

## 2 x 1 and 4 x 1 HDMI Video Switches

Share one HDMI display output (monitor, projector, or TV) between multiple HDMI 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.

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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.
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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.
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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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# Table of Contents

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## Contents

Chapter	Page
1. Specifications.....	7
2. Overview .....	8
2.1 Introduction .....	8
2.2 Features.....	8
2.3 What's Included .....	8
2.4 Hardware Description.....	10
2.4.1 .... AVSW-HDMI2X1A.....	10
2.4.2 .... AVSW-HDMI4X1A.....	11
2.4.3 .... AVSW-HDMI2X1 .....	12
2.4.4 .... AVSW-HDMI4X1 .....	13
3. Installation .....	14
3.1 Connection Pattern .....	14
3.2 Installation Steps .....	15
4. Operation .....	16
4.1 Front-Panel Indicators.....	16
4.2 Remote Control (Optional).....	17
4.3 Serial Control (Optional).....	18
4.4 Function Button (Optional).....	19

## 1. Specifications

**Maximum Video Resolution** — AVSW-HDMI2X1A, AVSW-HDMI4X1A: Full HD (1920 x 1080), WUXGA (1920 x 1200);  
AVSW-HDMI2X1, AVSW-HDMI4X1: 1920 x 1080

**Remote Control Support** — AVSW-HDMI2X1A, AVSW-HDMI4X1A: Yes;  
AVSW-HDMI2X1, AVSW-HDMI4X1: No

**Serial Control Support** — AVSW-HDMI2X1A, AVSW-HDMI4X1A: Yes;  
AVSW-HDMI2X1, AVSW-HDMI4X1: No

**Enclosure** — Metal

**User Controls** — AVSW-HDMI2X1A: (2) Input push buttons;  
AVSW-HDMI4X1A: (4) Input push buttons, (1) Function button;  
AVSW-HDMI2X1, AVSW-HDMI4X1: (1) Input push button with integral LED

**Connectors** — AVSW-HDMI2X1A: Input: (2) HDMI female, (2) audio jacks,  
Output: (1) HDMI female, (1) audio jack;  
AVSW-HDMI4X1A: Input: (4) HDMI female, (4) audio jacks,  
Output: (1) HDMI female, (1) audio jack;  
AVSW-HDMI2X1: Input: (2) HDMI female,  
Output: (1) HDMI female;  
AVSW-HDMI4X1: Input: (4) HDMI female,  
Output: (1) HDMI female

**Indicators** — AVSW-HDMI2X1A: (3) LEDs: (1) Power (green), (2) Video Output (Yellow);  
AVSW-HDMI4X1A: (5) LEDs: (1) Power (green), (4) Video Output (Yellow);  
AVSW-HDMI2X1: (2) Active Input Port LEDs;  
AVSW-HDMI4X1: (4) Active Input Port LEDs

**Power** — Power consumption (maximum): AVSW-HDMI2X1A: 3.0 W;  
AVSW-HDMI4X1A: 4.5 W;  
AVSW-HDMI2X1, AVSW-HDMI4X1: 5-VDC, 400 mA

**Size** — AVSW-HDMI2X1A, AVSW-HDMI4X1A: 1.4"H x 8.7"W x 3.9"D  
(3.4 x 22 x 10 cm);  
AVSW-HDMI2X1, AVSW-HDMI4X1: 0.8"H x 6.2"W x 2.6"D (2 x 15.7 x 6.5 cm)

**Weight** — AVSW-HDMI2X1A: 1.4 lb. (0.6 kg);  
AVSW-HDMI4X1A: 1.6 lb. (0.7 kg);  
AVSW-HDMI2X1, AVSW-HDMI4X1: 0.6 lb. (0.3 kg)

## Chapter 2: Overview

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### 2. Overview

#### 2.1 Introduction

Use the HDMI Video Switch to quickly and easily share a single HDMI display with a Blu-ray™ player, HD-DVD, Xbox™, Wii™, PS3™, Satellite receiver, etc., from multiple device inputs to one HDMI output device (monitor, projector, or TV). You can select the desired input source via the remote control (audio models only) within the range of 15 feet (5 meters) (depends on model) or push button located on the switch. You never need to plug and unplug video sources, making your A/V equipment more convenient, more affordable, and more efficient.

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

#### 2.2 Features

- Allows two or four HDMI sources to be connected to one HDMI display.
- Front-panel buttons enable easy switching.
- Supports IR remote control (depends on model).
- Supports serial remote control (depends on model).
- LEDs show the active status of input Video (+ Audio) sources.
- Supports video resolution up to UXGA (1600 x 1200) / Full HD (1920 x 1080) / WUXGA (1920 x 1200).
- Compatible with most of the popular screen resolutions to XGA, SXGA, UXGA, WSXGA, WUXGA system.
- Supports HDCP for content protection.

