



DV-HMSW4K-44

4x4 MATRIX USER MANUAL



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SURGE PROTECTION DEVICE RECOMMENDED

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

POWER SUPPLY VOLTAGE WARNING

This unit is equipped with a 5 volt power supply. Use only the correct, center positive 5 volt supply or damage to the unit itself and any connected equipment may result. Damage caused by incorrect power supply voltage or polarity is not covered under the warranty.

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Features

- HDMI 2.0 and HDCP 2.2 compliant device supports up to 4K @60Hz YUV 4:4:4 HDR Bandwidth up to 18Gbps
- HDR supports high dynamic range 10bit (HDR10)
- HDCP2.2 input ,HDCP2.2 output
- HDCP1.4 input, HDCP1.4 output
- 4xHDMI Input, 4xHDMI output with 4xSPDIF Audio
- Any one of the 4 Ultra HD sources to any one of the 4 Ultra HD displays
- Supports Panel Button, Local IR, RS232 Control with command, IP Control, Web GUI Control
- Supports Dolby True HD and DTS-HD master audio, Dolby Atmos under copy EDID mode
- Supports firmware updating through USB port
- Unit size: 8.5"W x 4.2"D x 1.38"H (Not including connectors)

What's in the box

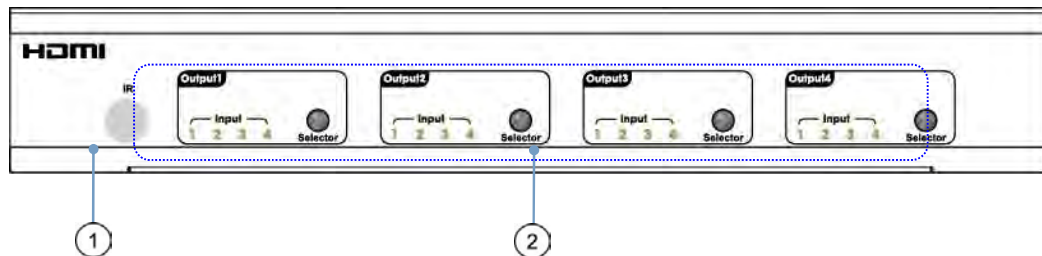
- 1x HDMI Matrix
- 1x 5V DC power supply** **See Caution on page 2**
- 1x Remote control
- 1x IR Ext RX Cable
- 1x Phoenix plugs for RS232 cable termination
- 1x mounting kit
- 1x CD for control software & user manual



Specifications

Operating Temperature	23°F to 113°F (-5°C to 45°C)
Storage Temperature	-4°F to 140°F (-20°C to 60°C)
Resolution	480p@60hz, 576P@50hz, 720P@60hz, 1080P@24hz, 1080P@50hz, 1080P@60hz, 4K@24hz, 4K@30hz, 4K@60hz YUV4:2:0, 4K@ 60hz YUV4:4:4 HDR (HDR10)
HDCP Compliant	HDCP2.2 and HDCP1.4
Output Video	HDMI2.0 and HDMI 1.4
Audio Format Supported	PCM, Dolby5.1/7.1, DTS5.1/7.1 digital audio, Dolby Atmos
RS-232 serial port	3PIN terminal block connectors
Ethernet port (IP control)	RJ45, female
IR Ext port	1x3.5mm stereo jack
USB port	Micro 5P female
Bandwidth	18 Gbps
Default IP	192.168.1.168
Rack-Mountable	Rack ears included
Chassis dimensions(WxHxD)	8.5"W x 4.2"D x 1.38"H (Not including connectors)
Shipping dimensions (carton):	10"W x 8"D x 1.5"H
Shipping weight	2.35 lbs. / 1.06 kg
Power consumption	13W (Max)

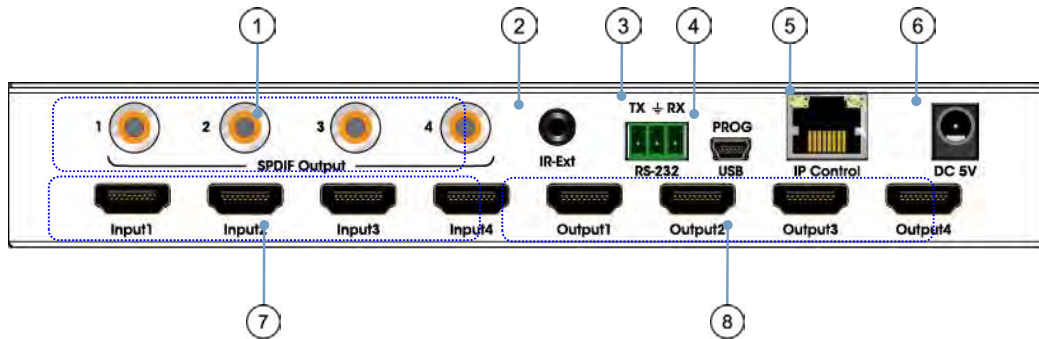
Panel Descriptions



- ① IR receive window.
- ② Output button OUT1~4: choose the desired output port from input ports 1~4.

