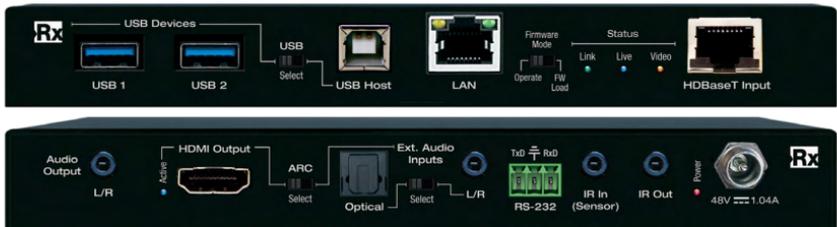


# KD-X100MRx

4K/18G HDBaseT Rx (100m) with USB, LAN, ARC,  
L/R Audio In, L/R Audio Output De-Embed, IR, RS-232.  
Receiver Only.

## Operating Instructions



**Key digital**<sup>®</sup>

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Please visit [www.keydigital.com](http://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

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Key Digital® KD-X100MRx is a 4K/UHD, HDCP2.2 compliant HDBaseT receiver with 18Gbps bandwidth, flexible Audio Return Channel (ARC), audio de-embedding, and USB for a complete soft-codec enabling extension receiver. KD-X100MRx is sold a la carte to natively integrate with Key Digital HDBaseT transmitters, KD-X4x1WUTx (wall plate) or KD-PS22UTx (surface mount). KD-X100MRx provides PoH power to its Tx units, and audio de-embed output for ease of integrating the selected source with audio systems. USB ports enable keyboard, mouse, cameras or USB microphones or mixed audio signals from DSPs to be fed back to the conferencing host Computer at the Wall plate or presentation switcher. 4K/UHD signals are extended up to 100m / 328ft and 1080p up to 150m / 492ft via single CAT5e/6 cable. In addition to AV signals, KD-X4x1WUTx extends IR, RS-232, and TCP/IP for controlling remotely located equipment.

## Key Features

- › **Tx Options:** Sold a-la-carte to integrate natively with KD-X4x1WUTx wall-plate or KD-PS22UTx black box transmitters (sold separately). Also integrates natively and is included with KD-UPS52U.
- › **Soft-Codec Enabling System:** USB Host + Device ports on Rx and chosen wall-plate / Presentation Switch create connectivity hub for professional USB cameras and microphones, audio DSP, keyboard, mouse, or touchscreen display with connected computer
- › **Flexible Power over HDBaseT:** Rx powers Tx when integrated with KD-X4x1WUTx / KD-PS22UTx. Rx is powered by Tx when integrated with KD-UPS52U
- › **Audio De-embedding:** Audio of the incoming source is de-embedded at the unit's analog L/R connector
- › **CEC Manager™:** Passes through CEC control signals for monitors & projectors generated by KD-X4x1WUTx, KD-PS22UTx, or KD-UPS52U
- › **PTZ USB Camera Integration:** Marries natively with KD-CAMUSB for full PTZ control via KD-App with supported presentation switcher
- › **KD-AMP220 Integration:** Marries natively with KD-AMP220 for full volume and mic mix control with supported presentation switcher
- › **Ultra HD/4K:** Supports up to 4096x2160 or 3840x2160 24/25/30/60hz at 4:4:4 (signals up to 18Gbps bandwidth)
- › **Signal Extension:** For resolution and cable quality
  - › **4K/UHD (18G):** Up to 100m / 328 ft.
  - › **1080p:** Up to 150m / 492 ft.
- › **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 30Hz 4:4:4/12 bits or 60Hz 4:4:4/8 bit
- › **IR Sensor:** Sensor powering via +5V on IR In ports collects line-of-sight IR from remote(s) without external IR connecting block
- › **RS-232:** Bi-Directional control to/from Tx/Presentation Switch and Rx unit
- › **Lossless Compressed Digital Audio:** Dolby® TrueHD, Dolby® Digital Plus, DTS-HD Master Audio™, and Dolby® Atmos
- › **Control System Support:** Fully controllable by all TCP/IP and RS-232 supported control systems via open API
- › **Low Profile:** Super slim chassis design



