PANIO Enterprise Product User Manual

CW1000K-W

Integrated Wall-Plate HDBaseT KVM Extender, Dual Input 4K60

User Manual | Version: V1.0

Product Model	CW1000K-W
Product Category	4K60 HDMI/USB-C 2×1 HDBaseT Wall-plate Extender System
Key Features	4K60 4:4:4, 18Gbps, USB-C Input, POC, EDID Management, Bidirectional IR/RS-232, Analog Audio Embedding
Transmission Range	HBT Mode: up to 328ft/100m (4K60) | LRM Mode: up to 492ft/150m (4K30/1080P)

Table of Contents

1. Safety Warnings

Thank you for choosing the PANIO CW1000K-W. Before installation, operation, or maintenance, please read this section carefully and retain this manual for future reference.

Safety Instructions

- Ensure the chassis is properly grounded before powering on the device to minimize risk from electrostatic discharge (ESD) and electromagnetic interference (EMI).
- Do not place heavy objects on power cords, signal cables, or communication cables. Avoid stepping on, squeezing, or excessively bending any cable to prevent short circuits, leakage, or signal abnormalities.
- Power off the device before connecting or disconnecting HDMI, network, or control cables. Damage caused by hot-plugging is not covered under warranty.
- Install the device in a well-ventilated, stable location. Avoid exposure to high temperatures, high humidity, dust accumulation, liquid splashing, or chemical contact.
- All maintenance work must be performed by authorized personnel. Do not disassemble the unit without proper training to avoid injury or equipment damage.
- This product contains static-sensitive components. Use appropriate ESD protection during installation and handling.

Surge Protection

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, or lightning strikes. The use of a surge protection device is strongly recommended to protect and extend the life of your equipment.

