



CSC-5500R

Multi-Format to HDMI Scaler



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	02/06/16	Preliminary release
RDV2	20/01/17	Rewrote sections 6.4 & 6.6



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1. INTRODUCTION

This unit has Composite Video, PC (VGA), and HDMI inputs which can be freely selected for output at a scaled resolution of the user's choosing over the HDMI output. This unit also includes separate analog and digital audio outputs to provide additional playback flexibility. Support for HDMI output resolutions up to 1080p/WUXGA (RB) and Analog to Digital Conversion (ADC) functionality combine to allow for a wide range of AV signals to be displayed on the connected HDMI display. The unit can be controlled via front panel buttons with an On-Screen Display (OSD), WebGUI, Telnet, RS-232, and IR remote making it exceptionally versatile.

2. APPLICATIONS

- Analog and digital source integration
- Upscaling standard definition video for high-definition displays
- Conference centers
- Lecture halls
- Schools and universities

3. PACKAGE CONTENTS

- 1×Multi-Format to HDMI Scaler
- 1×Remote Control (CR-167)
- 1×5V/3A Power Adaptor
- 1×Operation Manual

4. SYSTEM REQUIREMENTS

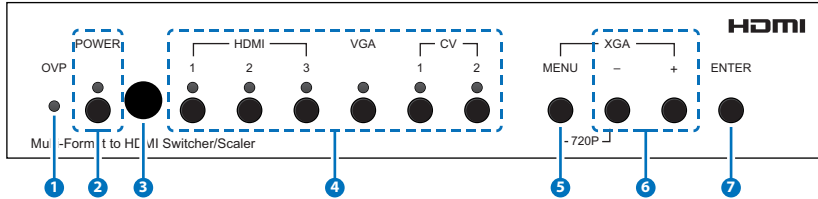
- HDMI, VGA or composite video source equipment such as media players, video game consoles, PCs or set-top boxes.
- HDMI receiving equipment such as HDTVs, monitors or audio amplifiers.

5. FEATURES

- Supports switching and scaling of multiple AV inputs to HDMI output
- HDMI and DVI compatible
- Supports output resolutions up to 1080p/WUXGA(RB)
- Supports 3D de-interlace, noise reduction and 3D comb filtering for composite video sources
- Frame rate conversion support
- Quick output resolution switching via hot keys
- Supports analog to digital (ADC) and digital to analog (DAC) audio conversion, insertion and extraction
- Supports EDID and HDCP management
- HDCP management control improves display compatibility with certain sources
- Controllable via front-panel controls with OSD, RS-232, Telnet, WebGUI, and IR remote

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



- 1 OVP (Over Voltage Protection) LED:** This LED will illuminate if the over voltage protection circuitry is activated due to an excess of voltage from the connected power supply.
- 2 POWER Button & LED:** Press this button to power on the unit (green LED) or place it into stand-by mode (red LED).
- 3 IR Receiver Window:** Accepts IR signals from the included IR remote for control of this unit only.
- 4 INPUT Buttons & LEDs:** Press any of these buttons to switch to the corresponding input. An LED will illuminate to indicate which source is currently selected.
- 5 MENU Button:** Press to enter the OSD menu, or to back out from menu items.

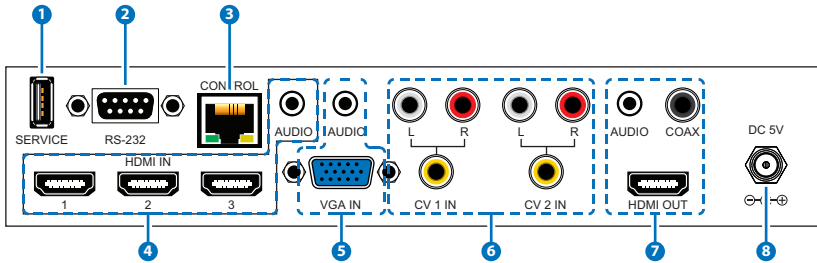
Note: Press and hold the "MENU" button while connecting the power supply to reset all settings to the factory defaults. Pressing "MENU" and "+" together will reset the output resolution to XGA (1024×768@60Hz). Pressing "Menu" and "-" together will reset the output resolution to 720p@60Hz.

- 6 Plus/Minus (-/+) Buttons:** Press to move up and down or adjust selections within menus.

Note: When not in the OSD press "-" to activate the Auto Adjust function for VGA sources.

- 7 ENTER Button:** Press to confirm a selection within the OSD or to go deeper into a menu item.

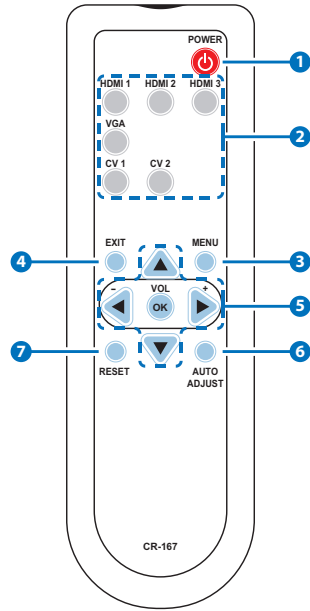
6.2 Rear Panel



- 1 SERVICE:** This slot is reserved for firmware update use only.
- 2 RS-232:** Connect directly to a PC, laptop or other serial control device to send RS-232 commands to control the unit. (See Sections 6.5 and 6.6 for details on RS-232 commands).
- 3 CONTROL:** Connect directly, or through a network switch, to your PC/laptop to control the unit via Telnet/WebGUI.
- 4 HDMI IN 1/2/3:** Connect to HDMI source equipment such as media players, game consoles or set-top boxes.
AUDIO IN: Connect to the stereo analog output of a DVI device connected to one of the HDMI input ports.
- 5 VGA IN:** Connect to VGA source equipment such as a PC or laptop.
AUDIO IN: Connect to the stereo analog output of the device connected to the VGA input port.
- 6 CV & L/R IN 1/2:** Connect to composite video with stereo audio source equipment such as DVD players or VCRs.
- 7 HDMI OUT:** Connect to HDMI TVs, monitors or amplifiers for digital video and audio output.
AUDIO OUT: Connect to powered speakers or an amplifier for stereo analog audio output.
COAX OUT: Connect to powered speakers or an amplifier for digital audio output using an appropriate optical cable.
- 8 DC 5V:** Plug the 5V DC power adaptor into the unit and connect it to an AC wall outlet for power.

