# 18Gbps USB-C HDBaseT 3.0 Extender with 100W PD (4K60 to 40m, 4K30 to 70m)

Single-Cable USB-C Video and USB 2.0 Extension over CAT6A/7, with 100W Laptop Charging and 4 USB Device Ports



**The KanexPro EXT-USBCPD4K-70M connects a USB-C laptop to a remote HDMI display over a single CAT6A/7 cable using HDBaseT 3.0. It carries video, USB 2.0 peripheral data and up to 100W of laptop charging: 4K60 4:4:4 (8-bit) up to 40 meters, and 4K30 4:4:4 (8-bit) up to 70 meters.** It is built for BYOD conference rooms, classrooms and collaboration spaces, and replaces the adapter chains common in USB-C-to-display installs with one HDBaseT link.

The transmitter accepts a USB-C source with DP Alt Mode (v1.2a) and passes uncompressed video at 18Gbps, with HDR, HDR10+, Dolby Vision and HLG. Audio travels with the video to the HDMI output: LPCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X. To charge the laptop, connect your own USB-C PD charger (not included) to the transmitter's CHARGE port. The USB-C IN port then delivers up to 100W to the laptop, and it delivers no power without one. The receiver outputs HDMI 2.0b to the display and has four USB 2.0 device ports for cameras, keyboards, mice and storage. RS-232 pass-through and bidirectional 24V PoC simplify system integration and installation.

**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.

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## 1. Features

- ✓ HDBaseT 3.0 extender with USB-C input supporting DP Alt Mode (v1.2a) for video, USB 2.0 data, and power delivery
- ✓ 18Gbps video bandwidth with uncompressed 4K60 4:4:4 (8-bit) up to 40m and 4K30 4:4:4 (8-bit) up to 70m over CAT6A/7
- ✓ USB-C Power Delivery up to 100W to the laptop through USB-C IN when an external USB-C PD charger (not included) is connected to the transmitter's CHARGE port
- ✓ HDMI 2.0b output on receiver with HDCP 2.3 compliance for secure content playback
- ✓ HDR, HDR10+, Dolby Vision, and HLG pass-through for full dynamic range support
- ✓ Four USB 2.0 device ports on the receiver (3× USB-A, 1× USB-C) with 5V/1A per port
- ✓ RS-232 signal pass-through and API command control via SERVICE port for room automation
- ✓ Bidirectional 24V PoC — power either TX or RX, the other unit powers over the CAT cable

## 2. Package Contents

- ✓ 1× Transmitter (TX)
- ✓ 1× Receiver (RX)
- ✓ 2× 3-pin 3.5mm Phoenix Connector (male)
- ✓ 1× 24V/2.7A Desktop Power Supply

## 3. Specifications

| TECHNICAL | |
|---|---|
| **HDMI Compliance** | HDMI 2.0b |
| **HDCP Compliance** | HDCP 2.3 |
| **Video Bandwidth** | 18 Gbps |
| **Video Resolution** | Up to 4K@60Hz (4:4:4 8bit) |
| **Color Space** | RGB, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0 |
| **Color Depth** | 8/10/12-bit |
| **HDR Formats** | HDR, HDR10, HDR10+, Dolby Vision, HLG |
| **Audio Formats** | LPCM 2.0/5.1/7.1CH, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio, DTS:X |
| **USB Compliance** | USB 2.0 |
| **ESD Protection** | IEC 61000-4-2: ±8kV (air-gap) & ±4kV (contact) |
| **Transmission Distance** | 4K60Hz (4:4:4 8bit): up to 130ft/40m • 4K30Hz (4:4:4 8bit): up to 230ft/70m • USB 2.0: up to 230ft/70m (CAT6A/7) |
| **CONNECTION — TRANSMITTER** | |
| **Front Panel** | 1× CHARGE [USB-C] • 1× USB-C IN [USB-C] • 2× USB 2.0 DEVICES [USB-A] |
| **Rear Panel** | 1× SERVICE [USB-C] • 1× RS-232 [3-pin phoenix] • 1× HDBaseT OUT [RJ45, 24V PoC] • 1× DC 24V |
| **Side Panel** | 1× PoC ON/OFF [DIP switch] |
| **CONNECTION — RECEIVER** | |
| **Front Panel** | 1× HDMI OUT [HDMI Type A] • 1× USB 2.0 DEVICES [USB-C] • 3× USB 2.0 DEVICES [USB-A] |

