DIGITALINX
VALUE-ENGINEERED DIGITAL SOLUTIONS

DL-SE3H1V-C Owners Manual

**LIBERTY**
AV SOLUTIONS
A SUBSIDIARY OF WESCO DISTRIBUTION, INC.

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.
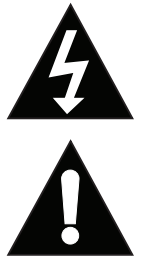
» **WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE AND OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD NOT BE PLACED ON THIS APPARATUS.**

» 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.

Table of Contents

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Product Overview

The Digitalinx DL-SE3H1V-C is a 4K compatible, 4 input multi format A/V auto switcher, extender and video scaler system that supports long distance transport of HDMI between transmitter and receiver up to 70 meters / 230' using Cat6 cabling.

The DL-SE3H1V-C features a total of 3 video inputs on the transmitter; (2) HDMI, (1) VGA with 3.5 Audio and (1) HDMI input located on the receiver for integration of a local HDMI input such as a wireless BYOD / screen share product. The receiver also features a stereo analog audio output to connect to an audio amplifier for audio reinforcement, an RS232 serial control port for display control / connectivity and two relay ports for projection screen or window shade control / connectivity.

The DL-SE3H1V-C can be controlled via push button control on the transmitter and receiver or by issuing telnet and serial commands when integrated with a 3rd party control system. The system can be programmed to automate RS232, CEC and relay control when a new video signal is introduced to the system thus creating a stand alone, plug and play A/V automation system that consolidates control of a connected display and room peripherals such as a projector screen or window shade.

Package Contents

- DL-SE3H1V-C Transmitter and Receiver Set
- Quick Install Guide
- DC12V 3A power supply with US, UK, EU and AU adapter rings
- (4) 3.5mm 3 pin phoenix male connectors
- (4) Mounting Brackets

Front and Rear Panels

Transmitter
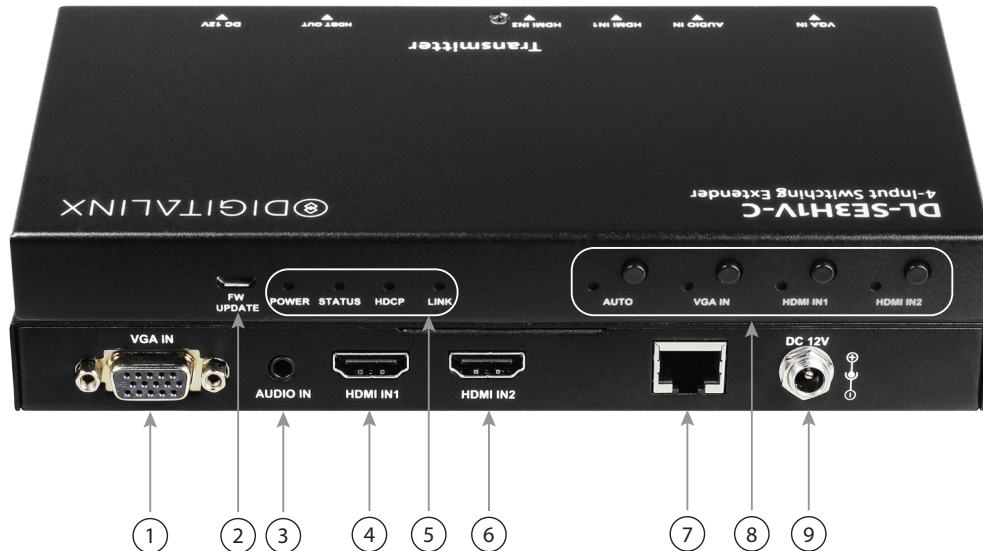
1. VGA IN - VGA video input
2. FW UPDATE - USB port for transmitter firmware updates
3. AUDIO IN - 3.5mm analog audio input to accompany VGA input
4. HDMI IN1- HDMI video input #1
5. STATUS LEDS
   - *POWER*- When solid, the transmitter is receiving power
   - *STATUS*- When solid, the transmitter is working properly
   - *HDCP* - When solid, HDCP content is being transmitted, when blinking NON HDCP content is being transmitted
   - *LINK* - When solid, the link between transmitter and receiver is normal. When blinking or off the link between transmitter and receiver is not operable
6. HDMI IN2 - HDMI video input #2
7. HDBT OUT- HDBaseT output to connect to HDBaseT input on receiver via category cable
8. FRONT PANEL CONTROLS
   - *AUTO*- Enables auto switcher. When LED is on the auto switch function is ON
   - *VGA IN* - VGA video input selector
   - *HDMI IN1*- HDMI IN1 input selector
   - *HDMI IN2*- HDMI IN2 input selector
     LED indicator status for VGA and HDMI inputs:
       - When LED is violet, the input has signal and is selected
       - When LED is orange, the input has signal but is not selected
       - When LED is blue, the input has no signal but is selected
       - When LED is off, the input has no signal and is not selected
9. DC12V- Locking power port to connect DC12V power adapter

Receiver
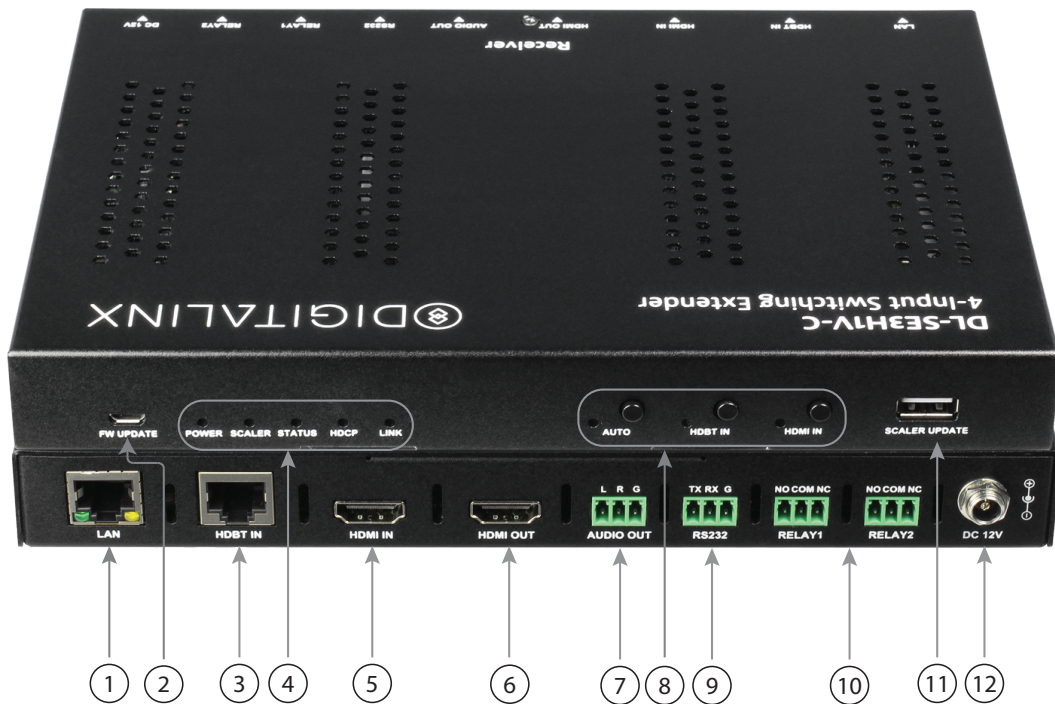
1. LAN - RJ45 Telnet control port
2. FW UPDATE - USB port for receiver firmware updates
3. HDBT IN - HDBaseT input to connect to HDBaseT output on transmitter via category cable
4. STATUS LEDS
   - *POWER* - When solid, the transmitter is receiving power
   - *SCALER* - When solid, the scaler module is working properly
   - *STATUS* - When blinking, the transmitter is working properly
   - *HDCP* - When solid, HDCP content is being transmitted, when blinking NON HDCP content is being transmitted
   - *LINK* - When solid, the link between transmitter and receiver is normal. When blinking or off the link between transmitter and receiver is lost and should be reset
5. HDMI IN - HDMI receiver input for local HDMI source
6. HDMI OUT - HDMI output for display connectivity
7. AUDIO OUT - Stereo analog audio output
8. FRONT PANEL CONTROL
   - *AUTO* - Enables auto switcher. When LED is on the auto switch function is ON
   - *HDBT IN* - HDBaseT / Transmitter input selector
   - *HDMI IN* - Receiver HDMI input selector
     LED indicator status for HDBT and HDMI input:
     - When LED is violet, the input has signal and is selected
     - When LED is orange, the input has signal but is not selected
     - When LED is blue, the input has no signal but is selected
     - When LED is off, the input has no signal and is not selected
9. RS232 - Serial control port for display control / 3rd party control
10. RELAY 1 / RELAY 2 - Relay port 1 and 2 for room peripheral control
11. SCALER UPDATE - USB port for scaler firmware updates
12. DC12V - DC12V - Locking power port to connect DC12V power adapter

