



User Manual

HMX 442 LP4K Matrix
HMX 663 LP4K Matrix
HMX 884 LP4K Matrix

Art. No. 310037
Art. No. 310047
Art. No. 310038



User
Manual



User Manual

Preface

Carefully read this user manual prior to installing the matrix. Pictures shown in this manual is for reference only, different model and specifications are subject to real product. This manual is only for operational instruction only, not for maintenance purposes. Pictures shown in this manual are for reference only. Specifications are subject to change without notice. Please refer to the Triax website www.triax.uk

Trademarks

Any other trademarks mentioned in this manual are acknowledged as the properties of the trademark owner. No part of this publication may be copied or reproduced without the prior written consent of Triax.

FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. Operation of this equipment in a residential area **may** cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference. Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.



SAFETY PRECAUTIONS

To ensure the best from the product, please read all instructions carefully before using the device. Keep this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment.
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the power cable to prevent damage.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with good ventilation to avoid damage caused by overheating.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.



Contents

Preface	2
Trademarks	2
FCC Statement	2
Safety Precautions	3
Contents	4
Contents Continued	5
1. Introduction	6
1.1 Introduction to the Triax Matrices	6
1.2 Features	6
1.3 Packing Lists	7
1.3.1 Packing List HMX 442LP4K (310037)	7
1.3.2 Packing List HMX 663LP4K (310047)	7
1.3.3 Packing List HMX 884LP4K (310038)	7
2.1 Product Appearance HMX 442LP4K (310037)	8
2.1.1 Front Panel	8
2.1.2 Rear Panel	8
2.1.3 Rear Panel– Continued	9
2.2 Product Appearance HMX 663LP4K (310047)	10
2.2.1 Front Panel	10
2.2.2 Rear Panel	11
2.3 Product Appearance HMX 884LP4K (310038)	12
2.3.1 Front Panel	12
2.3.2 Rear Panel	13
3. System Connection	14
3.1 System Applications	14
3.2 Usage Precautions	14
3.3 Connection Diagram	14
3.3.1 HMX 442LP4K (310037) Connection Diagram	14
3.3.2 HMX 663LP4K (310047) Connection Diagram	14
3.3.3 HMX 884LP4K (310038) Connection Diagram	15
3.4 Connection Procedure	15
3.5 Connection to HDBaseT™ HRX 1LP4K receiver (310039)	16
4. System Operations	17
4.1 Front Panel Button Control	17
4.1.1 Switching I/O connection	17
4.1.2 EDID Management	18
4.1.3 EDID Invoking	19
4.1.4 Enquiry	20
4.1.5 Clear Operation	20

Contents Continued

4.2 IR Control	20
4.2.1 Usage of IR Remote	21
4.2.2 IR Operations	22
4.2.3 IR Matrix Bi-directional Control	22
4.2.4 IR Control Setting	23
4.2.5 Control Local Device From Viewing Area or Zone	24
4.3 RS232 Control	24
4.3.1 Connection with RS232 Communication Port	24
4.3.2 Installation / Uninstallation of RS 232 Control Software	25
4.3.3 Basic Settings	25
4.3.4 RS232 Communication Commands (HMX442LP4K)	26
4.3.4 RS232 Communication Commands - Continued	27
4.3.4 RS232 Communication Commands - Continued	28
4.3.4 RS232 Communication Commands - Continued	29
4.3.4 RS232 Communication Commands - Continued	30
4.3.4 RS232 Communication Commands - Continued	31
4.3.4 RS232 Communication Commands - HMX 663LP4K & HMX 884LP4K)	32~39
4.4 RS232 Control Modes	39
4.4.1 RS232 Control Modes— Control Triax Matrix Locally	40
4.4.2 RS232 Control Modes— Control Triax Matrix Zones	40
4.4.3 Control 3rd Party Device Locally	40
4.4.4 Bi-directional RS232 Control	41
4.5 TCP/IP Control	42
4.5.1 Control Modes	42
4.5.2 GUI for TCP/IP	43
4.5.2 GUI for TCP/IP Screen Grabs	44
4.5.2 GUI for TCP/IP Screen Grabs—Continued	45
4.5.3 GUI Updates	45
4.4.4 Firmware Updates via USB	46
5. Specifications	47
6. Troubleshooting and Maintenance	48
6. Troubleshooting and Maintenance	49
7. After Sales Support	49



1. Introduction

1.1 Introduction to the Triax Matrices

The new range of Triax Matrices encompass the HMX 442LP4K, HMX 663LP4k and HMX 884LP4K are professional HDBaseT Matrix Switches that accommodate either 4, 6 or 8 HDMI inputs (4k signal resolution 3840 x 2160@30Hz at 40max), and the corresponding number of CAT5e/6/7 outputs, in addition all matrices have either 2, 3 or 4 simultaneous HDMI outputs to be used with local displays or AVR's.

The Matrices enables the user to select any HDMI input by front panel buttons, IR, RS232, GUI or 3rd Party integration control. The selected source is delivered to the HDMI Outputs 1, 2, 3 or 4 individually or simultaneously and to the HDBaseT outputs 1~4, 1~6, 1~8 subject to model. The uncompressed signals are transmitted via the pre-installed CAT cabling infrastructure, it is recommended to use high quality CAT6 cable and avoid CCS type CAT cable. The signals can be received up to 70m for 1080p and a maximum of 40m at 4Kx2K@30Hz, 3840x2160@30Hz. All Triax matrices support EDID management, HDCP , bi-directional RS-232 and IR control.

Apart from the embedded HDMI audio, the Triax matrices provide auxiliary audio inputs. Audio source can be selected via RS232 command. The selected Source's audio is simultaneously passed to both the HDMI and HDBaseT outputs, The HDBaseT signals are then converted back to HDMI, the HDMI cable can be plugged directly in to a display or local AVR.

1.2 Features

- Support HDMI 1.4, 4Kx2K @30Hz & 1080p 3D
- HDCP1.4 compatible, supports manual HDCP management and auto-detecting
- Transmit 4Kx2K@30Hz signal for 8m via HDMI port, 40m via HDBT ports
- Audio source selectable via RS232 command
- Either 4, 6 or 8 HDBaseT™ CAT outputs, 70m at 1080p and 40m at 4Kx2K@30Hz on a single CAT5e/6 cable
- Supports PoC (Power over Cable, PoE-Power over Ethernet or PoH-Power over HDBaseT™)
- Real-time LCD status indication
- Controllable via front panel, RS232, IR ,TCP/IP and or 3rd Party integration.
- Supports bi-directional IR& RS232 control
- Built-in GUI for TCP/IP control
- Powerful EDID management
- Retains settings after power cycle
- Supports firmware upgrade through Micro USB port, available from Triax website, www.computriax.com
- Rack-mount or desk top design

1.3.1 Package List– HMX 442LP4K (310037)

- 1 x HMX 442LP4K
- 2 x Mounting ears (6 x Screws)
- 1 x RS232 cable
- 1 x IR Receiver
- 4 x Plastic feet (4 x Black Screws)
- 1 x IR remote
- 1 x Plug-top power adapter (DC 24V 2.5A)
- 3 x interchangeable plugs EU, AU/NZ and UK
- 8 x Pluggable Terminal Blocks
- 4 x IR Transmitters
- 1 x Twin High Powered IR Blaster
- 1 x Multi-lingual User manual

1.3.2 Package List– HMX 663LP4K (310047)

- 1 x MHX 663LP4K
- 2 x Mounting ears (6 x Screws)
- 1 x RS232 cable
- 6 x IR Transmitters
- 1 x IR Receiver
- 1 x Twin High Powered IR Blaster
- 4 x Plastic feet (4 x Black Screws)
- 1 x IR Remote
- 3x Interchangeable power cords EU, AU/NZ and UK
- 18 x Pluggable Terminal Blocks
- 1 x Multi-lingual User Manual

1.3.3 Package List– HMX 884LP4K (310038)

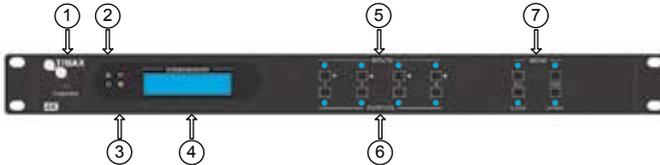
- 1 x HMX 884LP4K
- 2 x Mounting ears (6 x Screws)
- 1 x RS232 cable
- 1 x IR Receiver
- 1 x Twin High Powered IR Blaster
- 8 x IR Transmitters
- 4 x Plastic feet (4 x Black Screws)
- 1 x IR remote
- 3x Power Cords EU, AU/NZ and UK
- 24 x Pluggable Terminal Blocks
- 1 x Multi-lingual User Manual

Notes: Please check the contents carefully that the matrix and the accessories are all included and undamaged, if not, please contact your supplier. Do Not Use if the product is damaged.



2.1 Product Appearance of the HMX 442LP4K (310037)

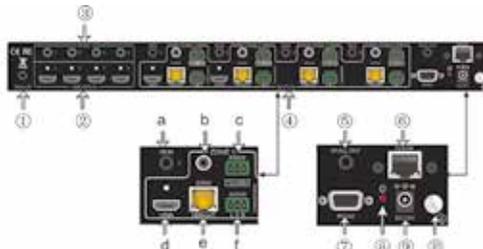
2.1.1 Front Panel



No.	Name	Description
①	Firmware	Micro USB - firmware upgrade
②	Power Indicator	Illuminate Green when power on, Red in Standby
③	IR	In-built IR sensor, receive IR signals sent from IR remote.
④	LCD Screen	Displays real-time status indication.
⑤	INPUTS/ Menu buttons	<ul style="list-style-type: none"> ➢ Normal mode: ranging from "1" to "4". ➢ Enquiry mode (buttons 1~4): Press "ENTER" for >3 seconds to enter mode. Press ◀▶ to select different menus, ▲▼ to select options, press ENTER to confirm.
⑥	OUTPUTS buttons/ EDID Management buttons	<ul style="list-style-type: none"> ➢ Normal mode: ranging from "1" to "4". Output 1~2 support synchronous local HDMI output. ➢ EDID Invoking mode: press and hold EDID button for >3 seconds to enter mode, press buttons 1or 2, these switch to the previous/next EDID data.
⑦	Function Buttons	<p>ALL: Select all inputs / outputs</p> <p>EDID management button: Enables input port to manually capture and select the EDID data of output device.</p> <p>CLEAR: Cancel an operation, like switching output Channel or learning EDID data before it comes into effect. The matrix will return to the previous state.</p> <p>ENTER: Confirms operation. Press and hold for >3 seconds to enter Enquiry mode.</p>

1. **Notes:** Pictures shown in this manual are for reference only. Specifications are subject to change without notice.