6.3 Remote Control

- 1 **POWER:** Press this button to power on the unit or place it into stand-by mode.
- 2 **HDMI 1/2/3, VGA & CV 1/2:** Press any of these buttons to switch to the corresponding input.
- 3 **MENU:** Press to enter the OSD menu, or to back out from menu items.
- 4 **EXIT:** Press to immediately exit and close the OSD menu.
- 5 **OK & ▲/▼/◀/▶:** Press OK to confirm a selection within the OSD. Press the arrows to move within the menus or adjust selections. When not in the OSD the -/+ (◀/▶) buttons control the volume level.
- 6 **AUTO ADJUST:** Press to activate the Auto Adjust function for VGA sources.
- 7 **RESET:** Press to reset all settings to the factory defaults.



6.4 OSD Menu

MAIN MENU	1ST LEVEL	2ND LEVEL	3RD LEVEL
VIDEO	VIDEO	HDMI1	
		HDMI2	
		HDMI3	
		PC	
		CV1	
		CV2	

MAIN MENU	1ST LEVEL	2ND LEVEL	3RD LEVEL
VIDEO (cont.)	OUTPUT RESOLUTION	0=NATIVE	
		1=640×480@60	
		2=800×600@60	
		3=1024×768@60	
		4=1280×768@60	
		5=1360×768@60	
		6=1280×720@60	
		7=1280×800@60	
		8=1280×1024@60	
		9=1440×900@60	
		10=1400×1050@60	
		11=1680×1050@60	
		12=1600×1200@60	
		13=1920×1080@60	
		14=1920×1200@60	
		15=720×480P@60	
		16=1280×720P@60	
		17=1920×1080P@60	
		18=720×576P@50	
		19=1280×720P@50	
		20=1920×1080P@50	
		21=1920×1080P@24	
		22=1920×1080P@25	
		23=1920×1080P@30	

MAIN MENU	1ST LEVEL	2ND LEVEL	3RD LEVEL
VIDEO (cont.)	ASPECT RATIO	OVER SCAN	
		FULL	
		BEST FIT	
		PAN SCAN	
		LETTER BOX	
		UNDER 2	
		UNDER 1	
		FOLLOW IN	
	HDMI1 HDCP	OFF	
		REFER TO SOURCE	
		REFER TO DISPLAY	
	HDMI2 HDCP	OFF	
		REFER TO SOURCE	
		REFER TO DISPLAY	
	HDMI3 HDCP	OFF	
		REFER TO SOURCE	
		REFER TO DISPLAY	
	NO SIGNAL COLOR	BLACK	
		WHITE	
		BLUE	
		RED	
		GREEN	
	BLANK	OFF	
		ON	
	FREEZE	OFF	
		ON	

MAIN MENU	1ST LEVEL	2ND LEVEL	3RD LEVEL
VIDEO (cont.)	AUTO SETUP	AUTO SYNC OFF	OFF
			30S
			60S
			3MIN
			5MIN
			10MIN
		AUTO SCAN	OFF
			ON
			FROM HDMI1
			FROM HDMI2
			FROM HDMI3
			FROM PC
			FROM CV1
		FROM CV2	
		AUTO SWITCH	OFF
	ON		
	PC SETUP	PC AUTO SETUP	
		PC H POSITION	0~250
		PC V POSITION	0~250
		PC PHASE	0~255
		PC CLOCK	0~255
		PC RESET	
	CV OVER SCAN	PAL WIDTH	0~20 (5)
		PAL HEIGHT	0~20 (2)
		NTSC WIDTH	0~20 (5)
		NTSC HEIGHT	0~20 (2)
		SECAM WIDTH	0~20 (5)
		SECAM HEIGHT	0~20 (2)
		NTSC 443 WIDTH	0~20 (5)
NTSC 443 HEIGHT		0~20 (2)	

MAIN MENU	1ST LEVEL	2ND LEVEL	3RD LEVEL
VIDEO (cont.)	CV OVER SCAN	PAL M WIDTH	0~20 (5)
		PAL M HEIGHT	0~20 (2)
		PAL N WIDTH	0~20 (5)
		PAL N HEIGHT	0~20 (2)
		PAL 60 WIDTH	0~20 (5)
		PAL 60 HEIGHT	0~20 (2)
		RESET OVERSCAN	
PICTURE	COLOR GAIN R	0~1023 (512)	
	COLOR GAIN G	0~1023 (512)	
	COLOR GAIN B	0~1023 (512)	
	COLOR OFFSET R	0~1023 (512)	
	COLOR OFFSET G	0~1023 (512)	
	COLOR OFFSET B	0~1023 (512)	
	BRIGHTNESS	0~60 (30)	
	CONTRAST	0~60 (30)	
	HUE	0~60 (30)	
	SATURATION	0~60 (30)	
	SHARPNESS	0~63 (0)	
	NR	OFF	
		LOW	
		MIDDLE	
HIGH			
AUTO			
RESET PICTURE			

MAIN MENU	1ST LEVEL	2ND LEVEL	3RD LEVEL
AUDIO	AUDIO	FOLLOW VIDEO	
		DVI	
		PC	
		CV1	
		CV2	
	HDMI VOLUME	0~100 (80)	
	SPDIF VOLUME	0~100 (80)	
	LINE VOLUME	0~100 (80)	
	HDMI MUTE	OFF	
		ON	
	SPDIF MUTE	OFF	
		ON	
	LINE MUTE	OFF	
		ON	
	AUDIO DELAY	OFF	
		30ms	
		40ms	
		
		200ms	
	HDMI AUDIO DELAY	OFF	
		ON	
	SPDIF AUDIO DELAY	OFF	
		ON	
LINE AUDIO DELAY	OFF		
	ON		
RESET AUDIO			

MAIN MENU	1ST LEVEL	2ND LEVEL	3RD LEVEL	
OSD	H POSITION	0~60 (30)		
	V POSITION	0~60 (30)		
	TIMER	OFF		
		5S		
		10S		
			
		60S		
	TRANSPARENT	0~50 (50)		
	DISPLAY	OFF		
		ON		
		5S		
10S				
RESET OSD				
ETHER	IP MODE	STATIC		
		DHCP		
	SETUP STATIC IP	STATIC IP		192.168.1.50
		GATE		192.168.1.254
		MASK		255.255.255.0
	IP	x.x.x.x		
MAC	x-x-x-x-x-x			
EDID	HDMI1/HDMI2/ HDMI3 EDID	0=1024×768@60		
		1=1280×800@60		
		2=1280×1024@60		
		3=1366×768@60		
		4=1440×900@60		
		5=1400×1050@60		
		6=1600×900@60		
		7=1600×1200@60		
		8=1680×1050@60		
		9=1920×1200@60		

