

## 2 x 1 and 4 x 1 DisplayPort Switches

Share a DisplayPort display output (monitor, projector, or TV) between multiple device DisplayPort inputs.

Models available with or without serial and 3.5-mm audio.



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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 la 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 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.

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### 1. Specifications

**Maximum Video Resolution** — Full HD (1920 x 1080), WUXGA (1920 x 1200), WQXGA (2560 x 1600)

**Number of Video Inputs** — AVSW-DP2X1, AVSW-DP2X1A: (2);  
AVSW-DP4X1, AVSW-DP4X1A: (4)

**Remote Control Support** — Yes

**Serial Control Support** — AVSW-DP2X1, AVSW-D4X1: N/A;  
AVSW-DP2X1A, AVSW-DP4X1A: Yes

**Enclosure** — Metal

**User Controls** — AVSW-DP2X1A: (2) Input push buttons;  
AVSW-DP4X1A: (4) Input push buttons;  
AVSW-DP2X1, AVSW-DP4X1: (1) Input push button with integral LED

**Connectors** — AVSW-DP2X1: Input: (2) DisplayPort female;  
Output: (1) DisplayPort female;  
AVSW-DP2X1A: Input: (2) DisplayPort female, (2) audio jacks;  
Output: (1) DisplayPort female, (1) audio jack;  
AVSW-DP4X1: Input: (4) DisplayPort female;  
Output: (1) DisplayPort female;  
AVSW-DP4X1A: Input: (4) DisplayPort female, (4) audio jacks;  
Output: (1) DisplayPort female, (1) audio jack

**Indicators** — (2) LEDs: (1) Video (green), (1) Output (yellow)

**Power Consumption (Maximum)** — 9 VDC, 1.5 A, 13.5 W

**Size** — AVSW-DP2X1, AVSW-DP4X1: 0.8"H x 6.2"W x 2.6"D (2 x 15.7 x 6.6 cm);  
AVSW-DP2X1A, AVSW-DP4X1A: 1.4"H x 8.7"W x 3.9"D (3.6 x 22 x 9.9 cm)

**Weight** — AVSW-DP2X1: 0.64 lb. (0.29 kg);  
AVSW-DP2X1A: 1.4 lb. (0.64 kg);  
AVSW-DP4X1: 0.7 lb. (0.32 kg);  
AVSW-DP4X1A: 1.6 lb. (0.73 kg)

## Chapter 2: Overview

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### 2. Overview

#### 2.1 Introduction

The 2- and 4-Port DisplayPort Switches enable users to quickly and easily share a single DisplayPort display with a Blu-ray player, HD-DVD, Xbox®, Wii®, PS3, satellite receiver, etc.) from your device inputs to one output device (monitor, projector, or TV). You can select the desired input source via the remote control within the range of 15 feet (5 meters) or push button on the switch. You don't need to plug and unplug video sources, making it more convenient, more affordable, and more efficient to use your A/V equipment.

The built-in serial interface also enables users to control the Video Switch through a PC, serial controller devices, or home theater system, integrating the whole A/V environment (depends on model).

#### 2.2 Features

- Select (1) video from (2) or (4) different video sources (AVSW-DP2X1, AVSW-DP4X1).
- Select (1) video plus (1) audio from (2) or (4) different video plus audio sources (AVSW-DP2X1A, AVSW-DP4X1A).
- Uses front-panel buttons for easy switching.
- Supports IR remote control (AVSW-DP2X1A, AVSW-DP4X1A only).
- Supports serial remote control (AVSW-DP2X1A, AVSW-DP4X1A only).
- LEDs show the active status of input video (plus audio) sources.
- Supports DisplayPort monitors.
- Supports video resolution up to UXGA (1600 x 1200)/Full HD (1920 x 1080)/WUXGA (1920 x 1200).
- Supports video resolution up to 2560 x 1440/WQXGA (2560 x 1600) (DP).
- Compatible with most of the popular screen resolutions: XGA, SXGA, UXGA, WSXGA to Full HD, WUXGA system.
- DisplayPort 1.1 compatible (DP).

