HDMI®
HIGH-DEFINITION MULTIMEDIA INTERFACE

KD-MS4x4G
KD-MS8x8G

4x4/8x8 4K/18G HDMI Matrix Switchers, with Independent Audio Switching, Balanced/Unbalanced Audio, Audio De-embedding of Analog L/R/PCM

Operating Instructions

KD-MS4x4G

KD-MS8x8G

Key digital®

Table of Contents

Visit product pages for most recent version
of the manual, quick setup guide, firmware,
control drivers and all additional downloads.

KD-MS4x4G

KD-MS8x8G

Always follow the instructions provided in this Operating Manual.

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

About KD-MS4x4G/KD-MS8x8G

Key Digital's KD-MS4x4G and KD-MS8x8G are 4K matrix switchers with support of 18Gbps signal bandwidth and HDCP 2.2 for routing and distributing 4/8 HDMI source signals to 4/8 displays. KD-MS4x4G and KD-MS8x8G feature 4/8 analog and digital audio outputs which may be independently controlled to follow the HDMI output selection or separately switched to accommodate a wide variety of usage applications in professional AV systems integration. KD-MS4x4G/KD-MS8x8G supports all SD, HD, VESA and Ultra HD/4K video standards up to and including UHD/4K 18G and 1080p. All UHD/4K EDID handshake files include HDR header information.

Key Features

› **HDMI Matrix Switching:** 4/8 HDMI sources to 4/8 HDMI outputs
› **Ultra HD/4K Support:** 4096x2160 or 3840x2160 24/25/30/60hz at 4:4:4 (signals up to 18Gbps bandwidth)
› **HDCP Licensing:** Fully licensed and compatible with HDCP 2.2
› **HDR10 (High Dynamic Range):** More life-like images through a greater range of luminance levels
› **Resolution Support:** Supports all SD, HD, and VESA (VGA, SVGA, XGA, WXGA, SXGA, UXGA) up to 4096x2160p
› **Deep Color Support:** Up to UHD/4K 60Hz 4:2:0/12 bits, 60Hz 4:2:2/12 bits
› **Independent Audio and Video Matrix:** Output HDMI and Audio ports may switch together or independently
› **Full Buffer System™:** Manages TMDS re-clocking / signal re-generation, HDCP authentication to source & display, and EDID Control handshake
› **EDID:** Internal library with 15 internal EDID configurations per input, in addition to native EDID data for any Output/Display
› **TMDS re-clocking:** Support for long HDMI connectivity using Key Digital® HDMI cables
› **Lossless Compressed Digital Audio:** Dolby® TrueHD, Dolby® Digital Plus, DTS-HD Master Audio™, and Dolby® Atmos
› **Control:** Front panel buttons/LEDs, Serial IR, Optical IR, RS-232 Control, and TCP/IP Control
› **Control System Support:** Key Digital® app ready. Key Digital Management Software™ Pro (KDMS™ Pro) ready, Compass Control® Pro ready. Fully controllable by all IR, RS-232, and TCP/IP supported control systems via open API.
› **Key Digital® App & KDMS® Pro Ready:** Scan & detect population for pre-built GUI and TCP/IP control via Key Digital® App and Key Digital Management Software™ Pro (KDMS™ Pro) PC Software

Accessories

› Power Supply: KD-PS40W12VD 12V/3.3A (40W) DC Power Jack, Screw In Type
› Rack Ears
› KD-RMCSKA Remote Control
› 6-Pin Terminal Blocks : KD-MS4x4G - Qty 5 / KD-MS8x8G - Qty 9

Rack Mounting:

› Secure the rack ears to each side of the KD-MS4x4G/KD-MS8x8G with the supplied hardware and then fasten the unit to the rack rails with the included machine screws.