Installation Instructions

Quick Start

1. Mount the switcher / extender set
2. Connect sources
3. Connect display
4. Connect audio output (optional)
5. Connect control (optional)
6. Apply power

Mount the Switcher / Extender

At least 2 inches of free air space is required on both sides of the DL-SE3H1V-C transmitter or receiver for proper side ventilation. Avoid mounting the DL-SE3H1V-C near a power amplifier or any other source of significant heat.

Attach the supplied mounting rails to the sides of the receiver. Once the rails are installed the receiver can be mounted in an A/V enclosure or on the wall behind a display or above a projector.

Attach the supplied mounting rails to the sides of the transmitter. Once the rails are installed, the scaler is ready to be mounted under a table.

Connecting Sources

HDMI Input

Connect HDMI source devices to the HDMI inputs using HDMI cables that are less than or equal to 5 meters in length. For source devices that are further away, an extension device will be required to complete the connection.

VGA Video Input

Connect a VGA source device to the VGA input using a VGA cables that are less than or equal to 5 meters in length. For source devices that are further away, a VGA extension device will be required to complete the connection.

Connecting a Display

HDMI Output

Connect the display devices to HDMI output on the receiver using an HDMI cable that is less than or equal to 5 meters in length. For display devices that are further away, it is highly recommended to utilize the HDBaseT output.

HDBaseT Output

Connect a category cable to the transmitter and the HDBaseT receiver.

Twisted Pair Wiring
Use TIA/EIA-568B wiring for Category 6 connection between the transmitter and receiver

TIA/EIA-568B	
Pin 1	Orange/White
Pin 2	Orange
Pin 3	Green/White
Pin 4	Blue
Pin 5	Blue/White
Pin 6	Green
Pin 7	Brown/White
Pin 8	Brown
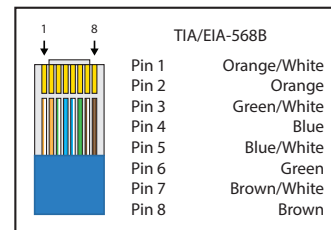
To ensure proper performance of the DL-SE3H1V-C, it is recommended that you use solid core shielded Category 6 F/UTP cabling at a minimum. Category 5e F/UTP may perform well but may not support power over HDBaseT reliably.

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

Connect Audio Output

Insert the removable 3-pin phoenix connector block to the audio output. The DL-SE3H1V-C supports a stereo unbalanced output

```
        AUDIO
       SOURCE              DL-SE3H1V-C
         L  ——————————————  L
         ⏚  ——————————————  ⏚
         R  ——————————————  R
```
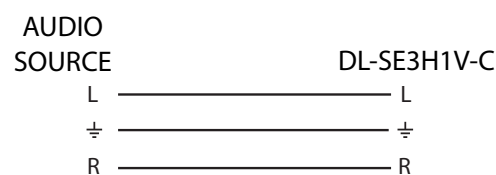
Connecting Control

Connect the DL-SE3H1V-C receivers LAN port to an Ethernet control network for telnet control.

Connect the DL-SE3H1V-C RS232 port on the receiver for serial control.

> **Note**: The DL-SE3H1V-C RS232 port can either be used with a control system for serial control of the DL-SE3H1V-C transmitter and receiver or can be connected to an external display for ON/OFF display control using telnet control.

> For complete list of control commands see pg13 *RS232 and TCP/IP Control*

RS232 Control Wiring

Connect the controller or device RX signal to TX port of the DL-SE3H1V-C receiver. Then connect the controller or device TX signal to the RX port on the DL-SE3H1V-C receiver.

Connecting to
TV Display or RS232
Controller

DL-SE3H1V-C   TX G RX
RS232 PORTS

DISPLAY or
CONTROL
PIN OUT

RX G TX
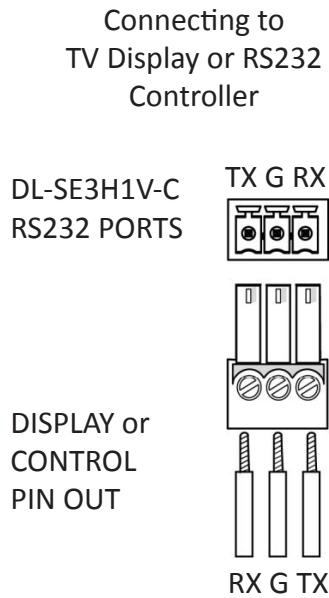
Relay Port Wiring

For the normally open contacts (NC), connect a circuit between the NO and COM terminals of the 3-pin phoenix connector

For the normally closed contacts (NC), connect a circuit between the NC and COM terminals of the 3-pin phoenix connector

RELAY 1 I/O STATE	RELAY STATE		RELAY 2 I/O STATE	RELAY STATE	
	NO	NC		NO	NC
ON	CLOSED	OPEN	ON	OPEN	CLOSED
OFF	OPEN	CLOSED	OFF	CLOSED	OPEN

Apply Power

Plug the power supply into the power input port on the rear of DL-SEH1V-C receiver The receiver will power the transmitter via HDBaseT. Twist the locking ring clockwise to prevent accidental disconnection of power.

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Application Diagram

LEGACY COMPUTER

LAPTOP

DL-SE3H1V-C
4-Input Switching Extender

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Transmitter

VGA IN

AUDIO IN   HDMI IN1   HDMI IN2

HDBT OUT

DC 12V

HDMI	
CATx	
VGA	
AUDIO	
RS232	
RELAY	

up to 70m / 230'

HDBT

DL-SE3H1V-C
4-Input Switching Extender

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Receiver

LAN   HDBT IN   HDMI IN   HDMI OUT   AUDIO OUT   RS232   RELAY1   RELAY2   DC 12V

L R G   TX RX G   NO COM NC   NO COM NC

CONTROL SYSTEM

WIRELESS BYOD

AUDIO AMP

PROJECTOR

SCREEN

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RS232 Port Configuration Software Usage

Overview

The Digitalinx RS232 Automation Configuration Software allows you to load ON and OFF serial commands into the RS232 control port of the DL-SE3H1V-C so the commands can be sent to a connected display or projector to automate power when a video signal is introduced and the DL-SE3H1V-C is in an off state. The software also gives you the ability to change relay modes from latching (default) to momentary on the two integrated relay ports.

Downloading RS232 Port Configuration Software

The Digitalinx RS232 Automation Configuration Software can be found online on the DL-SE3H1V-C product page under the SOFTWARE tab at *www.libav.com*. Download the zip file and extract all files, then run the tool on a Windows PC that will be used to configure the DL-SE3H1V-C.

Making a PC Connection

To connect a PC to the DL-SE3H1V-C RS232 port, a DB9 (RS232) to USB adapter is required. The Liberty 120-DA-0004 RS232 to USB adapter can be used for this configuration connection.

Once the RS232 to USB adapter has been installed on the PC, connect the USB adapter to a DB9 female connector that is terminated to a 3 pin phoenix connector.

