

# LB-H2/DE

Link Bridge™ 4K UHD+ LPCM2.0  
Audio Extractor



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# **SAFETY INSTRUCTIONS AND COMPLIANCE DECLARATIONS**

PLEASE OBSERVE THE FOLLOWING SAFETY  
PRECAUTIONS

## **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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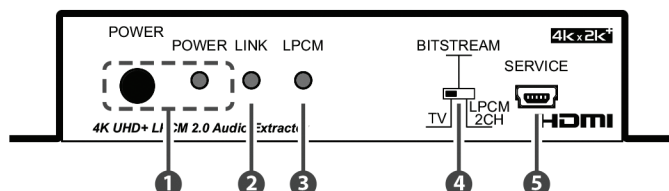
## 1.0 PRODUCT DESCRIPTION

### FEATURES

- HDMI input and output with 18Gbps (600MHz) 4K UHD support
- DVI 1.0 compliant with the use of an HDMI-DVI adaptor
- HDCP 1.4 and 2.2 compliant
- Supports HD resolutions up to 3840x2160@60 Hz (YUV 4:4:4, 8-bit) & 4096x2160@60 Hz (YUV 4:4:4, 8-bit)
- Supports 48-bit Deep Color up to 1080p60
- Supports pass-through of LPCM 7.1, bitstream and HD bitstream audio formats over HDMI
- Analog audio extraction supports LPCM 2.0 sources
- Optical S/PDIF audio extraction supports LPCM 2.0 & bitstream formats
- Supports HDMI and S/PDIF audio sampling rates up to 192 kHz
- Provides EDID management with EDID bypass and 2 user modifiable EDIDs
- PC based EDID management tool support
- Supports RS-232 style control via a Virtual COM port over USB

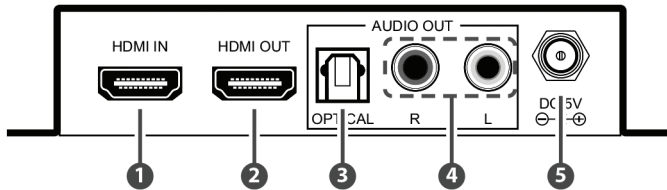
## 2.0 OPERATION CONTROLS AND FUNCTIONS

### 2.1 Front Panel



1. **POWER/ POWER LED:** Press this button to power the unit on or off. The LED will be lit when the unit is receiving power.  
**Note:** Press and hold the Power button for 3 seconds to perform a factory reset. Release the button once the LEDs begin flashing.
2. **LINK:** This LED will illuminate to indicate that a live source has been detected on the input port. When no source is detected the LED will remain off.
3. **LPCM:** This LED will illuminate when LPCM audio has been detected on the HDMI input.
4. **TV/BITSTREAM/LPCM 2CH:** This switch selects the EDID that is provided to the input. The “TV” setting passes the EDID from the connected display without modification. “Bitstream” is the User 1 EDID and by default has a native resolution of 1080p60 with support for LPCM 2.0 and bitstream formats. “LPCM 2CH” is the User 2 EDID and by default has a native resolution of 1080p60 and limits the audio support to LPCM 2CH. The two User EDIDs can be modified using the PC software.
5. **SERVICE:** This slot is for EDID management, control and firmware update use. Connect directly to your PC/laptop using a standard Mini-USB cable to connect using the PC software or to send commands (via virtual COM port).

## 2.1 Rear Panel



1. **HDMI IN:** Connect to HDMI source equipment such as a media player, game console or set-top box.
2. **HDMI OUT:** Connect to an HDMI TV, monitor or amplifier for digital video and audio output. (LPCM up to 7.1, bitstream, HD bitstream)
3. **OPTICAL AUDIO OUT:** Connect to powered speakers or an amplifier for digital audio output using an appropriate optical cable. (LPCM 2.0 and bitstream only)
4. **ANALOG AUDIO OUT:** Connect to powered speakers or an amplifier for stereo analog audio output. (LPCM 2.0 only)
- 5 **DC 5V:** Plug the 5V DC power adapter into the unit and connect it to an AC wall outlet for power.

