CYP

CMSI-3232
Modularized Matrix

Operation Manual

SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply.

Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

REVISION HISTORY

VERSION NO.	DATE DD/MM/YY	SUMMARY OF CHANGE
RDV1	13/09/12	Preliminary Release
RDV2	12/13/12	Add Telnet & Web GUI Control
RDV3	22/05/13	RS-232 Commands
RDV4	18/06/13	Separate 3232, 1616 & 88
RDV5	04/07/13	Add CAT5e/6/7 Cable Specification
RDV6	05/11/13	RS-232 Command

CONTENTS

1. INTRODUCTION

The Modularized Matrix series are designed to route the signal of 32 sources to any connected 32 displays, providing resolution up to Full HD 1080p/4Kx2K and WUXGA (1920x1200@60HzRB). Besides the regular matrix functionality, the matrix models are very attractive to the integrators because of their great flexibility, with the most advanced modularization design these models can be setup as a matrix of HDMI, DVI-D, CAT5e/6/7, VGA or their any combinations (count with eight, for example, a matrix with 24-HDMI-in/8-DVI-IN and 16-HDMI-OUT/16-DVI-OUT), all you need to do is to swap the input or output modules as you wish. Refers to section 8 for available module boards.

2. APPLICATIONS

• Public information display

• Educational demo

• Professional Presentation

• Advertising display

• Hospital Operation Room

3. PACKAGE CONTENTS

• 1 x Enclosure of Modularized 3232 Matrix (including control board, & powers)

• 4 x Input Module Board of HDMI/DVI/CAT5e/6/7 or VGA(Optional)

• 4 x Output Module board of HDMI/DVI/CAT5e/6/7 (Optional)

• 2 x Power Cord

• Operation manual

4. SYSTEM REQUIREMENTS

Input source equipments like PC/Laptop/DVD/Blu-ray players output display TV/monitor or CAT5e/6/7 to HDMI receivers.
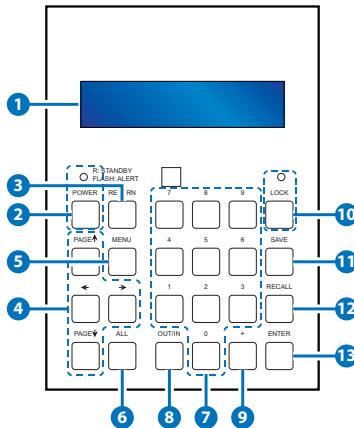
5. FEATURES

- HDMI, HDCP 1.1 and DVI 1.0 compliant
- Changeable input and output boards
- Input and output module types can be mixed and added in increment of 8 from 8x8 up to 32x32 with HDMI, DVI, CAT5e/6/7 and VGA interfaces
- Supports LPCM 7.1CH, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio transmission
- Supports a wide range of PC and HDTV resolutions from VGA to WUXGA and 480i to 1080p or 4Kx2K
- Supports RS-232, Telnet and Web GUI controls
- Supports redundant power supply
- HDMI cable length with a resolution 1080p/8bits&12bits the Input/Output source can be 15m/15m(8bits) and 10/10m(12bits) away
- EDID modes:

  a. Standard mode: Factory Default

  b. Automatic mode: Taking EDID from the lowest output port

  c. Manual mode: Can assign any output to any input port

- CAT5e/6/7 cable length with a resolution 1080p/8bits&12bits the Input/Output source can be 100m/100m away
- 5Play™ convergence: Video, Audio, PoE, Ethernet & Control (IR & RS-232)
- 4Play convergence: Video, Audio, PoE & Control (IR & RS-232)
- 3Play convergence: Video, Audio & Control (IR & RS-232)

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel

1 **LCM:** Displays the setting information of each input and output and other setting information according to the selection.

2 **POWER button & LED:** Press this button to turn On the device or press it again to switch to standby mode. The LED will illuminate when the power is in standby mode. If the LED is flashing it means the temperature inside is too high and air circulation is highly suggested.

3 **RETURN:** Press this button to return back/exit the current selection.

4 **PAGE▲▼◄►:** Use these buttons to flip the LCM's page for displaying the current I/O status or when entering into the menu for detail selection.

5 **MENU:** Press this button to enter into the menu selections of

   A. EDID

   1. Auto EDID: Base on the first connected output TV/Display's EDID from 1~32 ports.

   2. Standard EDID: Use the built-in EDID which supports video up to 1080p@60/WUXGA@60RB and audio supports LPCM 2CH.

3. Manual EDID: Support independent EDID by appoint input and output ports.

B. IP

1. IP address,

2. Netmask,

3. Gateway.

C. Temperature

1. Temperature 1,

2. Temperature 2, these figures shows the temperature of the device inside.

D. LCM Contrast Range from 1~4

6 **ALL:** Press this button to select all outputs to one input.

