

4K HDBaseT™ 8x6 MATRIX

with 2 HDMI Outputs, IR, IP and RS-232



**4K 8x6 HDBaseT™
Matrix Switcher with
2 HDMI Outputs, IR,
IP and RS-232**

**Part Number:
EVMX8X6**

EVOLUTION
BY  **VANCO**
ADVANCING DIGITAL CONNECTIVITY

www.vanco1.com • 800.626.6445

DEAR CUSTOMER

Thank you for purchasing this product.
For optimum performance and safety, please
read these instructions carefully before connecting, operating or
adjusting this product. Please keep this manual for future reference.

This product is 100% inspected and tested in the United States to verify
HDMI performance parameters.

WARNING

1. Do not expose this unit to water, moisture, or excessive humidity.
2. Do not install or place this unit in a built-in cabinet, or other confined space without adequate ventilation.
3. To prevent risk of electrical shock or fire hazard, due to overheating do not obstruct unit's ventilation openings.
4. Do not install near any source of heat, including other units that may produce heat.
5. Do not place unit near flames.
6. Only clean unit with a dry cloth.
7. Unplug unit during lightening storms or when not used for an extended period of time. A surge protector is strongly recommended.
8. Protect the power cord from being walked on or pinched, particularly at the plugs.
9. Use unit only with accessories specified by the manufacturer.
10. Refer all servicing to qualified personnel.

CAUTION

HDMI is a very complex technology requiring continuous authentication of the signal and the same video resolution and audio settings on all electronic equipment in the system. When there are multiple sources and displays, the video resolution and audio setting on all connected units must be adjusted to correspond with that of the display having the lowest video and audio capability.

INTRODUCTION

The Evolution by Vanco EVMX8X6 4K HDBaseT™ Matrix Switcher with 2 HDMI Outputs, IR, IP and RS-232 allows 8 HDMI sources to be distributed to up to 8 displays simultaneously, with 6 of the outputs over Cat6 using HDBaseT transmission and 2 outputs over HDMI. The EVMX8X6 is capable of transmitting 4K@60Hz, 4:4:4 Chroma Subsampling, and HDR up to 131ft/40m over a single Cat6 cable, and 4K@60Hz, 4:4:4 Chroma Subsampling with HDR10 and Dolby Vision on the HDMI inputs and HDMI outputs. For control, the EVMX8X6 features multiple methods including simple control using the front panel control, IR control, and an easy to use UI accessible via IP. Control switching sources to displays from a computer or a wireless device such as a tablet or mobile phone. The EVMX8X6 is compatible with both the EVRXHD2 and EVRXDSC HDBaseT receivers for additional flexibility. For switching multiple sources to multiple displays using HDBaseT technology, with many features for control, audio, 4K HDR resolution, and scaling, the EVMX8X6 is a great choice for any application.

4K 8x6 HDBaseT™ Matrix Switcher with 2 HDMI Outputs, IR, IP and RS-232

Part # EVMX8X6

- 4K 8x6 HDBaseT Matrix that accommodates 6 HDBaseT outputs and 2 HDMI outputs
- Extends 4K@60Hz 4:4:4, and HDR10 up to 131ft/40m over a single Cat6 cable
- Outputs 4K@60Hz 4:4:4, HDR10 and Dolby Vision on the HDMI inputs and outputs
- Extends 1080p resolution up to 230ft/70m over a single Cat6 cable
- PoC receivers sold separate (EVRXHD2 and EVRXDSC)
- Features POC (Power over Cable) technology - providing power for the receivers resulting in easy installation
- HDCP 2.2 compliant
- Digital and analog audio breakouts for the HDMI outputs
- Built-in EDID management and advanced HDCP handling
- Controllable via front panel, IR, RS-232 and third party control systems, as well as a built in GUI via IP connection
- Features bi-directional IR and RS-232 for source and/or display control
- Includes EV-IRMST IR integration cable for seamless integration with 3rd Party IR Systems
- Dimensions: 17.2" W x 1.7" H x 15" D

PACKAGE CONTENTS

- | | |
|-----------------------------------|-----------------------------------|
| • EVMX8X6 HDBaseT Matrix Switcher | • (9) IR Emitters |
| • (2) Mounting Ears with 6 Screws | • (1) RS-232 Cable (3-pin to DB9) |
| • (4) Plastic feet | • (1) IR Control Cable (EV-IRMST) |
| • (1) IR Remote | • (1) Power Supply (24V DC 2.71A) |
| • (8) IR Receivers | • (1) Product Manual |