2.1.2 Rear Panel



2.1.3 Rear Panel HMX 442LP4K (310037) continued

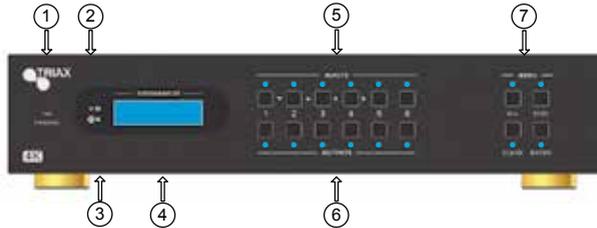
No.	Name	Description
①	IR ALL IN	Pug the IR Receiver in to the 3.5mm jack socket. The allows IR signals to pass from the Matrix to each corresponding Receiver in the zone.
②	HDMI INPUTS	4 x HDMI type A female input sockets. Plug an HDMI cable from the Source to any of the HDMI input Sockets.
③	IR OUT	Plug an IR transmitter into the 3.5mm jack socket marked up "IR OUT" on the matrix, ensure that the required zone is chosen, these are clearly marked up. The IR signals are sent from the receiver in the zone to the matrix, these are passed through to enable control of the Source.
④	OUTPUTS	<ul style="list-style-type: none"> a. IR IN: Plug an IR receiver in to the "IR IN" 3.5mm socket on the matrix. The IR Signals are sent from the matrix to the receiver on thought to the IR emitter. b. COAX: HDMI de-embedded digital audio output c. RS232: Serial communications between matrix and the corresponding HDBaseT™ receiver. d. HDMI: HDMI Type A connectors, plug an HDMI cable in to the output socket and connect it to either a local display or AVR. e. HDBaseT™: Uses HDBT technology to convert HDMI to CAT5e/6. Use with HRX 1LP4K receiver f. Audio: HDMI de-embedded stereo audio output
⑤	IR All OUT	Plug IR Twin Blaster in to the 3.5mm jack marked as "IR ALL OUT". This function allows IR signals to be sent from the zones back through the matrix to control 3rd party equipment such as AVR's
⑥	TCP/IP	TCP/IP port for unit control
⑦	RS232	Serial port for unit control, 9-pin female connector, connects with control device such as a PC.
⑧	Power Indicator	Front panel Illuminate Green when powered on and RED in Standby. RED Power on Indicator on rear panel
⑨	DC24V	DC 24V power adaptor.
⑩	Ground	Ensure that the matrix is earth bonded



User Manual

2.2 Product Appearance of the HMX 663LP4K (310047)

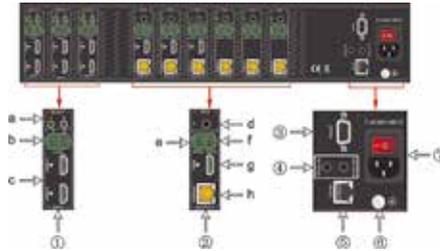
2.2.1 Front Panel



No.	Name	Description
①	Firmware	Micro USB firmware update
②	Power Indicator	<ul style="list-style-type: none"> ➢ Illuminate Green when power on ➢ Illuminate Red in standby mode
③	IR	In-built IR sensor, receive IR signals sent from IR remote.
④	LCD Screen	Display real-time operation status.
⑤	INPUTS/ Menu buttons	<ul style="list-style-type: none"> ➢ Normal mode: ranging from "1" to "6". ➢ Enquiry mode (buttons 1~4): Press "ENTER" for >3 seconds to enter mode. Press ◀▶ to select different menus, ▼▲ to select options. Press ENTER to confirm.
⑥	OUTPUTS buttons/ EDID Management buttons	<ul style="list-style-type: none"> ➢ Normal mode: ranging from "1" to "6". Output 1~3 support Synchronous local HDMI output. ➢ EDID control mode: press and hold EDID button for >3 seconds enter this mode, buttons 1~6 correspond to the 6 embedded EDID data received from the displays. Press any of the 6 buttons to save the embedded EDID data.
⑦	Function Buttons	<p>ALL: Select all inputs / outputs</p> <p>EDID management button: Enables input port to manually capture and select the EDID data of output device.</p> <p>CLEAR: Cancel an operation, like switching output Channel or learning EDID data before it comes into effect. The matrix will return to the previous state.</p> <p>ENTER: Confirms operation. Press and hold for >3 seconds to enter Enquiry mode.</p>

2.2 Product Appearance of the HMX 663LP4K (310047)

2.2.2 Rear Panel



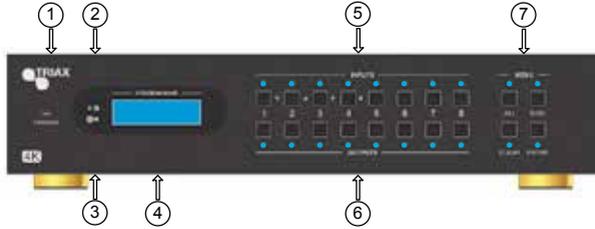
No.	Name	Description
①	INPUTS	a. IR OUT: Plug the IR emitters in to the "IR OUT" 3.5mm jack sockets. This allows the IR signals to be passed through the matrix to the receiver in the select zone or to all zones. The default setting enables all corresponding inputs to be connected to their respective outputs, i.e. IR IN 1 to be linked to IR OUT 1.
	INPUTS	b. AUDIO: Auxiliary audio input ports, 6 in total, compatible with PCM audio sources
		c. HDMI: 6 x HDMI type A female sockets. Plug an HDMI cable in to the socket and repeat on the Source device (such as Blu-ray)
②	OUTPUTS	d. IR IN: The matrix has 6 "IR IN" 3.5mm sockets. These connect directly to the IR IN on the receivers. This forms a fixed bi-directional transmission link.
		e. RS232: The matrix has six 3-pin pluggable terminal blocks, these enable fixed communication link with the RS232 port on corresponding HDBaseT™ receiver.
		f. AUDIO: 6 x stereo audio outputs
		g. HDMI: HDMI Type A connectors, plug an HDMI cable into the output socket and connect it to either a local display or AVR.
		h. HDBaseT: Uses HDBT technology to convert HDMI signals to CAT5e/6
③	RS232	Serial port for unit control, 9-pin female connector, enables control of 3rd party device such as a PC.
④	IR ALL IN	Plug an IR Receiver in to the "IR ALL IN" 3.5mm jack socket. Sends IR command signals from the matrix to the receivers.
⑤	TCP/IP	TCP/IP port for unit control
⑥	IR ALL OUT	Receives IR command signals from the receivers and re-transmits the command signals to 3rd party devices such as AVR's.
⑦	Power Button	Front panel Illuminate Green when powered on and RED in Standby. RED Power on Indicator on rear panel
⑧	Power Supply	Plug the power supply in to the Matrix, select to correct power cord for your region.
⑨	GROUND	Ensure the Matrix is earth bonded.



User Manual

2.3 Product Appearance of the HMX 884LP4K (310038)

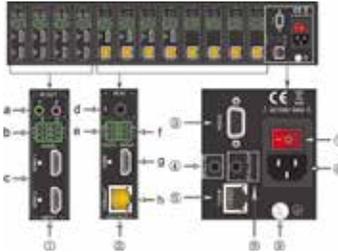
2.3.1 Front Panel



No.	Name	Description
①	Firmware	Micro USB firmware update
②	Power Indicator	<ul style="list-style-type: none"> > Illuminate Green when power on > Illuminate Red in standby mode
③	IR	In-built IR sensor, receive IR signals sent from IR remote.
④	LCD Screen	Display real-time operation status.
⑤	INPUTS/ Menu buttons	<ul style="list-style-type: none"> > Normal mode: ranging from "1" to "8". > Enquiry mode (buttons 1-4): Press "ENTER" for >3 seconds to enter mode. Press ▲ to select different menus, ◀▶ to select options. Press ENTER to confirm.
⑥	OUTPUTS buttons/ EDID Management buttons	<ul style="list-style-type: none"> > Normal mode: ranging from "1" to "8". Output 1~3 support Synchronous local HDMI output. > EDID control mode: press and hold EDID button for >3 seconds enter this mode, buttons 1~8 correspond to the 8 embedded EDID data received from the displays. Press any of the 8 buttons to save the embedded EDID data.
⑦	Function Buttons	<p>ALL: Select all inputs / outputs</p> <hr/> <p>EDID management button: Enables input port to manually capture and select the EDID data of output device.</p> <hr/> <p>CLEAR: Cancel an operation, like switching output</p> <hr/> <p>Channel or learning EDID data before it comes into effect. The matrix will return to the previous state.</p> <hr/> <p>ENTER: Confirms operation. Press and hold for >3 seconds to enter Enquiry mode.</p>

2.3 Product Appearance of the HMX 884LP4K (310037)

2.3.2 Rear Panel



No.	Name	Description
①	INPUTS	a. IR OUT: Plug the IR emitters in to the "IR OUT" 3.5mm jack sockets. This allows the IR signals to be passed through the matrix to the receiver in the select zone or to all zones. The default setting enables all corresponding inputs to be connected to their respective outputs, i.e. IR IN 1 to be linked to IR OUT 1.
	INPUTS	b. AUDIO: Auxiliary audio input ports, 8 in total, compatible with PCM audio sources
		c. HDMI: 8 x HDMI type A female sockets. Plug an HDMI cable in to the socket and repeat on the Source device (such as Blu-ray)
②	OUTPUTS	d. IR IN: The matrix has 8 "IR IN" 3.5mm sockets. These connect directly to the IR IN on the receivers. This forms a fixed bi-directional transmission link.
		e. RS232: The matrix has 8 x 3-pin pluggable terminal blocks, these enable fixed communication link with the RS232 port on corresponding HDBaseT™ receiver.
		f. AUDIO: 8 x stereo audio outputs
		g. HDMI: HDMI Type A connectors, plug an HDMI cable into the output socket and connect it to either a local display or AVR.
		h. HDBaseT: Uses HDBT technology to convert HDMI signals to CAT5e/6
③	RS232	Serial port for unit control, 9-pin female connector, enables control of 3rd party device such as a PC.
④	IR ALL IN	Plug an IR Receiver in to the "IR ALL IN" 3.5mm jack socket. Sends IR command signals from the matrix to the receivers.
⑤	TCP/IP	TCP/IP port for unit control
⑥	IR ALL OUT	Receives IR command signals from the receivers and re-transmits the command signals to 3rd party devices such as AVR's.
⑦	Power Button	Front panel illuminate Green when powered on and RED in Standby. RED Power on Indicator on rear panel
⑧	Power Supply	Plug the power supply in to the Matrix, select to correct power cord for your region.
⑨	GROUND	Ensure the Matrix is earth bonded.