7 **0~9:** Press these numbers when selecting input output ports.

8 **OUT/IN:** Press this button to select input source to displaying on output display. The sequence should be OUT/IN→number(s) for output source→OUT/IN→a number for input display→Enter.

9 **+:** Press this button when selecting more than one output for an input selection. This button works correspondingly with OUT/IN button only.
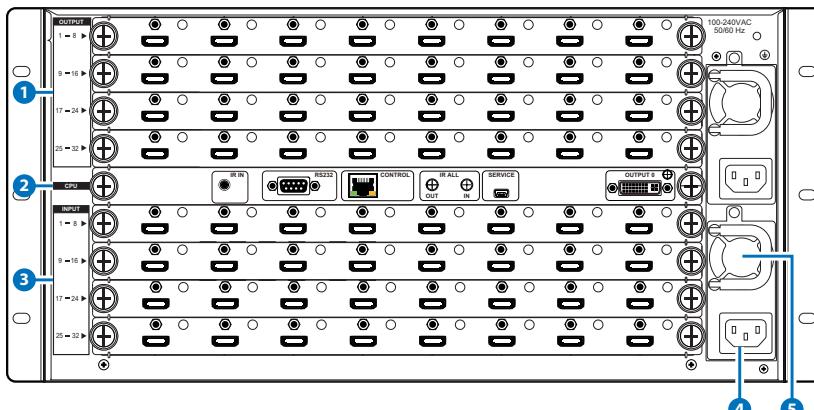
10 **LOCK button & LED:** Press this button to lock all the function buttons on panel. The LED will illuminate, to unlock press it again.

11 **SAVE:** Press this button to save the present setting of the I/O. There are 3 sets available for saving.

12 **RECALL:** Press this button to recall from the saving settings of 1~3.

13 **ENTER:** Press this button every time to confirm the setting or the selection.

6.2 Rear Panel

Note: The above panel is an illustration of HDMI I/O.

① OUTPUT 1~32: Connect to HD or 3D TV/monitors with HDMI cables up to 32 displays.

② CPU

a. RS-232: Connect with D-Sub 9-pin cable from the PC/Laptop device for RS-232 control over the Matrix or the connected device(s).

b. CONTROL: Connect to an active network line for LAN serving and Telnet/Web GUI control.

c. IR OUT/IN: Reserved.

d. SERVICE: This port is reserved for firmware update only.

e. OUTPUT 0: Connect to DVI/HDMI (with DVI to HDMI adaptor) monitor/TV for instant output image viewing.

③ INPUT 1~32: Connect to source equipment such as Blu-ray/PS3 players up to 32 sets with HDMI cables.

④ POWER & POWER Supply: The device will automatically turns ON when connecting with power supply.

⑤ Ventilation Fan: This fan will automatically turns ON when the device is switch to ON. Do not block this port of the device or cover it with any object. Please allow adequate space around the unit for air circulation.

6.3 RS-232 Protocols

CMSI-3232			Remote Controller	
PIN	**Definition**		**PIN**	**Definition**
1	NC		1	NC
2	TxD	→	2	RxD
3	RxD		3	TxD
4	NC		4	NC
5	GND	←	5	GND
6	NC		6	NC
7	NC		7	NC
8	NC		8	NC
9	NC		9	NC

Baud Rate: 19200bps

Data Bit: 8 bits

Parity: None

Stop Bit: 1

Flow Control: None

6.4 RS-232 & Telnet Command

HELP: Show Command list.

Command	Description
P1	Power on.
P0	Power off.
Oxly	Output (x:0~32) set to input (y:1~32).
ALLOUT x	All output set to input (x:01~32).
ACTIVE	Report I/O active channels.
INDETECT	Input channels detect indicator.
OUTDETECT	Output channels detect indicator.
PORTSTATUS	Report all output connection status.
HDCPON x	Setting input port(x:01~32) HDCP on.
HDCPOFF x	Setting input port (x:01~32) HDCP off.
HDCPONALL	Setting all input port HDCP on.
HDCPOFFALL	Setting all Input port HDCP off.
HDCPSTATUS	Show HDCP status of all output(0=HDCP disable,1=enable).
MUTEO x	Video mute command at output (x:0~32) interface.
UNMUTEO x	Video unmute command at output (x:0~32) interface.
MUTEI x	Video mute command at input (x:0~32) interface.
UNMUTEO x	Video unmute command at output (x:0~32) interface.
UNMUTEI x	Video unmute command at input (x:0~32) interface.
MUTEALL	Mute all outputs.
UNMUTEALL	Unmute all outputs.