MAIN MENU	1ST LEVEL	2ND LEVEL	3RD LEVEL
EDID (cont.)	HDMI1/HDMI2/ HDMI3 EDID	10=1280×720P@50	
		11=1280×720p@60	
		12=1920×1080P@50	
		13=1920×1080P@60	
		14=INT1	
		15=USER1	
		16=USER2	
		17=USER3	
		18=OUTPUT	
		PC EDID	
	1=1280×800@60		
	2=1280×1024@60		
	3=1366×768@60		
	4=1440×900@60		
	5=1400×1050@60		
	6=1600×900@60		
	7=1600×1200@60		
	8=1680×1050@60		
	9=1920×1200@60		
	10=1280×720P@50		
11=1280×720P@60			
12=1920×1080P@50			
13=1920×1080P@60			
14=INT2			
15=USER4			
RESET	RESET ALL PICTURE		
	RESET ALL		
FW UPDATE	UPDATE FROM USB		

MAIN MENU	1ST LEVEL	2ND LEVEL	3RD LEVEL
INFO	VIDEO		
	INPUT		
	OUTPUT		
	INPUT HDCP		
	OUTPUT HDCP		
	VERSION		

Note: Default settings are marked in **Bold**.

- (1) **BLANK:** Setting this to "ON" will output a black video signal and mute the audio.
- (2) **AUTO SYNC OFF:** Sets the amount of time to continue outputting a "no signal" sync signal if the selected input can no longer be detected and no additional operations have been executed on the unit. Setting this to "OFF" means that sync will always continue to be output.
- (3) **AUTO SCAN:** If the selected input can no longer be detected, the unit will begin searching for the next available live source when this is set to "ON".
- (4) **AUTO SWITCH:** When set to "ON", the unit will automatically switch to a newly detected or connected source.
- (5) **PC AUTO SETUP:** Use of the "PC Auto Setup" function requires a PC source with a bright full screen image to all 4 borders of the screen.
- (6) **CV OVER SCAN:** Used to set the overscan percentages for each composite video standard.
- (7) **AUDIO DELAY:** The use of the selected audio delay value can be independently enabled/disabled for each output type.
- (8) **INPUT & OUTPUT HDCP:**

Source requires HDCP	Unit's HDCP setting	Display supports HDCP	Displayed image
No	Off	No	Normal
No		Yes	Normal
Yes		No	Snow or no picture
Yes		Yes	Snow or no picture

Source requires HDCP	Unit's HDCP setting	Display supports HDCP	Displayed image
No	Refer to Source	No	Normal
No		Yes	Normal
Yes		No	No picture or blinking
Yes		Yes	Normal
No	Refer to Display	No	Normal
No		Yes	Normal
Yes		No	No picture
Yes		Yes	Normal

6.5 RS-232 Protocol

SCALER			REMOTE CONTROLLER	
Pin	Assignment		Pin	Assignment
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: 115200bps

Data Bits: 8

Parity: None

Flow Control: None

Stop Bits: 1

6.6 RS-232 and Telnet Commands

COMMAND	RESPONSE	PARAMETERS
?	List all commands	
HELP	List all commands	
SET SYSTEM REBOOT	SYSTEM READY	
SET SYSTEM DEFAULT	SYSTEM DEFAULT	
GET FW VERSION	FW VERSION {nn.nn}	
GET INPUT PORT NUMBER	INPUT PORT NUMBER n	
GET OUTPUT PORT NUMBER	OUTPUT PORT NUMBER n	
SET PASSWORD {n}	PASSWORD {n}	n=PASSWORD (up to 16 characters)
SET POWER n	POWER n	n=0~1 0=OFF 1=ON
GET POWER	POWER n	
GET POWER?	Command help info	
SET IP MODE n	IP MODE n	n=0~1 0=STATIC 1=DHCP
GET IP MODE	IP MODE n	
GET IP MODE?	Command help info	
SET IP ADDR n.n.n.n	IP ADDRESS n.n.n.n	n=0~255
GET IP ADDR	IP ADDRESS n.n.n.n	
GET STATIC IP ADDRESS	STATIC IP ADDRESS n.n.n.n	
SET NETMASK n.n.n.n	NETMASK n.n.n.n	n=0~255
GET NETMASK	NETMASK n.n.n.n	
SET GATEWAY n.n.n.n	GATEWAY n.n.n.n	n=0~255
GET GATEWAY	GATEWAY n.n.n.n	

COMMAND	RESPONSE	PARAMETERS
GET MAC ADDR	MAC ADDRESS <hex address>	
SET INT EDID n TO INPUT x	INT EDID n TO INPUT x	n=1~2 1=INT EDID 1 FOR HDMI 2=INT EDID 2 FOR PC x=1~4 1=HDMI1 2=HDMI2 3=HDMI3 4=PC
SET INT EDID n TO INPUT ALL	INT EDID n TO INPUT x	n=1~2 1=INT EDID 1 FOR HDMI 2=INT EDID 2 FOR PC
GET INT EDID?	Command help info	
GET INT EDID n DATA	INT EDID n DATA <hex data>	n=1~2 1=INT EDID 1 FOR HDMI 2=INT EDID 2 FOR PC
SET NATIVE EDID n TO INPUT x	NATIVE EDID n TO INPUT x	n=0~13 0=1024×768@60 1=1280×800@60 2=1280×1024@60 3=1366×768@60 4=1440×900@60 5=1400×1050@60 6=1600×900@60 7=1600×1200@60 8=1680×1050@60 9=1920×1200@60 10=1280×720P@ 50 11=1280×720P@60 12=1920×1080P@50 13=1920×1080P@60