*NOTE: When using HDCP, do not switch ports. If you do, the HDCP will perform content protection.*

- Plug-and-play, no software required.
- HDMI 1.3 compatible.

#### 2.3 What's Included

Your package should include 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-HDMI2X1A:

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

### AVSW-HDMI4X1A:

- 4 x 1 HDMI 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-HDMI2X1:

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

### AVSW-HDMI4X1:

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

### You might also need (for AVSW-HDMI2X1A or AVSW-HDMI4X1A only):

- Audio cable (EJ110)
- 6-ft. (1.8-m) HDMI cable (M/M) for HDMI A/V source connection (EVHDMI01T-XXXX)
- Serial Cable (see [page 19](#))

## 2.4 Hardware Description

### 2.4.1 AVSW-HDMI2X1A

Figures 2-1 and 2-2 show the 2 x 1 Video Switch with Audio's front and back panels. Table 2-1 describes its components.

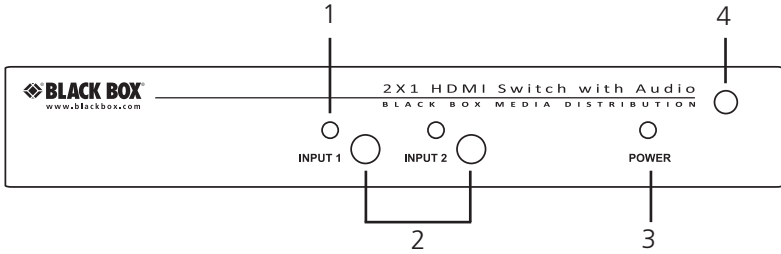


Figure 2-1. AVSW-HDMI2X1A front panel.

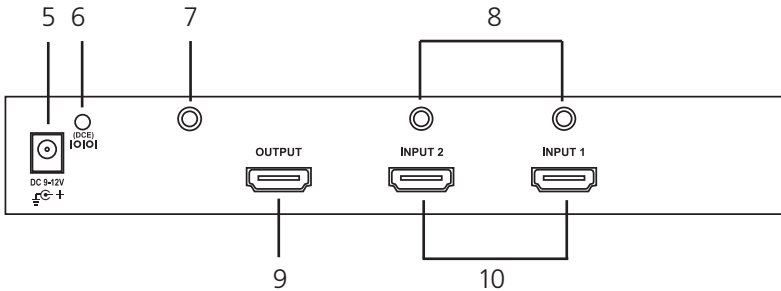


Figure 2-2. AVSW-HDMI2X1A back panel.

Table 2-1. Transmitter front- and back-panel 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	HDMI connector	Connects to HDMI output.
10	HDMI connectors	Connects to HDMI inputs 1 and 2

2.4.2 AVSW-HDMI4X1A

Figures 2-3 and 2-4 show the 4-Port Video Switch with Audio's front and back panels. Table 2-2 describes its components.

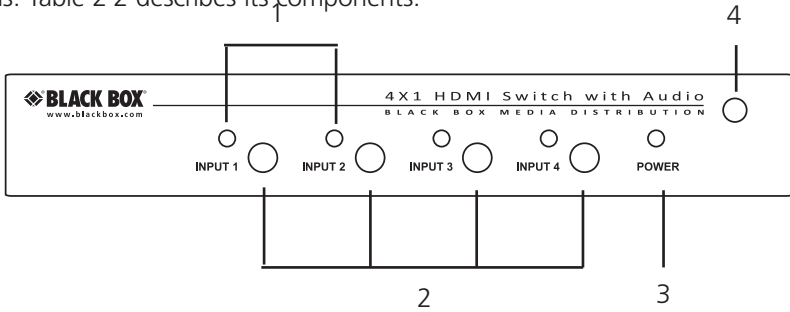


Figure 2-3. AVSW-HDMI4X1A front panel.

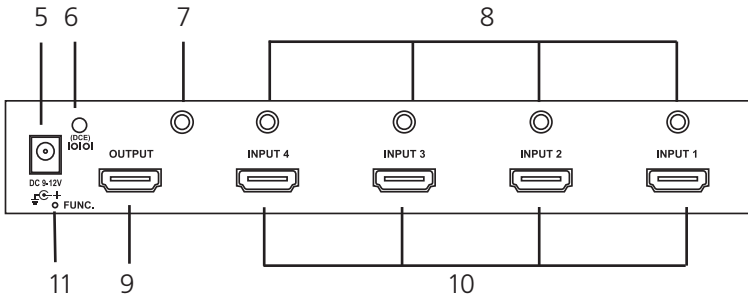


Figure 2-4. AVSW-HDMI4X1A back panel.