continued

| | |
|---|---|
| **Rear Panel** | 1× SERVICE [USB-C] • 1× RS-232 [3-pin phoenix] • 1× HDBaseT IN [RJ45, 24V PoC] • 1× DC 24V |
| **Side Panel** | 1× PoC ON/OFF [DIP switch] |
| **MECHANICAL** | |
| **Housing** | Metal Enclosure, Black |
| **Dimensions** | TX/RX: 120mm (W) × 113mm (D) × 25.5mm (H) |
| **Weight** | TX: 353g • RX: 352g |
| **Power Supply** | AC 100–240V 50/60Hz → DC 24V/2.7A |
| **Power Consumption** | TX/RX with full USB devices: 51.36W • Without USB devices: 10.08W |
| **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) |

## 4. Introduction

The EXT-USBCPD4K-70M is an 18Gbps HDBaseT 3.0 extender. It carries USB-C video and USB 2.0 data over a single CAT6A/7 cable:

- up to 230ft (70m) at 4K30Hz (4:4:4 8-bit)
- up to 130ft (40m) at 4K60Hz (4:4:4 8-bit)

The transmitter has:

- one USB-C input
- one dedicated USB-C charging port
- two USB 2.0 ports for local devices

The USB-C input accepts DisplayPort Alt Mode (v1.2a) video and USB 2.0 data. The receiver has one HDMI output and four USB 2.0 device ports. Both units pass RS-232 signals through, and both support bidirectional 24V Power over Cable (PoC).

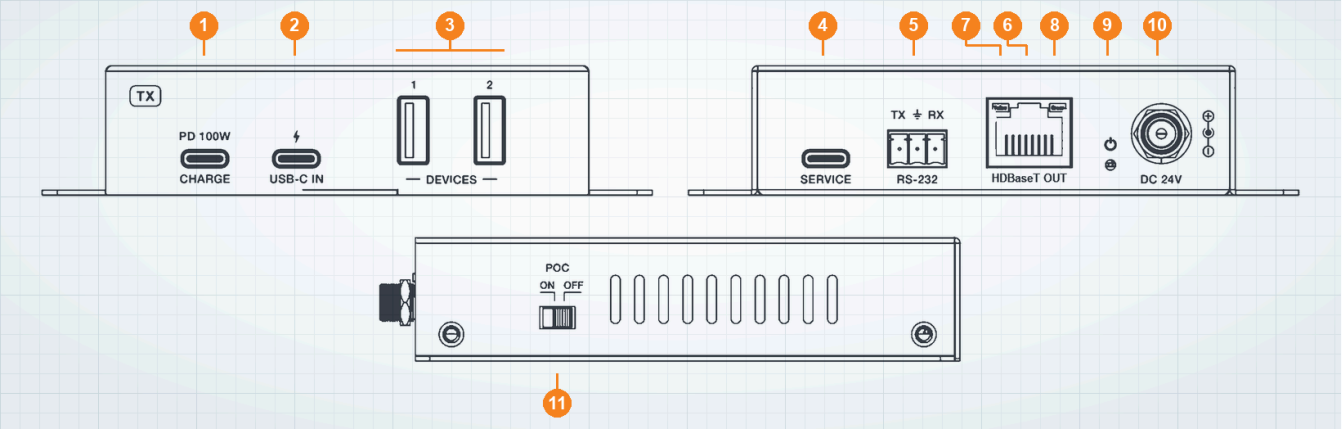
**Surge protection recommended.** This product contains sensitive electrical parts that electrical spikes, surges, electric shock or lightning strikes can damage. We strongly recommend using surge protection.