SPECIFICATIONS

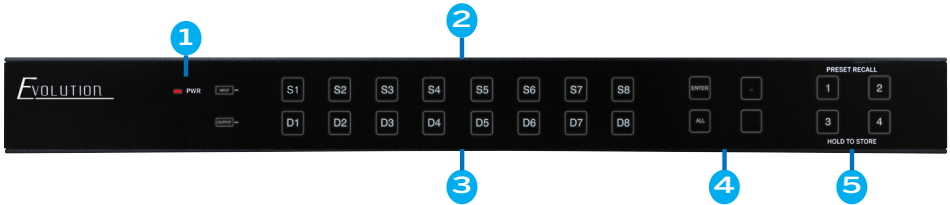
Video Input.....	(8) HDMI
Video Input Connector	(8) Type-A Female HDMI
Video HDMI Input Resolution	Up to 4K@60Hz 4:4:4, HDR10, Dolby Vision
Video Output	(6) HDBaseT, (2) HDMI
Video Output Connector.....	(6) RJ45, (2) Type-A female HDMI
Video HDMI Output Resolution	Up to 4K@60Hz 4:4:4, HDR10, Dolby Vision
Video HDBaseT Output Resolution	Up to 4K@60Hz 4:4:4, HDR10
Video HDMI Audio Signal	LPCM 7.1 audio, Dolby Atmos®, Dolby@TrueHD, Dolby Digital® Plus, DTS:X™, and DTS-HD® Master Audio™ pass-through
Audio Output	(2) SPDIF, (2) RCA (L+R)
Audio Output Connector	(2) Toslink connectors, (4) 3.5mm jacks
Digital SPDIF Audio Format.....	Supports PCM, Dolby Digital, DTS, DTS-HD
Analog RCA (L+R) Audio Format.....	Supports PCM
Frequency Response	20Hz – 20KHz, ±3dB
Audio Output Impedance.....	70 Ohms
Max Input Level	
RCA: 2.0V _{rms} ± 0.5dB. 2V = 16dB headroom above -10dBV (316mV) nominal consumer line level signal; SPDIF: ±0.05dBFS	
THD+N	< 0.05% (-80dB), 20Hz – 20KHz bandwidth, 1KHz sine at 0dBFS level (or max level)
SNR	RCA: > 80dB, 20Hz - 20KHz bandwidth;
SPDIF: > 90dB, 20Hz-20 kHz bandwidth	

SPECIFICATIONS

Crosstalk Isolation	RCA: < -80 dB, 10KHz sine at 0dBFS level (or max level before clipping); SPDIF: < -70 dB, 10KHz sine at 0dBFS level (or max level before clipping)
L+R Level Deviation.....	RCA: < 0.3dB, 1KHz sine at 0dBFS level (or max level before clipping)
Frequency Response Deviation	< ± 0.5dB 20Hz - 20KHz
Output Load Capability	RCA: 1KΩ and higher (Supports 10x paralleled 10KΩ loads)
Stereo Channel Separation.....	>70dB@1KHz
Noise Level	RCA: -80dB; SPDIF: -90dB
Control Port	(1) FW, (6) IR IN, (1) IR ALL IN, (8) IR OUT, (1) IR ALL OUT, (1) IR EYE, (1) RS-232, (1) TCP/IP
Control Connector.....	(1) Type-A USB, (17) 3.5mm jacks, (1) 3-pin terminal block, (1) RJ45
Transmission Mode	HDBaseT
Transmission Distance.....	1080p ≤ 230 feet (70 meters), 4K@60Hz ≤ 131 feet (40 meters)
Bandwidth.....	18 Gbps
Operation Temperature.....	-5 to +55° (+23° to +131°F)
Storage Temperature	-25 to +70° (-13° to +158°F)
Relative Humidity.....	10% to 90%, Non-condensing
External Power Supply.....	100V~240V AC, 50/60Hz
Power Consumption	92W (Max)
Dimensions	17.2" W x 1.7" H x 15" D
Weight	8 lbs

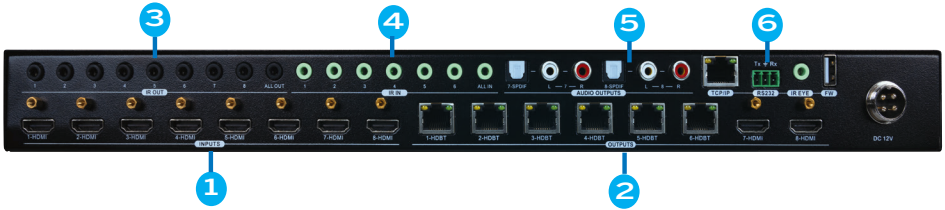
PANEL DESCRIPTIONS

Front Panel



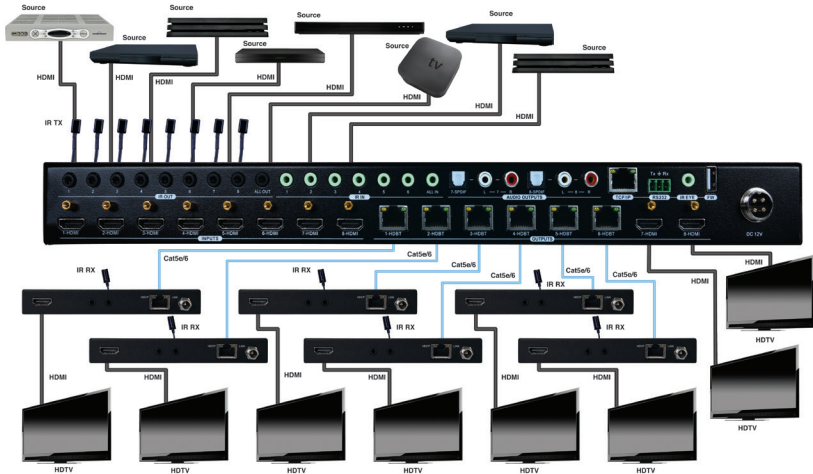
1. **POWER LED:** Illuminates red when the device is in standby mode, illuminates green when device is powered on
2. **INPUTS:** Inputs 1-4 source selection (buttons will turn blue when selected)
3. **OUTPUTS:** Outputs 1-4 display selection (buttons will turn blue when selected)
4. **Menu Buttons:**
 - **ENTER:** Switches input(s) to output(s) after input/output selection
 - **LOCK:** Locks/Unlocks front panel buttons
 - **ALL:** Selects all inputs and/or outputs for switching
 - **CLEAR:** Cancel
5. **PRESET RECALL:** There are up to 4 presets which can be saved for easy switching to any source/display configuration
 - Press and hold any preset button 1-4 to save the current switching status, this saves the current configuration to be quickly easily called back

