

5Gbps Dual-Host USB-C Extender over CAT6a (100m/328ft) with Dual 4K HDMI Out

The KanexPro EXT-USBCPD2X4K-100M extends USB 3.2 signals at 5Gbps up to 100 meters over a single CAT6a cable. The transmitter features two selectable USB-C host ports with auto/manual switching and up to 100W PD charging. The receiver provides dual HDMI outputs at up to 4K@60Hz, balanced/unbalanced analog audio de-embedding, and downstream USB device ports for webcams, PTZ cameras, keyboards, and touch panels. Bi-directional 24V PoC allows power at either end. RS-232 pass-through and FSYNC GPIO enable third-party control and industrial camera synchronization.

Surge Protection Recommended — This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, or lightning strikes. Use of surge protection systems is highly recommended.

Caution — The network cable connection method for this product is direct connection (T568B to T568B). Do not cross-connect.

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FEATURES

- ✓ Extends USB 3.2 signals at 5Gbps up to 100m/328ft over a single CAT6a cable via HDBaseT
- ✓ Dual USB-C host inputs on TX with auto/manual switching — supports two-laptop redundancy or presenter handoff
- ✓ USB-C PD charging up to 100W (1×100W or 2×50W) — powers laptops directly from the transmitter
- ✓ Dual HDMI 2.0b outputs on RX at up to 4K@60Hz — mirror or extend displays with HDCP 2.2 compliance
- ✓ Balanced and unbalanced analog audio de-embedding on RX (LPCM 2CH, 32–192kHz) via 5-pin phoenix connector
- ✓ Three downstream USB device ports on each unit (1× USB-C + 2× USB-A) for webcams, PTZ cameras, keyboards, and touch panels
- ✓ RS-232 pass-through on both TX and RX for third-party control system integration
- ✓ FSYNC GPIO pass-through for industrial camera synchronization (default level range 0–5V)
- ✓ Bi-directional 24V PoC — power either TX or RX, the other unit is powered over the CAT6a link

PACKAGE CONTENTS

1× USB 3.2 Extender (TX) • 1× USB 3.2 Extender (RX) • 1× 24V/7.5A Locking Power Supply • 2× 4pin-3.5mm Phoenix Connector • 1× 5pin-3.5mm Phoenix Connector • 4× Mounting Ears • 8× Machine Screws (KM3*4) • 1× Product Manual



Specifications

TECHNICAL	
USB Protocol	USB 3.2 Gen 1
Transmission Rate	Up to 5Gbps
HDCP Compliance	HDCP 2.2
HDMI Compliance	HDMI 2.0b
HDMI Video Bandwidth	18Gbps
HDMI Video Resolution	Up to 4K@60Hz
Color Depth	8/10/12-bit
Color Space	RGB, YCbCr 4:4:4 / 4:2:2 / 4:2:0
Audio Format	HDMI: Up to LPCM 2.0/5.1CH Analog: LPCM 2CH (32–192kHz)
Transmission Distance	100m/328ft via CAT6a (F/FTP) 1.5m via USB • 3m via HDMI
ESD Protection	IEC 61000-4-2: ±8kV (air) & ±4kV (contact)

CONNECTIONS — TRANSMITTER	
Input	2× USB-C HOST [24-pin female]
Output	2× USB-A DEVICE • 1× USB-C DEVICE
Link	1× HDBT-USB3 [RJ45, 24V PoC]
Control	1× RS-232 [3pin phoenix] • 1× FSYNC • 1× SERVICE [USB-C]

CONNECTIONS — RECEIVER	
Input	1× HDBT-USB3 [RJ45, 24V PoC]
Output	2× USB-A • 1× USB-C • 2× HDMI OUT • 1× AUDIO OUT [5pin phoenix]
Control	1× RS-232 [3pin phoenix] • 1× FSYNC • 1× SERVICE [USB-C]

MECHANICAL	
Housing	Metal Enclosure, Black
Dimensions	TX: 180 × 95 × 23mm • RX: 180 × 95 × 23mm
Weight	TX: 482g • RX: 486g
Power Supply	AC 100–240V 50/60Hz → DC 24V/7.5A
Power Consumption	TX: 120W max (incl. PD) • RX: 19.44W max
Operating Temp	32–113°F / 0–45°C
Storage Temp	–40–140°F / –40–60°C
Humidity	Op: 20–80% • Storage: 10–90% RH (non-condensing)



