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DSCV2-70-TX-US

4K UHD In-Wall Transmitter with USB Host and CEC Triggering

USER MANUAL

January 3, 2023

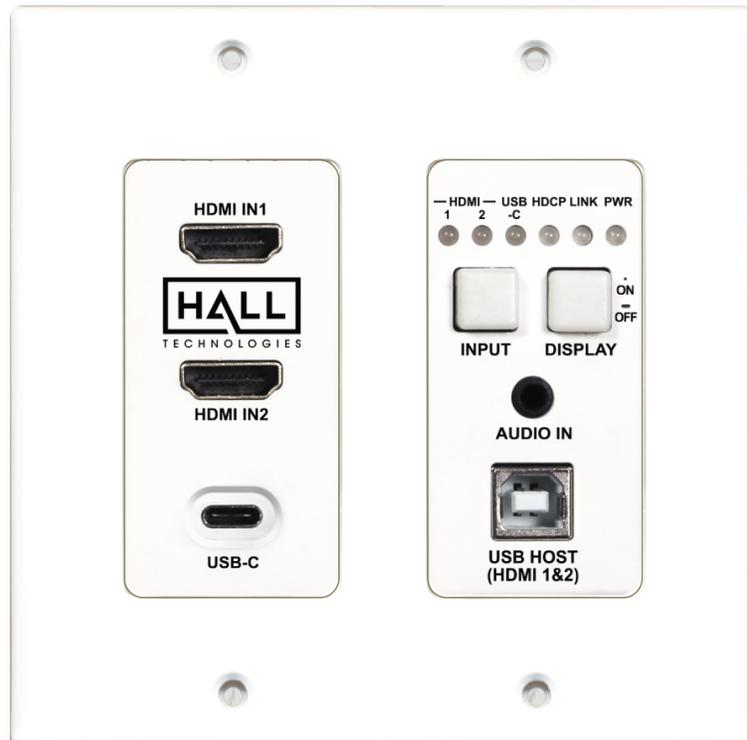


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Introduction

OVERVIEW

The DSCV2-70-TX is a 3x1 auto switching HDBaseT 2.0 transmitter that supports long distance transport of HDMI, USB-C and high speed USB 2.0 signals up to 40m/131ft using a Cat5e/6/6a/7 cable. It is 4K compatible with a max resolution of 4K@60Hz, 4:2:0 8-bit deep color. The PoH feature enables the transmitter to be powered by an HDBT receiver.

The transmitter allows you to automate the display power ON by using pre-loaded RS-232 commands whenever a video signal is introduced to the system. It will also turn the display power OFF after a specified amount of time has passed when no video signal is present. It gives the ability turn the display ON or OFF as well and switch from one input to another manually using the control buttons on the transmitter panel.

The DSCV2-70-TX is ideal for situations where USB must be extended alongside HDMI for display interactivity for items such as interactive whiteboards or projectors.

NOTE: the DSCV2-70-TX must be used with an HDBaseT 2.0 receiver, such as the DSCV-70-RX, sold separately.

FEATURES

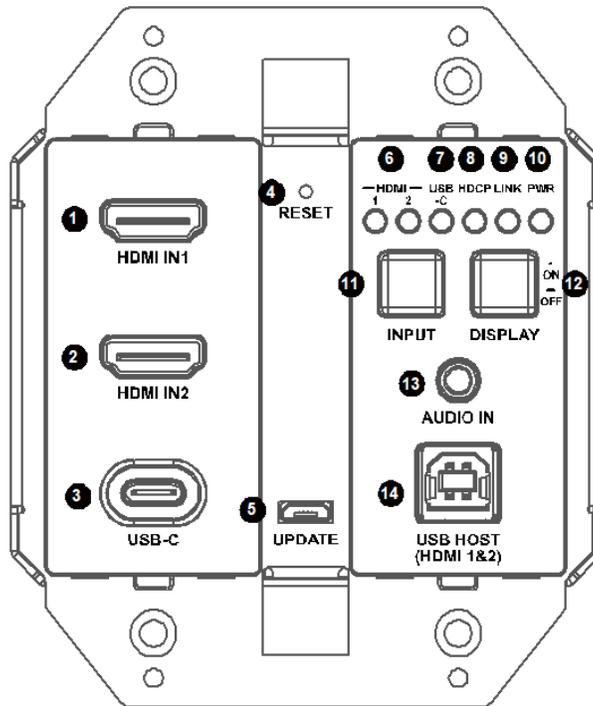
- Two HDMI inputs, one USB-C input and one HDBT output
- Transmits 4K@60Hz (YUV 4:2:0 color sub-sampling) up to 40m/131ft and 1080P@60Hz signal up to 70m/230ft via a Cat6a/7 cable
- Transmits 4K@60Hz (YUV 4:2:0 color sub-sampling) up to 35m/115ft and 1080P@60Hz signal up to 60m/197ft via a Cat5e/6 cable
- Supports automatic switching
- Additional analog audio input pass-through allows for audio distribution to the HDBT receiver side
- High-speed USB 2.0 pass-through over HDBT up to 70m
- PoH capable – can be powered by connected receiver with PSE module
- Firmware upgrade through Micro USB port

