LBC-PSW84

Lɪɴᴋ Bʀɪᴅɢᴇ™ Mᴜʟᴛɪ-Fᴏʀᴍᴀᴛ Pʀᴇsᴇɴᴛᴀᴛɪᴏɴ Sᴡɪᴛᴄʜ

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.

TABLE OF CONTENTS

1.0 PRODUCT DESCRIPTION

The LBC-PSW84 is an HDBaseT™ capable 8 by 4 Digital Presentation Scaler that can switch and scale HDMI/HDBaseT/PC/Composite Video signals from any one of its eight inputs and simultaneously display it on any of its HMDI or HDBaseT outputs. The unit supports four (4) HDMI input, one (1) VGA input, one (1) composite input and two (2) HDBaseT inputs. The unit has an HDMI bypass output, allowing local monitoring of any of the HDMI or HDBaseT inputs, VGA and composite are not supported by the bypass output.

It has the added benefit of control via IR remote control, RS-232, IP/Telnet and WebGUI, with all information including system status presented on its comprehensive OSD (On Screen Display).

The LBC-PSW84 features full 5play™ compliance for easy integration with compatible transmitters and receivers. The LBC-PSW84 is compatible with our Designer and Standard (LBH & LBC model) Series transmitters and receivers. This makes both CAT-5e/6 transmission and HDMI/DVI/VGA/YPbPrI conversion in one single system setup. The units are easily monitored by a power/ link LED indicators. Figures 1-1, and 1-2 below illustrate the front and rear panels of the LBC-PSW84 unit and Figure 1-3 shows the remote control.

Features
  • HDMI, HDCP and DVI compliant
  • Full 5Play™ compliant: Video, Audio, LAN, and Control (IR & RS-232 bypass)
  • Supports Power over HDBaseT (PoH) on the CAT5e/6/7 **output** to a compatible Receiver. HDBaseT inputs do not support PoH
  • Supports High-definition Audio: LPCM 7.1CH, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio transmission (32-192kHz sample rate)
  • Supports distances of up to 100 meters on the output and 100m on the input over industry standard CAT5e/6/7 cable
  • Supports scaling of any input signals to a wide range of HDTV and PC output resolutions up to 1080p and WUXGA (RB)

- Simultaneous video output of the selected source through the HDBaseT and HDMI outputs and audio output through the digital coaxial and analog L/R outputs
- Features four HDMI inputs with corresponding L/R audio inputs (3.5mm mini-jack), two HDBaseT CAT5e/6/7 inputs, PC (15-pin D-Sub) with L/R audio (3.5mm mini-jack) and Composite Video and L/R audio (3 RCA)
- Features two HDMI outputs, one HDBaseT CAT5e/6/7 output, one Digital Coaxial audio output and one L/R audio 3.5mm mini-jack output
- Supports a switchable HDMI scaler bypass output, allowing local monitoring of any of the HDMI or HDBaseT inputs, VGA and composite inputs are not supported by this output.
- Supports control via IR, Remote control, local RS-232, Telnet WebGUI and on-panel controls
- Supports HDBaseT LAN pass-through function to compatible Receivers

Package Contents
- 1 x 8 by 4 Presentation Switch w/ Scaler
- 1 x IR Extender cable
- 1 x IR Receiver cable
- 1 x Remote Control w/ battery
- 1 x 24v/2.7A DC Power Adapter
- 1 x Power Cord
- User's Manual