Note: 1) Turn on/off DHCP function: press the selector of output 1 and output 2 for 3 seconds.

2) Restore factory settings: when all outputs select input 1, press the selector of output 3 and output 4 for 3 seconds.

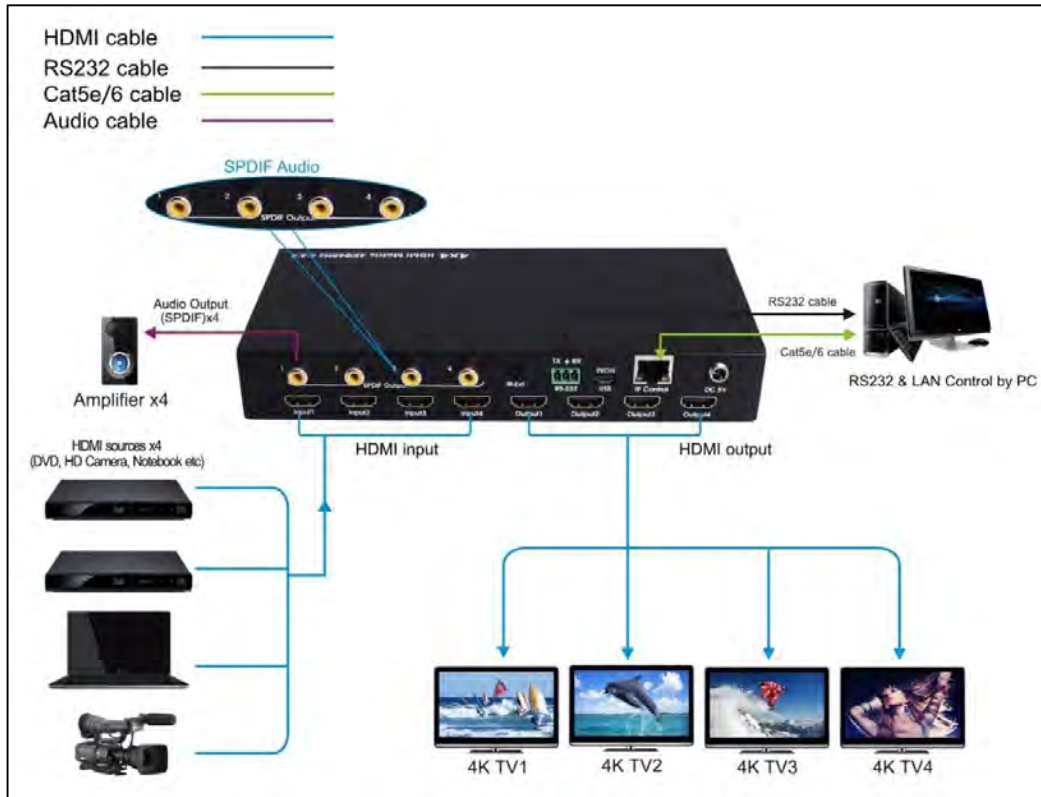


- ① SPDIF Audio outputs.
- ② For IR external receiver cable.
- ③ RS232 for control or upgrading the firmware.
- ④ USB micro 5P port for upgrading the firmware.
- ⑤ IP control.
- ⑥ DC power inputs.
- ⑦ HDMI input ports.
- ⑧ HDMI output ports.

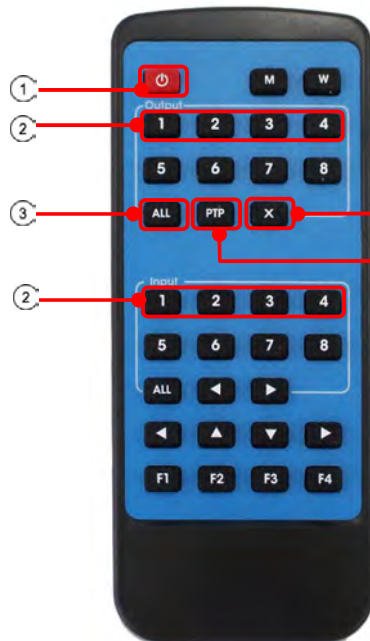
Connecting and Operating

1. Connect source devices to input ports of the matrix
2. Connect HDMI output ports to TV or other HDMI display devices.
3. Optional: connect RS232 cable from PC RS232 port.
4. Optional: connect an Ethernet cable from the TCP/IP port on the matrix to a local area network.
5. Connect 5V POWER supply to DC power jack. **See Caution on page 2.**
6. Power on the matrix, HDMI sources and displays.