Package Contents

- 1 x Transmitter
- 1 x Wall Plate Plastic Panel (2-Gang US, with screws)
- 1 x USB Type-B to USB Type-A Cable
- 1 x Phoenix Male Connector (3.5mm, 4-pins)

Panel Description

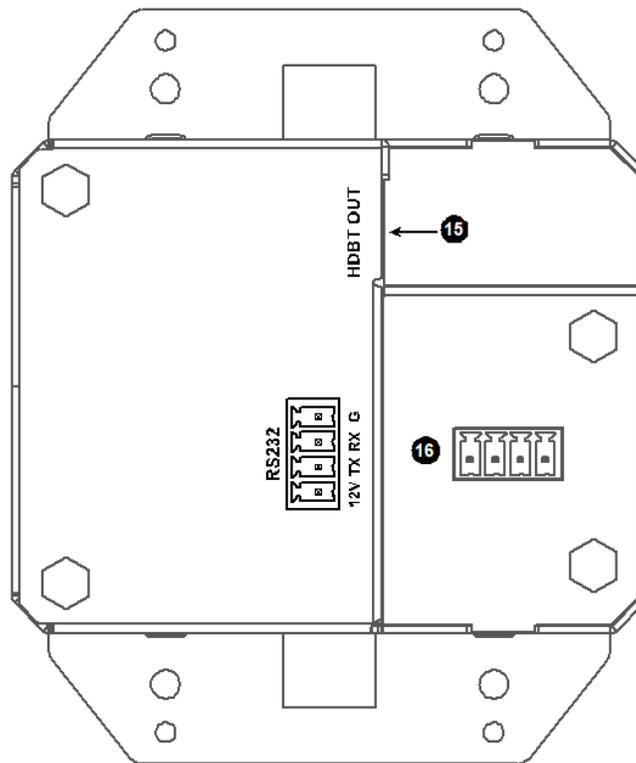
FRONT PANEL



ID	Name	Description
1&2	HDMI IN 1-2	HDMI Inputs 1 & 2. Connect to HDMI sources.
3	USB-C	USB-C Input. Connect to a USB-C Source
4	RESET	Use this button to reset the device. When the transmitter is powered on, use a pointed stylus to hold this button for five or more seconds and then release. The transmitter will reboot and restore its factory defaults.
5	UPDATE	Micro USB port for firmware update or RS-232 control.
6	HDMI LEDs (1&2)	<ul style="list-style-type: none"> On: Corresponding HDMI input signal is being transmitted. Off: No HDMI signal is being transmitted or signal is unstable.
7	USB-C LED	<ul style="list-style-type: none"> On: The USB-C input signal is being transmitted. Off: No USB-C signal is being transmitted or signal is unstable.
8	HDCP LED	<ul style="list-style-type: none"> On: Video signal is being transmitted. Off: Video signal is not being transmitted.
9	LINK LED	<ul style="list-style-type: none"> On: HDBT link is normal. Off/Blinking: No HDBT link or link error.
10	POWER LED	<ul style="list-style-type: none"> On: The transmitter is powered on. Off: The transmitter is powered off.
11	INPUT Button	Press this button to select an input between two HDMI and one USB-C sources.
12	DISPLAY Button	<ul style="list-style-type: none"> Display On: Short press to turn on the display device.