Application Example

Ultra HD/4K
Digital Signage

Visualizer

Networked PCs

Laptop

KD-MC1000

x2 Master Controller

KD-MS8x8G

Key digital MANAGEMENT SOFTWARE

PC Control Software

KD-AMP220

x3

KD-X444L Tx

x5

KD-X444L Rx

x4

KD-X444L Rx

x3

Displays

Projector

Displays

Huddle Room

Main Room Wall

Operation Center
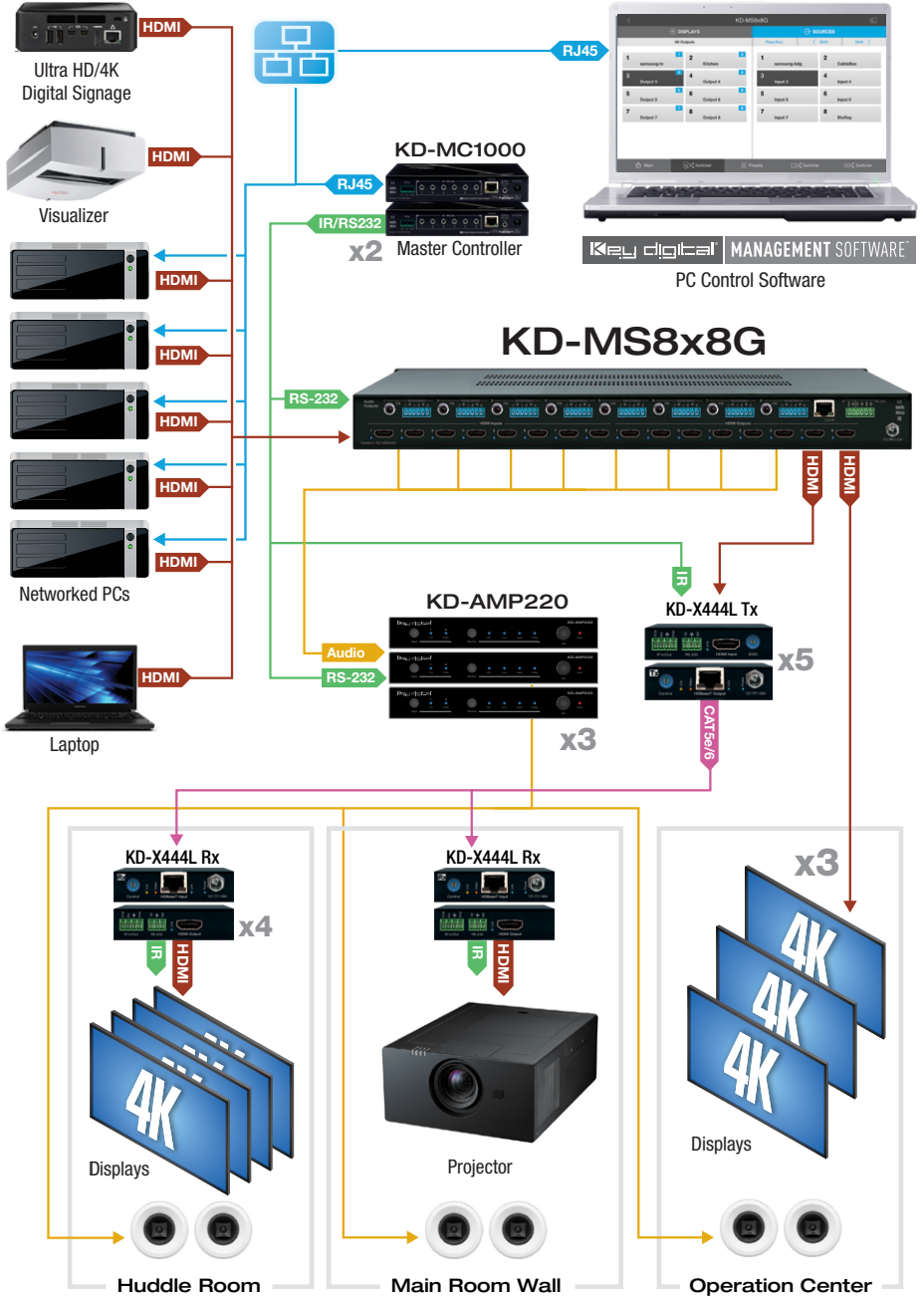
Quick Setup Guide

Test for proper operation of the unit and cables in your system before permanently securing the unit for final installation. Ensure that you leave enough ventilation space to provide sufficient airflow and cooling.

1. Begin with the KD-MS4x4G/KD-MS8x8G unit and all input/output devices turned off with power cables removed
2. Connect your HDMI sources to the input ports of KD-MS4x4G/KD-MS8x8G unit
3. Connect your HDMI displays to the output ports of KD-MS4x4G/KD-MS8x8G unit
4. **Before** connecting power supply to power outlet, screw-in the power supply to the KD-MS4x4G/KD-MS8x8G unit
5. Connect the analog audio outputs to amplifiers/receivers via the analog 6-pin phoenix terminals and digital destinations via the PCM outputs
6. After all connections are made, plug-in power supply to power outlet
7. Power on input/output devices
8. Operate the KD-MS4x4G/KD-MS8x8G switcher via front panel buttons, IR Remote, Serial IR, RS-232, or TCP/IP control, including Key Digital® App and Key Digital Management Software® Pro (KDMS™ Pro) PC Software
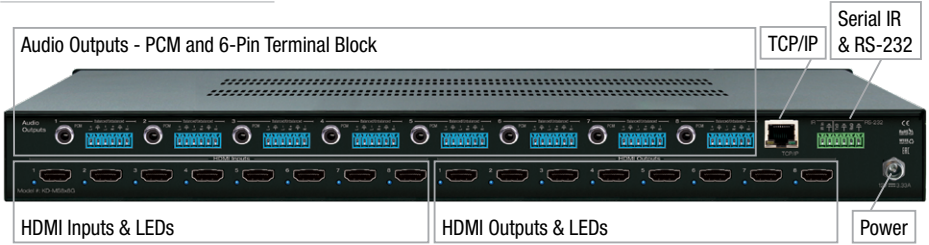9. See TCP/IP and RS-232 Command or Settings and Adjustments via Remote sections for more adjustments options

Default static IP address:
192.168.1.239, port 23

Connections, Buttons and LEDs

HDMI Inputs and Outputs

| Audio Outputs - PCM and 6-Pin Terminal Block | TCP/IP | Serial IR & RS-232 |

| HDMI Inputs & LEDs | HDMI Outputs & LEDs | Power |

› **HDMI Inputs:**
   » The HDMI Inputs are located on the bottom left side of the back panel.
   » The Inputs have a blue LED that will illuminate solid to indicate an active HDMI signal is incoming.

› **HDMI Outputs:**
   » The HDMI Outputs are located on the bottom right side of the back panel.
   » The Outputs have a blue LED that will illuminate solid when receiving an active Hot Plug Detection (HDMI voltage) from the connect display/sync device.
   » HDMI outputs may switch to select HDMI sources independently or together with the respective audio outputs.

› **HDMI Input/Output Port Specifications**
   » Supports up to UHD/4K @ 50/60 fps [4:4:4], 18Gbps signals
   » 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, Dolby Atmos®, and DTS-HD Master Audio™
   » Does not support CEC
   » 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