#### 2.3 What's Included

Your package should contain the following items. If anything is missing or damaged, contact Black Box Technical Support at 724-746-5500 or [info@blackbox.com](mailto:info@blackbox.com).



### **AVSW-DP2X1A:**

- 2 x 1 DisplayPort Video Switch with Audio
- Power adapter with required AC cord
- IR remote control
- Serial cable
- This user's manual
- (1) set of foot pads

### **AVSW-DP4X1A:**

- 4 x 1 DisplayPort Video Switch with Audio
- Power adapter with required AC cord
- IR remote control
- Serial cable
- This user's manual
- (1) set of foot pads

### **AVSW-DP2X1:**

- 2 x 1 DisplayPort Video Switch
- Power adapter with required AC cord
- This user's manual
- (1) set of foot pads

### **AVSW-DP4X1:**

- 4 x 1 DisplayPort Video Switch
- Power adapter with required AC cord
- This user's manual
- (1) set of foot pads

**You might also need (for AVSW-DP2X1A or AVSW-DP4X1A only):**

- Audio cable (EJ110)
- 6-ft. (1.8-m) DisplayPort Cable (M-to-M) for DP A/V source connection (EVNDP01)
- Serial cable

2.4 Hardware Description

2.4.1 AVSW-DP2X1 Front and Back Panels

Figure 2-1 shows the front panel of the AVSW-DP2X1. Figure 2-2 shows the back panel. Table 2-1 describes its components.

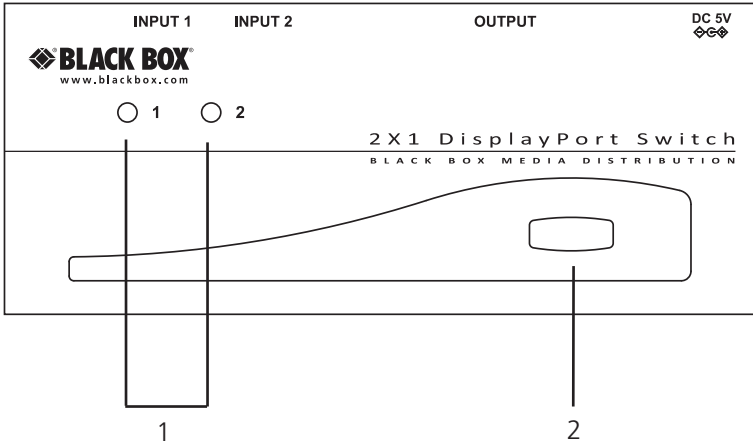


Figure 2-1. AVSW-DP2X1 front panel.

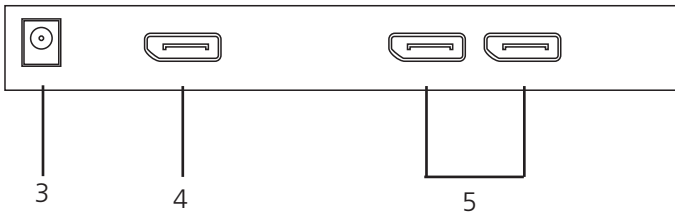


Figure 2-2. AVSW-DP2X1 back panel.

Table 2-1. AVSW-DP2X1 components.

Number	Component	Description
1	LED	Lights when Input 1 or Input 2 is selected.
2	Push button/LED	Press this button to toggle the video source. The corresponding LED lights to indicate that a port is selected.
3	Barrel connector	Links to power source.
4	DisplayPort connector	Connects to DisplayPort output.
5	DisplayPort connector	Connects to inputs 1 and 2.

2.4.2 AVSW-DP2X1A Front and Back Panels

Figure 2-3 shows the front panel of the AVSW-DP2X1A. Figure 2-4 shows the back panel. Table 2-2 describes its components.