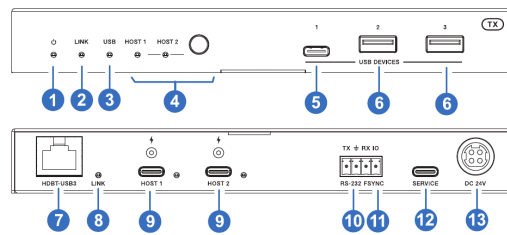
Operation Controls and Functions

5.1 TRANSMITTER PANEL

Dimensions	Transmitter: 180mm [W] × 95mm [D] × 23mm [H] Receiver: 180mm [W] × 95mm [D] × 23mm [H]
Weight	Transmitter: 482g; Receiver: 486g
Power Supply	Input: AC 100~240V 50/60Hz; Output: DC 24V/7.5A (US/EU standards, CE/FCC/UL certified)
Power Consumption	Transmitter: 120W (Including PD 100W, Max); Receiver: 19.44W (Max)
Operating Temperature	0°C ~ 45°C / 32°F ~ 113°F
Storage Temperature	-40°C ~ 60°C / -40°F ~ 140°F
Operating Humidity	20%~80% relative humidity, non-condensing
Storage Humidity	10%~90% relative humidity, non-condensing

5. Operation Controls and Functions

5.1 Transmitter Panel



EXT-USBCPD2X4K-100M — Transmitter (TX) Front & Rear



TRANSMITTER FUNCTION DESCRIPTION

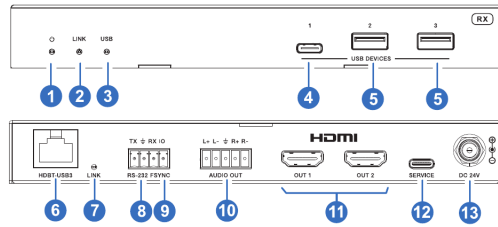
NO.	NAME	FUNCTION DESCRIPTION
1	Power LED	Red LED indicates the transmitter is powered on.
2	LINK LED	Connection signal indicator. On: TX and RX are linked. Off: Not connected.
3	USB LED	On: USB 3.0 signal detected. Blinking: USB 2.0 signal. Off: No USB signal.
4	HOST Switch & LEDs	Button switches between HOST 1 and HOST 2. Selected host LED illuminates.
5	USB-C DEVICE	Downstream USB-C port (5V/1A). Connects to USB devices such as flash drives or hard disks.
6	USB-A DEVICE (x2)	Downstream USB-A ports (5V/1.5A each). Connect to USB devices.
7	HDBT-USB3	RJ45 port connecting to the RX via CAT6a cable. Also used for 24V PoC.
8	LINK LED (rear)	Connection signal indicator (same as front LINK LED).
9	USB-C HOST 1/2	Upstream USB-C ports to PCs. PD charging up to 100W (50W each if both charging). Selected host LED illuminates.
10	RS-232	3-pin phoenix connector for RS-232 signal pass-through and API control.
11	FSYNC	1-pin phoenix connector. Level pass-through TX to RX (0–5V default).
12	SERVICE	USB 2.0 port for firmware upgrade.
13	DC 24V	DC 24V/7.5A power input port.

USB-C Charging Note — USB-C charging is supported only when the TX receives power from the external power supply. Charging is not available when TX is powered via PoC from the RX.



5.2 RECEIVER PANEL

5.2 RECEIVER PANEL



No.	Name	Function Description
1	Power LED	The red LED will be on when the receiver is powered on.
2	LINK LED	Connection signal indicator. • On: Transmitter and Receiver are connected and linked. • Off: Transmitter and Receiver are not connected.
3	USB LED	USB signal indicator. • On: USB 3.0 signal is detected. • Blinking: USB 2.0 signal is detected. • Off: USB signal is not detected.
4	USB-C DEVICE	Downstream USB-C port, with output power up to 5V/1A. Connects to USB device such as U disk or hard disk.
5	USB-A DEVICE	Downstream USB-A ports, with output power up to 5V/1.5A. Connect to USB devices such as U disk or hard disk.
6	HDBT-USB3	Connects to the HDBT-USB3 port on TX with CAT6a cable. It can also be used for 24V PoC power supply.
7	LINK LED	Connection signal indicator. • On: Transmitter and Receiver are connected and linked. • Off: Transmitter and Receiver are not connected.
8	RS-232	3pin phoenix connector, connected to a PC or control system for RS-232 signal pass-through and API commands control.