Audio Outputs
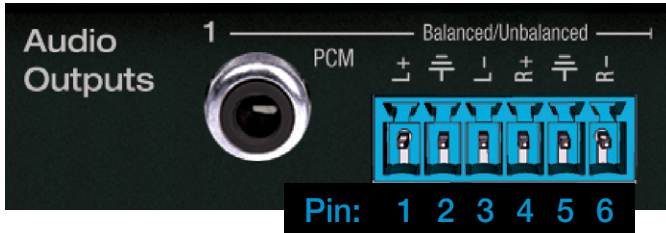
> Analog Audio Outputs: Each Output Channel has 1 Analog L/R Balanced/Unbalanced 6-Pin Terminal Block which provides de-embedded 2ch Balanced Analog Audio Output from the selected HDMI input source
> The Pin assignment for the audio is as follows:
>> Left + is Pin 1; Left - is Pin 3; Left Ground is Pin 2.
>> Right + is Pin 4; Right - is Pin 6; Right Ground is Pin 5.
> Digital Audio Outputs: Each Output Channel has 1 Digital Audio RCA output port which provides de-embedded Digital Audio Output from selected HDMI input
> Compatible with SPDIF format IEC 60958 supporting 2ch PC, Dolby 5.1ch, DTC 6.1ch
> Compatible with sampling rates up to 192KHz
> Audio outputs may switch to select HDMI audio sources independently or together with the respective HDMI outputs.
> Each output drives audio signals up to 2VRMS with a sampling rate of 192KHz
> There are no volume or tone control features, only muting control of the external audio outputs via RS-232 and TCP/IP
> There are no DSP features. Audio must be configured in the source. 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	Digital Audio Output (Coax and Optical)
2ch PCM	Pass-Through	Pass-Though
Multi-Channel PCM	MUTE	MUTE
Dolby DTS	MUTE	Pass-Though
HD Audio	MUTE	MUTE

Unit Control Ports
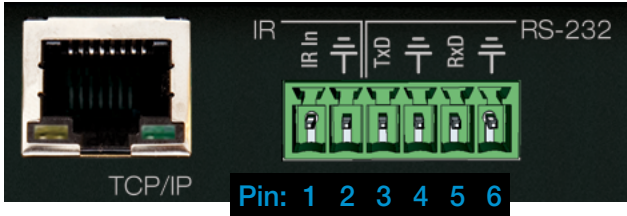
> **MAIN Control Port**
>> 6-Pin Terminal Block for IR and RS-232
>> RS-232 and TCP/IP commands may be found in the RS-232 & TCP/IP Commands section
>> Pin out:
>>> Pin 1 = Serial (Wired) IR In
>>> Pin 2 = IR Ground
>>> Pin 3 = RS-232 Tx Data
>>> Pin 4 = RS-232 Ground
>>> Ping 5 = RS-232Rx Data
>>> Pin 6 = Ground (optional)

> Default static IP address:
> **192.168.1.239, port 23**

> **MAIN Control Port**
>> **Default static IP address is 192.168.1.239, port 23**
>> Connect an Ethernet cable from the KD-MS4x4G/KD-MS8x8G to a network router or connect a straight through cable directly from a PC
>> Unit configuration, control, and firmware updates are most commonly achieved with **Key Digital Management Software™ Pro (KDMS™ Pro)** downloaded **HERE.**

Front Buttons and LEDs
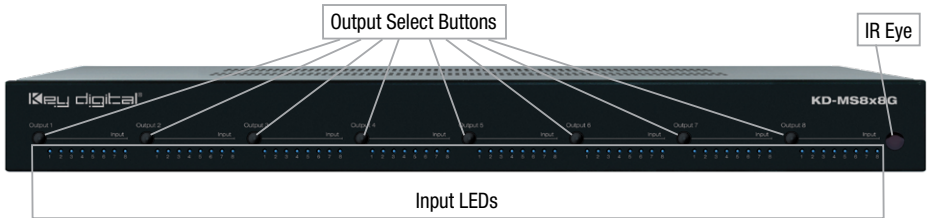
> Pressing an output button will select the next HDMI input.
> A blue LED will indicate which Input has been selected for each Output.
> Front button control can be disabled/enabled via serial control if desired.
> Press and hold Output 1 + Output 4 (KD-MS4x4G) or Output 1 + Output 8 (KD-MS8x8G) buttons simultaneously for 10 seconds to reset the unit to factory default.
> Notes:
>> Front LEDs will scroll during boot up
>> Output OFF setting for an output is represented by a illumination of the middle LEDs (KD-MS4x4G - lights 2 and 3; KD-MS8x8G - lights 3,4,5,6) for the respective output

Settings and Adjustments via Remote

Many initial installation steps may be configured using the factory remote control.

Other advanced settings may be configured using TCP/IP or RS-232 and via **Key Digital Management Software™ Pro (KDMS™ Pro)** downloaded **HERE.**

> ❯ **Matrix Switching – Video and Audio together**
>   » IR Button Sequence = **X, Y**
>   » X = Output # [1-8]
>   » Y = Input # [1-8]
> ❯ **Matrix Switching – Video ONLY**
>   » IR Button Sequence = **R1, X, Y**
>   » X = Output # [1-8]
>   » Y = Input # [1-8]
> ❯ **Matrix Switching – Audio ONLY**
>   » IR Button Sequence = **R2, X, Y**
>   » X = Output # [1-8]
>   » Y = Input # [1-8]
> ❯ **EDID Handshake to Input from Unit's EDID Table**
>   » IR Button Sequence = **R2, R1, R3, Y, ZZ**
>   » Y = Input # [1-8]
>   » ZZ = Device Select # [01-15]
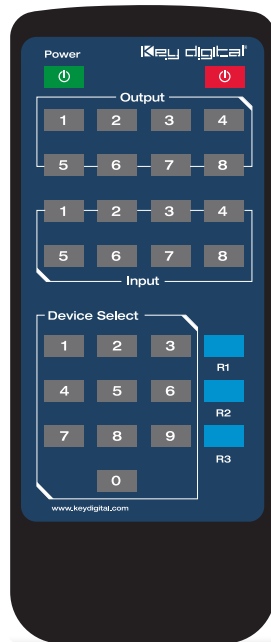
Unit's EDID Table (7 is the default)

01	1080i, 2CH AUDIO
02	1080i, DOLBY/DTS 5.1
03	1080i, HD AUDIO
04	1080p, 2CH AUDIO
05	1080p, DOLBY/DTS 5.1
06	1080p, HD AUDIO
07	**4Kx2K@60, 10.2G, HDR, 2CH AUDIO**
08	4Kx2K@60, 10.2G, HDR, DOLBY/DTS 5.1
09	4Kx2K@60, 10.2G, HDR, HD AUDIO
10	4Kx2K@60, 18G, HDR, 2CH AUDIO
11	4Kx2K@60, 18G, HDR, DOLBY/DTS 5.1
12	4Kx2K@60, 18G, HDR, HD AUDIO
13	1280x720p@60 DVI (no audio)
14	1920x1080p@60 DVI (no audio)
15	4Kx2K@30, 10.2G, HDR, 2CH AUDIO