## Included Accessories

- › Mounting bracket (qty 2)
- › IR Sensor (qty 1); IR Emitter (qty 1)
- › 3-pin phoenix terminal (qty 1)
- › Power Supply, 48V / 1.04A, 50W, KDPS50W48VC

## Quick Setup Guide

**i** Tx UNITS SOLD SEPARATELY. Go to [Presentation Solutions section](#) for compatible Tx models.

### CONNECT:

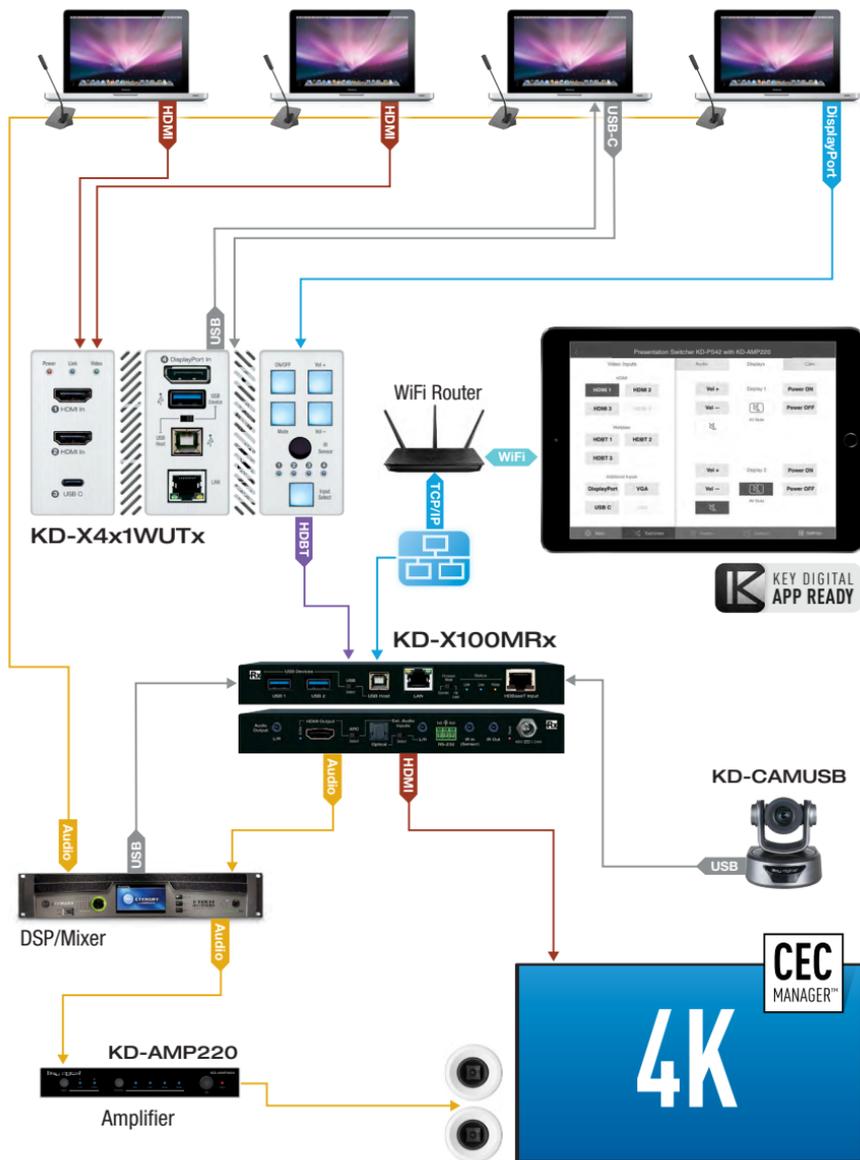
Begin with the Tx, Rx unit / presentation switch, and all input/output devices turned off with power cables removed. Ensure that all desired functionality is achieved before installing units.