Application Diagram



Remote Control Description



① Standby Mode button

② OUTPUT-x select INPUT-y:

Press OUTPUT-x (x means 1 to 4 of outputs) Press INPUT-Y (y means 1 to 4 of inputs)

③ All outputs button select INPUT-y:

Press ALL button in zone OUTPUT

Press INPUT-Y button (y means 1 to 4 of inputs), then INPUT-y switched to ALL OUTPUTS.

④ Cancel Button: Cancel the switching operation

⑤ PTP button: Mirror all inputs and outputs

(Ex. Input 1 to output 1, input 2 to output 2, etc): Press PTP button in Zone OUTPUT

RS232 Pin Assignment

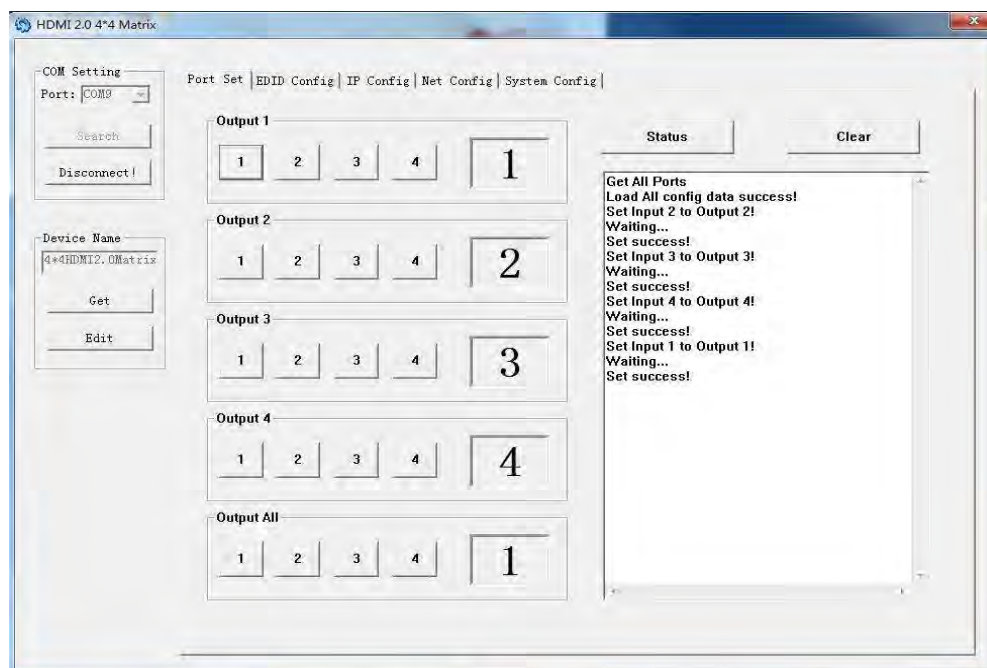
Matrix	Remote Control Console	
Assignment	PIN	Assignment
	1	NC
Tx	2	Rx
Rx	3	Tx
	4	NC
GND	5	GND
	6, 7, 8, 9	NC

RS232 Software Control

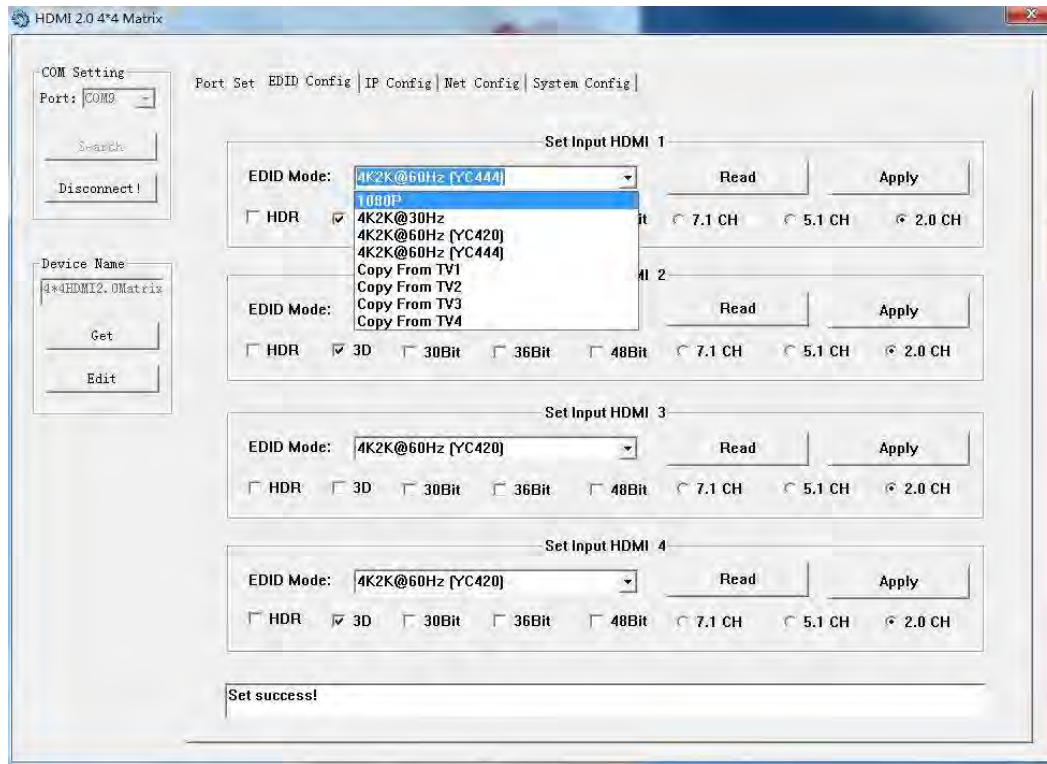
Connect the 4x4 Matrix to PC with a RS232 cable and open the DV-HMSW4K-44 Remote application available on the FSR website (www.fsrinc.com). In the COM Setting window, select the COM port according to your PC and click Connect to connect to the unit.