> **EDID Handshake to Input from Connected Output**
>   » IR Button Sequence = **R2, R1, R3, Y, X**
>   » Y = Input # [1-8]
>   » X = Output # [1-8]

> **Set Output Debug Mode**
>   » IR Button Sequence = **R3, R2, R1, X, Z**
>   » X = Output # [1-8]
>   » Z = 1 (On) / 0 (Off)

Basic configuration via Key Digital Management Software™ Pro (KDMS™ Pro)

About KDMS™ Pro

Key Digital Management Software™ Pro (KDMS™ Pro) may be downloaded at www.keydigital.com/KDMS-Pro.html and used to configure and control your KD-MS4x4G/KD-MS8x8G as well as other KDMS Pro compatible devices/systems.

Connection

Connecting to KD-MS4x4G/KD-MS8x8G is done via the unit's TCP/IP port using the **unit's default IP address 192.168.1.239**. Connect KD-MS4x4G/KD-MS8x8G to a 192.168.1.xxx type network or set your PC to a static IP address of 192.168.1.xxx (excluding .239).

> Default static IP address:
> **192.168.1.239, port 23**

> 1. Connect to your unit as instructed above

> 2. Open the KDMS Pro software and perform a network scan (fig. 1)
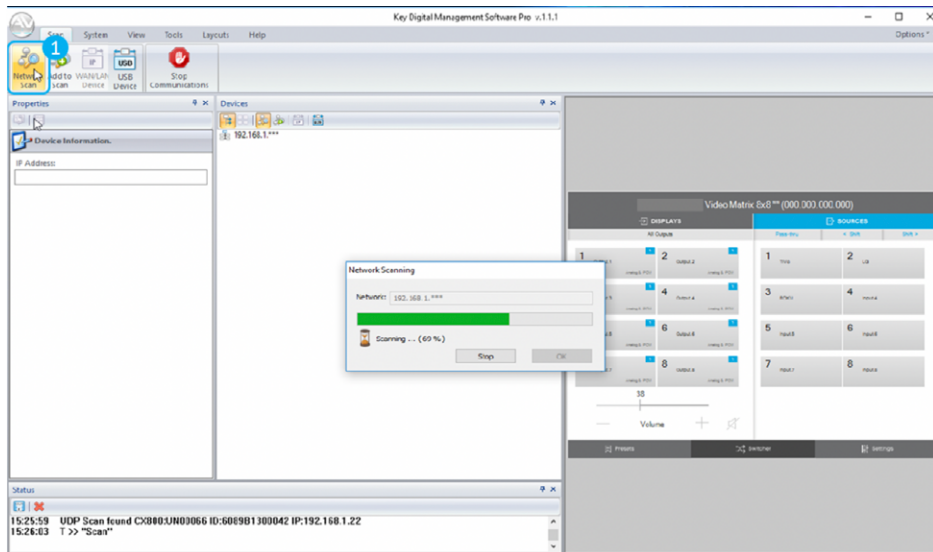
> 3. Choose the detected device from the Devices window (fig. 2a)
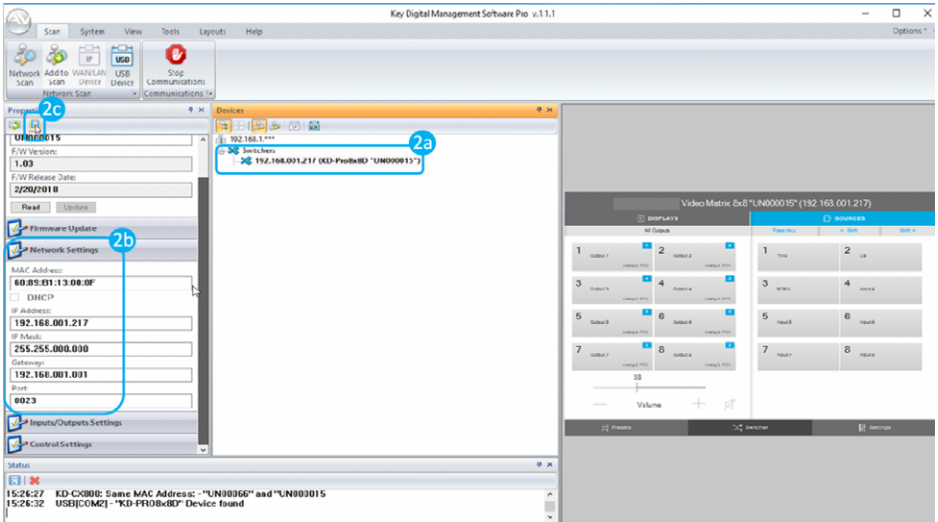
> 4. In the Network Settings section of the Properties window, enter the desired IP settings (fig. 2b)
>> » a. IP Address (default is 192.168.1.239)
>> » b. Subnet Mask (default is 255.255.255.0)
>> » c. Gateway (default is 192.168.1.1)
>> » d. Port (default is 23)
> 5. Save (fig. 2c)
> 6. In the EDID Settings section, choose the desired handshake that you wish to provide to your connected HDMI source (fig 3a).
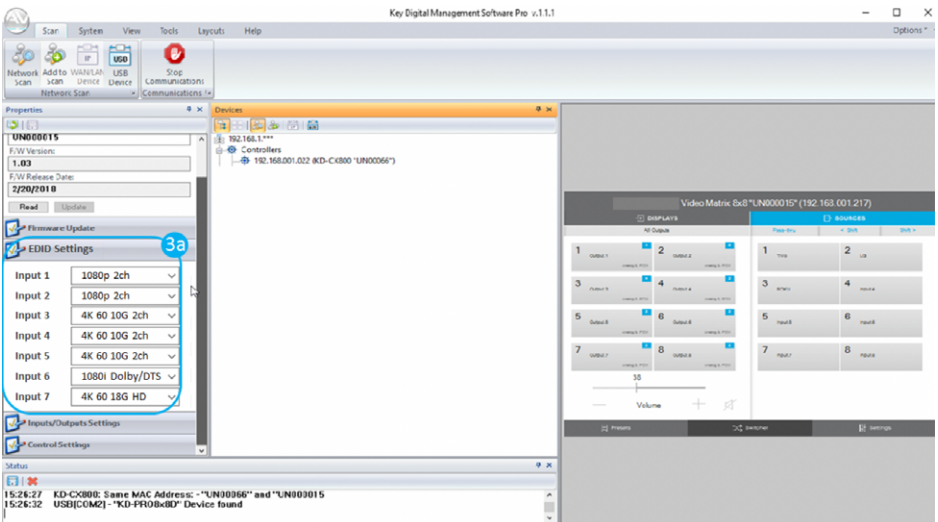
> 7. If using KD-App or KDMS for control, set the desired Input/Output names by entering the Input/Output Settings section of the properties window, and selecting the Change Input/Output Name button (fig. 4a), selecting the desired input/output and entering the name (fig. 4b)
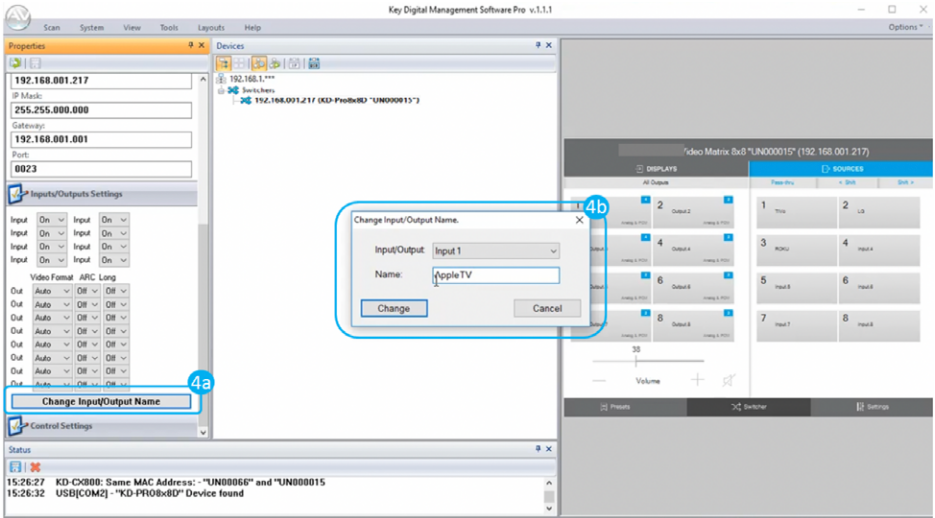
> 8. Additional settings may be adjusted in the KDMS software. Full access to all settings/commands is achieved via terminal session using Tera Term or PuTTy software.

