

ENTERPRISE AV™ OVER IP

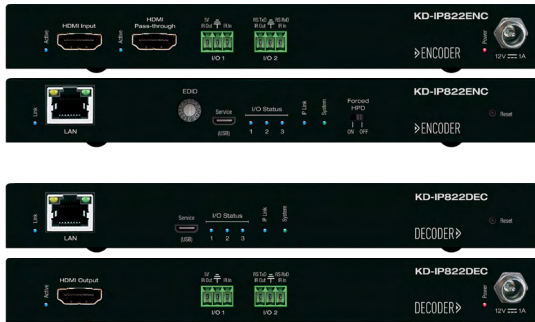
AUDIO/VIDEO/CONTROL SOLUTIONS

KD-IP822ENC/DEC

4K Enterprise AV™ over IP Encoder/Decoder,
PoE, HDMI Pass-Through, 2x IR/RS-232 ports

Quick Setup Guide

» ENCODER



DECODER »

Key digital®

The Experts in Digital Video Technology and Solutions™

Table of Contents

Key Features	1
Usage Modes	2
Unit and System Configuration Procedure	4
1. Setup all ENCODER units – one by one	5
2. Setup all DECODER units – one by one	6
3. Define switcher system	7
4. (Optional) Add Video Walls to switcher system	8
5. Load switcher file to units	9
6. Verify HDMI switcher system functionality	10
Important Product Warnings & Safety Instructions:	11
Contacting Key Digital®	12
Warranty Information.	12

Always follow the instructions provided in this Quick Setup Guide.

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



KD-IP822ENC / KD-IP822DEC

Key Digital's Enterprise AV™ over IP Encoders and Decoders create expandable HDMI over IP systems that can be scaled to fit any professional video installation need. Add Encoder units to your system to integrate each video source/input and Decoder units for each video display/output. The input / output amounts are completely flexible. Use Enterprise AV™ over IP Encoders and Decoders in place of these traditional product categories:

- Digital Video Matrix
- Digital Video Distribution System
- Digital Video Switcher
- Video Wall Controller (4 displays maximum)
- Digital Video Extender
- Master Controller