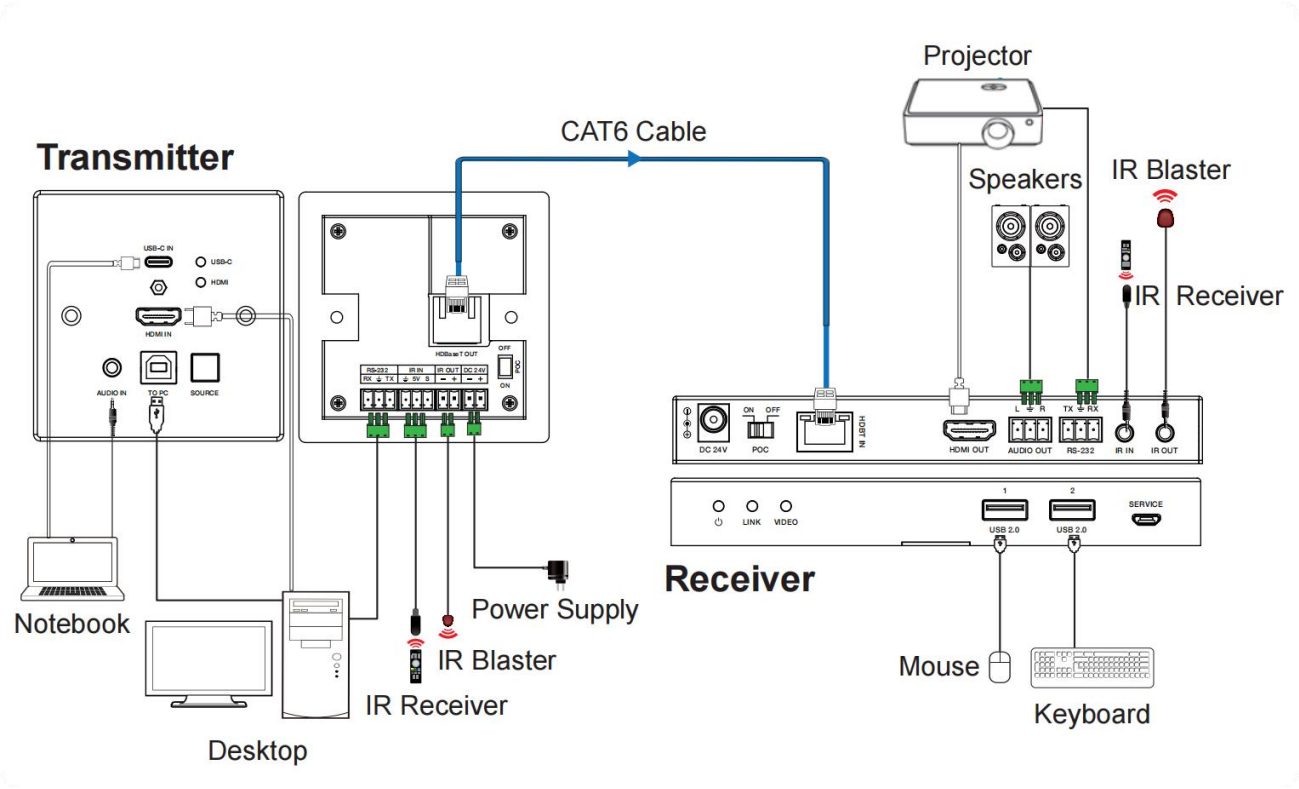
2. Product Overview

The PANIO CW1000K-W is a professional-grade 4K60 HDMI/USB-C 2×1 HDBaseT Wall-plate Extender designed for B2B AV signal distribution environments. The system consists of a standard 86mm×86mm wall-plate transmitter (TX) and an HDBT receiver (RX).

The transmitter accepts one HDMI input and one USB-C input, and transmits the selected source over a single CAT6 cable to the receiver unit up to 328ft/100m (HBT mode) or 492ft/150m (LRM mode). The system supports 4K2K@60Hz (4:4:4) video, 7.1-channel HD

audio, bidirectional IR and RS-232 control, analog audio embedding, and USB 2.0 signal extension.

The CW1000K-W converts HDMI/USB-C signals to standard HDBaseT format for transmission via standard LAN cable, enabling seamless integration into conference rooms, lecture halls, corporate lobbies, and professional AV installations.



3. Key Features

- HDMI 2.0b, HDCP 2.2/1.x, and DisplayPort 1.2a compliant.
- HDMI input supports 18Gbps video bandwidth; USB-C input supports 5.4Gbps video bandwidth.
- Supports video resolution up to 4K2K@60Hz (4:4:4); backward compatible with 4K30, 1080P, and lower.
- Up to 7.1-channel HD audio: LPCM 7.1CH, Dolby TrueHD, and DTS-HD Master Audio.
- Two input source selection (HDMI / USB-C) via front-panel SOURCE button.
- Built-in MODE DIP switch for HBT / LRM mode selection.
- HBT Mode: Up to 328ft/100m for 4K60 / 4K30 / 1080P over single CAT6.

- LRM Mode: Up to 492ft/150m for 4K30 / 1080P over single CAT6.
- Built-in EDID DIP switch for intelligent EDID management (4 presets).
- Built-in AUDIO DIP switch for analog audio embedding (HDMI source or AUDIO IN jack).
- Supports bidirectional 24V POC (Power over Cable): either TX or RX can power the other.
- Bidirectional IR control signal pass-through (IR IN: 5V power level).
- Bidirectional RS-232 control signal pass-through for system integration.
- Receiver supports USB 2.0 signal extension with 2× USB Type-A ports.
- Standard 86mm×86mm wall-box form factor for clean architectural integration.
- ESD Protection: ±8kV (Air-gap discharge) / ±4kV (Contact discharge).

