KD-X40MRx

4K/18G HDBT Rx (40m) with L/R Audio De-Embed, IR, RS-232. Receiver Only.

Operating Instructions

4K @60Hz

18G

Rx

Power
48V === 0.41A
Operate | F/W Load
Firmware Upgrade
HDBaseT Input
Status
Link | Live | Video

HDMI Output
L/R
Audio Output
Active
TxD ⏚ RxD
RS-232
IR In (Sensor)
IR Out
Rx

HDMI AUDIO DE-EMBEDDING

CEC MANAGER™

Key digital®

The Experts in Digital Video Technology and Solutions™

Table of Contents

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

Always follow the instructions provided in this Operating Manual.

Introduction

Key Digital® KD-X40MRx is a 4K/UHD, HDCP2.2 compliant HDBaseT receiver with 18Gbps bandwidth
for extension of digital video signals with the latest standards in resolution, HDR, and Chroma.
KD-X40MRx is sold a la carte to natively integrate with Key Digital HDBaseT wall-plate transmitters,
KD-X2x1WDTx or KD-X2x1WVTx. Other integration options are possible. KD-X40MRx supports flexible
PoH for powering of the wall plate transmitter, and audio de-embed output for ease of integrating the
selected wall plate source with audio systems. 4K/UHD 18G signals are extended up to 40m / 131ft
and 1080p up to 70m / 230ft via single CAT5e/6 cable. In addition to AV signals, KD-X40MRx extends
IR and RS-232 for controlling remotely located equipment.

Key Features

- › **Tx Options**: Sold a-la-carte to integrate natively with KD-X2x1WDTx and KD-X2x1WVTx wall-plate transmitters (sold separately).
- › **Flexible Power over HDBaseT**: Rx powers Tx when integrated with KD-X2x1WDTx / KD-X2x1WVTx. Rx is powered by Tx when integrated with KD-PS42 / KD-UPS42
- › **Audio De-embedding**: Audio of the incoming source is de-embedded at the unit's analog L/R audio connection for ease of integration with audio systems
- › **CEC Manager™**: Passes through CEC control signals generated by KD-PS42 / KD-UPS42 for monitors & projectors

- › **Ultra HD/4K**: Supports up to 4096x2160 or 3840x2160 24/25/30/60hz at 4:4:4 (signals up to 18Gbps bandwidth)
- › **4K Support**: 4096x2160 or 3840x2160 24/25/30/60hz at 4:4:4 (signals up to 18Gbps bandwidth)
- › **Low Profile**: Super slim chassis design
- › **Signal Extension**: For resolution and cable quality
    - » **4K/UHD (18G):** Up to 40m / 131ft
    - » **1080p:** Up to 70m / 230ft
- › **10G Pass-thru**: Mode enables uncompressed 10.2Gbps signal extension
- › **HDR10 and Dolby Vision**: More life-like images through a greater range of luminance levels
- › **HDCP 2.2**: Compliancy up to HDCP 2.2 and backward compliant
- › **Deep Color Support**: Up to UHD/4K 60Hz 4:2:0 12bits or 4:2:2 12bits
- › **IR Sensor**: Sensor powering via +5V on IR In ports collects line-of-sight IR from remote(s) without external IR connecting block
- › **Up/Down IR**: Two channels of IR enable control to/from devices or control systems connected to Tx and Rx units
- › **RS-232**: Bi-Directional control to/from Tx and Rx/Presentation Switch unit on Phoenix connector
- › **Lossless Compressed Digital Audio:** Dolby® TrueHD, Dolby® Digital Plus, DTS-HD Master Audio™, and Dolby® Atmos

Included Accessories

- › Mounting bracket (qty 2)
- › IR Sensor (qty 1)
- › IR Emitter (qty 1)
- › 3-pin phoenix terminal (qty 1)
- › Power Supply, 48V 0.41A, 20W, KDPS20W48VC