Rear Panel



1. INPUTS: Connect HDMI sources to each corresponding HDMI input
2. OUTPUTS:
 - 1-6-HDBT: Connect HDBaseT receiver(s) to each output, option of the EVRXHD2 or EVRXDSC PoC receivers
 - 7-8-HDMI: Connect HDMI displays via HDMI cables; if needing to extend this signal over Cat5e/6, an HDBaseT extender is strongly recommended
3. IR OUT:
 - 1-8: Connect the included IR Transmitters (TXs) to each port, the number on the IR output corresponds to the HDMI inputs. Connect this if you would like to control the sources from each display location over HDBaseT (receiver(s) have IR inputs)
 - ALL OUT: Connect the included IR Transmitter (TX) to this port, this will send an IR signal from any HDBaseT receiver regardless of the HDMI signal routing; useful feature to turn on/off an external amplifier or audio distribution system at any display location
4. IR IN:
 - 1-6: Connect the included IR Receivers (RXs) to each port, the number on the IR input corresponds to the HDBaseT outputs. Connect this if you would like to control the display(s) over HDBaseT (receiver(s) have IR outputs)
 - ALL IN: Connect the included IR Receiver (RX) to this port, this will send an IR signal out to all HDBaseT receiver(s); useful feature to turn on/off all displays at one time
5. AUDIO OUTPUTS: Digital optical outputs and analog RCA outputs for HDMI outputs 7 and 8
6. CONTROL:
 - TCP/IP: Connect to a local network such as a router or ethernet switch to give the matrix unit connectivity, this will give the ability to control the matrix unit via IP with any device on the network such as a computer, tablet, or mobile phone
 - RS-232: Connect the included RS-232 cable to a computer or 3rd party control system for integration
 - IR EYE: Connect the included IR Receiver (RX) to this port, this can be used to control the matrix unit with the included IR remote; also a helpful feature to hide the matrix unit and lead out the IR Receiver to a different location for remote control
 - FIRMWARE: Connect a Type-A USB cable to upgrade firmware, any available firmware updates will be located on the product page for this part # on www.vanco1.com, under the "downloads" tab
7. DC 24V: Connect the included power supply

CONNECT AND OPERATE



1. Connect HDMI sources to the HDMI inputs of the EVMX8X6 (NOTE: HDMI certified cables are strongly recommended for 4K HDR resolution)
2. Connect Cat6 cables from the matrix unit outputs to each display location (NOTE: home run Cat5e/6 cables are strongly recommended as any coupling points such as punch down RJ45 jacks, female/female RJ45 jacks, etc. can cause signal degradation. Patch panels will cause even more signal degradation.)
3. Connect the HDBaseT Receivers to outputs 1-6, option of either the EVRXHD2 or EVRXDSC; connect HDMI cables from the receivers to each HDMI display (NOTE: HDMI certified cables are strongly recommended for 4K HDR resolution)
4. Connect an HDMI display to output 7 and 8 (NOTE: HDMI certified cables are strongly recommended for 4K HDR resolution)
5. OPTIONAL: Connect an external amplifier or AV Receiver to the digital and/or analog output (NOTE: both the digital optical and analog RCA audio breakouts follow outputs 7 and 8 only)
6. OPTIONAL: Connect a router or ethernet switch to the TCP/IP RJ45 jack on the EVMX8X6, this will connect the matrix unit to the network, and can be controlled via IP
7. Connect the included power supply

FRONT PANEL CONTROL

The matrix switcher can be controlled by using the buttons on the front panel. Whenever a command is accepted, all the pressed buttons will blink three times then they will go off. If there is no other action after pressing the input/output button, the buttons will go off after eight seconds.

5.1 Signal Switching (S= Source; D= Display)

- **Switch an input to an output**

Operation: INPUT# + OUTPUT# + ENTER

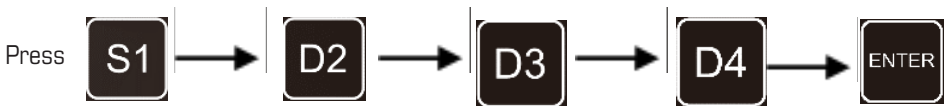
Example: Switch Input 1 to Output 2:



- **Switch an input to multiple outputs**

Operation: INPUT# + OUTPUT# + OUTPUT# + ... + ENTER

Example: Switch Input 1 to Output 2, 3, and 4



- **Switch an input to all outputs (split one source to all displays)**

Operation: INPUT# + ALL + ENTER

Example: Switch Input 1 to all outputs



5.2 Switching Status Inquiry (find out what source is being sent to a certain display)

Press and hold the OUTPUT# you would like to see the status of, the corresponding input button will illuminate blue. The button illumination will turn off when releasing the OUTPUT# button.