4. Technical Specifications

4.1 System Specifications

Parameter	Specification
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2 / 1.x
Video Bandwidth	HDMI: 18Gbps; USB-C: 5.4Gbps
Max Video Resolution	4K2K@60Hz (4:4:4); compatible with 4K30, 1080P, etc.
Color Space	RGB 4:4:4, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
Color Depth	8-bit / 10-bit / 12-bit
Audio Formats	LPCM 7.1CH, Dolby TrueHD, DTS-HD Master Audio (Full Format), 48KHz
Transmission (HBT Mode)	Up to 328ft / 100m for 4K60 / 4K30 / 1080P
Transmission (LRM Mode)	Up to 492ft / 150m for 4K30 / 1080P
ESD Protection	±8kV (Air-gap discharge) / ±4kV (Contact discharge)

4.2 Interface Specifications

Transmitter (Wall-plate TX)

Interface	Description

Interface	Description
Input	1× HDMI IN [Type A, 19-pin female] | 1× USB-C IN [USB Type-C] | 1× AUDIO IN [3.5mm Stereo]
Output	1× HDBaseT OUT [RJ45]
Control	1× TO PC [USB Type-B] | 1× RS-232 [3-pin 3.81mm Phoenix] | 1× IR IN [3-pin 3.81mm Phoenix] | 1× IR OUT [2-pin 3.81mm Phoenix]

Receiver (HDBT RX)

Interface	Description
Input	1× HDBT IN [RJ45]
Output	1× HDMI OUT [Type A, 19-pin female] | 1× AUDIO OUT [3-pin 3.81mm Phoenix]
Control	2× USB 2.0 [Type-A] | 1× RS-232 [3-pin 3.81mm Phoenix] | 1× IR IN [3-pin 3.81mm Phoenix] | 1× IR OUT [2-pin 3.81mm Phoenix] | 1× SERVICE [Micro USB]

4.3 Mechanical & Environmental Specifications

Parameter	Specification
Transmitter Dimensions	86mm (W) × 86mm (D) × 38.5mm (H) | 86mm × 86mm wall-box form factor
Receiver Dimensions	157.2mm (W) × 88mm (D) × 20mm (H)
Transmitter Weight	234g
Receiver Weight	377g
Housing	Transmitter: White front panel / Black rear case; Receiver: Metal Enclosure
Power Supply	24V / 1A (supports bidirectional POC)
Max Power Consumption	12.48W
Operating Temperature	0°C – 40°C (32°F – 104°F)
Storage Temperature	-20°C – 60°C (-4°F – 140°F)
Relative Humidity	20% – 90% RH (non-condensing)

5. Package Contents

Please verify all items are present upon unpacking. Contact your PANIO dealer if any item is missing or damaged.

Item	Quantity
4K60 HDMI/USB-C 2×1 HDBT Wall-plate Transmitter (CW1000K-W TX)	1
HDBT Receiver (CW1000K-W RX)	1
2-pin 3.81mm Phoenix Connector (male)	2
3-pin 3.81mm Phoenix Connector (male)	4
Wideband IR Receiver Cable (1.5m)	1
IR Blaster Cable (1.5m)	1
Mounting Ears	2
Machine Screws M3×4	4
24V/1A Locking Power Supply	1
User Manual	1

6. Panel Layout & Port Descriptions

6.1 Transmitter (Wall-plate TX) Panel

No.	Name	Function Description
1	**USB-C IN**	USB-C signal input port. Supports video (up to 4K60) and USB 2.0 data. Connect to a USB-C source device such as a laptop or tablet.
2	**USB-C LED**	Green indicator. Lights on when USB-C is selected as the active input source.
3	**HDMI IN**	HDMI signal input port. Connect to HDMI source devices such as Blu-ray players, PC, or game consoles.
4	**HDMI LED**	Green indicator. Lights on when HDMI is selected as the active input source.
5	**AUDIO IN**	3.5mm stereo analog audio input for audio embedding into the HDBT stream.
6	**TO PC**	USB Type-B port connected to a host PC. Switches simultaneously with HDMI