Quick Setup Guide

i Tx UNITS SOLD SEPARATELY. Go to http://www.keydigital.com/category_Presentation.html
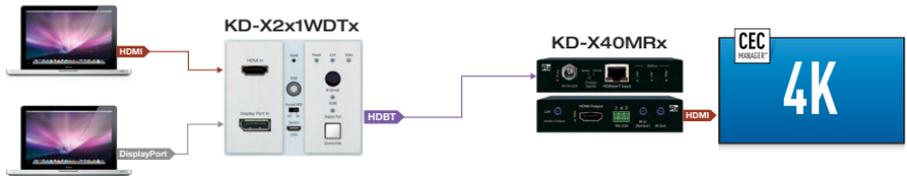for compatible Tx models.

CONNECT:

**Begin with the Tx, Rx unit / presentation switch, and all input/output devices turned off with power
cables removed. Ensure that all desired functionality is achieved before installing units.**
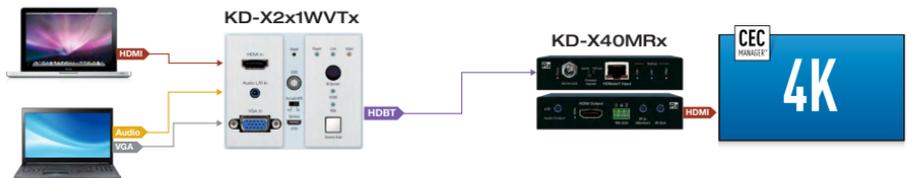
1. Connect HDMI, Display Port, USB-C, and VGA sources to the input port(s) of the Tx unit /
   Presentation Switch
2. Connect HDMI display to the output port of Rx unit
3. Connect CAT5e/6 cabling to Tx / presentation switch and Rx unit. Use 568-B standard termination
   on both ends avoiding couplers and excess CAT cable length
4. Connect IR Sensor, IR Emitter, and/or RS-232 cabling from control system if controlling external
   devices.
5. To send audio of the selected source into audio systems, connect from the audio de-embed output
   of the Rx unit
6. **BEFORE** connecting power supply to power outlet, secure power into screw connector on Rx unit /
   presentation switch
7. **AFTER** all connections are made, plug-in power supply to power outlet
8. Power on input/output devices
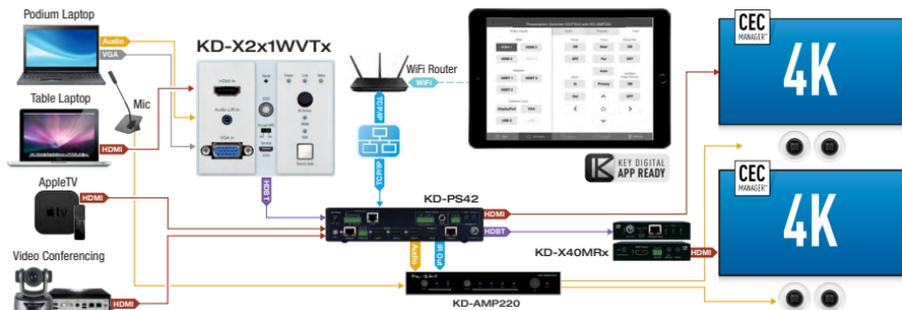
Integration Options
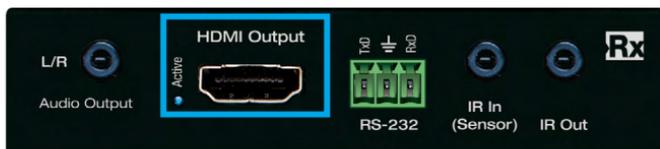
Integration with KD-X2x1WDTx:

Integration with KD-X2x1WVTx:

KD-X40MRx included with KD-PS42, KD-UPS42U.
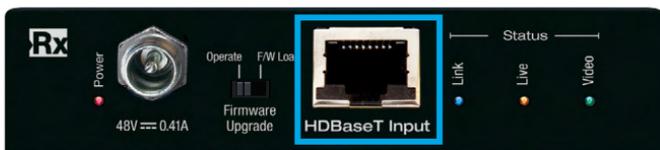

Connections, Switches, and LEDs

› **HDMI Output**: Using an HDMI cable, connect your HDMI display or system. For DVI-D/DVI-I sources, use appropriate adapters. For Display Port, use active adapters.