The Port Set tab on the application monitors and allows control of the routing configuration of the matrix. Select the desired input button on individual output channels or route a selected input globally to all outputs by pressing the appropriate button. The currently selected input is displayed to the right of each output window. The com status window provides information on the success or failure of communication with the unit and can be cleared by pressing the clear button. The status button can be pressed to poll the unit for its current status in case routing changes were made while there was no serial connection.

You can change the default device name by selecting “Edit” and typing in the Device Name window. Click “SaveLock” when done. The Device Name may be up to 16 characters in length.

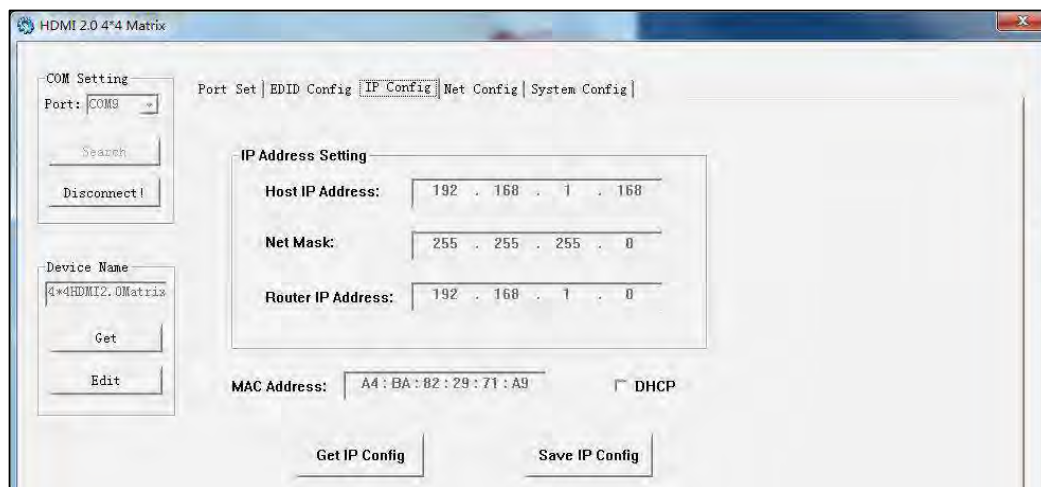


The EDID tab is used to Read and Configure EDID for each input, such as HDR, 3D, Data rates and Audio channel.



Picture 2: EDID Setting

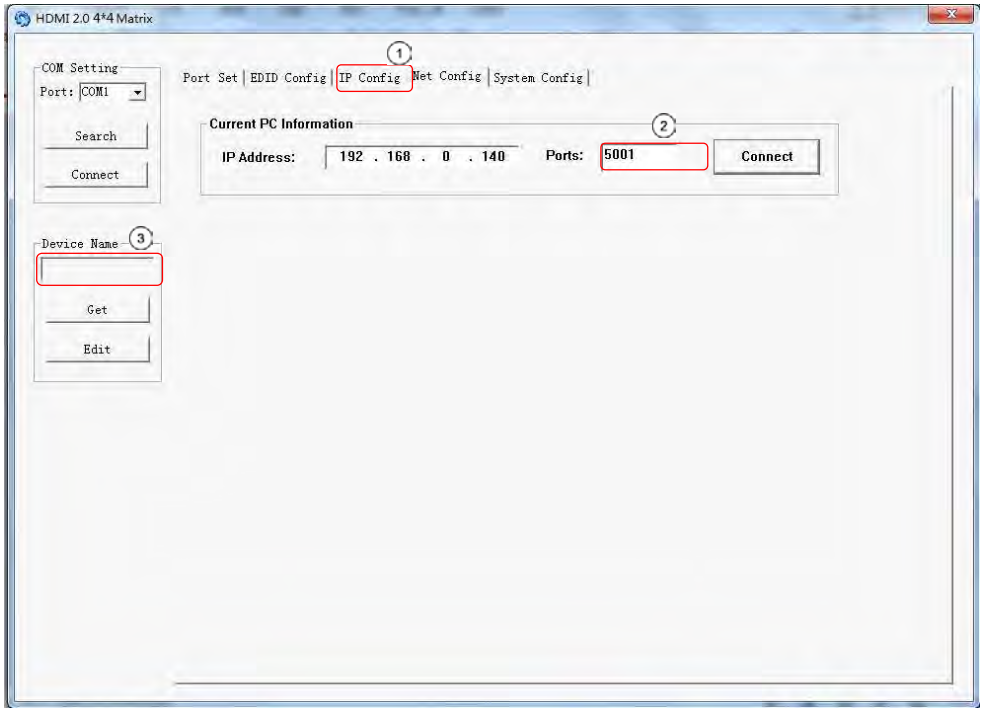
The IP configure tab is used to read and configure the IP address and MAC of the Matrix. Click DHCP if you want the router to assign an automatic IP for the Matrix.