> 9. Your unit is now ready to control from the KDMS™ Control Panel, KD-App, or by professional control system.

RS-232 and TCP/IP Commands

KD-MS4x4G/KD-MS8x8G allows control over serial interface for bi-directional communication.
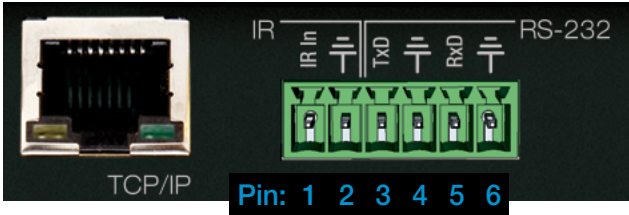
Use pins 3, 4, and 5 for RS-232 communication.

In addition to RS-232, the serial interface may also be accessed using a TCP/IP connection

> **Default IP address is 192.168.1.239, with default port 23**

Connection Protocol:

» Baud Rate = 57,600 bits per second

» Data Bits = 8

» Stop Bits = 1

» Parity = Non

» Flow Control = None

» Carriage Return: Required at end of string

Default static IP address:
192.168.1.239, port 23

> Notes:

» Commands are not case-sensitive

» Spaces are shown for clarity; commands should NOT have any spaces

» After a new command is received, a prompt should be sent back

KD-MS4x4G Help Command (H). Returns entire API in readable format:

```
--------------------------------------------------------------------------
--                      Key Digital Systems HELP                        --
--------------------------------------------------------------------------
-- KD-MS4x4G           System Address = 00         F/W Version : 2.05 --
--                                                                      --
-- Azz      : All Commands may have Prefix System Address zz=[01-99] --
-- H        : Help                                                      --
-- PF       : Power Off                                                 --
-- PN       : Power ON                                                  --
-- STA      : Show Global System Status                                 --
--                                                                      --
-- HDMI Output Setup Commands:                                          --
--   ( xx = [01-04,A], yy = [01-04,U/D], A=All, U=Up, D=Down )          --
-- SPO xx SI yy  : Set Both HDMI and Audio Output xx to HDMI Input yy  --
-- SPO xx SB yy  : Set HDMI Output xx to HDMI Input yy                  --
-- SPO xx ON/OFF : Set Output xx ON/OFF                                 --
-- SPO xx DBG ON/OFF : Set Output xx Debug Mode ON/OFF                  --
--                                                                      --
-- Audio Output Setup Commands: [E=Enable, D=Disable]                   --
--   ( xx = [01-04,A], yy = [01-04,U/D], A=All, U=Up, D=Down )          --
-- SPO xx SA yy  : Set Audio Output xx to HDMI Input yy                 --
-- SPO xx AA E/D : Enable/Disable External Analog Audio Output          --
-- SPO xx DA E/D : Enable/Disable External Digital Audio Output         --
--                                                                      --
```

```
-- Input/Output/Device Naming Commands (Max. 16 Chars)              --
-- SPI xx WN cccccccccccccccc : Write Input xx Name                 --
-- SPI xx RN               : Read Input xx Name                      --
-- SPO xx WN cccccccccccccccc : Write Output xx Name                --
-- SPO xx RN               : Read Output xx Name                     --
-- SPC WN cccccccccccccccc    : Write Device Name                   --
-- SPC RN                  : Read Device Name                        --
--                                                                  --
-- EDID Setup, xx = [01-04,A], yy = [01-04], zz = [01-15] (A=All)   --
-- SPC EDID xx H yy : Copy EDID from Ouput yy to Input xx           --
-- SPC EDID xx D zz : Copy EDID from Default EDID zz to Input xx    --
--  DEFAULT EDID 01 : HDMI 1080i@60, Audio 2CH PCM                  --
--  DEFAULT EDID 02 : HDMI 1080i@60, Audio PCM,DTS/DOLBY            --
--  DEFAULT EDID 03 : HDMI 1080i@60, Audio PCM,DTS/DOLBY/HD         --
--  DEFAULT EDID 04 : HDMI 1080p@60, Audio 2CH PCM                  --
--  DEFAULT EDID 05 : HDMI 1080p@60, Audio PCM,DTS/DOLBY            --
--  DEFAULT EDID 06 : HDMI 1080p@60, Audio PCM,DTS/DOLBY/HD         --
--  DEFAULT EDID 07 : HDMI 4Kx2K@60/3D/HDR10/10G, 2CH PCM           --
--  DEFAULT EDID 08 : HDMI 4Kx2K@60/3D/HDR10/10G, PCM,DTS/DOLBY     --