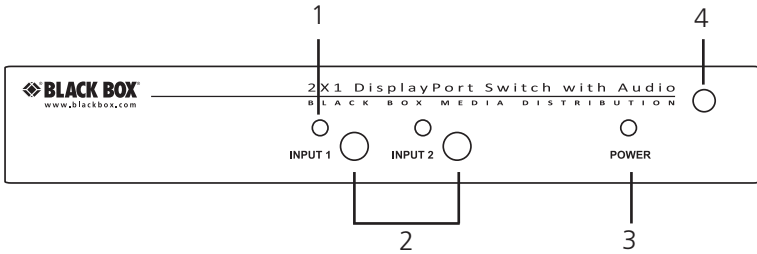


Figure 2-3. AVSW-DP2X1A front panel.

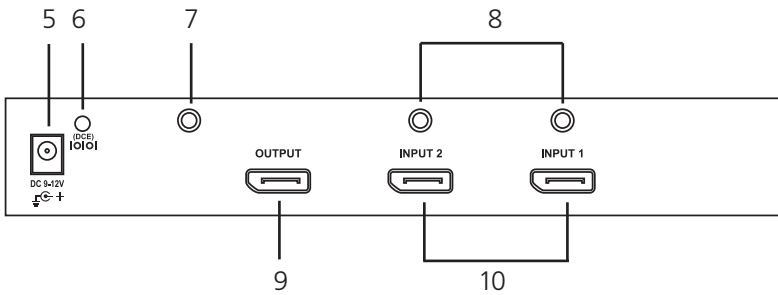


Figure 2-4. AVSW-DP2X1A back panel.

Table 2-2. AVSW-DP2X1A components.

Number	Component	Description
1	LED	Lights when Input 1 is connected.
2	Push buttons	Press to select Input 1 or Input 2.
3	LED	Lights when power is on.
4	Sensor	IR sensor.
5	Barrel connector	Connects to power.
6	DCE	Serial control port.
7	3.5-mm connector	Links to audio out.
8	3.5-mm connectors	Link to audio inputs 1 and 2.
9	DisplayPort connector	Connects to DisplayPort output.
10	DisplayPort connector	Connects to DisplayPort inputs 1 and 2.

2.4.3 AVSW-DP4X1 Front and Back Panels

Figure 2-5 shows the front panel of the AVSW-DP4X1. Figure 2-6 shows the back panel. Table 2-3 describes its components.

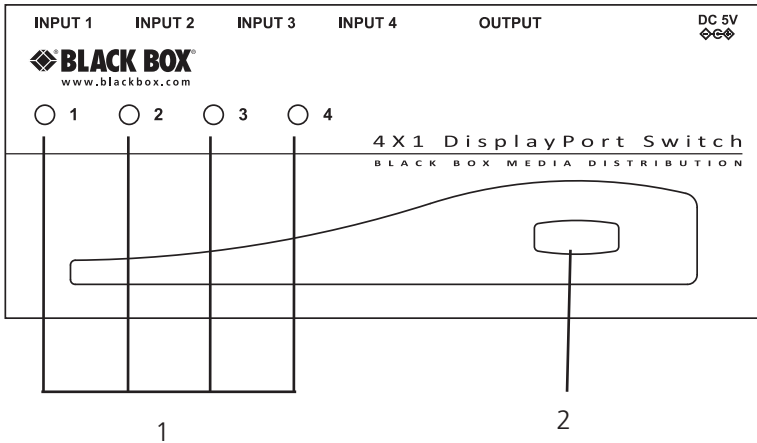


Figure 2-5. AVSW-DP4X1 front panel.

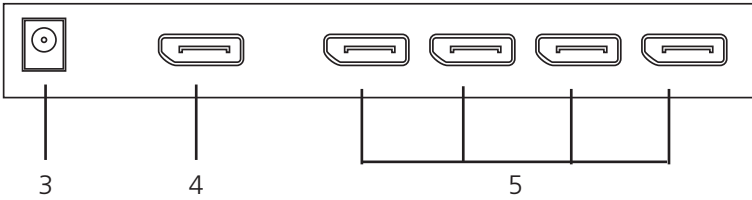


Figure 2-6. AVSW-DP4X1 back panel.