Table 2-2. Receiver front- and back-panel 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	Connect 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	HDMI connector	Connects to HDMI output.
10	HDMI connectors	Connect to HDMI inputs 1, 2, 3, and 4.
11	Function button	Adjusts video signal strength.

2.4.3 AVSW-HDMI2X1

Figures 2-5 and 2-6 show the 2 x 1 Video Switch's front and back panels. Table 2-3 describes its components.

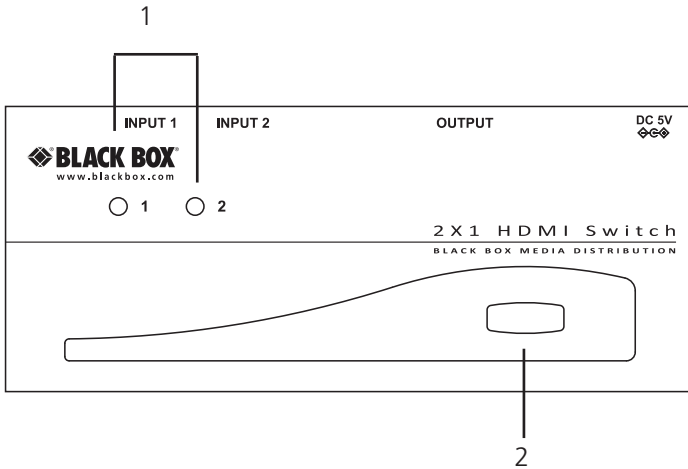


Figure 2-5. AVSW-HDMI2X1 front panel.

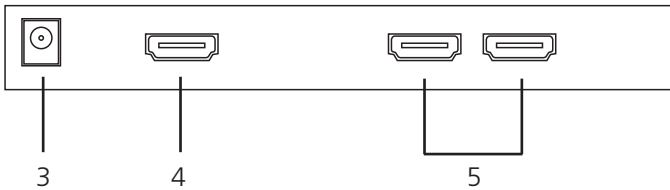


Figure 2-6. AVSW-HDMI2X1 back panel.

Table 2-3. Transmitter front- and back-panel components.

Number	Component	Description
1	LEDs	Light when input 1 or input 2 is connected.
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	HDMI connector	Connects to HDMI output.
5	HDMI connectors	Connect to inputs 1 and 2.

2.4.4 AVSW-HDMI4X1

Figures 2-7 and 2-8 show the 4 x 1 Video Switch's front and back panels. Table 2-4 describes its components.

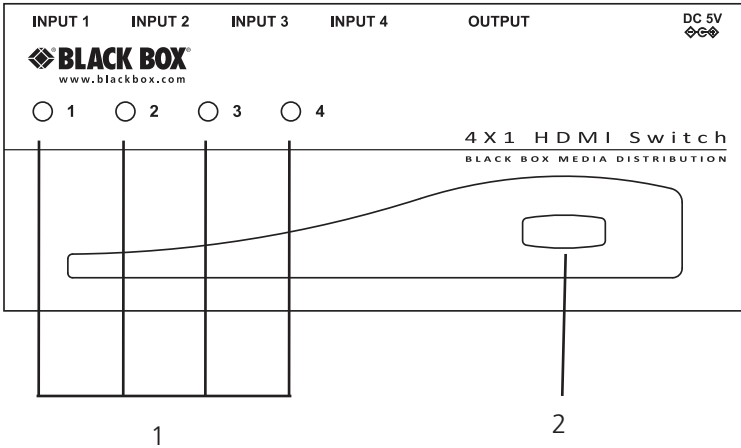


Figure 2-7. AVSW-HDMI4X1 front panel.

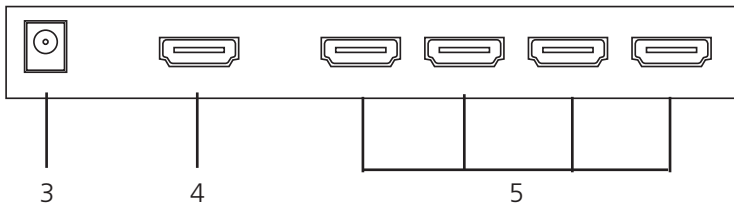


Figure 2-8. AVSW-HDMI4X1 back panel.

Table 2-4. Transmitter front- and back-panel 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	HDMI connector	Connects to HDMI output.
5	HDMI connectors	Connect to inputs 1, 2, 3, and 4.