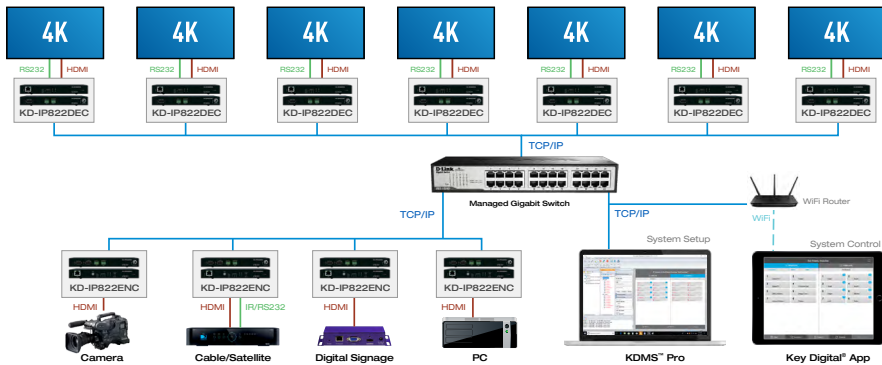
ENTERPRISE AV™ OVER IP

AUDIO/VIDEO/CONTROL SOLUTIONS

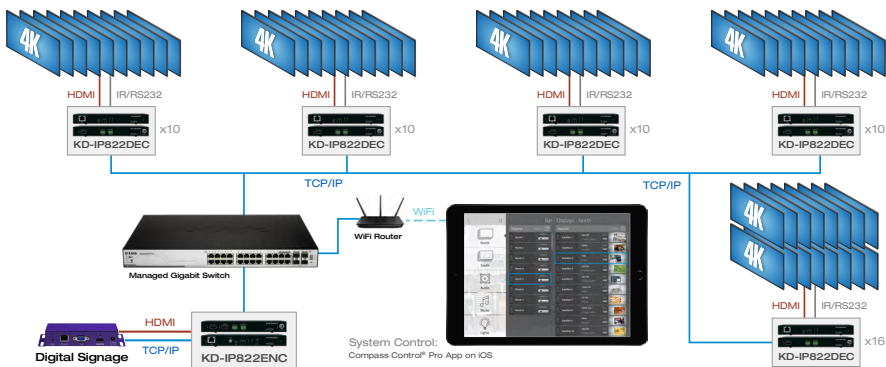
Key Features

- ▶ **Enterprise AV™ Over IP:** Utilizes a managed gigabit network switch to enable video distribution, matrix switching, and extension
- ▶ **Inter-System Compatibility:** Fully compatible with KD-IP922ENC and DEC units / systems
- ▶ **Video Wall Processing:** Encoder + Decoder systems create video walls with up to 4 total displays. Use KD-IP922DEC for larger video wall configurations
- ▶ **Control:** 2 multi-function ports may be used as third-party control interface, Compass Control® Pro master controller, control extension via IP, or callable via KeyCode open API
- ▶ **Key Digital® App Ready:** Network scan & detect populates pre-built GUI including image preview
- ▶ **HDCP 2.2:** Compliancy up to HDCP 2.2 and backward compliant
- ▶ **4K/Ultra HD Resolution:** Support for 4096x2160 or 3840x2160 24/25/30Hz at 4:4:4/8 Bit or 60Hz at 4:2:0/8 Bit
- ▶ **4K Down-scale:** Incoming 4K resolution can be down-converted to 1080p or 720p at each decoder, enabling monitors to display content at optimal resolution at all times
- ▶ **Signal Extension:** Up to 330 ft. / 100 m @ 4K 24/25/30(4:4:4)/60(4:2:0) into network switch or or point-to-point
- ▶ **Power over Ethernet:** Does not require power supply when integrated with compatible PoE network switch
- ▶ **Redundant Power Connection:** Added reliability for non-PoE integration.
Power supply sold separately
- ▶ **Data Stream Bandwidth:** < 900Mbps
- ▶ **Latency:** <40ms at 4K. Less at lower resolution.
- ▶ **Installation:** Use KD-SMS16 to cleanly install up to twelve KD-IP822ENC/DEC units in rack
- ▶ **HDMI® and HDCP Licensing:** Fully licensed and compatible with HDCP 2.2 and HDMI latest technology such as 4K/UHD 4:2:0/8bit at 60 f/s
- ▶ **EDID Control:** Internal library features 15 default EDID configurations and native EDID data from Output/Display devices connected to Decoder
- ▶ **Hot Plug Detection Control:** Enables integrator to choose if active signal voltage is forced to connected input devices
- ▶ **Full Buffer System™:** Manages TMDS re-clocking / signal re-generation, HDCP authentication with source & display, EDID Control handshake, and Hot Plug control
- ▶ **IR Sensor:** Sensor powering via +5V IR In port 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 connected to Encoder and Decoder units
- ▶ **RS-232:** Bi-Directional control to/from Encoder and Decoder unit on Phoenix connector
- ▶ **RS-232/TCP-IP Control Mode:** Provides control of unit as well as connectivity status
- ▶ **Lossless compressed digital audio:** Support for Dolby® TrueHD, Dolby® Digital Plus, Dolby Atmos®, and DTS-HD Master Audio™
- ▶ **Control System Support:** Controllable by all IR, RS-232 & TCP/IP supported control systems via open API: Compass Control® Pro, AMX®, Control4®, Crestron®, KNX®, RTI®, Savant, URC®, Leviton® etc.

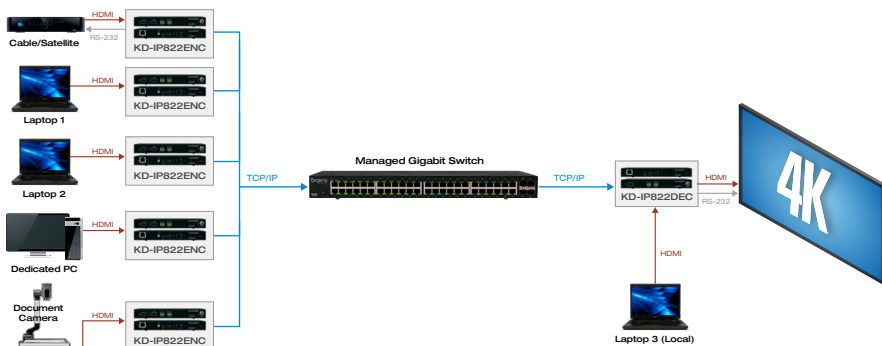
Digital Video Matrix:



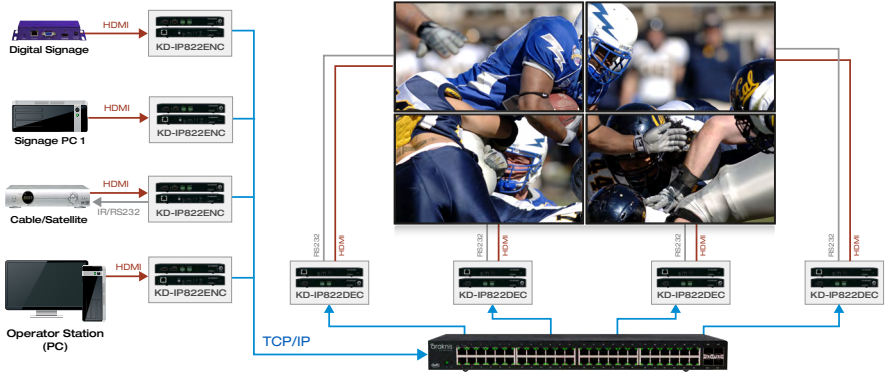
Digital Video Distribution System



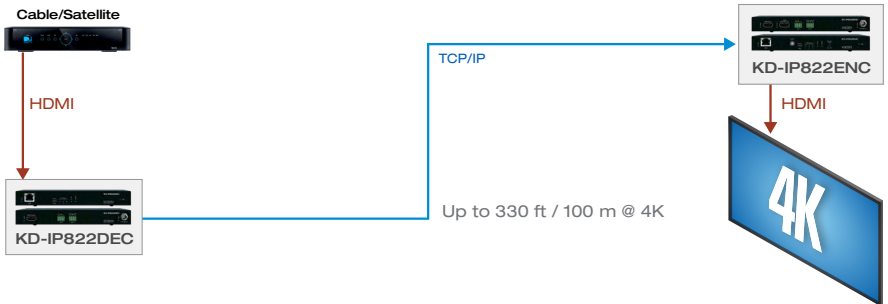
Digital Video Switcher



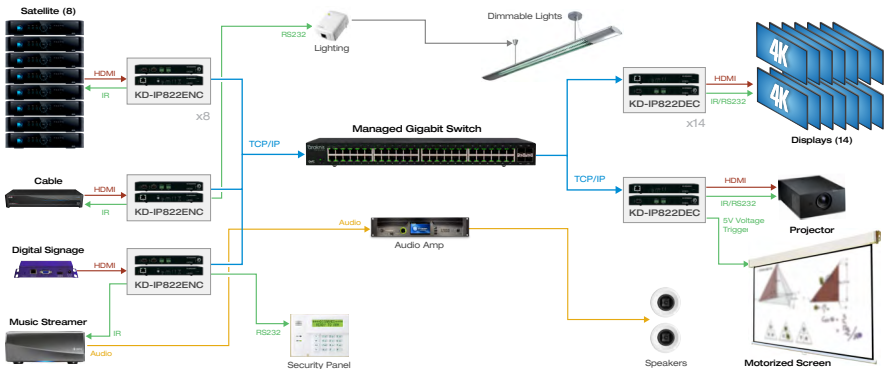
Video Wall Controller (4 displays maximum)



Digital Video Extender



Master Controller



Unit and System Configuration Procedure

This procedure documents building a Video over IP system using KD-IP822ENCs and KD-IP822DECs.

- » A less detailed video of the setup procedure can be found [HERE](#)

Before proceeding, you must configure your network switch according to this document:

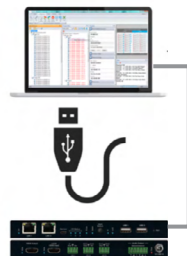
> [Enterprise AV Verified Network Switcher Setup Guide](#)

Setup Steps:

1. Setup all Encoder units
2. Setup Decoders
3. Define switcher system
4. (Optional) Add Video Walls to switcher system (4 displays maximum).
Use KD-IP922DEC for larger video wall configurations.
5. Load switcher file to units
6. Verify HDMI switcher system functionality

Needs:

1. KD-IP822ENC – 1 per video source
2. KD-IP822DEC – 1 per video display
3. Verified Network Switch – Configured according to [VNS Setup Guide](#)
4. PC with [Key Digital Management Software™ Pro](#)
5. USB A to Micro – Included with KD-IP822
6. Completed [KD-IP822 System Configuration Questionnaire](#) (below)
7. Video Source – at least one
8. Video Display – at least one



