

VGA to HDMI Scaler

Converts analog PC video (VGA) with either digital audio (S/PDIF) or analog stereo audio to digital HDMI.



**Customer
Support
Information**

Order toll-free in the U.S.: Call 877-877-BBOX (outside U.S. call 724-746-5500) • FREE technical support 24 hours a day, 7 days a week: Call 724-746-5500 or fax 724-746-0746 • Mailing address: Black Box Corporation, 1000 Park Drive, Lawrence, PA 15055-1018
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FEDERAL COMMUNICATIONS COMMISSION AND INDUSTRY CANADA RADIO FREQUENCY INTERFERENCE STATEMENTS

This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication.

It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

Normas Oficiales Mexicanas (NOM) Electrical Safety Statement INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.

5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.

17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
- A: El cable de poder o el contacto ha sido dañado; u
- B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
- C: El aparato ha sido expuesto a la lluvia; o
- D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
- E: El aparato ha sido tirado o su cubierta ha sido dañada.

Safety Notice

Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on the unit.
- Do not attempt to service the unit yourself, except where explained in this manual.
- Provide proper ventilation and air circulation and do not use near water.
- Keep objects that might damage the device away from it, and place the unit on stable surfaces.
- Only use the power adapter, power cords, and connection cables designed for the unit.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

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1. Specifications

Approvals	CE, FCC
Audio Support	Stereo PCM (48 kHz only), Digital SPDIF
Enclosure	Metal wall mounting case with screws
ESD Protection	Human body model: ±19 kV (air-gap discharge) and ±12 kV (contact discharge); Core chipset: ±2 kV
Firmware Update	via USB Port
Frequency Bandwidth	Input: 165 MHz; Output: 165 MHz
Connectors	Input: (1) VGA, (1) S/PDIF, (1) Stereo; Output: (1) HDMI; Control and Power: (1) USB Mini B
Indicators	(1) Red LED for Power; (1) Green LED for Video Signal
Environment	Temperature Tolerance: Operating: 32 to 104° F (0 to 40° C); Storage: -4 to +140° F (-20 to +60° C) Relative Humidity: 20–90%, noncondensing
Power	Power supply: 5 VDC, 2 A; Consumption 5 Watts (max.)
Dimensions	1.1"H x 3.6"W x 3.3"D (2.8 x 9.2 x 8.3 cm)
Weight	9.1 oz. (260 g)

Chapter 1: Specifications

Resolution Specifications for AVSC-VGA-HDMI-R2

Input	Output
640 x 480	720 x 480i @ 60 Hz
800 x 600	720 x 576i @ 50 Hz
1024 x 768	720 x 480p @ 60 Hz
1280 x 720	720 x 576p @ 50 Hz
1280 x 800	1280 x 720p @ 60 Hz
1280 x 1024	1280 x 720p @ 59 Hz
1600 x 1200	1280 x 720p @ 50 Hz
1680 x 1050	1280 x 720p @ 30 Hz
1920 x 1080	1280 x 720p @ 25 Hz
1920 x 1200	1920 x 1080i @ 60 Hz
720p @ 60/50 Hz	1920 x 1080i @ 59 Hz
1080p @ 60/50 Hz	1920 x 1080i @ 50 Hz
	1920 x 1080p @ 60 Hz
	1920 x 1080p @ 59 Hz
	1920 x 1080p @ 50 Hz
	1920 x 1080p @ 30 Hz
	1920 x 1080p @ 25 Hz
	1920 x 1080p @ 24 Hz
	640 x 480p @ 60 Hz
	640 x 480p @ 75 Hz
	800 x 600p @ 60 Hz
	800 x 600p @ 75 Hz
	1024 x 768p @ 60 Hz
	1024 x 768p @ 75 Hz
	1280 x 1024p @ 60 Hz
	1280 x 1024p @ 75 Hz
	1360 x 768p @ 60 Hz
	1366 x 768p @ 60 Hz
	1400 x 1050p @ 60 Hz
	1600 x 1200p @ 60 Hz
	1440 x 900p @ 60 Hz
	1440 x 900p @ 75 Hz
	1680 x 1050p @ 60 Hz
	1680 x 1050p RB
	1920 x 1080p RB
	1920 x 1200p RB

2. Overview

2.1 Introduction

Scalers work to convert and scale a type of video/audio signal to another type of video/audio signal. This enables you to use differently formatted video/audio signals on differently formatted display screens. Scaling allows for changing resolutions to increase quality or improve compatibility.