--  DEFAULT EDID 09 : HDMI 4Kx2K@60/3D/HDR10/10G, PCM,DTS/DOLBY/HD  --
--  DEFAULT EDID 10 : HDMI 4Kx2K@60/3D/HDR10/18G, 2CH PCM           --
--  DEFAULT EDID 11 : HDMI 4Kx2K@60/3D/HDR10/18G, PCM,DTS/DOLBY     --
--  DEFAULT EDID 12 : HDMI 4Kx2K@60/3D/HDR10/18G, PCM,DTS/DOLBY/HD  --
--  DEFAULT EDID 13 : DVI Video Max. 1280x720@60, No Audio          --
--  DEFAULT EDID 14 : DVI Video Max. 1920x1080@60, No Audio         --
--  DEFAULT EDID 15 : HDMI 4Kx2K@30/3D/HDR10/10G, 2CH PCM           --
--                                                                  --
-- Network Setup,  ( xxx=[000-255], zzzz=[0023~9999] )              --
-- SPCETIPA xxx.xxx.xxx.xxx : Set Host IP Address to xxx.xxx.xxx.xxx --
-- SPCETIPM xxx.xxx.xxx.xxx : Set Net Mask to xxx.xxx.xxx.xxx        --
-- SPCETIPR xxx.xxx.xxx.xxx : Set Route IP Address to xxx.xxx.xxx.xxx --
-- SPCETIPP zzzz            : Set TCP/IP Port to zzzz               --
-- SPCETIPB                 : Apply New Network Config          --
--                                                                  --
-- System Address Setup Command: xx = [00-99], 00 = Single          --
-- SPC Axx    : Set System Address to xx                            --
--                                                                  --
-- System Control Setup Commands:                                   --
-- SPC RSB z  : Set RS232 Baud Rate to z bps, z=[0-4]               --
--             [0:57600, 1:38400, 2:19200, 3:9600, 4:4800]          --
-- SPC FB E/D : Enable/Disable Front Panel Buttons                  --
-- SPC DF     : Reset to Factory Defaults with DEFAULT EDID 10      --
--------------------------------------------------------------------------
```

KD-MS4x4G Status command (STA). Returns current state and settings of the unit:

```
--------------------------------------------------------------------------
--                   Key Digital Systems STATUS                     --
--------------------------------------------------------------------------
-- Model: KD-MS4x4G, System Address = 00, Device Name: KD-MS4x4G    --
-- Main F/W Ver: 2.05,   I/O F/W Ver: 5.16,   IPM F/W Ver: 6.44     --
--                                                                  --
-- Power : ON                                                       --
-- RS232 : Baud Rate=57600bps, Data=8bit, Parity=None, Stop=1bit    --
-- Front Panel Button : Enabled                                     --
--                                                                  --
-- Network Setting(Telnet Server) Status                            --
-- MAC Address = 60:89:B1:22:20:03                                  --
-- Host IP Address = 192.168.001.239                                --
-- Net Mask = 255.255.255.000                                       --
-- Router IP Address = 192.168.001.001                              --
-- TCP Port = 0023                                                  --
--                                                                  --
```

```
-- HDMI Input 01  : EDID = DEFAULT 10,  LINK = ON                        --
-- HDMI Input 02  : EDID = DEFAULT 10,  LINK = ON                        --
-- HDMI Input 03  : EDID = DEFAULT 10,  LINK = ON                        --
-- HDMI Input 04  : EDID = DEFAULT 10,  LINK = ON                        --
--                                                                       --
-- HDMI Output 01 : IN = 01, OUT = ON , LINK = ON  , DBG = OFF,          --
-- HDMI Output 02 : IN = 02, OUT = ON , LINK = ON  , DBG = OFF,          --
-- HDMI Output 03 : IN = 03, OUT = ON , LINK = ON  , DBG = OFF,          --
-- HDMI Output 04 : IN = 04, OUT = ON , LINK = ON  , DBG = OFF,          --
--                                                                       --
-- Audio Output 01 : IN = 01, Balanced = Enabled, PCM = Enabled          --
-- Audio Output 02 : IN = 02, Balanced = Enabled, PCM = Enabled          --
-- Audio Output 03 : IN = 03, Balanced = Enabled, PCM = Enabled          --
-- Audio Output 04 : IN = 04, Balanced = Enabled, PCM = Enabled          --
-------------------------------------------------------------------------
```

