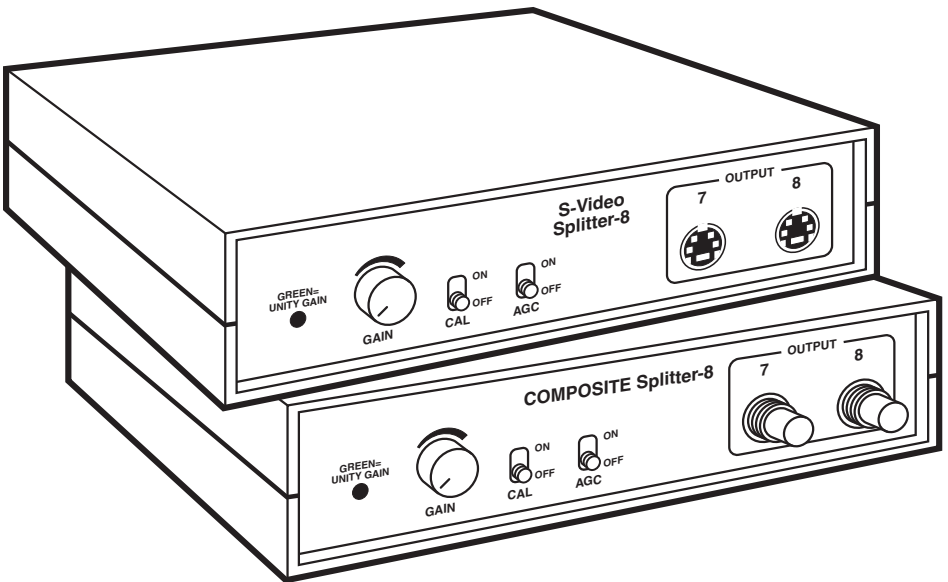




S-Video Splitter-8 Composite Video Splitter-8



**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
Web site: www.blackbox.com • E-mail: info@blackbox.com

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 J 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 la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

TRADEMARKS USED IN THIS MANUAL

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Any other trademarks mentioned in this manual are acknowledged to be the property of the trademark owners.

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.

1. Specifications

Compliance —	FCC Part 15 Subpart J Class A, IC Class/classe A
Interfaces —	AC043 models: S-Video (Y/C, NTSC/PAL/SECAM); AC044 models: Composite video (NTSC/PAL/SECAM)
Bandwidth (Resolution/ Refresh Rate) —	Over 100 MHz (sufficient for standard TV signals or for most scan-converted computer video)
Rise/Fall Times —	3.5 ns
Propagation Delay —	Less than 10 ns
Input Characteristics —	Impedance: AC043 models: 75 ohms Y/C; AC044 models: 75 ohms; Coupling: AC; Level: 0.5 to 1.5 V _{pp} (70 to 210 IRE); Gain: -6 to +6 dB or unity or automatic unity ref. from sync tip to IRE white; Manual gain has calibration detection; LED is green when gain = unity (AGC off) or when output level is 1 V _{pp} (AGC on); Differential gain: 0.25%; Differential phase: 0.25 degrees
Output Characteristics —	Impedance: AC043 models: 75 ohms Y/C; AC044 models: 75 ohms; Coupling: DC; Level (maximum): Greater than 1.5 V _{pp} into 75 ohms; DC restoration: Switchable: Pedestal or sync TIP = 0 VDC