The VGA to HDMI Scaler (AVSC-VGA-HDMI-R2) converts analog PC video (VGA) with either digital audio (S/PDIF) or analog stereo audio to digital HDMI. With this module, VGA based devices such as PC with S/PDIF or analog stereo audio can readily connect to your HDMI TV. Presentations, demonstrations, or digital signage becomes easier and more cost effective.

2.2 Features

- Auto-detect function.
- Locking HDMI connector.
- Locking power or optional USB powered.
- IR remote control
- Remote configuration via Mini-USB
- OSD control interface
- Maximum pixel rate: 165 MHz
- S/PDIF and Stereo input supported
- Deinterlacer supported
- Supports noise reduction and video enhancement features
- Over/under scanning adjustable
- Video H/V mirror supported
- Active video area adjustment supported
- USB firmware upgradable for expanding compatibility
- Wallmount housing design for easy installation

2.3 What's Included

- VGA to HDMI Scaler
- 5-VDC, 2 A power supply unit
- IR Remote control
- User Manual
- Installation Software CD

Chapter 2: Overview

2.4 Hardware Description

Figures 2-1 and 2-2 show the front and back panels of the scaler. Table 2-1 describes its components.



Figure 2-1. Front panel.

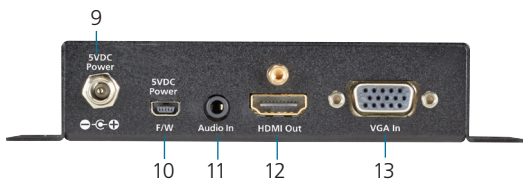


Figure 2-2. Back panel.

Table 2-1. Scaler components.

Number	Component	Description
1	S/DPDIF Audio IN connector	Connects to digital S/DPDIF audio source
2	DIP switch	For firmware update: ON (UP): firmware update mode; OFF (DOWN): normal mode
3	LED indicator	(1) Signal LED (green)
4	LED indicator	(1) Power LED (red)
5	IR sensor	Used to receive the IR commands from IR remote
6	Push button	Down button
7	Push button	Up button
8	Push button	Menu/Enter button
9	Interlocking power jack	Connects to 5 VDC power supply unit
10	Mini-USB port	• Used for firmware update • Connects to 5 VDC power supply unit
11	Stereo audio IN	Connect to analog stereo audio source
12	HDMI OUT connector	Connect to a HDMI display via an HDMI male-male cable.
13	VGA IN connector	Connect to a VGA source

Chapter 3: Connection Diagram

3. Connection Diagram

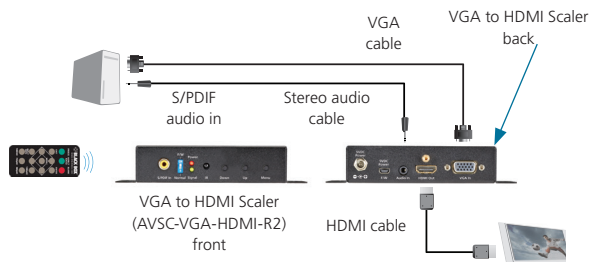


Figure 3-1. Typical application.

4. OSD Menu

Table 4-1. OSD menu.