5.3 Panel Button Locking/Unlocking

Press and hold LOCK button for 3 seconds to lock front panel buttons, it will illuminate blue to confirm. Press and hold the button again to unlock.

5.4 Preset Setting (a quick and easy way to save and recall a configuration without having to manually switch each input/output)

Press and hold the PRESET 1-4 for 3 seconds to save the current switching status to the corresponding preset 1-4.

Press the PRESET 1-4 to recall the saved preset 1-4.

Note: The front panel only holds 4 presets, however the UI via IP control gives the ability of saving up to 9 presets.

5.5 CLEAR Button (cancel)

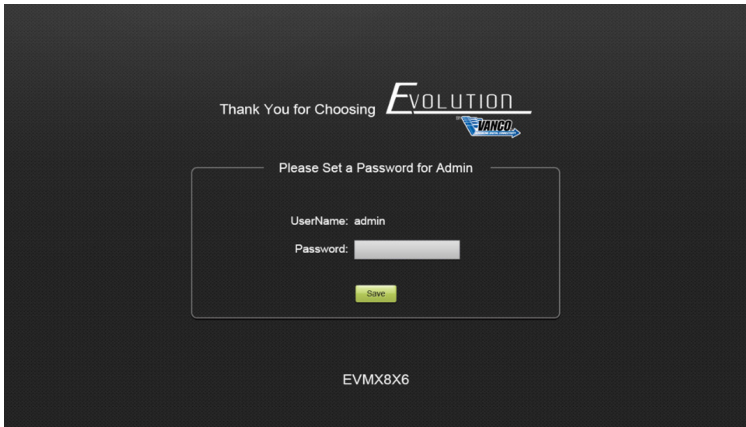
Press the CLEAR button to cancel

USER INTERFACE CONTROL

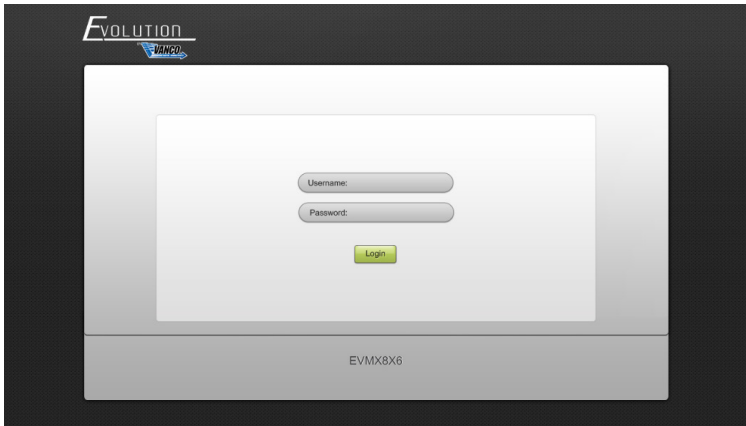
The matrix switcher can be controlled via TCP/IP. Connect the EVMX8X6 to a router or ethernet switch to connect to the local network. The default IP address and settings are:

IP Address	192.168.0.178
Subnet Mask	255.255.255.0

Type 192.168.0.178 into the address bar on any internet browser such as a connected PC, tablet, or mobile phone, the following webpage should appear:



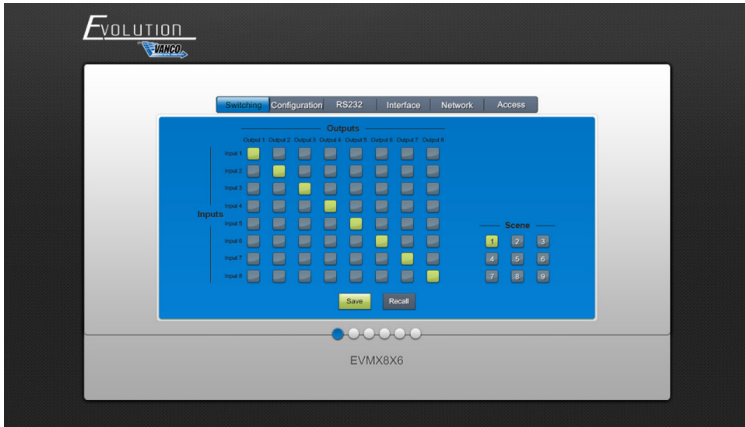
When using the UI for the first time, an admin password must be set, and then click "Save" to enter the below login tab. Be sure to record the password(s).



The UI is available in two formats, one as a master for the integrator and/or admin, and another for end users that restricts access to only switching inputs/outputs:

<i>Username</i>	<i>Password</i>	<i>Access Rights</i>
admin	Set on welcome page or "Access" tab	All tabs
user	Set on "Access" tab to activate user account	Only on switching tab

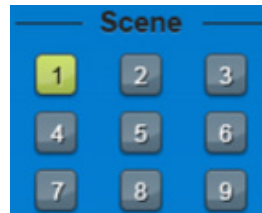
6.1 Switching Tab



Use the 8x8 button grid on the page to set which inputs are directed to which outputs. For example, clicking the button on the Input 1 row and Output 1 column, directs input 1 to output 1.

