HD-EXT-USB-2000-C

4K HDMI® & USB over HDBaseT® Extender 2000

- *HDBaseT® Certified 4K Ultra HD signal extender*
- *Extends uncompressed digital video, audio, control, and LAN signals over a single CAT type twisted pair cable [1]*
- *Supports cable lengths up to 330 ft (100 m) depending on the video resolution and wire type [1]*
- *Handles video resolutions up to 4K60 4:2:0 and 4K30 4:4:4*
- *Handles 3D video and Deep Color*
- *Supports Dolby® TrueHD, Dolby Atmos®, DTS-HD®, and uncompressed 7.1 linear PCM audio*
- *Compatible with HDMI®, DVI, and DisplayPort Multimode sources [2]*
- *Compatible with HDMI and DVI display devices [2]*
- *Includes balanced and unbalanced stereo analog audio input and output [3,4]*
- *Supports stereo analog audio embedding and de-embedding*
- *HDCP 2.2 compliant*
- *Passes CEC and EDID signals*
- *Extends 10/100 Ethernet, RS-232, and IR control signals*
- *Extends USB 2.0 signals in either direction (mode selectable) [5]*
- *Low-profile surface mount design*
- *Universal 100-240V power pack included*
- *Ideal for use with Crestron Mercury™ systems*

The HD-EXT-USB-2000-C is a point-to-point signal extender for HDMI®, USB 2.0, RS-232, IR, and Ethernet signals. Analog audio input and/or output signals are also supported in combination with HDMI video. The HD-EXT-USB-2000-C is ideal for use with a single HD or UHD display device and USB camera to extend the signal wiring from an AV media source, computer, central equipment cabinet, or Crestron Mercury™ Tabletop Conference System.

The extender is composed of a compact transmitter and receiver pair, which may be installed up to 330 feet (100 meters) apart (depending on the video resolution and wire type). Video, audio, control, and LAN signals are all transported through a single CAT type cable (not included) using HDBaseT® technology.[1]

Note: This product is not addressable from a control system and offers no programmable functionality. Ethernet, USB, CEC, IR, and RS-232 signals are simply passed through. The transmitter and receiver are intended to be used together and are not intended to be interfaced with other HDBaseT equipment.

SPECIFICATIONS

Video

Input Signal Types (@TX): HDMI w/Deep Color, 3D, & 4K (DVI & Dual-Mode DisplayPort compatible [2])
Output Signal Types (@RX): HDMI w/Deep Color, 3D, & 4K (DVI compatible [2])

Maximum Resolutions:

Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
Progressive	4096x2160 DCI 4K & 3840x2160 4K UHD	24 Hz	4:4:4	30 bit
		30 Hz	4:4:4	24 bit
		30 Hz	4:2:2	36 bit
		60 Hz	4:2:0	24 bit
	2560x1600 WQXGA	60 Hz	4:4:4	36 bit
	1920x1080 HD1080p	60 Hz	4:4:4	36 bit
Interlaced	1920x1080 HD1080i	30 Hz	4:4:4	36 bit

NOTE: Common resolutions are shown; other custom resolutions are supported at pixel clock rates up to 300 MHz

Audio

Input Signal Types (@TX): HDMI (Dual-Mode DisplayPort compatible), analog stereo [3]
Output Signal Types (@RX): HDMI, analog stereo [4]

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Digital Formats: Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio, LPCM up to 8 channels
Analog Formats: Stereo 2-channel
Analog-To-Digital Conversion: 24-bit 48 kHz
Digital-To-Analog Conversion: 24-bit 48 kHz
Analog Performance:
Frequency Response: 20 Hz to 20 kHz ±0.5 dB;
S/N Ratio: >95 dB, 20 Hz to 20 kHz A-weighted;
THD+N: <0.005% @ 1 kHz;
Stereo Separation: >80 dB, 20 Hz to 20 kHz

Communications

Ethernet: 10/100 Mbps pass-through
USB: USB 2.0 pass-through (also supports firmware update via USB mass storage device at TX)
RS-232: 2-way serial pass-through up to 115.2k baud (TD/RD only)
IR: Bidirectional IR signal pass-through up to 60 kHz
HDMI: HDCP 2.2, EDID, CEC pass-through
HDBaseT: HDCP 2.2, EDID, PoE+, Ethernet, IR/RS-232 (intended for signal extension between TX & RX only)