**Cable wiring.** Wire the network cable straight through, with T-568B at both ends. Do not use a crossover cable.

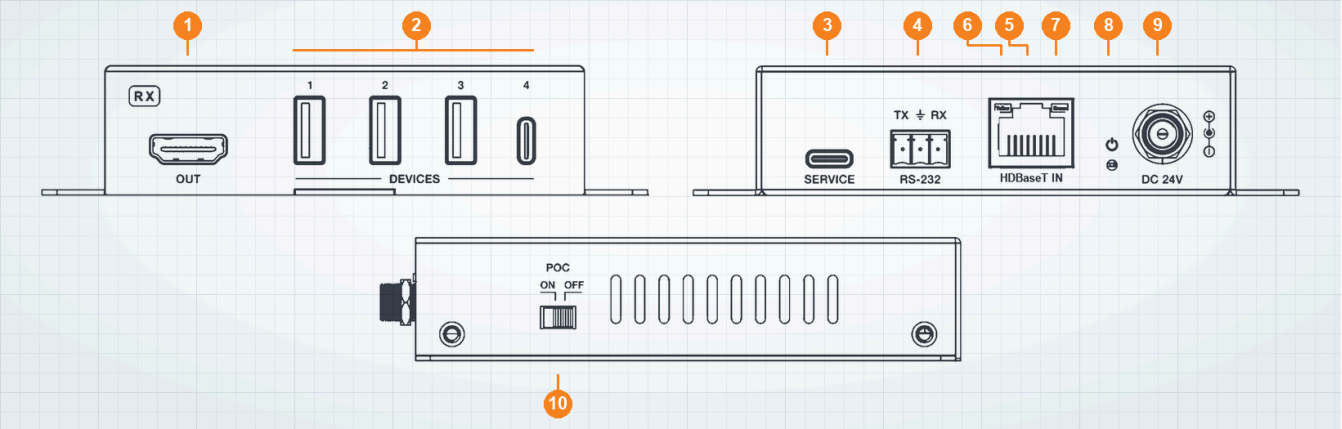
## 5. Certifications

The manual gives only one set of certification marks: CE, FCC and UL, which apply to the 24V power supply. It does not state any certification for the transmitter or receiver themselves.

## 6. Panel descriptions




Transmitter — Front, Rear and Side Panels




Receiver — Front, Rear and Side Panels

The manual gives one numbered table for each unit and does not split it into front and rear. The tables below keep the manual's numbers and row order exactly. Where each connector sits (front, rear or side) is listed under Connection in the Specifications above.

### TRANSMITTER PANEL

| No. | Name | Description |
|---|---|---|
| 1 | **CHARGE port** | USB-C power input, up to 100W. Connect an external USB-C charger here so the USB-C IN port can power the connected device. |
| 2 | **USB-C IN port** | Connect your source device here. This port does three things: it receives USB-C audio and video, it carries USB 2.0 data, and it supplies up to 100W of charging to the connected device when the CHARGE port is connected to a power source. |
| 3 | **DEVICES 1–2** | Two USB 2.0 ports for a flash drive, keyboard, USB camera or other USB device. Each port supplies up to 5V/1A. |
| 4 | **SERVICE port** | Used for firmware updates and API command control. |

continued

| No. | Name | Description |
|---|---|---|
| 5 | **RS-232 port** | RS-232 serial port for signal pass-through. |
| 6 | **HDBaseT OUT** | HDBaseT output. Connect it to the receiver's HDBaseT IN with a CAT6A cable. |
| 7 | **Link LED (Green)** | On when the transmitter and receiver are linked. Off when they are not. |
| 8 | **Signal LED (Yellow)** | On when video with HDCP is present. Flashes when video without HDCP is present. Off when there is no video signal. |
| 9 | **Power LED (Red)** | On when the transmitter is powered. Off when it is not. |
| 10 | **DC 24V** | 24V/2.7A power input. Supports PoC: when one end is powered, the other end does not need its own power supply. |
| 11 | **PoC Switch** | DIP switch that turns the PoC function on or off. |