   » Supports up to UHD/4K @ 50/60 fps [4:4:4], 18Gbps

      » See Supported Standard 4K Video Formats table

   » Supports HDR10

   » Compliant with HDCP 2.2 and previous

   » Supports lossless compressed audio formats including Dolby® TrueHD, Dolby® Digital Plus, DTS-HD Master Audio™, and Dolby® Atmos

   » Supports CEC pass-thru from source/display or Key Digital Presentation Switcher with **CEC Manager™**

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

> **HDBaseT In**: Connect a CAT5e/6 cable that to the Tx Unit at the port labeled "HDBaseT Output"
>   » 4K/UHD (18G): Up to 40m / 131ft
>   » 1080p: Up to 70m / 230ft
>   » Native integration with KD-X2x1WDTx, KD-X2x1WVTx, KD-PS42, KD-UPS42.
>   » See http://www.keydigital.com/category_Presentation.html for compatible Tx models.
>   » May not be compatible with other Key Digital and non-Key Digital HDBaseT Tx.

> **L/R Audio Output**: Provides de-embedded 2ch Analog Audio Output from the source selected at the Wall Plate Tx / Presentation Switch.
>   » Pin assignment
>   » Tip: Left
>   » Ring: Right
>   » Sleeve: Ground
>   » Compatible with sampling rates up to 192KHz
>   » Drives audio signals up to 2VRMS
>   » There are no volume, muting or tone control features
>   » There are no format conversion features. Incompatible incoming audio formats are muted at the L/R Audio Output. For example, in order to achieve 2ch analog audio output, the selected HDMI input source audio format must be 2ch.

Audio Input Signal Format	Audio L/R Output
2ch PCM	Pass-Through
Multi-Channel PCM	Front L/R Pass-Through
Dolby DTS	MUTE
HD Audio	MUTE

> **IR Out**: Connect IR Emitter (included) and mount over IR sensor of desired device to be controlled
>   » Corresponds with IR from the IR sensor of the wall-plate Tx or Output 2's IR In port of the presentation switcher
>   » Bi-directional IR control extension is supported and may be used simultaneously with RS-232.
>   » Maximum supported IR burst frequency is 58kHz
>   » IR Out driving power: 5V with 32mA minimum current
>   » 3.5mm Mono pinout
>   » Tip = IR Signal
>   » Sleeve = Ground

> **IR In**: Connect IR Sensor (included) to receive line-of-sight IR from infrared remote
>   » Corresponds with Output 2's IR Out port of the presentation switcher
>   » Only the included IR sensors are compatible with KD-X40MRx. Third-party IR Sensors may not be compatible.
>   » Note: There is no IR Out port on compatible wall plate Tx units (KD-X2x1WDTx, KD-X2x1WVTX)
>   » The IR Sensor receives signals from a 90° angle at up to 30 ft. away.
>   » Maximum supported IR burst frequency is 55kHz
>   » 3.5mm Mono pinout
>   » Tip = IR Signal
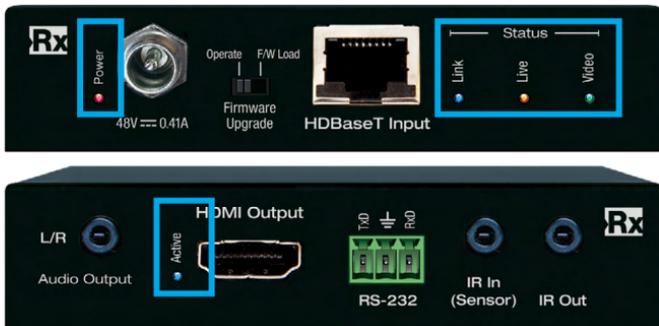>   » Sleeve = Ground
>   » Ring = 5V Sensor Power

> **RS-232 Terminal**: Connect with control system for pass-thru of bi-directional RS-232 commands
>   » Supports baud rate up to 115,200bps
>   » Tx pin corresponds with Tx pin of connected wall plate or Presentation Switch.
>   » Rx pin corresponds with Rx pin of connected wall plate or Presentation Switch.