Connectors – Transmitter (HD-TX-USB-2000-C)

HDMI IN: (1) HDMI Type A connector, female;
HDMI digital video/audio input;
(DVI & Dual-Mode DisplayPort compatible [2])

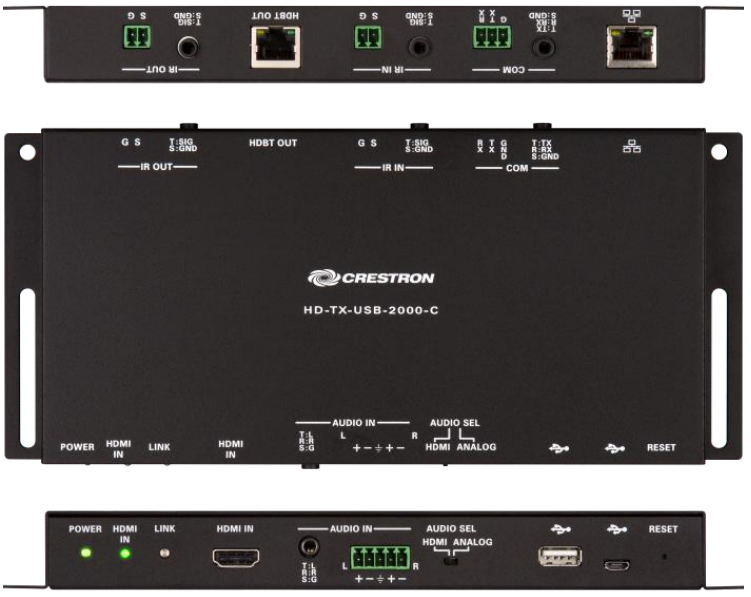
AUDIO IN: (1) 3.5 mm TRS mini phone jack & (1) 5-pin 3.5 mm detachable terminal block; Balanced or unbalanced stereo line-level audio input [3];
Maximum Input Level: 4 Vrms balanced, 2 Vrms unbalanced;
Input Impedance: 10k Ohms balanced, 5k Ohms unbalanced;
Note: The TRS jack is unbalanced stereo and paralleled with the L+ (tip), R+ (ring), and ground (sleeve) terminals; only one audio input connection should be used; this input signal supplants the HDMI audio input signal when selected

USB (host): (1) USB Type A connector, female; USB 2.0 host port for connection of a mouse, keyboard, or any other USB 2.0 peripheral device [5];
Passes USB data to/from the USB device port on the RX when in DEVICE mode;
Available Power: 1 Amp at 5 Volts DC

USB (device): (1) USB Type Micro-B connector, female; USB 2.0 device port for connection to a computer or any other USB 2.0 host [5];
Passes USB data to/from the USB host port on the RX when in HOST mode

LAN: (1) 8-pin RJ45 connector, female;
10Base-T/100Base-TX Ethernet port;
Passes Ethernet data to/from the LAN port on the RX

COM: (1) 3.5 mm TRS mini phone jack & (1) 3-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port;
Passes RS-232 TD/RD data to/from the COM port on the RX;
Supports up to 115.2k baud
Note: The TRS jack and terminal block are paralleled; only one should be used



HD-TX-USB-2000-C Transmitter – Top, Front, and Bottom Views

HD-RX-USB-2000-C Receiver – Top, Front, and Bottom Views

IR IN: (1) 3.5 mm TS mini phone jack & (1) 2-pin 3.5 mm detachable terminal block; IR input port for connection from a Crestron IR control port or other IR signal source;
Passes IR signal to the IR OUT port on the RX;
Supports IR up to 60 kHz;
Note: The TS jack and terminal block are paralleled; only one should be used

HDBT OUT: (1) 8-pin RJ45 connector, female, shielded; HDBaseT and PoE Class 3 PD port for connection to the HDBT IN port on the RX [1]

IR OUT: (1) 3.5 mm TS mini phone jack & (1) 2-pin 3.5 mm detachable terminal block; IR output port for connection to an IR emitter;
Passes IR signal from the IR IN port on the RX;
Supports IR up to 60 kHz;
Note: The TS jack and terminal block are paralleled; only one should be used