1. Connect HDMI, Display Port, and USB-C sources to the input ports of Tx unit / presentation switcher. Port connectivity varies by Tx / presentation switcher model.
2. Connect HDMI displays / projectors to the HDMI output port of the RX unit / presentation switcher
3. Connect USB devices into desired USB A ports and USB host computer to desired USB B ports at wall plate transmitter, HDBaseT Rx, or presentation switcher. Set USB Select switch accordingly.
  - » **Note:** When using KD-UPS52U the connection location of the USB devices and host is determined by the USB mode selection switch. Please refer to KD-UPS52U Quick Setup Guide for more information.
4. Connect CAT5e/6 cabling to Tx and Rx unit / presentation switch. Use 568-B standard termination on both ends. Avoid couplers and excess CAT cable length.
5. To send the selected audio source into audio systems, connect from audio de-embed outputs of the Rx unit / presentation switcher
6. Connect control system or PC to LAN port of the Tx, Rx, or presentation switcher for network connectivity
7. Connected monitors are controlled by CEC Manager™ on the HDMI connection. Alternatively, connect IR/RS-232/TCP/IP wiring from control system to pass-thru ports of Tx, Rx and/or presentation switcher
8. Screw-in power supply to the KD-UPS52U or KD-X100MRx unit, and then connect power to outlets.
9. Power on HDMI sources and displays, audio systems, connected computers, USB devices and hosts