KD-IP922ENC/DEC System Configuration Questionnaire (continued)

Please complete, sign and submit this form for approval to: sales@keydigital.com

Configurations for each ENCODER (source) unit

Do **NOT** use the following reserved IP addresses: 192.168.1.1, 192.168.1.50, 192.168.1.90, 192.168.1.100, 192.168.1.150, 192.168.1.200

Device Name	Group ID	Main IP Address	Video IP Address
Front Wall	1	192.168.1.11	192.168.1.31
Laptop	2	192.168.1.12	192.168.1.32
Cable	3	192.168.1.13	192.168.1.33
Blu-Ray 1	4	192.168.1.14	192.168.1.34
Blu-Ray 2	5	192.168.1.15	192.168.1.35
Video Conf.	6	192.168.1.16	192.168.1.36
Cam 1	7	192.168.1.17	192.168.1.37




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. Setup all ENCODER units - one by one

- a. Connect **one** ENC unit to network switch using CAT6 cable.
 - » i. Note: Power supply sold separately for non-PoE switch systems
- b. Connect ENC to PC using USB
- c. Open **Key Digital Management Software™ Pro** (KDMS™ Pro)
- d. Detect unit: **SCAN -> USB DEVICE**
- e. Configure Unit. Refer to completed **KD-IP822 System Configuration Questionnaire**.

> Save (blue save icon) after updating each property cell

- » i. Enter Device Name
 - » Desired “friendly name” of video source
- » ii. Device ID
 - » Begin at 1 and go up (2, 3, 4 etc) for each KD-IP822ENC
- » iii. Main Network IP Address
- » iv. Main Gateway
- » v. Video Network IP Address (MUST be different from main network IP address)
- » vi. Video Gateway
- » vii. (Optional) if Compass Control® Pro will be used, set Control Port 1, and Control Port 2:
 - » 1. Control Mode: Compass Control
 - » 2. Configuration: IR Output
 - » 3. Save
- » viii. Review all settings are entered correctly
- » ix. **Perform a final save using the HARDDRIVE ICON  to ensure all settings are applied**

f. Connect next Encoder

g. Repeat steps for each additional Encoder.

Ensure Device IDs and IP addresses are unique for each

Properties

Update Changed Device Settings

Main Network Settings

MAC Address:
60:89:B1:98:00:B5

DHCP

IP Address:
192.168.1.51

IP Mask:
255.255.000.000

Gateway:
192.168.001.001

Port:
0023

Control Port 1

Control Mode:
Compass Control

TCP Port:
4581

Output Signal Level:
7 1 7 V

Control RxD Group ID:
1


Control TxD Group ID:
2

Configuration:
IR Output

2. Setup all DECODER units - one by one

- a. Connect **one** DEC unit to network switch using CAT6 cable.
 - » i. Note: Power supply sold separately for non-PoE switch systems
- b. Connect DEC to PC using USB
- c. Open **Key Digital Management Software™ Pro** (KDMS™ Pro)
- d. Detect unit: **SCAN -> USB DEVICE**
- e. Configure Unit. Refer to completed **KD-IP822 System Configuration Questionnaire**.

» Save (blue save icon) after updating each property cell

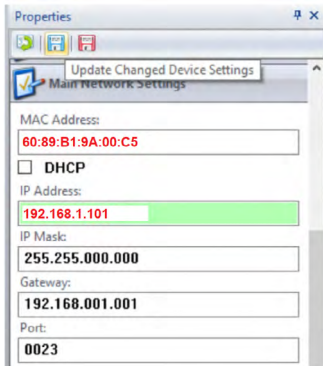
- i. Enter Device Name
 - » Desired “friendly name” of video source
- ii. Device ID
 - » Begin at 1 and go up (2, 3, 4 etc) for each KD-IP822DEC
- iii. Main Network IP Address
- iv. Main Gateway
- v. Video Network IP Address (MUST be different from main network IP address)
- vi. Video Gateway
- vii. (Optional) if Compass Control® Pro will be used, set Control Port 1, and Control Port 2:
 - » 1. Control Mode: Compass Control
 - » 2. Configuration: IR Output
 - » 3. Save
- viii. Review all settings are entered correctly
- ix. **Perform a final save using the HARDDRIVE ICON**  to ensure all settings are applied

f. Verify video and switching

- i. Connect the Decoder to HDMI display using HDMI cable
- ii. Connect Encoder to video source using HDMI cable
- iii. SCAN -> NETWORK SCAN to ENCs and DEC
- iv. Use KDMS Control GUI area to switch

g. Repeat steps for each additional Decoder.

