CYP

CH-521RXHS

HDMI video scaler over CAT5e/6/7 with LAN/IR/RS-232/Bidirectional PoE Receiver

Operation Manual

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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	02/01/14	Preliminary release
RDV1	03/05/17	Revised audio sampling rate

CONTENTS

1. INTRODUCTION

The HDMI video scaler with LAN/IR/RS-232/Bidirectional PoE over Single CAT5e/6/7 Receiver can receive uncompressed audio/video over a single run of CAT5e/6/7 cable up to 100m or over HDMI input with Bidirectional PoE feature. The system supports various ways of control that can be done through on-panel buttons, IR remote, RS-232 and OSD. The device provides full range of output resolutions up to 1080p for HDTV timing and WUXGA(RB) for PC timing.

2. APPLICATIONS

- Extending incoming signal from CAT5e/6/7 to HDMI output
- Scale up HDMI input low resolution video on High-Definition display
- Lecture room/Showroom/Meeting room/Classroom display and control

3. PACKAGE CONTENTS

- HDMI/CAT5e/6/7 to HDMI with LAN/IR/RS-232/Bidirectional PoE Receiver
- IR Extender x 1
- IR Blaster x 1
- 24 V/2.7 A DC Power Adaptor
- Remote control (CR-128)
- Operation Manual

4. SYSTEM REQUIREMENTS

HDBaseT compatible Transmitter input or PS3/Blu-ray player and output display with HDMI input jack.

5. FEATURES

- Supports full range HDTV and PC output resolutions up to 1080p and WUXGA (RB)

- Receive HDMI signal and scale up to HD output

- Receive uncompressed data over a single 100 m/328 ft CAT5e/6/7 cable

- 5Play™ convergence: Video, Audio, LAN, Bidirectional PoE & Control (IR & RS-232 bypass)

- Supports IR, Remote control, RS-232 (bypass) and on-panel controls

- Supports OSD (On Screen Display) selection and display system information

- Provide with 24V DC power to or received from compatible PoE Transmitter through CAT5e/6/7

- Supports Ethernet transmission rate up to 100Mbps

- Supports HDMI, Optical(S/PDIF) audio sampling rate at 48kHz

- Support HDMI and Optical(S/PDIF) LPCM 2CH audio

Note:

1. *This system was tested with CAT6/23AWG cables, results may vary with cables of a different specification.*

2. *The PoE function is designed for powering compatible Transmitter units only—non-PoE Transmitter will need their own power supply. Transmitters of another brand may not be compatible.*

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel
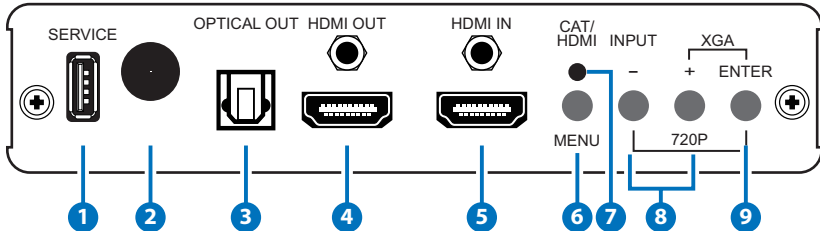
1 SERVICE: This port is reserved for firmware update only.

2 IR: IR Receiver window (accepts the remote control signal of this device only).

3 OPTICAL OUT: Connect to an amplifier or active speaker with optical cable for audio output.

4 HDMI OUT: This slot is to connect with HDMI TV/Monitor

5 HDMI IN: This slot is to connect with source equipment such as DVD/PS3 player.

6 MENU: Press this button to enter into the OSD menu.

7 INPUTNT CAT/HDMI LED: Press this button to select input from CAT or HDMI. When input CAT is selected the LED will illuminate in green and when input HDMI is selected the LED will illuminated in red.

8 -/+: Press these buttons to scrolled down and up in the OSD selection.

9 ENTER: Press this button to confirm the selection. Press this button together with [–] key to switch output timing to 720p@60 instantly. Press this button together with [+] key to switch output timing to XGA (1024x768) instantly.

6.2 Rear Panel
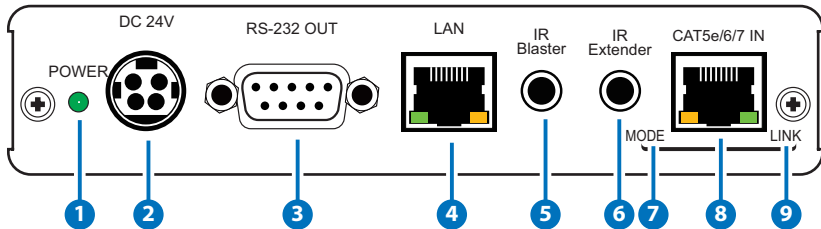
1 Power LED: This LED will illuminate when the device is connected to a power supply.