User Manual

3. System Connection

3.1 System Applications

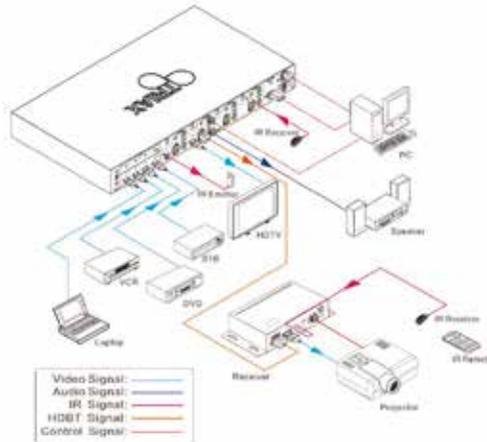
The Triax Matrices are ideal for Schools, Residential Pubs, Clubs and Sports Bars.

3.2 Usage Precautions

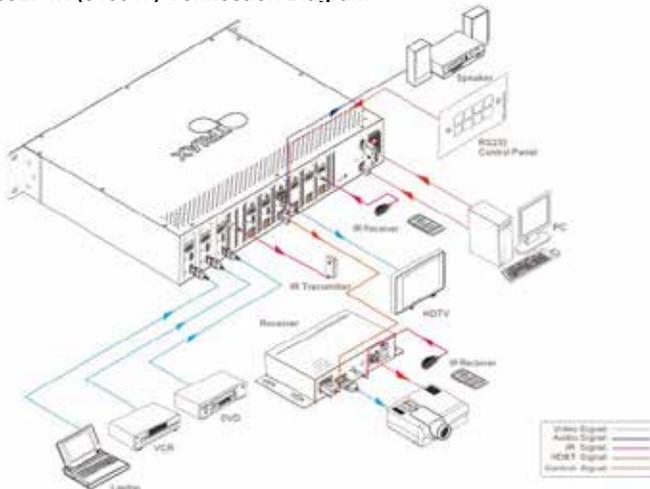
1. System should be installed in a clean environment.
2. Ensure that all of the power cords and plugs are not damaged, if there are any signs of damage DO NOT Use and send back to the Supplier.
3. All devices should be connected before power on.

3.3 System Connection Diagrams

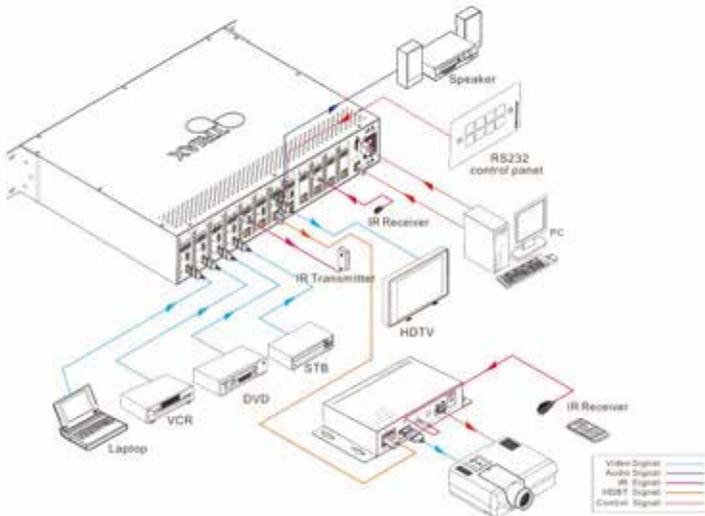
3.3.1 HMX 442LP4K (310037) Connection Diagram



3.3.2 HMX 663LP4K (310047) Connection Diagram



3.3.3 HMX 884LP4K (310038) Connection Diagram



3.4 Connection Procedure

- 1) Connect HDMI sources (e.g. DVD) to HDMI inputs of the Matrix with High Speed + Ethernet HDMI cables.
- 2) Connect auxiliary audio sources to the AUDIO IN ports with audio cables.
- 3) Connect HDBaseT receivers (e.g. HRX 1LP4K) to the HDBaseT Output ports with CAT5e or higher.
- 4) Connect HDMI displays (e.g. HDTV) to HDMI outputs of the Matrix or the receivers with HDMI cables
- 5) Connect speakers/earphones to AUDIO output ports
- 6) Connect the RS232 port of control device (e.g. a PC) to the RS232 port of either Matrix or far-end receivers. RS232 signal can be transmitted bi-directionally between Matrix and far-end receivers.
- 7) The Matrix can collect IR signal sent by the included IR remote via its built-in IR sensor or through external IR receiver connected to the IR IN/ IR OUT ALL/ IR ALL IN port. The IR signal can be transmitted bi-directionally between Matrix and end receivers.
- 8) Connect an AC 100V~240V power outlet and the Matrix with the AC power cord or the Transformer adaptor on the HMX 442LP4K, Select the correct Power Plug adaptor for your region

Note:

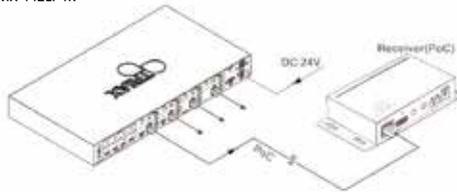
- 1) Output audio is selectable via RS232 command Audio/[X]:[Y]. It's free to select whether analogue audio or HDMI audio to output. Default is HDMI audio. [Not applicable to HMX 442LP4K]
- 2) IR receivers connected to IR IN & IR ALL IN should be with carrier. If not, send command %0900. or %0901. to activate native carrier mode or force carrier mode in the IR matrix launched between Matrices and receivers.



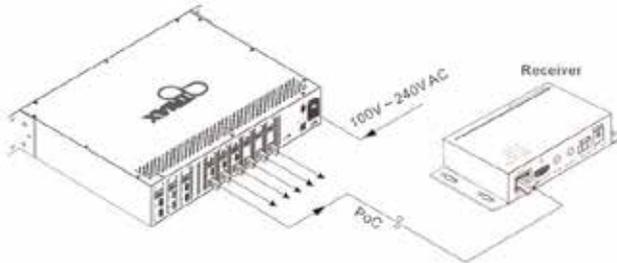
3.5 Connection with the HRX 1LP4K (310039) HDBaseT™ Receiver

The Triax series of Matrices are PoE compatible meaning that the matrices power up the HDBaseT™ receivers such as HRX 1LP4K. Connect a CAT5e patch lead to the RJ45 output port of the matrix to the pre-installed CAT cabling, at the receiver location there may be a RJ45 Socket or a direct cable. Plug the cable directly in to the receiver. If there is a socket installed you will need to connect a patch lead between the socket and the receiver, it is very important to use a high quality cable. Once all the connections have been made then plug in and turn on the matrix.

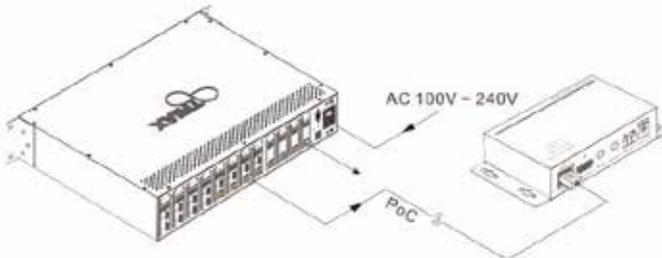
HMX 442LP4K



HMX 663LP4K



HMX 884LP4K



4. System Operations

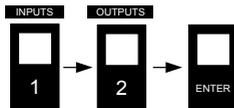
4.1 Front Panel Button Control

Refer to Section 2.1 *Front Panel Appearance dependent on model*. Basic Introduction on programming the Triax Matrices via the front panel.

4.1.1 Switching I/O connection

To convert one input to an output: Operation "Input 1"+"Output 2"+"ENTER"

Example: Input 1 to Output 2



3) To convert an input to all outputs: Operation: "input" + "ALL" + "ENTER"

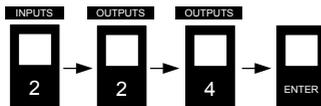
Example: Convert input 1 to all outputs

Note: Default setting, All IR OUT sockets correspond with the total number of HDMI INPUTS dependent on model. When you convert an HDMI input to an output, the corresponding IR OUT will be switched synchronously.

2) To convert an input to several outputs:

Operation: "input" + "output" + "output" + ... + "ENTER"

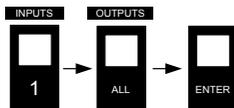
Example: Switch input 2 to output 2 and 4



3) To convert an input to all outputs:

Operation: "Input" + "ALL" + "ENTER"

Example: Convert input 1 to all outputs



LED programming sequence, The BLUE LED's will flash 3 times when the program sequence has been saved, If there is no BLUE LED sequence the programming has failed.



