5Gbps USB-C 3.2 Gen 1 Extender over CAT6a (100m/328ft)

The KanexPro EXT-USBC-100M extends USB 3.2 Gen 1 signals up to 100m/328ft via a single CAT6a cable. The transmitter features one USB-C host port, one USB-C device port, and two USB-A device ports. The receiver features two USB-C and two USB-A device ports. Bi-directional 24V PoC (Power over Cable) allows the user to supply power to either the transmitter or the receiver — the other unit is powered through the CAT6a link.

Widely used for long-distance USB signal transmission between hosts and peripherals such as webcams, PTZ cameras, keyboards, mice, USB microphones, flash drives, printers, scanners, touch panel displays, and other USB devices.

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 — This product requires the use of UTP connectors. Connect in direct interconnection method (T568B to T568B) and do not cross-connect.

TABLE OF CONTENTS

FEATURES

- ✓ Extends USB 3.2 Gen 1 signals up to 100m/328ft over a single CAT6a (F/FTP) cable at data rates up to 5Gbps
- ✓ USB-C host connection on transmitter with one USB-C and two USB-A downstream device ports
- ✓ Receiver provides two USB-C device ports (1× 5V/1.5A, 1× 5V/1A) and two USB-A device ports (1× 5V/1.5A, 1× 5V/1A)
- ✓ Backwards compatible with USB 2.0 and USB 1.1 devices
- ✓ Bi-directional 24V PoC (Power over Cable) — power either the transmitter or receiver; the other unit is powered through the CAT6a link
- ✓ RS-232 pass-through via 3-pin phoenix connectors on both TX and RX for control system integration
- ✓ FSYNC GPIO pass-through (0–5V) for industrial camera synchronization
- ✓ Hardware acceleration for isochronous and bulk USB transfers
- ✓ Plug-and-play — no drivers, downloads, or software required; compact metal enclosure with mounting ears

PACKAGE CONTENTS

1× USB 3.2 Gen 1 Extender (Transmitter) • 1× USB 3.2 Gen 1 Extender (Receiver) • 1× 24V/3.75A Locking Power Supply • 2× 4-pin 3.5mm Phoenix Connector (Male) • 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
Transmission Distance	100m/328ft via CAT6a (F/FTP) cable 1.5m/4.9ft via USB cable
USB Compatibility	Backwards compatible with USB 2.0 and USB 1.1
ESD Protection	IEC 61000-4-2: ±8kV (air-gap) & ±4kV (contact)

CONNECTIONS — TRANSMITTER (TX)	
Input (Host)	1× USB Type C [24-pin female]
Output (Devices)	1× USB-C Device [USB Type C, 24-pin female] 2× USB-A Device [USB Type A, 9-pin female]
Link	1× HDBT-USB3 [RJ45 connector, 24V PoC]
Control	1× RS-232 [3-pin 3.5mm phoenix connector] 1× FSYNC [1-pin 3.5mm phoenix connector]
Service	1× USB Type C [firmware update port]

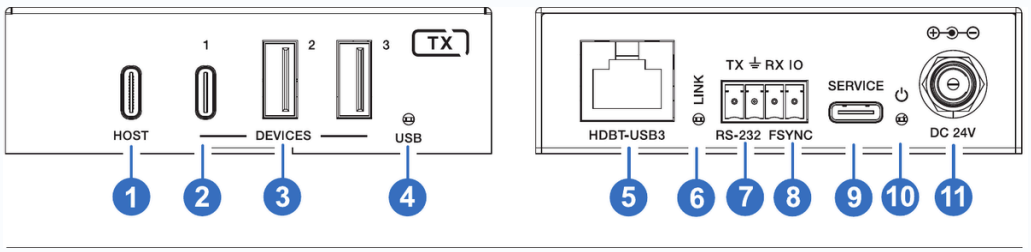
CONNECTIONS — RECEIVER (RX)	
Input (Link)	1× HDBT-USB3 [RJ45 connector, 24V PoC]
Output (Devices)	2× USB-C Device [USB Type C, 24-pin female] 2× USB-A Device [USB Type A, 9-pin female]
Control	1× RS-232 [3-pin 3.5mm phoenix connector] 1× FSYNC [1-pin 3.5mm phoenix connector]
Service	1× USB Type C [firmware update port]