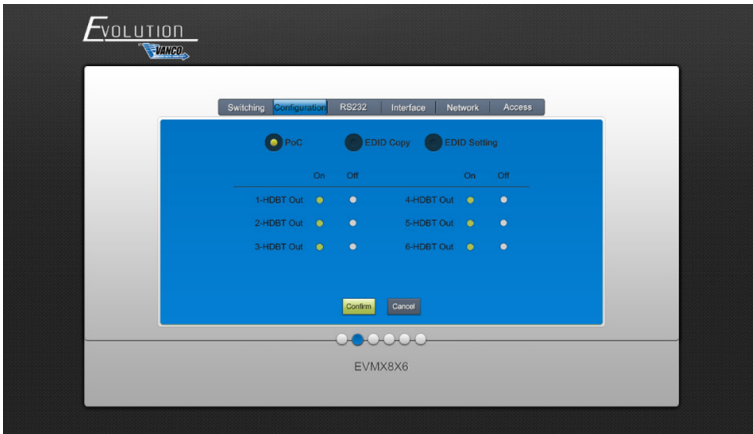
Use the 9 numbered buttons under scene area to save and load layout presets.

- To save a given layout, first click one of the numbered buttons, then click the Save button
- To load a previously saved layout, first click one of the numbered buttons, then click the Recall button



6.2 Configuration Tab

6.2.1 PoC Setting (you can disable the Power over Cable setting on the EVRXHD2 or EVRXDSC receivers)



Turn on or off PoC for 1-HDBT- 6-HDBT output

6.2.2 EDID Copy



Copy the EDID of the selected output device to one or more input source devices

6.2.2 EDID Setting



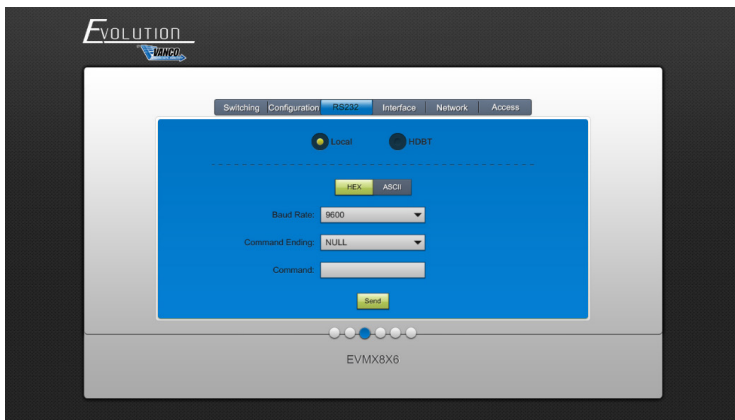
Select the compatible built-in EDID for the selected one or more input sources.

Upload user-defined EDID by the below steps:

1. Prepare the EDID file (.bin) on the control PC.
2. Select the User-defined
3. Click the box and then select the EDID file (.bin) according the tooltip
4. Click Apply to upload the user-defined EDID, and then click Confirm to save setting

6.3 RS-232 Tab

1) Local



- Local: The RS-232 port of matrix switcher
- Baud Rate: 9600
- Command Ending: NULL, CR, LF or CR+LF can be chosen
- Command: Type the command in this box to control the third-party device which is connected to the RS-232 port of the matrix switcher. If click the HEX, the RS-232 commands can be typed with hexadecimal value

2) HDBT (RS-232 pass-through settings on the EVRXHD2 and EVRXDSC receivers)



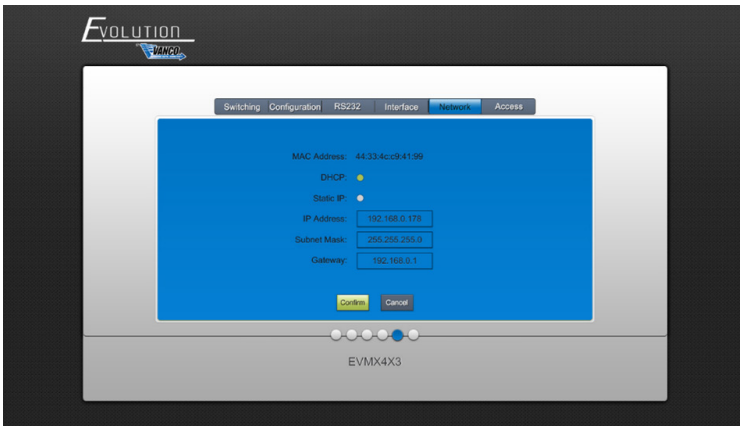
- HDBT: The RS-232 port of the HDBaseT receiver
- Port: Select one of HDBT outputs which are connected to the HDBaseT receivers which must have third-party device connected
- Baud Rate: Supports 2400, 4800, 9600, 19200, 38400, 57600 or 115200
- Command Ending: NULL, CR, LF or CR+LF can be chosen
- Command: Typing the commands in the box to control the selected remote third-party device which is connected to HDBaseT receiver. If click the HEX, the RS-232 commands can be typed with hexadecimal value