Maximum Distance —	Will depend on a number of factors, including cabling (the lower its capacitance and resistance, the better); resolution/refresh rate (if the video has been scan-converted from a computer source); and, on the input side, the ability of the source device to drive the signal; The maximum distance we recommend running to a video source (input) is 25 ft. (7.6 m), but it's a good idea to keep this distance as short as possible; The maximum distance we recommend running to any video destination (output) is 250 ft. (76.2 m)
User Controls —	(1) Front-mounted knob for manual gain control; (3) Toggle switches: (1) rear-mounted for DC restore/clamp, (2) front-mounted for calibration and AGC
Indicator —	(1) Front-mounted "GREEN = UNITY GAIN" LED
Connectors —	AC043 models: (9) 4-pin mini-DIN female; AC044 models: (9) BNC female
Temperature Tolerance —	Operating: 50 to 104°F (10 to 40°C); Storage: 32 to 104°F (0 to 40°C)
Humidity Tolerance —	Up to 80% noncondensing
Enclosure —	High-impact plastic
Power —	Through wallmount power supply: AC043A-R2, AC044A-R2: Input: 120 VAC, 60 Hz; Output: 12 VAC at up to 850 mA; AC043AE-R2, AC044AE-R2: Input: 220 VAC, 50 Hz; Output: 12 VAC at up to 1.7 A
Size —	1.5"H x 7.1"W x 5.4"D (3.8 x 18 x 13.7 cm)
Weight —	Net: 1 lb. (0.5 kg); Shipping: 3 lb. (1.4 kg)

2. Introduction

The S-Video Splitter-8 (AC043A-R2, AC043AE-R2) and Composite Video Splitter-8 (AC044A-R2, AC044AE-R2) distribute a video signal from one source to many video displays. All models feature DC restoration and fixed, manual, and automatic gain controls.

The S-Video Splitter-8 is a 100-MHz S-Video (Y/C) distribution amplifier for S-Video (S-VHS), Hi-8, ED-BETA, and other video formats that use 4-pin mini-DIN connectors.

The Composite Video Splitter-8 is a 100-MHz composite-video distribution amplifier with BNC connectors.

Features include:

- 100-MHz bandwidth;
- 8 outputs from a single output;
- Fixed, manual, and automatic gain control;
- Unity gain; and
- Can be placed on a flat surface or mounted in a rack.

Here's what should have been in your complete Splitter-8 package:

- The Video Splitter-8.
- A wallmount power supply rated for output of 12 VAC and up to either 850 mA (120-VAC input) or 1.7 A (220-VAC input).
- This manual.

3. Installation

Most external connections to the Video Splitter-8 are made to its rear panel, which is shown in Figure 3-1.

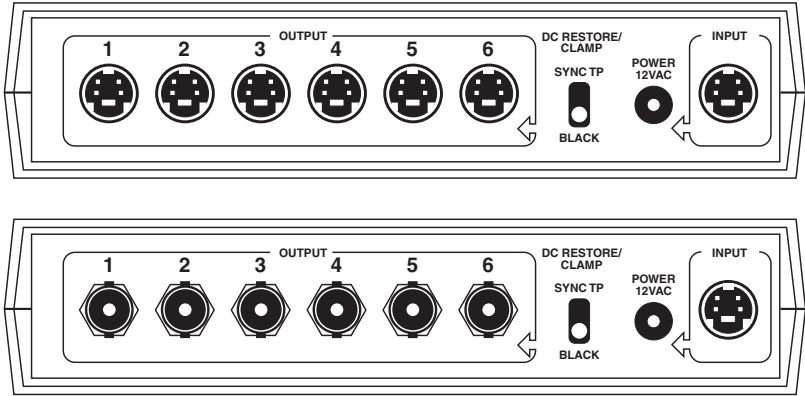


Figure 3-1. Rear panel of the AC043 (top) and AC044 (bottom) models of the Video Splitter-8.

3.1 Preparation

If you'd like to place your Video Splitter-8 on a flat surface such as the top of a table, desk, or counter, leave at least 3 inches (7.6 cm) of clearance behind the unit for making cable connections.

If you'd like to rackmount your Splitter-8, we recommend using a rackmount tray (product code RM001 or RM002). You can mount one unit by itself in a tray, or mount two units side by side.

You will probably want to place the Video Splitter-8 as close as possible to your video monitors and other output devices in order to minimize the length of cable you need to run. It is important that the video cables meet your local safety and building codes.