COMMAND	RESPONSE	PARAMETERS
		x=1~4 1=HDMI1 2=HDMI2 3=HDMI3 4=PC
SET NATIVE EDID n TO INPUT ALL	NATIVE EDID n ALL INPUT x	n=0~13 0=1024×768@60 1=1280×800@60 2=1280×1024@60 3=1366×768@60 4=1440×900@60 5=1400×1050@60 6=1600×900@60 7=1600×1200@60 8=1680×1050@60 9=1920×1200@60 10=1280×720P@50 11=1280×720P@60 12=1920×1080P@50 13=1920×1080P@60
GET NATIVE EDID?	Command help info	
SET USER EDID n TO INPUT x	USER EDID n TO INPUT x	n=1~4 1=USER EDID 1 FOR HDMI 2=USER EDID 2 FOR HDMI 3=USER EDID 3 FOR HDMI 4=USER EDID 4 FOR PC x=1~4 1=HDMI1 2=HDMI2 3=HDMI3 4=PC

COMMAND	RESPONSE	PARAMETERS
SET USER EDID n TO INPUT ALL	USER EDID n TO INPUT x	n=1~4 1=USER EDID 1 FOR HDMI 2=USER EDID 2 FOR HDMI 3=USER EDID 3 FOR HDMI 4=USER EDID 4 FOR PC
GET USER EDID?	Command help info	
GET USER EDID n DATA	USER EDID n DATA <hex data>	n=1~4 1=USER EDID 1 FOR HDMI 2=USER EDID 2 FOR HDMI 3=USER EDID 3 FOR HDMI 4=USER EDID 4 FOR PC
SET USER EDID n DATA <hex data>	USER EDID n DATA OK	n=1~4 1=USER EDID 1 FOR HDMI 2=USER EDID 2 FOR HDMI 3=USER EDID 3 FOR HDMI 4=USER EDID 4 FOR PC
SET SINK EDID [x] TO INPUT n	SINK EDID [x] TO INPUT n	x=A (OUTPUT 1) n=1~3 1=HDMI1 2=HDMI2 3=HDMI3
SET SINK EDID [x] TO INPUT ALL	SINK EDID [x] TO INPUT n	x=A (OUTPUT 1)
GET SINK EDID?	Command help info	
GET SINK EDID [x] DATA	SINK EDID [x] DATA <hex data>	x=A (OUTPUT 1)
GET INPUT EDID?	Command help info	
GET INPUT EDID n DATA	INPUT EDID n DATA <hex data>	n=1~4 1=HDMI1 2=HDMI2 3=HDMI3 4=PC

COMMAND	RESPONSE	PARAMETERS
SET INPUT n HDCP MODE x	INPUT n HDCP MODE x	n=1~3 1=HDMI1 2=HDMI2 3=HDMI3 x=0~2 0=OFF 1=REFER TO SOURCE 2=REFER TO DISPLAY
GET INPUT n HDCP MODE	INPUT n HDCP MODE x	n=1~3 1=HDMI1 2=HDMI2 3=HDMI3
GET INPUT HDCP MODE?	Command help info	
SET AUDIO ROUTE n	AUDIO ROUTE n	n=0~4 0=FOLLOW VIDEO 1=DVI 2=PC 3=CV1 4=CV2
GET AUDIO ROUTE	AUDIO ROUTE n	
GET AUDIO IN?	Command help info	
GET AUDIO OUT?	Command help info	
SET AUDIO [x] MUTE n	AUDIO [x] MUTE n	x=A~C A=HDMI B=SPDIF C=LINE n=0~1 0=OFF 1=ON

COMMAND	RESPONSE	PARAMETERS
GET AUDIO [x] MUTE	AUDIO [x] MUTE n	x=A~C A=HDMI B=SPDIF C=LINE
SET AUDIO ALL MUTE n	AUDIO [x] MUTE n	n=0~1 0=OFF 1=ON
GET AUDIO MUTE?	Command help info	
SET AUDIO [x] VOLUME n	AUDIO [x] VOLUME n	x=A~C A=HDMI B=SPDIF C=LINE n=0~100
GET AUDIO [x] VOLUME	AUDIO [x] VOLUME n	x=A~C A=HDMI B=SPDIF C=LINE
SET AUDIO [x] VOLUME UP	AUDIO [x] VOLUME n	x=A~C A=HDMI B=SPDIF C=LINE
SET AUDIO [x] VOLUME DOWN	AUDIO [x] VOLUME n	x=A~C A=HDMI B=SPDIF C=LINE
GET AUDIO VOLUME?	Command help info	
SET AUDIO DELAY n	AUDIO DELAY n	n=0~18 0=OFF 1=30ms 2=40ms 18=200ms

COMMAND	RESPONSE	PARAMETERS
GET AUDIO DELAY	AUDIO DELAY n	
GET AUDIO DELAY?	Command help info	
SET AUDIO [x] DELAY ENABLE n	AUDIO [x] DELAY ENABLE n	x=A~C A=HDMI B=SPDIF C=LINE n=0~1 0=OFF 1=ON
GET AUDIO [x] DELAY ENABLE	AUDIO [x] DELAY ENABLE n	x=A~C A=HDMI B=SPDIF C=LINE
GET AUDIO DELAY ENABLE?	Command help info	
SET SCALER [x] INPUT SOURCE n	SCALER [x] INPUT SOURCE n	x=A (OUTPUT 1) n=1~6 1=HDMI1 2=HDMI2 3=HDMI3 4=PC 5=CV1 6=CV2
GET SCALER [x] INPUT SOURCE	SCALER [x] INPUT SOURCE n:{source}	x=A (OUTPUT 1)
GET SCALER INPUT SOURCE?	Command help info	
GET SCALER [x] INPUT TIMING	SCALER [x] INPUT TIMING {timing info}	x=A (OUTPUT 1)

COMMAND	RESPONSE	PARAMETERS
SET SCALER [x] OUTPUT TIMING n	SCALER [x] OUTPUT TIMING n	x=A (OUTPUT 1) n=0~23 (check command help info for valid list)
GET SCALER [x] OUTPUT TIMING	SCALER [x] OUTPUT TIMING {timing info}	x=A (OUTPUT 1)
GET SCALER OUTPUT TIMING?	Command help info	
SET SCALER [x] ASPECT RATIO n	SCALER [x] ASPECT RATIO n	x=A (OUTPUT 1) n=0~7 0=OVER SCAN 1=FULL 2=BEST FIT 3=PAN SCAN 4=LETTER BOX 5=UNDER 2 6=UNDER 1 7=FOLLOW IN
GET SCALER [x] ASPECT RATIO	SCALER [x] ASPECT RATIO n	x=A (OUTPUT 1)
GET SCALER ASPECT RATIO?	Command help info	
SET SCALER [x] AUTO SYNC OFF n	SCALER [x] AUTO SYNC OFF n	x=A (OUTPUT 1) n=0~5 0=OFF 1=30S 2=60S 3=3MIN 4=5MIN 5=10MIN
GET SCALER [x] AUTO SYNC OFF	SCALER [x] AUTO SYNC OFF n	x=A (OUTPUT 1)