		<ul style="list-style-type: none"> • Display Off: Hold press for at least 3 seconds to turn off the display device.
13	AUDIO IN	Pass-through audio input.
14	USB HOST	USB Type-B input for a USB Host device (for HDMI 1&2)

REAR PANEL

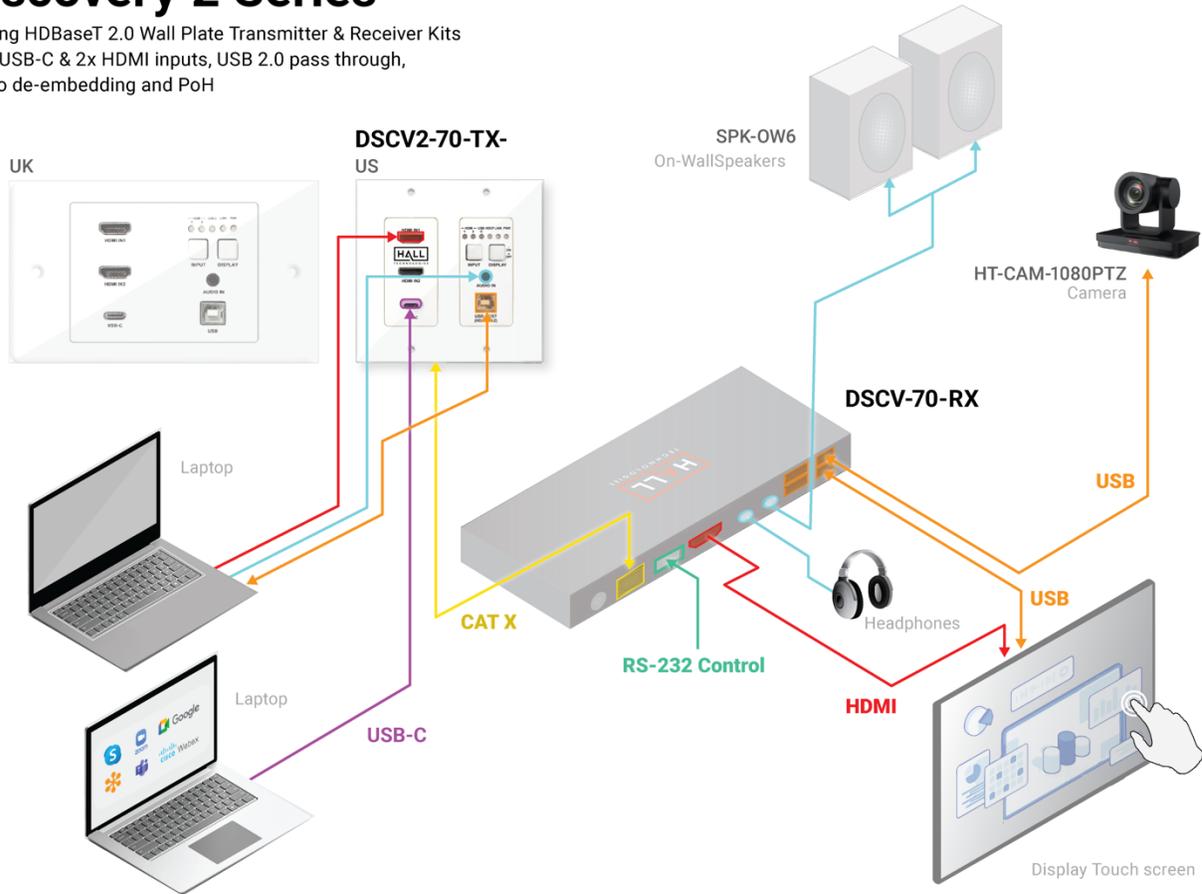


ID	Name	Description
15	HDBT OUT	HDBaseT output connected to an HDBT receiver.
16	RS232	<ul style="list-style-type: none"> • Pins TX, RX and G are used to connect to a third-party device for controlling this transmitter. • Pins 12V and G are used for providing 12V power (max 5W) to the third-party device or for connecting a local 12V power adapter.

Application Wiring

Discovery 2 Series

2-Gang HDBaseT 2.0 Wall Plate Transmitter & Receiver Kits with USB-C & 2x HDMI inputs, USB 2.0 pass through, Audio de-embedding and PoH



The above application demonstrates the possible connections for the DSCV2-70-TX and DSCV-70-RX. In this application the laptop not only shares video via HDMI, but also receives video from the HT-CAM-1080PTZ via the USB host, allowing for the laptop to be used as a soft codec.

