



VSW-HDMI2X1-4K
VSW-HDMI4X1-4K

2 x 1 or 4 x 1 HDMI Switch 4K

Switch between two or four different HDMI sources to a single display.

Supports up to 4 K (UHD) resolutions (3840 x 2160).
Automatically switches to a source when it becomes available.



Customer Support Information

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FCC and IC RFI Statements/NOM Statement

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.

NOM Statement

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 connectado 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 fisica 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 lineas de energia.

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

Approvals	Unit and power supply: FCC Part 15, CE, UL, RoHS, Power supply: Also has CSA, TUV
Color	Black
Frequency Range	25–297 MHz
Material	Steel
Mode Configuration	Switch/Autosensing/Priority/Matrix
MTBF	50,000 hours
Serial Control	VSW-HDMI2X1-4K: Not applicable, VSW-HDMI4X1-4K: Yes, RJ-11
Signal Configuration	Video: Auto/inventory, Audio: Auto/inventory
User Controls	(1) port selection switch button, (1) EDID Copy button, (1) EDID switch for EDID selection, (1) EGO setting switch for auto functions
Video Mode	4K x 2K @ 30 Hz
Connectors	VSW-HDMI2X1-4K: Input: (2) HDMI female, Output: (1) HDMI female, Power: (1) 2.5-mm barrel jack, VSW-HDMI4X1-4K: Input: (4) HDMI female, Output: (1) HDMI female, Power: (1) 2.5-mm barrel jack, Control port: (1) RJ-11 RS-232

Chapter 1: Specifications

Specifications (continued)

Indicators	VSW-HDMI2X1-4K: (2) LEDS for input status; VSW-HDMI4X1-4K: (4) LEDs for input status <i>NOTE: Only one input LED is lit at a time.</i>
Environmental	Temperature Tolerance: Operating: 32 to 104° F (0 to 40° C); Storage: -4 to +140° F (-20 to +60° C); Relative Humidity: 80% Altitude: 10,000 ft.
Power	Input voltage: 100 to 240 VAC, 50 to 60 Hz, 45 watts, Input connector: IEC320 C14. Output voltage: 9 VDC, 1.5 A via a 2.5-mm barrel plug center-positive desktop power supply
Dimensions	0.8"H x 6.1"W x 2.6"D (2 x 15.6 x 6.5 cm)
Weight	Product: 1.55 lb. (0.7 kg), Shipping: 2.09 lb. (0.8 kg)

2. Overview

2.1 Introduction

The 2 x 1 or 4 x 1 HDMI Switch 4K enables users to quickly and easily share display devices (HDTV, 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 within the range of 16.4 feet (5 meters) via the remote control or push button located on the switch. You don't need to plug and unplug video sources, so A/V equipment is more convenient, more affordable, and more efficient.

The HDMI Switch with Advanced Auto-Sensing includes Auto mode and Priority mode functions. The system can either automatically select the latest video source for display in Auto mode, or automatically select a video source following priority order in Priority mode. And it also offers EDID Copy function to ensure the optimal resolution for your application.

The built-in serial interface allows users to control the HDMI Switch through a PC, serial controller device, or home theater system, integrating the whole A/V environment.

2.2 Features

- Select one output device from 2 or 4 different sources.
- Autosensing function automatically selects active input source or prioritized source.
- Control the switch via the front-panel push button, IR remote controller, or, for the 4-port model, via the serial connection.
- Individually turn ON/OFF the output port.
- Locking HDMI cables keep your connections secure.
- 3D-video, HDCP compliant, and Blu-ray ready
- Non-volatile memory stores all settings in case of blackout.
- Innovative technology designed to avoid unnecessary flicker when adding system instruments.
- Signal optimization chooses the best output setting from the available alternatives.
- HDTV, 3D HDTV compatible.
- Supports resolutions up to Full HD 1080p/4K (3840 x 2160).

Chapter 2: Overview

Advanced Autosensing

- Select ports in Priority, Auto-sensing, and Switch modes.
- In Priority mode, the system automatically selects highest priority source to display (Priority order: Source-1 > Source-2 >).
- In Auto-sensing mode, the system automatically selects the latest video source to display.
- In Switch mode, the system selects the outputs to switch.
- Switch outputs by pressing a button or setting priority.