4.1.2 EDID Management

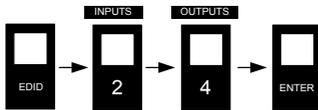
The Triax Series of Matrices offer EDID management as a standard feature. This allows and maintains compatibility between devices. This procedure allows the matrix to learn the setting from a display or TV in a particular zone.

EDID learning from output.

The matrix will learn the EDID information from the output port / zone.

Operation: *Press "EDID" Press "Inputs 2" Press "Output 4" Press "Enter"* in sequence and save

Example: Input 2 learns the EDID information from output 4

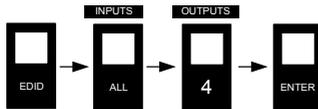


All Input ports learn the EDID setting from one specified output sink device.

The matrix will learn the EDID information from the output port / zone 4 and be saved to ALL inputs.

Operation: *Press "EDID" Press "ALL" Press "Output 4" Press "Enter"* in sequence and save

Example: ALL Input learns the EDID information from output 4



LED programming sequence, The BLUE LED's will flash 3 times when the program sequence has been saved, If there is no BLUE LED sequence the programming has failed.

4.13 EDID Invoking

There are Five [HMX442LP4K] and Six types [HMX 663LP4kK & HMX884LP4K] of embedded EDID data, The table below illustrates the detailed information of the embedded EDID data.

HMX 442LP4K	
Output Button	EDID Data
1	1080P 2D 2 CH
2	1080P 3D 2 CH
3	1080P 2D Multichannel
4	1080P 3D Multichannel
5	3840x2160 2D (30Hz)

HMX 663LP4K / HMX 884LP4K	
Output Button	EDID Data
1	1080P 3D 2CH
2	1080P 3D Multichannel
3	1080P 2D 2CH
4	1080P 2D Multichannel
5	3840x2160 2D (30Hz)
6	4096x2160 2D (30Hz)

HMX 442LP4K: Press and hold "EDID" for 3 seconds to enter EDID invoking mode, in this mode, use output buttons 1/2 to switch among the 5 embedded EDID data. Then press "ENTER" to confirm invoking.

Format: Press and hold "EDID" for 3 seconds, "INPUTS"+"OUTPUTS 1/2"+"ENTER".

Operations:

Invoke embedded EDID data for one input

Operation: Press "EDID" (hold for 3 seconds to enter in EDID setting status), "INPUTS"+"OUTPUTS"+"ENTER".

Example: Set the EDID data of INPUT 2 to the forth type of embedded EDID data:

Press **EDID** (hold for 3 seconds) → INPUT2 → OUTPUT1 or OUTPUT2 to switch to the 4th EDID data → **ENTER**.

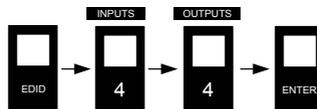
Note: If the conversion is successful, indicators of the pressed buttons will blink green for three times at normal speed; if the conversion failed, they will blink for three times quickly.

Format: Press and hold "EDID" for 3 seconds, "INPUTS"+"OUTPUTS"+"ENTER". Operations:

Set EDID data for one input

Operation: Press "EDID" (hold for 3 seconds to enter in EDID setting status), "INPUTS"+"OUTPUTS"+"ENTER".

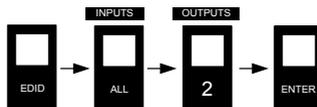
Example: Set the EDID data of INPUT 4 to the forth type of embedded EDID data:



Set EDID data for all inputs

Operation: Press "EDID" (hold for 3 seconds to enter in EDID setting status), "ALL"+"OUTPUTS"+"ENTER".

Example: Set the EDID data of all input ports to the second type of EDID data:



To confirm that the programming has been successful the BLUE LED's will flash 3 times at a normal speed, if unfortunately the programming was unsuccessful the BLUE LED's will Flash fast 3 times.



User Manual

4.1.4 Enquiry

Press and Hold the “ENTER” button for 3 seconds and this will give you access to the “ENQUIRY” Mode. Use Left and Right direction buttons to navigate the menu.

Function Items	Example	Description
Check the connection status of inputs		Y means the corresponding port is connected with input device, N means not.
Check the connection status of outputs		Y means the corresponding port is connected with output device, N means not.
Correspondence between inputs and outputs		Shows the correspondence between the 8 inputs and 8 outputs.
Check if the input is with HDCP		Y means the input signal is with HDCP, N means not.
Check if the output is with HDCP		Y means the output signal is with HDCP, N means not.

Press and Hold the “ENTER” button for 3 seconds and this will give you access to the “ENQUIRY” Mode. Use Left and Right direction buttons to navigate the menu.

Check Output Resolution		Use button to check ALL output resolutions separately.
-------------------------	--	---

To Check the Output Status

Press any output button to check its corresponding input.

Example: Check which one is the corresponding input is assigned to output 2. (Presume Output 2 corresponds to Input 1.)

Operation: Press Output 2 button, The LCD screen displays “AV: 1->2 IR: 1->2” and indicators input 1 and output 2 are corresponding the display will last for 3 seconds. Also the corresponding BLUE LED’s above the buttons will illuminate.

4.1.5 Clear operation

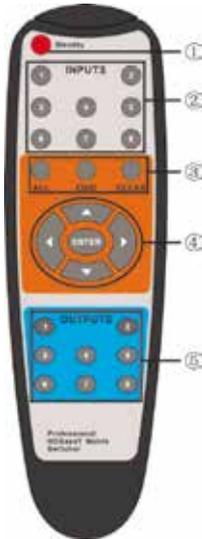
When you switch output channel, learn EDID data or set EDID data, press **Clear** button to go “back” to the previous step before pressing “ENTER” you confirm and access that mode or confirm changes.

4.2 IR Control

By using IR & HDBaseT transmission technology, all Matrices have the functions as follows:

- 1) Able to control the device or display in the Zone. From the matrices location (Local).
- 2) Control local input/output device remotely.
- 3) Control the Matrix locally/remotely.

4.2.1 Usage of IR Remote



1. Standby Button, Press to Enter or Exit standby mode.
2. Input Channels, range from 1~ X dependent on model. IR commands only operate within the actual Zone
3. Menu Button, ALL, EDID and CLEAR replicate Front functionality
4. ▲▼◀▶ Navigation Buttons ENTER to Confirm
5. Output Channels (Zone) , Range 1~8 dependent on model.

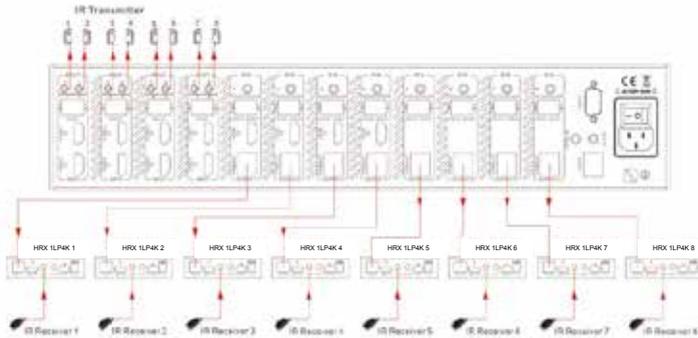
Note: With this IR remote control unit (RCU) ALL Triax Matrices can be controlled by the built-in IR Sensor on the front of the unit.



4.2.2 IR Operations

1) IR Matrix Switching

The 8 "IR OUT" ports and the 8 "IR IN" ports on the far-end Zone receivers make up an 8x8 IR matrix. Refer to schematic below (subject to model):



4.2.3 IR Matrix Bi-directional Control

The IR Signal command is received by the HRX 1LP4K Receiver located in the zone, modulated and superimposed on to the CAT cabling infrastructure. The IR signal is received by the matrix demodulated and returned once more to an IR signal via the IR OUT to the IR blaster which sends the commands to the source.

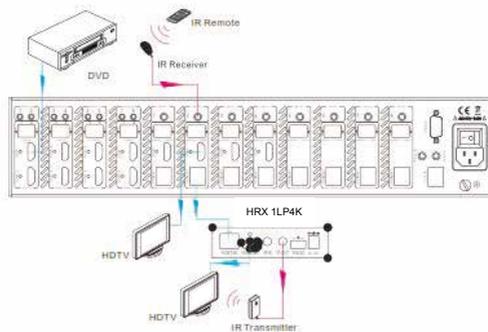
Switching Operation default setting: The IR IN ports correspond to the HDMI Input sources.

4.2.4 IR control setting

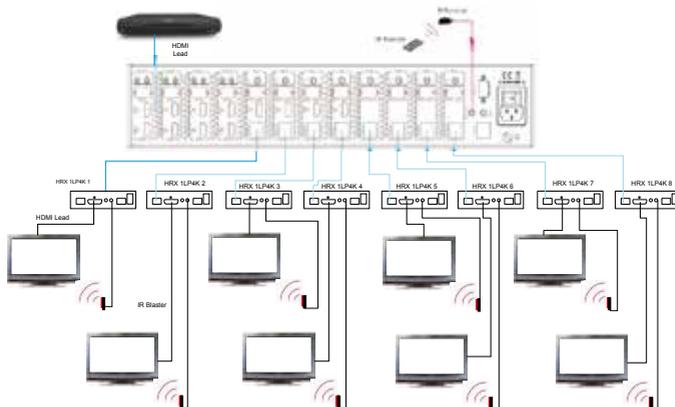
Control the devices located in the zones via the local IR commands at the sources location

Connect the IR emitter receiver to the IR IN port of the Triax Matrix. The users can now control the devices in the zone from the matrix at the [Source location](#). To enable this functionality a IR blaster needs to be plugged in to the IR Out socket on the HRX 1LP4K and has to be inline of sight of the device that you want to control.

See Schematic below (for illustration only):



To control ALL receivers in the zones a IR emitter needs to be connected to the IR ALL IN port on the matrix and an IR Blaster/ transmitter connected to the IR Out socket on the HRX 1LP4K receivers. Once the commands are sent from the local source the IR signals are modulated and passed through the CAT cable infrastructure before being demodulated at the receiver and blaster out to the display. The Blaster must be in-line of sight of the display.