## Chapter 3: Installation

### 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 you encounter no screen display after connecting a device:*

1. Make sure the device cables are correctly and firmly attached.
2. Set your display device's input source as HDMI.
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 can get through.

#### 3.1 Connection Pattern

Figure 3-1 shows a typical connection of the 4-Port Video Switch with audio (AVSW-HDMI4X1A).

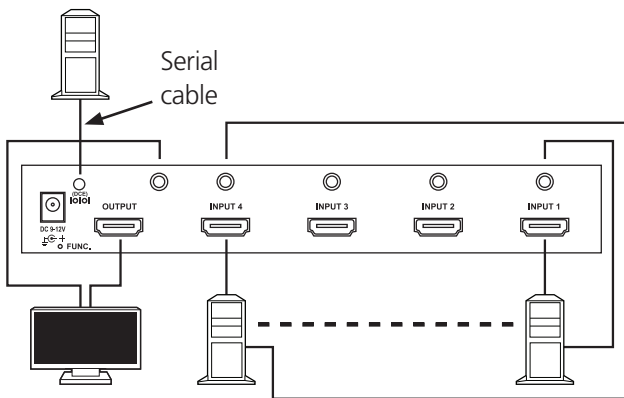


Figure 3-1. 4-Port Video Switch (AVSW-HDMI4X1A).

Figure 3-2 shows a typical connection of the 4-Port Video Switch (AVSW-HDMI4X1).

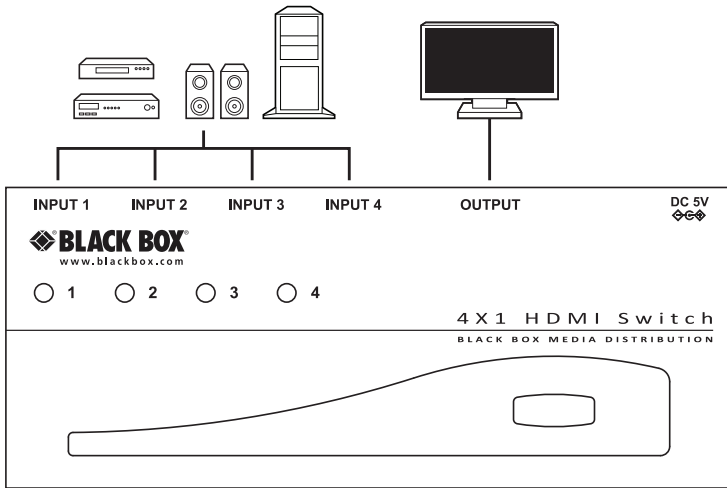


Figure 3-2. 4-Port Video Switch (AVSW-HDMI4X1).

### 3.2 Installation Steps

1. Use an HDMI cable to connect the display to the video output port on the back of the switch. For models that support the standard audio feature (AVSW-HDMI4X1A or AVSW-HDMI2X1A), plug a set of audio jacks from the speaker to the switch's speaker port.
2. Use an HDMI cable to connect the source device to the video input port on the switch. For the models that support the audio feature (AVSW-HDMI4X1A or AVSW-HDMI2X1A), use an audio cable to connect the speaker port between the input side of the unit and 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

Figure 4-1 shows the 4-Port Video Switch with Audio (AVSW-HDMI4X1A). The AVSW-HDMI2X1A switch is similar, but has two HDMI ports instead of four.

Figure 4-2 shows the 4-Port Video Switch (AVSW-HDMI4X1). The AVSW-HDMI2X1 switch is similar, but has two HDMI ports instead of four. These models do not support audio.

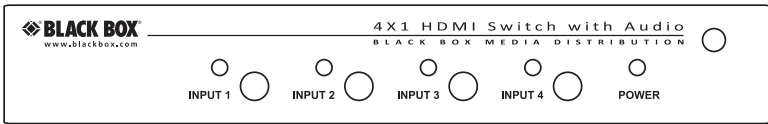


Figure 4-1. AVSW-HDMI4X1A.

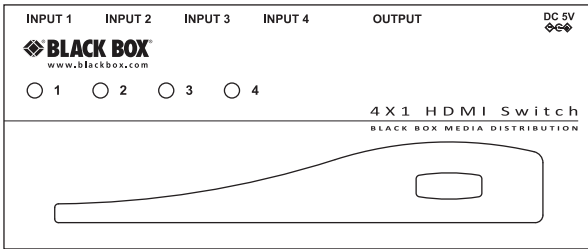


Figure 4-2. AVSW-HDMI4X1.

Table 4-1. Front-panel indicators.

