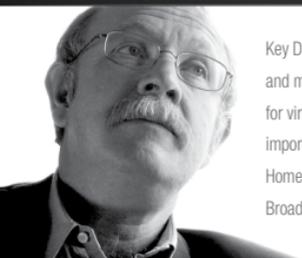


KD-FIX418

4K/18G HDMI Fixer, Booster, Buffer of EDID,
HDCP, Hot Plug, 18G to 10G ENC/DEC

Operating Instructions



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.

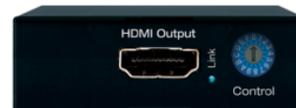


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About KD-FIX418

Key Digital® KD-FIX418 HDMI buffer and booster is designed and engineered to offer the best in quality, performance, and reliability, while providing a cost-effective, ultra-slim HDMI signal correction solution. The KD-FIX418 extends and re-clocks UHD/4K signals with TMDS bandwidth up to 18Gbps and buffers essential digital video communication such as EDID handshaking, HDCP compliancy, and Hot Plug Detection voltage.

KD-FIX418 supports all SD, HD, VESA and Ultra HD/4K video standards, including UHD/4K with HDR10, 1080p/60, 1920x1200, and supports HDCP 2.2.

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

Key Features

- **HDMI Correction:** Resolves common HDMI integration obstacles related to HDCP, EDID, Hot Plug Detection, and bandwidth
- **Compression/Decompression:** Pair units to compress and decompress 18Gbps content with 10.2Gbps cabling
- **Input Boost Mode:** High equalization option on HDMI input for repair of degraded incoming signals
- **Cabling Extension:** Works with HDMI cabling for extension of 4K signals with HDR10 up to 75 ft / 23m in or out. Maximum one active/directional HDMI cable may be used for 18Gps signal.
- **4K/UHD Support:** 4096x2160 or 3840x2160 24/25/30/60hz at 4:4:4 (up to 18Gbps bandwidth)
- **HDR10 and Dolby Vision:** More life-like images via a greater range of luminance levels
- **HDCP2.2:** Compliancy up to HDCP 2.2 and backward compliant
- **Deep Color Support:** Up to 4K/UHD 30Hz 4:4:4/12 bits or 60Hz 4:4:4/8 bit
- **Low Profile:** Super compact chassis size
- **USB Powered:** Low power consumption enables power from standard USB micro port
- **Full Buffer System™:** Manages TMDS re-clocking / signal re-generation, HDCP source & display authentication, Hot Plug Management and EDID Control handshake
- **Lossless Compressed Digital Audio:** Dolby® TrueHD, Dolby® Digital Plus, DTS-HD Master Audio™ and Dolby® Atmos
- **Auto-EO:** Precise signal equalization applied to input and output signals automatically delivers best possible picture quality
- **EDID Control:** Internal library with 15 EDID handshakes including 4K with HDR in addition to native EDID data of output/display
- **Forced HPD:** Enables integrator to choose if active signal voltage is forced to connected input device
- **CEC and ARC Pass-thru:** Enables inter-device communication signals via CEC, ARC, and HDMI Ethernet channels

Usage Modes

18Gbps Signal Repair



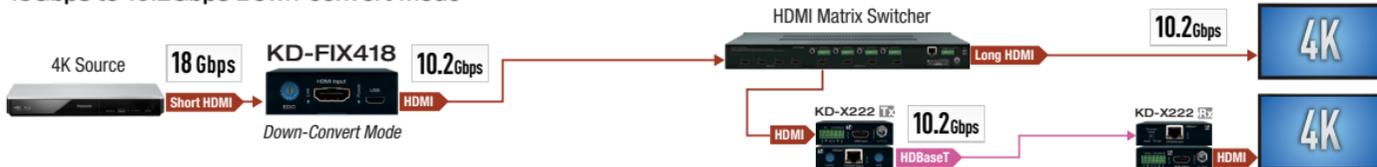
Input Boost Mode



Compression Mode



18Gbps to 10.2Gbps Down-convert Mode



HDMI Extender (10.2Gbps Only)



Connections and LEDs



HDMI Input:

- Supports HDMI cabling up to 75 ft / 23m.
 - » Maximum one active/directional HDMI cable may be used for 18Gbps signals.
 - » If HDMI input is long/active/directional, only a short/passive/non-directional HDMI cable may be used on output for 18Gbps signals.
- Supports up to UHD/4K @ 50/60 fps [4:4:4], 18Gbps signals
 - » See Supported standard 4K Video Formats table
- Supports HDR10 and Dobyly® Vision
- Compliant with HDCP 2.2 and previous
- Supports lossless compressed audio formats including Dolby® TrueHD, Dolby® Digital Plus, Dolby Atmos®, and DTS-HD Master Audio™
- Supports CEC and ARC pass thru For DVI-D/DVI-I sources, use appropriate adapters. For Display Port, use active converters.

HDMI Input Link LED:

- Color: **Blue**
- Solid illumination during active signal (TMDS) from connected source

USB Power:

- USB Micro connector type
- 5V 0.5A. Power consumption <2W
- **Power transformer not included. Supports standard third-party transformer.**



HDMI Output:

- Supports HDMI cabling up to 75 ft / 23m.
 - » Maximum one active/directional HDMI cable may be used for 18Gbps signals.
 - » If HDMI input is long/active/directional, only a short/passive/non-directional HDMI cable may be used on output for 18Gbps signals.
- Supports up to UHD/4K @ 50/60 fps [4:4:4], 18Gbps signals
 - » See Supported standard 4K Video Formats table
- Supports HDR10 and Dobyly® Vision
- Compliant with HDCP 2.2 and previous
- Supports lossless compressed audio formats including Dolby® TrueHD, Dolby® Digital Plus, Dolby Atmos®, and DTS-HD Master Audio™
- Supports CEC and ARC pass thru

HDMI Output Link LED:

- Color: **Blue**
- Solid illumination during active Hot Plug Detection (HPD) voltage from connected display

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

Settings and Adjustments

EDID Rotary:

- EDID authentication is provided from the KD-FIX418 unit to the connected input / source device.
- The EDID file (AKA "handshake") is selected using the EDID rotary on the unit and provides a list of compatible video and audio formats as well as digital data, informing the source device what it should output.
- Most sources will comply with a new EDID file without a power-cycle, but each source may behave differently.
- Adjustments may be necessary to help achieve desired video and audio formatting and may speed up sync time.

Position	EDID Handshake Description	EDID Rotary
0	Copy EDID from HDMI Output	 <p>Note: Default position is "A"</p> <p>IMPORTANT: Please apply light pressure to the EDID rotary when making your selection.</p>
1	1080i, 2CH AUDIO	
2	1080i, DOLBY/DTS 5.1	
3	1080i, HD AUDIO	
4	1080p, 2CH AUDIO	
5	1080p, DOLBY/DTS 5.1	
6	1080p, HD AUDIO	
7	4Kx2K@60, 10.2G, HDR, 2CH AUDIO	
8	4Kx2K@60, 10.2G, HDR, DOLBY/DTS 5.1	
9	4Kx2K@60, 10.2G, HDR, HD AUDIO	
A	4Kx2K@60, 18G, HDR, 2CH AUDIO	
B	4Kx2K@60, 18G, HDR, DOLBY/DTS 5.1	
C	4Kx2K@60, 18G, HDR, HD AUDIO	
D	1280x720p@60 DVI (no audio)	
E	1920x1080p@60 DVI (no audio)	
F	4Kx2K@30, 10.2G, HDR, 2CH AUDIO	

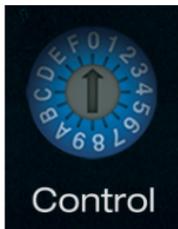
Control Rotary:

Choose the desired setting for hot plug detection control, bandwidth compression/decompression, and boost mode.

Power cycle unit after changing settings.

Forced HPD On/Bypass

- In cases of many layers of connectivity or non-standard devices in-line, hot plug detection (HPD) may be lost or drop below standard levels, leading to the video source not detecting a display/sync device and not outputting a signal. A display device may also not detect a connected source in cases of failed hot plug detection.
- If set to On, Hot Plug Detection (HPD) voltage is forced at the HDMI input connection of the KD-FIX418. The connected source device will be fed a constant voltage to inform the device that a partner (output/display) is always connected and active.
- If set to Bypass, Hot Plug Detection (HPD) voltage is bypassed from connected output/display to the input/source



Bandwidth Compression

→ KD-FIX418 can be set to compress or decompress the TMDS (audio and video) signal enabling 18Gbps video signals to be extended via legacy 10.2Gbps cabling.