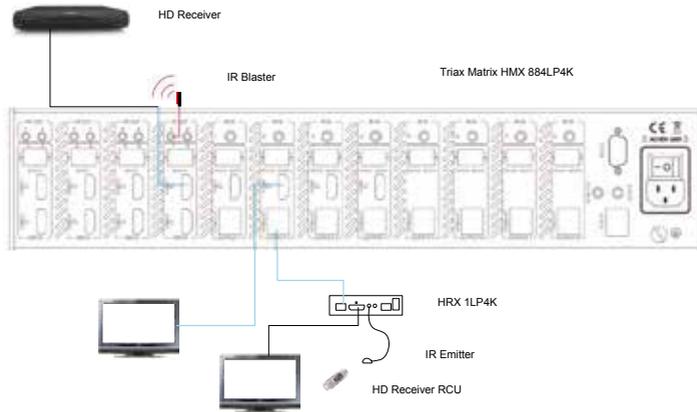


4.2.5 Control local device from remote viewing area or zone

The Triax Matrices enables the end users to control the source equipment whilst in the main viewing area. This feature is possible by installing an IR receiver connected to the IR in port on the HRX 1LP4K receiver. Using the standard remote control for the Source device, direct the remote at the receiver which must be in-line of sight to ensure that it picks up the IR commands.

The IR commands are modulated on to the CAT cable infrastructure and demodulated at the matrix and converted back to IR signals IR Out port, these commands are then blaster back via the transmitter to the source device.

See schematic below:

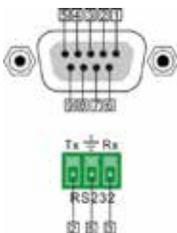


4.3 RS232 Control

4.3.1 Connection with RS232 Communication Port

The Triax Matrices and Receivers have bi-directional control which enables signal source controls such as RS 232 to be used in either location. Both the Matrix and the receiver have RS 232 a female 9-pin D connectors / 3-pin pluggable terminal block.

The definition of its pins is listed in the table below.



No.	Pin	Function
1	N/u	Unused
2	TX	Transmit
3	Rx	Receive
4	N/u	Unused
5	Gnd	Ground
6	N/u	Unused
7	N/u	Unused
8	N/u	Unused
9	N/u	Unused

4.3.2 Installation/uninstallation of RS232 Control Software

Installation Copy the control software file to the computer connected with matrix

Uninstall: Delete all the control software files in corresponding file path.

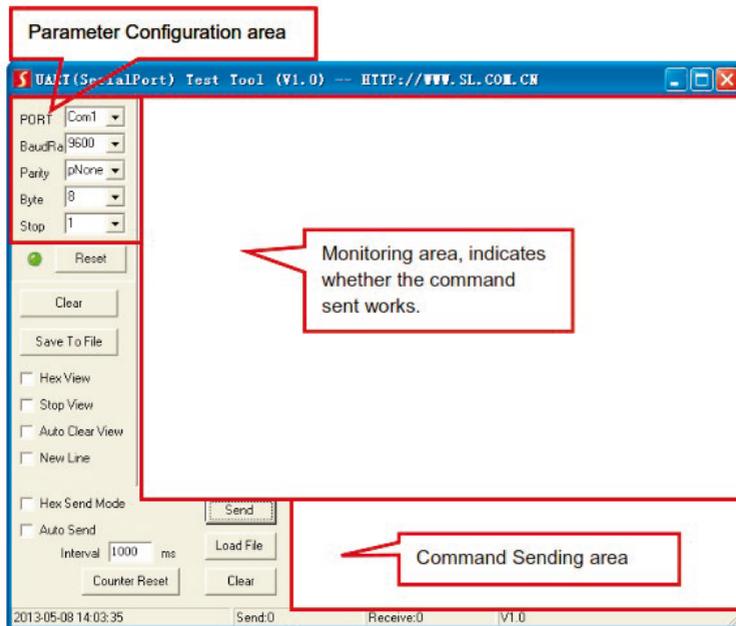
4.3.3 Basic Settings

Firstly, connect the matrix with an input source and an output sink or the network. Connect the computer which has the installed RS232 control software. Double-click the software icon to run the software.

Here we take the software **CommWatch.exe** as example.

The software can be downloaded from the www.comms.com website on the support page or directly on the product page

The interface of the control software is showed as below:



Please ensure that you have set the parameters of the COM number, baud rate, data bit, stop bit and parity bit correctly, only then will you be able to send out commands in the command sending area.



User Manual

4.3.4 RS232 Communication Commands (HMX 442LP4K)

Baud rate: 9600

Data bit: 8

Stop bit: 1

Parity bit: none

Command	Function	Feedback Example
System Commands		
/*Type;	Inquire the models information.	HMX 442LP4K
/%Lock;	Lock the front panel buttons on the Matrix.	System Locked!
/%Unlock;	Unlock the front panel buttons on the Matrix.	System Unlock!
/^Version;	Inquire the version of firmware	VX.X.X
/:Message Off;	Turn off the feedback command from the com port. It will only show simple words like "SWITCH OK!".	/:MessageOff;
/:Message On;	Turn on the feedback command from the com port.	/:MessageOn;
Demo.	Switch to the "demo" mode, convert input and output in turn like 1B1, 1B2, ...4B3, 4B4, 1B1... and so on .The switching interval is 2 seconds.	Demo Mode AV: 01-> 01 AV: 01-> 02 AV: 01-> 03 AV: 01-> 04 AV: 02-> 01 ...
Undo.	To cancel the previous operation.	Undo Ok! Out 01 02 03 04 In 01 01 01 01
Operation Commands		
[x]All.	Transfer signals from the input channel [x] to all output channels	X T o A l l . (X=01~04)
All#.	Transfer all input signals to the corresponding output channels respectively like 1->1, 2->2...	All Through.
All\$.	Switch off all the output channels.	All Closed.
[x]#.	Transfer signals from the input channel [x] to the output channel [x].	X T h r o u g h . (X=01~04)
[x]\$.	Switch off the output channel [x].	X C l o s e d . (X=01~04)
[x]@.	Switch on the output channel [x].	X O p e n . (X=01~04)
All@.	Switch on all output channels.	All Open.

Command	Function	Feedback Example
[x1]V[x2].	Transfer the AV signal from the input channel [x1] to one or several output channels ([x2], separate output channels with comma).	AV: X1-> X2 (X1/X2=01~04)
[x1]B[x2].	Transfer the AV and IR signal from input channel [x1] to one or several output channels ([x2], separate output channels with comma).	AV: X1-> X2 (X1/X2=01~04)
[x1] R[x2].	Transfer the IR signal from output [x1] to input [x2].	IR: X1-> X2(X1、X2=01~04)
Status[x].	Check the I/O connection status of output [x]	AV: Y-> X (X=01~04, Y=01~04)
Status.	Inquire the input channel to the output channels one by one.	AV: 01-> 01 AV: 02-> 02 AV: 03-> 03 AV: 04-> 04
Save[Y].	Save the present operation to the preset command [Y], ranges from 0 to 9.	Save To FY (Y=0-9)
Recall[Y].	Recall the preset command [Y].	Recall From FY (Y=0-9)
Clear[Y].	Clear the preset command [Y].	Clear FY (Y=0-9)
PWON.	Work in normal mode.	PWON
PWOFF.	Enter into standby mode and cut off the power supply to HDBaseT receivers.	PWOFF
STANDBY.	Enter into standby mode. (Do not cut off the power supply to HDBaseT receivers, press other buttons or send other commands to start.)	STANDBY
<u>/%[Y]/[X]:[Z].</u>	HDCP management command. [Y] is for input (value: I) or output (value: O); [X] is the number of the port, if the value of X is ALL, it means all ports; [Z] is for HDCP compliant status, the value may be 1 (HDCP compliant) or 0 (not HDCP compliant).	/%[Y]/[X]:[Z].
DigitAudioON [x].	Enable HDMI audio output of port x. X=1, 2, 3, 4, enable this port. X=5, enable all the 4 ports.	DigitAudio ON with [x]



User Manual

Command	Function	Feedback Example
DigitAudio OFF[x].	Disable HDMI audio output of port x. X=1, 2, 3, 4, disable this port. X=5, disable all the 4 ports.	DigitAudio OFF with [x]
/ + [Y] / [X].*****.	Set communication between PC and HDBaseT receiver. Y is for RS232 port (connect with RS232 port of HDBaseT receiver) Y= 1~5 or A~H, The value of Y is defined into the following meanings (in a given baud rate depended by the value of X): Y = 1~4, send this command to the corresponding HDBaseT receiver to control far-end device. Y = 5, send this command to all HDBaseT receivers to control all far-end devices. Y = A, B, C, or D Y = E, F, G, or H For items c or d, send this command, it will be saved to the matrix switcher but taken without action to corresponding HDBaseT receiver. And its command function will be effective almost at the same time when you send the command PWON (for item c) or PWOFF (for item d). Note: A & E are for port 1. B & F are for port 2. C & G are for port 3. D & H are for port 4. X is for bound rate, its value ranges from 1 to 7 (1--2400, 2--4800, 3--9600, 4--19200, 5--38400, 6--57600, 7--115200) ***** is for data (max 48 Byte)	*****

Command	Function	Feedback Example
EDIDH[x]B[y].	<p>Input port [y] learns the EDID from output port [x].</p> <p>If the EDID data is available and the audio part supports not only PCM mode, then force-set it to support PCM mode only. If the EDID data is not available, then set it as initialized EDID data.</p>	EDIDH[x]B[y]
EDIDPCM[x].	Set the audio part of input port [x] to PCM format in EDID database.	EDIDPCM[x]
EDIDG[x].	Get EDID data from output [x] and display the output port number.	Hexadecimal EDID data and carriage return character
EDIDMInit.	Restore the factory default EDID data of every input.	EDIDMInit.
EDIDM[X]B[Y].	Manually EDID switching. Enable input [Y] to learn the EDID data of output[X]. If the EDID data is not available, then set it as initialized EDID data.	EDIDM[X]B[Y]
EDIDUpgrade [x].	<p>Upgrade EDID data via the RS232 port.</p> <p>[x] is the input port, when the value of X is 9, it means to upgrade all input ports. When the switcher receives the command, it will show a message to prompt you to send EDID file (.bin file). Operations will be canceled after 10 seconds. Please cut off all connections of HDBaseT ports.</p>	Please send the EDID file
EDID/[x]/[y].	<p>Set the EDID data of input port [x] to built-in EDID No.[y].</p> <p>[y]=1~5, correspond to the 5 embedded EDID data separately</p>	EDID/[x]/[y]