MUTESTATUS	Show mute status of all output(0=not muted,1=muted).
HPDL x	Pull the input(x:01~32) Hot-Plug-Detect signal to 'LOW'.
HPDH x	Pull the input(x:01~32 Hot-Plug-Detect signal to 'HIGH'.
HPDLALL	Set all input HPD to Low.
HPDHALL	Set all input HPD to High.
HPDSTATUS	Report all input Hot-Plug-Detect signal status.
EDIDMODE x y	Set EDID mode(y:1~2) to Input(x: 01~32).
EDIDMODEALL x	The EDID mode(x:1~2) of All Input.
EDIDPORT x y	Set EDID Assigned Port(y:01~32) to Input(x:01~32).
EDIDPORTALL x	The EDID of All Inports is assigned to Output (x:01-32).
EDIDSTATUS	Report all input EDID mode&port.
UART x "str"	Write UART string to output port(x:01~32).
UARTBAUD x y	Setting output port(x:01~32) UART baud rate(y).
STATUSUART	Show output port UART baud rate.
TEMPSTATUS	Show temperature sensor values y1, y2.
SETIPADDR	Setting IP address<x.x.x.x>.
SETSNMASK	Setting subnet mask<x.x.x.x>.
SETGWADDR	Setting gateway IP address<x.x.x.x>.
IPCONFIG	Display the current IP config.
RSTIP	IP Configuration Was Reset To Factory Defaults(DHCP).

BUZZER x	Buzzer Mute(0),UnMute(1).
REBOOT	System reboot.
SAVETO x	Save as Preset x(1~10).
RECALLTO x	Recall Preset x(1~10).
RESET	System Reset to O1I1,O2I2,O3I3,O4I4,O5I5....
VERSION	Display controller firmware version.

Note: *All the command will be not executed unless followed with a carriage return. Commands are case-insensitive*

6.5 Telnet Control
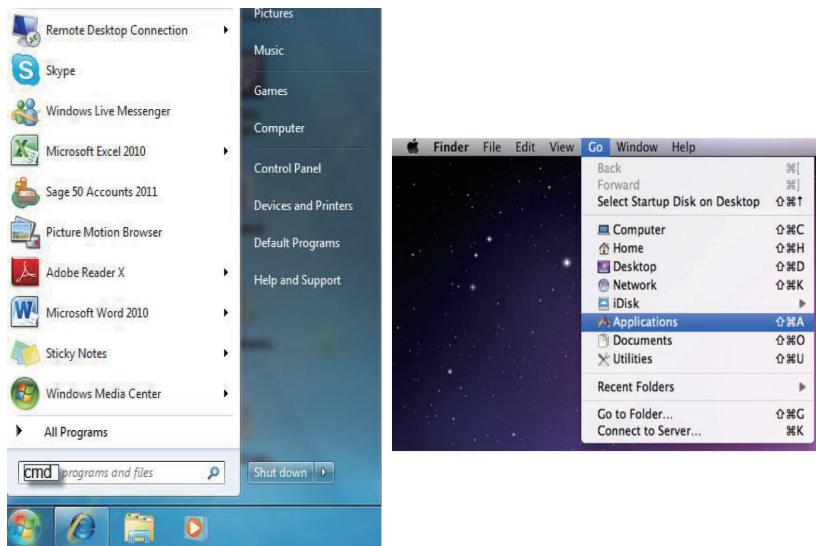
Before attempting to use the telnet control, please ensure that both the Matrix (via the 'LAN /CONTROL' port) and the PC/Laptop are connected to the active networks.

To access the telnet control in Windows 7, click on the 'Start' menu and type "cmd" in the Search field then press enter.

Under Windows XP go to the 'Start' menu and click on "Run", type "cmd" with then press enter.
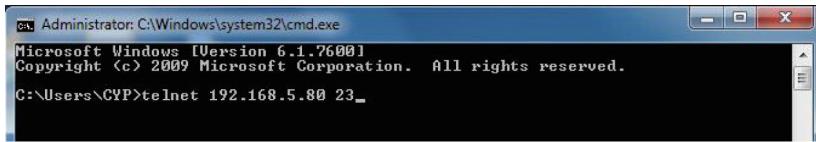
Under Mac OS X, go to Go→Applications→Utilities→Terminal

See below for reference.