EXT-USBCPD2X4K-100M — Receiver (RX) Front & Rear

NO.	NAME	FUNCTION DESCRIPTION
1	Power LED	Red LED indicates the receiver is powered on.
2	LINK LED	On: TX and RX linked. Off: Not connected.
3	USB LED	On: USB 3.0. Blinking: USB 2.0. Off: No USB signal.
4	USB-C DEVICE	Downstream USB-C port (5V/1A).
5	USB-A DEVICE (x2)	Downstream USB-A ports (5V/1.5A each).
6	HDBT-USB3	RJ45 port connecting to TX via CAT6a. Also used for 24V PoC.
7	LINK LED (rear)	Connection signal indicator (same as front).
8	RS-232	3-pin phoenix for RS-232 pass-through and API control.
9	FSYNC	1-pin phoenix. Level pass-through from TX.
10	AUDIO OUT	5-pin phoenix. Balanced (max 2Vrms) or unbalanced (max 1Vrms). LPCM 2CH, 32–192kHz.
11	HDMI OUT (1/2)	HDMI outputs (4K@60Hz). Requires Synaptics DisplayLink driver.
12	SERVICE	USB 2.0 port for firmware upgrade.
13	DC 24V	DC 24V/3.75A power input port.



Default Settings & API Communication

Factory default settings. Change via API commands through the SERVICE port or RS-232 port.

PARAMETER	DEFAULT VALUE
Source	01 (USB Host 1)
Front Panel Key	On
RS-232 Baud Rate	115200
Auto-switching (USB 5V)	On
TX USB Device Power	Follow USB host power
RX USB Device Power	Follow host (ports 1–2), Force On (port 3)
USB Host Input Port	USB Host 1 (USBC)

STATUS OUTPUT (GET STATUS)

Returns firmware versions, source, key lock, baud rate, auto-switch status, and power state for all USB device ports.

FIELD	EXAMPLE	DESCRIPTION
Firmware	TX_FW 1.0.0 RX_FW 1.0.0	TX and RX firmware versions
Source	01	Active USB host (01 = Host 1)
Key	On	Front panel key status
Baud	115200	RS-232 baud rate
Autoswitch	On	USB 5V auto-switching
Input 01/02	5V / None	Host voltage detected
TX_01–03	Follow_Input	TX USB device port power mode
RX_01–02	Follow_Input	RX ports 1–2 power mode
RX_03	Force_On	RX port 3 always powered

RS-232 / API COMMUNICATION

1. Service Port (USB-C virtual RS-232): Baud: 115200 (fixed), 8N1.
2. Phoenix RS-232 Port: Baud: 4800–115200 (configurable), 8N1.



API Commands

COMMAND	FUNCTION	EXAMPLE	DEFAULT
?	List all commands	?	—
help	List all commands	help	—
get fw version	Get firmware version	get fw version	—
set reboot	Reboot device	set reboot	—
set reset	Factory reset	set reset	—
get status	Get system status	get status	—
set key on/off	Enable/disable front panel key	set key on	on
get key	Get key status	get key	—
set baud x	Set RS-232 baud (x=1:4800, 2:9600, 3:19200, 4:38400, 5:57600, 6:115200)	set baud 6	115200
get baud	Get baud rate	get baud	—
get usb5v x	Get host 5V status (x=0:all, 1:Host1, 2:Host2)	get usb5v 0	—
set autoswitch x	Auto-switch on USB 5V (On/Off)	set autoswitch on	on
get autoswitch	Get auto-switch status	get autoswitch	—
set input x	Set host input (x=1:Host1, 2:Host2)	set input 1	1
get input	Get host input	get input	—



API Commands (continued)

COMMAND	FUNCTION	EXAMPLE	DEFAULT
<code>set tx usbd x power y</code>	Set TX USB device port power (x=0:all,1:USBC,2:USBA-2,3:USBA-3; y=0:Off,1:Follow,2:On)	<code>set tx usbd 0 power 1</code>	1
<code>get tx usbd x power</code>	Get TX USB device port power (x=0:all,1-3)	<code>get tx usbd 0 power</code>	—
<code>set rx usbd x power y</code>	Set RX USB device port power (same as TX)	<code>set rx usbd 0 power 1</code>	1
<code>get rx usbd x power</code>	Get RX USB device port power	<code>get rx usbd 0 power</code>	—
<code>set hdbt update</code>	Set service port to HDBT UART for FW update	<code>set hdbt update</code>	—