Option	Description	Settings
1. Output Setup	Output Mode	
	Default Pattern	Disable (Default); Window; H-Ramp; V-Ramp; H-Gray; V-Gray; H-Color; V-Color
	Audio Source	Analog; SPDIF
2. Image	Contrast	0–255 (Default 128)
	Brightness	0–255 (Default 128)
	Saturation	0–255 (Default 128)
	Hue	0–255 (Default 128)
	B/W Extension	Off (Default)
		On
	Color Tone	Off (Default)
		Skin
		Green

Chapter 4: OSD Menu

Table 4-1 (continued). OSD menu.

Option	Description	Settings
2. Image (continued)	Edge Enhance	Typ. (Default); Mid; Max; Off
	Sharpness	0–127 (Default 0)
3. Adjustment	Under/Over Scan	-50%–50% (Default Off)
	Aspect Ratio	16:9 (Default); 4:3
	H-Mirror	Off (Default); On
	V-Mirror	Off (Default); On
	Input H Adj	
	Input V Adj	
4. System	In-Sync Info	
	Firmware Version	
	Factory Reset	No (Default); Yes

5. Operation

Method A: Push-in Button

See Figure 5-1.

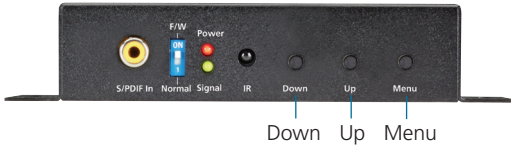


Figure 5-1. Location of push buttons on the scaler.

Method B: IR Remote Control

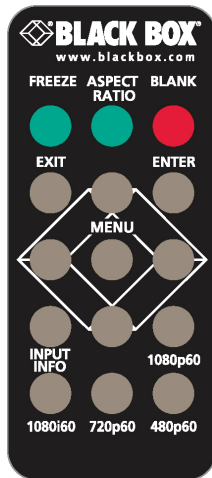


Figure 5-2. Remote control.

Table 5-1. IR remote control functions.

Button	Function
FREEZE	Freeze video
ASPECT RATIO	Aspect ratio change
BLANK	Blank video
EXIT	Exit OSD
ENTER	Enter key
UP	Up key
LEFT	Left key
RIGHT	Right key
DOWN	Down key
MENU	Menu on
INPUT INFO	Source resolution information
1080p60	Select 1080p60 output resolution
1080i60	Select 1080i60 output resolution
720p60	Select 720p60 output resolution
480p60	Select 480p60 output resolution

Method C: Remote Configuration through Mini-USB port



Figure 5-3.

Table 5-2. IR remote control through mini-USB port screen functions.

Number in Figure 5-3	Function
1	COM Port Selection
2	COM Port Detection Button
3	Output Setup Button
4	Image Button
5	Adjustment Button
6	System Button
7	Input/Output Resolution Info
8	Refresh Input/Output Resolution Info Button
9	Output Quick Selection Button

Chapter 5: Operation

1. COM Port Selection

Please select the COM PORT application.

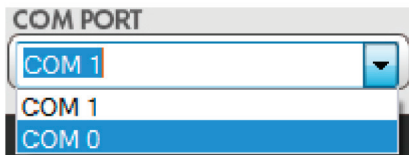


Figure 5-4. Select COM port.

2. COM Port Detection Button

Click on the curved-arrow button  to detect the COM PORT.

3. Output Setup Button

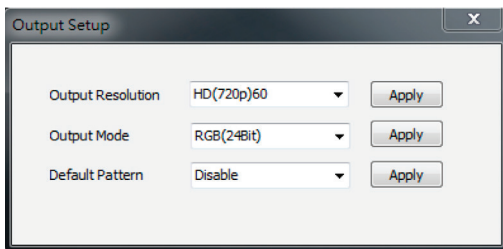


Figure 5-5.