Connectors – Receiver (HD-RX-USB-2000-C)

HDMI OUT: (1) HDMI Type A connector, female;
HDMI digital video/audio output (DVI compatible [2])

AUDIO OUT: (1) 3.5 mm TRS mini phone jack & (1) 5-pin 3.5 mm detachable terminal block;
Balanced or unbalanced stereo line-level audio output [4];
Maximum Output Level: 4 Vrms balanced, 2 Vrms unbalanced;
Output Impedance: 499 Ohms balanced or unbalanced;
Note: The TRS jack is unbalanced stereo and paralleled with the L+ (tip), R+ (ring), and ground (sleeve) terminals

USB (host): (1) USB Type A connector, female; USB 2.0 host port for connection of a mouse, keyboard, or any other USB 2.0 peripheral device [5];
Passes USB data to/from the USB device port on the TX when in HOST mode;
Available Power: 1 Amp at 5 Volts DC

USB (device): (1) USB Type Micro-B connector, female; USB 2.0 device port for connection to a computer or any other USB 2.0 host [5];
Passes USB data to/from the USB host port on the TX when in DEVICE mode

LAN: (1) 8-pin RJ45 connector, female;
10Base-T/100Base-TX Ethernet port;
Passes Ethernet data to/from the LAN port on the TX

COM: (1) 3.5 mm TRS mini phone jack & (1) 3-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port;
Passes RS-232 TD/RD data to/from the COM port on the TX;
Supports up to 115.2k baud
Note: The TRS jack and terminal block are paralleled; only one should be used

IR IN: (1) 3.5 mm TS mini phone jack & (1) 2-pin 3.5 mm detachable terminal block; IR input port for connection from a Crestron IR control port or other IR signal source;
Passes IR signal to the IR OUT port on the TX;
Supports IR up to 60 kHz;
Note: The TS jack and terminal block are paralleled; only one should be used

HDBT IN: (1) 8-pin RJ45 connector, female, shielded; HDBaseT and PoE+ PSE port for connection to the HDBT OUT port on the TX [1]

IR OUT: (1) 3.5 mm TS mini phone jack & (1) 2-pin 3.5 mm detachable terminal block; IR output port for connection to an IR emitter;
Passes IR signal from the IR IN port on the TX;
Supports IR up to 60 kHz;
Note: The TS jack and terminal block are paralleled; only one should be used

24VDC 1.25A: (1) 2.1 x 5.5 mm DC power connector;
24 Volt DC power input;
PW-2412WU power pack included;
Note: This connection powers both the receiver and transmitter

Controls & Indicators – Transmitter (HD-TX-USB-2000-C)

POWER: (1) Bi-color green/amber LED, indicates operating power is supplied via the HDBaseT link to the companion receiver, turns amber while booting and green when operating
HDMI IN: (1) Green LED, indicates HDMI input signal presence
LINK: (1) Bi-color green/amber LED, green indicates an HDBaseT link with video, amber indicates a link without video
AUDIO SEL HDMI/ANALOG: (1) 2-position slide switch, selects the audio input [3]
RESET: (1) Recessed pushbutton, initiates hardware reset of both the transmitter and receiver
LAN: (2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity
HDBT OUT: (2) LEDs, amber LED indicates HDBaseT link status, green LED indicates PoE

Controls & Indicators – Receiver (HD-RX-USB-2000-C)

POWER: (1) Bi-color green/amber LED, indicates operating power is supplied from the power pack via the 24VDC input, turns amber while booting and green when operating
HDMI OUT: (1) Green LED, indicates HDMI output signal presence
LINK: (1) Bi-color green/amber LED, green indicates an HDBaseT link with video, amber indicates a link without video
HOST/AUTO/DEVICE: (1) 3-position slide switch, selects the USB mode [5]
LAN: (2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity
HDBT IN: (2) LEDs, amber LED indicates HDBaseT link status, green LED indicates PoE

Power

Power Pack (included):
Input: 0.8 Amps (maximum) @ 100-240 Volts AC, 50/60 Hz;
Output: 1.25 Amps @ 24 Volts DC;
Model: PW-2412WU