COMMAND	RESPONSE	PARAMETERS
GET SCALER AUTO SYNC OFF?	Command help info	
SET SCALER [x] NO SIGNAL COLOR n	SCALER [x] NO SIGNAL COLOR n	x=A (OUTPUT 1) n=0~4 0=BLACK 1=WHITE 2=BLUE 3=RED 4=GREEN
GET SCALER [x] NO SIGNAL COLOR	SCALER [x] NO SIGNAL COLOR n	x=A (OUTPUT 1)
GET SCALER NO SIGNAL COLOR?	Command help info	
SET SCALER [x] BLANK n	SCALER [x] BLANK n	x=A (OUTPUT 1) n=0~1 0=OFF 1=ON
GET SCALER [x] BLANK	SCALER [x] BLANK n	x=A (OUTPUT 1)
GET SCALER BLANK?	Command help info	
SET SCALER [x] FREEZE n	SCALER [x] FREEZE n	x=A (OUTPUT 1) n=0~1 0=OFF 1=ON
GET SCALER [x] FREEZE	SCALER [x] FREEZE n	x=A (OUTPUT 1)
GET SCALER FREEZE?	Command help info	

COMMAND	RESPONSE	PARAMETERS
SET INPUT AUTO SCAN n	INPUT AUTO SCAN n	n=0~7 0=OFF 1=ON 2=HDMI1 3=HDMI2 4=HDMI3 5=PC 6=CV1 7=CV2
GET INPUT AUTO SCAN	INPUT AUTO SCAN n	
GET INPUT AUTO SCAN?	Command help info	
SET INPUT AUTO SWITCH n	INPUT AUTO SWITCH n	n=0~1 0=OFF 1=ON
GET INPUT AUTO SWITCH	INPUT AUTO SWITCH n	
GET INPUT AUTO SWITCH?	Command help info	
SET INPUT n PC AUTO	INPUT n PC AUTO: {status} or NO SIGNAL or INPUT SOURCE IS NOT PC	n=4 (PC)
GET INPUT N PC AUTO	INPUT n PC AUTO: {status} or NO SIGNAL or INPUT SOURCE IS NOT PC	n=4 (PC)
SET INPUT N PC H POSITION X	INPUT n PC H POSITION x or NO SIGNAL or INPUT SOURCE IS NOT PC	n=4 (PC) x=0~250

COMMAND	RESPONSE	PARAMETERS
GET INPUT n PC H POSITION	INPUT n PC H POSITION x or NO SIGNAL or INPUT SOURCE IS NOT PC	n=4 (PC)
GET INPUT PC H POSITION?	Command help info	
SET INPUT n PC V POSITION x	INPUT n PC V POSITION x or NO SIGNAL or INPUT SOURCE IS NOT PC	n=4 (PC) x=0~250
GET INPUT n PC V POSITION	INPUT n PC V POSITION x or NO SIGNAL or INPUT SOURCE IS NOT PC	n=4 (PC)
GET INPUT PC V POSITION?	Command help info	
SET INPUT n PC PHASE x	INPUT n PC PHASE x or NO SIGNAL or INPUT SOURCE IS NOT PC	n=4 (PC) x=0~250
GET INPUT n PC PHASE	INPUT n PC PHASE x or NO SIGNAL or INPUT SOURCE IS NOT PC	n=4 (PC)
SET INPUT n PC CLOCK x	INPUT n PC CLOCK x or NO SIGNAL or INPUT SOURCE IS NOT PC	n=4 (PC) x=0~250
GET INPUT n PC CLOCK	INPUT n PC CLOCK x or NO SIGNAL or INPUT SOURCE IS NOT PC	n=4 (PC)
GET INPUT PC CLOCK?	Command help info	

COMMAND	RESPONSE	PARAMETERS
SET INPUT n PC RESET	INPUT n PC RESET: {status} or NO SIGNAL or INPUT SOURCE IS NOT PC	n=4 (PC)
SET SCALER [x] OSD H POSITION n	SCALER [x] OSD H POSITION n	x=A (OUTPUT 1) n=0~60
GET SCALER [x] OSD H POSITION	SCALER [x] OSD H POSITION n	x=A (OUTPUT 1)
GET SCALER OSD H POSITION?	Command help info	
SET SCALER [x] OSD V POSITION n	SCALER [x] OSD V POSITION n	x=A (OUTPUT 1) n=0~60
GET SCALER [x] OSD V POSITION	SCALER [x] OSD V POSITION n	x=A (OUTPUT 1)
GET SCALER OSD V POSITION?	Command help info	
SET SCALER [x] OSD TIMEOUT n	SCALER [x] OSD TIMEOUT n	x=A (OUTPUT 1) n=0~12 0=OFF 1=5S 2=10S 12=60S
GET SCALER [x] OSD TIMEOUT	SCALER [x] OSD TIMEOUT n	x=A (OUTPUT 1)
GET SCALER OSD TIMEOUT?	Command help info	
SET SCALER [x] OSD TRANSPARENCY N	SCALER [x] OSD TRANSPARENCY n	x=A (OUTPUT 1) n=0~50
GET SCALER [x] OSD TRANSPARENCY	SCALER [x] OSD TRANSPARENCY n	x=A (OUTPUT 1)