Once in the command line interface (CLI) type "telnet", then the IP address of the unit and "23", then hit enter.

Note: *The IP address of the Matrix can be displayed on the device's LCM monitor by pressing the Menu button twice.*

This will bring us into the device which we wish to control. Type "HELP" to list the available commands.

Type "IPCONFIG" To show all IP configurations. To reset the IP, type "RSTIP" and to use a set static IP, type "SETIP" (For a full list of commands, see Section 6.4).
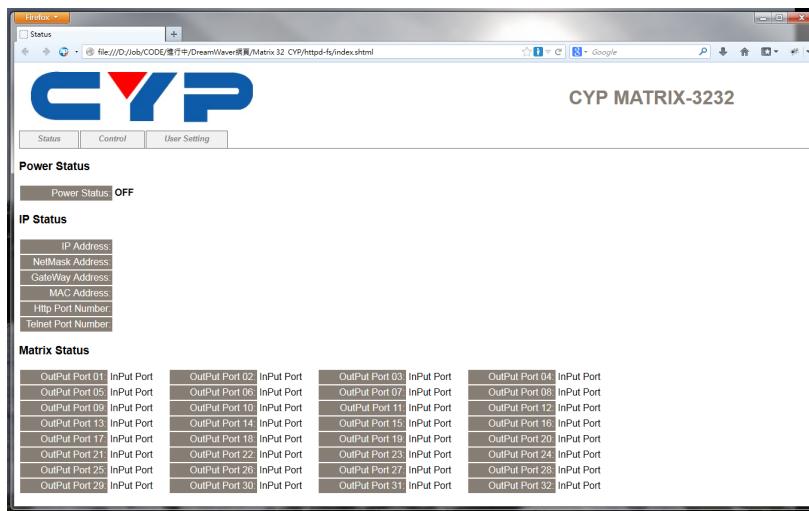
Note: *Any commands will not be executed unless followed by a*
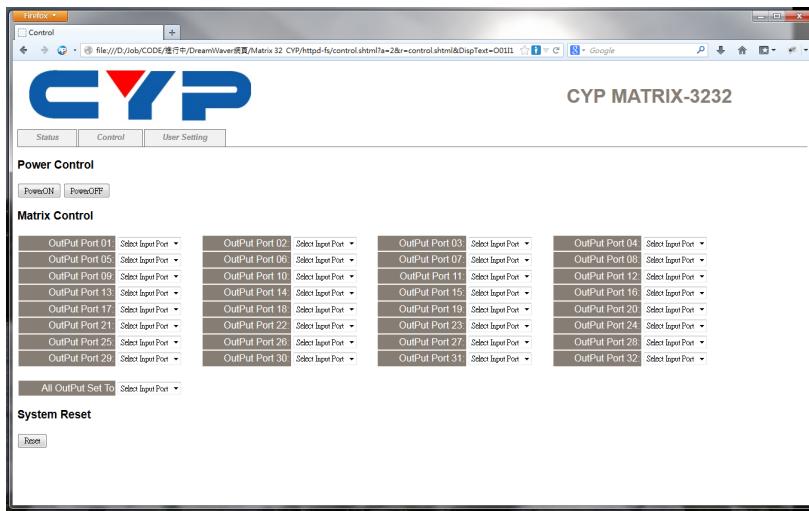
*carriage return. Commands are case-insensitive. If the IP is changed
then the IP Address required for Telnet access will also change
accordingly.*

6.6 Web GUI Control
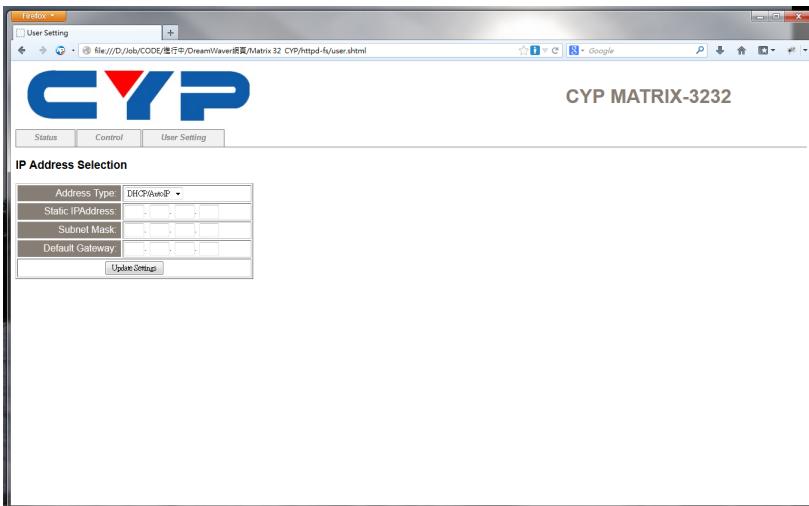
On a PC/Laptop that is connected to the same active network as the
Matrix, open a web browser and type device's IP address on the web
address entry bar. The browser will display the device's status, control
and User setting pages.