Automatic Switching

The DSCV2-70-TX offers automatic switching. This function follows the Last-In-First-Out rule. For example, if a new active source is connected, the transmitter will automatically switch to this source. If the selected source is removed, the transmitter will automatically switch to the source with top priority. (Default priority: USB-C > HDMI IN 1 > HDMI IN 2)

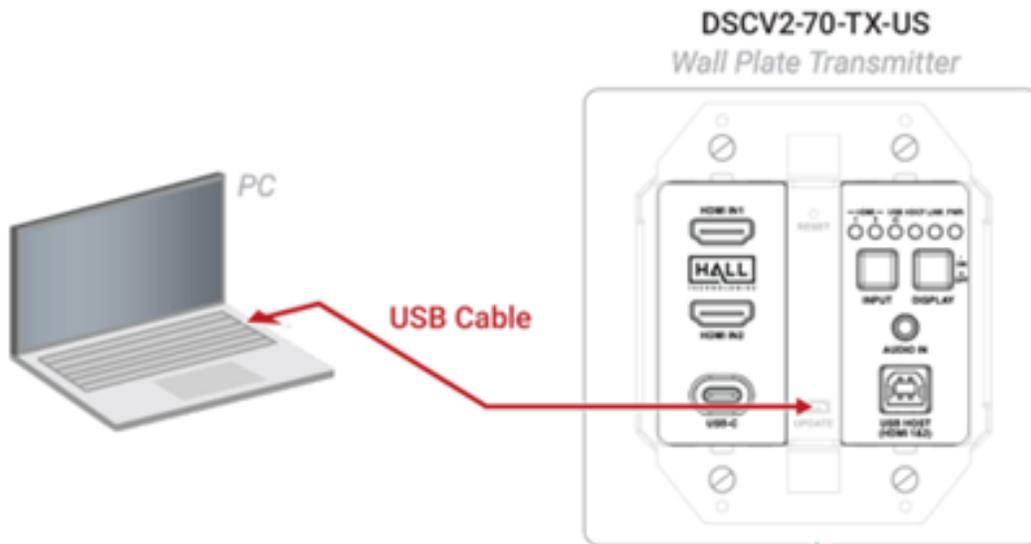
This switching includes both HDMI 1 + USB Host, HDMI 2 + USB Host or USB-C.

Note: The automatic switching function can detect the input signal with 5V only. If the selected source in standby mode provides a continuous 5V power output, this function will not work (i.e. the transmitter will not switch the input to other active sources).

Device Control Triggered

Display power control can be triggered by the wall plate Display button or from a source being detected or no source being active. The Display button will send out a power on command when pressed and released. **It will only send out the power off command when the Display button is pressed and held for 5 seconds.** CEC control is enabled for both Auto power and the Display button by default. Advanced users can program RS232 Serial control to be triggered by the Display Button or Auto power via API commands while connected to either the front panel micro-USB or RS-232 connector on the back of the TX or RX. (API commands for the control can be found in a separate document.)