Table 2-3. AVSW-DP4X1 components.

Number	Component	Description
1	LEDs	Light when input 1, 2, 3, or 4 is connected.
2	Push button/LED	Press this button in sequence to select the video source. The corresponding LED lights to indicate that a port is selected.
3	Barrel connector	Links to power source.
4	DisplayPort connector	Connects to DisplayPort output.
5	DisplayPort connectors	Connects to inputs 1, 2, 3, and 4.

### 2.4.4 AVSW-DP4X1A Front and Back Panels

Figure 2-7 shows the front panel of the AVSW-DP4X1A. Figure 2-8 shows the back panel. Table 2-4 describes its components.

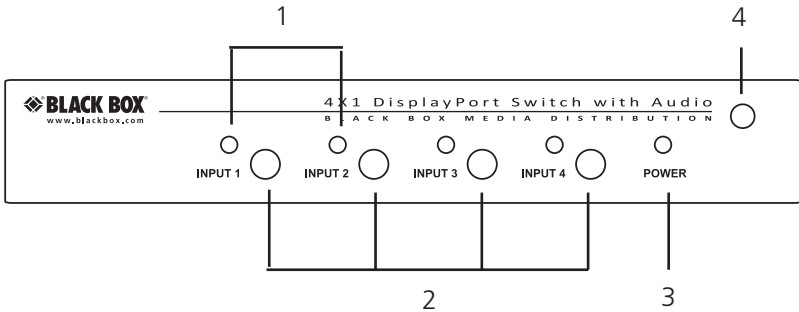


Figure 2-7. AVSW-DP4X1A front panel.

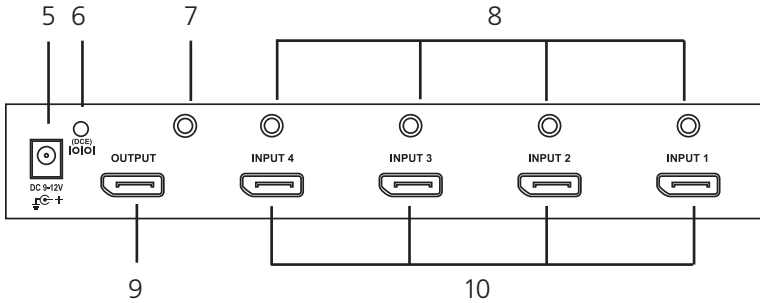


Figure 2-8. AVSW-DP4X1A back panel.

Table 2-4. AVSW-DP4X1A components.

Number	Component	Description
1	LEDs	Light when inputs are connected.
2	Push buttons	Press to select input 1, 2, 3, or 4.
3	LED	Lights when power is on.
4	Sensor	IR sensor
5	Barrel connector	Connects to power.
6	DCE	Serial control port.
7	3.5-mm connector	Links to audio out.
8	3.5-mm connectors	Link to audio inputs 1, 2, 3, and 4.
9	DisplayPort connector	Connects to DisplayPort output.
10	DisplayPort connectors	Connects to DisplayPort inputs 1, 2, 3, and 4.

### 3. Installation

Before installation, power off all devices that will be connected to this system.

Make sure that all devices you will connect are properly grounded.

Place cables away from fluorescent lights, air conditioners, and machines that are likely to generate electrical noise.

*NOTE: If no screen displays, follow these steps:*

1. Make sure the device cables are correctly and firmly attached.
2. Set your Display device's input source as DisplayPort.
3. Check the PC BIOS configuration for the video output settings.
4. Connect your computer to the Display **DIRECTLY** to check if the video signal gets through.