2 DC 24V: Plug the 24 V DC power supply into the unit and connect the adaptor to an AC outlet. Only one side of power is needed to activate both Transmitter and Receiver when both obtain the PoE function.

3 RS-232 OUT: This slot is to connect with D-Sub 9-pin cable from device equipment for receiving RS-232 commands.

4 LAN: Connect to an active network for LAN sharing of a total transmission rate up to 100Mbps. Or when a compatible LAN equipped Transmitter is connected to an active network, this allows the network access (including internet access if available) to be shared between the Transmitter and Receiver. Connect any Ethernet equipped device e.g. a Smart TV or games console to the LAN port for that device to share the network internet access.

Note: DO NOT connect this slot with any of the CAT5e/6/7 port. Doing so may trigger power shoot down and ruin the device.

5 IR Blaster: Connect to the supplied IR Blaster cable for IR signal transmission. Place the IR Blaster in direct line-of-sight of the equipment to be controlled.

6 IR Extender: Connect to the supplied IR Receiver cables for IR signal reception. Ensure that remote being used is within the direct line-of-sight of the IR Extender.

7 MODE LED: This LED will illuminated when the power is connected.

8 Link LED: This LED will illuminate when the slot has been connected to the Transmitter and the Transmitter has connected with sources that shows image on screen.

9 CAT5e/6 IN: Connect to the Transmitter unit with a Single CAT5e/6/7 cable for receiving all data signals.

6.3 IR Cable Pin Assignment

IR Blaster

1. Power
2. IR Blaster Signal
3. NC

IR Extender

1. IR Signal
2. Power
3. Grounding
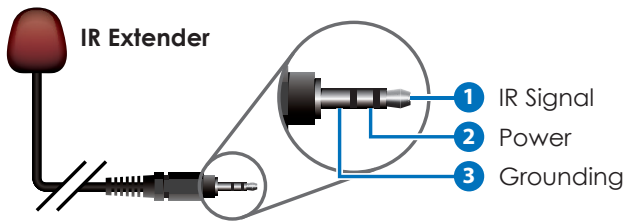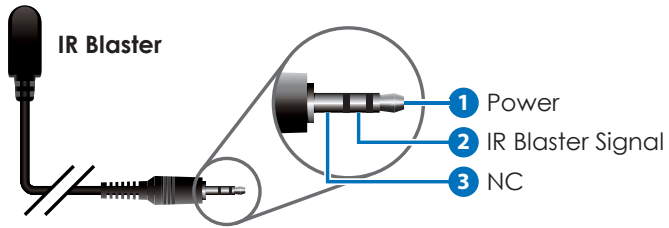
6.4 RS-232 Pin Definitions

Pin	Define TX / RX
1	N/C
2	TxD/RxD
3	RxD/TxD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Baud Rate: 9600bps

Data bit: 8 bits

Parity: None

Flow Control: None

Stop Bit: 1

6.5 RS-232 Commands

| COMMAND	DESCRIPTION	
S SOURCE 1~2	1=HDMI 2=CAT IN	
R SOURCE	Reports the numerical equivalent for SOURCE setting (as above)	
S OUTPUT 0~25	0=Native	12=1600×1200
	1=640×480	13=1920×1080
	2=800×600	16=1920×1200
	3=1024×768	17=480p
	5=1360×768	18=720p@60
	6=1280×720	19=1080p@60
	7=1280×800	20=1080i@60
	8=1280×1024	22=576p
	9=1440×900	23=720p@50
	10=1400×1050	24=1080p@50
	11=1680×1050	25=1080i@50
R OUTPUT	Reports the numerical equivalent for OUTPUT setting (as above)	
S SIZE 0~6	0=OVERSCAN	4=LETTER BOX
	1=FULL	5=UNDER 2
	2=BEST FIT	6=UNDER 1
	3=PAN SCAN	
R SIZE	Reports the numerical equivalent for SIZE setting (as above)	
S CONTRAST 0~60	Setups the numerical equivalent for CONTRAST setting (as left)	
R CONTRAST	Reports the numerical equivalent for CONTRAST setting	
S BRIGHTNESS 0~60	Setups the numerical equivalent for BRIGHTNESS setting (as left)	
R BRIGHTNESS	Reports the numerical equivalent for BRIGHTNESS setting	
S HUE 0~60	Setups the numerical equivalent for HUE setting (as left)	