USB DEVICE POWER OUTPUT	
TX — USB-C Device (1)	5V / 1A
TX — USB-A Devices (2–3)	5V / 1A each
RX — USB-C Device 1	5V / 1.5A
RX — USB-C Device 2	5V / 1A
RX — USB-A Device 3	5V / 1.5A
RX — USB-A Device 4	5V / 1A

MECHANICAL	
Housing	Metal Enclosure, Black
Dimensions (TX / RX)	100mm (W) × 85mm (D) × 25.5mm (H)
Weight	TX: 265g • RX: 275g
Power Supply	AC 100–240V 50/60Hz → DC 24V/3.75A (locking)
Power Consumption	TX: 23W (max) • RX: 35W (max) TX+RX: 68W (max, including line loss)
Operating Temp	32–104°F / 0–40°C
Storage Temp	−4–140°F / −20–60°C
Operating Humidity	20–80% RH (non-condensing)
Storage Humidity	10–90% RH (non-condensing)

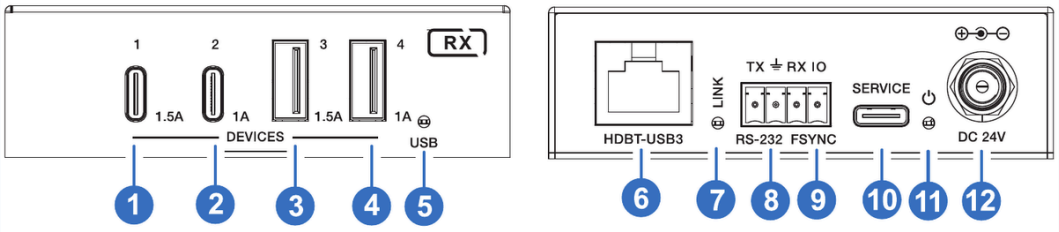
Operation Controls and Functions

5.1 TRANSMITTER PANEL



No.	Name	Function Description
1	HOST	Uplink USB-C port, connected to PC or host. Can also be used for HUB firmware update.
2	USB DEVICES (1)	Downlink USB-C port for USB devices such as flash drives or hard disks. Output power: 5V/1A.
3	USB DEVICES (2–3)	Downlink USB-A ports for USB devices such as flash drives or hard disks. Output power: 5V/1A each.
4	USB LED	USB signal indicator. **On:** USB 3.0 signal detected. **Blinking:** USB 2.0 signal detected. **Off:** No USB signal.
5	HDBT-USB3	RJ45 port connecting to the Receiver via CAT6a cable. Also carries 24V PoC power.
6	LINK LED	Connection indicator. **On:** TX and RX are connected and linked. **Off:** Not connected.
7	RS-232	3-pin phoenix connector for RS-232 command pass-through to a control system.
8	FSYNC	1-pin phoenix connector for FSYNC GPIO pass-through (0–5V) to synchronize external devices.
9	SERVICE	USB-C port for firmware update, supporting USB 2.0.
10	Power LED	Illuminates when the transmitter is powered on.
11	DC 24V	DC 24V/3.75A locking power input port.