#### 3.1 Connection Pattern

Figure 3-1 shows a typical connection of the 4 x 1 DisplayPort Switch with Serial and 3.5-mm Audio.

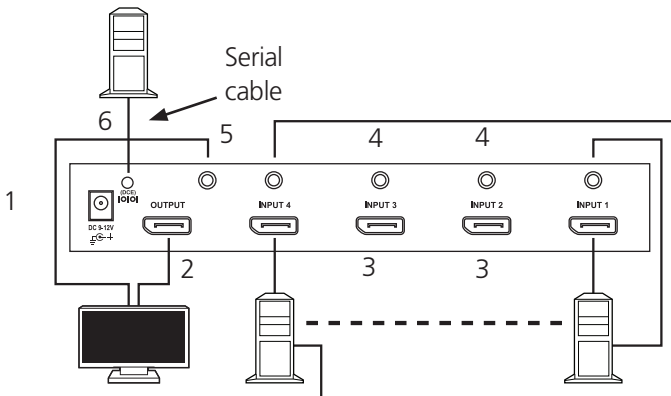


Figure 3-1. AVSW-DP4X1A connection.

Table 3-1. Connection pattern, AVSW-DP4X1A.

Number	Component	Description
1	Power supply	Apply the proper power to the unit.
2	Video output	Connects to the display.
3	Video source (input)	Connects to the video source.
4*	Audio source (input)	Connects to the audio source.
5*	Audio output	Connects to the speaker.
6*	Serial connector	Plug the serial cable in here.

\*Available for AVSW-DP2X1A and AVSW-DP4X1A models only.

### 3.2 Installation Steps

1. Use a Video Cable (DisplayPort) to connect the Display to the video output port on the back of the switch. For models with the standard audio feature, plug a set of audio jacks from the speaker to the Switch's speaker port.
2. Use a Video Cable (DisplayPort) to connect the source device to the video input port on the switch. For the models that support audio (AVSW-DP2X1A and AVSW-DP4X1A), use an audio cable to connect the speaker port from the input side of the unit to the corresponding output port on the source device.
3. Plug the power supply into the switch and power on the switch.
4. Turn on the display (monitor, projector, or TV) and then power on the source device(s).

*NOTE: When each video source is powered on, make sure it has a display pointing to it for EDID communication. If a source does not have a display pointing to it, a video image might not display.*



4. Operation

4.1 Front-Panel Indicators and Push Buttons

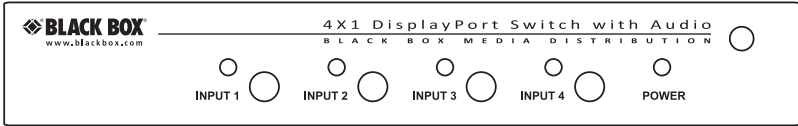


Figure 4-1. AVSW-DP4X1A.

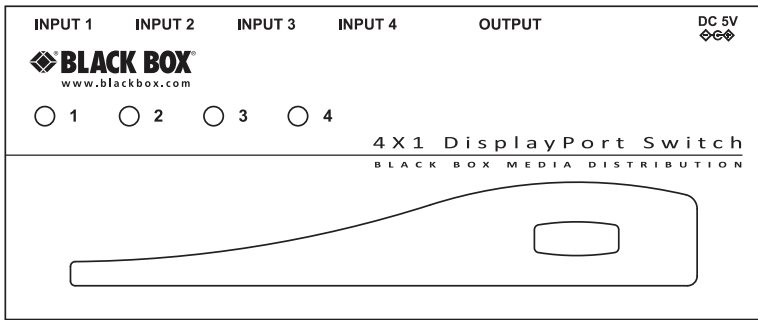


Figure 4-2. AVSW-DP4X1 front panel.

Table 4-1. Front-panel indicators.