> **Power**: 48/0.41A (20W) Power Supply
>> » Provides power to KD-X40MRx and the connected wall plate Tx unit.
>> » If KD-X40MRx is integrated with Presentation Switcher, then power supply connection is not required at KD-X40MRx as power is provided from the Presentation Switcher.

> **LED Lights**: Indicate system connectivity status
>> » HDMI Output Active (**blue**) illuminates solid from active Hot Plug Detection voltage from connected display
>> » Link (**blue**) illuminates solid from healthy HDBaseT connectivity with Tx unit from. Steady blink with no active video transmission + reception
>> » Live (**yellow**) steady blinking indicates active CPU
>> » Video (**green**) illuminates solid with active HDMI signal
>> » Power (**red**) illuminates solid with proper powering from local connection / presentation switch

Use with third-party HDBaseT Tx or Rx

KD-X40MRx natively integrates with KD-X2x1WDTx, KD-X2x1WVTx, KD-PS42, KD-UPS42.
>> » See http://www.keydigital.com/category_Presentation.html for other compatible Tx models.

⚠ **KD-X40MRx is NOT compatible with third-party HDBaseT or other Key Digital HDBaseT products**

Specifications

Technical:

- » Inputs: 1 HDBaseT, 1 Bi-Directional RS-232, 1 IR
- » Outputs: 1 HDMI, 1 L/R Stereo Audio, 1 Bi-Directional RS-232, 1 IR
- » DDC Signal (Data): Input DDC Signal: 5 Volts p-p (TTL)
- » HDMI Video/Audio Signal: Input Video Signal: 1.2 Volts p-p
- » HDMI Connector: Type A, 19 Pin Female
- » Audio Connector: 3.5mm Stereo Female
- » RJ45 Connector: Shielded Link Connector, HDBaseT
- » IR In Connector: 3.5mm Stereo female
- » IR Out Connector: 3.5mm Mono female
- » RS-232 Connector: 3-pin phoenix terminal

General:

- » Regulation: CE, RoHS, WEEE, EAC
- » Enclosure: Black metal
- » Dimensions: 5.35" x 3.95" x 0.9" (136 x 100.4 x 22.95 mm)
- » Product Weight: 0.4 lbs
- » Packaging: 10" x 7.3" x 2.1" (255 x 185 x 55 mm)
- » Packaging Weight: 1.3 lbs
- » Accessories:
    - » Mounting bracket (qty 2)
    - » 3-pin phoenix terminal (qty 1)
    - » IR Sensor (qty 1)
    - » IR Emitter (qty 1)

⚠️ 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.

Contacting Key Digital®

Technical Support

For technical questions about using Key Digital® products, please contact us at:

> Phone: 914-667-9700
> E-mail: tech@keydigital.com
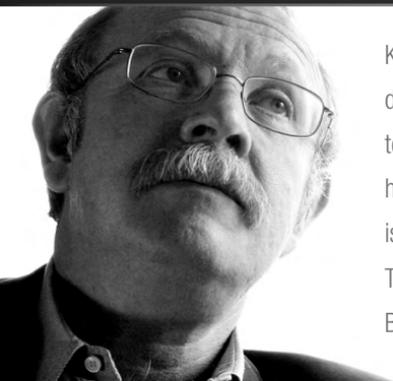
Repairs and Warranty Service

Should your product require warranty service or repair, please obtain a
Key Digital® Return Material Authorization (RMA) number by contacting us at:

> Phone: 914-667-9700
> E-mail: rma@keydigital.com

Warranty Information

All Key Digital® products are built to high manufacturing standards and should provide years of trouble-free operation. They are backed by a Key Digital Limited 3 Year Product Warranty Policy.

http://www.keydigital.com/warranty.htm

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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