**Commands:**

| Command Name | Description                     | Parameters   |
|--------------|---------------------------------|--|
| P0           | SET UNIT POWER OFF              | NONE   |
| P1           | SET UNIT POWER ON               | NONE   |
| P?           | GET POWER STATUS                | NONE   |
| SOURCEDET    | SHOW INPUT INFORMATION          | NONE   |
| SINKINFO     | SHOW SINK INFORMATION           | NONE   |
| HDCPIN       | SET/SHOW INPUT HDCP STATUS      | HDCPIN N [N=1~3, ?]<br>1: FOLLOW IN<br>2: FOLLOW OUT<br>3: APPLE MODE<br>?: GET STATUS<br><b>Default: FOLLOW OUT</b> |
| ECHO         | SET/SHOW CONSOLE AUTO ECHO MODE | ECHO N [N=0, 1, ?]<br>0: OFF<br>1: ON<br>?: GET STATUS<br><b>Default: ON</b>   |
| FADEFAULT    | SET UNIT TO FACTORY DEFAULT     | NONE   |
| VER          | SHOW UNIT FIRMWARE VERSION      | NONE   |
| REBOOT       | SYSTEM REBOOT                   | NONE   |
| ?            | SHOW DESCRIPTION OF COMMAND     | NONE   |
| HELP         | SHOW DESCRIPTIONS OF COMMAND    | NONE   |

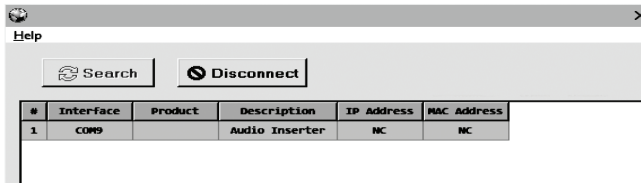
**Note:** Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive.



### 3.0 EDID MANAGER

This unit uses an EDID Management application which allows the user to copy the EDID from an attached display, edit an existing EDID file stored on the PC or create a basic EDID from scratch. The EDID can then be uploaded to the unit for use. Please obtain the EDID Management software from your authorized dealer and save it in a directory where you can easily find it.

Before connecting the unit to your PC, please install the appropriate Virtual COM Port Driver depending on your Windows version. Next, install the EDID Management software. After the installation has successfully completed, an icon for it will appear on the windows desktop. Launch the software by double-clicking on the icon and the EDID Management device detection window will open up on your screen.



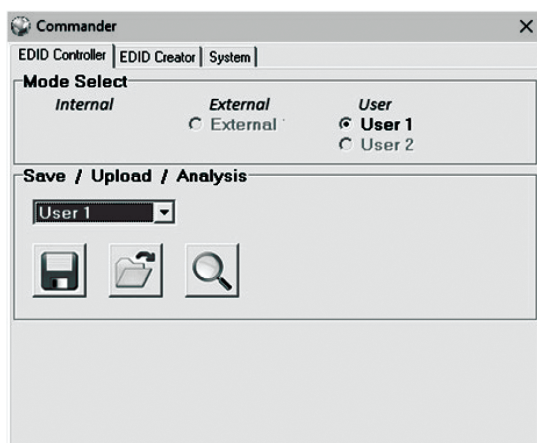
After launching the software, power the unit on and then connect it to the PC/laptop using a USB cable. Click on the “Search” button and any detected units will be displayed in the list. Clicking on a detected unit will open the EDID Commander window.

### 4.0 EDID CONTROLLER TAB

**Mode Select:** The currently selected EDID is displayed here. The “User 1” EDID corresponds to the “Bitstream” setting on the front of the unit. The “User 2” EDID corresponds to the “LPCM 2.0” setting on the front of the unit. Both of these EDIDs are user-replaceable. To return them to their original values, please perform a factory reset on the unit.

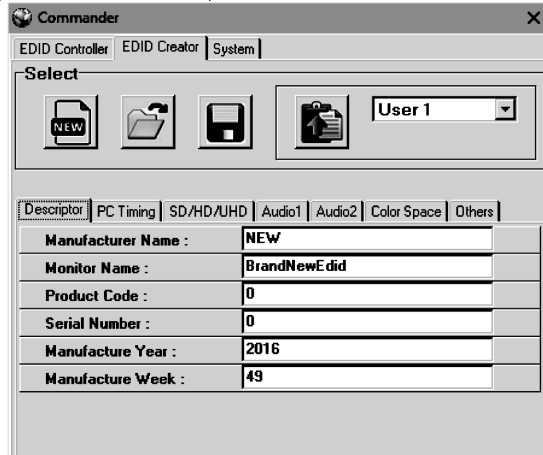
**Save/Upload/Analysis:** EDIDs may be saved to a PC, uploaded from a PC or analyzed.

- Any EDID from the unit or the connected HDMI display can be saved to your PC as a \*.bin file by selecting the EDID source from the drop down menu and then clicking the “Save” icon.
- Previously saved EDID files (\*.bin format) can be re-uploaded into the unit by selecting the User EDID to replace from the dropdown and then clicking the “Upload” icon. Before accepting the upload, the software will check and verify that the EDID's header and checksum values are acceptable.
- To analyze any EDID stored within the unit, select the EDID to view from the dropdown and click on the “Analysis” icon.



