



DIGITALINX  
VALUE-ENGINEERED DIGITAL SOLUTIONS

# DL-44E-H2-KIT Owners Manual



**LIBERTY**  
AV SOLUTIONS

A SUBSIDIARY OF WESCO DISTRIBUTION, INC.

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Rev 190528

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## Important Safety Instructions

- » Please completely read and verify you understand all instructions in this manual before operating this equipment.
- » Keep these instructions in a safe, accessible place for future reference.
- » Heed all warnings.
- » Follow all instructions.
- » Do not use this apparatus near water.
- » Clean only with a dry cloth.
- » Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- » Use only accessories specified or recommended by Intelix.
- » Explanation of graphical symbols:

◊ Lightning bolt/flash symbol: the lightning bolt/flash and arrowhead within an equilateral triangle symbol is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product enclosure which may be of sufficient magnitude to constitute a risk of shock to a person or persons.



◊ Exclamation point symbol: the exclamation point within an equilateral triangle symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.



- » **WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE AND OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD NOT BE PLACED ON THIS APPARATUS.**
- » Use the mains plug to disconnect the apparatus from the mains.
- » **THE MAINS PLUG OF THE POWER CORD MUST REMAIN READILY ACCESSIBLE.**
- » Do not defeat the safety purpose polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of your obsolete outlet. **Caution! To reduce the risk of electrical shock, grounding of the center pin of this plug must be maintained.**
- » Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and the point where they exit from the apparatus.
- » Do not block the air ventilation openings. Only mount the equipment per Intelix’s instructions.
- » Use only with the cart, stand, table, or rack specified by Intelix or sold with the equipment. When/if a cart is used, use caution when moving the cart/equipment combination to avoid injury from tip-over.
- » Unplug this apparatus during lightning storms or when unused for long periods of time.
- » **Caution! Shock Hazard. Do not open the unit.**
- » Refer to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



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## Product Overview

The DL-44E-H2-KIT is an HDMI 2.0 compatible 4x4 matrix switcher kit which consists of an HDMI and HDBaseT matrix switcher, 3 compatible HDBaseT receivers and accessories. The HDMI and HDBaseT matrix switcher features 4 HDMI inputs, 3 HDBaseT outputs + 1 HDMI output. Digital and/or analog audio can be de-embedded from the 4th output (HDMI). The matrix switcher supports EDID management, is HDCP 2.2 and HDMI 2.0 compliant. The 3 HDBaseT transmitter outputs are compatible only with the 3 HDBaseT receivers that are included with the kit. The HDBaseT extender circuits are capable of extending 4K/60Hz 4:4:4 signals up to 40m, 1080p up to 70m all while powering the remote receivers using CAT6 F/UTP rated cable for each extension circuit. The HDBaseT receivers can also extend bi-directional IR that can be free-routed from the HDBaseT receiver locations to the local switcher to allow flexible control of sources or devices living in the A/V headend.

The DigitaLinx DL-44E-H2-KIT can transport HDMI data rates up to 18Gbps over HDBaseT. The system enables high data rates by utilizing visual lossless compression at a 2:1 data compression rate when the signal surpasses 10Gbps, anything under 10Gbps will never be compressed. Supports static HDR (HDR10) only when data rate exceeds 18Gbps, supports dynamic HDR (HDR10+ / Dolby Vision) when data rate is 10Gbps or less.

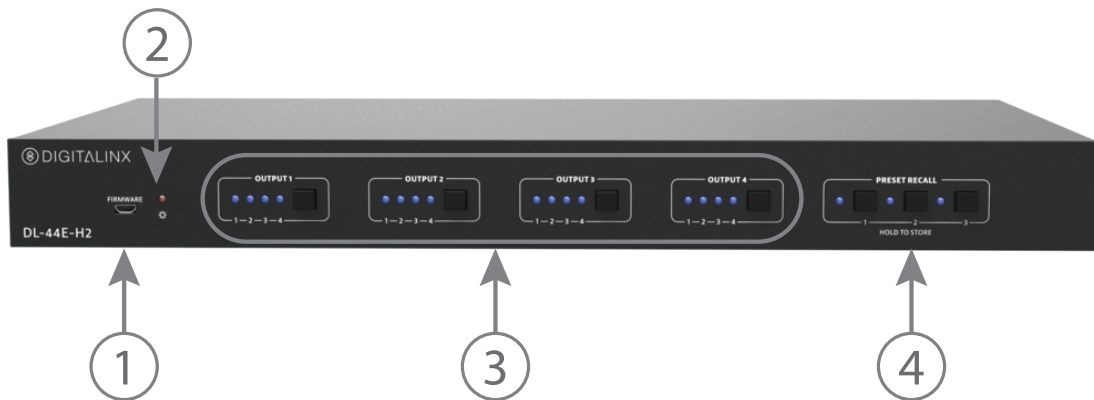
The switcher kit can be controlled either by front panel buttons, IR remote, TCP/IP, RS232 or by the internal built in web GUI/server.

## Product Overview

- 4x4 HDMI 2.0 and HDBaseT Matrix Switcher
- (3) 70m HDBaseT Receivers
- Quick Install Guide
- (1) IR Remote
- (4) IR Emitters
- (4) IR Receivers
- (1) 5-pin Phoenix connector
- (1) 3-pin Phoenix connector
- (1) DB9 to 3 pin Phoenix Adapter Cable for RS232
- (1) DC24V 2.71A power supply with US, UK, EU and UA power plugs
- (8) Rack mount ears with 8 mounting screws
- (4) Plastic Cushions

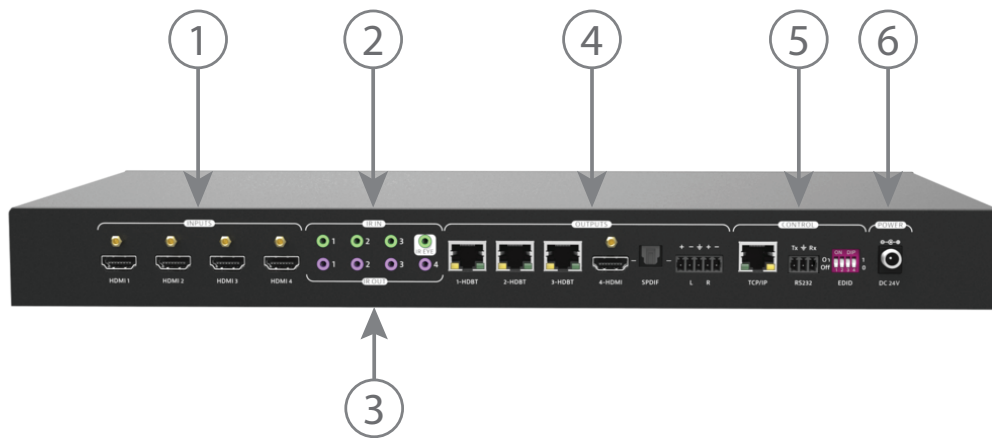
# Product View- Switcher

## Switcher - Front Panel



1. **FIRMWARE** - Micro USB port for firmware upgrades
2. **POWER LED** - Illuminates red when power is applied
3. **FRONT PANEL SWITCHING**
  - There are four LEDs that corresponds to every source input and labeled accordingly 1-4. Illuminates blue to indicate which source is selected for each output
  - Press the output button repeatedly to through inputs
4. **PRESET RECALL**- Save / Recall switching presets
  - Press and hold buttons 1-3 to save current switching status
  - Press the buttons 1-3 to recall the saved switching preset

## Switcher - Rear Panel



### 1. INPUTS

- *HDMI 1-4* - HDMI inputs 1-4

### 2. IR IN

- *1-3* - 3.5mm ports for IR receivers for IR pass through control
- *IR EYE* - 3.5mm ports for IR receiver for switchers IR remote control

### 3. IR OUT

- *1-4* - 3.5mm ports for IR emitters for IR pass through control

### 4. OUTPUTS

- *1-3 HDBT* - HDBaseT outputs 1-3
- *4 HDMI* - HDMI output
- *SPDIF* - Digital S/PDIF audio output
- *L/R* - Analog RCA stereo audio output

### 5. CONTROL

- *TCP/IP* - RJ45 to control device via network / web GUI
- *RS232* - 3 pin phoenix connector for RS232 control
- *EDID* - 4 pin dip switch for EDID settings