Click on the 'Control' tab to control power, input/output ports, EDID
and reset mode.
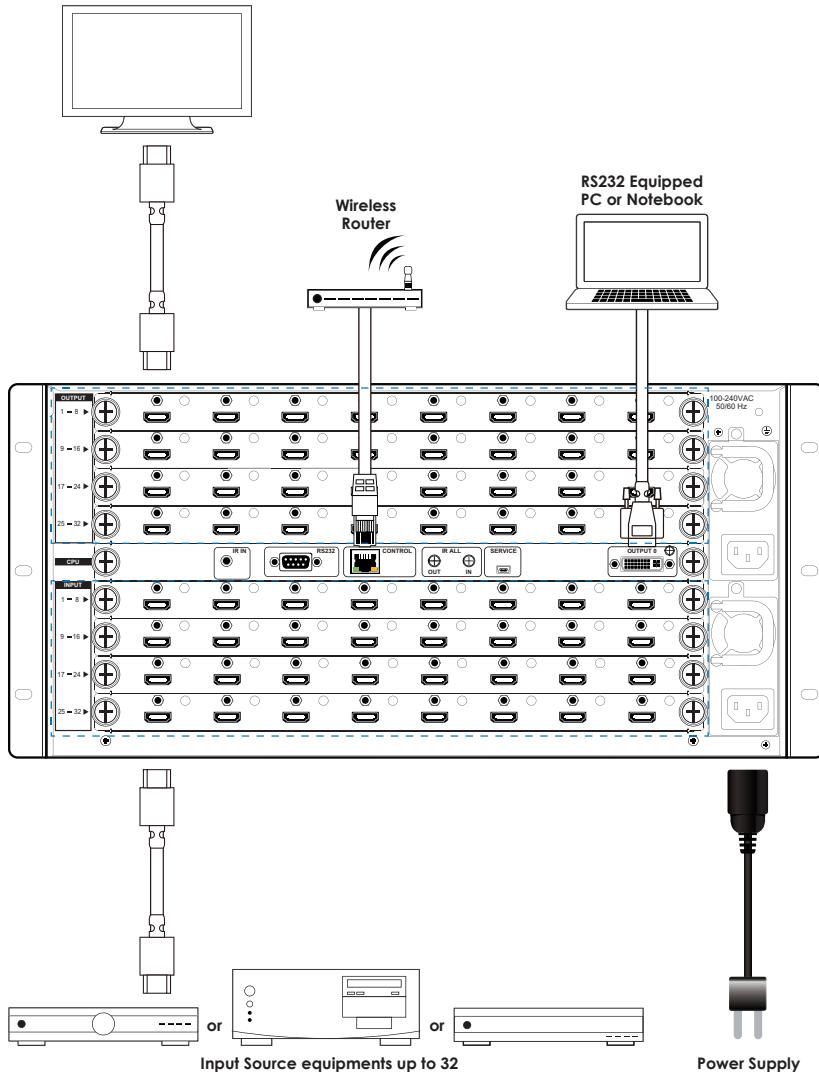
Clicking on the 'User Setting' tab allows you to reset the IP configuration. The system will ask for a reboot of the device every time any of the settings are changed. The IP address needed to access the Web GUI control will also need to be changed accordingly on the web address entry bar.