Running RS232 Automation Configuration Software

Open the configuration software by double clicking the configuration tool icon. The following screen will appear
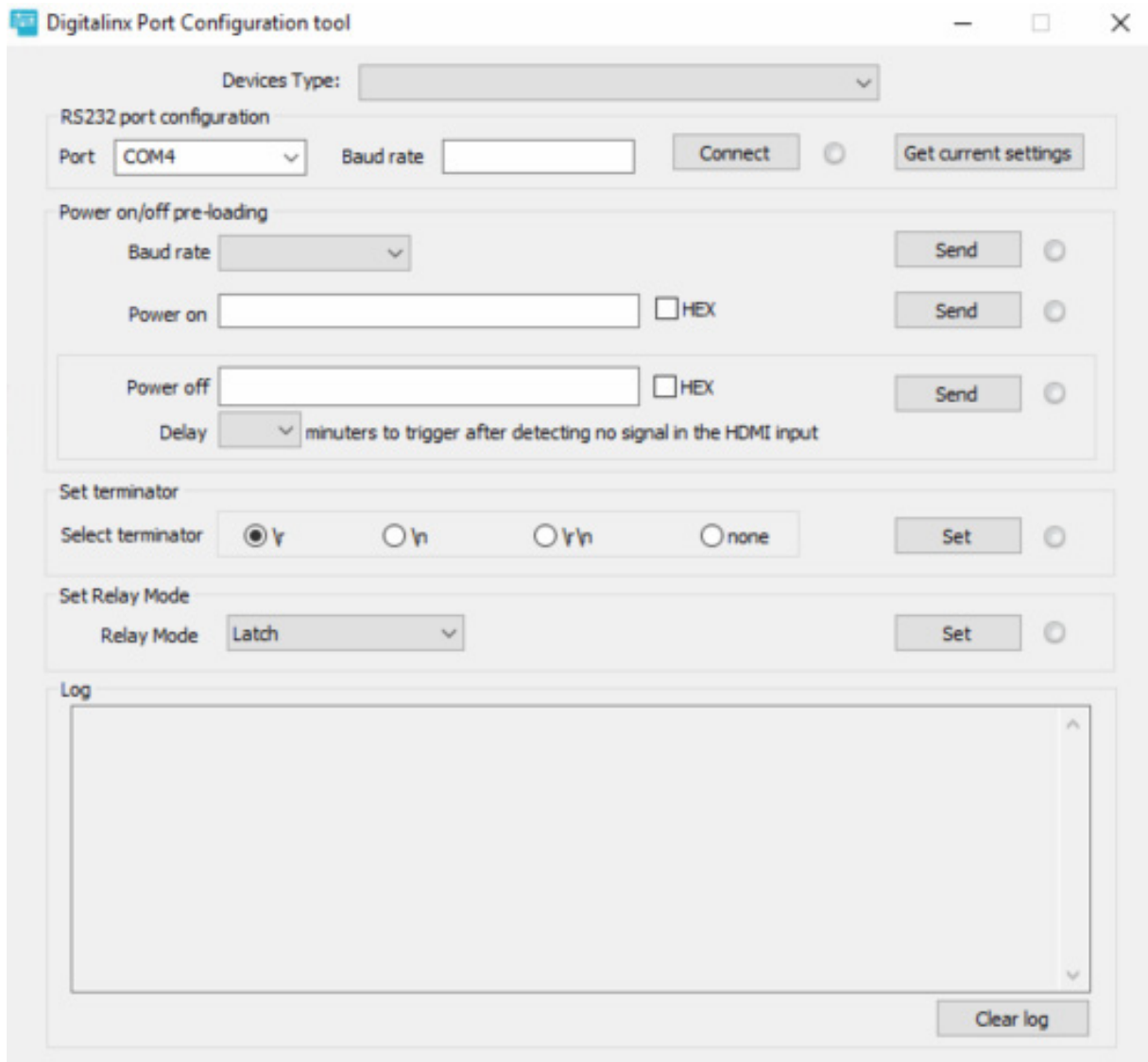
Serial Settings for DL-SE3H1V-C

To establish communication with the software, select the DL-SE3H1V-C under *DEVICE TYPES.*
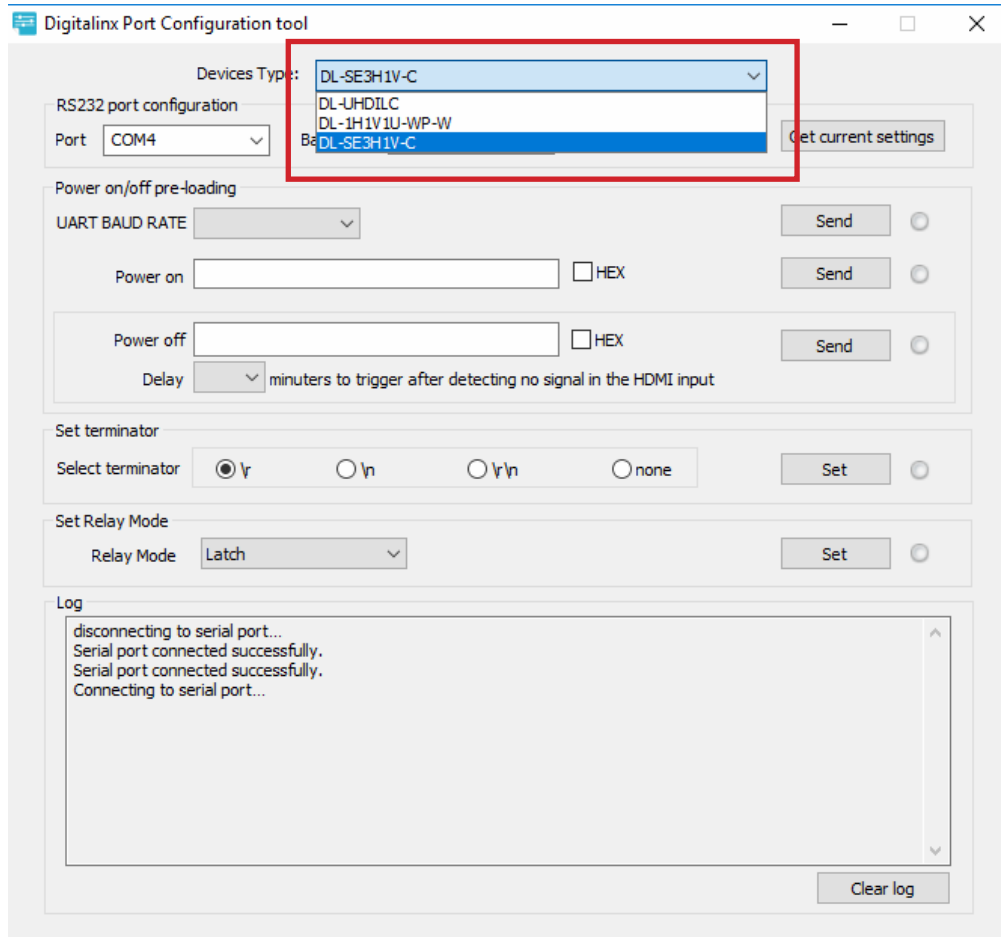
After a device is selected, select the Port number in the drop down field that the USB to RS232 is connected to on the computer. Typically this will default when starting the software after the serial COM connection has been made.

Enter in the baud rate for the DL-SE3H1V-C in the *BAUD RATE* field and click *CONNECT*. The default baud rate for the DL-SE3H1V-C is 115200.