### RECEIVER PANEL

| No. | Name | Description |
|---|---|---|
| 1 | **HDMI OUT** | HDMI output. Connect it to a display such as a TV or monitor. |
| 2 | **DEVICES 1–4** | Four USB 2.0 ports (3× USB-A, 1× USB-C) for a flash drive, keyboard, USB camera or other device. Each port supplies up to 5V/1A. |
| 3 | **SERVICE port** | Used for firmware updates. |
| 4 | **RS-232 port** | RS-232 serial port for signal pass-through. |
| 5 | **HDBaseT IN** | HDBaseT input. Connect it to the transmitter's HDBaseT OUT with a CAT6A cable. |
| 6 | **Link LED (Green)** | On when the transmitter and receiver are linked. Off when they are not. |
| 7 | **Signal LED (Yellow)** | On when video with HDCP is present. Flashes when video without HDCP is present. Off when there is no video signal. |
| 8 | **Power LED (Red)** | On when the receiver is powered. Off when it is not. |
| 9 | **DC 24V** | 24V/2.7A power input. Supports PoC: when one end is powered, the other end does not need its own power supply. |
| 10 | **PoC Switch** | DIP switch that turns the PoC function on or off. |

## 7. API Commands

To control the extender, connect the transmitter's SERVICE port to a PC or control system with a USB-C cable. Then open a serial command tool and send ASCII commands. Use these settings:

| SETTING | VALUE |
|---|---|
| Baud rate | 115200 |
| Data bits | 8 |
| Stop bits | 1 |
| Parity | None |
| End mark | <CR><LF> |

| COMMAND | FUNCTION | EXAMPLE | DEFAULT |
|---|---|---|---|
| help | Lists all commands. | help | — |
| ? | Lists all commands. | ? | — |
| get fw version | Returns the firmware version. | get fw version | — |
| set tx source x | Sets the transmitter input source. x: 0 = Off, 1 = USB-C, 2 = AV mute, 3 = internal test pattern. | set tx source 1 | 1 (USB-C) |
| get tx source | Returns the transmitter input source. | get tx source | — |
| set reboot | Restarts the device. | set reboot | — |
| set reset | Restores KanexPro defaults. | set reset | — |
| get status | Returns system status: input, cable, HDCP, EDID, output resolution and color. | get status | — |
| set tx pattern x y | Sets the transmitter's internal test-pattern generator. x is the resolution (01–07) and y is the pattern (01–12). See the tables below. | set tx pattern 1 2 | — |
| get tx pattern | Returns the test-pattern resolution and pattern. | get tx pattern | — |
| set tx input hdcp y | Sets the HDCP version offered on the transmitter input. y: 0 = Off, 1 = HDCP 1.4, 2 = HDCP 2.2. | set tx input hdcp 2 | HDCP 2.2 |
| get tx input hdcp | Returns the transmitter input HDCP setting. | get tx input hdcp | — |
| get tx usbc5v | Returns the 5V status of the USB-C host input on the transmitter. | get tx usbc5v | — |
| set tx output hdcp y | Sets the transmitter output HDCP mode. y: 0 = Reserved, 1 = Follow sink, 2 = Follow source, 3 = Force HDCP 1.4, 4 = Force HDCP 2.2. | set tx output hdcp 1 | Follow sink |
| get tx output hdcp | Returns the transmitter output HDCP mode. | get tx output hdcp | — |
| set tx edid to y | Sets the EDID the transmitter input presents to the source (y = 00–18). See the EDID table below. | set tx edid to 00 | 00 |

continued

| COMMAND | FUNCTION | EXAMPLE | DEFAULT |
|---|---|---|---|
| `get tx edid` | Returns the current EDID setting. | `get tx edid` | — |
| `get tx edid data` | Returns the raw input EDID data. | `get tx edid data` | — |
| `set user edid x <y>` | Loads a user-defined EDID. x: 0 = both, 1 = User 1, 2 = User 2. y is 256 bytes of EDID data in hex. | `set user edid 1 <00 FF FF FF...>` | — |
| `get user edid x` | Returns user-defined EDID data. x: 0 = both, 1 = User 1, 2 = User 2. | `get user edid 1` | — |
| `set hdbt update` | Switches the SERVICE port to the HDBaseT UART so the firmware can be updated. | `set hdbt update` | — |