Product Code	Indicator	Description
AVSW-HDMI2X1A	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-HDMI4X1A	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-HDMI2X1	Port 1 LED	Lights yellow when the switch is powered on.
	Video Port LEDs 1–2	Lights yellow when the corresponding video port is selected.
AVSW-HDMI4X1	Port 1 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-HDMI2X1A	(2) Video source	Press the corresponding button to select Port 1 or Port 2.
AVSW-HDMI4X1A	(4) Video source	Press the corresponding button to select Port 1–4.
AVSW-HDMI2X1	(2) Video source	Toggles between Port 1 and Port 2.
AVSW-HDMI4X1	(4) Video source	Toggles between Ports 1–4.

#### 4.2 Remote Control (AVSW-HDMI2X1A and AVSW-HDMI4X1A Only)

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 control, only buttons 1, 2, 3, and 4 are activated. The rest of the buttons are not used. See Figure 4-3.*

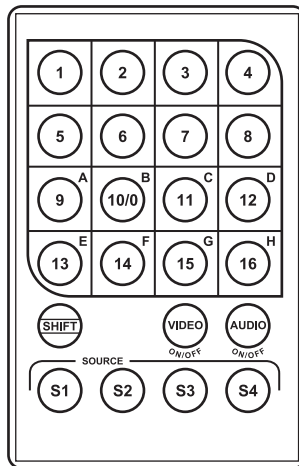


Figure 4-3. Remote control.

## Chapter 4: Operation

### 4.3 Serial Control (AVSW-HDMI2X1A and AVSW-HDMI4X1A Only)

The video switch's built-in serial interface allows users to control the switch through a PC, serial controller devices, or home theater system.

The controller's serial port should be configured 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 as shown in Figure 4-4.

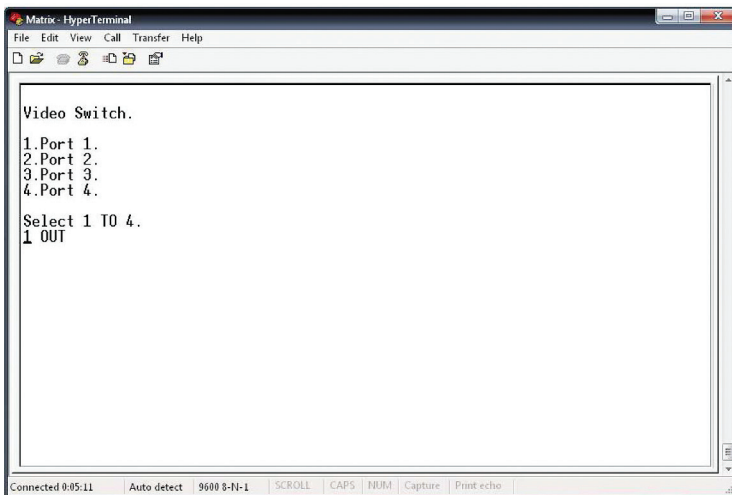
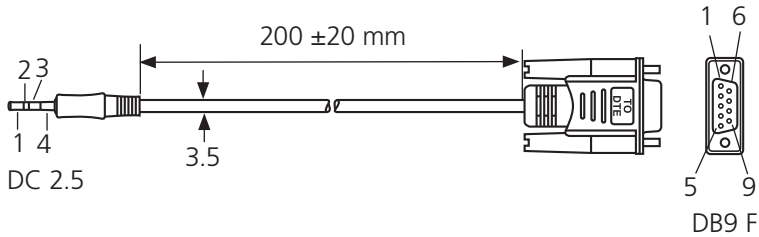


Figure 4-4. Select video port screen.

*NOTE: Use a DB9 to 2.5-mm cable (see Figure 4-5) for serial connection.*



## Pinout

DC 2.5	DB9 F
1	3
2	2
3	8
4	5
	5

Figure 4-5. DB9 to 2.5-mm cable pinout.

#### 4.4 Function Button (AVSW-HDMI4X1A Only)

The Function button adjusts the optimal video signal strength corresponding to the length or quality of DVI cable.

To adjust the video signal strength, follow these steps:

1. Press the Function button three times.
2. Press push button #1 one or two times to adjust the selected port's input video strength. One beep = normal or two beeps = enhance.

or

Press push button #3 one or two times to adjust the selected port's output current. One beep = normal or two beeps = enhance.

or

Press push button #4 one, two, three, or four times to adjust the selected port's output emphasis. One beep = no pre-emphasis, two beeps = low pre-emphasis, three beeps = medium pre-emphasis, or four beeps = high pre-emphasis.

3. Once the setting is finished, press the Function button one time to exit the setting.

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