KD-4KWHCEX

HDMI Wireless Extender System with IR

4K 60Hz up to 170ft / 52m

4K

HDMI®

HIGH-DEFINITION MULTIMEDIA INTERFACE

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Operation Manual

Please visit www.keydigital.com for the latest product documentation, firmware, control drivers and software downloads. Product features and specifications are subject to change without notice

Always follow the instructions provided in this Operation Manual.

About KD-4KWHCEX

KD-4KWHCEX is a wireless HDMI extender kit with support for resolutions up to 4K. The innovative technology behind KD-4KWHCEX reliably extends HDMI signals with the latest standards - up to 3840x2160 resolution, HDR, 4:4:4 chroma, and deep color – for an effortless solution ideal for temporary and permanent installation in presentation spaces, outdoor AV setups, and all environments where running a new wire is not possible.

KD-4KWHCEX features an HDMI pass-through port for connecting a local monitor or sending audio into an AV receiver. Additionally, the included IR sensor and emitter allow for control of the connected HDMI source devices such as cable boxes or streamers.

Key Features

- **Wireless Extension:** Great for temporary setups or installations where new wiring is not possible.
- **4K Resolution Support:** Up to 3840x2160 24/25/30/60hz at 4:4:4 (signals up to 18Gbps bandwidth) and backward compatible.
- **Signal Distance:** 170ft / 52m max in open & optimal environments. 100ft / 30m max in environments through walls, ceilings, or other line of sight signal obstacles.
- **5G WiFi Technology:** Transmits through walls and ceilings with minimal range loss and maximum resistance to wireless interference.
- **IR Control Extension:** Sensor at Rx unit collects IR signals from device remote to control source equipment at Tx unit with IR emitter.
- **HDMI Pass-Through:** Ideal for local monitor or connection into AV receivers
- **Surround and 2ch Audio Support:** Pass-through port supports up to Dolby®, DTS™ (formats up to 5.1/6.1). 2ch audio maximum support via wireless extension to Rx unit.
- **Point-to-Point:** Pairing of up 4 extender sets using 4 unique channels possible within the same job site.
- **Complete Kit:** Includes transmitter, receiver, power supplies, IR sensor, IR emitter, antennae, mounting brackets and screws.