Product Code	Indicator	Description
AVSW-DP2X1A	Power LED	Lights green when the video switch is powered on.
	Video Port LEDs 1–2	Lights yellow when the corresponding video port is selected.
AVSW-DP4X1A	Power LED	Lights green when the video switch is powered on.
	Video Port LEDs 1–4	Lights yellow when the corresponding video port is selected.
AVSW-DP2X1	Power LED	Lights yellow when the switch is powered on.
	Video Port LEDs 1–2	Lights yellow when the corresponding video port is selected.
AVSW-DP4X1	Power LED	Lights yellow when the switch is powered on.
	Video Port LEDs 1–4	Lights yellow when the corresponding video port is selected.

Table 4-2. Front-panel push buttons.

Product Code	Push Buttons	Description
AVSW-DP2X1A	(2) Video source	Press the corresponding button to select Port 1 or Port 2.
AVSW-DP4X1A	(4) Video source	Press the corresponding button to select Port 1–4.
AVSW-DP2X1	(1) Video source	Toggles between Port 1 and Port 2.
AVSW-DP4X1	(1) Video source	Toggles between Ports 1–4.

4.2 Remote Control (AVSW-DP2X1A and AVSW-DP4X1A Only)

Using the included remote controller, users can control the switch within a range of 15 feet (5 m). To select a source device with a remote control, press the number button (1–4) to directly switch to the corresponding port.

*NOTE: Remove the “battery protector” on the remote controller before operation.*

*NOTE: On the remote controller, only buttons 1–4 are activated. The rest of the buttons are reserved for other models.*

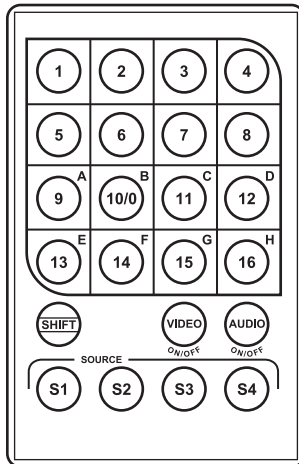


Figure 4-3. Remote control.

### 4.3 Serial Control (AVSW-DP2X1A and AVSW-DP4X1A Only)

The Video Switch's built-in serial interface allows users to control the Switch through a PC, serial controller devices, or home theater systems.

Configure the controller's serial port as shown below.

Baud Rate: 9600

Data Bits: 8

Parity: None

Stop Bits: 1

Flow Control: None

To select a source device via serial interface, select the number that corresponds to the port it is connected to (see Figure 4-3).

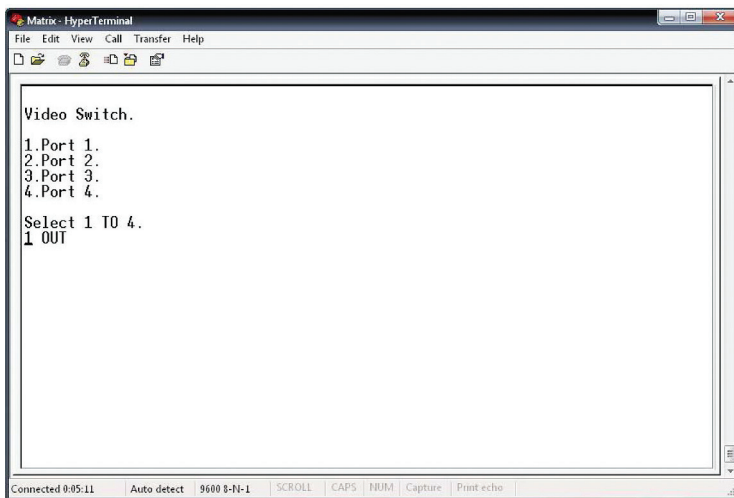


Figure 4-4. Serial interface screen.

*NOTE: Use a DB9 cable for serial connection.*

### 5. Troubleshooting

#### 5.1 Contacting Black Box

If you determine that your DisplayPort Switch 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](mailto: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.

#### 5.2 Shipping and Packaging

If you need to transport or ship your DisplayPort Switch:

- 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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AVSW-DP2X1, version 1

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