RS-232 PIN ASSIGNMENT

PIN	SIGNAL
1	TX
2	RX
3	GND

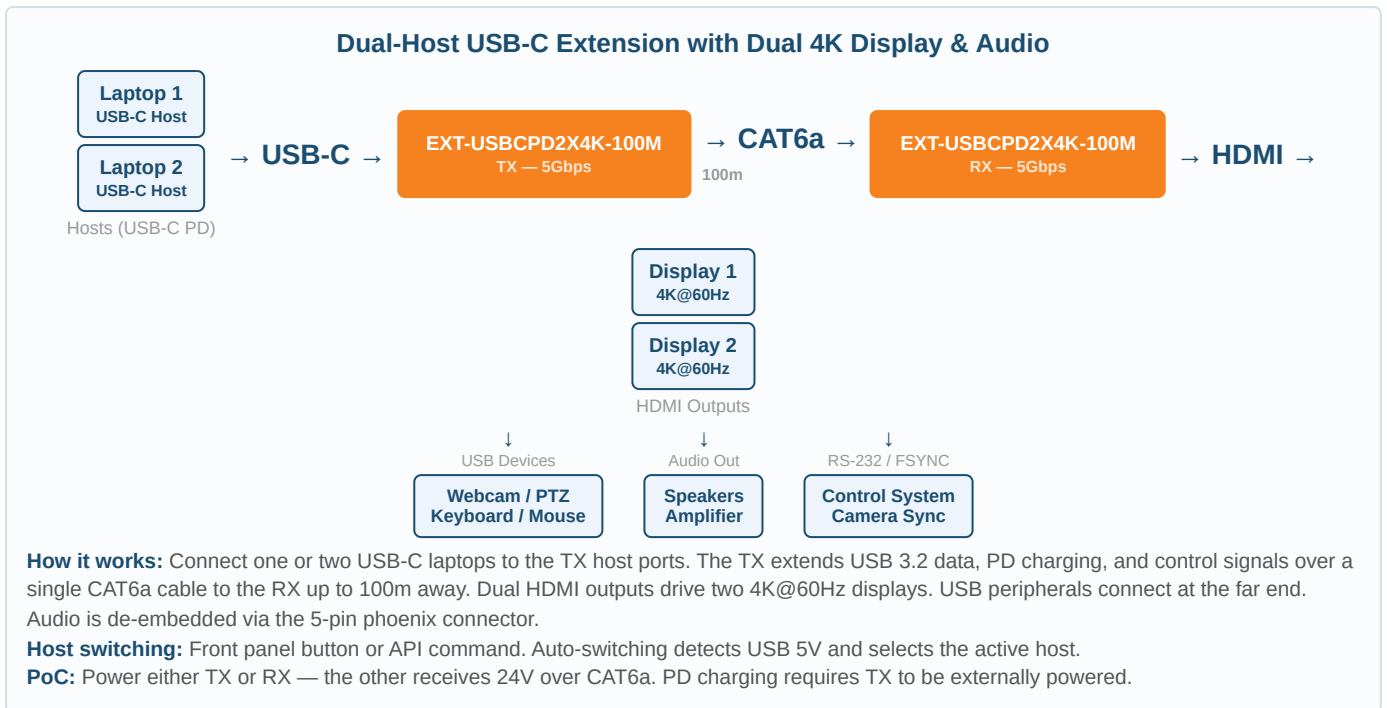
AUDIO OUTPUT PIN ASSIGNMENT

PIN	SIGNAL	CONNECTION
1 (L+)	Left Positive	Balanced: L+, L- / Unbalanced: L+, GND
2 (L-)	Left Negative	
3 (GND)	Ground	Common ground
4 (R+)	Right Positive	Balanced: R+, R- / Unbalanced: R+, GND
5 (R-)	Right Negative	

Balanced output: Max 2Vrms • **Unbalanced output:** Max 1Vrms



Application Example



TROUBLESHOOTING

Q: No video on the connected displays?

A: Ensure the latest Synaptics DisplayLink driver is installed. Use HDMI cables no longer than 3m. Confirm the LINK LED is illuminated on both units.

Q: USB devices not detected at the RX?

A: Verify the USB LED is on or blinking. Use a direct CAT6a cable (T568B to T568B). Check cable does not exceed 100m.

Q: USB-C PD charging not working?

A: PD charging requires the TX to be externally powered (not via PoC). Two hosts charging simultaneously are limited to 50W each.

Q: How do I send API commands?

A: Connect SERVICE port (USB-C) or RS-232 phoenix to a PC. Open serial terminal at 115200 baud (8N1). Type help for all commands.