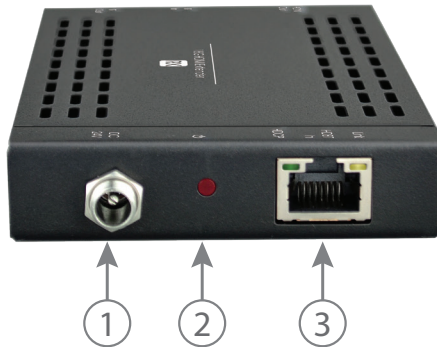
### 6. DC24V- Locking power supply port

### ***HDBaseT Receiver - Front Panel***



1. **HDMI OUT** - HDMI output port for connection to TV display
2. **IR IN** - 3.5mm IR input port for connection to IR receiver or IR system
3. **IR OUT** - 3.5mm IR output port for connection to IR emitter

### ***HDBaseT Receiver - Rear Panel***



1. **DC24V** - Locking power supply port
2. **POWER LED** - Illuminates red when power is applied
3. **HDBT IN** - RJ45 HDBaseT connection. Connect Cat6 cable to HDBT output transmitter of the DL-44E-H2-KIT
  - **LINK LED** - Illuminates orange when there is a valid HDBaseT link between switcher and receiver
  - **HDCP LED** - Illuminates green when video content is encrypted

# Installation Instructions

## ***Rack Mounting the Switcher***

Remove the screws on both sides of the switcher, then attach the supplied rack mounting ears / clips for rack-mounting.

## ***Mounting the HDBaseT Receivers***

Remove the screws on both sides of the receiver, then attach the supplied mounting clips for surface or rack mounting.

At least 2 inches of free air space is required on both sides of the DL-44E-H2-KIT receivers for proper side ventilation. Avoid mounting the receiver near a power amplifier or any other source of significant heat.

## ***Connecting Video Sources***

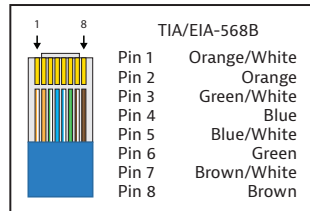
Connect source devices to the inputs on the transmitter. When using HDMI cables for source inputs, use a High Speed HDMI cable that is less than or equal to 5 meters in length for 4k60 signals and 8 meters for 1080p signals.

## ***Connecting Displays***

Connect the display devices to the HDMI output of the HDBaseT receiver using a High Speed HDMI cable that is less than or equal to 5 meters in length for 4k60 signals and 8 meters for 1080p signals.

## Connecting HDBaseT

Connect one end of a Category cable to the DL-44E-H2-KIT HDBaseT receiver labeled *HDBT IN*, then connect the other end of the Category cable to the switcher transmitter output labeled *HDBT 1-3*.



### Twisted Pair Wiring

Use TIA/EIA-568B wiring for Category 6 connection between send and receive units.

To ensure proper performance of the DL-44E-H2-KIT system, it is recommended that you use solid core, shielded Category 6 F/UTP cabling at a minimum. Category 5e F/UTP may perform well up to a certain length but may not support power over HDBaseT reliably longer distances.



When using shielded category cabling **ALWAYS...**

- ....use shielded connectors
- ....properly ground the category cable

For optimized performance use the following Liberty Wire and Cable branded cabling;

Category 6 plenum; 24-4P-P-L6SH  
Category 6A plenum; 24-4P-P-L6ASH

Category 6 NON-plenum; 24-4P-P-L6SH  
Category 6A NON-plenum; 24-4P-P-L6ASH

## Connecting Audio Output

The DL-44E-H2-KIT features two audio outputs, digital Toslink and balanced stereo analog, that mirrors the embedded HDMI audio of HDMI output 4 on the switcher.

**Note:** When using multi channel audio only the digital audio output will pass multi channel audio. The analog output will only pass 2 channel stereo.

To connect digital audio output, connect a Toslink digital audio cable from the DL-44E-H2-KIT to a compatible audio receiver with the same input. To connect the 5 pin balanced stereo analog audio output, connect positive to positive leads, negative to negative leads and ground to ground leads to a balanced audio connector / circuit. To connect to an unbalanced circuit only use the positive outputs of the 5 pin phoenix connector on the receiver.

## Connecting IR Control

The DL-44E-H2-KIT is capable of transmitting a bi-directional IR signals through the HDBaseT circuits. There is also an IR remote for the switcher that can be used to control the switchers functions such as AV switching.

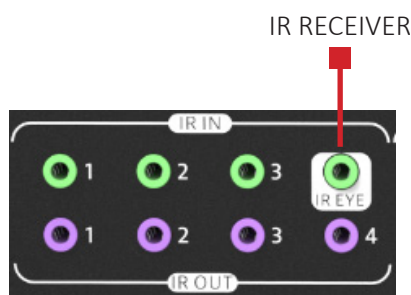


### *Passing IR Signals:*

The DL-44E-H2-KIT is capable of passing IR signals between 33 and 55 KHz. To prevent damage to any of the electronics, the extenders should be powered off while inserting or removing any IR components.

## Switcher Remote Control

To use the DL-44E-H2-KITs IR remote to control switching functions, connect one of the IR receivers that was included into the kit into the IR EYE input on the switcher. To control the switch point to switchers remote at the IR receiver.



**NOTE:** The IR EYE input is only for the switchers IR remote and will only control the switchers functions. Using this port with a 3rd party remote will not tunnel IR through the IR OUTS on the local switcher or HDBT receivers

## Bi-directional IR through HDBaseT

To control a display connected to an HDBaseT receiver via IR, connect IR receiver(s) to the IR IN (1-3) ports of the switcher, then connect IR emitter(s) to the IR OUT port of the HDBaseT receiver on the corresponding output.

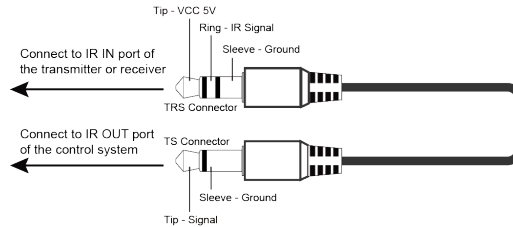
**NOTE:** The switchers IR IN to the HDBaseT receivers IR OUT pathways are always dedicated, for example the switchers IR IN 1 port only communicates through the HDBaseT output 1 receivers IR OUT port.

To control local video sources via IR connected to the local switcher from an IR remote at the HDBaseT receiver location, connect an IR receiver to the IR IN port of the HDBaseT receiver, then connect an IR emitter to the IR OUT port of the switcher to the local source to be controlled.

**NOTE:** The HDBaseT receivers IR IN to the switchers IR OUT pathways follows the AV route when AV signals are routed from input to output by default. For example, when input 1 is routed to output 3, the IR receiver connected to the HDBaseT receiver on output 3 can only communicate through the IR OUT 1 port of the switcher and vice versa. This can be changed via API where this IR pathway does NOT follow the AV route and can be routed to any IR OUT on the switcher. The control commands for this operation are referenced on page 29.

### Device Control from Control System

To pass 3rd party IR system signals through the DL-44E-H2-KIT, such as a control system, connect the TS connector of the Digitalinx IR-AC coupling cable (purchased separately) to the IR output port of the control system and connect the TRS connector of the IR-AC cable to the IR IN port of the switcher / receiver.



### Connecting RS232 Control

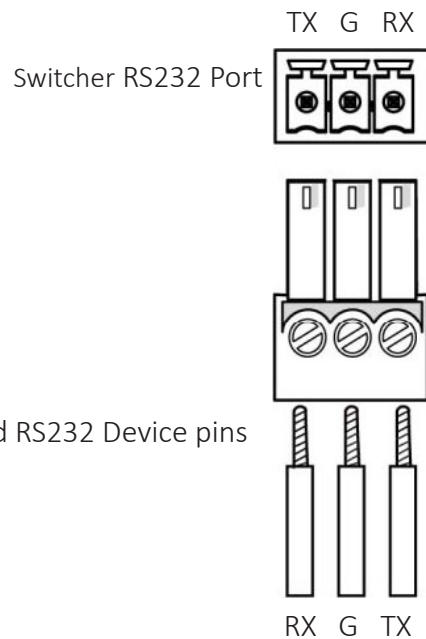
Connect a control system to the DL-44E-H2-KIT switcher via RS232 so the switcher can be controlled by a 3rd party control system.