2.0 OPERATION CONTROLS AND FUNCTIONS

2.1 Front Panel
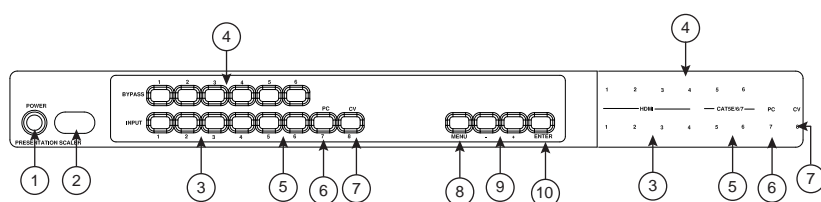
1. POWER: Press this button to turn ON the device and the LED will illuminate.
2. IR Window: This IR receiver receives only the remote control signal from the packaged remote control.
3. INPUT HDMI 1~4 & LED: Press the IN buttons to select an input source signal from the 4 HDMI input sources to be display for output ports. The LED will illuminate according to the selection.
4. BYPASS & LED: Press these buttons to select an input source signal from the 6 input sources to be displayed for BYPASS output port. The LED will illuminate according to the selection.
5. INPUT CAT5e/6/7 5~6 & LED: Press the IN buttons to select an input source signal from the 2 CAT5e/6/7 input sources to be display for output ports. The LED will illuminate according to the selection.
6. INPUT VGA & LED: Press this button to select VGA input source signal to be display for VGA output port. The LED will illuminate according to the selection.
7. INPUT CV & LED: Press this button to select CV input source signal s to be display for CV output port. The LED will illuminate according to the selection.
8. MENU: Press this wheel to enter into the menu and press it again to confirm the selection.

9. +/-: Press these buttons to move up/down under menu selection or under volume control to adjust audio volume up/down.

ENTER: Press this button to confirm menu selection

2.2 Rear Panel
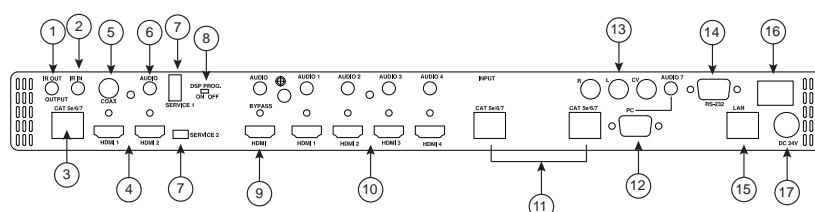
1. IR OUT: Connect to the supplied IR Blaster cable for IR signal transmission. Place the IR Blaster in direct line-of-sight of the equipment to be controlled.
2. IR IN: Connect to the supplied IR Extender cable for IR signal reception. Ensure that remote being used is within the direct line-of-sight of the IR Extender.
3. OUTPUT CAT5e/6/7: Connect to the Receiver unit with a Single CAT5e/6/7 cable for transmission of all data signals.
4. OUTPUT HDMI: Connect to a HDMI equipped TV/monitor for display of the HDMI input source signal.
5. OUTPUT COAX: Connect to audio sound equipment such as speaker or amplifier for audio sound output.
6. OUTPUT AUDIO: Connect to audio sound equipment such as speaker or amplifier for audio sound output. This audio is extracted from the video output. The source for this audio is dependent upon the selected mode from the OSD. If in 'Auto' mode then the source audio is derived from the input HDMI embedded audio. If in 'EXT' mode the audio is sourced from the external input audio.

7. SERVICE 1& 2: These slots are reserved for firmware update use only.
8. DSP PROG Switch: This switch is reserved for firmware update use only.
9. BYPASS OUTPUT: Connect to a HDMI equipped TV/monitor or DVI equipped monitor with audio sound equipment such as speaker for both video and audio output display. This output bypasses the output scalar and directly follows the resolution of the selected input. The Bypass audio connector does not extract or de-embed audio from the HDMI video. The Bypass audio is only sourced from the external audio inputs. The embedded audio on the Bypass HDMI video is only sourced from the embedded audio on the HDMI video inputs.
10. INPUT HDMI 1~4 & AUDIO 1~4: Connect to HDMI source equipment such as DVD or Blu-ray player along or to DVI source equipment along with audio source signal.
11. INPUT CAT5e/6/7: Connect this port to HDMI to CAT5e/6/7 Transmitter with CAT5e/6/7 cable to extend the signal up to 100m.
12. INPUT PC & AUDIO: Connect this port to PC/Laptop with audio signal for input signal selecting. . The PC (VGA) input does not support YPbPr video format
13. INPUT CV: Connect this port to source equipment such as video player or Set-Top-Box for input signal selecting.
14. RS-232: Connect from PC/Laptop for RS-232 command sending to control the device.
15. LAN: Connect from PC/Laptop with active internet service for Web
16. POWER Toggle: Switch this toggle to turn ON and OFF the device's power
17. DC 24V: Connect the adaptor with power cord included in the package and connect to AC wall outlet for power supply.