Picture 3: IP Config

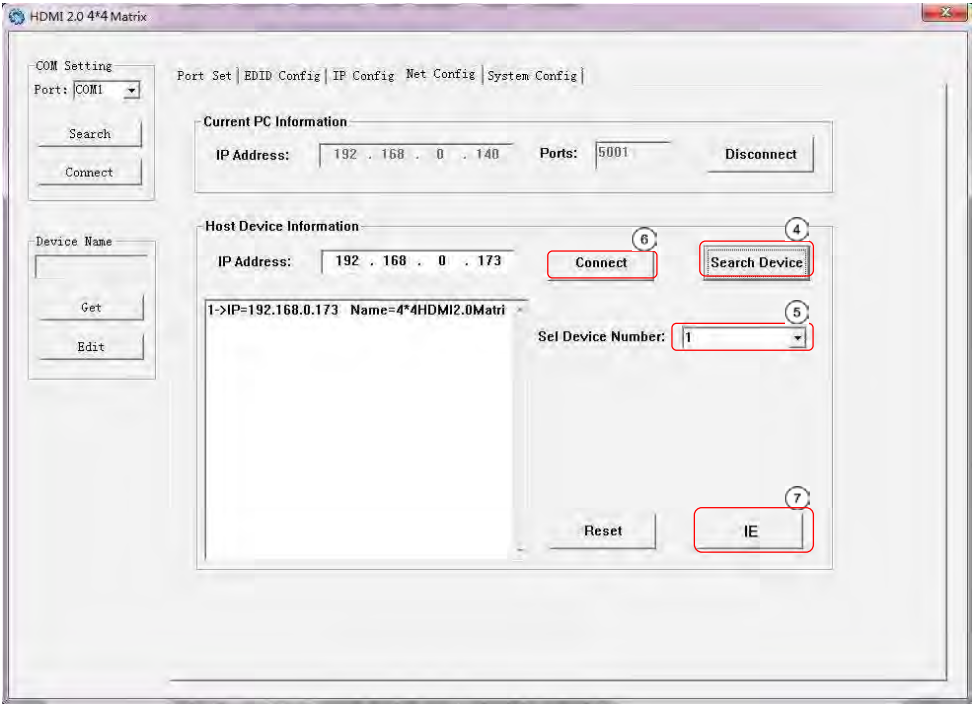
The Net Config tab allows users to configure the PC and Matrix in the same LAN with the IP Address and connection.

Click “Net config” → “Connect” → “Search Device” → “Sel Device Number” → “Connect” to see the device name. This indicates a successful connection.



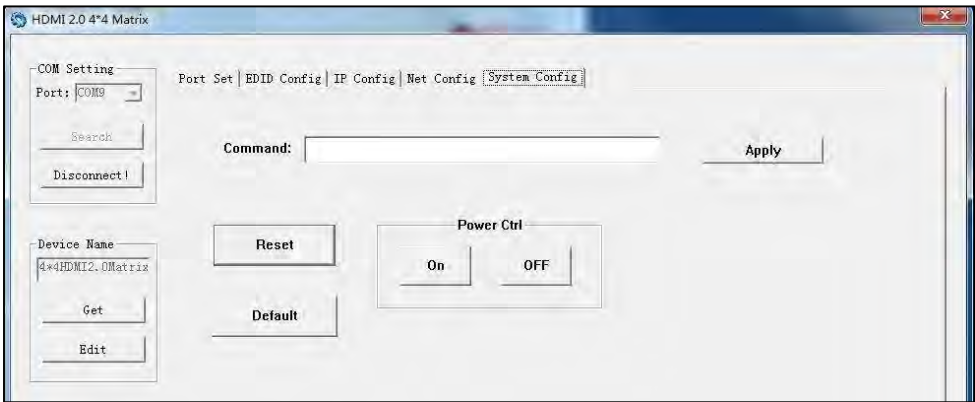
Picture 4: Net Config

You can also click “IE” and click to enter into web.



