USB 3.0 Extender Over Cat6 100M HDBaseT

5Gbps USB Extension to 328ft — RS-232, FSYNC & PoC for Pro AV and Industrial Installs

MPN: EXT-USB3100M

The KanexPro EXT-USB3100M extends USB 3.0 at full 5Gbps speeds up to 100 meters (328ft) over a single CAT6a cable using HDBaseT technology — delivering four USB-A ports at the remote end with bi-directional 24V Power over Cable, RS-232 pass-through, and FSYNC GPIO for synchronized industrial and broadcast camera deployments. No drivers required.

Designed for professional AV integrators centralizing rack infrastructure in corporate conference rooms, lecture halls, healthcare suites, and broadcast facilities, the EXT-USB3100M eliminates the 5-meter USB limit without sacrificing speed, control, or peripheral power. Backward compatible with USB 2.0 and 1.1, it integrates cleanly into mixed-device environments while delivering the industrial-grade reliability and 3-year warranty that project-based installs demand.

1 Features 1
2 Package Contents 1
3 Specifications 1
4 Operation Controls & Functions 2
5 Application Example 3

Notice: For optimum performance, please read this manual carefully before connecting or operating. Surge protection recommended. Keep for future reference.

1. Features

- USB 3.0 connectivity with data transfer rate up to 5Gbps
- Extends USB 3.0 up to 100m/328ft over CAT6a (F/FTP) cable via HDBaseT
- Backward compatible with USB 2.0 and USB 1.1 devices
- 4-port USB-A receiver — ports 1 & 2 support 5V/1.5A; ports 3 & 4 support 5V/1A
- Bi-directional 24V Power over Cable (PoC) — single power supply on either TX or RX end
- RS-232 pass-through and FSYNC GPIO pass-through for industrial camera synchronization
- Hardware acceleration for isochronous and bulk transfer
- Simple plug and play — no driver or software installation required

2. Package Contents

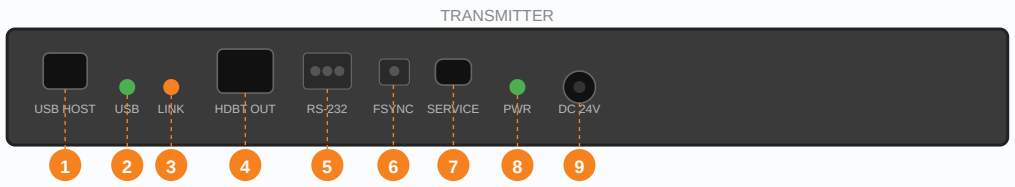
① 1× USB 3.0 Extender (Transmitter) ② 1× USB 3.0 Extender (Receiver)
③ 1× 24V/2A Locking Power Supply ④ 2× 4pin-3.5mm Phoenix Connector (Male)
⑤ 4× Mounting Ear ⑥ 8× Machine Screw (KM3×4) ⑦ 1× User Manual

3. Specifications

TECHNICAL	
USB Protocol	USB 3.0
Transfer Rate	Up to 5Gbps
Network Bandwidth	10Gbps
Transmission Distance	100m / 328ft over CAT6a (F/FTP) cable
ESD Protection	IEC 61000-4-2: ±8kV Air-gap, ±4kV Contact discharge
CONNECTIONS — TRANSMITTER	
Input / Output	1× USB HOST [USB-B 9pin] • 1× HDBT OUT [RJ45]
Control	RS-232 [3pin-3.5mm Phoenix] • FSYNC [1pin-3.5mm Phoenix] • SERVICE [USB-C]
CONNECTIONS — RECEIVER	
Input / Output	1× HDBT IN [RJ45] • 4× USB-A [9pin Female]
Control	RS-232 [3pin-3.5mm Phoenix] • FSYNC [1pin-3.5mm Phoenix] • SERVICE [USB-C]
MECHANICAL & POWER	
Housing / Color	Metal Enclosure • Black
Dimensions	TX / RX: 85mm (W) × 100mm (D) × 25.5mm (H)
Weight	Transmitter: 253g • Receiver: 260g
Power Supply	AC 100–240V 50/60Hz → DC 24V/2A • PoC: 40W Max
Operating Temp	0°C – 40°C / 32°F – 104°F
Storage Temp	-20°C – 60°C / -4°F – 140°F
Humidity	20–90% RH (non-condensing)