COMMAND	RESPONSE	PARAMETERS
GET SCALER OSD TRANSPARENCY?	Command help info	
SET SCALER [x] OSD INFO DISPLAY n	SCALER [x] OSD INFO DISPLAY n	x=A (OUTPUT 1) n=0~3 0=OFF 1=ON 2=5S 3=10S
GET SCALER [x] OSD INFO DISPLAY	SCALER [x] OSD INFO DISPLAY n	x=A (OUTPUT 1)
GET SCALER OSD INFO DISPLAY?	Command help info	
SET SCALER [x] R GAIN n	SCALER [x] R GAIN N	x=A (OUTPUT 1) n=0~1023
GET SCALER [x] R GAIN	SCALER [x] R GAIN N	x=A (OUTPUT 1)
GET SCALER R GAIN?	Command help info	
SET SCALER [x] G GAIN n	SCALER [x] G GAIN n	x=A (OUTPUT 1) n=0~1023
GET SCALER [x] G GAIN	SCALER [x] G GAIN n	x=A (OUTPUT 1)
GET SCALER G GAIN?	Command help info	
SET SCALER [x] B GAIN n	SCALER [x] B GAIN n	x=A (OUTPUT 1) n=0~1023
GET SCALER [x] B GAIN	SCALER [x] B GAIN n	x=A (OUTPUT 1)
GET SCALER B GAIN?	Command help info	
SET SCALER [x] R OFFSET n	SCALER [x] R OFFSET n	x=A (OUTPUT 1) n=0~1023
GET SCALER [x] R OFFSET	SCALER [x] R OFFSET n	x=A (OUTPUT 1)
GET SCALER R OFFSET?	Command help info	

COMMAND	RESPONSE	PARAMETERS
SET SCALER [x] G OFFSET n	SCALER [x] G OFFSET n	x=A (OUTPUT 1) n=0~1023
GET SCALER [x] G OFFSET	SCALER [x] G OFFSET n	x=A (OUTPUT 1)
GET SCALER G OFFSET?	Command help info	
SET SCALER [x] B OFFSET n	SCALER [x] B OFFSET n	x=A (OUTPUT 1) n=0~1023
GET SCALER [x] B OFFSET	SCALER [x] B OFFSET n	x=A (OUTPUT 1)
GET SCALER B OFFSET?	Command help info	
SET SCALER [x] BRIGHTNESS n	SCALER [x] BRIGHTNESS n	x=A (OUTPUT 1) n=0~60
GET SCALER [x] BRIGHTNESS	SCALER [x] BRIGHTNESS n	x=A (OUTPUT 1)
GET SCALER BRIGHTNESS?	Command help info	
SET SCALER [x] CONTRAST n	SCALER [x] CONTRAST n	x=A (OUTPUT 1) n=0~60
GET SCALER [x] CONTRAST	SCALER [x] CONTRAST n	x=A (OUTPUT 1)
GET SCALER CONTRAST?	Command help info	
SET SCALER [x] HUE n	SCALER [x] HUE n	x=A (OUTPUT 1) n=0~60
GET SCALER [x] HUE	SCALER [x] HUE n	x=A (OUTPUT 1)
GET SCALER HUE?	Command help info	
SET SCALER [x] SATURATION n	SCALER [x] SATURATION n	x=A (OUTPUT 1) n=0~60
GET SCALER [x] SATURATION	SCALER [x] SATURATION n	x=A (OUTPUT 1)

COMMAND	RESPONSE	PARAMETERS
GET SCALER SATURATION?	Command help info	
SET SCALER [x] SHARPNESS n	SCALER [x] SHARPNESS n	x=A (OUTPUT 1) n=0~63
GET SCALER [x] SHARPNESS	SCALER [x] SHARPNESS n	x=A (OUTPUT 1)
GET SCALER SHARPNESS?	Command help info	
SET SCALER [x] NR n	SCALER [x] NR n	x=A (OUTPUT 1) n=0~4 0=OFF 1=LOW 2=MIDDLE 3=HIGH 4=AUTO
GET SCALER [x] NR	SCALER [x] NR n	x=A (OUTPUT 1)
GET SCALER NR?	Command help info	

Note:

- *Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive. Spaces between command segments are not required.*
- *Certain commands include the characters [] { } < >. These characters must be included, where indicated, for the command to be accepted.*

6.7 Telnet Control

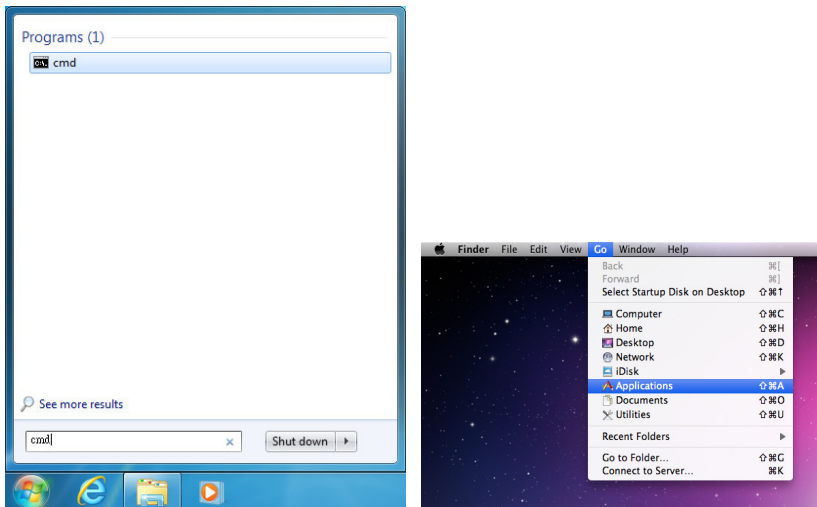
Before attempting to use Telnet control, please ensure that both the unit and the PC/Laptop are connected to the same active networks.

To access Telnet 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, click on “Run”, type “cmd” then press “Enter”.

Under Mac OS X, go to Go→Applications→Utilities→Terminal

See below for reference.



Once in the CLI (Command Line Interface) type “telnet” followed by the IP address of the unit (and the port number if it is non-standard) and then hit “Enter”.

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>telnet 192.168.5.80 23
```



This will connect us to the unit we wish to control. Type “admin” for both User Name and Password. Type “help” or “?” to list the available commands.