R HUE	Reports the numerical equivalent for HUE setting
S SATURATION 0~60	Setups the numerical equivalent for SATURATION setting (as left)
R SATURATION	Reports the numerical equivalent for SATURATION setting
S SHARPNESS 0~30	Setups the numerical equivalent for SHARPNESS setting (as left)
R SHARPNESS	Reports the numerical equivalent for SHARPNESS setting
S NR 0~3	0=OFF 2=MIDDLE 1=LOW 3=HIGH
R NR	Reports the numerical equivalent for the NOISE REDUCTION setting (as above)
S AUDIO DELAY 0~3	0=OFF 2=110ms 1=40ms 3=150ms
R AUDIO DELAY	Reports the numeric equivalent for AUDIO DELAY setting (as above)
S AUDIO MUTE 0/1	0=ON 1=MUTE
R AUDIO MUTE	Reports the numeric equivalent for AUDIO MUTE setting (as above)
S KEY LOCK 0/1	0=ENABLE 1=DISABLE
R KEY LOCK	Reports the numeric equivalent for KEY LOCK setting (as above)
FW	Checks the FIRMWARE version
S RESET 1	Setups the numerical equivalent for RESET setting (as left)

Note:

1. All the RS-232 command will be not executed unless followed with carriage return and LF (Line Feed).

2. Commands are case-insensitive.

3. Resolution 1~16 are RGB encoded and 17~25 are YUV encoded.

4. Digital audio supports LPCM 2CH only, please ensure source input audio is sending LPCM 2CH's audio signal in order to avoid unnecessarily audio noise.

6.6 Remote Control

1 **INPUT:** Select input source from CAT or HDMI.

2 **EXIT:** Press this button to exit the menu or escape the current selection under OSD.

3 **MENU:** Press this button to enter into the OSD menu.

4 **RESET:** device back into the factory default setting.

5 **AUTO ADJUST:** This button will not function under this model.

6 **ENTER & ▲ ▼ ◄ ►:** Press Enter to confirm the selection or press the arrow buttons to scrolled in the OSD selections.
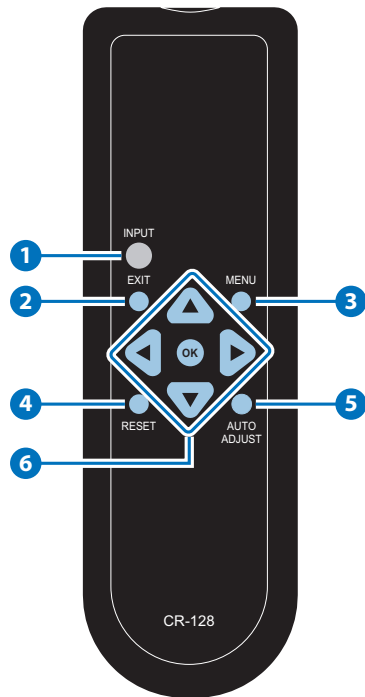
6.7 OSD Menu

1st Layer	2nd layer	3rd Layer
DISPLAY	OUTPUT	Native
		640X480 60
		800x600 60
		1024x768 60
		1360x768 60
		1280x720 60
		1280x800 60
		1280x1024 60
		1440x900 60
		1400x1050 60
		1680x1050 60
		1600x1200 60
		1920x1080 60
		1920x1200 60
		720X480P 60
		1280X720P 60
		1920X1080I 60
		1920X1080P 60
		720X576P 50
		1280X720P 50
		1920X1080I 50
		1920X1080P 50

COLOR	SIZE	OVER SCAN
		FULL
		ASPECT RATIO
		PAN SCAN
		LETTER BOX
		UNDER 2
		UNDER 1
	MODE INFO	*INFO*
		ON
		OFF
	COLOR	R
		G
		B
		R OFFSET
		G OFFSET
		B OFFSET
	CONTRAST	0~60
	BRIGHTNESS	0~60
	HUE	0~60
	SATURATION	0~60
	SHARPNESS	0~60
	NR.	**OFF**
		LOW
		MIDDLE
		HIGH
AUDIO	DELAY	**OFF**
		40mS
		110mS
		150mS
	SOUND	**ON**
		MUTE

SETUP	FACTORY RESET	*NO*
		YES
	KEY LOCK	*OFF*
		ON
INFORMATION	INPUT	
	OUTPUT	
	REVISION	

Note: Bold *Italian fonts are the Factory default setting.*

6.8 Output Resolution Support

INPUT RESOLUTION	HDMI
480i/576i	✓
480p/576p	✓
720p@50/60 Hz	✓
1080i@50/60 Hz	✓
1080p@50/60 Hz	✓
VGA@60/72/75 Hz	✓
SVGA@56/60/72/75 Hz	✓
XGA@60/70/75 Hz	✓
SXGA@60/75 Hz	✓
UXGA@60 Hz	✓
1280×800@60 Hz	✓
1680×1050RB@60 Hz	✓
1920×1080@60 Hz	✓

7. CONNECTION DIAGRAM

Display

Digital Audio
Output (Optical)