If you are successfully connected to the unit, a green light will appear next the *Connect* button which will now read *DISCONNECT*.
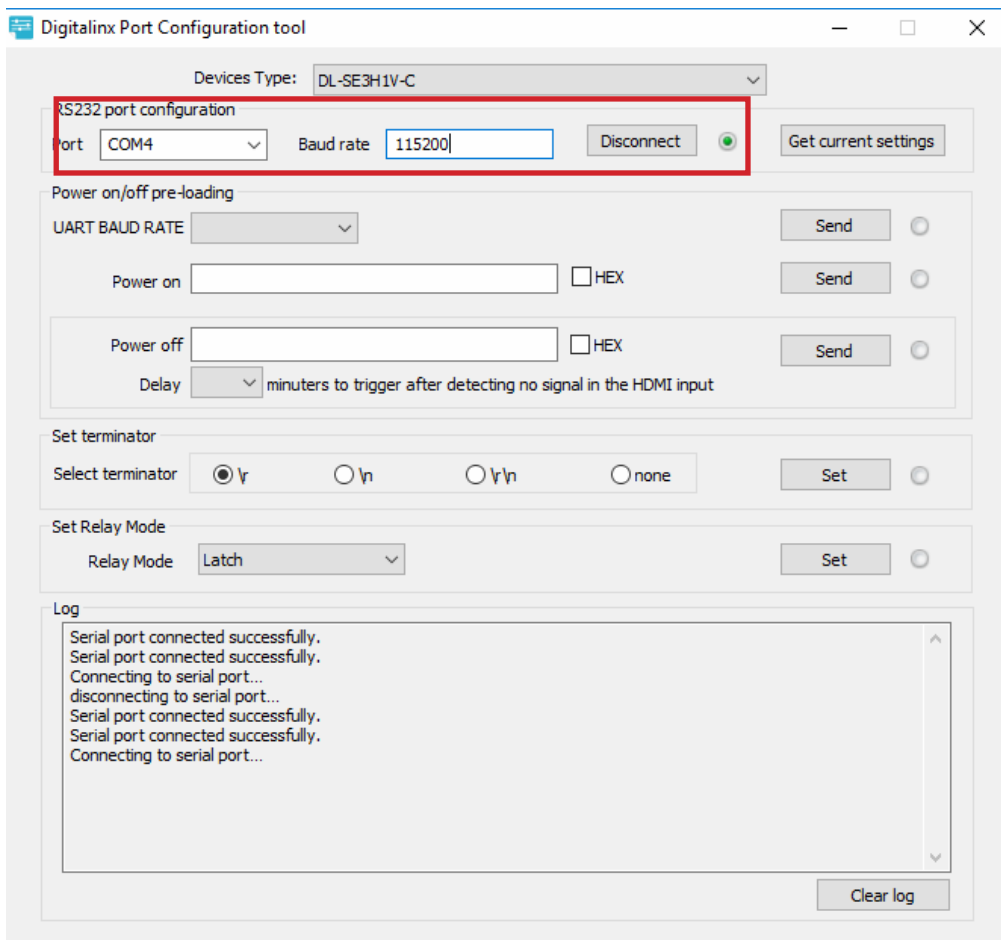
To obtain current RS232 settings you can click the *GET CURRENT SETTINGS* button.

Configuring RS232 Serial Commands

In the *Power on/off pre-loading* section, enter in the Baud Rate of the display device by selecting the correct setting from the drop down menu and the click Send. The baud rate of the display device will be located in the manufacturers owners manual of the display device.
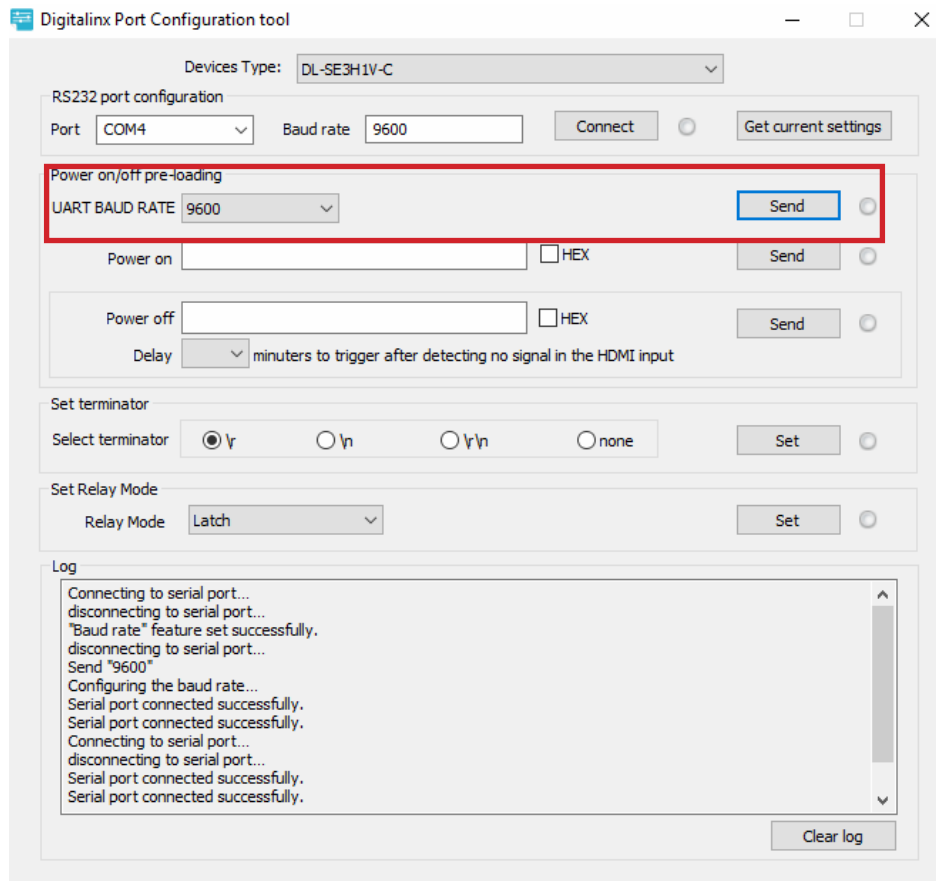
If connection was successful, the green light next to the Send button will illuminate and pop up window will notify you of the successful connection.
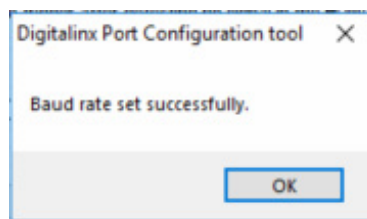
Once you have entered in the *Baud Rate* of the display device in the software, the DL-SE3H1V-C default baud rate setting will be changed to the same rate setting as well. The RS232 configuration tool will reset the connection to the device using the newly selected baud rate.

Enter the displays POWER ON and OFF/STANDBY command for the display device in the *Power on* and *Power off* field. Serial commands for displays and projectors are provided by the display manufacturer and can be found in the products instructional documentation.

Click the *Send* buttons adjacent to both the *Power On* and *Power off* field to upload the commands. If upload is successful a green light next to the *Send* button will illuminate and a pop up window will confirm a successful upload.
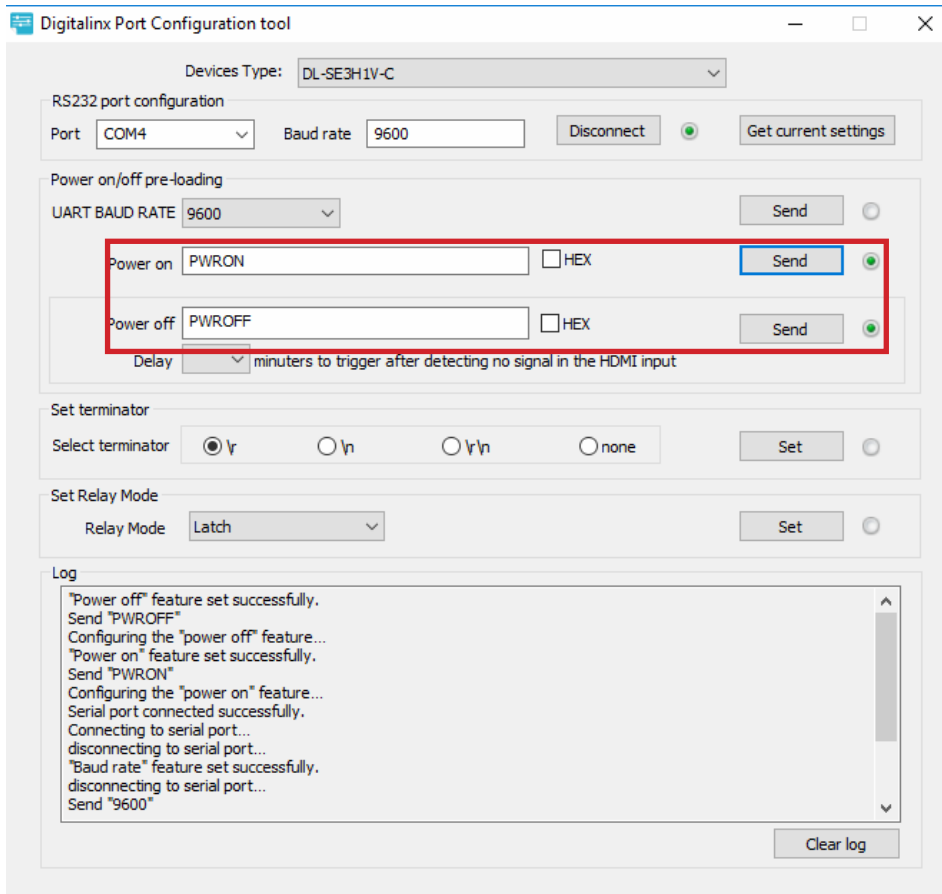
If the ASCII based commands require a terminator, choose the appropriate terminator from the *Set terminator* section and then click the Set button. If upload is successful a green light next to the Set button will illuminate and a pop up window will confirm a successful upload. Note, this option is only for ASCII based commands, this is not required or is an option for HEX based commands.