6.4 Interface



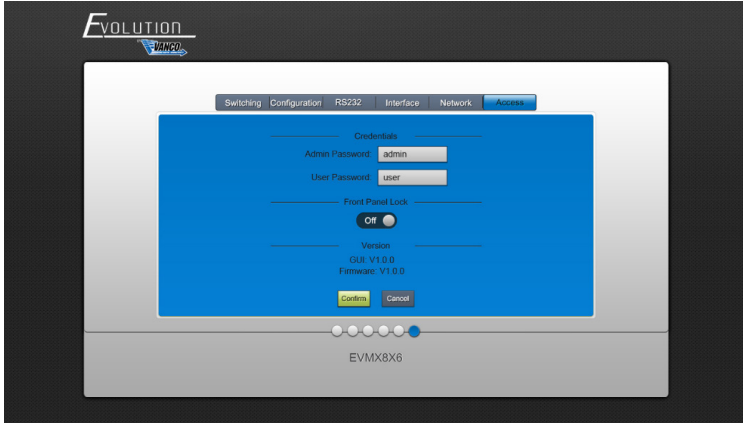
- Inputs and outputs can be renamed to make it easier when switching sources to displays. Simply type in the new name for each input/output, then click "Confirm"

6.5 Network Tab



- Adjust to Static IP or Dynamic Host Configuration Protocol (DHCP)
- Modify the static IP Address, Subnet Mask, and Gateway

6.6 Access Tab



- Here you can change the admin password, and lock the front panel"

7 IR Control

7.1 IR Remote Control

- Press the STANDBY (1) button to enter or exit standby mode.
- To switch the selected input for one or more of the outputs, press the number corresponding to the desired INPUT (2), then press one or more OUTPUTS (3) or the ALL (4) button, then press the ENTER (4) button to execute the change.
- Examples:
 - To send input 3 to output 2, first press the INPUTS 3 button, then press the OUTPUTS 2 button, and finally press the ENTER button to execute the change.
 - To send input 1 to outputs 1 and 4, first press the INPUTS 1 button, then press both the OUTPUTS 1 and 4 buttons, and finally press the ENTER button to execute the change.
 - To send input 4 to all outputs, first press the INPUTS 4 button, then press the ALL button, and finally press the ENTER button to execute the change.
 - To set the EDID for one or more source devices to the EDID capabilities of a specific output, press the EDID (4) button, then press the desired INPUTS (2) or the ALL (4) button, then press the OUTPUTS (3) button corresponding to the desired display, finally press the ENTER (4) button to execute the operation.
- CLEAR (4): Press the CLEAR button if want to withdraw an operation before the ENTER button comes into effect, meanwhile, the matrix will return to the previous status.



7.2 IR Pass-through Control

The matrix switcher supports bi-directional IR pass-through, allowing the devices to be controlled by both source and display ends. This section provides connection and switching examples to illustrate possible configurations.

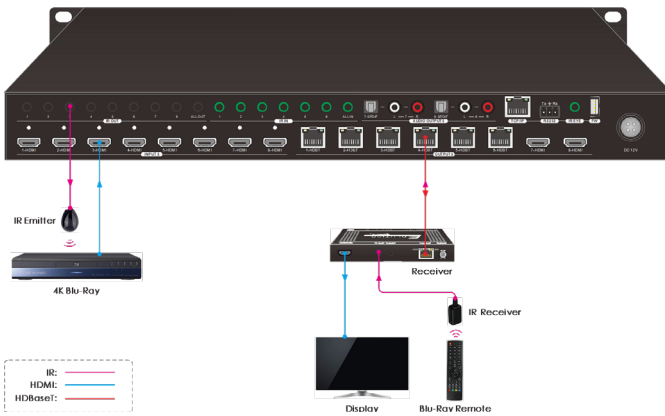
7.2.1 Control Local Input Device from Remote

The local input source device can be controlled from the remote receiver location.

- Control local input device through IR OUT port

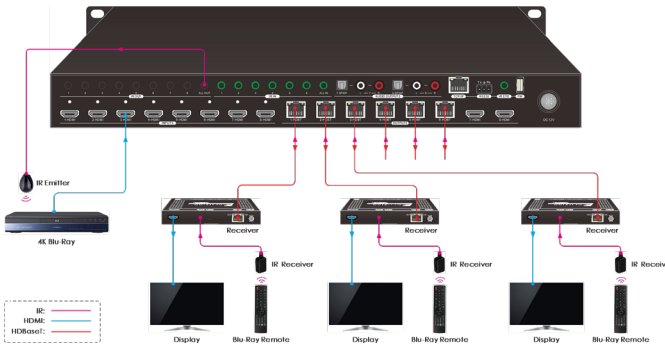
Example: Switch HDMI input 2 to HDBaseT output 3.

Connect an IR receiver to IR IN port on the receiver, then connect an IR emitter to the IR OUT 2 on the matrix switcher. The third input source can be controlled through its corresponding IR output port. The connection diagram shown as below:



- Control local input device through IR ALL OUT port

The emitter can be connected to the IR ALL OUT port on matrix switcher to control all local input devices. In this case, the IR receiver must be connected to the IR IN port on each connected HDBaseT receiver, as shown in the diagram below:



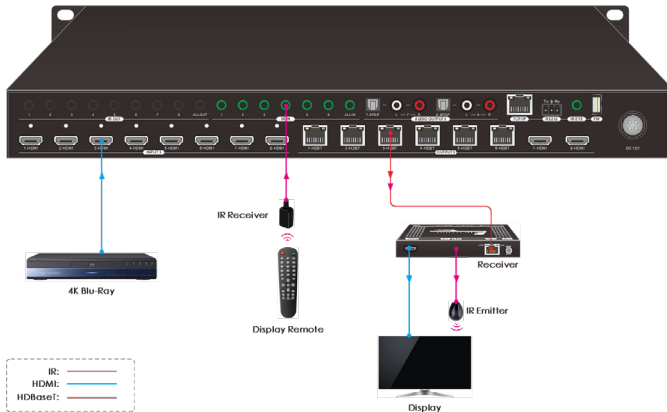
7.2.2 Control Remote Output Device from Local

The remote displays can be controlled from the local matrix switcher location.