SERVICE   OPT   OUT HDMI OUT   CAT/   INPUT   XGA
                                    HDMI   −   +   ENTER

MENU   720P

DC 24V   RS-232 OUT   LAN   IR   IR   CAT5e/6/7 IN
                              Blaster Extender

POWER   MODE   LINK

Compatible
Transmitter
unit with PoE
function

RS-232 Equipped
device

Smart TV
or
Game
Console

DVD or Blu-ray Player
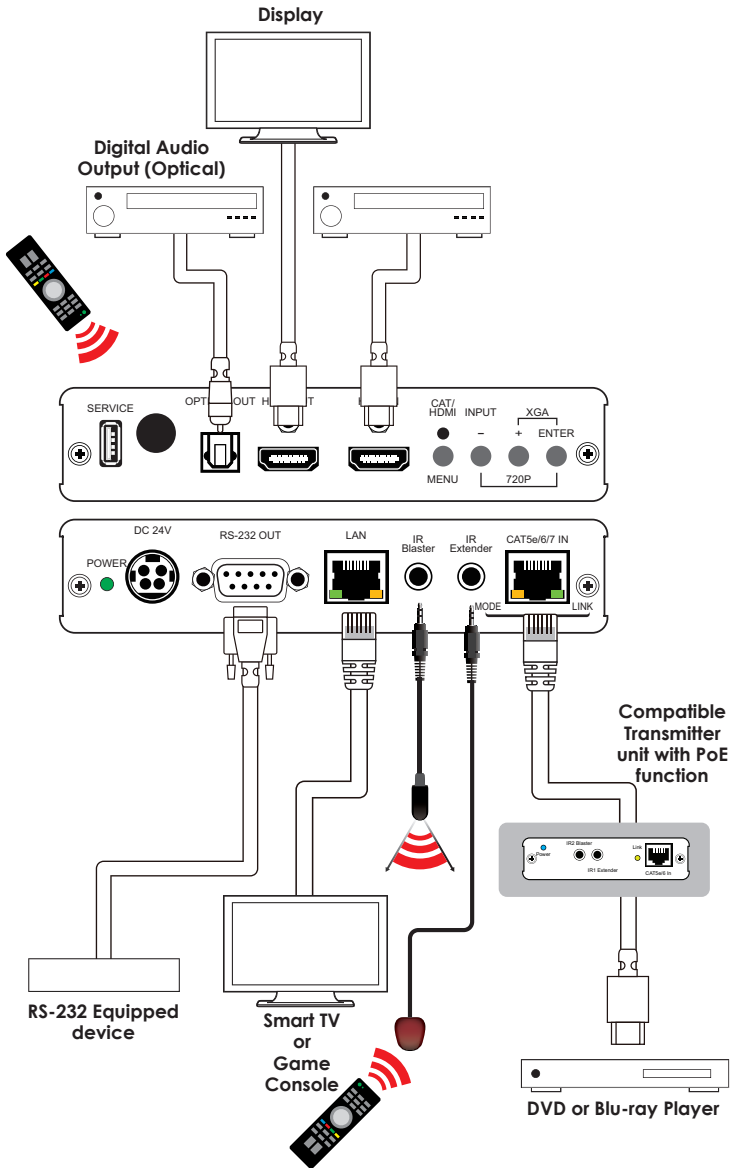
8. SPECIFICATIONS

Ethernet Speed	100 Mbps
Input Video Bandwidth	300MHz / 10.2Gbps
Output Video bandwidth	165MHz / 1.65Gbps
Input Ports	1x CAT5e/6/7, 1 x IR Extender, 1 x HDMI
Output Ports	1 x HDMI, 1×IR Blaster, 1 x Optical , 1 x RS-232, 1×LAN
CAT5e/6/7 Output Cable Distance	Up to 100 Meters
HDMI output Resolution	HD: Up to 1080p@60Hz PC: Up to WUXGA(RB)
Audio Sampling Rate	48kHz / LPCM 2CH
CAT5e/6/7 Output Resolution	HD: Up to 1080p@60Hz PC: Up to WUXGA(RB)
IR Frequency	30~50kHz
ESD Protection	Human body model: ±8kV (air-gap discharge) ±4kV (contact discharge)
Dimensions (mm)	145 (W) x 192 (D) x 30(H)/Jacks Excluded 145 (W) x 202.75 (D) x 30(H)/Jacks Included
Weight (g)	608
Chassis Material	Aluminum
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	17W

9. ACRONYMS

ACRONYM	COMPLETE TERM
CAT5e	Category 5 Cable
CAT6	Category 6 Cable
CAT7	Category 7 Cable
HDMI	High-Definition Multimedia Interface
IR	Infrared
WUXGA (RB)	Widescreen Ultra Extended Graphics Array (Reduce blanking)