User Manual

Command	Function	Feedback Example
UpgradeIntEDID[x].	<p>Upgrade one of the 5 embedded EDID data, x is the serial number for EDID data:</p> <ol style="list-style-type: none"> 1080P 2D 2CH 1080P 3D 2CH 1080P 2D Multichannel 1080P 3D Multichannel 3840x2160 2D (30Hz) <p>When the switcher gets the command, it will show a message to send EDID file (.bin file). Operations will be invalid after 10 seconds.</p>	Please send the EDID file
GetIntEDID[x].	Return the embedded EDID data ranked x, [x]=1~5	
GetInPortEDID[X].	Return the EDID data of input [x], [x]=1~4	
%0801.	Auto HDCP management, activate carrier native mode	%0801
%0900.	Switch to carrier native mode.	Carrier native
%0901.	Switch to force carrier mode.	Force carrier
%0911.	Reset to factory default.	Factory Default
%9951.	Check the command sent by port 1 when PWON.	Port 1:data when PWON
%9952.	Check the command sent by port 2 when PWON.	Port 2:data when PWON
%9953.	Check the command sent by port 3 when PWON.	Port 3:data when PWON
%9954.	Check the command sent by port 4 when PWON.	Port 4:data when PWON
%9955.	Check the command sent by port 1 when PWOFF.	Port 1:data when PWOFF
%9956.	Check the command sent by port 2 when PWOFF.	Port 2:data when PWOFF
%9957.	Check the command sent by port 3 when PWOFF.	Port 3:data when PWOFF
%9958.	Check the command sent by port 4 when PWOFF.	Port 4:data when PWOFF

Command	Function	Feedback Example
Clear[Y].	Clear the preset command [Y].	Clear FY (Y=0-9)
PWON.	Work in normal mode.	PWON
PWOFF.	Enter into standby mode and cut off the power supply to HDBaseT receivers.	PWOFF
STANDBY.	Enter into standby mode. (Do not cut off the power supply to HDBaseT receivers, press other buttons or send other commands to start.)	STANDBY
Audio[X]:[Y].	Select HDMI audio or analogue audio as audio source for output 1~8.	Audio/[X]:[Y]. X=1~8, Y=0 (HDMI audio) or 1 (Analogue audio).
/%[Y]/[X]:[Z].	HDCP management command. [Y] is for input (value: I) or output (value: O); [X] is the number of the port, if the value of X is ALL, it means all ports; [Z] is for working status (value: 1 or 0).	/%[Y]/[X]:[Z]. Y=I/O; X=1~8 or ALL; Z=1/0
[x1]R[x2].	Transfer the IR signal from input channel [x1] to output channel [x2].	IR: X1-> X2 (X1/X2=1~8)
DigitAudioON[x].	Enable HDMI audio output of port x. <ul style="list-style-type: none"> ● X=1, 2, 3, 4, 5, 6, 7, 8, enable this port. ● X=9, enable all the 8 ports. 	DigitAudio ON with [x] x=1~8 or ALL
DigitAudioOFF[x].	Disable HDMI audio output of port x. <ul style="list-style-type: none"> ● X=1, 2, 3, 4, 5, 6, 7, 8, disable this port. ● X=9, disable all the 8 ports. 	DigitAudio OFF with [x] x=1~8 or ALL

*Note: outputs depends on matrix model



User Manual

4.3.4 RS232 Communication Commands (HMX 663LP4K & HMX 884LP4K)

Baud rate: 9600

Data bit: 8

Stop bit: 1

Parity bit: none

Command	Function	Feedback Example
System Commands		
/*Type;	Enquires models information.	"Triax Model"
/%Lock;	Locks the front panel buttons on the Matrix.	System Locked!
/%Unlock;	Unlocks the front panel buttons on the Matrix.	System Unlock!
/^Version;	Displays Firmware version	VX.X.X
/:Message Off;	Turn off the feedback command from the com port. It will only show simple words like "SWITCH OK!".	/:Message Off;

Command	Function	Feedback Example
/:MessageOn;	Turn on the feedback command from the com port.	/:MessageOn;
Demo.	Switch to the "demo" mode, convert input and output in turn like 1B1, 1B2, ..8B7, 8B8, 1B1... and so on .The switching interval is 2 seconds.	Demo Mode
Undo.	To cancel the previous operation.	Undo Ok!

Operation Commands		
[x]All.	Transfer signals from the input channel [x] to all output channels	X To All. (X=1~8)
All#.	Transfer all input signals to the corresponding output channels respectively like 1->1, 2->2...	All Through.
All\$.	Switch off all the output channels.	All Closed.
[x]#.	Transfer signals from the input channel [x] to the output channel [x].	X Through. (X=1~8)
[x]\$.	Switch "OFF" the output channel [x].	X Closed. (X=1~8)
[x]@.	Switch "ON" the output channel [x].	X Open. (X=1~8)
All@.	Switch "ON" all output channels.	All Open.
[x1]V[x2].	Transfer the AV signal from the input channel [x1] to the output channel [x2].	AV: X1-> X2 (X1/ X2=1~8)
[x1]B[x2].	Transfer the AV and IR signal from the input channel [x1] to the output channel [x2].	AV: X1-> X2 (X1/ X2=1~8)
Status[x].	Check the I/O connection status of output [x]	AV: Y-> X (X=1~8, Y=1~8)
Status.	Enquire the input channel to the output channels one by one. This example shows the 8x8.	AV: 1-> X1 AV: 2-> X2 AV: 3-> X3 AV: 4-> X4 AV: 5-> X5 AV: 6-> X6 AV: 7-> X7 AV: 8-> X8
Save[Y].	Save the present operation to the preset command [Y], ranges from 0 to 9.	Save To FY (Y=0-9)
Recall[Y].	Recall the preset command [Y].	Recall From FY (Y=0-9)

Command	Function	Feedback Example
Clear[Y].	Clear the preset command [Y].	Clear FY (Y=0-9)
PWON.	Work in normal mode.	PWON
PWOFF.	Enter into standby mode and cut off the power supply to HDBaseT receivers.	PWOFF
STANDBY.	Enter into standby mode. (Do not cut off the power supply to HDBaseT receivers, press other buttons or send other commands to start.)	STANDBY
Audio/[X];[Y].	Select HDMI audio or analogue audio as audio source for output 1~8.	Audio/[X];[Y]. X=1~8, Y=0 (HDMI audio) or 1 (Analogue audio).
/%[Y]/[X];[Z].	HDCP management command. [Y] is for input (value: 1) or output (value: 0); [X] is the number of the port, if the value of X is ALL, it means all ports; [Z] is for working status (value: 1 or 0).	/%[Y]/[X];[Z]. Y=I/O; X=1~8 or ALL; Z=1/0
[x1]R[x2].	Transfer the IR signal from input channel [x1] to output channel [x2].	IR: X1-> X2 (X1/X2=1~8)
DigitAudioON[x].	Enable HDMI audio output of port x. <ul style="list-style-type: none"> ● X=1, 2, 3, 4, 5, 6, 7, 8, enable this port. ● X=9, enable all the 8 ports. 	DigitAudio ON with [x] x=1~8 or ALL
DigitAudioOFF[x].	Disable HDMI audio output of port x. <ul style="list-style-type: none"> ● X=1, 2, 3, 4, 5, 6, 7, 8, disable this port. ● X=9, disable all the 8 ports. 	DigitAudio OFF with [x] x=1~8 or ALL

*Note: outputs depends on matrix model



User Manual

Command	Function	Feedback Example
<p>/+[Y]/[X]:*****.</p>	<p>Set communication between PC and HDBaseT receiver.</p> <p>① Y is for RS232 port (connect with RS232 port of HDBaseT receiver) Y= 1~9 or A~P, The value of Y is defined into the following meanings (in a given baud rate depended by the value of X):</p> <ul style="list-style-type: none"> a. Y = 1~8, send this command to the corresponding HDBaseT receiver to control far-end device. b. Y = 9, send this command to all HDBaseT receivers to control all far-end devices. c. Y = A, B, C, D, E, F, G or H d. Y = I, J, K, L, M, N, O or P <p>For items c or d, send this command, it will be saved to the matrix switcher but taken without action to corresponding HDBaseT receiver. And its command function will be effective almost at the same time when you send the command PWON (for item c) or PWOFF (for item d).</p> <p>Note: A & I are for port 1. B & J are for port 2. C & K are for port 3. D & L are for port 4. E & L are for port 5. F & N are for port 6. G & O are for port 7. H & P are for port 8.</p> <p>② X is for bound rate, its value ranges from 1 to 7 (1--2400, 2--4800, 3--9600, 4--19200, 5--38400, 6--57600, 7--115200)</p> <p>③ ***** is for data (max 48 Byte)</p>	<p>/+[Y]/[X]:*****.</p>

Command	Function	Feedback Example
EDIDH[x]B[y].	Input port [y] learns the EDID from output port [x]. If the EDID data is available and the audio part supports not only PCM mode, then force-set it to support PCM mode only. If the EDID data is not available, then set it as initialized EDID data.	EDIDH[x]B[y].
EDIDPCM[x].	Set the audio part of input port [x] to PCM format in EDID database.	EDIDPCM[x].
EDIDG[x].	Get EDID data from output [x] and display the output port number.	Hexadecimal EDID data and carriage return character
EDIDMinit.	Restore the factory default EDID data of every input.	EDIDMinit.
EDIDM[X]B[Y].	Manually EDID switching. Enable input[Y] to learn the EDID data of output[X]. If the EDID data is not available, then set it as initialized EDID data.	EDIDM[X]B[Y].
EDIDUpgrade [x].	Upgrade EDID data via the RS232 port. [x] is the input port, when the value of X is 9, it means to upgrade all input ports. When the switcher receives the command, it will show a message to prompt you to send EDID file (.bin file). Operations will be cancelled after 10 seconds. Please cut off all connections of HDBaseT ports.	Please send the EDID file
EDID/[x]/[y].	Set the EDID data of input port [x] to built-in EDID No.[y]. [y]=1~4, correspond to the 4 embedded EDID data	EDID/[x]/[y].