## EDID MODES (SET TX EDID TO Y)

| Y | EDID |
|---|---|
| 00 | Copy from the receiver's HDMI output (the display) |
| 01 | 1080p60, 2CH |
| 02 | 1080p60, 5.1CH |
| 03 | 1080p60, 7.1CH |
| 04 | 4K30 4:4:4, 2CH |
| 05 | 4K30 4:4:4, 5.1CH |
| 06 | 4K30 4:4:4, 7.1CH |
| 07 | 4K60 4:2:0, 2CH |
| 08 | 4K60 4:2:0, 5.1CH |
| 09 | 4K60 4:2:0, 7.1CH |
| 10 | 4K60 4:4:4, 2CH |
| 11 | 4K60 4:4:4, 5.1CH |
| 12 | 4K60 4:4:4, 7.1CH |
| 13 | WUXGA 1920×1200, 2CH |
| 14 | DVI 1280×1024, no audio |
| 15 | DVI 1080p, no audio |
| 16 | DVI 1200p, no audio |
| 17 | User Defined 1 |
| 18 | User Defined 2 |

## TEST-PATTERN RESOLUTIONS (SET TX PATTERN X Y, VALUE X)

| X | RESOLUTION |
|---|---|
| 01 | 1080P60 |
| 02 | 4K60 |
| 03 | 4K30 |
| 04 | 4K25 |
| 05 | 4K24 |
| 06 | 720P60 |
| 07 | 480P60 |

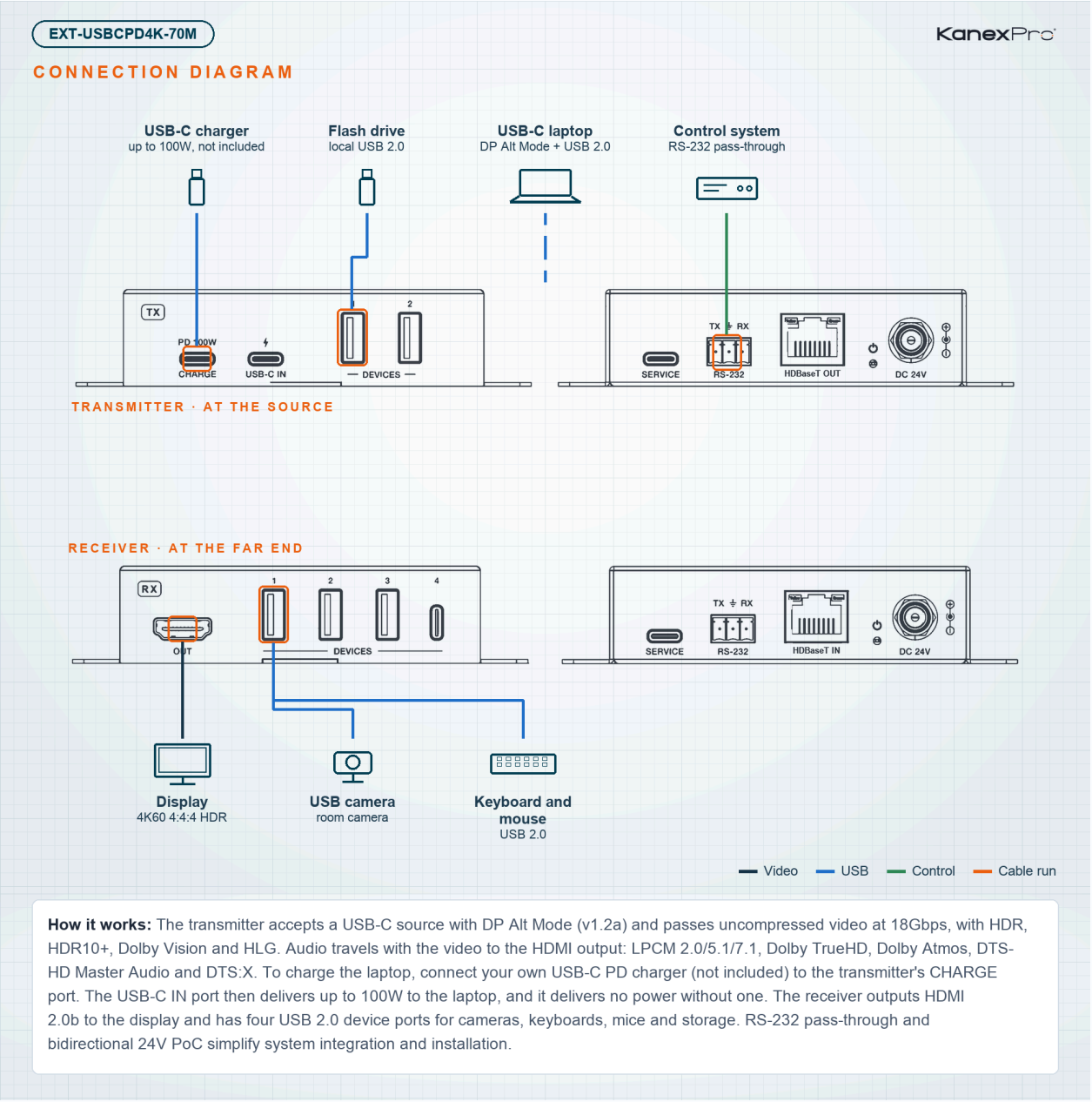
## TEST PATTERNS (SET TX PATTERN X Y, VALUE Y)