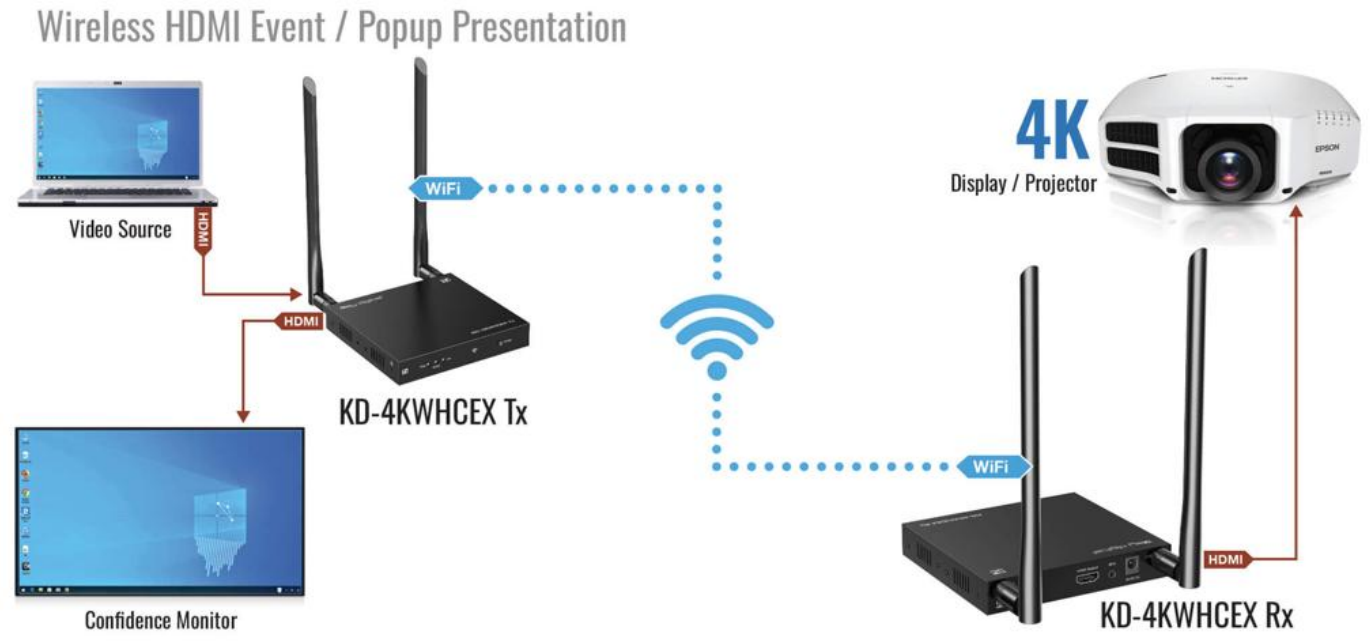
Additional Features

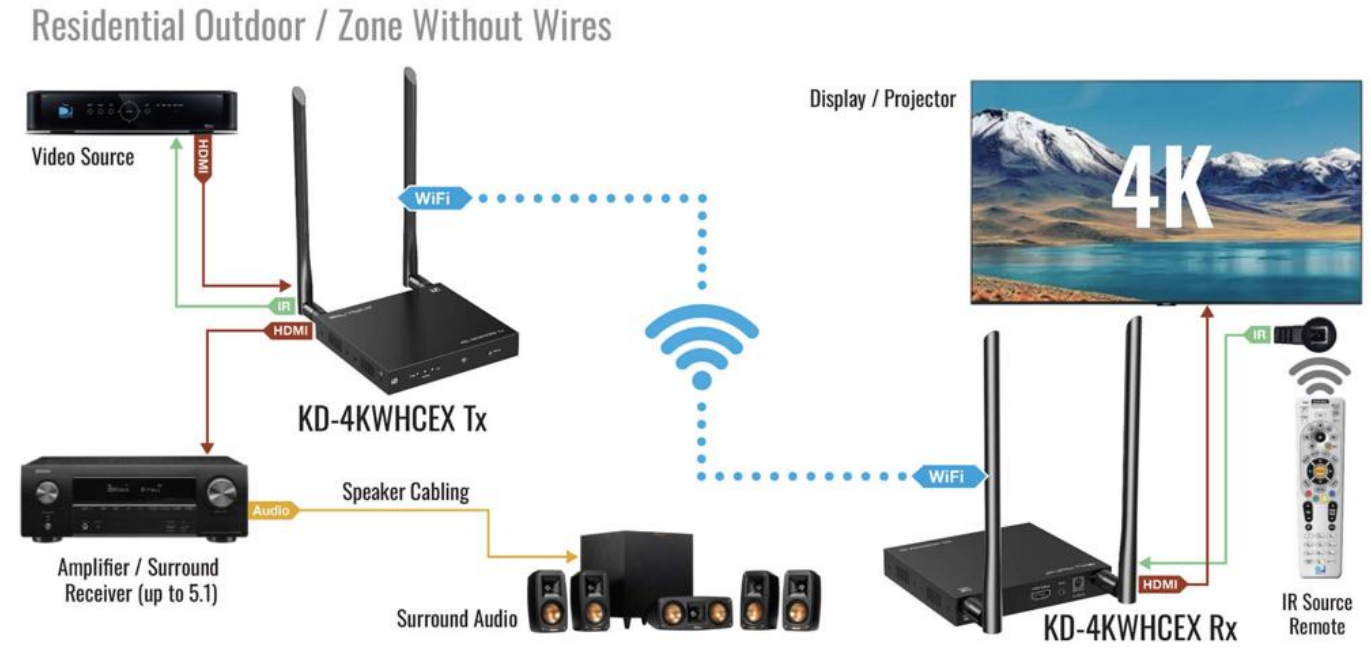
- HDR (High Dynamic Range): More life-like images through a greater range of luminance
- Deep Color Support: Up to UHD/4K 30Hz 4:4:4/12 bits or 60Hz 4:4:4/8 bit
- Visually Lossless Compression: 18G enabling technology allows wireless extension of HDMI signals with latest resolution and features
- HDCP 2.2: Compliancy up to HDCP 2.x and backward compliant
- HDCP Authentication: HDCP sources are authenticated by the HDCP key on transmit unit, for one-to-one topology
- AV Signal Regeneration: Re-clocking of TMDS (AV signal) channel data at Transmit unit for brand-new AV signal

Accessories Included

- Qty 2) 5V/2A, 24W DC Power Supply. Model KD-PS5V2A
- Qty 4) Antenna
- Qty 1) IR Sensor
- Qty 1) IR Emitter
- Qty 4) Mounting L-Bracket
- Qty 10) Mounting Screw
- Qty 2) Grounding Screw