3.2 Connecting the Input Device (Video Source)

Using the appropriate cable, connect your video source to the connector labeled “INPUT” on the rear panel of the Video Splitter-8.

For the S-Video (AC043) models, use an S-Video cable with 4-pin mini-DIN connectors such as product code EHN058. When you install this cable, make sure that the small pins in its mini-DIN connector are not bent or damaged before you plug the connector into the jack on your Splitter-8. Align the cable connector with the plastic key *down*.

For the Composite Video (AC044) models, use a standard coaxial composite-video cable with BNC connectors such as product code ETN59. When you install this cable, make sure to turn its BNC connector clockwise to its locking position.

3.3 Connecting Monitors and Other Output Devices (Video Destinations)

Make sure your video monitors, recorders, and other output devices meet your local safety and building codes. Using the appropriate cable, connect these devices to any of the Video Splitter-8’s connectors labeled “OUTPUT.” In many applications, outputs 1 through 6 on the Splitter-8’s rear panel are used for permanent connections while outputs 7 and 8 on the front panel—shown in Figure 4-1 on page 10—are used for temporary connections. This isn’t required, though; all of the outputs function exactly the same way.

In most situations, you’ll use the cable types, and follow the installation tips, discussed in **Section 3.2**. However, for the Composite Video Splitter-8, note that some monitors have only RCA® type input jacks. To attach ETN59 or some other coax cable with BNC connectors to these monitors would require a BNC female to RCA male adapter. We don’t carry these as stock items, but you can call for a special quote. However, if you aren’t running farther than 50 ft. (15.2 m) to such a monitor, you might be able to plug a BNC male to RCA female adapter such as product code FA870 into the Splitter-8’s output port, then run RCA cable such as product code EJ200 or EJ202 to the monitor. We don’t recommend this type of cabling or guarantee that it will work.

3.4 Connecting Power

To connect your Video Splitter-8 to an AC power source, first uncoil the output cord attached to the power supply’s transformer. Plug this cord into the “POWER 12VAC” jack on the Splitter-8’s rear panel. Next, plug the transformer into a standard AC-power receptacle. You might need a power adapter to plug the 220-VAC power supply of the AC043AE-R2 or AC044AE-R2 into one of your local outlets.

4. Configuration and Operation

The Video Splitter-8 usually operates unattended. It will continuously relay any received input signal to all connected output devices (monitors, video recorders, etc.). However, it does have two sets of controls that affect the *way* it operates: calibration and AGC controls in front plus a DC restore/clamp switch in the rear.

4.1 The Gain Controls and LED

The AGC (automatic gain control) switch, CAL (calibration) switch, GAIN knob, and “GREEN = UNITY GAIN” LED are on the Video Splitter-8’s front panel, as shown in Figure 4-1 on the next page. Here’s how these components determine and indicate the Splitter-8’s video handling, assuming an NTSC video input:

- With the CAL and AGC switches both ON, the LED is always lit and the knob has no effect. The AC043 models maintain a constant S-Video output level of $Y = 1 \text{ Vpp}$, $C = 288 \text{ mVpp}$. The AC044 models maintain a constant composite-video output level of 1 Vpp .
- With the CAL switch ON and the AGC switch OFF, the LED is always lit and the knob has no effect. Output levels follow input levels ($V_{out} = V_{in}$, unity gain); in this setting, the Splitter-8 doesn’t amplify the input signal before retransmitting it to the output equipment.
- With the CAL switch OFF and the AGC switch ON, the knob determines the output level regardless of the input level. For the AC043 models, output can range from $Y = 0.5 \text{ Vpp}$, $C = 144 \text{ mVpp}$ (with the knob as far as it can go counterclockwise) to $Y = 1.5 \text{ Vpp}$, $C = 432 \text{ mVpp}$ (with the knob as far as it can go clockwise). The LED lights when $V_{out} = 1 \text{ Vpp}$, which should occur when the knob is approximately at its central point.
- With the CAL and AGC switches both OFF, the output level will equal the input level multiplied by the gain selected with the knob ($V_{out} = \text{gain} \times V_{in}$). Amplification can range from -6 dB (input signal halved, with the knob as far as it can go counterclockwise) to $+6 \text{ dB}$ (input signal doubled, with the knob as far as it can go clockwise). The LED lights when gain = 1 (unity gain), which should occur when the knob is approximately at its central point.