```
USER NAME:admin
PASSWORD:admin
=====
Telnet command service
command '?' for help
command 'quit' for quit
=====
```

```
SET SYSTEM REBOOT
SET SYSTEM DEFAULT
GET FW VERSION
GET INPUT PORT NUMBER
GET OUTPUT PORT NUMBER
SET PASSWORD <s>
SET POWER n
GET POWER
GET POWER?
SET IP MODE n
GET IP MODE
GET IP MODE?
SET IP ADDR n.n.n.n
GET IP ADDR
GET STATIC IP ADDR
SET NETMASK n.n.n.n
GET NETMASK
SET GATEWAY n.n.n.n
GET GATEWAY
GET MAC ADDR
SET INT EDID n TO INPUT n
SET INT EDID n TO INPUT ALL
GET INT EDID?
GET INT EDID n DATA
SET NATIVE EDID n TO INPUT n
SET NATIVE EDID n TO INPUT ALL
GET NATIVE EDID?
SET USER EDID n TO INPUT n
SET USER EDID n TO INPUT ALL
GET USER EDID?
GET USER EDID n DATA
SET USER EDID n DATA <hn>
SET SINK EDID [x] TO INPUT n
SET SINK EDID [x] TO INPUT ALL
GET SINK EDID?
GET SINK EDID [x] DATA
GET INPUT EDID?
GET INPUT EDID n DATA
SET INPUT n HDCP MODE n
GET INPUT n HDCP MODE
```

Note:

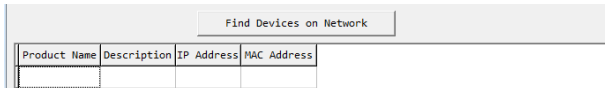
- *Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive. Spaces between command segments are not required.*
- *If the IP is changed then the IP Address required for Telnet access will also change accordingly.*

6.8 WebGUI Control

- **Install the Device Discovery Tool**

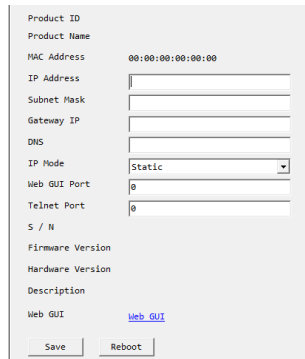
Please obtain the Device Discovery software from your authorized dealer and save it in a directory where you can easily find it.

Note: The unit's default IP address is 192.168.1.50



Product Name	Description	IP Address	MAC Address

Connect the unit and your PC/Laptop to the same active network and execute the Device Discovery software. Click on “Find Devices on Network” and a list of devices connected to the local network will show up indicating their current IP address.



Product ID
 Product Name
 MAC Address 00:00:00:00:00:00
 IP Address
 Subnet Mask
 Gateway IP
 DNS
 IP Mode Static
 Web GUI Port 80
 Telnet Port 80
 S / N
 Firmware Version
 Hardware Version
 Description
 Web GUI [Web GUI](#)
 Save Reboot

By clicking on one of the listed devices you will be presented with the network details of that particular device. If you choose, you can alter the static IP network settings for the device, or switch the unit into DHCP mode to automatically obtain proper network settings from a local DHCP server. To switch to DHCP mode, please select DHCP from the IP mode drop-down, then click “Save” followed by “Reboot”.

Once you are satisfied with the network settings, you may use them to connect via Telnet or WebGUI. The network information window provides a convenient link to launch the WebGUI directly.

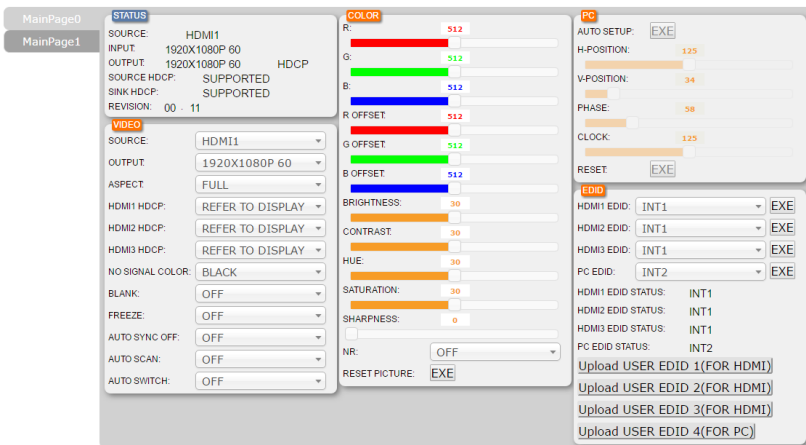
- **Login to the WebGUI**

To access the WebGUI, open a web browser on a PC/Laptop that is connected to an active network and type the unit's IP address (available from the OSD menu) into the web address entry bar. The WebGUI will request a username and password to log in. By default, both the Username and Password are "admin".

6.8.1 MainPage0

All primary functions of this unit are controllable via the built-in WebGUI. This control is presented across 2 separate tabs (MainPage0 and MainPage1). After logging in, the browser will display the unit's primary control tab (MainPage0) to allow direct control of the unit.

If desired, the numerical value for many of the items can be entered directly by typing it in the box above the slider bar. Press "Enter" to accept the newly entered value.



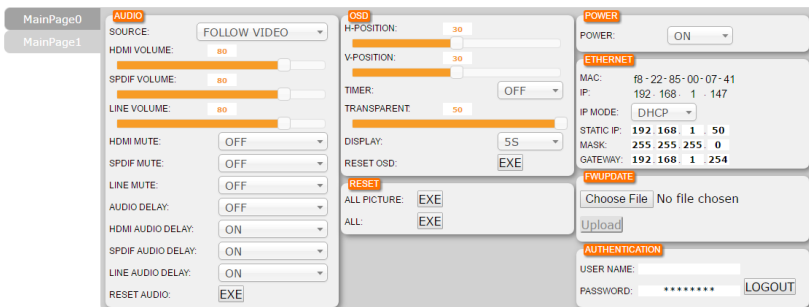
- (1) STATUS:** This section provides information about the unit's current input and output status.
- (2) VIDEO:** This section allows for control of input selection, output resolution & aspect ratio, HDCP behavior for all 3 HDMI inputs, the "no signal" color, blanking and freezing the output as well as configuring the auto switch and sync functionality of the unit.