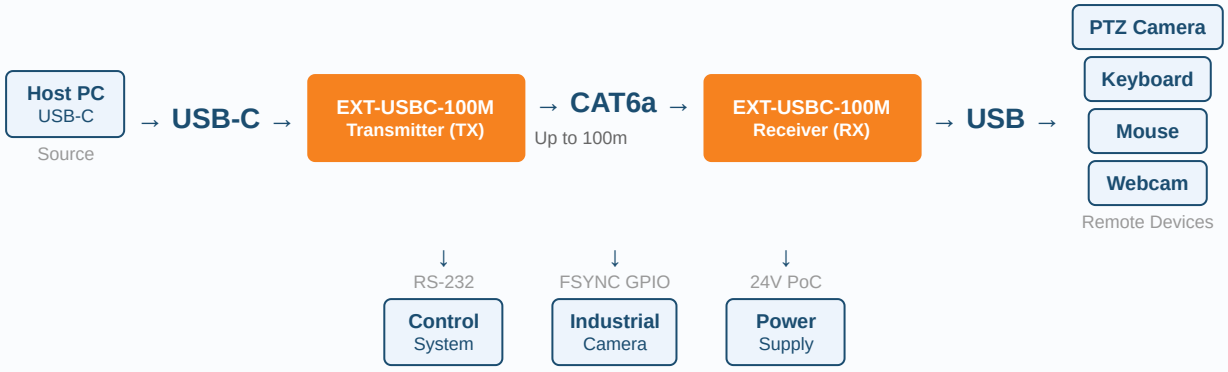
5.2 RECEIVER PANEL



No.	Name	Function Description
1	USB DEVICES 1	Downlink USB-C port for USB devices. Output power: 5V/1.5A.
2	USB DEVICES 2	Downlink USB-C port for USB devices. Output power: 5V/1A.
3	USB DEVICES 3	Downlink USB-A port for USB devices. Output power: 5V/1.5A.
4	USB DEVICES 4	Downlink USB-A port for USB devices. Output power: 5V/1A.
5	USB LED	USB signal indicator. **On:** USB 3.0 signal detected. **Blinking:** USB 2.0 signal detected. **Off:** No USB signal.
6	HDBT-USB3	RJ45 port connecting to the Transmitter via CAT6a cable. Also carries 24V PoC power.
7	LINK LED	Connection indicator. **On:** TX and RX are connected and linked. **Off:** Not connected.
8	RS-232	3-pin phoenix connector for RS-232 command pass-through to a control system.
9	FSYNC	1-pin phoenix connector for FSYNC GPIO pass-through (0–5V) to synchronize external devices.
10	SERVICE	USB-C port for firmware update, supporting USB 2.0.
11	ower LED	Illuminates when the receiver is powered on.
12	C 24V	DC 24V/3.75A locking power input port.

Application Example

USB Extension for Conference Room / Industrial Camera Setup

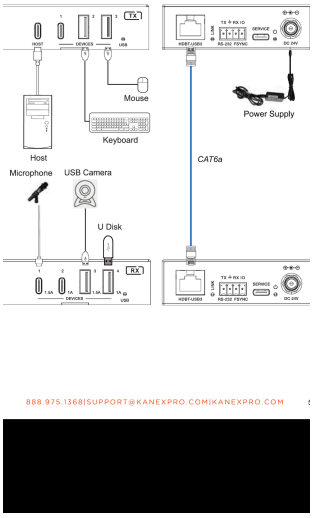


How it works: Connect the host PC to the Transmitter's USB-C HOST port. Run a single CAT6a cable (up to 100m) from the TX HDBT-USB3 port to the RX HDBT-USB3 port. Connect USB peripherals (cameras, keyboards, mice, flash drives) to the Receiver's USB-C and USB-A device ports. The USB 3.2 Gen 1 signal is extended at up to 5Gbps with full plug-and-play support.

PoC: Connect the 24V power supply to either the TX or RX — the other unit receives power through the CAT6a cable. Only one power supply is needed for the entire system.

RS-232 & FSYNC: RS-232 commands pass through from the TX phoenix connector to the RX phoenix connector (and vice versa) for control system integration. The FSYNC GPIO port passes 0–5V level signals between TX and RX for synchronizing industrial cameras or other devices.

DETAILED WIRING REFERENCE



TROUBLESHOOTING

Q: USB devices connected to the Receiver are not detected by the host?
A: Verify the CAT6a cable is properly connected between the TX and RX HDBT-USB3 ports. Check that the LINK LED on both units is solid on. Ensure the cable uses T568B direct interconnection (not crossover). Try a shorter cable run to rule out cable quality issues.

Q: USB 3.0 devices are operating at USB 2.0 speeds?
A: Check the USB LED on both TX and RX — blinking indicates a USB 2.0 connection. Ensure CAT6a (F/FTP) cable is used; lower-grade cables may not support 5Gbps. Verify the host supports USB 3.0 or higher. Keep cable length within 100m.

Q: No power at the remote unit when using PoC?
A: Confirm the 24V/3.75A power supply is connected and locked to one unit. Verify the CAT6a cable is fully seated in both HDBT-USB3 ports. Check the Power LED on both units. The PoC function requires all 4 pairs in the CAT6a cable to be properly terminated.