No.	Name	Function Description
		IN – when HDMI source is selected, the USB host connection also switches.
7	**SOURCE**	Push button to toggle active input source between HDMI IN and USB-C IN.
8	**RS-232**	3-pin 3.81mm Phoenix connector. Connects to a PC or control system for bidirectional RS-232 serial command pass-through.
9	**IR IN**	3-pin 3.81mm Phoenix connector. Connects to the IR wideband receiver cable to receive remote control signals from the local end and relay them to the remote end.
10	**IR OUT**	2-pin 3.81mm Phoenix connector. Connects to the IR blaster cable to transmit remote control signals from the remote end to local source devices.
11	**DC 24V**	DC 24V/1A power input port. Supports POC function — if either TX or RX is powered by a 24V/1A adapter, the other unit does not require a separate power supply.
12	**POC Switch**	ON/OFF switch to enable or disable the POC (Power over Cable) function.
13	**HDBaseT OUT**	RJ45 output port. Connect to the HDBT IN port of the receiver using a CAT6 cable.
14	**MODE DIP**	Working mode selection: LRM = long-reach mode (492ft/150m for 4K30/1080P). STD-HBT = standard mode (328ft/100m for 4K60/4K30/1080P).
15	**AUDIO IN DIP**	Audio output selection: HDMI = de-embedded audio from HDMI IN. L/R = embedded analog audio from AUDIO IN port.
16	**EDID DIP**	EDID preset selection: 00 = Copy RX display EDID (default). 01 = 4K30 4:4:4. 10 = 1080p60 4:4:4. 11 = 1200p60 4:4:4.

6.2 Receiver (HDBT RX) Panel

No.	Name	Function Description
1	**Power LED**	Red LED. Lights on when the receiver is powered on.
2	**LINK LED**	Green LED. On = TX and RX connected successfully. Flashing = poor connection. Off = not connected.
3	**VIDEO LED**	Green LED. Flashing = valid video signal present. Off = no signal or invalid signal.

No.	Name	Function Description
4	**USB 2.0**	2× USB Type-A ports for connecting USB 2.0 devices such as USB flash drives, keyboards, or mice.
5	**SERVICE**	Micro USB port for firmware updates. Use command 's switch uart 0!' to switch MCU; 's switch uart 1!' to switch VALENS.
6	**DC 24V**	DC 24V/1A power input port. Supports POC — if TX is powered, RX does not require a separate power supply.
7	**POC Switch**	ON/OFF switch to enable or disable the POC function.
8	**HDMI OUT**	HDMI Type-A output port. Connect to an HDMI display such as a monitor, projector, or TV.
9	**AUDIO OUT**	3-pin 3.81mm Phoenix connector. Analog audio output (de-embedded or L/R as selected on TX DIP switch).
10	**RS-232**	3-pin 3.81mm Phoenix connector. Bidirectional RS-232 serial command pass-through.
11	**IR IN**	IR wideband receiver input. Receives remote control signals from the remote end and relays to the transmitter.
12	**IR OUT**	IR blaster output. Sends control signals from the transmitter end to the display device.
13	**HDBT IN**	RJ45 HDBaseT input port. Connect to the HDBaseT OUT port of the transmitter with a CAT6 cable.
14	**Link Signal Indicator**	Green LED. On = TX/RX connection OK. Flashing = poor link. Off = not connected.
15	**Data Signal Indicator**	Yellow LED. Flashing = data transmission in progress. Off = no data.

7. Installation & Operation

7.1 System Requirements

- CAT6 or higher shielded twisted-pair (STP) cable using T568B wiring standard.
- Maximum cable length: 328ft/100m (HBT Mode, 4K60) or 492ft/150m (LRM Mode, 4K30/1080P).
- Avoid routing cables near high-voltage power lines, motors, or other sources of interference.

• Do not connect through network switches or patch panels — direct point-to-point cable runs only.

7.2 Installation Steps

Step 1 — Install the Transmitter Wall Box

Install the 86mm×86mm wall box into the wall gang box or surface mounting bracket. Route the CAT6 cable and source device cables through the wall to the transmitter location.

Step 2 — Connect Source Devices

Connect HDMI source (laptop, PC, Blu-ray) to HDMI IN, or USB-C source to USB-C IN. Connect the USB Type-B cable to TO PC port if USB device sharing is required.

Step 3 — Connect the CAT6 Cable

Connect the CAT6 cable from HDBaseT OUT on the transmitter to HDBT IN on the receiver. Ensure connectors are seated firmly.