Ensure Device IDs and IP addresses are unique for each



Properties

Update Changed Device Settings

Main Network Settings

MAC Address:
60:89:B1:9A:00:C5

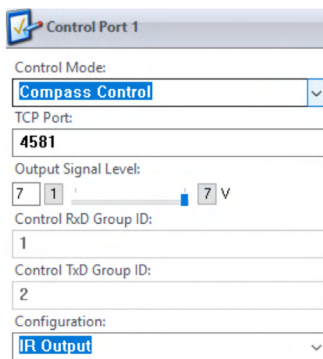
DHCP

IP Address:
192.168.1.101

IP Mask:
255.255.000.000

Gateway:
192.168.001.001

Port:
0023



Control Port 1

Control Mode:
Compass Control

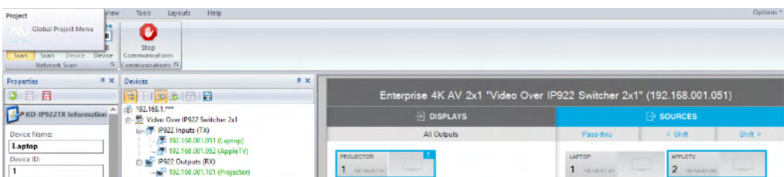
TCP Port:
4581

Output Signal Level:
7 1 7 V

Control RxD Group ID:
1

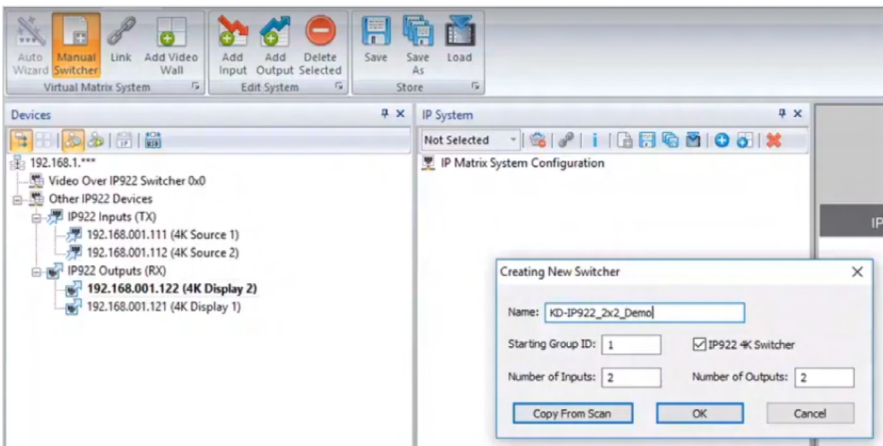
Control TxD Group ID:
2

Configuration:
IR Output



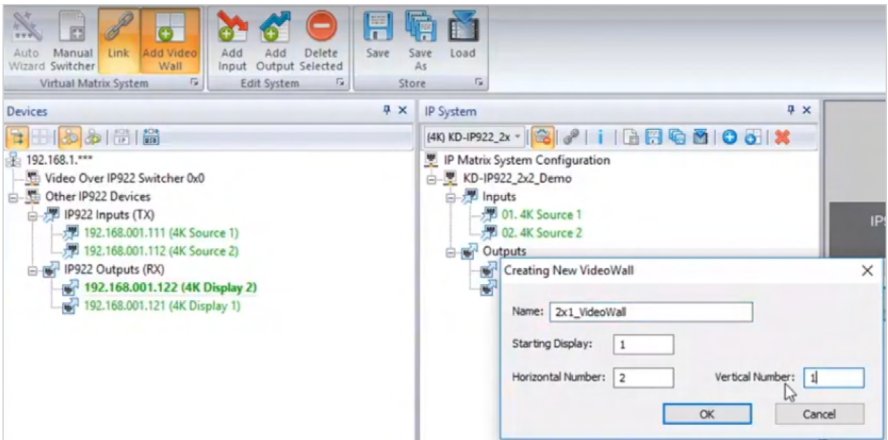
3. Define switcher system

- a. Connect all ENC and DEC units to network switch using CAT6 cables
- b. In KDMS™ Pro: **SYSTEM -> AUTO-BUILD SYSTEM**
- c. Name: ie "Dakota Dunes 17x29"
- d. Starting Group ID will always start at 1 unless otherwise noted
- e. Number of Inputs: How many Encoders in system
- f. Number of Outputs: How many Decoders in system
- g. Press **OK**
- h. All devices will move into the IP System workspace window, and will be green indicating a link to the physical device.
- i. **Save**