- Control remote device through IR IN port

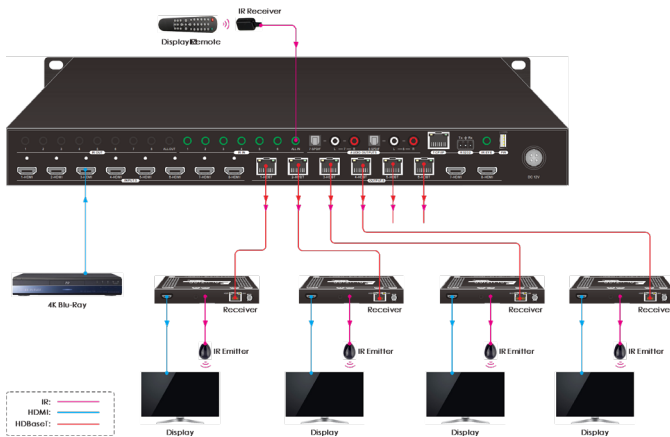
Example: Switch HDMI input 2 to HDBaseT output 3.

Connect an IR receiver to IR IN 3 port on the matrix switcher, then connect an IR emitter to the IR OUT on the receiver, as shown in the diagram below:



- Control remote device through IR ALL IN port

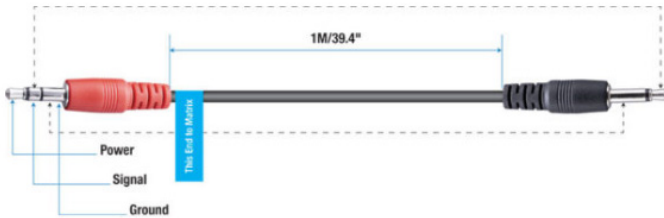
The receiver can be connected to the IR ALL IN port on matrix switcher to control all remote output devices. In this case, the IR emitter must be connected to the IR OUT port on each connected HDBaseT receiver, as shown in the diagram below:



7.2.3 Integration with 3rd Party Control

The EV-IRMST IR integration cable is included with the matrix unit. Seamlessly integrate IR from the EVMX8X6 with third party control systems and other IR products to provide a cleaner, faster installation. Eliminates the need to cut and splice wires or tape emitters and receivers together.

Simply plug the red connector into the EVMX8X6 and the black connector into the 3rd party control system or IR system.

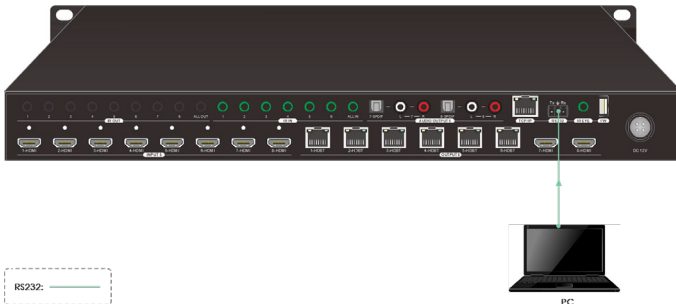


8. RS-232 Control

8.1 RS-232 Control Connection

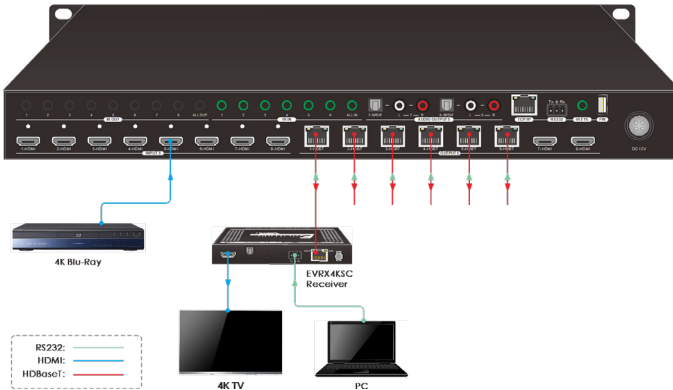
8.1.1 Control the Matrix Switcher from Local

To control the matrix switcher from a local PC, the 3-pin to DB9 RS-232 Cable is used to connect between the matrix switcher and PC. The connection diagram is shown as below:



8.1.2 Control the Matrix Switcher from Remote

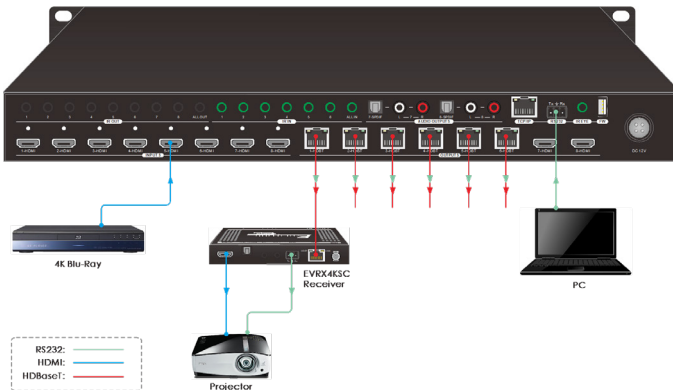
To control the matrix switcher from a remote location, please connect one or more PCs to the RS-232 ports of HDBaseT receivers with the 3-pin to DB9 RS-232 Cables. The matrix switcher can be controlled by any one of PCs, the connection diagram is shown as below:



Note: The command "RS232RCMIXION." (IXI=0~3) needs to be sent to enable or disable this control mode. For example, send the command "RS232RCMOON." to enable the remote-control mode for all HDBaseT outputs, and send the command "RS232RCMOFF." to disable the remote-control mode for all HDBaseT outputs. Please refer to the 8.3.1 System Control for more details.