#### RS232 Wiring

Connect the system controller RX signal to TX on the DL-44E-H2-KIT switcher, then connect the controllers TX signal to RX.

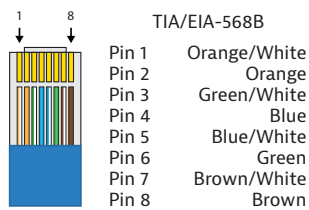
#### RS232 Settings:

- 9600 baud
- 8 Data Bits
- 1 Stop Bit
- Parity = none



## Connecting Ethernet

The DL-44E-H2-KIT may be controlled via Ethernet using the internal web GUI or via Telnet server.



The TCP/IP port requires a standard straight-through Category 5 or greater cable with the TIA/EIA-568B crimp pattern for optimal operation.

The default settings for the TCP/IP port are:  
IP address: 192.168.0.178, Telnet port 4001

## Web Browser Control / GUI

To connect to the DL-44E-H2-KIT web GUI, connect a computer to the same LAN as the DL-44E-H2-KIT, be sure your computer is in the same network ID range as the switcher, enter in the default IP of the switcher into a web browser. See page 14 for web GUI settings and configuration.

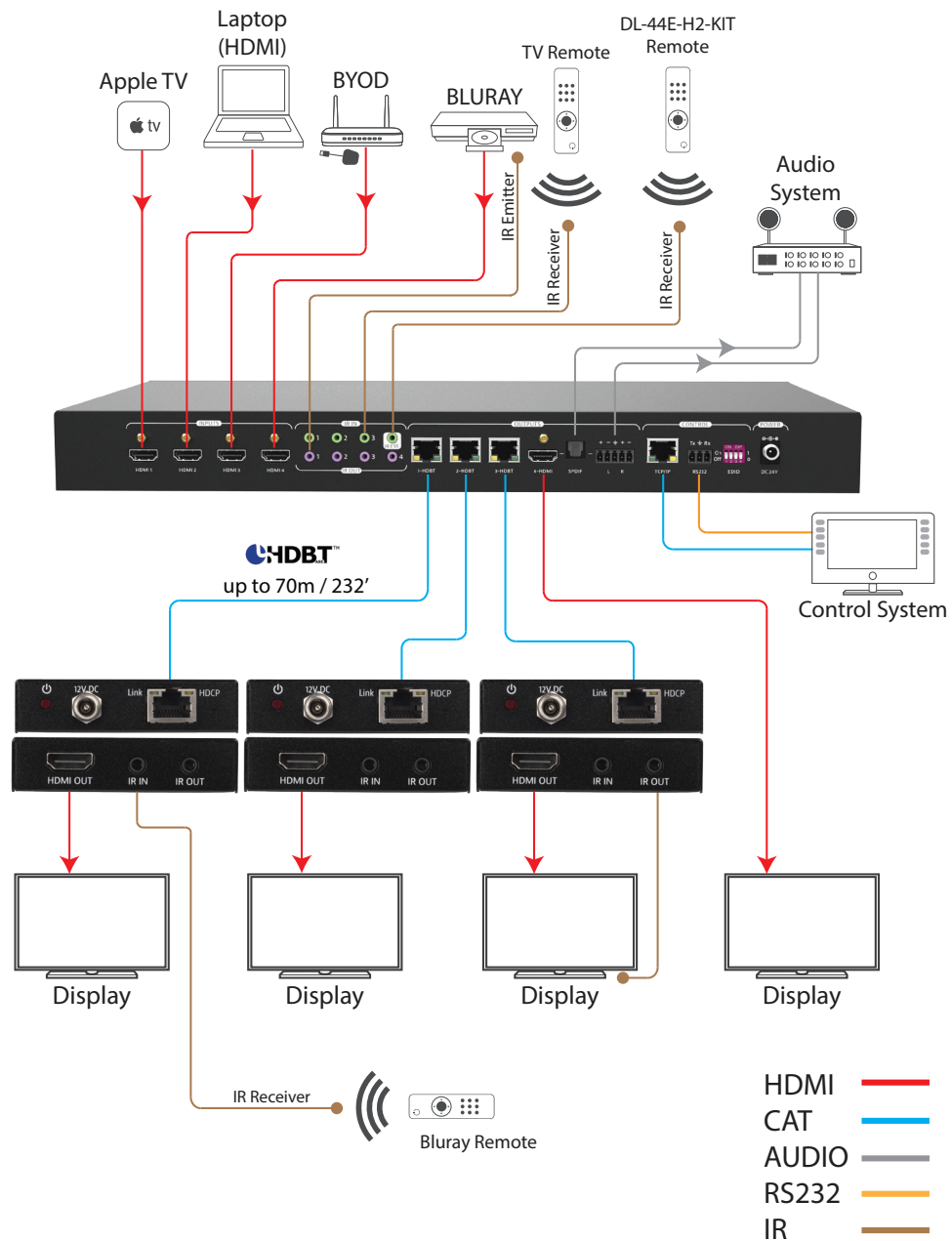
## Telnet Control

To connect to the DL-44E-H2-KIT and control it as a Telnet client, connect a computer to the same LAN as the DL-44E-H2-KIT, be sure your computer is in the same network ID range as the switcher, enter in the default IP of the switcher into a telnet server and use Port 4001 to connect. See page 27 for all the available control commands for this switcher kit.

## Applying Power

Connect the included power supply to the DL-44E-H2-KIT and lock the power supply to the power connector by twisting the locking collar clockwise. The switcher powers all the receivers in the kit via PoC so power supplies for the receivers are not required.

# A/V Diagram

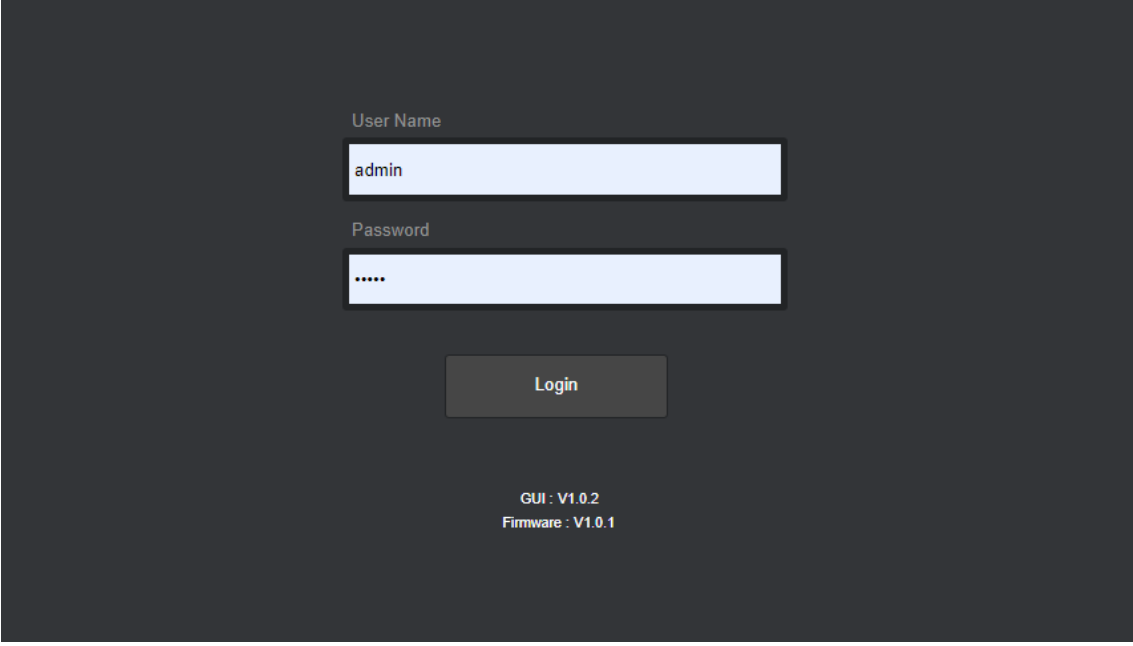


# Web Browser Control / System Settings

## ***Connecting to Web Control Interface***

Open a web browser and type in the IP address of the DL-44E-H2-KIT. The default IP address is 192.168.0.178. Be sure the computer you are using to connect to the DL-44E-H2-KIT web GUI is in the same IP / Network ID range.

