*.bin file which is located on your local PC.
- **UPDATE:** Click the "UPDATE" button to begin the firmware update process.

10. HDMI Out A Info & HDMI Out B Info

These tabs present the information detected from displays connected to HDMI outputs A & B, including type, manufacturer name, native resolution, color depth, 3D support, 4K support and audio format support.



3.0 SPECIFICATIONS

MATRIX SWITCHER

Array Size	4x2
Input	Four (4) HDMI 2.0 ports
Output	One (1) or Two (2) or Four (4) HDMI 2.0 ports
Control	LAN, RJ45RS-232 (1), DB-9IR
Service	USB, for firmware upgrade

PHYSICAL

Dimension (W x D x H)	9.45” x 4.09” x 1.69”
Operating Temperature	0°C to 40°C
Storage Temperature	-20°C to 60°C
Power Supply	5V@2.6A

4.0 SERVICE PROCEDURE

4.1 Replacement Policy

Standard products found defective on arrival (DOA) will be replaced, based on availability, within 24 to 48 hours anywhere in the U.S. Please call Customer Service at **800-214-0222** for information.

4.2 Return/Repair Service

The LBS-42H2 System contains no user serviceable components. If you have a problem with your unit, please contact the Customer Service Department. To facilitate our return/repair processing please contact Broadata Communications, Inc. to obtain a Return Material Authorization (RMA). Please include the following information:

- Product model number
- Serial Number
- Complete description of problem
- Hardware installation description

Broadata Communications, Inc.
2545 West 237th Street, Suite K
Torrance, CA 90505
1-800-214-0222
(310) 530-1416
(310) 530-5958 (Facsimile)
e-mail: CustomerService@Broadatacom.com
Website: www.broadatacom.com

5.0 LIMITED WARRANTY

Broadata Communications, Inc. (BCI) warrants, for a period of one year from date of shipment, each product sold shall be free from defects in material and workmanship. BCI will correct, either by repair, or at BCI's election, by replacement, any said products that in our sole discretion prove to be defective and are returned to the manufacturing location within 30 days after such defect is ascertained. All warranties are limited to defects arising under normal use and do not include malfunctions or failure resulting from misuse, abuse, neglect, alterations, electrical power problems, usage not in accordance with product instructions, improper installation, or damage determined by BCI to have been caused by the Buyer or repair made by a third party. Limited warranties granted on products are to the initial customer end-user and are not transferable. OUR LIABILITY UNDER THIS WARRANTY SHALL IN ANY CASE BE LIMITED TO THE INVOICE VALUE OF THE PRODUCT SOLD AND BCI SHALL NOT BE LIABLE TO ANYONE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES ARISING FROM THE USE OF ITS PRODUCTS OR THE SALE THEREOF. We make NO WARRANTY AS TO THE MERCHANTABILITY OF ANY GOODS, OR THAT THEY ARE FIT FOR ANY PARTICULAR PURPOSE OR END APPLICATION NOR DO WE MAKE ANY WARRANTY, EXPRESSED OR IMPLIED OTHER THAN AS STATED ABOVE.

Broadata Communications, Inc.
2545 West 237th Street, Suite K
Torrance, CA 90505
1-800-214-0222
(310) 530-1416
(310) 530-5958 (Facsimile)
e-mail: Sales@Broadatacom.com
Website: www.broadatacom.com

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