4. Image Button

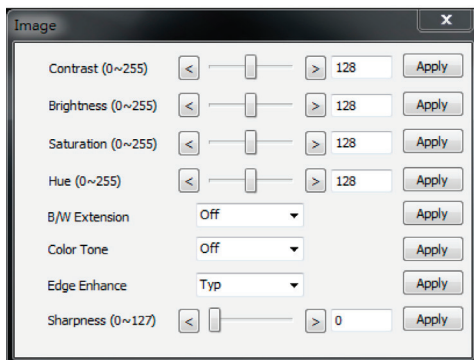


Figure 5-6.

5. Adjustment Button

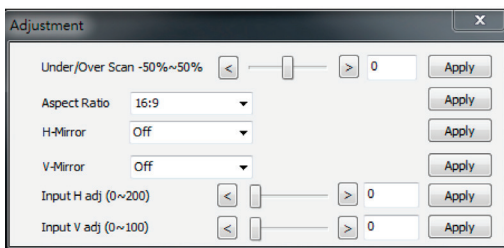


Figure 5-7.

Chapter 5: Operation

6. System Button

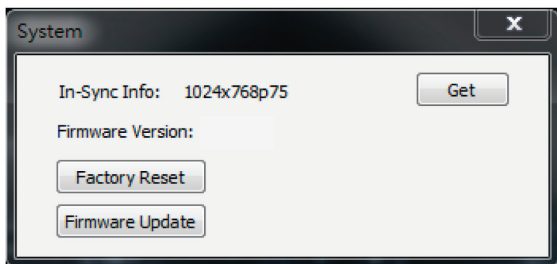


Figure 5-8. System screen.

1) In-Sync Info:

To view the current input resolution

2) Factory Reset Button

3) Firmware Update Button

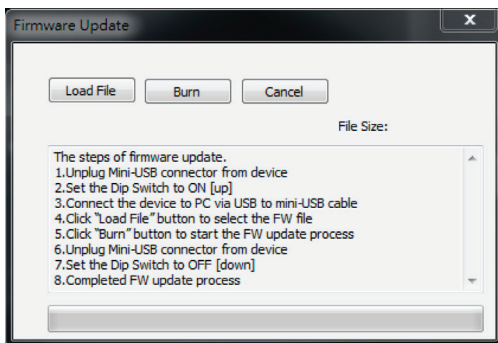


Figure 5-9. Firmware update screen.

Follow these steps to update the firmware:

STEP A: Power off the device.

STEP B: Set the DIP switch to ON (UP).

STEP C: Connect the device to the PC via a USB to mini-USB cable.

STEP D: Click the FW Update button in the software.

STEP E: Click on the "Load File" button to select the firmware file.

STEP F: Click on the "Burn" button to start the firmware update process.

STEP G: Power on the device.

STEP H: Set the DIP switch to OFF (DOWN).

The firmware update process is complete.

7. I/O Port and Resolution Info

Displays the information about the I/O Port and the applied resolution.

8. Refresh Button

Refreshes the status of the converter.

9. Output Quick Selection Button

Controls common functions for quick setting.

Chapter 6: Troubleshooting

6. Troubleshooting

6.1 Problems/Solutions

Problem	Solution
No video or LEDs	• Double-check the power. • Set the firmware DIP switch to OFF (Down).
Green tint over video	Usually caused by bad or loose VGA cable. • Replace or tighten the cable.
No audio	• Check settings for correct analog/SPDIF settings. • Audio from both inputs will prevent audio embedding.

6.2 Contacting Black Box

If you determine that your VGA to HDMI Scaler is malfunctioning, do not attempt to alter or repair the unit. It contains no user-serviceable parts. Contact Black Box Technical Support at 724-746-5500 or info@blackbox.com.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- the nature and duration of the problem.
- when the problem occurs.
- the components involved in the problem.
- any particular application that, when used, appears to create the problem or make it worse.

6.3 Shipping and Packaging

If you need to transport or ship your VGA to HDMI Scaler:

- Package it carefully. We recommend that you use the original container.
- If you are returning the unit, make sure you include everything you received with it. Before you ship for return or repair, contact Black Box to get a Return Authorization (RA) number.

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