The login screen below will appear. The default user name and password is *admin*



The screenshot shows a dark-themed login interface. At the top, there is a label "User Name" above a light blue input field containing the text "admin". Below this is a label "Password" above another light blue input field containing five dots. A dark grey "Login" button is centered below the password field. At the bottom of the screen, the text "GUI : V1.0.2" and "Firmware : V1.0.1" is displayed.

## Audio / Video Switching

The *SWITCHING* menu allows you to route any input to any output.

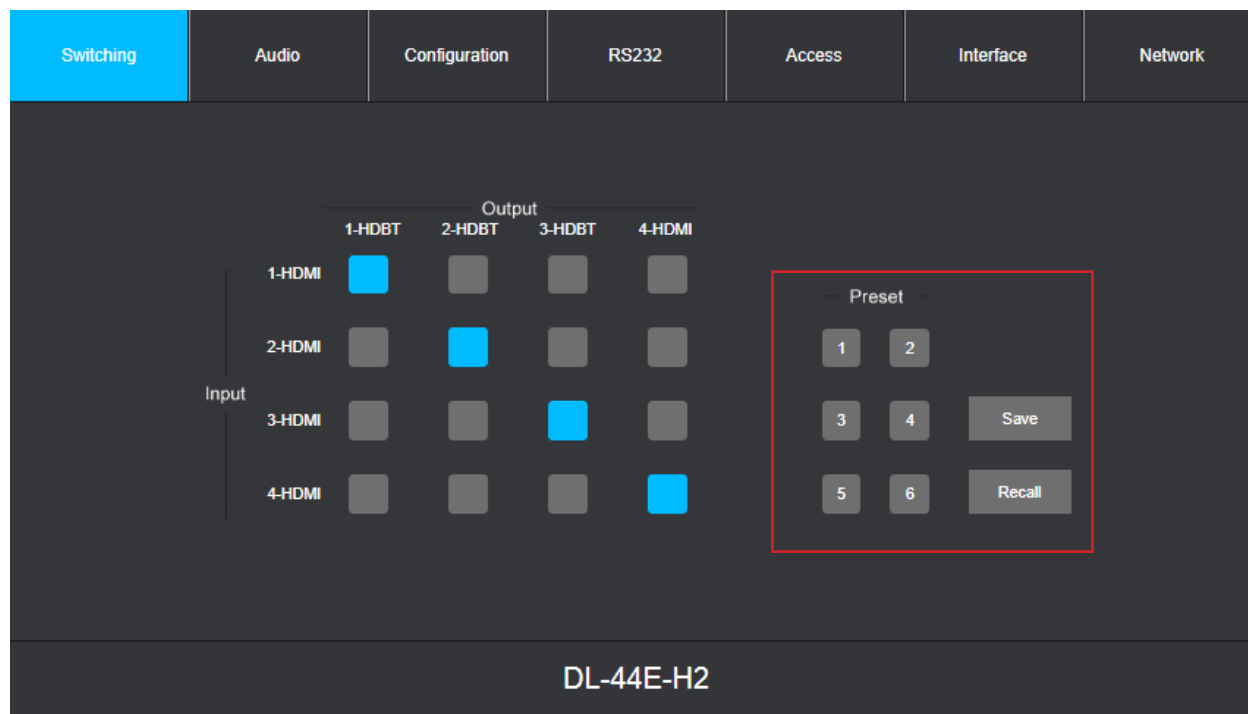
To switch the AV route, check any of the *INPUT* buttons corresponding to the desired *OUTPUT* buttons. The route will take place immediately.



## Switching Presets

The *SWITCHING* menu allows you to save and recall pre configured AV scenes / routes.

To save the current routing scheme into a preset, click on the desired preset number and press *SAVE*. To recall the preset press the desired preset number and press *RECALL*.



## Audio Output Control

The *AUDIO* menu allows you to turn the analog or digital audio output either ON or OFF.

To turn the desired audio output on or off, press the corresponding buttons for the analog or digital audio output and then click *CONFIRM*.

|           |       |               |       |        |           |         |
|-----------|-------|---------------|-------|--------|-----------|---------|
| Switching | Audio | Configuration | RS232 | Access | Interface | Network |
|-----------|-------|---------------|-------|--------|-----------|---------|

|               | On                               | Off                   |
|---------------|----------------------------------|-----------------------|
| Analog Audio  | <input checked="" type="radio"/> | <input type="radio"/> |
| Digital Audio | <input checked="" type="radio"/> | <input type="radio"/> |

Confirm

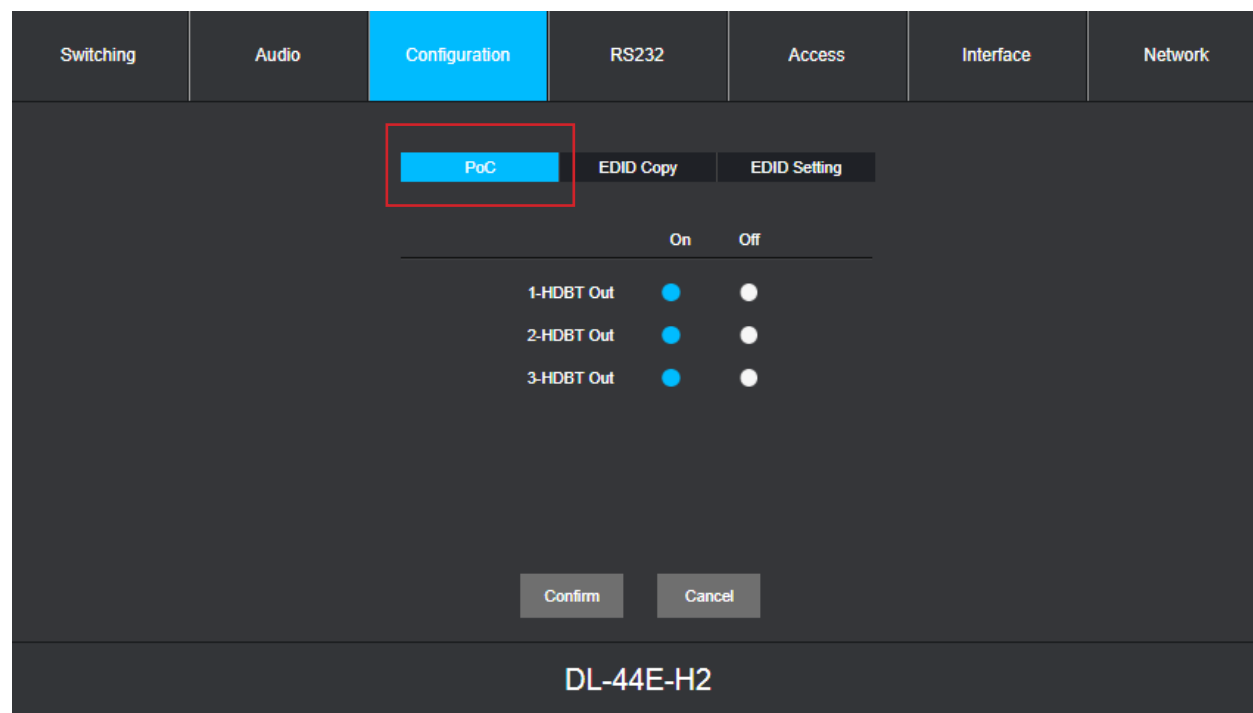
Cancel

DL-44E-H2

## PoC Power Configuration

The *CONFIGURATION* menu allows you to turn the PoC (power over cable) option on or off for a particular HDBaseT output. When turning OFF this feature the HDBaseT receiver will not be powered using the switcher and would require a power supply for power. This feature is ON by default.