KD-MS8x8G Help Command (H). Returns entire API in readable format:

```
-------------------------------------------------------------------------
--                    Key Digital Systems HELP                        --
-------------------------------------------------------------------------
-- KD-MS8x8G           System Address = 00        F/W Version : 2.06 --
--                                                                       --
-- Azz       : All Commands may have Prefix System Address zz=[01-99] --
-- H         : Help                                                     --
-- PF        : Power Off                                                --
-- PN        : Power ON                                                 --
-- STA       : Show Global System Status                                --
--                                                                       --
-- HDMI Output Setup Commands:                                          --
--   ( xx = [01-08,A], yy = [01-08,U/D], A=All, U=Up, D=Down )          --
-- SPO xx SI yy  : Set Both HDMI and Audio Output xx to HDMI Input yy   --
-- SPO xx SB yy  : Set HDMI Output xx to HDMI Input yy                  --
-- SPO xx ON/OFF : Set Output xx ON/OFF                                 --
-- SPO xx DBG ON/OFF : Set Output xx Debug Mode ON/OFF                  --
--                                                                       --
-- Audio Output Setup Commands: [E=Enable, D=Disable]                   --
--   ( xx = [01-08,A], yy = [01-08,U/D], A=All, U=Up, D=Down )          --
-- SPO xx SA yy  : Set Audio Output xx to HDMI Input yy                 --
-- SPO xx AA E/D : Enable/Disable External Analog Audio Output          --
-- SPO xx DA E/D : Enable/Disable External Digital Audio Output         --
--                                                                       --
-- Input/Output/Device Naming Commands (Max. 16 Chars)                  --
-- SPI xx WN cccccccccccccccc : Write Input xx Name                     --
-- SPI xx RN              : Read Input xx Name                          --
-- SPO xx WN cccccccccccccccc : Write Output xx Name                    --
-- SPO xx RN              : Read Output xx Name                         --
-- SPC WN cccccccccccccccc   : Write Device Name                        --
-- SPC RN              : Read Device Name                              --
--                                                                       --
-- EDID Setup, xx = [01-08,A], yy = [01-08], zz = [01-15] (A=All)      --
-- SPC EDID xx H yy : Copy EDID from Ouput yy to Input xx               --
-- SPC EDID xx D zz : Copy EDID from Default EDID zz to Input xx        --
--    DEFAULT EDID 01 : HDMI 1080i@60, Audio 2CH PCM                    --
--    DEFAULT EDID 02 : HDMI 1080i@60, Audio PCM,DTS/DOLBY              --
--    DEFAULT EDID 03 : HDMI 1080i@60, Audio PCM,DTS/DOLBY/HD           --
--    DEFAULT EDID 04 : HDMI 1080p@60, Audio 2CH PCM                    --
--    DEFAULT EDID 05 : HDMI 1080p@60, Audio PCM,DTS/DOLBY              --
--    DEFAULT EDID 06 : HDMI 1080p@60, Audio PCM,DTS/DOLBY/HD           --
--    DEFAULT EDID 07 : HDMI 4Kx2K@60/3D/HDR10/10G, 2CH PCM Audio       --
--    DEFAULT EDID 08 : HDMI 4Kx2K@60/3D/HDR10/10G, PCM,DTS/DOLBY       --
--    DEFAULT EDID 09 : HDMI 4Kx2K@60/3D/HDR10/10G, PCM,DTS/DOLBY/HD    --
--    DEFAULT EDID 10 : HDMI 4Kx2K@60/3D/HDR10/18G, 2CH PCM Audio       --
--    DEFAULT EDID 11 : HDMI 4Kx2K@60/3D/HDR10/18G, PCM,DTS/DOLBY       --
--    DEFAULT EDID 12 : HDMI 4Kx2K@60/3D/HDR10/18G, PCM,DTS/DOLBY/HD    --
--    DEFAULT EDID 13 : DVI Video Max. 1280x720@60, No Audio            --
```

```
--   DEFAULT EDID 14 : DVI Video Max. 1920x1080@60, No Audio        --
--   DEFAULT EDID 15 : HDMI 4Kx2K@30/3D/HDR10/10G, 2CH PCM Audio      --
--                                                                    --
-- Network Setup, ( xxx=[000-255], zzzz=[0023~9999] )                 --
-- SPCETIPA xxx.xxx.xxx.xxx : Set Host IP Address to xxx.xxx.xxx.xxx  --
-- SPCETIPM xxx.xxx.xxx.xxx : Set Net Mask to xxx.xxx.xxx.xxx         --
-- SPCETIPR xxx.xxx.xxx.xxx : Set Route IP Address to xxx.xxx.xxx.xxx --
-- SPCETIPP zzzz          : Set TCP/IP Port to zzzz                   --
-- SPCETIPB               : Apply New Network Config                  --
--                                                                    --
-- System Address Setup Command: xx = [00-99], 00 = Single            --
-- SPC Axx   : Set System Address to xx                               --
--                                                                    --
-- System Control Setup Commands:                                     --
-- SPC RSB z  : Set RS232 Baud Rate to z bps, z=[0-4]                 --
--             [0:57600, 1:38400, 2:19200, 3:9600, 4:4800]            --
-- SPC FB E/D : Enable/Disable Front Panel Buttons                    --
-- SPC DF     : Reset to Factory Defaults with DEFAULT EDID 10        --
----------------------------------------------------------------------
```