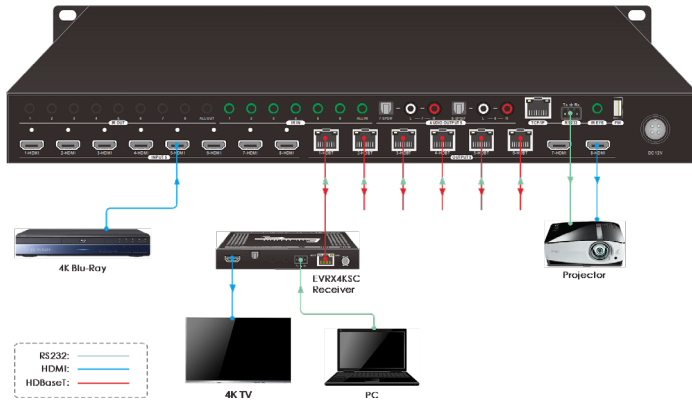
8.1.3 Control the Remote Third-party Device from Local

To control a remote third-party device from local, first determine which HDBaseT receiver is connected to (1 in the diagram below). Next, connect a PC to the corresponding RS-232 port of matrix switcher with 3-pin to DB9 RS-232 Cable, then connect a third-party device (e.g. projector) to the RS-232 port of the determined HDBaseT receiver. The remote third-party device can be controlled by the local PC; the connection diagram is shown as below:



8.1.4 Control the Local Third-party Device from Remote

To control a local third-party device from remote, first determine which HDBaseT receiver is connected to (1 in the diagram below). Next, connect a PC to the RS-232 port of HDBaseT receiver with 3-pin to DB9 RS-232 Cable, then connect a third-party device (e.g. projector) to the RS-232 port of matrix switcher. The local third-party device can be controlled by the remote PC; the connection diagram is shown as below:



8.2 RS-232

When controlling the switcher, the serial port settings for all RS-232 commands is:

Baud rate: 9600 Data bit: 8 Stop bit: 1 Parity bit: none

Please visit the product page at www.vanco1.com for a complete list of commands and available 3rd party drivers.

LIMITED WARRANTY

With the exceptions noted in the next paragraph, Vanco warrants to the original purchaser that the equipment it manufactures or sells will be free from defects in materials and workmanship for a period of two years from the date of purchase. Should this product, in Vanco's opinion, prove defective within this warranty period, Vanco, at its option, will repair or replace this product without charge. Any defective parts replaced become the property of Vanco. This warranty does not apply to those products which have been damaged due to accident, unauthorized alterations, improper repair, modifications, inadequate maintenance and care, or use in any manner for which the product was not originally intended.

Items integrated into Vanco products that are made by other manufacturers, notably computer hard drives and liquid crystal display panels, are limited to the term of the warranty offered by the respective manufacturers. Such specific warranties are available upon request to Vanco. A surge protector, power conditioner unit, or an uninterruptible power supply must be installed in the electrical circuit to protect against power surges.

If repairs are needed during the warranty period the purchaser will be required to provide a sales receipt/sales invoice or other acceptable proof of purchase to the seller of this equipment. The seller will then contact Vanco regarding warranty repair or replacement.

TECHNICAL SUPPORT

In case of problems, please contact Vanco Technical Support by dialing 1-800-626-6445. You can also email technical support issues to techsupport@vanco1.com.

When calling, please have the Model Number, Serial Number (affixed to the bottom of the unit) and Invoice available for reference during the call.

Please read this Instruction Manual prior to calling or installing this unit, since it will familiarize you with the capabilities of this product and its proper installation.

All active electronic products are 100% inspected and tested to insure highest product quality and trouble-free installation and operation. The testing process utilizes the types of high-definition sources and displays typically installed for entertainment and home theater applications.

For additional information, such as helpful installation videos, etc. please visit www.vanco1.com

LIABILITY STATEMENT

Every effort has been made to ensure that this product is free of defects. The manufacturer of this product cannot be held liable for the use of this hardware or any direct or indirect consequential damages arising from its use. It is the responsibility of the user and installer of the hardware to check that it is suitable for their requirements and that it is installed correctly. All rights are reserved. No parts of this manual may be reproduced or transmitted by any form or means electronic or mechanical, including photocopying, recording or by any information storage or retrieval system without the written consent of the publisher.

Manufacturer reserves the right to revise any of its hardware and software following its policy to modify and/or improve its products where necessary or desirable. This statement does not affect the legal rights of the user in any way.



Vanco[®] International

506 Kingsland Drive
Batavia, Illinois 60510
call: 800.626.6445
fax: 630.879.9189
visit: www.vanco1.com