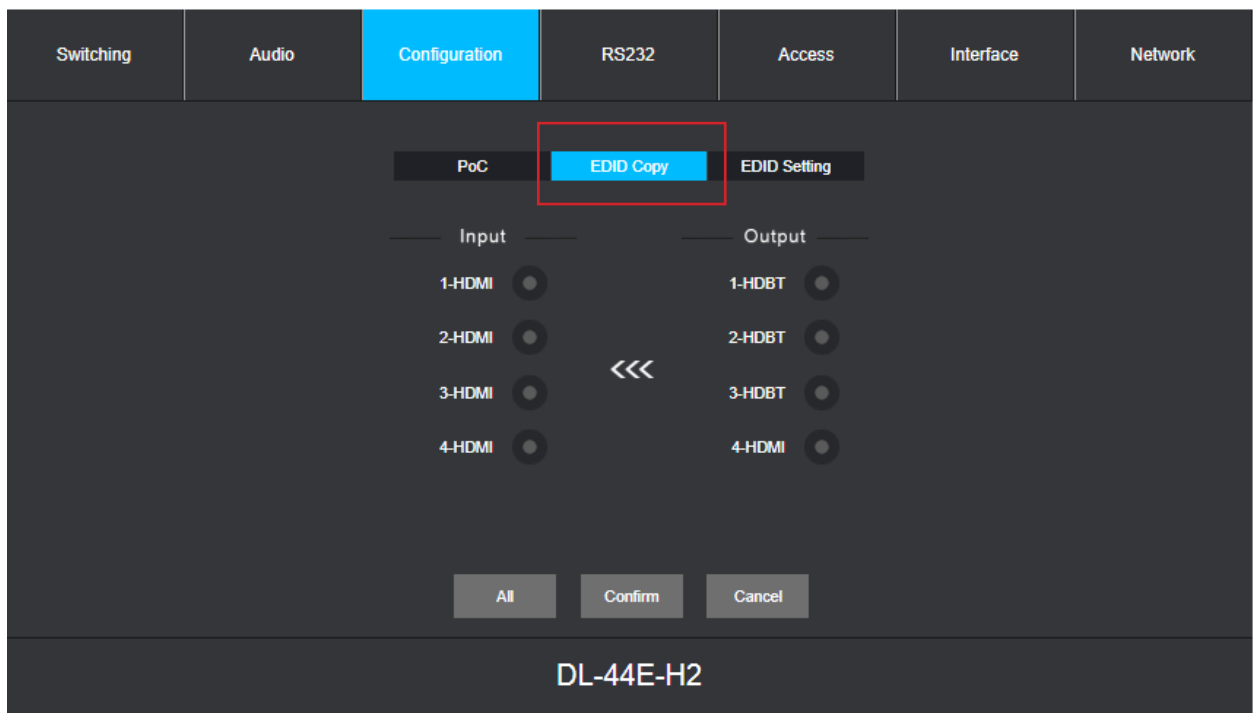
To turn the PoC power option on or off, navigate to the *CONFIGURATION* menu and click the *PoC* submenu, then select the on or off button corresponding to the HDBaseT output and press *CONFIRM*.



## EDID Configuration

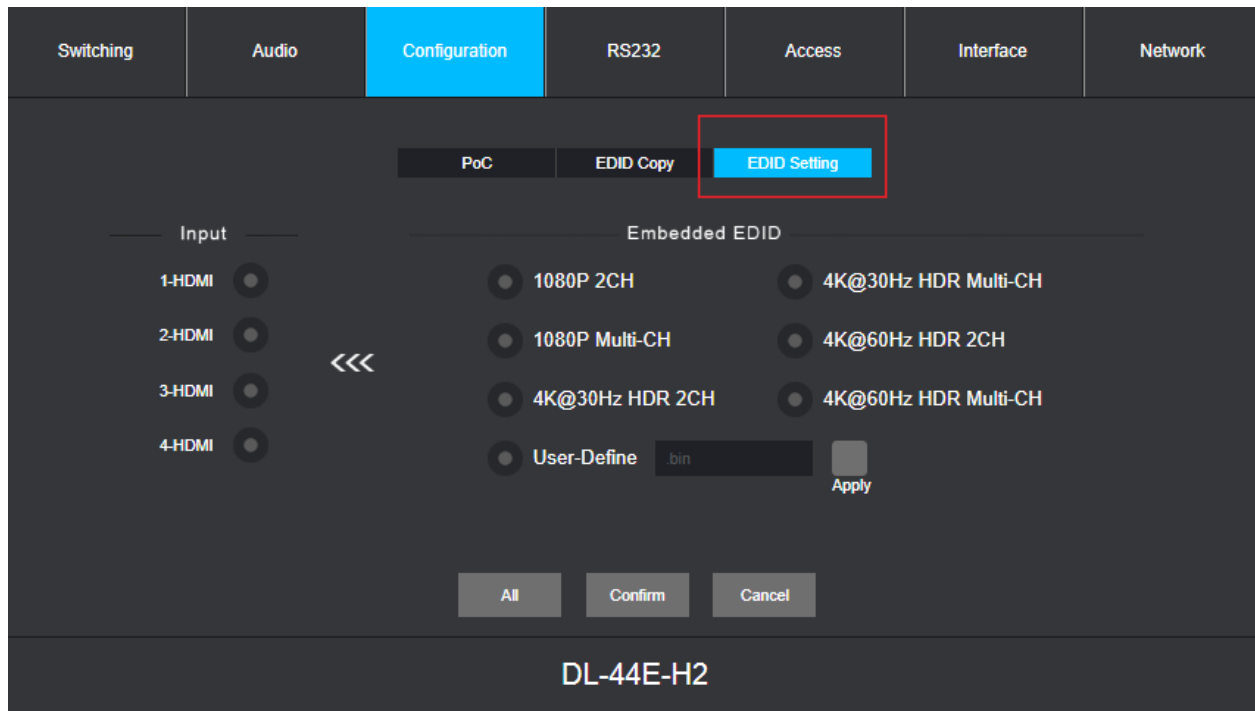
The *CONFIGURATION* menu allows you to either copy EDID from a display and assign the EDID table to an input, assign a pre-defined EDID table to an input or upload a user defined EDID table to an input.

To copy EDID from a connected display on an output of an HDBaseT receiver to an input, navigate to the *CONFIGURATION* menu, then click on the *EDID COPY* submenu. From here you can select which output to which you would copy EDID from and assign to one or many or all inputs. To copy EDID from one output and assign to ALL inputs, select the desired output and click *ALL*. To copy EDID from one output to assign to one or more inputs, select the desired output and then click the desired inputs, then click *CONFIRM*.



To assign a pre-defined EDID table to one or more or all inputs, navigate to the *CONFIGURATION* menu, then click on the *EDID SETTINGS* submenu. To select a pre-defined EDID option to assign to ALL inputs, select the desired EDID option and click *ALL*. To select a pre-defined EDID option to assign to one or more inputs, select the desired EDID option and click the desired inputs then click *CONFIRM*.

To assign a user defined EDID table to one or more or all inputs, click the field *USER DEFINE* to locate and select the user defined EDID table from a local hard drive. Select the desired inputs to apply the custom EDID table to, then click *APPLY*.



## Testing RS232

The *RS232* menu allows you to test RS232 command strings through the RS232 serial port output on the switcher connected to a 3rd party device such as a display or projector.

Check either *ASCII* or *HEX* formatted string to send to RS232 output, choose the desired *Baud Rate* setting, choose the desired *Command Ending* terminator, then enter the command string under the *Command* field. Then click *Send* to test the command.

To test HEX formatted commands use the following syntax format: XX XX XX XX (XX = hex character). Example; the display ON command you are testing is 0xA1 0xA2 0xA3 0xA4 0xA5, enter in A1 A2 A3 A4 A5 into the *Command* field to test, the 0x identifiers is not necessary.

The screenshot shows the RS232 configuration menu of the DL-44E-H2 switcher. The menu is divided into tabs: Switching, Audio, Configuration, RS232 (selected), Access, Interface, and Network. The RS232 section contains the following controls:

- Format selection: **HEX** (selected) and **ASCII** (unselected).
- Baud Rate: A dropdown menu set to **9600**.
- Command Ending: A dropdown menu set to **NULL**.
- Command: An empty text input field.
- Send: A button to execute the command.

The device name **DL-44E-H2** is displayed at the bottom of the interface.

## Access Settings

The *Access* menu allows you to change the password credentials for the admin login as well as lock / unlock the front panel buttons of the DL-44E-H2-KIT.