User Manual

Command	Function	Feedback Example
UpgradeIntED ID [x].	Upgrade one of the 6 embedded EDID data, x is the serial number for EDID data 1. 1080P 3D 2CH 2. 1080P 3D Multichannel 3. 1080P 2D 2CH 4. 1080P 2D Multichannel 5. 3840x2160 2D (30Hz) 6. 4096x2160 2D (30Hz) When the switcher gets the command, it will show a message to send EDID file (.bin file). Operations will be invalid after 10 seconds.	Please send the EDID file
GetIntEDID[x].	Return the embedded EDID data ranked x, [x]=1~6	
GetInPortEDI D [X].	Return the EDID data of input [x], [x]=1~8	
%0801.	Auto HDCP management, activate carrier native mode	%0801.
%0900.	Switch to carrier native mode.	Carrier native
%0901.	Switch to force carrier mode.	Force carrier
%0911.	Reset to factory default.	Factory Default
%9951.	Check the command sent by port 1 when PWON.	Port 1:data when PWON
%9952.	Check the command sent by port 2 when PWON.	Port 2:data when PWON
%9953.	Check the command sent by port 3 when PWON.	Port 3:data when PWON
%9954.	Check the command sent by port 4 when PWON.	Port 4:data when PWON
%9955.	Check the command sent by port 5 when PWON.	Port 5:data when PWON
%9956.	Check the command sent by port 6 when PWON.	Port 6:data when PWON
%9957.	Check the command sent by port 7 when PWON.	Port 7:data when PWON

Command	Function	Feedback Example
%9958.	Check the command sent by port 8 when PWON.	Port 8:data when PWON
%9941.	Check the command sent by port 1 when PWOFF.	Port 1:data when PWOFF
%9942.	Check the command sent by port 2 when PWOFF.	Port 2:data when PWOFF
%9943.	Check the command sent by port 3 when PWOFF.	Port 3:data when PWOFF
%9944.	Check the command sent by port 4 when PWOFF.	Port 4:data when PWOFF
%9945.	Check the command sent by port 5 when PWOFF.	Port 5:data when PWOFF
%9946.	Check the command sent by port 6 when PWOFF.	Port 6:data when PWOFF
%9947.	Check the command sent by port 7 when PWOFF.	Port 7:data when PWOFF
%9948.	Check the command sent by port 8 when PWOFF.	Port 8:data when PWOFF
%9961.	Check the system locking status.	System Locked/ Unlock!
%9962.	Check the status while in standby mode.	STANDBY/PWON/ PWOFF
%9963.	Check the working mode of infrared carrier.	Carrier native/ Force carrier
%9964.	Check the IP address.	IP:192.168.0.178 (default)



User Manual

Command	Function	Feedback Example
%9966.	Check the audio sources of all outputs	Channel 1 is HDMI Audio Channel 2 is HDMI Audio Channel 3 is HDMI Audio Channel 4 is HDMI Audio Channel 5 is HDMI Audio Channel 6 is HDMI Audio Channel 7 is Analog Audio Channel 8 is HDMI Audio
%9971.	Check the connection status of the inputs.	In 1 2 3 4 Connect N Y Y Y In 5 6 7 8 Connect N Y Y Y
%9972.	Check the connection status of the outputs.	Out 1 2 3 4 Connect N Y Y Y Out 5 6 7 8 Connect N Y Y Y
%9973.	Check the HDCP status of the inputs.	In 1 2 3 4 HDCP N N Y Y In 5 6 7 8 HDCP N N Y Y
%9974.	Check the HDCP status of the outputs.	Out 1 2 3 4 HDCP N N Y Y Out 5 6 7 8 HDCP N N Y Y
%9975.	Check the I/O connection status.	Out 1 2 3 4 In 1 2 3 4 Out 5 6 7 8 In 5 6 7 8

Command	Function	Feedback Example
%9976.	Check the output resolution.	Resolution Out 1 0000x0000 Out 2 1920x1080 Out 3 1920x1080 Out 4 1920x1080 Out 5 0000x0000 Out 6 1920x1080 Out 7 1920x1080 Out 8 1920x1080
%9977.	Check the status of digital audio of output channels.	Out 1 2 3 4 Audio Y Y Y Y Out 5 6 7 8 Audio Y Y Y Y
%9978.	Check the HDCP compliant status of the inputs.	In 1 2 3 4 HDCPEN Y Y Y Y In 5 6 7 8 HDCPEN Y Y Y Y

Note:

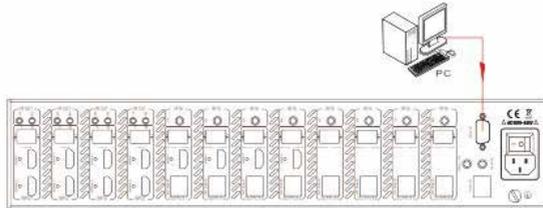
- 1) Please disconnect all the twisted pairs before sending command EDIDUpgrade[X].
- 2) In above commands, “[” and “]” are symbols for easy reading and do not need to be typed in actual operation.
- 3) Please remember to end the commands with the ending symbols “.” and “;”.
- 4) Type the command carefully, it is case-sensitive.

4.4 RS232 Control Modes

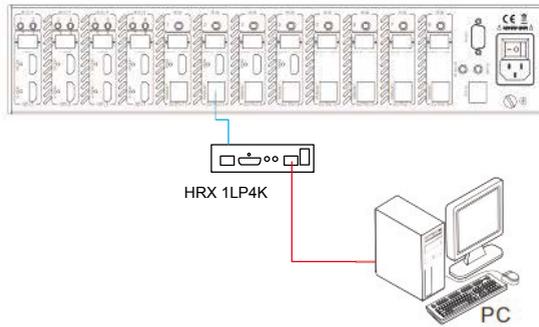
To control the Triax Matrices, you need to connect its 9 pin female RS232 port to a PC's RS232 port, or you can just connect any one of the HDBaseT receiver's RS232 port with PC (RS232 command can be transmitted to the matrices via the twisted pair). By using RS232 control software and with right specification settings, you are able to control the matrices.



4.4.1 Control Triax Matrix locally



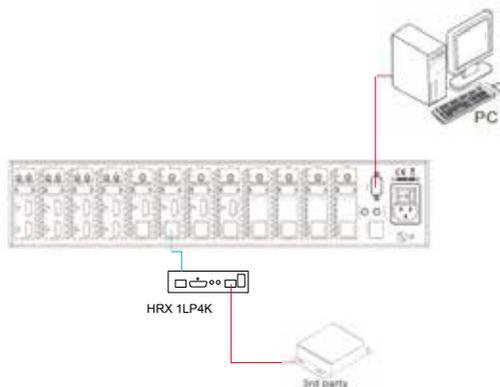
4.4.2 Control Triax Matrix from the Zones



4.4.3 Control 3rd-Party Device Locally

Connect the 9 pin female RS232 port of the Matrix to the PC, by using the RS232 command `!+ [Y]/[X]:*****.`, you are able to control the 3rd-party device connected with the HDBaseT receiver.

Please refer to the detailed command description in 4.3.4 RS232 Commands.

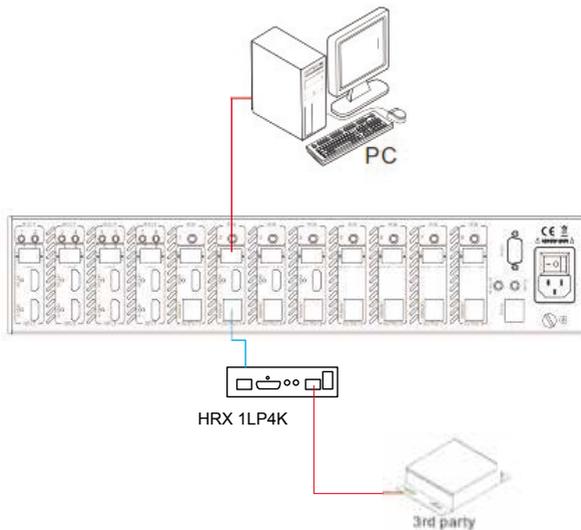


4.4.4 Bi-directional RS232 Control

By connecting one RS232 port to a PC (or controlled device), and connecting the RS232 port of corresponding HDBaseT receiver with controlled device (or PC), the RS232 signal is able to be transmitted bi-directionally.

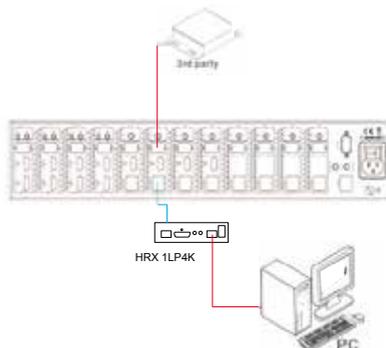
- **Control far-end device locally from matrix**

Connect the RS232 (3-pin pluggable terminal block) port in any zone to PC, and connect the controlled RS232 device (3rd party device) to the corresponding (same zone as PC) receiver, see below:



Control the Matrix and 3rd Party control from a remote zone

Connect the RS 232 (3-pin pluggable terminal block) in to the marked port on the matrix where the 3rd party device is locally situated. Connect the PC to the RS 232 port on the receiver as shown below.