| Y | PATTERN |
|---|---|
| 01 | Black |
| 02 | Checkboard |
| 03 | Strip |
| 04 | Red |
| 05 | Green |
| 06 | Blue |
| 07 | White |
| 08 | Ramp |
| 09 | Red ramp |
| 10 | Green ramp |
| 11 | Blue ramp |
| 12 | PRBS |

## DEFAULT SETTINGS

| PARAMETER | DEFAULT VALUE |
|---|---|
| TX Source | USB-C (1) |
| TX Input HDCP | HDCP 2.2 |
| TX Output HDCP | Follow Sink (1) |
| TX EDID | 00, copy EDID from the receiver's HDMI output |
| PoC | On (DIP switch) |

## 8. Connection Diagram




**How it works:** The transmitter accepts a USB-C source with DP Alt Mode (v1.2a) and passes uncompressed video at 18Gbps, with HDR, HDR10+, Dolby Vision and HLG. Audio travels with the video to the HDMI output: LPCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X. To charge the laptop, connect your own USB-C PD charger (not included) to the transmitter's CHARGE port. The USB-C IN port then delivers up to 100W to the laptop, and it delivers no power without one. The receiver outputs HDMI 2.0b to the display and has four USB 2.0 device ports for cameras, keyboards, mice and storage. RS-232 pass-through and bidirectional 24V PoC simplify system integration and installation.

## 9. Troubleshooting

**Q: The green Link LED is off on both units. What should I check?**

**A:** The green Link LED is off when the transmitter and receiver are not linked. Check that the cable is CAT6A/7 and wired straight through with T-568B at both ends (no crossover), and that it runs from HDBaseT OUT on the transmitter to HDBaseT IN on the receiver. If it still does not link, try a different cable or a shorter run.

**Q: The red Power LED is off on the unit that has no power supply. What should I check?**

**A:** That unit is meant to be powered over the CAT cable, so check that the PoC DIP switch on the side panel is set to ON on both the transmitter and the receiver. Then confirm that the 24V/2.7A supply is connected to the other unit and that its red Power LED is on.

**Q: The picture works at 4K30 but drops out at 4K60. What should I check?**
**A:** 4K60 4:4:4 8-bit is rated to 40m (130ft), while 4K30 and USB 2.0 are rated to 70m (230ft). On a longer run, shorten the cable or present a lower-resolution EDID to the source, for example set tx edid to 04 for 4K30 4:4:4.

**Q: How can I tell whether a blank screen is caused by the source or by the link?**
**A:** Send set tx source 3 with a pattern selected (for example set tx pattern 1 2 for a 1080p60 checkerboard), so the transmitter generates its own image. If the pattern appears on the display, the link and display are working and the problem is at the source; send set tx source 1 to return to USB-C.