Power Consumption: 18.7 Watts typical

Environmental

Temperature: 32° to 104° F (0° to 40° C)
Humidity: 20% to 90% RH (non-condensing)
Heat Dissipation: 63.8 BTU/hr

Construction – Typical of Transmitter & Receiver

Chassis: Metal, black finish, with (2) integral mounting flanges, vented sides
Mounting: Freestanding, surface mount, or attach to a single rack rail

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Dimensions

Transmitter (HD-TX-USB-2000-C): Height: 4.47 in (114 mm); Width: 9.61 in (244 mm); Depth: 0.99 in (25 mm)

Receiver (HD-RX-USB-2000-C): Height: 4.47 in (114 mm); Width: 9.61 in (244 mm); Depth: 0.99 in (25 mm)

Weight

Transmitter (HD-TX-USB-2000-C): 1.71 lb (776 g)
Receiver (HD-RX-USB-2000-C): 1.71 lb (776 g)

Maximum HDBaseT Cable Lengths

Cable Type: / Resolution:	DM-CBL-ULTRA DM® Ultra Cable	DM-CBL-8G DM 8G® Cable	CAT5e (or better) [1]
1080p60 Full HD	330 ft (100 m)	330 ft (100 m)	330 ft (100 m)
1920x1200 WUXGA			
1600x1200 UXGA			
2048x1080 DCI 2K			
2560x1440 WQHD		230 ft (70 m)	165 ft (50 m)
2560x1600 WQXGA			
3840x2160 4K UHD			
4096x2160 DCI 4K			

MODELS & ACCESSORIES

Available Models

HD-EXT-USB-2000-C KIT: 4K HDMI® & USB over HDBaseT® Extender 2000

Included Accessories

PW-2412WU: Wall Mount Power Pack, 24VDC, 1.25A, 2.1mm, Universal (Qty. 1 included)

Available Accessories

DM-CBL-ULTRA-PC: DigitalMedia™ Ultra Patch Cables
DM-CONN-ULTRA-RECP: DigitalMedia™ Ultra Keystone RJ45 Jack
DM-CBL-ULTRA-NP: DigitalMedia™ Ultra Cable, Non-Plenum Type CMR
DM-CBL-ULTRA-P: DigitalMedia™ Ultra Cable, Plenum Type CMP
DM-CBL-ULTRA-LSZH: DigitalMedia™ Ultra Cable, Low Smoke Zero Halogen
DM-CONN: Connector for DM-CBL-ULTRA
DM-CBL-8G-NP: DigitalMedia 8G™ Cable, non-plenum
DM-CBL-8G-P: DigitalMedia 8G™ Cable, plenum
DM-8G-CONN-WG: Connector with Wire Guide for DM-CBL-8G
DM-8G-CRIMP-WG: Crimping Tool for DM-8G-CONN-WG
DM-8G-CONN: Connector for DM-CBL-8G
DM-8G-CRIMP: Crimping Tool for DM-8G-CONN
CBL Series: Crestron® Certified Interface Cables
CNSP-XX: Custom Serial Interface Cable
IRP2: IR Emitter
STIRP: IR Emitter

Notes:

1. The maximum cable length for HDBaseT is dependent upon the type of cable and resolution of the video signal. Refer to the "Maximum HDBaseT Cable Lengths" table for a detailed overview. Shielded cable and connectors are recommended to safeguard against unpredictable environmental electrical noise which may impact performance at resolutions above 1080p. All wire and cables are sold separately.
2. HDMI connections require an appropriate adapter or interface cable to accommodate a DVI or Dual-Mode DisplayPort signal. CBL-HD-DVI interface cables are available separately.
3. The analog stereo audio input must be selected manually. When the analog audio input is selected, the HDMI audio input signal is disabled.
4. The analog stereo audio output is only active when the input is receiving a 2-channel stereo signal via either the analog or HDMI input.
5. The USB mode can be selected manually or automatically to enable the USB host (computer, etc.) to be connected at either the transmitter or receiver end, not both. This product is engineered to deliver maximum compatibility with the widest possible range of USB equipment. Crestron does not guarantee that all USB devices or hosts are compatible with this product.

This product may be purchased from an authorized Crestron dealer. To find a dealer, please contact the Crestron sales representative for your area. A list of sales representatives is available online at www.crestron.com/salesreps or by calling 800-237-2041.