2.3 Remote Control
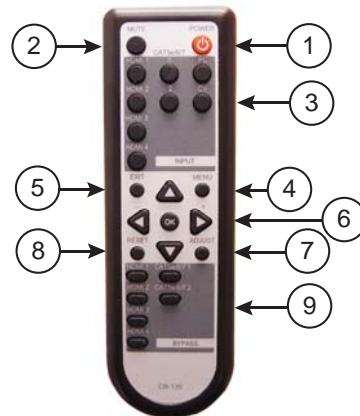
1. POWER: Press this button to switch the device ON or to put the device into Standby mode.
2. MUTE: Press this button to mute output audio sound.
3. INPUT: Press these buttons one time each to select input source for outputs display.
4. MENU: Press this button to enter into the OnScreen Menu.
5. EXIT: Press this button to exit menu selection.
6. ▲▼◄► & OK: Press OK to confirm the selection or use the directional buttons to navigate the On-Screen-Menu.
7. ADJUST: Press this button when output image is not fitting the display's screen perfectly. The device will auto adjust the image to full screen.
8. RESET: Press this button to set the device back into the factory default setting.
9. BYPASS: Press these buttons to select an input source for Bypass output port to display.

3.0 ON SCREEN DISPLAY (OSD) MENU

3.1 Display Selection: Output, Size, Mode Info, Input HDCP

OUTPUT: 640x480 60, 800x600 60, 1024x768 60 , 1360x768 60 , 1280x720 60, 1280x800 60, 1280x1024 60, 1440x900 60, 1400x1050 60, 1680x1050 60, 1600x1200 60, 1920x1080 60, 1920x1200 60, 720x480P 60, **1280x720P 60** (*Factory Default upon reset*), 1920x1080I 60, **1920x1080P 60** (*setting upon shipment*), 720x576P 50, 1280x720P 50, 1920x1080I 50, 1920x1080P 50

SIZE: OVERSCAN, **FULL (***Factory Default upon reset***)**, FOLLOW INPUT, PANSCAN, LETTERBOX, UNDER 2, UNDER 1

MODE INFO: INFO, ON, OFF

INPUT HDCP: OFF, ON

PC (PC Mode Only): AUTO SETUP, PC MODE ONLY 0 ~ 60, V_POSITION 0 ~ 60, PHASE 0 ~ 31, CLOCK, XGA/WXGA (Factory default), DEFAULT Yes/No (Factory default).

3.2 COLOR: Color, Contrast, Brightness, Hue, Saturation, Sharpness, NR

CONTRAST: 0 ~ 60 of Contrast Level
BRIGHTNESS: 0 ~ 60 of Brightness Level
COLOR
    RED: 0 ~ 1023 of Red Color Level
    GREEN: 0 ~ 1023 of Green Color Level
    BLUE: 0 ~ 1023 of Blue Color Level
    RED OFFSET: 0 ~ 1023 of Red Color Level
    GREEN OFFSET: 0 ~ 1023 of Green Color Level
    BLUE OFFSET: 0 ~ 1023 of Blue Color Level
HUE: 0 ~ 60 of Hue Level
SATURATION: 0 ~ 60 of Saturation Level
SHARPNESS: 0 ~ 30 of Sharpness Level
NR: **OFF (***Factory Default upon reset***)**, LOW, MIDDLE, HIGH

3.3 AUDIO: Volume, Delay, Sound, Source
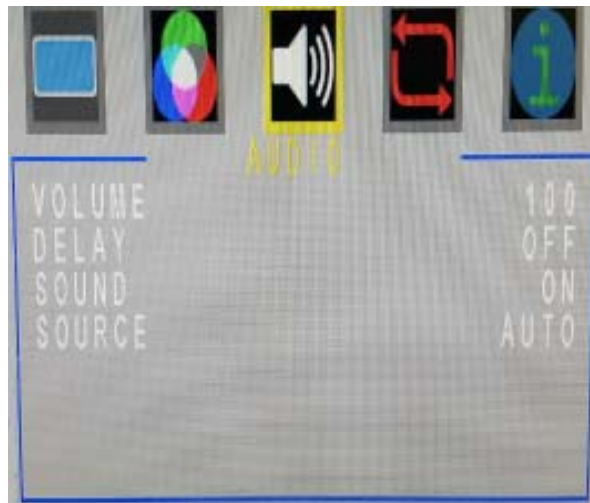
VOLUME: 0 ~ 100
DELAY: OFF, 40ms, 110ms, 150ms
SOUND: ON, MUTE
SOURCE: AUTO, EXT

Note: AUTO mode sources the primary output audio from the input audio embedded on the HDMI video. EXT mode sources the primary output audio from the external input audio connections. These modes do not apply to the Bypass Output.