4. (Optional) Add Video Walls to switcher system

a. Click the **Add Video Wall** button

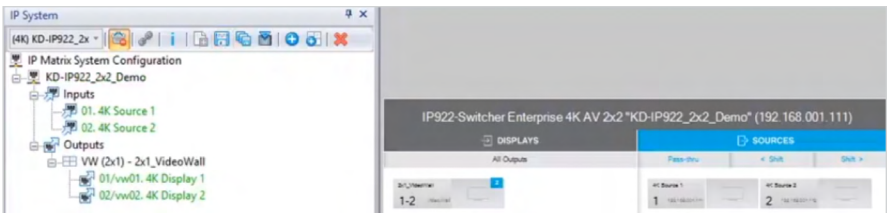


b. Enter friendly name for video wall (ie East Lobby)

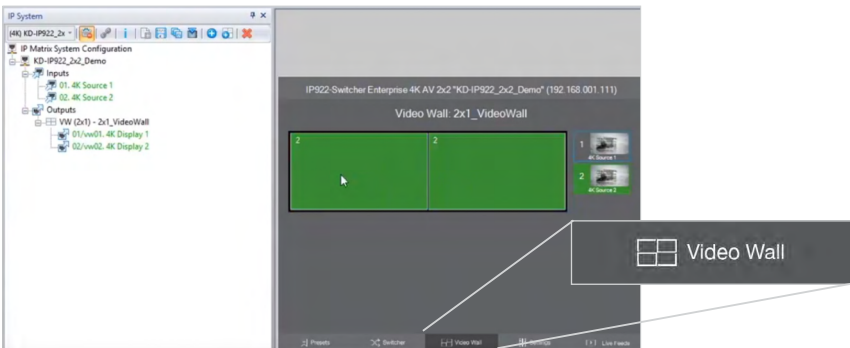
c. Starting Display is Device ID number of the top-left display / decoder in the video wall

d. Enter number of horizontal and vertical displays and press **OK**

e. Now the displays within the video wall appear as one output

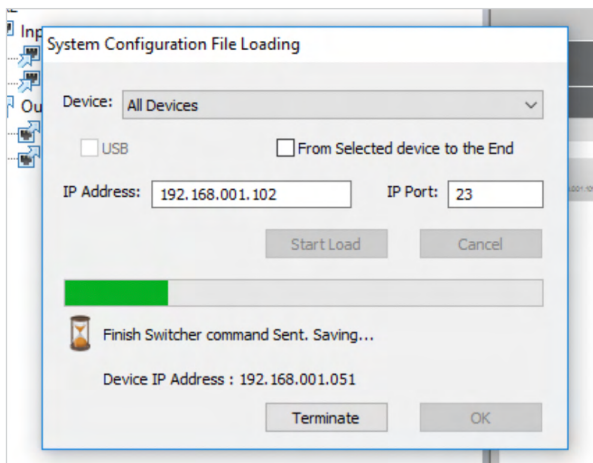
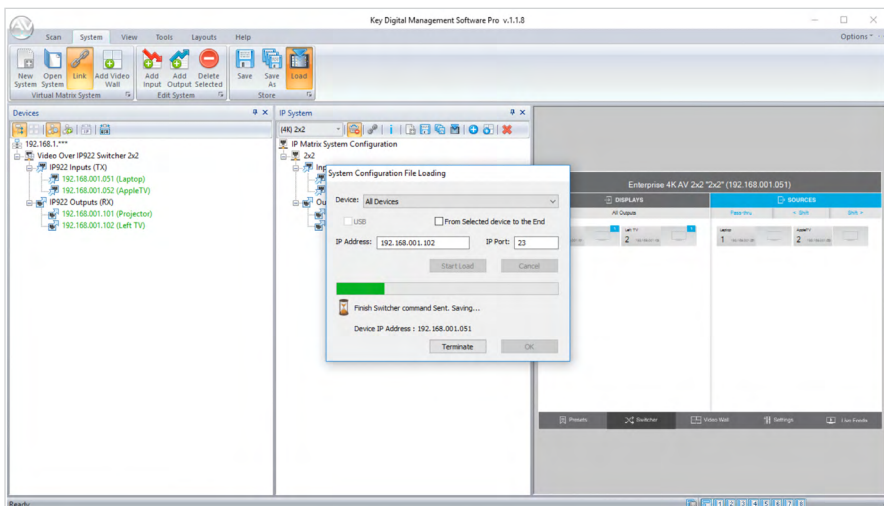