→ IMPORTANT: COMPRESSION/DECOMPRESSION REQUIRES

TWO (2) KD-FIX418 UNITS

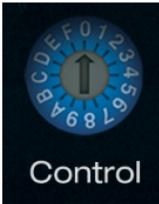
- » One (1) unit set to Compression mode (typically at video source)
- » One (1) unit set to Decompression mode (typically at video display)

Modes

- Bypass: No compression applied
- Auto Compress
 - » Compresses 18Gbps video signals to 10.2Gbps.
 - » Must be paired with 2nd KD-FIX418 unit to decompress signal for acceptance by video display
 - » No compression applied to \leq 10.2Gbps signals
- Compress
 - » Compression applied to all signals (18Gbps, 10.2Gbps, <10.2Gbps)
 - » Resultant signal bandwidth is $\frac{1}{2}$ original signal bandwidth
 - » Must be paired with 2nd KD-FIX418 unit set to Decompress mode for acceptance by video display
- Decompress/ Auto Down-Convert
 - » Decompress: Restores compressed signal to 18Gbps for acceptance by video display
 - » Must be paired with 2nd KD-FIX418 unit set to Compress mode
 - » Auto Down-Convert: Down converts all signal > 10.2Gbps
 - » Resultant down-converted signal is 4K@60 [4:2:0] 8bit (10.2Gbps)
 - » Down-convert mode works independently.
Does not require 2nd KD-FIX418 unit.

Input Boost

- When set On, EQ levels of the HDMI input are set HIGH
- Slightly degraded signals (ie pixel loss, flickering image) may be resolved
- Severely degraded signals may be improved, but may not be completely resolved
 - » Use shorter length HDMI cables for best results
 - » Maximum one active/directional HDMI cable may be used.
 - » KD-FIX418 should be installed at display side for these instances

Position	Hot Plug Detection	Bandwidth Compression	Input Boost	Control Rotary
0	Bypass	Bypass	OFF	 <p>Note: Default position is "0"</p> <p>IMPORTANT: Please apply light pressure to the Control rotary when making your selection. Power cycle unit after changing settings!</p>
1	Forced ON	Bypass	OFF	
2	Bypass	Bypass	ON	
3	Forced ON	Bypass	ON	
4	Bypass	Decompress/ Auto Down-Convert	OFF	
5	Forced ON	Decompress/ Auto Down-Convert	OFF	
6	Bypass	Decompress/ Auto Down-Convert	ON	
7	Forced ON	Decompress/ Auto Down-Convert	ON	
8	Bypass	Auto Compress	OFF	
9	Forced ON	Auto Compress	OFF	
A	Bypass	Auto Compress	ON	
B	Forced ON	Auto Compress	ON	
C	Bypass	Compress	OFF	
D	Forced ON	Compress	OFF	
E	Bypass	Compress	ON	
F	Forced ON	Compress	ON	

Specifications

Technical:

- Input: HDMI Connector, Type A, 19 Pin Female
- Output: HDMI Connector, Type A, 19 Pin Female
- Bandwidth: TMDS bandwidth 18Gbps
- Deep Color Support: Digital video formats in Deep Color Mode up to 12 bits/color
- DDC Communication: EDID and HDCP Bi-directional buffering from Display to Source
- Power Supply: USB to micro USB cable (power adapter not included)

General

- Regulation: CE, RoHS, WEEE, EAC
- Enclosure: Black metal
- Product Dimensions: 2.17" x 3.085" x 0.68"
- Product Weight: 4 oz
- Packaging Dimensions: 2.5" x 3.5" x 1"
- Packaging Weight: 6 oz



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.

How to Contact Key Digital®

Customer Support

For customer support questions please contact us at:

→ Phone: 914-667-9700

→ E-mail: customersupport@keydigital.com

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

Feedback

Please email any comments/questions about the manual to:

→ E-mail: customersupport@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>