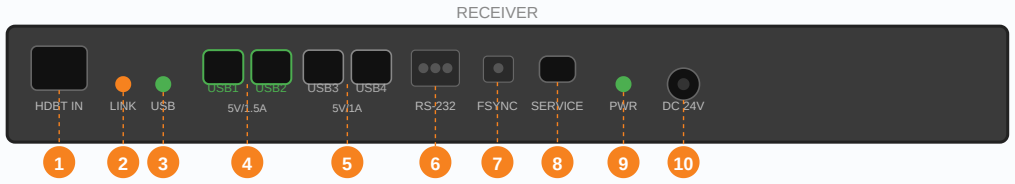
4. Operation Controls & Functions

4.1 TRANSMITTER PANEL



NO.	NAME	FUNCTION DESCRIPTION
1	**USB HOST**	USB-B 9-pin female host port supporting USB 3.0. Connect to a PC or host device.
2	**USB LED**	On: USB signal detected. Off: No USB signal.
3	**LINK LED**	On: TX and RX linked. Flashing: USB low power mode. Off: Not connected.
4	**HDBT OUT**	RJ45 female HDBaseT output. Connect to HDBT IN on Receiver via CAT6a (F/FTP) cable.
5	**RS-232**	3-pin 3.5mm Phoenix connector. RS-232 command pass-through to connected control system.
6	**FSYNC**	1-pin 3.5mm Phoenix. Frame synchronization pass-through to Receiver. Default 3.3V.
7	**SERVICE**	USB-C firmware update port.
8	**POWER LED**	Illuminates when Transmitter is powered on.
9	**DC 24V**	DC 24V/2A power input. PoC: only one end requires power supply.

4.2 RECEIVER PANEL



NO.	NAME	FUNCTION DESCRIPTION
1	**HDBT IN**	RJ45 female HDBaseT input. Connect to HDBT OUT on Transmitter via CAT6a (F/FTP) cable.
2	**LINK LED**	On: TX and RX linked. Flashing: Low power mode. Off: Not connected.
3	**USB LED**	On: USB signal detected. Off: No USB signal.
4	**USB 1/2**	USB-A 9-pin female ports 1 & 2. Max 5V/1.5A each. Connect USB 3.0 peripherals.
5	**USB 3/4**	USB-A 9-pin female ports 3 & 4. Max 5V/1A each. Connect USB 3.0 peripherals.
6	**RS-232**	3-pin 3.5mm Phoenix. RS-232 pass-through from Transmitter.
7	**FSYNC**	1-pin 3.5mm Phoenix. Frame sync signal from Transmitter. Default 3.3V.
8	**SERVICE**	USB-C firmware update port.
9	**POWER LED**	Illuminates when Receiver is powered on.
10	**DC 24V**	DC 24V/2A power input. Bi-directional PoC supported.

5. Application Example

USB 3.0 Extension to 100m — Industrial Camera & Peripheral Deployment

▼ Bi-directional 24V PoC — single power supply on either TX or RX end

How it works: Connect the Transmitter to a PC via USB-B and run a single CAT6a (F/FTP) cable up to 100m to the Receiver. Four USB-A ports deliver 5Gbps USB to cameras, storage, touch panels, or other peripherals. RS-232 and FSYNC pass through simultaneously for control and camera synchronization.

PoC: Only one 24V/2A adapter needed — at either TX or RX end. The locking power supply prevents accidental disconnection.

Compatibility: Fully backward compatible with USB 2.0 and USB 1.1. No drivers required.

Troubleshooting

Q: No USB connection detected (USB LED off)?

A: Verify CAT6a cable connects HDBT OUT on TX to HDBT IN on RX. Use shielded F/FTP CAT6a. If LINK LED is flashing, the system is in USB low power mode — connect a USB device to wake it.

Q: USB device not recognized at the Receiver?

A: Check power — demanding devices on ports 3/4 (5V/1A) may need ports 1/2 (5V/1.5A). Confirm the device functions when directly connected to the host.

Q: RS-232 or FSYNC not passing through?

A: Verify Phoenix connectors are fully seated on both TX and RX. Check baud rate and pin configuration match the connected control system. FSYNC default is 3.3V.

Q: How do I update firmware?

A: Connect a PC to the SERVICE (USB-C) port on TX or RX. Contact KanexPro support at support@kanexpro.com for firmware files and instructions.