Explanation of terminator menu:

    \r = Carriage Return <CR>
    \n = Line Feed <LF>
    \r\n = Carriage Return + Line Feed <CR><LF>
    none = No terminator required

By default, ASCII command type is used. If the command for display ON/OFF is only available in Hex coding, check the *HEX* button next to the *Power On* command field and then enter the Hex command in the *Power On* and *Power Off* field.

NOTE: *When entering in HEX formatted commands, place a space between each character. Prefix and suffix characters are not required i.e. 0x01 0x 02, 01h, 02h. Correct formatted example is below.*
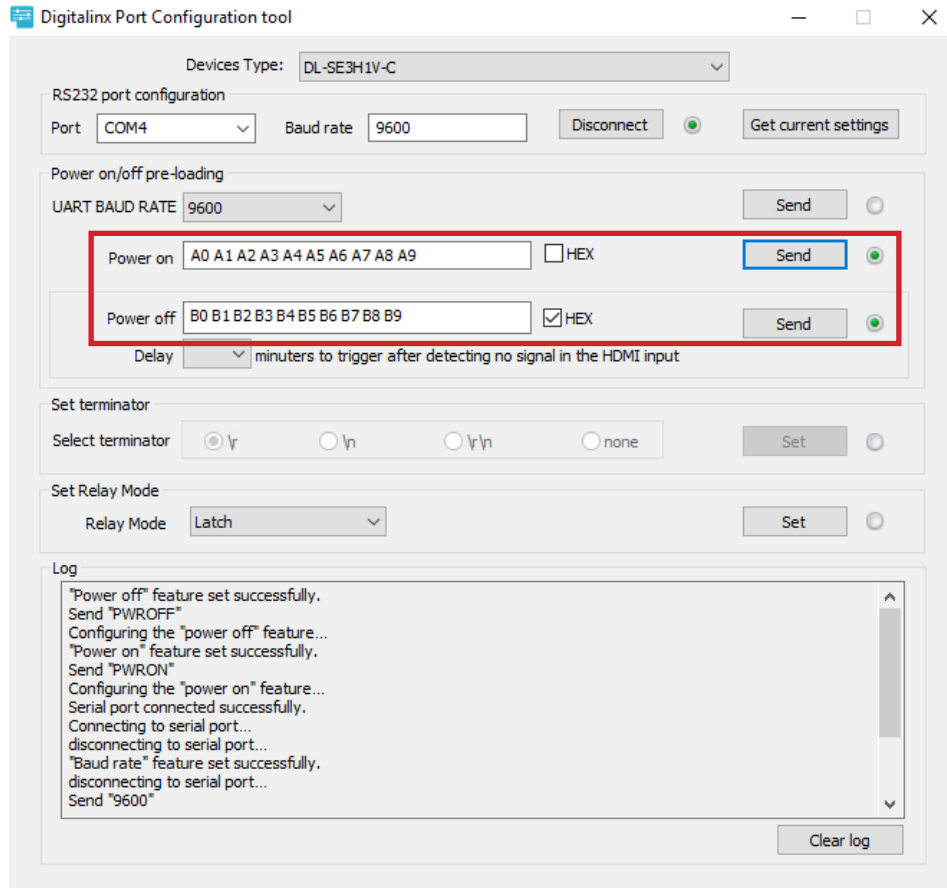
Configuring System Timeout

By default system timeout is set to 3 minutes. After there is no present video signal passing through the DL-SE3H1V-C for 3 minutes the system will transmit the *Power off* command to the display or projector and trigger the second relay port switch.

To change the default system timeout, choose the desired time from the Delay drop down menu underneath the *Power off* command field.

Click the *Send* button adjacent to the *Power off* field. If upload is successful a green light next to the *Send* button will illuminate and a pop up window will confirm a successful upload.
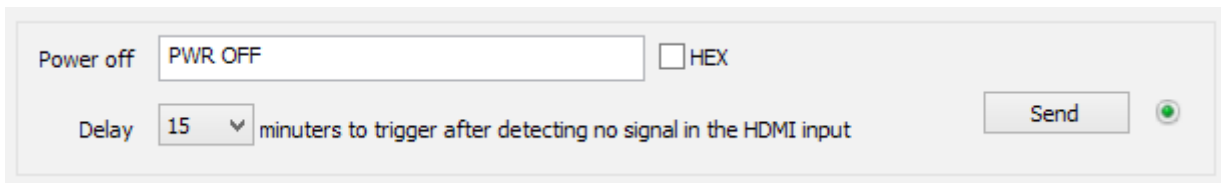
Setting Relay Modes

By default the relay ports are set to latching, with the configuration software tool you can change the mode to momentary and then set the momentary switch time as well.

To change the default relay mode to momentary, choose the *Momentary* selection from the Relay Mode drop down menu, then set the time (1-10 seconds) in the *Time* field.
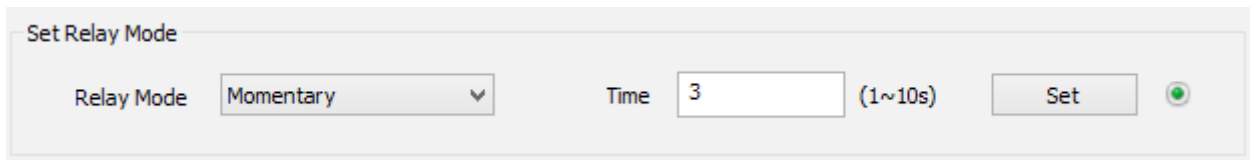
Click the *Set* button. If upload is successful a green light next to the Set button will illuminate and a pop up window will confirm a successful upload.

To change back to latching relay mode, choose the *Latch* selection from the *Relay Mode* drop down menu, then click *Set* button to make the change.
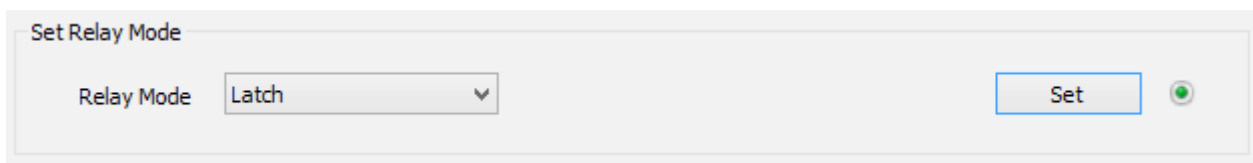
RS232 and TCP/IP Control

RS232 Settings: 115200 baud, 8 Data bits, 1 Stop bit, Parity = None
TCP/IP Settings: User defined IP address (default IP address:192.168.10.254), port 23

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

All responses end in a carriage return (hex 0D) and a line feed (hex 0A).

`<CR>` = Carriage return (Hex 0D)
`<LF>` = Line Feed (Hex 0A)

Video Input Switching, Configuration

Source switching for the DL-SE3H1V-C can be done automatically or manually with the command strings below..