Picture 5: Net Config

The last tab is System Config, which allows power ON/OFF or reset, default the Matrix.



Picture 6: System config

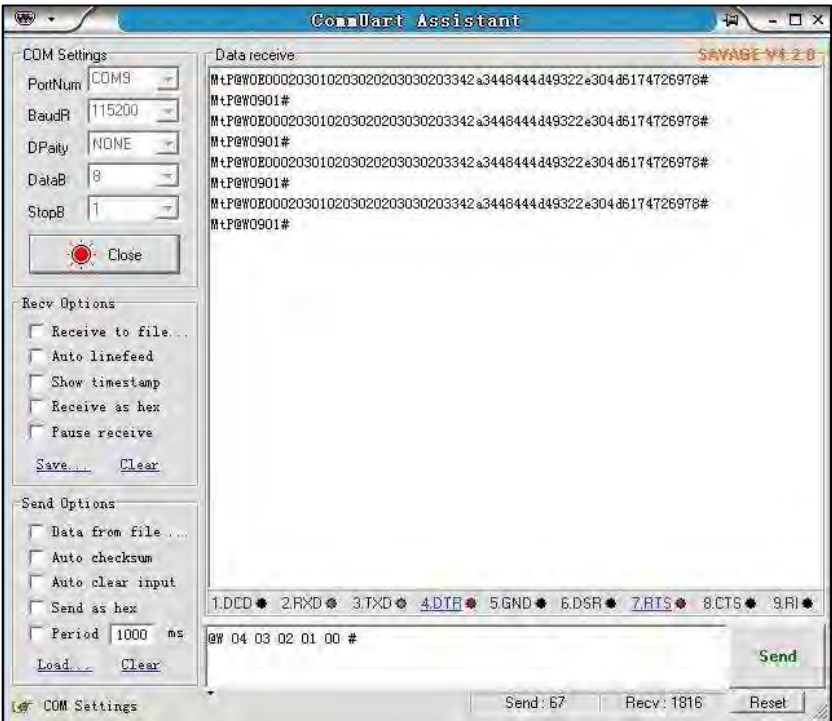
Command Control

- 1). Open CommUart Assistant.
- 2). Comport setting:

Baud Rate:	115200 bps
Parity:	None
Data Bits:	8 bit
Stop Bits:	1 bit

NOTE:
Serial over Ethernet setting is IP port: 5000

- 3). Enter Port Command in Send options.



Picture 7

Note: All commands and responses are in ASCII. Commands and are white space insensitive and are terminated with #.

4). General Commands:

Command	Function	Note
@W 04 00 01 02 03 #	PTP Function	Allows all outputs to be switched to the specified inputs in a single command.
@W 50 #	Reboot	Reboot matrix
@W 51 #	Restore Factory Setting	Restore unit to factory clearing any user settings
@W 0F 00 #	Standby	00: Standby Mode 01: Cancel "Standby Mode"

5). PTP command:

Format: **@W 04 01 02 03 04 #**

Parameter Description:

01 = Input number (0-3) to route to output 1
02 = Input number (0-3) to route to output 2
03 = Input number (0-3) to route to output 3
04 = Input number (0-3) to route to output 4

Example: @W 04 02 02 01 00 #

Route input 3 to outputs 1 and 2, input 2 to output 3, and input 1 to output 4

6). Output Routing Command:

Format: **@W 00 II #**

Parameter Description:

00 = Output Number as indicated below:

II = Input Number as indicated below:

Command	Description
00	Output1
01	Output2
02	Output3
03	Output4
04	All Output
00	Input1
01	Input2
02	Input3
03	Input4

Example: @W 00 03 #

Output 1 comes from Input 4

7). EDID Setting Command:

Format: **@W II AA BB #:**

Parameter Description:

II = Input Number to configure

Value	05	06	07	08
Input #	Input1	Input2	Input3	Input4

AA = EDID File to use as indicated below

00= 1080P
01= 4K2K_30
02=4K2K_60(YC420)
03=4K2K_60(YC444)
04=Copy from display 1
05=Copy from display 2
06=Copy from display 3
07=Copy from display 4

BB = EDID file parameters as shown in chart below:

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
HDR	48Bit	36Bit	30Bit	7.1CH	5.1CH	2CH	3D
1	1	1	1	1	1	1	1
0	0	0	0	0	0	0	0

“1” = enable the function, “0” = disable the function.

For example: 11001001: HDR, 48Bit, 7.1CH, 3D

Convert Binary code “11001001” to hexadecimal format “C9”.

Example: @W 05 03 C9 # (Note: All characters shown are in ASCII; “C9” = 43, 39)

The EDID file setting of input 1 indicates: 4K2K_60(YC444)、HDR、48Bit、7.1CH、3D.