3.4 SETUP: OSD, Reset, Keylock, Power Save, IP Mode, Set Static IP, Free Run Color, Misc

AUTO SETUP: YES, NO
KEY LOCK: OFF, ON
POWER SAVE: OFF, ON
IP MODE: DHCP, STATIC
SET STATIC IP:
    IP ADDRESS: 0.0.0.0 ~ 255.255.255.255 (192.168.0.1) default
    SUBNET MASK: 0.0.0.0 ~ 255.255.255.255 (default)
    DEFAULT GATEWAY: 0.0.0.0 ~ 255.255.255.255 (192.168.0.254) default
FREERUN COLOR: BLUE, BLACK
MISC: HDBT OUT: HDBT1 (default), HDBT2

3.5 INFORMATION: Input, Output, Revision, IP Address

INPUT: Input Resolution Displayed
OUTPUT: Output Resolution Displayed
REVISION: Firmware Revision Displayed
IP ADDRESS: Current IP Address Displayed

4.0 CONNECTOR PIN ASSIGNMENT

4.1 IR Pin Assignment
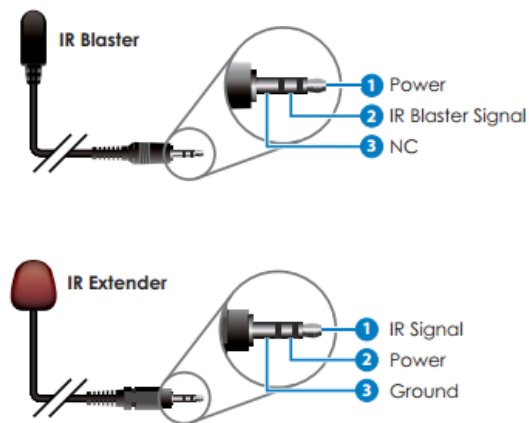
Figure 4-1
IR Blaster and IR Extender Pin Assignment

4.2 RS-232 Pin Assignment

LBC-PSW84			Remote Control	
PIN	Assignment		PIN	Assignment
1	NC		1	NC
2	Tx		2	Rx
3	Rx		3	Tx
4	NC	▶	4	NC
5	GND	◀	5	GND
6	NC		6	NC
7	NC		7	NC
8	NC		8	NC
9	NC		9	NC

Table 1
RS-232 Pin Assignment

Baud Rate: 9600bps
Data Bit: 8 bits
Parity: None
Flow Control: None
Stop Bit: 1

Note: Refer to **Appendix A** for the Telnet Command Set

5.0 DC POWER CONNECTION

In order to make sure that you have a proper installation, please observe the following:

1   Your AC jack has power.

2. The 24VDC power supply is working.

3. Your electrical system has proper grounding (this ensures that your power supply does not suffer from voltage variations).

4. Power Surge Protection. This is optional, but highly recommended. A UPS system provides voltage regularity as well as prevents spikes from occurring, thus protecting your LBC-PSW84 from sensitive voltage conditions.

The LBC-PSW84 derives power from an external 24VDC power supply. This power supply is a wall mounted AC/DC adapter, 100-240 VAC, 50-60 Hz, at 2.7A. This power supply comes standard for the LBC-PSW84 unless otherwise specified. To provide power to the LBC-PSW84, simply connect the power cord, already provided with the units, and connect it to the wall jack. (You will find one power cord per unit). Once the power cord has been connected to the wall jack, connect 24VDC to the unit and the unit should power up immediately flipping the power toggle swtich. If you have any problems or concerns, regarding the installation, make sure that you have taken the proper steps to ensure a proper power connection. Otherwise, feel free to contact us for any questions you may have.