Description	Command	Example

Enables / disables auto switching	`SET AUTOSW_FN {x} {y}`
	
	`{x} = [on, off]`
	`{y} = [tx,rx,all]`
		Command: `SET AUTOSW_FN on tx<CR><LF>`
		
		Return: `AUTOSW_FN SET ON TX<CR><LF>`

Queries auto switching status	`GET AUTOSW_FN {y}`
	
	`{y} = [tx,rx,all]`
		Command: `GET AUTOSW_FN tx<CR><LF>`
		
		Return: `AUTOSW_FN GET ON TX<CR><LF>`

Input Switching	`SET SW {in} all`
	
	`{in} = [hdmi1_tx]`
	`      [hdmi2_tx]`
	`      [vga_tx]`
	`      [hdbt_rx]`
	`      [hdmi_rx]`
		Command: `SET SW hdmi1_tx all<CR><LF>`
		
		Return: `SW SET HDMI1_TX ALL TX<CR><LF>`
		`        SW SET HDMI1_TX ALL RX<CR><LF>`

Query the input / output status	`GET MP all {y}`
	
	`{y} = [tx,rx,all]`
		Command: `GET SW all tx<CR><LF>`
		
		Return: `MP GET HDMI1_TX ALL TX<CR><LF>`

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Video Output Configuration

Note: When using the `[AutoScaler]` setting, the output resolution value will be set according to the connected displays native resolution. For example if connected to a 1080p display, the output resolution of the DL-SE3H1V-C will be set to 1920x1080@60Hz.

Description	Command	Example

Set Output Resolution	`SET RES all {r} rx`
	
	`{r} = [AutoScaler]`
	`        [Fix:1024x768@60]`
	`        [Fix:1280x720@60]`
	`        [Fix:1280x800@60]`
	`        [Fix:1280x1024@60]`
	`        [Fix:1920x1080@60]`
	`        [Fix:1920x1200@60]`
	`        [Fix:3840x2160@30]`
	`        [Fix:3840x2160@60]`
		Command:
		
		`SET RES all AutoScaler rx<CR><LF>`
		
		Return:
		
		`SET RES ALL AutoScaler RX<CR><LF>`

Query Resolution	`GET RES_OUT all rx`	*Command:*
		
		`GET RES_OUT all rx<CR><LF>`
		
		Return:
		
		`RES_OUT GET ALL Auto:1920X1080@60  RX<CR><LF>`

EDID Configuration

Note: When using the `[3840x2160@30Hz/1920x1200@60Hz]` EDID setting for the VGA input on the transmitter (*vga_tx*), the VGA EDID will be 1920x1200@60Hz. When using the same EDID setting or an HDMI input *(hdmi1_tx, hdmi2_tx, hdmi_rx)* the EDID will be 3840x2160@30Hz.

Description	Command	Example

Set Input EDID	`SET EDID {in} {r}`
	
	`{in} = [hdmi1_tx]`
	`        [hdmi2_tx]`
	`        [vga_tx]`
	`        [hdbt_rx]`
	`        [hdmi_rx]`
	
	`{r} =`
	`[3840x2160@30Hz/1920x1200@60Hz]`
	`[1920x1080@60Hz]`
	`[1680x1050@60Hz]`
	`[1600x900@60Hz]`
	`[1440x900@60Hz]`
	`[1360x768@60Hz]`
	`[1280x720@60Hz]`
	`[1024x768@60Hz]`
		Command:
		
		`SET EDID hdmi1_tx 1920X1200@60Hz<CR><LF>`
		
		Return:
		
		`EDID SET HDMI1_TX 1920X1200@60Hz<CR><LF>`

Query Input EDID	`GET EDID {in}`
	
	`{in} = [hdmi1_tx]`
	`        [hdmi2_tx]`
	`        [vga_tx]`
	`        [hdbt_rx]`
	`        [hdmi_rx]`
		Command:
		
		`GET EDID hdmi1_tx<CR><LF>`
		
		Return:
		
		`EDID GET HDMI1_TX1920X1080@60Hz TX<CR><LF>`

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Video Input HDCP Compliance

Description	Command	Example

Enable / Disable HDCP Input Compliance	`SET HDCP_S {in} {x}`
	
	`{in}` = `[hdmi1_tx]`
	`[hdmi2_tx]`
	`[vga_tx]`
	`[hdbt_rx]`
	`[hdmi_rx]`
	
	`{x}` = `[on, off]`
		Command: `SET HDCP_S hdmi1_tx on<CR><LF>`
		
		Return: `HDCP_S SET HDMI1_TX ON TX<CR><LF>`

Query Input Compliance	`GET HDCP_S {in}`
	
	`{in}` = `[hdmi1_tx]`
	`[hdmi2_tx]`
	`[vga_tx]`
	`[hdbt_rx]`
	`[hdmi_rx]`
		Command: `GET HDCP_S hdmi1_tx<CR><LF>`
		
		Return: `HDCP_S GET HDMI1_TX ON TX<CR><LF>`

Query HDCP Input Version	`GET HDCP_IN {in}`
	
	`{in}` = `[hdmi1_tx]`
	`[hdmi2_tx]`
	`[vga_tx]`
	`[hdbt_rx]`
	`[hdmi_rx]`
		Command:
		
		`GET HDCP_IN hdmi1_tx<CR><LF>`
		
		Return:
		
		`HDCP_IN GET HDMI1_TX hdcp1.4 TX<CR><LF>`

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CEC Setup and Control

A CEC enabled display or monitors ON and OFF status can be controlled by the DL-SE3H1V-C via HDMI by using the commands strings below. CEC ON command can also be automatically sent to a display when a source is connected to the DL-SE3H1V-C.

When using auto CEC on / off control of a display, use the CEC delay commands to determine the time when the display will be turned OFF when no video signals are present in the DL-SE3H1V-C. For example if the delay time is set to 3 minutes, the CEC enabled display will turn off when there is no present video signal in the switcher / extender for 3 minutes.

Description	Command	Example

Turn Display On/Off using CEC	`SET CEC_PWR all {x} rx`
	
	`{x} = [on, off]`
		Command: `SET CEC_PWR all on rx<CR><LF>`
		
		Return: `SET CEC_PWR ALL ON RX<CR><LF>`

Configure CEC auto display ON/OFF	`SET AUTOCEC_FN all {x} rx`
	
	`{x} = [on, off]`
		Command:
		
		`SET AUTOCEC_FN all on rx<CR><LF>`
		
		Return:
		
		`AUTOCEC_FN SET ALL ON RX<CR><LF>`

Query CEC audo display ON/OFF status	`GET AUTOCEC_FN all rx`	*Command:*
		
		`GET AUTOCEC_FN all rx<CR><LF>`
		
		Return:
		
		`AUTOCEC_FN GET ALL ON RX<CR><LF>`

Set CEC Power OFF Delay Time	`SET AUTOCEC_D all {t} rx`
	
	`{t} = [1-30]`
	
	Note: Maximum delay time is 30 minutes
		Command:
		
		`SET AUTOCEC_D all 5 rx<CR><LF>`
		
		Return:
		
		`AUTOCEC_D SET ALL 5 RX<CR><LF>`

Query CEC Power OFF Delay Time	`GET AUTOCEC_D all rx`	*Command:*
		
		`GET AUTOCEC_D all rx<CR><LF>`
		
		Return:
		
		`AUTOCEC_D GET ALL 5 RX<CR><LF>`

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RS232 Port Control / Configuration

An RS232 enabled display or monitors ON and OFF status can be controlled by the DL-SE3H1V-C via RS232 port on the receiver by using the command strings below and by storing the RS232 data info in the DL-SE3H1V-C's receiver. The stored RS232 display ON command can also be sent automatically to a display when a source is connected to the DL-SE3H1V-C.

When using auto RS232 on / off control of a display, use the RS232 delay commands to determine the time when the display will be turned OFF when no video signals are present in the DL-SE3H1V-C. For example if the delay time is set to 3 minutes, the RS232 enabled display will turn off when there is no present video signal in the switcher / extender for 3 minutes.