Note: This field has invalid and has no effect for any “copy from display” EDID settings

8). INPUT Enable/Disable Commands:

Format: @W 36 II AA#

Parameter Description:

II = Input Number to configure

00	Input1
01	Input2
02	Input3
03	Input4

AA = Enable/Disable Input

00 = Disable the INPUT 01 = Enable the INPUT

Example: @W 36 03 00# Disables Input 4

Example: @W 36 00 01# Enables Input 1

9). Matrix Status Inquiry:

Format: @R YY #:

Parameter Description:

YY = Output/Input to query as indicated below:

YY	Description
30	Output1
31	Output2
32	Output3
33	Output4
34	All Output
35	Input Status

Unit responds with:

@R YY II AA BB #:

Parameter Description:

YY = status being reported:

Command	30	31	32	33	34	35
Description	Output1	Output2	Output3	Output4	All Outputs	Input Status

II = Input # (00 = input1...03 = input4)

Command	00	01	02	03
Description	Input1	Input2	Input3	Input4

AA Indicates Input EDID setting:

00= 1080P
 01= 4K2K_30
 02=4K2K_60(YC420)
 03=4K2K_60(YC444)
 04=Copy from display 1
 05=Copy from display 2
 06=Copy from display 3
 07=Copy from display 4

BB indicates Input EDID video/audio mode (valid only for AA=00, 01, 02, 03, I imagine)

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
HDR	48Bit	36Bit	30Bit	7.1CH	5.1CH	2CH	3D
1	1	1	1	1	1	1	1
0	0	0	0	0	0	0	0

“1”: function is enabled, “0”: function is disabled, “XX”; invalid

Example Status Request:

@R 30 #: (Get Status of Output 1)

Response: @R 30 01 04 XX #

Output 1 is connected to input2, Input2 EDID is set to “copy from display 1”, EDID video/audio data is not valid.

AA = Selected EDID file as defined in EDID setting command above

BB = EDID file parameters as defined in EDID setting command above

Note: All “copy from display” EDID settings return XX (invalid) for this parameter

Example 1: @R 34 #: (Get Status of All Outputs)

Response:

@R 30 00 04 XX #

@R 31 01 00 C9 #

@R 32 02 01 C9 #

@R 33 03 04 XX #

Output 1 is connected to input1, Input1 EDID is set to “copy from display 1”, EDID video/audio data is not valid.

Output 2 is connected to input2, Input2 EDID is set to “1080P”, EDID video/audio data indicates HDR, 48bit, 7.1CH, 3D

Output 3 is connected to input3, Input3 EDID is set to “4K2K_30”, EDID video/audio data indicates HDR, 48bit, 7.1CH, 3D

Output 4 is connected to input4, Input4 EDID is set to “copy from display 1”, EDID video/audio data is not valid.

Example 2: **@R 35 #:** (Get All Input Status)

Response: **@R 35 CC #:**

CC = input channel signal status (HDMI and +5V present (cable connected to source)) as described below:

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
In 4 HDMI	In 3 HDMI	In 2 HDMI	In 1 HDMI	Input 4 +5V	Input 3 +5V	Input 2 +5V	In 1 +5V
1	1	1	1	1	1	1	1
0	0	0	0	0	0	0	0

“1” signal is present, “0” signal is not present

Example Input Status Request:

@R 35 #:

Response:

@R 35 CE #

HDMI signal present on inputs 4 and 3, +5 volts present on pin 18 of inputs 4, 3, and 2.

Web GUI Control

The default IP Address of HDMI Matrix is 192.168.1.168.

Change the IP address of your PC.

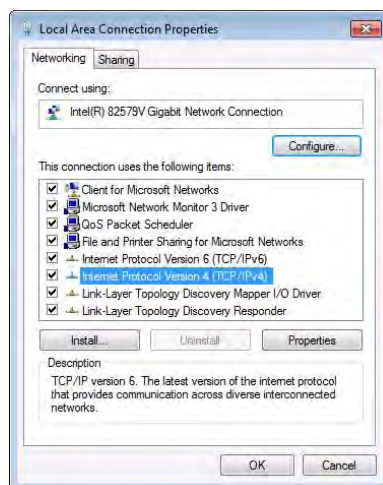
. Connect the HDMI Matrix and PC to the LAN.

. Configure your PC as follows:

Click **Start > Control Panel > Network and Sharing Center.**

Click **Change Adapter Settings.**

Highlight the network adapter you want to use to connect to the device and click



Change settings of this connection.

Connect to the device and click change settings of this connection:

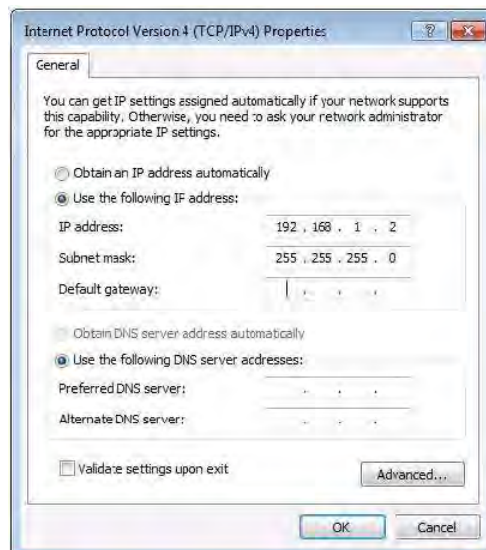
- . Highlight **Internet Protocol Version 4 (TCP/IPv4)** by clicking on the item.
- . Click **Properties**.