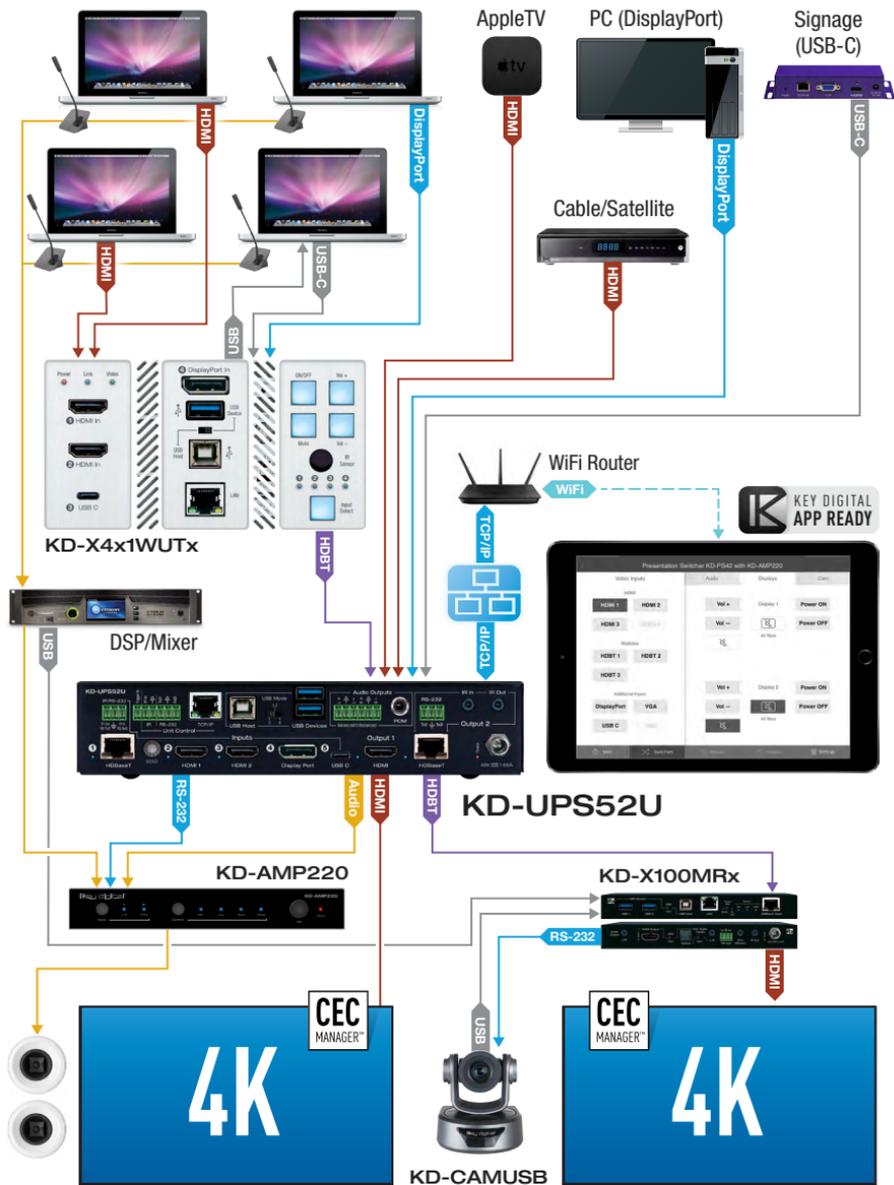


## Integration Options

### Integration with KD-X4x1WUTx:



### Integration with KD-UPS52U (KD-X100MRx is Included in the KIT).



## 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 Manager™ of connected supporting display from KD-UPS52U / KD-X4x1WUTx. **Does not support standard CEC pass-thru.**



**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 from the Tx Unit at the port labeled “HDBaseT Input”

- » 4K/UHD (18G): Up to Up to 100m / 328ft
- » 1080p: Up to 150m / 492ft

**Use with third-party HDBaseT Tx or Rx**

KD-X100MRx natively integrates with KD-X4x1WUTx, KD-UPS52U.

- » See [Presentation Solutions](#) for compatible Tx models.
- » May not be compatible with other Key Digital and non-Key Digital HDBaseT Tx.



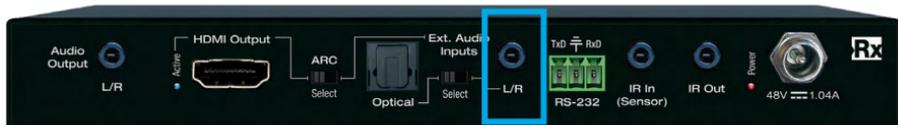
› **ARC Select and External Audio Input Select Switches:** Choose which audio to return from the Rx to the Presentation Switch:

- › HDMI Audio
- › External Audio Input
  - › Optical or L/R analog determined by Ext. Audio Input select switch



› **Optical Audio Input:** Used to return audio from the connected display's audio output to the Presentation Switch.

- › ARC Select Switch must be set to "Ext. Audio Input"
- › Ext. Audio Input switch must be set to Optical
- › SPDIF IEC 60958 format
- › Compatible with sampling rates up to 96KHz
- › Supports multi-channel Dolby® surround formats up to 5.1 ch and DTS™ 6.1 ch



› **L/R Analog Audio Input:** Used to return audio to the Presentation Switch

- › ARC Select Switch must be set to "Ext. Audio Input"
- › Ext. Audio Input switch must be set to L/R
- › 3.5mm stereo jack
- › Supports audio signals up to 1 VRMS with a sampling rate of 192KHz



› **L/R Audio Output:** Provides de-embedded 2ch Analog Audio Output from the HDMI Output of the Rx Unit

- › Pin assignment
  - › Tip: Left
  - › Ring: Right
  - › Sleeve: Ground
- › Compatible with sampling rates up to up to 48KHz 24Bits
- › Drives audio signals up to 1VRMS
- › 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 switch
  - › 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 unit KD-X4x1WUTx
  - › 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:** 48/1.04A (50W) Power Supply
  - › Provides power to KD-X100MRx and the connected wall plate Tx unit.
  - › If KD-X100MRx is integrated with Presentation Switcher, then power supply connection is not required at KD-X100MRx as power is provided from the Presentation Switcher.

**WARNING: Do NOT Connect Power Supply at both KD-X100MRx and KD-UPS52U simultaneously.**



### › USB Device Ports:

- › Supports USB2.0 and previous
- › Used for connecting USB endpoints (ie KD-CAMUSB, keyboard, mouse)
- › Not used for connecting USB hosts (ie computer)
- › Supports connectivity to USB hubs but may not exceed 15 endpoint devices
- › Provides 5V 500mA power
- › Use USB Select switch to determine if KD-X100MRx will be used to connect a USB host (USB-B port) or USB device (USB-A port). **Both host and device are not simultaneously possible.**



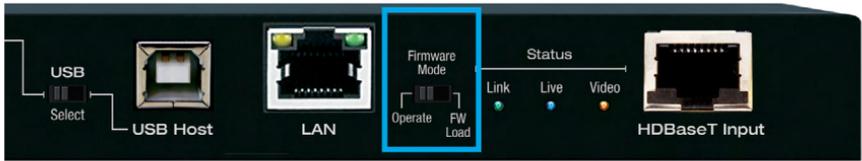
### › USB Host Port:

- › Supports USB 2.0 and previous
- › Used for connecting USB host (ie computer)
- › Not used for connecting USB devices (ie KD-CAMUSB, keyboard, mouse)
- › Use USB toggle switch to determine if KD-X100MRx will be used to connect a USB host (USB-B port) or USB device (USB-A port). **Both host and device are not simultaneously possible.**



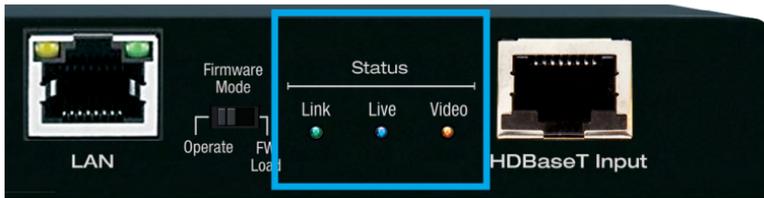
### › LAN Port:

- › Used to connect with Network Switch and peripheral devices needing network connectivity and/or TCP/IP control
- › Can provide network connectivity to KD-UPS52U and/or KD-X4x1WUTx



› **Firmware Upgrade Switch:** Used during firmware upgrades

- › Switch should remain in Operate position during usage. RS-232 signal pass-through will be lost when set to FW Load position.
- › Firmware should only be upgraded when instructed by Key Digital Technical Support
- › Firmware loaded via RS-232



› **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

# Specifications

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## Technical:

- » Inputs: 1 HDBaseT, 1 L/R Stereo Audio, 1 Optical Audio, 1 Bi-Directional RS-232, 1 IR
- » Outputs: 1 HDMI, 1 L/R Stereo Audio, 1 Bi-Directional RS-232, 1 IR
- » USB: USB2.0 on 2 USB A and 1 USB B connection
- » LAN: Shielded TCP/IP 1G/100 BaseT
- » 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
- » Analog Audio: Line level audio on 3.5mm TRS connector
- » Digital Audio Output: Toslink optical female for digital audio following SPDIF format (IEC 60958). Supports sampling rate up to 96KHz
- » RJ45 Connector: Shielded Link Connector, HDBaseT
- » IR Connector: 2-pin phoenix terminal
- » RS-232 Connector: 3-pin phoenix terminal
- » Power: 48V / 1.04A, 50W

## General:

- » Regulation: CE, RoHS, WEEE, EAC
- » Enclosure: Black metal
- » Product: 7.16 x 4.8 x 0.87" (182 x 122.5 x 22.2mm); Weight: 1 lbs
- » Packaging: 9.3" x 6.5" x 3.5" (235 x 165 x 90 mm); Weight: 2.0 lbs
- » Accessories:
  - » Power Supply: 48V / 1.04A, 50W, KDPS50W48VC
  - » Mounting bracket (qty 2)
  - » 3-pin phoenix terminal (qty 1)
  - » IR Sensor (qty 1)
  - » IR Emitter (qty 1)

## Important Product Warnings:

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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:

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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:

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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®

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### Technical Support

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

- › Phone: 914-667-9700
- › E-mail: [tech@keydigital.com](mailto: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:

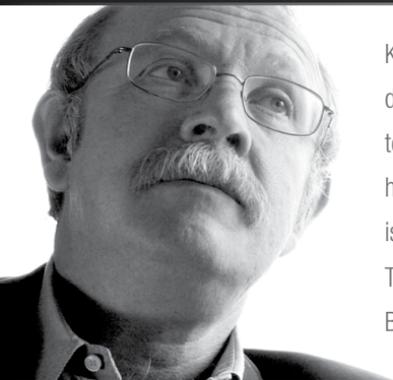
- › Phone: 914-667-9700
- › E-mail: [rma@keydigital.com](mailto:rma@keydigital.com)

## Warranty Information

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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<sup>®</sup>, 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<sup>®</sup> is at the forefront of the video industry for Home Theater Retailers, Custom Installers, System Integrators, Broadcasters, Manufacturers, and Consumers.

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