- (3) COLOR:** This section provides detailed controls for the output R/G/B levels, contrast, saturation, brightness, hue, and sharpness as well as controlling noise reduction.

- (4) **PC:** This section is only active when a PC source is selected and it allows for direct control of the H-position, V-position, phase, and clock used with that input. These settings can be automatically configured by clicking on the “Auto Setup” button.
- (5) **EDID:** This section allows the user to choose the EDID to be used with each input. It is also possible to upload custom user EDIDs here.

6.8.2 MainPage1

Select the “MainPage1” tab to adjust settings related to audio output, the OSD, Ethernet, and power. System resets, authentication changes and firmware updates may also be performed from here.

If desired, the numerical value for many of the items can be entered directly by typing it in the box above the slider bar. Press “Enter” to accept the newly entered value.



- (1) **AUDIO:** This section provides controls to set each individual audio output type's volume levels, and delay settings. Each output type may also be muted independently.
- (2) **OSD:** This section lets the user change the H/V positioning of the OSD, the display timeout timer, and OSD window transparency. The information OSD's behavior is also controlled here with a choice between on, off and momentary (info).
- (3) **RESET:** This section allows for the unit to be factory reset.
- (4) **POWER:** This section allows for the unit to be powered on and off.
- (5) **ETHERNET:** This section allows for setting the unit to either Static or DHCP mode for its IP information. When in Static mode, the IP, Netmask and Gateway may be set manually.

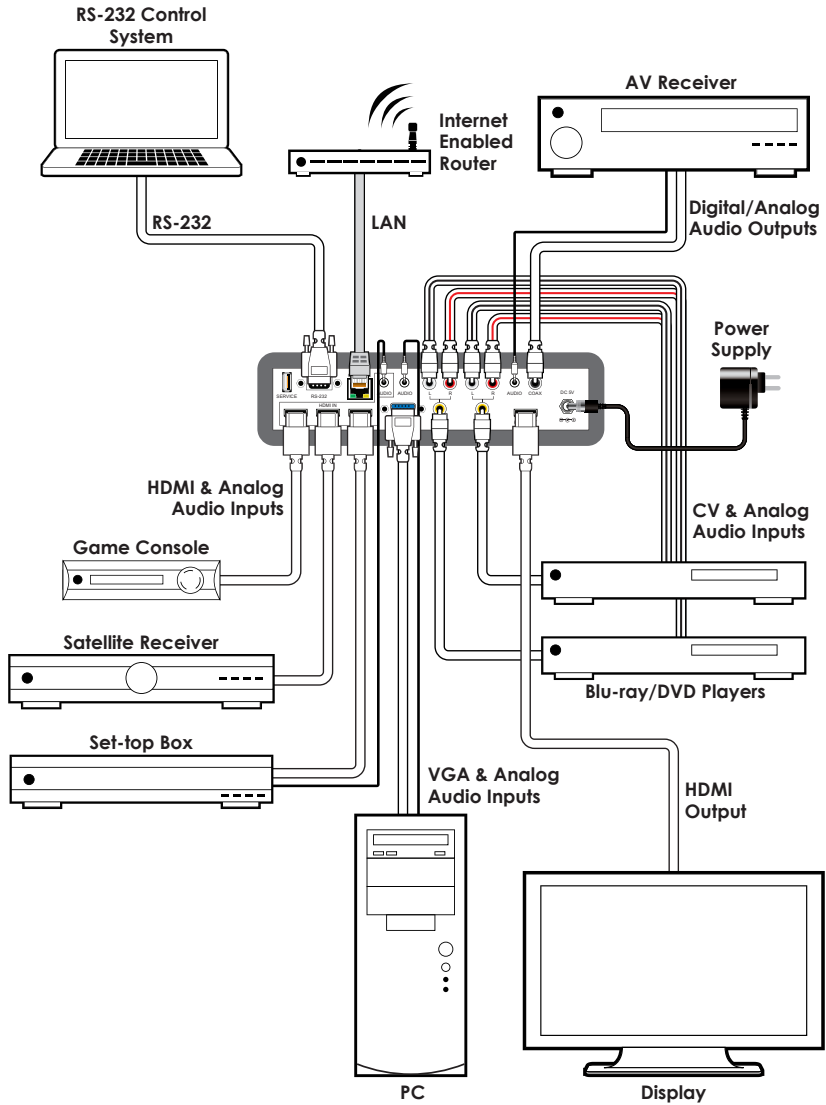
Note: If the IP address is changed then the IP address required for



WebGUI or Telnet access will also change accordingly. Consult the OSD to view the current IP settings if necessary.

- (6) FW UPDATE:** This section allows for new firmware to be uploaded into the unit.
- (7) AUTHENTICATION:** This section allows for the login password to be changed. The default password is "admin".

7. CONNECTION DIAGRAM





8. SPECIFICATIONS

8.1 Technical Specifications

Video Bandwidth	10.2Gbps (340MHz)
Input Ports	3×HDMI, 1×VGA, 2×CV, 2×3.5mm (Analog Stereo), 4×RCA (Analog Stereo)
Output Ports	1×HDMI, 1×3.5mm (Analog Stereo), 1×RCA (S/PDIF Audio)
Control Ports	1×RS-232, 1×IP Control
Supported Resolutions	480i@60Hz - 1080p@60Hz (12-bit) VGA@60Hz - WUXGA@60Hz (RB)
IR Frequency	30 - 50 kHz (30 - 60kHz under ideal conditions)
Baud Rate	Up to 115200bps
Power Supply	5V/3A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human Body Model: ±8KV (Air Discharge), ±4KV (Contact Discharge)
Dimensions	215mm×42mm×144mm (W×H×D) [Case Only] 215mm×47mm×153mm (W×H×D) [All Inclusive]
Weight	1,030g
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	4.8W

8.2 Supported Resolutions

Resolution (Hz)	Input	Output
640×480@60	✓	✓
640×480@72	✓	
640×480@75	✓	
640×480@85	✓	
720×480@60	✓	✓
720×576p@50	✓	✓
800×600@60	✓	✓
800×600@72	✓	
800×600@75	✓	
1024×768@60	✓	✓
1024×768@70	✓	
1024×768@75	✓	
1280×720p@50	✓	✓
1280×720p@60	✓	✓
1280×768@60	✓	✓
1280×800@60	✓	✓
1280×1024@60	✓	✓
1360×768@60	✓	✓
1600×1200@60	✓	✓
1680×1050@60	✓	✓
1400×1050@60	✓	✓
1440×900@60	✓	✓
1920×1080i@50	✓	
1920×1080i@60	✓	
1920×1080p@24	✓	✓
1920×1080p@25	✓	✓

Resolution (Hz)	Input	Output
1920×1080p@30	✓	✓
1920×1080p@50	✓	✓
1920×1080p@60	✓	✓
1920×1200@60 (RB)	✓	✓

9. ACRONYMS

ACRONYM	COMPLETE TERM
CV	Composite Video
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
NTSC	National Television Standards Committee
OVP	Over Voltage Protection
PAL	Phase Alternating Line
PC	Personal Computer
SECAM	Séquentiel Couleur Avec Mémoire
VGA	Video Graphics Array (640×480@60Hz)
WUXGA	Wide Ultra Extended Graphics Array (1920×1200@60Hz)



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