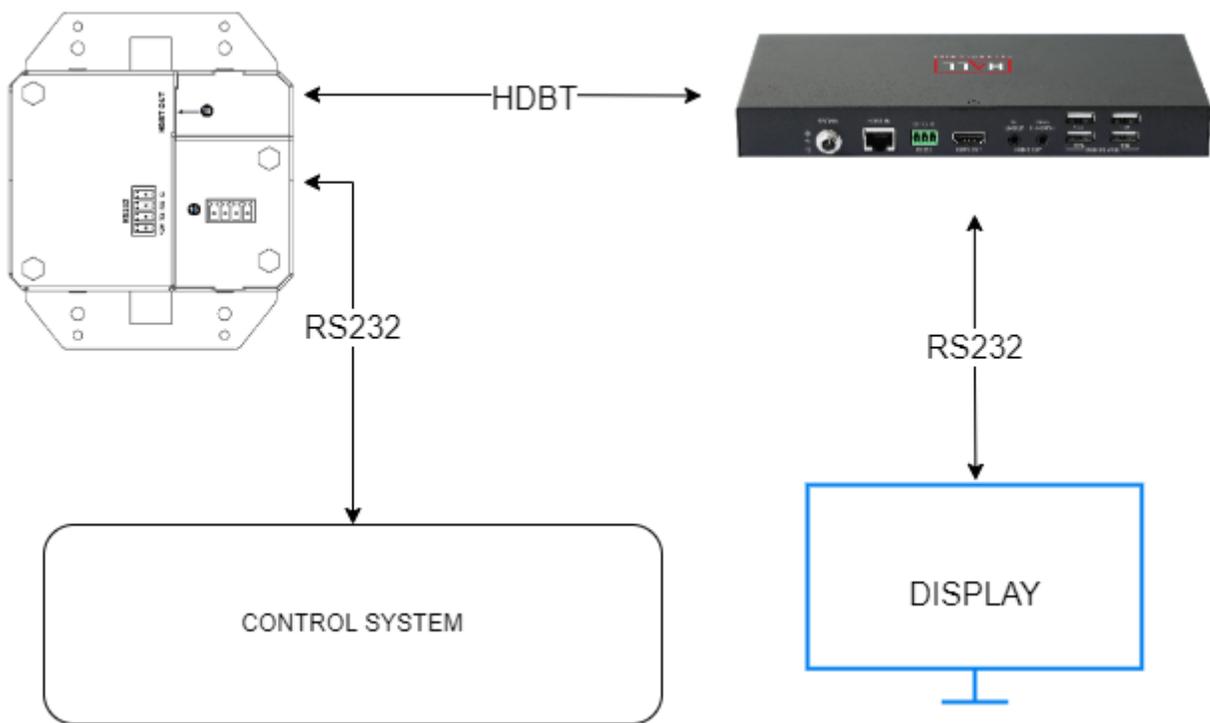
CONNECTING LAPTOP TO DISCOVERY TO SET THE RS-232 DISPLAY POWER COMMANDS



Device Control Passthrough

Display power commands can be sent from a control system using either RS232 port on the back of the Discovery receiver or transmitter and will pass through whatever signal is sent in. In some cases, a null modem must be used (swapping of TX and RX pairs).

TYPICAL RS232 PASSTHROUGH USE CASE



Troubleshooting

Problem Type	Problem	Options
Video	No Video on Display	Confirm the HDMI input on the DSCV2-70-TX is selected (verify LED is illuminated for the source)
		Confirm the connected source is sending video to the DSCV2-70-TX (verify the connected laptop is in duplicate or extend mode)
		Confirm at least one side (typically the receiver) has the local power connected
		Test the category cable to confirm proper pinout and no shorts in the cable
		Confirm the distance between the transmitter and receiver does not exceed specifications (depending on the desired resolution)
		Confirm the HDMI input of the display is correctly selected

Specifications

Technical	
Inputs	2 x HDMI, 1 x USB-C, 1 x Audio (3.5mm, Unbalanced stereo), 1 x RS-232 (5-pin Phoenix)
Outputs	1 x HDBT, 1 x USB Host
Firmware Update	1 x Micro USB
Input Video Signal	HDMI (4K@60Hz YUV 4:2:0, HDCP 2.2) USB-C DP Alt Mode
Output Video Signal	HDBT 2.0
Input/Output Resolution Supported	<p>HDMI: VESA: 2560x1600⁸ 2560x1440⁸ 1920x1200⁸ 1920x1080⁸ 1680x1050⁸ 1600x1200⁸ 1600x900⁸ 1440x900⁸ 1366x768⁸ 1360x768⁸ 1280x1024⁸ 1280x960⁸ 1280x800⁸ 1280x768⁸ 1280x720⁸ 1024x768⁸ 800x600⁸ SMPTE: 4096x2160P^{2,5,8} 3840x2160P^{2,5,8}</p> <p>USB-C: Same As Above</p> <p>1 = @23.98Hz, 2 = @24Hz, 3 = @25Hz, 4 = @29.97Hz, 5 = @30Hz, 6 = @50Hz, 7 = @59.94Hz, 8 = @60Hz</p>
Audio Format	<p>HDMI/USB-C: Fully supports audio formats in HDMI 2.0 specification, including PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X</p> <p>Audio In: Stereo</p>
Maximum Pixel Clock	350MHz
Maximum Data Rate	10.2Gbps
Control Method	Auto Switching, Front panel buttons, API Commands

Transmission Distance	
Cat5e/6	60m/197ft (1080P@60Hz)
Cat6a/7	70m/230ft (1080P@60Hz)
Cat5e/6	35m/115ft (4k@60Hz 4:2:0)
Cat6a/7	40m/131ft (4k@60Hz 4:2:0)

General	
Operating Temperature	0°C ~ 45°C (32°F to 113°F), 10% to 90%, non-condensing
Storage Temperature	-20°C ~ 70°C (-4°F to 158°F), 10% to 90%, non-condensing
ESD Protection	Human-body Model: ±8kV (Air-gap discharge) / ±4kV (Contact discharge)
Power Supply	PoH, powered by connected receiver with PSE module; or local power supply through 12V phoenix connector
Power Consumption (Max)	7.8W
Dimension (Width x Height x Depth)	89mm x 38.4 mm x 105.6mm/3.5" x 1.51" x 4.16"
Net Weight	0.3kg/0.66lbs



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