To change the password for the admin login, enter in the desired password then click *Confirm*

To enable / disable front panel lock control, check on either the ON or OFF button under *Front Panel Lock*

The screenshot displays the web interface of the DL-44E-H2 device. At the top, there is a navigation bar with seven tabs: Switching, Audio, Configuration, RS232, Access (highlighted in blue), Interface, and Network. Below the navigation bar, the main content area is divided into two sections. The first section, titled 'Credentials', contains a 'Password:' label followed by a text input field containing the word 'admin' and a 'Confirm' button. The second section, titled 'Front Panel Lock', features a toggle switch. The toggle is currently in the 'OFF' position, indicated by a blue bar with three vertical lines. To the left of the toggle is the label 'ON' and to the right is 'OFF'. At the bottom of the interface, a dark grey footer bar contains the text 'DL-44E-H2'.

## Interface (Input Names)

The *Interface* menu allows you to define the AV input and output names as well as assign a title to GUI control

To add a title to the GUI control, enter in the desired name under *Title Bar Label*: then click *Confirm* to save

To add user defined names to the video inputs or outputs, enter in the name for each input: then click *Confirm* to save

| Switching                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Audio                               | Configuration | RS232                               | Access | Interface | Network |       |  |        |  |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------|-------------------------------------|--------|-----------|---------|-------|--|--------|--|----|-------------------------------------|----|-------------------------------------|----|-------------------------------------|----|-------------------------------------|----|-------------------------------------|----|-------------------------------------|----|-------------------------------------|----|-------------------------------------|
| <div>Title Bar Label: <input type="text" value="DL-44E-H2"/></div> <div>Button Labels:</div> <table><thead><tr><th colspan="2">Input</th><th colspan="2">Output</th></tr></thead><tbody><tr><td>1:</td><td><input type="text" value="1-HDMI"/></td><td>1:</td><td><input type="text" value="1-HDBT"/></td></tr><tr><td>2:</td><td><input type="text" value="2-HDMI"/></td><td>2:</td><td><input type="text" value="2-HDBT"/></td></tr><tr><td>3:</td><td><input type="text" value="3-HDMI"/></td><td>3:</td><td><input type="text" value="3-HDBT"/></td></tr><tr><td>4:</td><td><input type="text" value="4-HDMI"/></td><td>4:</td><td><input type="text" value="4-HDMI"/></td></tr></tbody></table> <div><input type="button" value="Confirm"/> <input type="button" value="Cancel"/></div> |                                     |               |                                     |        |           |         | Input |  | Output |  | 1: | <input type="text" value="1-HDMI"/> | 1: | <input type="text" value="1-HDBT"/> | 2: | <input type="text" value="2-HDMI"/> | 2: | <input type="text" value="2-HDBT"/> | 3: | <input type="text" value="3-HDMI"/> | 3: | <input type="text" value="3-HDBT"/> | 4: | <input type="text" value="4-HDMI"/> | 4: | <input type="text" value="4-HDMI"/> |
| Input                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                     | Output        |                                     |        |           |         |       |  |        |  |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |
| 1:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <input type="text" value="1-HDMI"/> | 1:            | <input type="text" value="1-HDBT"/> |        |           |         |       |  |        |  |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |
| 2:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <input type="text" value="2-HDMI"/> | 2:            | <input type="text" value="2-HDBT"/> |        |           |         |       |  |        |  |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |
| 3:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <input type="text" value="3-HDMI"/> | 3:            | <input type="text" value="3-HDBT"/> |        |           |         |       |  |        |  |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |
| 4:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <input type="text" value="4-HDMI"/> | 4:            | <input type="text" value="4-HDMI"/> |        |           |         |       |  |        |  |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |
| DL-44E-H2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                     |               |                                     |        |           |         |       |  |        |  |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |    |                                     |

## Network Settings

The *Network* menu allows you to set the IP address mode to either Static or DHCP, by default the DL-44E-H2-KIT is set to Static mode with a pre-defined IP address of 192.168.0.178 / subnet 255.255.255.0 and gateway set to 192.168.0.1

Check either the *DHCP* or *Static* mode to change IP modes. If using a Static IP address enter in the IP address, subnet and gateway, then click *Confirm*. You will need to reboot the switch for the new network settings to take place.

|           |       |               |       |        |           |         |
|-----------|-------|---------------|-------|--------|-----------|---------|
| Switching | Audio | Configuration | RS232 | Access | Interface | Network |
|-----------|-------|---------------|-------|--------|-----------|---------|

MAC Address: CC-8C-DA-35-D0-1B

DHCP ☐ Static IP ☒

IP Address: 192.168.0.178

Subnet Mask: 255.255.255.0

Gateway: 192.168.0.1

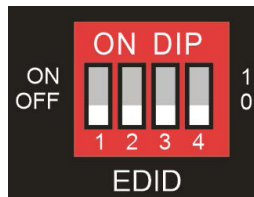
Confirm

DL-44E-H2

# EDID Management

EDID (Extended Display Identification Data) is data generated from a connected display in an HDMI system to communicate the resolution capabilities to a connected video source. If preset EDID tables are preferred for all inputs rather than using the web GUI or IR remote, choose an EDID settings below and set the dip-switches to the specified value.

When in the down position, the switch represents “0” or OFF, when the switch position in the up position it represents “1” or ON.

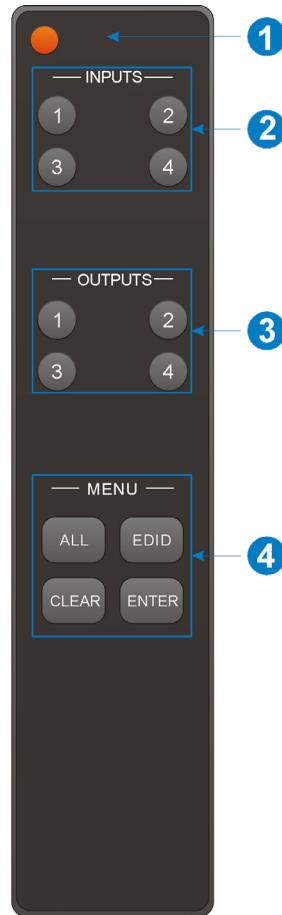


| EDID Setting                                        | Position 1 | Position 2 | Position 3 | Position 4 |
|-----------------------------------------------------|------------|------------|------------|------------|
| Enable web GUI, IR Remote EDID Management (default) | 0          | 0          | 0          | 0          |
| 1080p@60Hz, Stereo Audio                            | 0          | 0          | 0          | 1          |
| 1080p@60Hz, Multi channel Audio                     | 0          | 0          | 1          | 0          |
| 3840x2160@30Hz, HDR, Stereo Audio                   | 0          | 0          | 1          | 1          |
| 3840x2160@30Hz, HDR, Multi channel Audio            | 0          | 1          | 0          | 0          |
| 3840x2160@60Hz, HDR, Stereo Audio                   | 0          | 1          | 0          | 1          |
| 3840x2160@60Hz, HDR, Multi channel Audio            | 0          | 1          | 1          | 0          |

**Note:** Default EDID is 1080p, 2CH. When using EDID copy, if EDID fails the EDID will default to 1080p.

# IR Remote Control

The DL-44E-H2-KIT includes a IR remote which performs routing functions available on the front panel of the switcher. When using the remote control locally, i.e., pointed directly at the switcher.



1. Enter or exit standby power button
2. Video input selection buttons
3. Switcher output selection buttons
4. Operation buttons
  - *ALL* - Use this button to confirm input routing from a selected input to ALL outputs or to confirm EDID copy from a selected output to ALL inputs
  - *CLEAR* - Use this button to clear current selection
  - *ENTER* - Use this button to confirm AV switching operation from a selected input to selected output or to copy EDID from a selected output to an selected input or all inputs
  - *EDID* - Use this to copy EDID from a selected output to a selected input

## RS232 and TCP/IP Control

RS232 Settings: 9600 baud, 8 Data bits, 1 Stop bit, Parity = None

TCP/IP Settings: User defined IP address (default IP address:192.168.0.178), Telnet port 4001

There are no spaces between any of the characters in the command string. The commands are case sensitive.