Application Diagrams





Quick Connection Guide

Begin with the Tx and Rx units and all input / output devices turned off with power cables removed

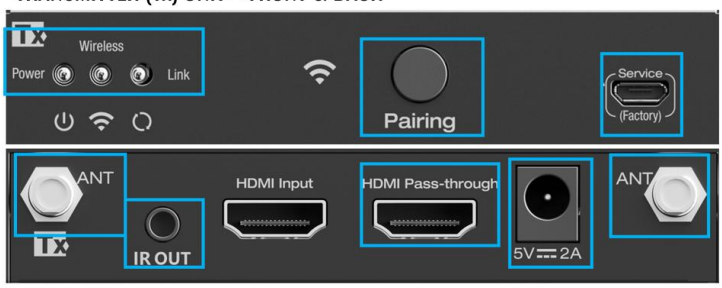
1. Connect your HDMI source to the input port of the Tx unit.
2. Connect your HDMI display to the output port of the Rx unit.
3. (Optional) Connect your local monitor / AV Receiver to the HDMI pass-through port of the Tx unit.
4. (Optional) Connect IR emitter to the IR Out port of the Tx unit and mount over the IR receptor of the device you wish to control.
5. (Optional) Connect IR Sensor to the IR In port of the Rx unit and mount in a location within clear line-of-sight and within 16ft / 5m from the source's IR remote control
6. BEFORE connecting power supply to power outlet, connect the power supply to the Tx and Rx units. AFTER all connections are made, plug-in power supply to power outlet. Allow
7. Allow approximately 15 seconds for the Tx and Rx unit to pair. When pairing, the **Wireless** LED will blink, and will illuminate solid to indicate successful pairing.
8. Power on source and display. Successful HDMI signal extension is indicated by a solid **Link** LED
9. (Optional) **For sites with more than one KD-4KWHCED set installed**, pairing will be required.
    a. Plugin power to the **1st Tx + Rx set**. For ease of pairing, place them next to each other.
    b. Press & hold the **Pairing Button** simultaneously on the Tx + Rx units until the **Wireless** LED begins to blink. Release the pairing button.
    c. Allow up to 1 minute for the units to pair, as indicated by a solid **Wireless** LED on the Tx and Rx.
    d. Continue with the 2nd 3rd, and 4th Tx + Rx sets following pairing above pairing steps **one-by-one**. There can be a **maximum of 4** KD-4KWHCEX sets installed per installation site.

Connections, Buttons, and LEDs

Note: The USB Service Port location depends on the production batch.

Production batch L25 and later – USB Service Port on Front:

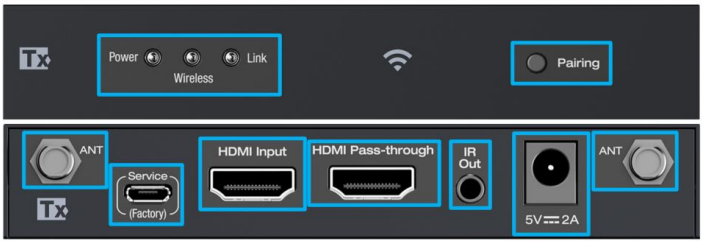
TRANSMITTER (Tx) UNIT – FRONT & BACK



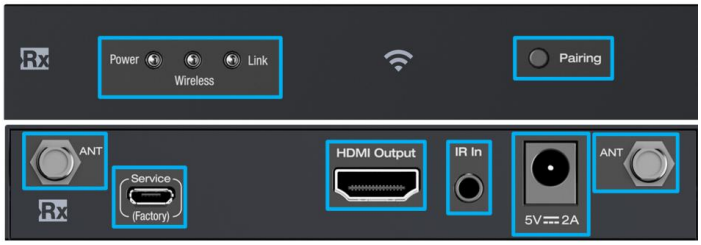
RECEIVER (Rx) UNIT – FRONT & BACK

Production batch L24 and earlier – USB Service Port on Rear:

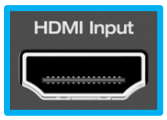
TRANSMITTER (Tx) UNIT – FRONT & BACK



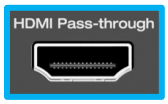
RECEIVER (Rx) UNIT – FRONT & BACK



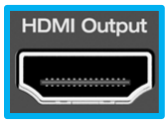
HDMI Input, Pass-through, and Output



HDMI Input: Using a short HDMI cable, connect your source device. Use an appropriate adapter cable For USB-C or Display Port video sources.



HDMI Pass-through: Using a short HDMI cable, connect to a surround receiver or local monitor.