## 5.0 EDID CREATOR TAB

Click on the EDID Creator tab to begin designing a new EDID from scratch (select the “New” icon), to modify an existing EDID stored on the PC as a .bin file (select the “Load” icon) or to edit an EDID copied from the unit via the EDID Analyzer's edit option. Selecting “New” will automatically populate the various EDID fields with basic information that can be easily edited to match the user's preferences. Clicking on the “Load” icon will open a file load window and after the \*.bin file has been selected and loaded the EDID fields will be populated with the information from that file. The same will happen when the EDID is copied from the EDID Analyzer window.



The following tabs provide access to a wide range of EDID information which can be edited:

- **Descriptor:** This tab allows for the editing of various description and information fields within the EDID file such as Manufacturer Name, Monitor Name, etc.
- **PC Timing and SD/HD/UHD:** These tabs allow for the selection of the resolutions and refresh rates that the EDID will report as supported.
- **Audio1 and Audio2:** These tabs allow for the selection of which audio formats, audio frequencies, channels and speaker locations are supported.
- **Color Space:** This tab allows for the selection of which color formats and bit depths are supported, including BT.2020 and HDR support options.
- **Others:** This tab contains options for supporting 3D and defining the CEC Address.

Once the user is finished editing or creating an EDID it can be saved to a \*.bin file locally or uploaded directly to the unit using the “Save” and “Upload” icons respectively.

### System Tab

Select the System tab to edit the unit’s description, to reset the unit to factory defaults and to view the unit’s current hardware and firmware version information.

## 6.0 MAINTENANCE AND TROUBLESHOOTING

### 4.1 Maintenance

There is no operator maintenance other than keeping the units clean. However, observe the following light indicators to make sure that the unit is working properly:

### 4.2 Troubleshooting

If the LB-H2/DE units do not operate properly after installation, check for possible cable breaks, loose connections, and incorrect cable connections. If problems persist that may be fiber related, contact BCI at 1-800-214-0222 for further assistance.

For electrical problems, perform the following troubleshooting procedures:

**1. If the POWER indicator is OFF, check for the following:**

- a. The line cord is plugged into the unit and your outlet has power.

**2. If the POWER indicator is ON, but the Link indicator is OFF, check for the following:**

- a. Make sure the appropriate cables are being used.
- b. Cable and cable connectors are not broken.
- c. For each unit, the transmit (TX) cable is connected to the other unit's receiver (RX).

**3. If the POWER indicator and Link indicator are ON, but the channels are not operating, then:**

- a. Check to see that the attached user equipment is turned on.
- b. Both ends of the link are connected to the corresponding equipment and to the same corresponding channel port.
- c. Cable connections at both channels are securely fastened to each connector. Turn the power off, then back on to reset the link.

## 7.0 SPECIFICATIONS

### Video/ Audio Specifications

|                      |   |
|----------------------|---|
| HDMI                 | Version 1.4 with 3D, 4K×2K support                          |
| Video Resolution     | 4K2K & up to 1080p@60Hz or<br>1920x1200@60Hz                |
| Protocol             | DDC/EDID/HDCP Capable                                       |
| Video Bandwidth      | 340MHz / 10.2Gbps   |
| Audio Operating Mode | Stereo Audio  |
| Audio Formats        | Supports up to 7.1CH & Dolby<br>TrueHD, DTS-HD Master Audio |
| Audio Sampling Rate  | 32KHz to 192KHz   |
| HDMI/Audio Connector | HDMI Female plug  |

### Data

|                   |              |
|-------------------|--------------|
| IR Control        | Infrared     |
| Data Rate         | 30 - 50KHz   |
| In/Out Connectors | 3.5mm Stereo |

### Physical

#### Dimensions

|                       |                                   |
|-----------------------|-----------------------------------|
| Standalone            | 5.71" (W) x 7.83" (D) x 1.18" (H) |
| Power Consumption     | +24VDC @ 2.7 Amps (Max.)          |
| Operating Temperature | 0 to +40oC                        |
| Humidity              | 20 to 90% RH, Non-Condensing      |

## **8.0 SERVICE PROCEDURE**

### **8.1 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.

### **8.2 RETURN/REPAIR SERVICE**

The LB-H2/DE 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

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(310) 530-1416

(310) 530-5958 (Facsimile)  
e-mail: [CustomerService@Broadatacom.com](mailto:CustomerService@Broadatacom.com)  
Website: [www.broadatacom.com](http://www.broadatacom.com)

## 9.0 LIMITED WARRANTY

Broaddata 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.

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