**Q: The yellow Signal LED is off even though the laptop is connected. What should I check?**
**A:** The yellow Signal LED is off when there is no video signal, so check that the laptop's USB-C port outputs DP Alt Mode video. Send get tx source to confirm the source is set to 1 (USB-C) and not 0 (Off) or 2 (AV mute), then use get status to check the input state.

**Q: There is no video on the display after I connect a USB-C laptop.**
**A:** Check that the laptop supports DP Alt Mode over USB-C, because not every USB-C port outputs video. Check that the green Link LED is on at both the transmitter and the receiver, which confirms the HDBaseT link is up. Try a different CAT6A cable or a shorter run to rule out cable quality. You can also send the `get status` API command to check the connection state.

**Q: USB devices connected to the receiver are not recognized.**
**A:** Check that your USB-C source supports USB 2.0 data over USB-C. Make sure no USB device draws more than the 5V/1A limit of its port. To check that the device itself works, try it in one of the transmitter's USB ports. Also check that the CAT6A cable is wired straight through with T-568B at both ends.

**Q: My laptop does not charge when it is connected to USB-C IN.**
**A:** The USB-C IN port only delivers power when the CHARGE port has an active power source. Connect an external USB-C charger (up to 100W) to the CHARGE port. Check that the charger supports USB-C PD and that both cables are fully seated.

**Q: How do I control the extender remotely?**
**A:** Connect a USB-C cable from the transmitter's SERVICE port to a PC. Open a serial terminal at 115200 baud, 8N1, and type `help` or `?` to list every available command. RS-232 signals also pass through between the transmitter and receiver, so a third-party control system can be connected.

**Need help? —** For additional support, visit kanexpro.com/support, or scan the QR code below for the product page.

## 10. Installation FAQ

**Q: Do both the transmitter and the receiver need their own power supply?**
**A:** No. Connect the included 24V/2.7A supply to either unit and the other unit is powered over the CAT cable by bidirectional 24V PoC. PoC must be on at the side-panel DIP switch on both units, which is the default setting.

**Q: Which devices connect to which ports in a typical install?**
**A:** The USB-C laptop goes to USB-C IN on the transmitter, and the display goes to HDMI OUT on the receiver. Keyboards, mice and printers plug into the receiver's 4 USB 2.0 ports, and a flash drive or USB camera can use the transmitter's 2 USB-A ports.

**Q: How do I connect the HDBaseT link and the RS-232 wiring?**
**A:** Run a CAT6A/7 cable from HDBaseT OUT on the transmitter's rear panel to HDBaseT IN on the receiver's rear panel. RS-232 terminates on a 3-pin 3.5mm Phoenix connector at each unit, and 2 male Phoenix plugs are included.

**Q: Should I use surge protection with the extender?**
**A:** Yes. The units contain sensitive electrical parts that spikes, surges, electric shock or lightning strikes can damage, so surge protection is strongly recommended.

## 11. Integration FAQ

**Q: How does the EXT-USBCPD4K-70M work with a room control system?**
**A:** Connect the control system to an RS-232 port; RS-232 signals pass through between the transmitter and the receiver, so a controller at one end can reach a device at the other. The extender itself also takes ASCII API commands on the transmitter's SERVICE port at 115200 baud, 8N1, with a <CR><LF> end mark.

**Q: Can a control system mute the picture or switch the transmitter input?**
**A:** Yes. The command set tx source x sets the transmitter source: 0 = Off, 1 = USB-C (default), 2 = AV mute, 3 = internal test pattern. get tx source returns the current setting.

**Q: Can I load a custom EDID for a specific display or processor?**
**A:** Yes. Two user EDID slots take 256 bytes of hex EDID data with set user edid 1 or set user edid 2, and you select them with set tx edid to 17 or set tx edid to 18. The default, 00, copies the EDID from the display connected to the receiver.

**Q: Which maintenance commands can a controller or PC send?**
**A:** get fw version returns the firmware version, get status reports input, cable, HDCP, EDID, output resolution and color, set reboot restarts the device, and set reset restores KanexPro defaults. Type help or ? to list every command.