HDMI Output: Using a short HDMI cable, connect your display device.

- Support up to UHD/4K @ 50/60 fps [4:4:4], HDR, 18Gbps signals. See Supported standard 4K Video Formats table
- Compliant with HDCP 2.2 and previous
- HDMI Input port provides EDID handshake with 3840x2160 60hz at 4:4:4 and 2ch audio format to the connected HDMI source. EDID profile is not adjustable.
- **Important:** HDMI Input & Pass-thru support surround audio formats including Dolby ®, DTS™ (formats up to 5.1 / 6.1). However, the wireless extension supports 2ch PCM maximum audio.
- For DVI-D / DVI-I sources or monitors, use appropriate adapters. For Display Port, use active converters.

Supported standard 4K Video Formats:

	Resolution	Bandwidth
1	4K@24/25/30 [4:4:4] 8bit	< 10.2Gbps
2	4K@24/25/30 [4:2:2] 8/10/12bit	< 10.2Gbps
3	4K@50/60 [4:2:0] 8bit	< 10.2Gbps
4	4K@24/25/30 [4:4:4] 10/12bit	< 18Gbps
5	4K@50/60 [4:2:2] 8/10/12bit	< 18Gbps
6	4K@50/60 [4:2:0] 10/12bit	< 18Gbps
7	4K@50/60 [4:4:4] 8bit	< 18Gbps

Antenna Connections

Connect the included (4) antennae to ensure reliable wireless extension and optimal distance performance.

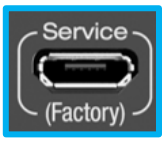
- Wireless extension range for 4K and lower resolutions:
  - 170ft / 52m max in open & optimal environments.
  - 100ft / 30m max in environments through walls, ceilings, or other line of sight signal obstacles.
- Supports 2ch PCM audio maximum wireless audio signal extension.
- Antennae must be connected for functionality.

IR In, IR Out

IR control extension is one-directional, and the ports are specific. Third-party IR emitters or sensors are not supported.

- **The RX unit's IR In** supports connection with the included IR sensor only (hard-wired / serial IR input signals are not supported). The incoming IR signal is output on the Tx unit's IR Out port.
  - The IR Sensor receives signals from a 90° angle at up to 16 ft. away. It accepts a maximum IR burst frequency of 60kHz.
- **The TX unit's IR Out** port outputs IR signal with the included IR emitter.

USB Service Port



Used for firmware updates only. Consult with Key Digital Technical Support (tech@keydigital.com) before upgrading firmware.

Power Connection

- 5V/2A, 10W DC power supply
- Power must be connected at the Tx and Rx unit

Pairing Button

For installation sites with a single KD-4KWHCEX set, the Tx and Rx are pre-paired and ready to install without any additional pairing.

For installation sites with multiple KD-4KWHCEX sets:

- Each set must be paired one-by-one:
  - Plugin power to the **1st Tx + Rx set**. For ease of pairing, place them next to each other.
  - Press & hold the **Pairing Button** simultaneously on the Tx + Rx units until the **Wireless** LED begins to blink. Release the pairing button.
  - Allow up to 1 minute for the units to pair, as indicated by a solid **Wireless** LED on the Tx and Rx.
  - Continue with the 2nd 3rd, and 4th Tx + Rx sets following pairing above pairing steps **one-by-one**. There can be a **maximum of 4** KD-4KWHCEX sets installed per installation site.
  - After successful pairing, units may be moved and installed at their desired locations.
- Supported Wireless Frequencies
  - Wireless pairing and channel selection is auto-adaptive.
  - Units scan the frequency range for the open bands, avoiding frequencies which may be used by other KD-4KWHCEX sets or nearby 5G WiFi networks.

Supported WiFi Frequencies
5.18 GHz
5.20 GHz
5.22 GHz
5.24 GHz

LED Indicators

- Power (**Blue**)
  - Solid illumination during power on state, as provided by healthy connection with power supply
- Wireless (**Orange**)
  - Steady blink during pairing and when unit's partner is not powered.
  - Solid illumination from successful paring with Tx / Rx partner.
- Link (**Orange**)
  - Tx Unit HDMI Input: Solid illumination from active signal from connected HDMI source.
  - Rx Unit: Solid illumination from active incoming signal from the paired TX unit.