### A/V Routing and Switching

| Description                                    | Command                                                                                     | Examples                                                                                                                                                                    |
|------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Route AV input <i>[I]</i> to output <i>[O]</i> | OUT <i>[O]</i> : <i>[I]</i> .<br><br><i>[I]</i> = <i>[1-4]</i><br><i>[O]</i> = <i>[1-4]</i> | Command:<br>OUT1:4.<br><br>Response:<br>Output1 Switch To 04!<CR><LF>                                                                                                       |
| Route AV input <i>[I]</i> to all outputs       | <i>[I]</i> ALL:<br><br><i>[I]</i> = <i>[1-4]</i>                                            | Command:<br>1ALL.<br><br>Response:<br>Output1 Switch To 01!<CR><LF><br>Output2 Switch To 01!<CR><LF><br>Output3 Switch To 01!<CR><LF><br>Output4 Switch To 01!<CR><LF>      |
| Query current routing status                   | STA_VIDEO.                                                                                  | Command:<br>STA_VIDEO.<br><br>Response:<br>Output1 Switch To 01!<CR><LF><br>Output2 Switch To 01!<CR><LF><br>Output3 Switch To 01!<CR><LF><br>Output4 Switch To 01!<CR><LF> |
| Query current input link status.               | STA_IN.                                                                                     | Command:<br>STA_IN.<br><br>Response:<br>IN 01 02 03 04<CR><LF><br>LINK Y Y N N<CR><LF>                                                                                      |
| Query current output link status               | STA_OUT.                                                                                    | Command:<br>STA_OUT.<br><br>Response:<br>OUT 01 02 03 04<CR><LF><br>LINK Y Y N N<CR><LF>                                                                                    |

## ***Saving / Recalling Switch Scenes or Presets***

| <b>Description</b>                                  | <b>Command</b>                                          | <b>Examples</b>                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Store current switching status to preset <i>[P]</i> | <code>PresetSave[P].</code><br><br><i>[P] = [1-6]</i>   | <i>Command:</i><br><i>PresetSave1.</i><br><br><i>Response:</i><br><i>Preset1 Save Success!&lt;CR&gt;&lt;LF&gt;</i>                                                                                                                                                                                                             |
| Recall switching preset <i>[P]</i>                  | <code>PresetRecall[P].</code><br><br><i>[P] = [1-6]</i> | <i>Command:</i><br><i>PresetRecall1.</i><br><br><i>Response:</i><br><i>Preset3 Recall:&lt;CR&gt;&lt;LF&gt;</i><br><i>OUTPUT1 SWITCH TO 01!&lt;CR&gt;&lt;LF&gt;</i><br><i>OUTPUT2 SWITCH TO 02!&lt;CR&gt;&lt;LF&gt;</i><br><i>OUTPUT3 SWITCH TO 03!&lt;CR&gt;&lt;LF&gt;</i><br><i>OUTPUT4 SWITCH TO 04!&lt;CR&gt;&lt;LF&gt;</i> |
| Query preset routes <i>[P]</i>                      | <code>PresetSta[P].</code><br><br><i>[P] = [1-6]</i>    | <i>Command:</i><br><i>PresetSta1.</i><br><br><i>Response:</i><br><br><i>Preset1 Sta:&lt;CR&gt;&lt;LF&gt;</i><br><i>Out1 In 01!&lt;CR&gt;&lt;LF&gt;</i><br><i>Out2 In 02!&lt;CR&gt;&lt;LF&gt;</i><br><i>Out3 In 03!&lt;CR&gt;&lt;LF&gt;</i><br><i>Out4 In 04!&lt;CR&gt;&lt;LF&gt;</i>                                           |

## Independent IR Routing

**NOTE:** By default the IR pathways follow the video route. Below are commands you can use to breakaway IR so it can be separated and routed independently from video.

| Description                                  | Command                                      | Examples                                                                                                                                                                                                                |
|----------------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Enables IR switching to follow the AV route  | IRFollowON.                                  | <p>Command:</p> <p>IRFollowON.</p> <p>Response:</p> <p>IR Follow Video ON!&lt;CR&gt;&lt;LF&gt;</p>                                                                                                                      |
| Disables IR switching to follow the AV route | IRFollowOFF.                                 | <p>Command:</p> <p>IRFollowOFF.</p> <p>Response:</p> <p>IR Follow Video OFF!&lt;CR&gt;&lt;LF&gt;</p>                                                                                                                    |
| Route local IR OUT 1-4 to receiver IR IN 1-3 | IR[O]:[I].<br><br>[O] = [1-4]<br>[I] = [1-3] | <p>Command:</p> <p>IR1:3.</p> <p>Response:</p> <p>Local1 IR OUT Switch to Remote3<br/>IR IN! &lt;CR&gt;&lt;LF&gt;</p>                                                                                                   |
| Query current IR mode status                 | STA_IR.                                      | <p>Command:</p> <p>STA_IR.</p> <p>Response:</p> <p>IR Follow Video ON!<br/>Local1 IR Out Switch To Remote1<br/>IR IN!<br/>Local2 IR Out Switch To Remote2<br/>IR IN!<br/>Local3 IR Out Switch To Remote3<br/>IR IN!</p> |

## Audio Control

| Description                                  | Command    | Examples                                                                                                                                           |
|----------------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Turns the stereo analog L/R audio output ON  | IISON.     | <i>Command:</i><br><i>IISON.</i><br><br><i>Response:</i><br><i>IIS OUT ON!&lt;CR&gt;&lt;LF&gt;</i>                                                 |
| Turns the stereo analog L/R audio output OFF | IISOFF.    | <i>Command:</i><br><i>IISOFF.</i><br><br><i>Response:</i><br><i>IIS OUT OFF!&lt;CR&gt;&lt;LF&gt;</i>                                               |
| Turns the TOSLINK digital audio output ON    | SPDIFON.   | <i>Command:</i><br><i>SPDIFON.</i><br><br><i>Response:</i><br><i>SPDIF OUT ON!&lt;CR&gt;&lt;LF&gt;</i>                                             |
| Turns the TOSLINK digital audio output OFF   | SPDIFOFF.  | <i>Command:</i><br><i>SPDIFOFF.</i><br><br><i>Response:</i><br><i>SPDIF OUT OFF!&lt;CR&gt;&lt;LF&gt;</i>                                           |
| Query current audio on/off status            | STA_AUDIO. | <i>Command:</i><br><i>STA_AUDIO.</i><br><br><i>Response:</i><br><i>SPDIF OUT ON!&lt;CR&gt;&lt;LF&gt;</i><br><i>IIS OUT ON!&lt;CR&gt;&lt;LF&gt;</i> |

## System Commands

| Description                             | Command    | Examples                                                                          |
|-----------------------------------------|------------|-----------------------------------------------------------------------------------|
| Turns switcher ON                       | PowerON.   | <i>Command:</i><br>PowerON.<br><br><i>Response:</i><br>POWER ON!<CR><LF>          |
| Turns switcher OFF                      | PowerOFF.  | <i>Command:</i><br>PowerOFF.<br><br><i>Response:</i><br>POWER OFF!<CR><LF>        |
| Restores the matrix to factory defaults | RST.       | <i>Command:</i><br>RST.<br><br><i>Response:</i><br>FACTORY DEFAULT!<CR><LF>       |
| Front panel button LOCK                 | Lock.      | <i>Command:</i><br>Lock.<br><br><i>Response:</i><br>FRONT PANEL LOCKED!<CR><LF>   |
| Front panel button UNLOCK               | Unlock.    | <i>Command:</i><br>UNLOCK.<br><br><i>Response:</i><br>FRONT PANEL UNLOCK!<CR><LF> |
| Query system status                     | STA.       | <i>Command:</i><br>STA.                                                           |
| Query Firmware Version                  | /^Version. | <i>Command:</i><br>/^Version.<br><br><i>Response:</i><br>V1.0.1<CR><LF>           |