> Note 1: During installation, the installer may need to connect the power supply output to an appropriate Listed NEC type cable before it is routed behind a wall. Simply routing the power supply output cable behind a wall will most likely not comply with applicable installation requirements. Unit should only be powered by a power source that is Listed (NEC) Class 2 or a Listed ITE Power Supply marked/rated as LPS or Limited Power Source.

> Note 2: The installation shall be in accordance with the applicable provisions of the National Electrical Code ANSI/NFPA 70, Article 725 and the Canadian Electrical Code, Part 1, Section 16.

Note 3: The power supply shall not be permanently fixed to the building structure or similar structures.

Note 4: The power supply shall not be located within environmental air handling spaces or within the wall cavity.

Note 5: The power supply is to be located within the same vicinity as the A/V processing equipment in an ordinary location, Pollution Degree 2, secured to the equipment rack within the dedicated closet, podium or desk

6.0 MAINTENANCE AND TROUBLESHOOTING

6.1 Maintenance

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

6.2 Troubleshooting

If the LBC-PSW84 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

Ethernet Speed	100 Mbps
Output Video Bandwidth	165MHz/ 1.65 Gbps
Input Video Bandwidth	300MHz / 10.2Gbps
Input Port	4 x HDMI
	4 x L/R
	2 x CAT5e/6/7
	1 x PC + L/R
	1 x CV+L/R
	2 x USB (Service only)
	1 x LAN
	1 x RS-232
	1 x IR
Output Port	2 × HDMI,
	1 × HDMI Bypass
	1 × CAT5e/6/7
	1 × Coaxial
	1 × L/R
CAT5e/6/7 I/O Cable	Up to 100 Meters HDBaseT Output
	Up to 100 Meters HDBaseT Input
Supports Input Resolution	HD: Up to 1080p@60 Hz
	PC: Up to WUXGA (RB)
Supports Output Resolution	Up to WUXGA & 1080p (Refer to
	Appendix B for supported resolutions
Audio Sampling Rate	Up to 48 kHz or LCPM 2CH
CAT5e/6/7 Resolutions	HD: Up to 1080p@60 Hz
Support	PC: Up to WUXGA (RB)
IR Frequency	30~50 kHz
Dimensions	438mm, 17.2" (W) x 269mm, 10.6" (D)
	x 44mm, 1.73" (H)
Chassis material	Metal
Box Color	Black
Operating Temperature	0 °C~40 °C / 32 °F~104 °F
Relative Humidity	20 ~ 90 % RH (non-condensing)
Power Supply	110–240v AC 50/60 Hz, 24v @ 2.7 A DC
Power Consumption	14W

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 LBC-H/V-T-SCL 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

9.0 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.

10.0 APPENDIX A: RS-232 COMMANDS

COMMAND	DESCRIPTION	
R BRIGHTNESS	Reports the numerical equivalent for BRIGHTNESS setting	
S HUE 0~60	Setups the numerical equivalent for HUE setting (as left)	
R HUE	Reports the numerical equivalent for HUE setting	
S SATURATION 0~60	Setups the numerical equivalent for SATURATION setting (as left)	
R SATURATION	Reports the numerical equivalent for SATURATION setting	
S SHARPNESS 0~30	Setups the numerical equivalent for SHARPNESS setting (as left)	
R SHARPNESS	Reports the numerical equivalent for SHARPNESS setting	
S NR 0~3	0=OFF 1=LOW	2=MIDDLE 3=HIGH
R NR	Reports the numerical equivalent for the NOISE REDUCTION setting (as above)	
S VOLUME 0~100	Volume Value	
R VOLUME	Reports Volume value	
S AUDIO DELAY 0~3	0=OFF 1=40ms	2=110ms 3=150ms
R AUDIO DELAY	Reports the numeric equivalent for AUDIO DELAY setting (as above)	
S AUDIO MUTE 0/1	0=ON	1=MUTE
R AUDIO MUTE	Reports the numeric equivalent for AUDIO MUTE setting (as above)	
S HDMIAUDIO 0/1	0=AUTO 1=EXT.	
R HDMIAUDIO	Reports HDMI AUDIO Status	
S KEY LOCK 0/1	0=Disable	1=Enable
R KEY LOCK	Reports the numeric equivalent for KEY LOCK setting (as above)	
S FREERUNCOLOR 0/1	0=Black	1=Blue
R FREERUNCOLOR	Reports the numeric equivalent for FREERUN Colorsetting (as above)	