The specific patents that cover Crestron products are listed online at: patents.crestron.com.

Certain Crestron products contain open source software. For specific information, please visit www.crestron.com/opensource.

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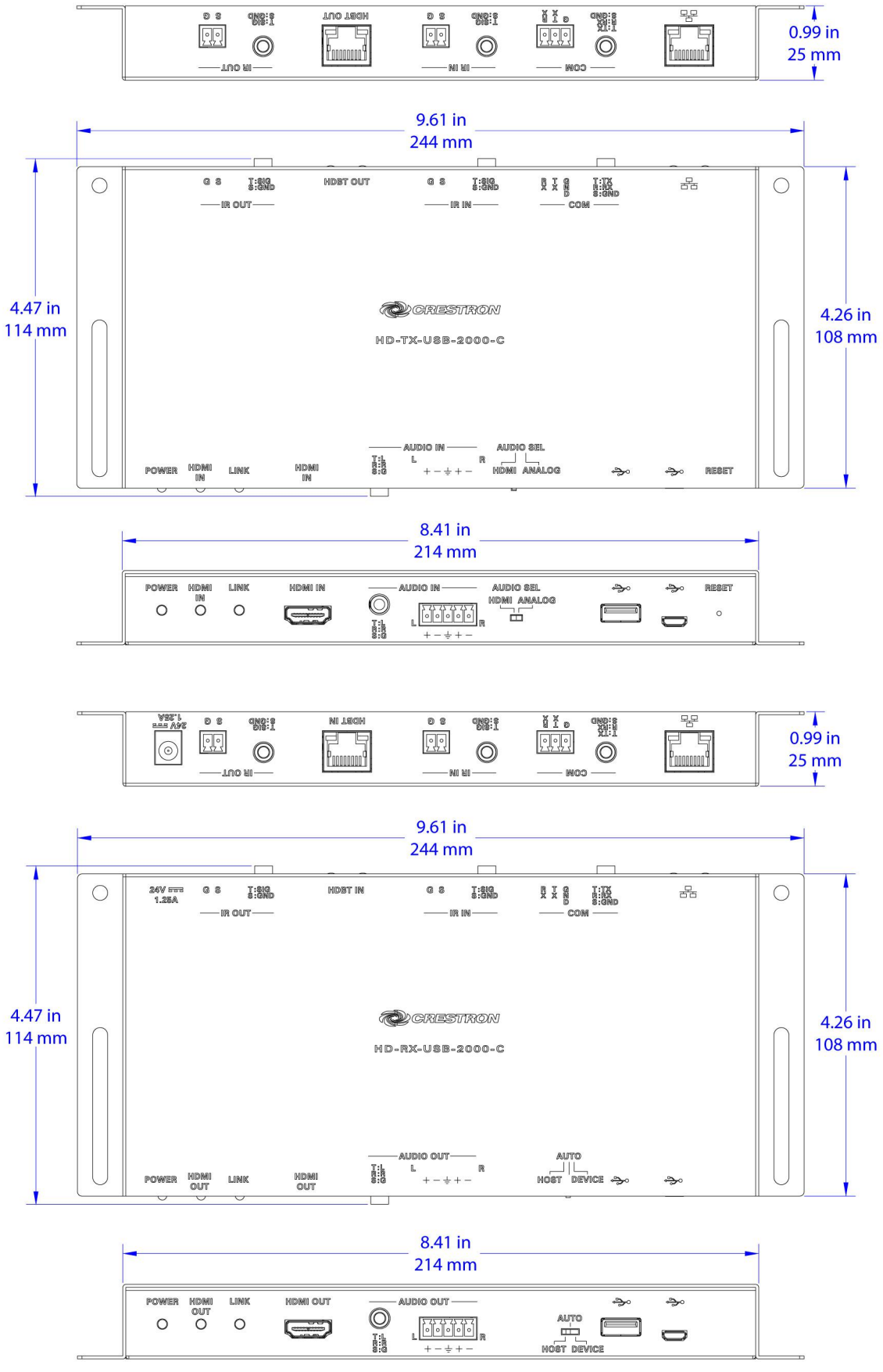

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