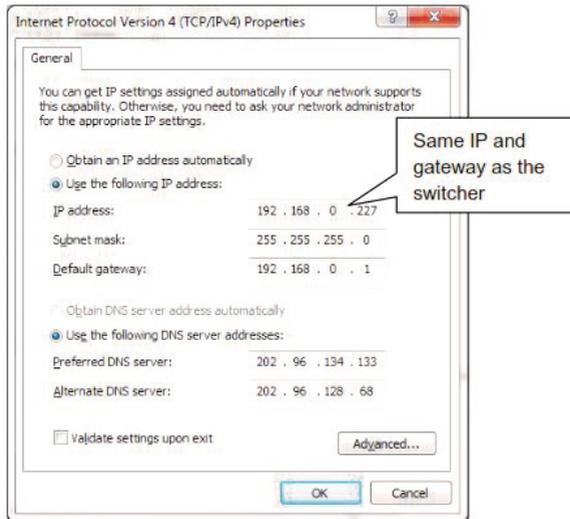
4.5 TCP/IP Control

4.5.1 Control Modes

Control of the Triax Matrix via TCP/IP from remote zones

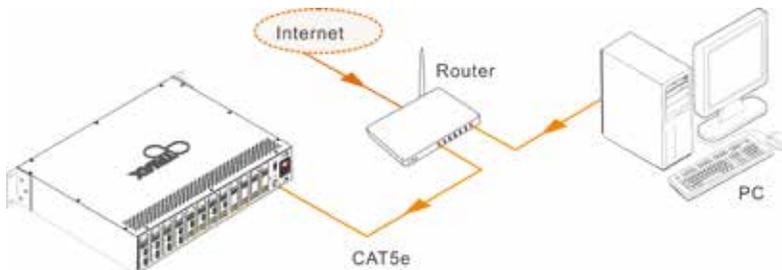
TCP/IP default settings: IP is 192.168.0.178, Gateway is 192.168.0.1, and Serial Port is 8080. IP & Gateway can be changed as you need, Serial Port cannot be changed.

- Control the matrix from a single PC
- Connect the PC to the RJ 45 HDBaseT port on the matrix, set the IP address and gateway to the same IP and gateway as the matrix (Default:192.168.0.178)



Control the Matrix by PC (s) on a Network (LAN)

Connect the Matrix and the PC to the router via a direct network connection as shown in the example below. Set the IP and Default gateway of the matrix to the same as the router's. If the settings are correct the Matrix and the PC are on the same network they will be able to communicate with each other.



Follow the steps below:

1. Connect the PC's Ethernet port to the TCP/IP port on the Matrix using a RJ45 standard patch lead
2. Make note of your PC's IP address and default gateway settings
3. Set the PC's IP settings and Default gateway to be in the same range as the matrix
4. Change the IP address and the default gateway setting of the matrix (which is on the label stuck to the unit) to an address within the same range as the router
5. Port 4001

4.5.2 GUI for TCP/IP control

The Triax series of Matrices come with an on-board GUI for convenient TCP/IP control. The GUI allows the user to interact with the matrix through graphical icons and visual indicators. To access the web browser type in the following IP address 192.168.0.178. The screen below will be shown.



There are two logins for each matrix one for the Administrator and the other for User.

Default **Username: admin** and the password is: **admin**

Default **Username: user** and the password is: **user**

The administrator has more rights and can access and configure settings whilst the User can only view with minimal access to settings.



User Manual

Main interface: The screen shot below shows after logging in the Inputs and Output configuration I/O. The button matrix displays every possible connection between every input and output, Administrators can carry on the connection by clicking on the corresponding button.



Users display is locked to give minimal access. If any changes are made press "Save" and Cancel to "Exit" without making changes.



Interface: Set Title Bar Label, LCD Readout and button labels, press "Save" to save all changes.



Configuration: Set HDCP compliance status for every input and manage EDID.

See Screen shot below.



Network: Enquire and configure network settings including MAC address, IP address, subnet mask and default gateway.

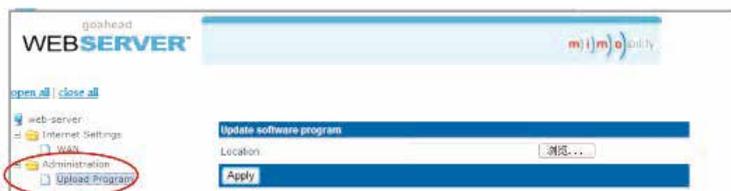


Note: Log in as User access to main interface only.

4.5.3 GUI Updates

All Triax GUI support online updates, visit <http://192.168.0.178:100>. Type in the Username and password to log in to the configuration interface. Click **Administration** at the source menu to get **Upload Program** as shown below.

Select the desired update file and press **Apply** to start the upgrade.





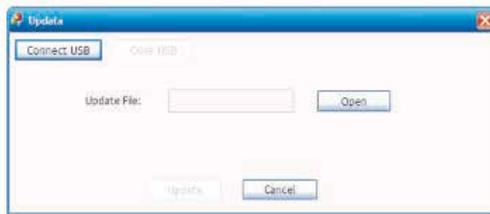
4.5.5 Firmware Update via USB

The Triax Series of Matrices can have their firmware updated via USB. For assistance please contact technicalsupport@triax.co.uk

Download the latest upgrade file, copy the exe.file to the PC and double click on the file to start the process.



When the program is running it will display the update dialogue box shown below, Press  the Button and choose the upgrade file to be downloaded and press the button. 



Once this update has finished and is accepted a new window will appear showing the message **Update Success**

Note: The COM number connected to the PC is only available when it is in the range of 1~9.

5. Specifications, For All Triax Matrices, HMX 442LP4K , HMX 663LP4K and HMX 884LP4K

Video Input		Video Output	
Input	4, 6 or 8, HDMI	Output	2, 3, or 4 HDMI 4, 6, or 8 HDBaseT
Input Connector	Female HDMI	Output Connector	Female HDMI Female RJ45 (with LED indicators)
Input Level	T.M.D.S. 2.9V~3.3V	Output Level	T.M.D.S. 2.9V~3.3V
Input Impedance	100Ω (Differential)	Output Impedance	100Ω (Differential)
		HDBaseT Outputs	Up to 70m1080P@60Hz/ 40m4Kx2K@30Hz
Video General			
Gain	0 dB	Bandwidth	10.2 Gbit/s
Video Signal	HDMI (or DVI-D)	Maximum Pixel Clock	225MHz
Resolution Range	Up to 4Kx2K, 1080P 3D	Switching Speed	200ns (Max.)
Max Pixel Clock	225MHz	EDID Management	In-built EDID data and manual EDID management
HDCP	Supports HDCP 1.4, auto detecting for HDCP status& selectable HDCP status		
Audio General			
Output Signal	Analogue audio	Output Connector	3-pin pluggable terminal block
PCM Format	Distortion: 0.1% 32Ω/70mW@1KHz, 0.1%16Ω/105mW @1KHz	Frequency Response	20Hz~20KHz
CMRR	>90dB @20Hz ~ 20KHz		
Control Parts			
Control Ports dependant on model	4, 6, 8 IR OUT (green and red) 4, 6, 8 IR IN (black) 1 IR ALL OUT (black) 1 IR ALL IN (black) 1 TCP/IP (female RJ45) 1 RS232 (9 pin female)	Panel Control	Front panel buttons
	4, 6, 8 RS232s (3-pin pluggable terminal blocks)		
IR Control	In-built IR sensor, Extended IR receiver	RS232 Control	9 pin female
TCP/IP Control	Works with In-built web GUI		
General			
Power Supply	DC 24V 2.5A 100V~240V AC	Power Consumption	48W HMX 442LP4K, 80W HMX 663LP4K, 103W HMX 884LP4K (full load)
Temperature	-10 ~ +40°C	Reference Humidity	10% ~ 90%
Dimension (W*H*D) HMX 442LP4K HMX 66sLP4K HMX 884LP4K	437 x 44 x 235 mm 437 x 87.8 x 380 mm 437 x 87.8 x 380 mm	Weight	2.0kg 5.3kg 5.4kg



6. Troubleshooting and Maintenance

Problems	Causes	Solutions
Colour lose or no video signal output	The connecting cables may not be connected correctly or it may be broken.	Check whether the cables are connected correctly and in good condition.
	Fail or loose connection	Make sure there is good connection
No output image when switching	No signal at the input / output end	Check with oscilloscope or multi-meter if there is any signal at the input/ output end.
	Fail or loose connection	Make sure the connection is good
	Input source is with HDCP while the HDCP compliance is switched off.	Send command /%[Y]/[X]:1. or change HDCP compliance status in GUI.
	The display doesn't support the input resolution.	Switch for another input source or enable the display to learn the EDID data of the input.
Cannot control the device via front panel buttons	Front panel buttons are locked.	Send command /%Unlock; or select unlock in GUI interface to unlock
Cannot control the device via IR remote	The battery "DEAD"	Change for new battery.
	The IR remote is broken.	Send it to authorized dealer for repairing or replace
	Beyond the effective range of the IR signal or not pointing at the IR receiver	Adjust the distance and angle and point right at the IR receiver.
	The IR receiver connected to IR IN/ IR ALL IN port is not with carrier	Replace IR receiver
Power Indicator remains off when powered on	Fail or loose power connection	Check whether the cables are connected correctly

EDID management does not work normally	The HDMI cable is broken at the output end.	Change for another HDMI cable which is in good working condition.
There is a blank screen on the display when switching	The display does not support the resolution of the video source.	Switch again.
		Manage the EDID data manually to make the resolution of the video source automatically compliant with the output resolution.
Cannot control the device by control device (e.g. a PC) through RS232 port	Wrong connection	Check to ensure the connection between the control device and the unit
	Wrong RS232 communication parameters	Type in correct RS232 communication parameters: Baud rate:600; Data bit: 8; Stop bit: 1; Parity bit: none
	Broken RS232 port	Send it to authorized dealer for checking.
Static becomes stronger when connecting the video connectors	Bad grounding	Check the grounding and make sure it is connected well.
Cannot control the device by RS232 / IR remote / front panel buttons	The device has already been broken.	Send it to authorized dealer for repairing.

If the problem persists after following the above troubleshooting steps, seek further assistance from authorised distributors or contact Triax sales and support at:

International support@triaux.dk
UK support@triaux.co.uk.

7. After-sales Service

In the unlikely event of an issue occurring with this product, please contact your point of sale. Proof of purchase will be needed to be supplied.

The product must be correctly installed and operated in accordance with the instructions contained in this operating manual.

For technical support, please contact your installer.

Please state potential issue and what test procedures have been carried out.



Contact
triaux.com/contact



08-2015A



triaux.com