Picture 9

- 1). Select **Use the following IP Address** for static IP addressing and fill in the details.

For TCP/IPv4 you can use any IP address in the range 192.168.1.2 to 192.168.1.254 (excluding 192.168.1.168).



Picture 10

- 2). Click **OK**.
- 3). Click **Close**.

Controlling the Matrix via the WEB GUI

Open a Web browser and enter the IP address of the HDMI Matrix:192.168.1.168, then you can set the function as shown below:

Port Set

EDID Config

IP Config

Firmware Upgrade

Port Set page

Output1:

Input 1

Input 2

Input 3

Input 4

4

Output2:

Input 1

Input 2

Input 3

Input 4

4

Output3:

Input 1

Input 2

Input 3

Input 4

4

Output4:

Input 1

Input 2

Input 3

Input 4

4

Output All:

Input 1

Input 2

Input 3

Input 4

4

Config RX:

RX1 Enable

RX2 Enable

RX3 Enable

RX4 Enable

Picture 11: Port Setting Page

Port Set

EDID Config

IP Config

Firmware Upgrade

EDID Set page

Input HDMI1:

4K2K@60Hz[YC444]

Apply

☒ HDR

☐ 3D

☐ 10Bit

☐ 12Bit

☐ 16Bit

☐ 7.1Ch

☐ 5.1Ch

☒ 2.0Ch

Input HDMI2:

4K2K@60Hz[YC444]

Apply

☒ HDR

☐ 3D

☐ 10Bit

☐ 12Bit

☐ 16Bit

☐ 7.1Ch

☐ 5.1Ch

☒ 2.0Ch

Input HDMI3:

4K2K@60Hz[YC420]

Apply

☒ HDR

☐ 3D

☐ 10Bit

☐ 12Bit

☐ 16Bit

☐ 7.1Ch

☐ 5.1Ch

☒ 2.0Ch

Input HDMI4:

4K2K@60Hz[YC420]

Apply

☒ HDR

☐ 3D

☐ 10Bit

☐ 12Bit

☐ 16Bit

☐ 7.1Ch

☐ 5.1Ch

☒ 2.0Ch

Picture 12: EDID Setting Page

Port Set EDID Config IP Config Firmware Upgrade

IP Config page

MAC Address: E6:A5:78:A2:85:6A

Host IP Address: 192.168.1.168

Net Mask Address: 255.255.255.0

Router IP Address: 192.168.1.1

Device Name: 4*4HDMI2.0Matrix

☐ DHCP

Apply

Picture 13: IP Configuration Page

Port Set EDID Config IP Config Firmware Upgrade

Firmware Upgrade

File Choose a file

BROWSE...

START UPGRADE

Contact FSR Technical Support for assistance. (800-332-FSR1) 800-332-3771

Picture 14: Firmware Upgrade Page

Limited Warranty

The DV-HMSW4K-44 is warranted against failures due to defective parts or faulty workmanship for a period of three years after delivery to the original owner. During this period, FSR will make any necessary repairs or replace the unit without charge for parts or labor. Shipping charges to the factory or repair station must be prepaid by the owner, return-shipping charges (via UPS Ground) will be paid by FSR.

This warranty applies only to the original owner and is not transferable. In addition, it does not apply to repairs done by other than the FSR factory or Authorized Repair Stations.

This warranty shall be cancelable by FSR at its sole discretion if the unit has been subjected to physical abuse or has been modified in any way without written authorization from FSR. FSR's liability under this warranty is limited to repair or replacement of the defective unit.

FSR will not be responsible for incidental or consequential damages resulting from the use or misuse of its products. Some states do not allow the exclusion of incidental or consequential damages, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Warranty claims should be accompanied by a copy of the original purchase invoice showing the purchase date (if a Warranty Registration Card was mailed in at the time of purchase, this is not necessary). Before returning any equipment for repair, please read the important information on service below.

SERVICE

Before returning any equipment for repair, please be sure that it is adequately packed and cushioned against damage in shipment, and that it is insured. We suggest that you save the original packaging and use it to ship the product for servicing. Also, please enclose a note giving your name, address, phone number and a description of the problem.

NOTE: All equipment being returned for repair must have a Return authorization (RMA) Number. To get a RMA Number, please call the FSR Service Department (1-800-332-FSR1). Please display your RMA Number prominently on the front of all packages.

CONTACT INFORMATION

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