S-VIDEO SPLITTER-8 AND COMPOSITE VIDEO SPLITTER-8

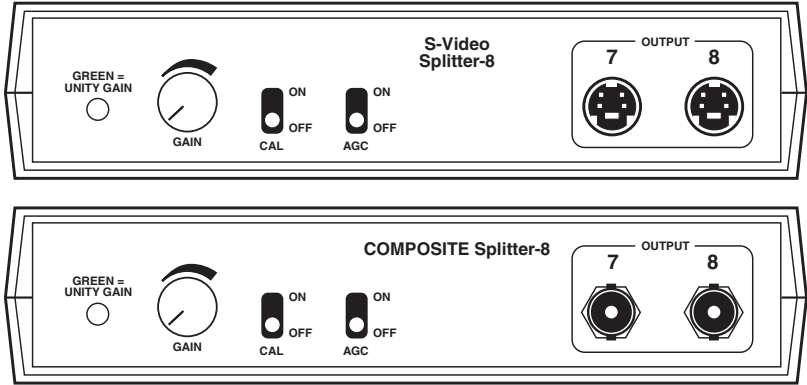


Figure 4-1. Front panel of the AC043 (top) and AC044 (bottom) models of the Video Splitter-8.

4.2 The DC Restore/Clamp Switch

The DC restore/clamp switch is on the rear panel of your Video Splitter-8, as shown in Figure 3-1 on page 7. Set it to the position which yields the best picture. For most applications, you'll get a better picture if you set the switch to the "BLACK" (DOWN) position. In this position, the output video is clamped at 0 VDC (see Figure 4-2). Some monitors, however, will display a better picture if you set this switch to the "SYNC TIP" (UP) position, which causes the Splitter-8 to raise the sync signal above ground/0 VDC (see Figure 4-3).

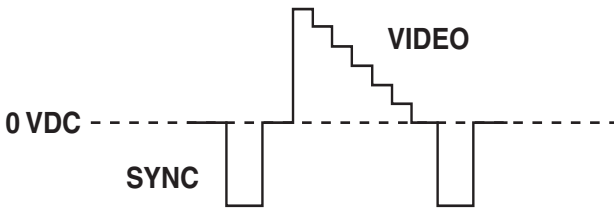


Figure 4-2. Video output clamped at 0 VDC.

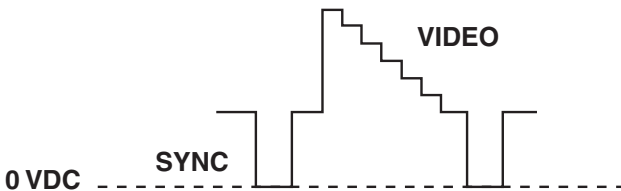


Figure 4-3. Video output raised above ground.

5. Troubleshooting

If the monitors or other output devices don't seem to be displaying or recording the image from the video source, first check to make sure that the video source device is ON and that it's properly connected to the Video Splitter-8. Then make sure that the output devices are properly connected to the Splitter-8.

If this doesn't help, or if you have some other problem, contact Black Box as described in the rest of this chapter.

5.1 Calling Black Box

If you determine that your Video Splitter-8 is malfunctioning, *do not attempt to alter or repair it*. It contains no user-serviceable parts. Contact Black Box Technical Support at 724-746-5500.

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—that is, what type of input device, what type of output device, type and make of your cables, etc.;
- any particular application that, when used, appears to create the problem or make it worse; and
- the results of any testing you've already done.

5.2 Shipping and Packaging

If you need to transport or ship your Video Splitter-8:

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

NOTES



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