RS232 Port Settings

Description	Command	Example

Set RS232 Port Baud Rate	`SET UART_INFO {b} rx`
	
	`{b} = [9600]`
	`     [19200]`
	`     [38400]`
	`     [57600]`
	`     [115200]`
		Command: `SET UART_INFO 9600 rx<CR><LF>`
		
		Return: `UART_INFO SET 9600 RX<CR><LF>`

Query RS232 Port Baud Rate	`GET UART_INFO rx`	*Command:* `GET UART_INFO rx<CR><LF>` *Return:* `UART_INFO GET 9600 RX<CR><LF>`

Set RS232 Data Format for ASCII or HEX	`SET UART_DATATYPE {d} rx`
	
	`{d} = [str, hex]`
		Command:
		
		`SET UART_DATATYPE str rx<CR><LF>`
		
		Return:
		
		`UART_DATATYPE SET STR RX<CR><LF>`

Query RS232 Data Format	`GET UART_DATATYPE rx`	*Command:*
		
		`GET UART_DATATYPE rx<CR><LF>`
		
		Return:
		
		`UART_DATATYPE GET STR RX<CR><LF>`

Set RS232 Ending Characters	`SET UART_E {e} rx`
	
	`{e} = [null, cr, lf, crlf]`
		Command:
		
		`SET UART_E crlf rx<CR><LF>`
		
		Return:
		
		`UART_E SET CRLF RX<CR><LF>`

Query the RS232 Ending Characters	`GET UART_E rx`	*Command:*
		
		`GET UART_E rx<CR><LF>`
		
		Return:
		
		`UART_E GET CRLF RX<CR><LF>`

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Display On/Off Control

Description	Command	Example
Set RS232 Display On / Off ASCII String (Up to 64 Bytes)	SET UART_STR *{p}* *{s}* *{p}* = [on, off] *{s}* = [xxxx] xxxx = TV displays ON or OFF string command (issued by TV display manufacturer)	*Command:* SET UART_STR on xxxx<CR><LF> *Return:* UART_STR SET ON XXXX<CR><LF>
Query the RS232 Stored Display On / Off ASCII String	GET UART_STR *{p}* *{p}* = [on, off]	*Command:* GET UART_STR on<CR><LF> *Return:* UART_STR GET ON XXXX<CR><LF>
Set RS232 Display On / Off HEX Code (Up to 64 Bytes)	SET UART_HEX *{p}* *{h}* *{p}* = [on, off] *{h}* = [xx xx] xx xx = TV displays ON or OFF string command (issued by TV display manufacturer)	*Command:* SET UART_HEX on xx xx<CR><LF> *Return:* UART_HEX SET ON XX XX<CR><LF>
Query RS232 Display On / Off HEX Code (Up to 64 Bytes)	GET UART_HEX *{p}* *{p}* = [on, off]	*Command:* GET UART_HEX on<CR><LF> *Return:* UART_HEX GET ON XX XX<CR><LF>
Turn Display On or Off with stored RS232 commands	SET UART_PWR all *{p}* rx *{p}* = [on, off]	*Command:* SET UART_PWR all on rx<CR><LF> *Return:* UART_PWR ALL SET ON RX<CR><LF>

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Display On/Off Automation Settings

Description	Command	Example

Set Auto Display On / Off with stored RS232 commands	`SET UARTPWR_FN all {p} rx`
	
	`{p} = [on, off]`
		Command:
		
		`SET UARTPWR_FN all on rx<CR><LF>`
		
		Return:
		
		`UARTPWR_FN SET ALL ON RX<CR><LF>`

Query Auto Display On / Off Status	`GET UARTPWR_FN all rx`	*Command:*
		
		`GET UARTPWR_FN all rx<CR><LF>`
		
		Return:
		
		`UARTPWR_FN GET ALL ON RX<CR><LF>`

Set RS232 Power OFF Delay Time	`SET UARTPWR_D all {t} rx`
	
	`{t} = [1-30]`
	
	Note: Maximum delay time is 30 minutes
		Command:
		
		`SET UARTPWR_D all 5 rx<CR><LF>`
		
		Return:
		
		`UARTPWR_D SET ALL 5 RX<CR><LF>`

Query RS232 Power OFF Delay Time	`GET UARTPWR_D all rx`	*Command:*
		
		`GET UARTPWR_D all rx<CR><LF>`
		
		Return:
		
		`UARTPWR_D GET ALL 5 RX<CR><LF>`

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Display Input Control

Description	Command

Set RS232 HDMI Input ASCII String (Up to 64 Bytes)	`SET UART_CMD {i} str {s}`
	
	`{i} = [HDMI1]`
	`        [HDMI2]`
	`        [HDMI3]`
	
	`{s} = [xx]`
	
	`xx = TV displays INPUT string command (issued by TV display manufacturer)`

EXAMPLE: *'H1' is stored RS232 command*	
Command: `SET UART_CMD HDMI1 str H1<CR><LF>` *Return:* `UART_CMD SET HDMI1 STR H1<CR><LF>`	

Description	Command

Query the RS232 Stored HDMI Input ASCII String	`GET UART_CMD {i}`
	
	`{i} = [HDMI1]`
	`        [HDMI2]`
	`        [HDMI3]`

EXAMPLE: *'H1' is stored RS232 command*	
Command: `GET UART_CMD HDMI1<CR><LF>` *Return:* `UART_CMD GET HDMI1 STR H1<CR><LF>`	

Description:	Command

Send the RS232 Stored HDMI Input ASCII or Hex String	`SET UART_CMDEXE {i}`
	
	`{i} = [HDMI1]`
	`        [HDMI2]`
	`        [HDMI3]`

EXAMPLE: *'H1' is stored ASCII RS232 command*	
Command: `SET UART_CMDEXE HDMI1<CR><LF>` *Return:* `UART_CMDEXE SET HDMI1 STR H1<CR><LF>`	

Description	Command

Set RS232 HDMI Input HEX String (Up to 64 Bytes)	`SET UART_CMD {i} hex {s}`
	
	`{i} = [HDMI1]`
	`        [HDMI2]`
	`        [HDMI3]`
	
	`{s} = [xx xx]`
	
	`xx xx = TV displays INPUT string command (issued by TV display manufacturer)`

EXAMPLE: '*A1 A2' is HEX command to be stored*	
Command: `SET UART_CMD HDMI1 hex A1 A2<CR><LF>` *Return:* `UART_CMD SET HDMI1 HEX A1 A2<CR><LF>`	

Description:	Command

Query the RS232 Stored HDMI Input HEX String	`GET UART_CMD {i}`
	
	`{i} = [HDMI1]`
	`        [HDMI2]`
	`        [HDMI3]`

EXAMPLE: : *'A1 A2' is stored RS232 command*	
Command: `GET UART_CMD HDMI1<CR><LF>` *Return:* `UART_CMD GET HDMI1 HEX A1 A2<CR><LF>`	

Description:	Command

Send the RS232 Stored HDMI Input ASCII or Hex String	`SET UART_CMDEXE {i}`
	
	`{i} = [HDMI1]`
	`        [HDMI2]`
	`        [HDMI3]`

EXAMPLE: *'A1 A2' is stored HEX RS232 command*	
Command: `SET UART_CMDEXE HDMI1<CR><LF>` *Return:* `UART_CMDEXE SET HDMI1 STR A1 A2<CR><LF>`	

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Display Volume Control

Description	Command
Set RS232 Volume UP/DOWN ASCII String (Up to 64 Bytes)	SET UART_CMD *{v} str {s}* *{v}* = [volup] [voldown] *{s}* = [xx] xx = TV displays volume +/- string command (issued by TV display manufacturer)
EXAMPLE: *'UP' is stored RS232 command*	
Command: SET UART_CMD volup str UP<CR><LF> *Return:* UART_CMD SET volup STR UP<CR><LF>	

Description:	Command
Query the RS232 Stored Volume UP/DOWN ASCII String	GET UART_CMD *{v}* *{v}* = [volup] [voldown]
EXAMPLE: *'UP' is stored RS232 command*	
Command: GET UART_CMD volup<CR><LF> *Return:* UART_CMD GET volup STR UP<CR><LF>	

Description:	Command
Send the RS232 Stored Volume UP/DOWN String	SET UART_CMDEXE *{v}* *{v}* = [volup] [voldown]
EXAMPLE: *'UP' is stored RS232 ASCII command*	
Command: SET UART_CMDEXE volup<CR><LF> *Return:* UART_CMDEXE SET volup STR UP<CR><LF>	

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Description	Command

Set RS232 Volume UP/DOWN HEX String (Up to 64 Bytes)	`SET UART_CMD {v} hex {s}`
	
	`{v} = [volup]`
	`      [voldown]`
	
	`{s} = [xx xx]`
	
	`xx xx = TV displays INPUT string command (issued by TV display manufacturer)`

EXAMPLE: *'01 02' is HEX command to be stored*
Command: `SET UART_CMD volup hex 01 02<CR><LF>` *Return:* `UART_CMD SET volup HEX 01 02<CR><LF>`

Description:	Command

Query the RS232 Stored Volume UP/DOWN HEX String	`GET UART_CMD {v}`
	
	`{v} = [volup]`
	`      [voldown]`

EXAMPLE: *'01 02' is stored HEX command*
Command: `GET UART_CMD volup<CR><LF>` *Return:* `UART_CMD GET VOLUP HEX 01 02<CR><LF>`

Description:	Command

Send the RS232 Stored Volume UP/DOWN String	`SET UART_CMDEXE {v}`
	
	`{v} = [volup]`
	`      [voldown]`

EXAMPLE: *'01 02' is stored RS232 HEX command*
Command: `SET UART_CMDEXE volup<CR><LF>` *Return:* `UART_CMDEXE SET volup HEX 01 02<CR><LF>`

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Relay Port Control / Configuration

Relay ports can be set to either momentary or latching operation modes.