KD-MS8x8G Status command (STA). Returns current state and settings of the unit:

```
----------------------------------------------------------------------
--                  Key Digital Systems STATUS                      --
----------------------------------------------------------------------
-- Model: KD-MS8x8G, System Address = 00, Device Name: KD-MS8x8G     --
-- Main F/W Ver: 2.06,   I/O F/W Ver: 5.16,   IPM F/W Ver: 6.44      --
--                                                                    --
-- Power : ON                                                         --
-- RS232 : Baud Rate=57600bps, Data=8bit, Parity=None, Stop=1bit      --
-- Front Panel Button : Enabled                                       --
--                                                                    --
-- Network Setting(Telnet Server) Status                              --
-- MAC Address = 60:89:B1:22:20:07                                    --
-- Host IP Address = 192.168.001.239                                  --
-- Net Mask = 255.255.255.000                                         --
-- Router IP Address = 192.168.001.001                                --
-- TCP Port = 0023                                                    --
--                                                                    --
-- HDMI Input 01  : EDID = DEFAULT 10,  LINK = ON                    --
-- HDMI Input 02  : EDID = DEFAULT 10,  LINK = ON                    --
-- HDMI Input 03  : EDID = DEFAULT 10,  LINK = ON                    --
-- HDMI Input 04  : EDID = DEFAULT 10,  LINK = ON                    --
-- HDMI Input 05  : EDID = DEFAULT 10,  LINK = ON                    --
-- HDMI Input 06  : EDID = DEFAULT 10,  LINK = ON                    --
-- HDMI Input 07  : EDID = DEFAULT 10,  LINK = ON                    --
-- HDMI Input 08  : EDID = DEFAULT 10,  LINK = ON                    --
--                                                                    --
-- HDMI Output 01 : IN = 08, OUT = ON , LINK = ON  , DBG = OFF,      --
-- HDMI Output 02 : IN = 08, OUT = ON , LINK = ON  , DBG = OFF,      --
-- HDMI Output 03 : IN = 08, OUT = ON , LINK = ON  , DBG = OFF,      --
-- HDMI Output 04 : IN = 08, OUT = ON , LINK = ON  , DBG = OFF,      --
-- HDMI Output 05 : IN = 08, OUT = ON , LINK = ON  , DBG = OFF,      --
-- HDMI Output 06 : IN = 08, OUT = ON , LINK = ON  , DBG = OFF,      --
-- HDMI Output 07 : IN = 08, OUT = ON , LINK = ON  , DBG = OFF,      --
-- HDMI Output 08 : IN = 08, OUT = ON , LINK = ON  , DBG = OFF,      --
--                                                                    --
-- Audio Output 01 : IN = 08, Balanced = Enabled , PCM = Enabled     --
-- Audio Output 02 : IN = 08, Balanced = Enabled , PCM = Enabled     --
-- Audio Output 03 : IN = 08, Balanced = Enabled , PCM = Enabled     --
-- Audio Output 04 : IN = 08, Balanced = Enabled , PCM = Enabled     --
-- Audio Output 05 : IN = 08, Balanced = Enabled , PCM = Enabled     --
-- Audio Output 06 : IN = 08, Balanced = Enabled , PCM = Enabled     --
-- Audio Output 07 : IN = 08, Balanced = Enabled , PCM = Enabled     --
-- Audio Output 08 : IN = 08, Balanced = Enabled , PCM = Enabled     --
----------------------------------------------------------------------
```

Specifications

Technical:

- › Input (Each): 1 HDMI Connector, Type A, 19 Pin Female
- › Output (Each): 1 HDMI Connector, Type A, 19 Pin Female
- › Output (Each): Balanced/unbalanced line level audio on 6-pin terminal block. Drives 2VRMS line audio input with a sampling rate of 192KHz
- › Output (each): RCA female for digital audio following SPDIF format (IEC 60958). Supports sampling rate up to 192KHz
- › Video Bandwidth: TMDS bandwidth 10.2 Gbps
- › DDC Signal (Data): Input DDC Signal - 5 Volts p-p (TTL)
- › HDMI Video/Audio Signal: Input Video Signal - 1.2 Volts p-p
- › DDC Communication: EDID and HDCP Bi-directional buffering to Display and Source
- › K-Factor: 0.22% @ optimal EQ » Video Isolation (Crosstalk): -45dB @ 5MHz
- › Analog Audio Max Output Level: 4dBu on 150kΩ, DC coupling
- › Audio Bandwidth: 20Hz to 20kHz @ 0dBu
- › TND + Noise: 0.33% @0dBu @ 1kHz » PCM Max Input Level: 1Vpp on 75Ω, AC coupling
- › PCM Max Output Level: 1Vpp on 75Ω, DC coupling
- › Wired IR: modulated IR signal input, 0-5V TTL or -10 to +10V
- › Power: 12V/3.3A (40W) AC Power Supply with Grounded, 2.1mm ID DC Power Jack with Screw In Type.

General:

- › Regulation: CE, RoHS, WEEE
- › Rack Mount: 1U, 1 Rack Width (rack ears included)
- › Enclosure: Black Metal
- › KD-MS4x4G Dimensions: L = 17.32" W = 5.78" H = 1.72"
- › KD-MS8x8G Dimensions: L = 17.32" W = 7.27" H = 1.72"
- › Shipping Carton Dimensions: L = 23.4" W = 8.54" H = 2.36"
- › Product Weight: 6 lb
- › Shipping Weight: 9
- › Accessories: IR Remote, UL Certified Power Supply

⚠️ 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®

System Design Group (SDG)

For system design questions please contact us at:

› Phone: 914-667-9700
› E-mail: sdg@keydigital.com

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
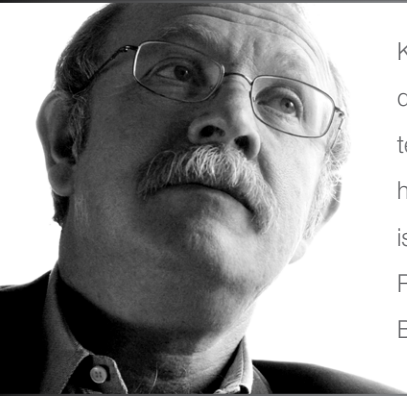
Warranty Information

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

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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