COMMAND	DESCRIPTION	
R BRIGHTNESS	Reports the numerical equivalent for BRIGHTNESS setting	
S HUE 0~60	Setups the numerical equivalent for HUE setting (as left)	
R HUE	Reports the numerical equivalent for HUE setting	
S SATURATION 0~60	Setups the numerical equivalent for SATURATION setting (as left)	
R SATURATION	Reports the numerical equivalent for SATURATION setting	
S SHARPNESS 0~30	Setups the numerical equivalent for SHARPNESS setting (as left)	
R SHARPNESS	Reports the numerical equivalent for SHARPNESS setting	
S NR 0~3	0=OFF 1=LOW	2=MIDDLE 3=HIGH
R NR	Reports the numerical equivalent for the NOISE REDUCTION setting (as above)	
S VOLUME 0~100	Volume Value	
R VOLUME	Reports Volume value	
S AUDIO DELAY 0~3	0=OFF 1=40ms	2=110ms 3=150ms
R AUDIO DELAY	Reports the numeric equivalent for AUDIO DELAY setting (as above)	
S AUDIO MUTE 0/1	0=ON	1=MUTE
R AUDIO MUTE	Reports the numeric equivalent for AUDIO MUTE setting (as above)	
S HDMIAUDIO 0/1	0=AUTO 1=EXT.	
R HDMIAUDIO	Reports HDMI AUDIO Status	
S KEY LOCK 0/1	0=Disable	1=Enable
R KEY LOCK	Reports the numeric equivalent for KEY LOCK setting (as above)	
S FREERUNCOLOR 0/1	0=Black	1=Blue
R FREERUNCOLOR	Reports the numeric equivalent for FREERUN Colorsetting (as above)	

COMMAND	DESCRIPTION
S HDBTUART 0/1	0=HDBT1 1=HDBT2
R HDBTUART	Reports the numeric equivalent for HDBT UART setting (as above)
S AUTO SCAN 0/1	0=OFF 1=ON
R AUTO SCAN	Reports the numeric equivalent for AUTO SCAN setting (as above)
S BYPASS 1~6	1=HDMI 1 1=HDMI 2 3=HDMI 3 4=HDMI 4 5=HDBT 1 6=HDBT2
R BYPASS	Reports the numeric equivalent for BYPASS setting (as above)
S RESET 1	Setups the numerical equivalent for RESET setting (as left)
S POWER 0/1	0=OFF 1=ON
R POWER	Reports the numeric equivalent for POWER setting (as above)
PORT 0~8	1=HDMI 2=HDMI 2 3=HDMI 3 4=HDMI 4 5=HDBT 1 6=HDBT 2 7=PC 8=VIDEO 0=Last Memory
VOL + VOL -	Volume Value Volume Value
ST	FW Version & Source

Note:
1. *Audio Delay is only supported on Analog Stereo output.*
2. *When the HDMI input is encoded with HDCP, no image will be output from the PC/HD output.*
3. *Only LPCM 2 channel digital audio is supported, please ensure that the source audio is set to LPCM 2 channel audio in order to avoid unnecessary audio noise.*
4. *RS-232 commands will be not executed unless followed with a carriage return and LF. Commands are case sensitive.*

11.0 APPENDIX B: SUPPORTED INPUT RESOLUTIONS

INPUT RESOLUTION	HDMI
480i/576i	✓
480p/576p	✓
720p@50/60 Hz	✓
1080i@50/60 Hz	✓
1080p@50/60 Hz	✓
VGA@60/72/75 Hz	✓
SVGA@56/60/72/75 Hz	✓
XGA@60/70/75 Hz	✓
SXGA@60/75 Hz	✓
UXGA@60 Hz	✓
1280×800@60 Hz	✓
1680×1050@60 Hz (RB)	✓
1920×1080@60 Hz	✓

60000-LBC-PSW84