7. CONNECTION DIAGRAM

Output Display TV/Monitors up to 32

Wireless Router

RS232 Equipped PC or Notebook

Input Source equipments up to 32

Power Supply

8. SPECIFICATIONS

Input ports	32 x HDMI or DVI or CAT5e/6/7 or VGA
Output ports	32 x HDMI or DVI or CAT5e/6/7
Power Supply	2 x AC 110~240V (US/EU standards, CE/FCC/UL certified)
HMDI Cable I/O Distance	15m/8-bits, 10m/12-bits
Dimensions (mm)	482(W) x 494(D) x 233(H)
Weight(g)	15,000
Chassis Material	Metal
Silkscreen Color	Black
Operating Temperature	0 ˚C~40 ˚C/32 ˚F~104 ˚F
Storage Temperature	−20 ˚C~60 ˚C/−4 ˚F~140 ˚F
Relative Humidity	20~90% RH (non-condensing)
Power Consumption	230W

CIN-8HS 8 ports HDMI input module

Video Bandwidth	225MHz/6.75Gbps
Input ports	8 * HDMI
Video resolutions	PC: VGA ~WUXGA@60RB HD: 480i~1080p
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

CIN-8DSL 8 ports DVI input module

Video Bandwidth	225MHz/6.75Gbps
Input ports	8 * DVI
Video resolutions	PC: VGA ~WUXGA@60RB HD: 480i~1080p
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

CIN-8VGA 8 ports VGA input module

Input ports	8 * VGA, 8 * 2.5mm Audio phone jack
Video resolutions	PC: VGA ~WUXGA@60RB
Audio transmission	Stereo 2.5mm phone jack (included 2.5mm to 3.5mm adaptor)

CIN-8HS4K 8 ports 4Kx2K HDMI input module

Video Bandwidth	25~340MHz
Input ports	8 * HDMI
Video resolutions	PC: VGA ~WUXGA HD: 480i~1080p, 4Kx2K@30Hz
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

COUT-8HS 8 ports HDMI output module

Video Bandwidth	225MHz/6.75Gbps
Input ports	8 * HDMI
Video resolutions	PC: VGA ~WUXGA@60RB HD: 480i~1080p
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

COUT-8DS 8 ports DVI output module

Video Bandwidth	225MHz/6.75Gbps
Output ports	8 * DVI
Video resolutions	PC: VGA ~WUXGA@60RB HD: 480i~1080p
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

COUT-8HS4K 8 ports 4Kx2K HDMI output module

Video Bandwidth	25~340MHz
Output ports	8 * HDMI
Video resolutions	PC: VGA ~WUXGA HD: 480i~1080p, 4Kx2K@30Hz
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

COUT-8CVL-3PLAY 8 ports HDBaseT output module

Video Bandwidth	225MHz/6.25Gbps
Features	Support HDBaseT/IR/RS232
Output ports	8 * CAT5e/6, 8 * IR Extender, 8 * IR Blaster
Video resolutions	PC: VGA ~ WUXGA HD: 480i~1080p
IR Frequency	30~50Hz
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

COUT-8CV-4PLAY 8 ports HDBaseT output module

Video Bandwidth	300MHz/10.2Gbps
Features	Support HDBaseT/PoE/IR/RS232
Output ports	8 * CAT5e/6, 8 * IR Extender, 8 * IR Blaster
IR Frequency	30~50Hz
Video resolutions	PC: VGA ~ WUXGA HD: 480i~1080p
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

COUT-8CV-5PLAY 8 ports HDBaseT output module

Video Bandwidth	300MHz/10.2Gbps
Features	Support HDBaseT/PoE/IR/RS232/Ethernet
Output ports	8 * CAT5e/6, 8 * IR Extender, 8 * IR Blaster, 1 * LAN
Ethernet Speed	100Mbps
Video resolutions	PC: VGA ~WUXGA HD: 480i~1080p, 4Kx2K@30Hz

IR Frequency	30~50Hz
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

8.1 CAT5e/6/7 Cable Specification

COUT-8CVL-3PLAY Cable Distance

Cable Type	Range	Pixel clock rate	Video Data Rate	Supported Video
CAT5e/6/7	60 m	<=225 MHz	<=5.3 Gbps (HD Video)	Up to 1080p, 60 Hz, 36 bits, 3D (data rates lower than 5.3 Gbps or below 225 MHz TMDS clock).
	40 m	>225 MHz	> 5.3 Gbps (Ultra HD Video)	4K2K, 30Hz video formats

COUT-8CV-4PLAY & COUT-8CV-5PLAY Cable Distance

Cable Type	Range	Pixel clock rate	Video Data Rate	Supported Video
CAT5e/6/7	100 m	<=225 MHz	<=5.3 Gbps (HD Video)	Up to 1080p, 60 Hz, 36 bits, 3D (data rates lower than 5.3 Gbps or below 225 MHz TMDS clock).
	70 m	>225 MHz	> 5.3 Gbps (Ultra HD Video)	4K2K, 30Hz video formats

9. ACRONYMS

ACRONYM	COMPLETE TERM