Step 4 — Connect the Receiver

Connect HDMI OUT to the display device. Connect AUDIO OUT if external speakers are required. Connect USB 2.0 devices (keyboard, mouse) to the USB ports.

Step 5 — Configure DIP Switches

Set MODE, EDID, and AUDIO DIP switches as required (see Section 8). Ensure both TX and RX POC switches are set to the same state.

Step 6 — Connect Power

Connect the 24V/1A locking power supply to either the TX or RX DC 24V port. If POC is enabled, only one unit requires external power.

Step 7 — Select Input Source

Press the SOURCE button on the transmitter to toggle between HDMI IN and USB-C IN. The corresponding LED (USB-C or HDMI) will illuminate green to indicate the active source.

8. DIP Switch Settings

8.1 MODE DIP Switch (Transmission Mode)

DIP Position	Mode
STD (Default)	STD-HBT Mode

LRM	Long Reach Mode

8.2 EDID DIP Switch (EDID Management)

SW2 | SW1	EDID Mode
0 | 0 (Default)	Copy RX Display EDID
0 | 1	4K30 4:4:4
1 | 0	1080p60 4:4:4
1 | 1	1200p60 4:4:4

8.3 AUDIO IN DIP Switch (Audio Source Selection)

DIP Position	Audio Output Source
HDMI (Default)	HDMI De-embedded Audio
L/R	Analog Audio IN

8.4 POC (Power over Cable) Configuration

When the POC switches on both TX and RX are set to ON, either unit can power the other through the CAT6 cable. Only one 24V/1A power supply is required for the complete system.

TX POC Switch	RX POC Switch
ON	ON
OFF	OFF

9. Application Example

9.1 Standard System Connection

The CW1000K-W is suitable for the following typical deployment scenario:

Location	Equipment

Presentation Wall	Transmitter (TX)
Display End	Receiver (RX)
Remote IR Control	IR System
USB Peripherals	RX USB Ports
Power	24V/1A Adapter

9.2 Bidirectional IR Application

The CW1000K-W supports bidirectional IR control enabling users at the transmitter end to control display devices at the receiver end, and vice versa. Connect the IR receiver cable to TX IR IN and the IR blaster cable to RX IR OUT to control the remote display from the source location.

9.3 Bidirectional RS-232 Application

For integration with control systems (AMX, Crestron, or custom RS-232 controllers), connect the controller to TX RS-232 to relay commands to the display at the RX end. Conversely, the RX RS-232 can relay commands from a remote controller back to a source device at the TX end.

10. Troubleshooting

If you encounter any issues during installation or operation, consult the following table. If the problem persists, contact your PANIO dealer or technical support.

Symptom	Possible Cause
No video output at display	Incorrect source selection
No video output at display	CAT6 cable issue
No video output at display	EDID mismatch
LINK LED not lit on RX	Poor or faulty cable
LINK LED not lit on RX	MODE mismatch
Audio not output at RX	AUDIO DIP set to wrong source
USB devices not working	USB host not connected

Units not powering via POC	POC switch OFF
IR remote not controlling display	IR cable not connected
Video flickering or dropped frames	Signal degradation

11. Warranty

Warranty Coverage

PANIO International Inc. warrants this product against defects in materials and workmanship for a period of one (1) year from the date of original purchase. This warranty covers manufacturing defects and hardware failures under normal use conditions.

Warranty Exclusions

- Damage caused by improper installation, misuse, or unauthorized modification.
- Damage caused by hot-plugging, use of non-rated cables, or incorrect power supply voltage.
- Physical damage such as drops, impacts, liquid ingress, or environmental exposure.
- Wear and tear from normal use, including cosmetic damage to surfaces.
- Damage caused by operating outside specified environmental conditions.

Technical Support

For technical support, warranty claims, or product inquiries, please contact your authorized PANIO dealer or visit the PANIO International Inc. official website.

Contact	Details
Company	PANIO International Inc.
Product	CW1000K-W — 4K60 HDMI/USB-C 2×1 HDBaseT Wall-plate Extender
Manual Version	V1.0
Support	Contact your authorized PANIO dealer or regional distributor