Specifications

Technical

- Supported TMDS Bandwidth: 18Gbps
- Supported Resolutions: 3840x2160@24/30/50/60Hz, 2560x1600, 2560x1440, 1920x1200, 1080P@50/60Hz, 720P@50/60Hz,
- Deep Color Support: Up to 12 bits per color
- DDC Communication: EDID and HDCP Bi-directional buffering from Display to Source
- Signal Extension Distance: ≤50m / 164ft
- Signal latency: ≤100ms
- DDC Signal (Data): 5 Volts p-p (TTL)
- TMDS HDMI Video/Audio Signal: 0.7 - 1.2 Volts p-p
- HDCP Support: HDCP 1.4, HCP 2.2
- Supported WiFi Frequencies: 5.18, 5.20, 5.22, 5.24 GHz with SSID Pairing supported
- HDMI Connector: Type A, 19 Pin Female
- IR In & Out Connectors (Each): 3.5mm
- Power Supply: (2) 5V/2A, 10W DC Power Supply. 100-240VAC, 50-60Hz. Model KD-PS12V2ASC.
- Power Consumption: Tx: ≤6W, Rx: ≤4W

General

- Regulation: CE, RoHS, WEEE, EAC
- Enclosure: Black Metal
- Tx & Rx Unit Dimensions (ea) (LxWxH): 4.53” x 4.92” x 0.81” (115 x 125 x 20.6mm)
- Product Weight (ea): Tx: 0.78lbs (353g), RX: 0.76lbs (346g)
- Package Dimensions (LxWxH): 6.04” x 14.06” x 3.35” (153.5 x 357 x 85mm)
- Package Weight: 2.65 lbs (1.2 KG)
- Operating Temperature: -4~140°F / -20~60°C

Product Warnings & Safety Instructions

Important Product Warnings:

1. Connect all cables before providing power to the unit.
2. Test for proper operation before securing unit behind walls or in hard to access spaces.
3. If installing the unit into wall or mounting bracket into sheet-rock, provide proper screw support with bolts or sheet-rock anchors.

Safety Instructions:

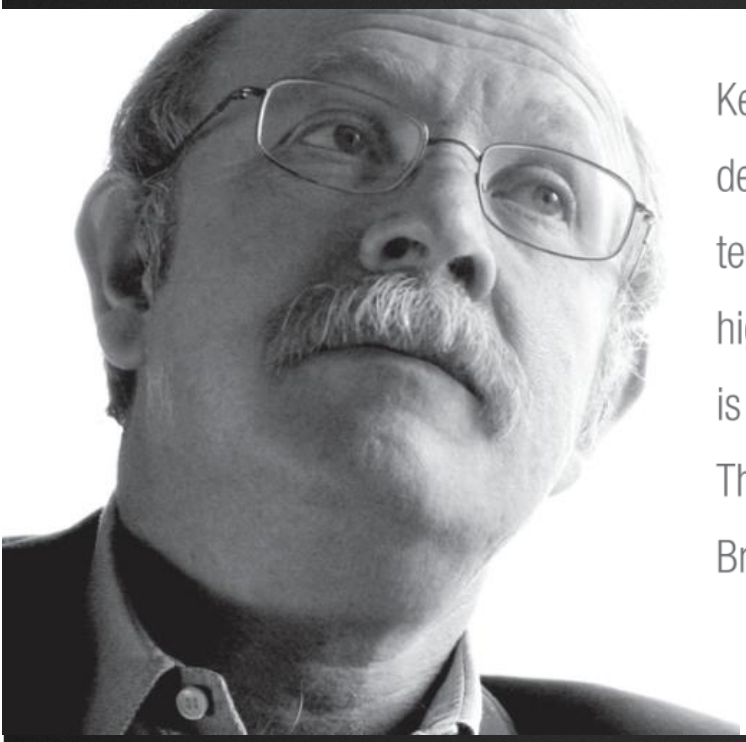
Please be sure to follow these instructions for safe operation of your unit.

1. Read and follow all instructions.
2. Heed all warnings.
3. Do not use this device near water.
4. Clean only with dry cloth.

5. Install in accordance with the manufacturer's instructions.
6. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
7. Only use attachments/accessories specified by the manufacturer.
8. Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way including:
    - Damage to the power supply or power plug
    - Exposure to rain or moisture

Power Supply Use:

You MUST use the Power Supply provided with your unit or you VOID the Key Digital® Warranty and risk damage to your unit and associated equipment.



Key Digital®, led by digital video pioneer Mike Tsinberg, develops and manufactures high quality, cutting-edge technology solutions for virtually all applications where high-end video and control are important. Key Digital® is at the forefront of the video industry for Home Theater Retailers, Custom Installers, System Integrators, Broadcasters, Manufacturers, and Consumers.

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