When setting relay mode to momentary, use the [SET MOMENT_T {t} rx] command to set the relay power time settings in seconds.

Description	Command	Example
Turn Relay Power On / Off	SET RELAY_PWR {x} rx {x} = [on, off]	*Command:* SET RELAY_PWR on rx<CR><LF> *Return:* RELAY_PWR SET ON RX<CR><LF>
Set Relay Mode	SET RELAY_M {m} rx {m} = [latch, momentary]	*Command:* SET RELAY_M latch rx<CR><LF> *Return:* RELAY_M SET LATCH RX<CR><LF>
Query Relay Mode Type	GET RELAY_M rx	*Command:* GET RELAY_M rx<CR><LF> *Return:* RELAY_M GET LATCH RX<CR><LF>
Set Relay Momentary Time	SET MOMENT_T {t} rx {t} = [1-10] Note: Maximum time is 10 seconds	*Command:* SET MOMENT_T 5 rx<CR><LF> *Return:* MOMENT_T SET 5 RX<CR><LF>
Query Relay Momentary Time	GET MOMENT_T {t} rx	*Command:* GET MOMENT_T rx<CR><LF> *Return:* MOMENT_T GET 5 RX<CR><LF>

IP Address Configuration

Description	Command
Set Static IP Address and Subnet	`SET IPADDR STATIC ip4addr {ip} netmask {sub}` `{ip}` = [IP address; example 192.168.10.1] `{sub}` = [Subnet; example 255.255.255.0]
EXAMPLE:	
Command: `SET IPADDR STATIC ip4addr 192.168.10.1 netmask 255.255.255.0<CR><LF>` *Return:* `IPADDR STATIC ip4addr 192.168.10.1 netmask 255.255.255.0<CR><LF>`	

Description	Command
Query Static IP Address and Subnet	`GET IPADDR`
EXAMPLE:	
Command: `GET IPADDR<CR><LF>` *Return:* `IPADDR STATIC ip4addr 192.168.10.1 netmask 255.255.255.0<CR><LF>`	

Description	Command
Set Gateway (Router) IP Address	`SET IPADDR Gateway {ip}` `{ip}` = [IP address; example 192.168.10.1]
EXAMPLE:	
Command: `SET IPADDR Gateway 192.168.10.254<CR><LF>` *Return:* `IPADDR GATEWAY 192.168.10.254<CR><LF>`	

Description	Command
Query Gateway IP	`GET IPADDR Gateway`
EXAMPLE:	
Command: `GET IPADDR Gateway<CR><LF>` *Return:* `IPADDR GATEWAY 192.168.10.254<CR><LF>`	

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Transmitter / Receiver Key Lock

The key lock option prevents video switching from being activated from the input keys /buttons on the transmitter and receiver.

Description	Command	Response
Enable / disable key lock on transmitter and receiver	SET KEYLOCK {x} {y} {x} = [on, off] {y} = [tx,rx,all]	*Command:* SET KEYLOCK on tx\<CR>\<LF> *Return:* KEYLOCK SET ON TX\<CR>\<LF>
Query key lock status of a device	GET KEYLOCK {y} {y} = [tx,rx,all]	*Command:* GET KEYLOCK tx\<CR>\<LF> *Return:* KEYLOCK SET ON TX\<CR>\<LF>

System Power / Factory Default

Description	Command	Response
Enter Standby Mode	SET STANDBY {x} {y} {x} = [on, off] {y} = [tx,rx,all]	*Command:* SET STANDBY off all\<CR>\<LF> *Return:* STANDBY SET OFF RX\<CR>\<LF> STANDBY SET OFF TX\<CR>\<LF>
Query Standby Mode	GET STANDBY {y} {y} = [tx,rx,all]	*Command:* SET STANDBY all\<CR>\<LF> *Return:* STANDBY GET OFF RX\<CR>\<LF> STANDBY GET OFF TX\<CR>\<LF>
Factory Reset	SET RESET {y} {y} = [tx,rx,all]	*Command:* SET RESET all\<CR>\<LF> *Return:* RESET SET TX\<CR>\<LF> RESET SET RX\<CR>\<LF>
System Reboot	SET REBOOT {y} {y} = [tx,rx,all]	*Command:* SET REBOOT all\<CR>\<LF> *Return:* REBOOT SET TX\<CR>\<LF> REBOOT SET RX\<CR>\<LF>

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Technical Specifications

VIDEO	
Video Inputs	(2) HDMI transmitter; (1) VGA transmitter; (1) HDMI receiver;
Video Input Connector	(3) HDMI type A; (1) VGA female 15 pin
Input Video Signal	HDMI, VGA
Video Output	(1) HDMI
Video Output Connector	(1) HDMI type A
Output Video Signal	HDMI (receiver); HDBaseT (transmitter)
Input Resolutions Supported	**HDMI**: 4096 x 2160@24/30/60 (YUV4:2:0); 3840 x 2160@24/30/60 (YUV4:2:0); 1920 x 1200@60; 1920 x 1080@60; 1680 x 1050@60; 1600 x 1200@60; 1600 x 900@60; 1440 x 990@60; 1366 x 768@60; 1360 x 768; 1280 x 1024@60; 1280 x 960@60; 1280 x 768@60; 1280 x 720; 1024 x 768; 800 x 600@60 **VGA**: 1920 x 1200@60; 1680 x 1050@60; 1600 x 1200; 1600 x 900; 1440 x 900@60; 1366 x 768@60; 1360 x 768; 1280 x 1024@60; 1280 x 960@60 1280 x 800; 1280 x 768@60; 1024 x 768; 800 x 600@60
Standards	Compliant with HDMI 2.0 & HDCP2.2
Audio	
Supported output formats	PCM 2.0
Audio Output	Stereo analog
Audio Output Connector	(1) 3 Pin phoenix
Audio Output Impedance	70 Ohms
Frequency Response	20Hz~20K Hz
CONTROL	
Control Port / Connector	(1) LAN (Telnet- Port 23) / RJ45 (1) RS232 / 3 pin phoenix
Relay Port / Connector / Type	(2) RELAY / 3 pin phoenix / Momentary (default)
Relay coil operating current	5 VDC, 28mA. The coil limits the current; no external resistance is required.
Relay control contact rating	30 VDC, 2 A 125 VAC, 0.5 A
Other	
System Bandwidth	10.2Gbps
Transmission Distance	1080p 70m or less when using Cat6 F/UTP, 4K 40m or less when using Cat6 F/UTP
Temperature	0 ~ +45 C
Humidity	10% ~ 90%
Power Supply	DC12V 3A
Power Consumption	Receiver: When powered separately from transmitter: 14w; when powering transmitter: 21w Transmitter: 4.4w
Dimension (W*H*D)	Receiver: 223mm*25mm*154mm / 8.79"*.98"*6.07" Transmitter:194mm*20mm*94mm / 7.67"*.79"*3.7"
Weight	Receiver: 2.7 lbs Transmitter: 1lb
Warranty	5 years
Certification	CE, FCC, RoHS

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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

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