f. The video wall may be controlled by pressing the **VIDEO WALL** button at bottom center of the screen.



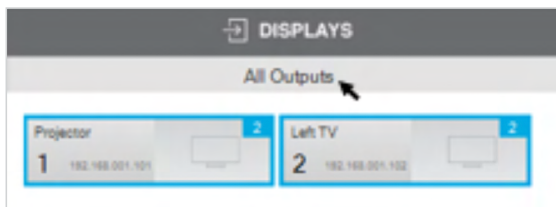
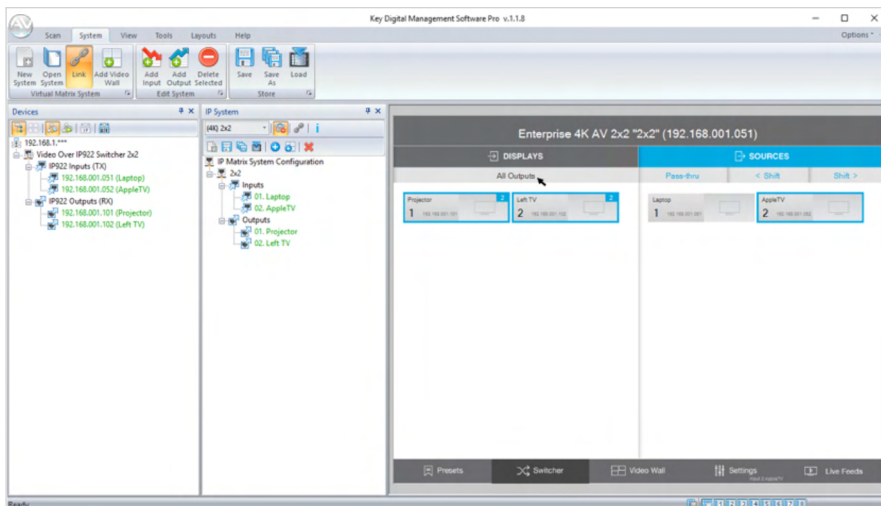
5. Load switcher file to units

- Ensure all Encoders and Decoders units are connected to the network switch
- Ensure the switcher file is created and opened (refer to step 3)
- Click the **Load** button
- Choose **ALL DEVICES** in the devices drop down
- After the switcher configuration file loads to all units, press **OK**



6. Verify HDMI switcher system functionality

- a. Connect HDMI video sources to Encoders
- b. Connect HDMI displays to Decoders
- c. Connect all Encoders and Decoders to the network switch
- d. **SCAN -> NETWORK SCAN**
- e. Use the **ALL OUTPUTS** button in the control GUI section and verify successful video switching and signal by beginning with Source 1 and advancing to source 2, 3, 4, etc.



Visit keydigital.com for a Complete Manual

Please visit www.keydigital.com for the full manual and software downloads.



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

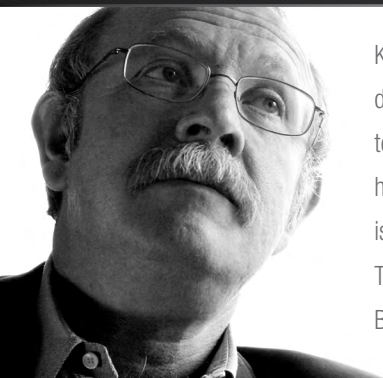
Should your product require warranty service or repair, please obtain a Key Digital® Return Material Authorization (RMA) number by contacting us at:

- › 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.

Key Digital® :: 521 East 3rd Street :: Mount Vernon, NY 10553

Phone : 914.667.9700 Fax : 914.668.8666 Web : www.keydigital.com