# Technical Specifications- Switcher

|                                       |                                                                                                                                                                                                                                                                                                             |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Video</b>                          |                                                                                                                                                                                                                                                                                                             |
| Video Inputs                          | (4) HDMI                                                                                                                                                                                                                                                                                                    |
| Video Input Connectors                | (4) HDMI Type A Female                                                                                                                                                                                                                                                                                      |
| Input video Signal                    | HDMI 2.0 compliant                                                                                                                                                                                                                                                                                          |
| HDMI Input Resolution Support         | Up to 4K@60Hz 4:4:4 / 8 bit deep color                                                                                                                                                                                                                                                                      |
| Video Output                          | (3) HDBaseT, (1) HDMI                                                                                                                                                                                                                                                                                       |
| Video Output Connector                | (1) Type-A Female HDMI, (3) RJ45                                                                                                                                                                                                                                                                            |
| Output Resolution Support             | Up to 3840 x 2160 @60Hz / 4:4:4 / 8 bit deep color                                                                                                                                                                                                                                                          |
| Standards                             | HDMI 2.0, HDCP 2.2                                                                                                                                                                                                                                                                                          |
| Bandwidth                             | <i>All HDMI inputs / outputs: 18Gbps</i><br><i>HDBaseT Output: 18Gbps</i>                                                                                                                                                                                                                                   |
| <b>Audio Output</b>                   |                                                                                                                                                                                                                                                                                                             |
| Audio Output                          | (1) Balanced stereo audio<br>(1) Digital SPDIF audio                                                                                                                                                                                                                                                        |
| Audio Output Connector                | (1) 5-pin terminal block (1) Toslink connector                                                                                                                                                                                                                                                              |
| Frequency Response                    | 20Hz – 20KHz, $\pm 3$ dB                                                                                                                                                                                                                                                                                    |
| Max Input Level                       | 2.0Vrms $\pm$ 0.5dB. 2V = 16dB headroom above-10dBV (316mV) nominal consumer line level signal                                                                                                                                                                                                              |
| Output Impedance                      | 70 $\Omega$                                                                                                                                                                                                                                                                                                 |
| <b>Control</b>                        |                                                                                                                                                                                                                                                                                                             |
| Control Ports                         | (1) RS232, (1) IR Eye, (3) IR IN, (4) IR OUT, (1) TCP/IP, (1) Firmware                                                                                                                                                                                                                                      |
| Control Connectors                    | (1) 3-pin terminal block- RS232, (8) 3.5mm jacks- IR, (1) RJ45- TCP/IP, (1) Micro USB- Firmware                                                                                                                                                                                                             |
| IR Carrier Frequency Range            | 33-55kHz at 5 volts                                                                                                                                                                                                                                                                                         |
| <b>HDBaseT Signal Characteristics</b> |                                                                                                                                                                                                                                                                                                             |
| Maximum Distance                      | <i>HDBaseT Output (Transmitter): 70 m (up to 1080p) , 40 m (up to 4K@60Hz / 4:4:4 / 8 bit deep color)</i>                                                                                                                                                                                                   |
| Cable Requirements                    | Solid core shielded Category 6 F/UTP cable or greater with TIA/EIA-568B crimp pattern                                                                                                                                                                                                                       |
| Bandwidth                             | <i>HDBaseT Output (Transmitter): 18Gbps</i>                                                                                                                                                                                                                                                                 |
| <b>Chassis and Environmental</b>      |                                                                                                                                                                                                                                                                                                             |
| Dimensions (WxHxD)                    | 436 mm x 44 mm x 236.5 mm (17 in x 1.7 in x 9.3 in) – 1RU                                                                                                                                                                                                                                                   |
| Shipping Weight                       | 1.9kg (2.2 lbs.)                                                                                                                                                                                                                                                                                            |
| Operating Temperature                 | 0° to +55° C (+32° to +131° F)                                                                                                                                                                                                                                                                              |
| Operating Humidity                    | 10% to 90%, Non-condensing                                                                                                                                                                                                                                                                                  |
| Storage Temperature                   | -20° to +70° C (+14° to +158° F)                                                                                                                                                                                                                                                                            |
| Storage Humidity                      | 10% to 90%, Non-condensing                                                                                                                                                                                                                                                                                  |
| <b>Power, ESD, and Regulatory</b>     |                                                                                                                                                                                                                                                                                                             |
| Power Supply Input                    | 100V-240VAC / 50-60 Hz                                                                                                                                                                                                                                                                                      |
| Power Supply Output                   | 24VDC / 2.71A                                                                                                                                                                                                                                                                                               |
| Power Consumption                     | 58 watts (max)                                                                                                                                                                                                                                                                                              |
| ESD Protection                        | 15kV                                                                                                                                                                                                                                                                                                        |
| Product Regulatory                    | FCC, CE, RoHS                                                                                                                                                                                                                                                                                               |
| Power Supply Regulatory               | CE, RoHS                                                                                                                                                                                                                                                                                                    |
| <b>Other</b>                          |                                                                                                                                                                                                                                                                                                             |
| Standard Warranty                     | 5 years                                                                                                                                                                                                                                                                                                     |
| Included Accessories                  | Quick Install Guide, (1) 3-pin Phoenix connectors, (1) 5-pin Phoenix connectors, IR Remote, (4) IR Emitters, (4) IR Receivers, (1) DB9 to 3 pin Phoenix adapter cable for RS232, (1) DC24V power supply with US, UK, EU and AU power plug, (8) Rack mount ears with 8 mounting screws, (4) Plastic Cushions |

Distances and picture quality may be affected by cable grade, cable quality, source and destination equipment, RF and electrical interference, and cable patches.

# Technical Specifications- HDBaseT Receiver

|                                       |                                                                                              |
|---------------------------------------|----------------------------------------------------------------------------------------------|
| <b>Supported Audio and Video</b>      |                                                                                              |
| Video Input                           | (1) HDBaseT                                                                                  |
| Video Input Connector                 | (1) RJ45                                                                                     |
| Video Output                          | (1) HDMI                                                                                     |
| Video Output Connector                | (1) HDMI Type A Female                                                                       |
| Video Compliance                      | HDMI 2.0, HDCP 2.2                                                                           |
| Output Resolution Support             | Up to 4K@60Hz (4:4:4 chroma sub-sampling / 8 bit deep color)                                 |
| Embedded Audio                        | Supports up to 8Ch LPCM, Dolby TrueHD, DTS-HD, Dolby Digital5.1, DTS 5.1, Dolby Digital Plus |
| <b>HDBaseT Signal Characteristics</b> |                                                                                              |
| Maximum Distance                      | 70 m (up to 1080p) , 40 m (up to 4K@60Hz / 4:4:4 / 8 bit deep color)                         |
| Cable Requirements                    | Solid core shielded Category 6 F/UTP cable or greater with TIA/EIA-568B crimp pattern        |
| Bandwidth                             | 18Gbps                                                                                       |
| <b>Control</b>                        |                                                                                              |
| Control Ports                         | (1) IR IN, (1) IR OUT                                                                        |
| Control Connectors                    | (2) 3.5mm jacks                                                                              |
| IR Carrier Frequency Range            | 33-55kHz at 5 volts                                                                          |
| <b>Chassis and Environmental</b>      |                                                                                              |
| Dimensions (WxHxD)                    | 74 mm x 18 mm x 120 mm (2.9 in x .7 in x 4.7 in)                                             |
| Shipping Weight                       | 235g (.5 lbs.)                                                                               |
| Operating Temperature                 | 0° to +40° C (+32° to +104° F)                                                               |
| Operating Humidity                    | 10% to 90%, Non-condensing                                                                   |
| Storage Temperature                   | -10° to +50° C (+14° to +122° F)                                                             |
| Storage Humidity                      | 10% to 90%, Non-condensing                                                                   |
| <b>Power, ESD, and Regulatory</b>     |                                                                                              |
| Power Supply Input Power              | 24V DC 1.25A or PoC (Power Over Cable), 100-240VAC, 50/60Hz                                  |
| Power Consumption                     | 9.5 watts (max)                                                                              |
| ESD Protection                        | 15kV                                                                                         |
| Product Regulatory                    | FCC, CE, RoHS                                                                                |
| Power Supply Regulatory               | CE, RoHS                                                                                     |
| <b>Other</b>                          |                                                                                              |
| Standard Warranty                     | 5 years                                                                                      |

Distances and picture quality may be affected by cable grade, cable quality, source and destination equipment, RF and electrical interference, and cable patches.

Thank you for your purchase.

For Technical Support please call our toll  
free number at 800-530-8998 or email us at  
[supportlibav@libav.com](mailto:supportlibav@libav.com)

[www.libav.com](http://www.libav.com)

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