EDID Function

- EDID Copy and EDID Pre-setting ensure accurate output display.
- Set to separately learn audio and video EDID for multimedia/home theater system integration.
- Emulating EDID information ensures optimum video performance.
- Read and store the EDID from the connecting display to the video extension.

2.3 What's Included

Both switches include:

- 2 x 1 HDMI Switch 4K (VSW-HDMI2X1-4K) or 4 x 1 HDMI Switch 4K (VSW-HDMI4X1-4K)
- Power adapter
- IR remote controller
- Set of foot pads
- This user manual

4 x 1 HDMI Switch 4K (VSW-HDMI4X1-4K) also has:

- RJ-11 cable for serial (RS-232) control
- RJ-11 to RS-232 converter for serial (RS-232) control

2.4 Hardware Description



Figure 2-1. 4 x 1 switch front panel.

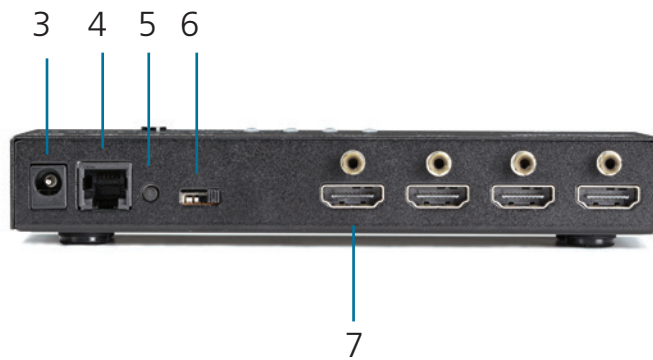


Figure 2-2. 4 x 1 switch back panel.



Figure 2-3. 4 x 1 switch top panel.

Chapter 2: Overview

Table 2-1. 2 x 1 and 4 x 1 switch components.

Label in Fig. 2-1 and 2-2	Component	Description
1	(1) Video Output connector	Connect to an HDMI display
2	Advanced Autosensing Setting Switch	Switch/Auto-sensing/Priority mode setting
3	Power Supply	Apply power to the unit
4	Serial Port	Connect to a computer for serial control
5	EDID Copy Button	Copy the monitor's EDID
6	Audio/Video EDID Setting Switch	Configure Audio/Video EDID setting
7	(4) Video Input connectors	Connect to video sources
8	LED Indicator	See LED Indicator section.
9	Push Button	Port selection For other functions, see Chapter 4, Operation.

Audio/Video EDID Setting Switch

See #7 in Figure 2-2 and Table 2-1.

Table 2-2. Audio/video EDID setting switch functions.

Mode	Video	Audio
1	Auto	Auto
2	Auto	Inventory
3	Inventory	Auto
4	Inventory	Inventory

NOTE: For more operation details, refer to Chapter 4, Operation.

Advanced Autosensing Setting Switch

See #3 in Figure 2-1 and Table 2-1.

Table 2-3. Advanced autosensing setting switch.

Position	Name	Description
1	Switch	Press the pushbutton (#11 in Figure 2-3) on the top panel to select a source in sequence.
2	Auto	System will automatically select the latest video source for display. *Functions in Manual Switch are all applicable to this mode.
3	Priority	System will automatically select the high priority video source for display (Priority: Source-1> Source-2> Source-3> Source-4) *Functions in Manual Switch are all applicable to this mode.
4	Reserved	Not used.

NOTE: Functions in Switch mode are all applicable to Autosensing and Priority mode.

Chapter 3: Installation

3. Installation

WARNING:

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.

3.1 Device Connection

1. Use a video cable (HDMI) to connect the display to the video output port on the unit.
2. Use a video cable (HDMI) to connect the source device to the video input port on the unit.
3. Apply power to the unit.
4. Turn on the display (monitor, projector, or TV) and then power on the source device(s).
5. If necessary, apply the EDID Copy process (see Section 4.2.2, EDID Setting).

NOTES:

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.

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 HDMI.*
3. *Check the PC BIOS configuration for the video output settings.*
4. *Connect your video source to the display DIRECTLY to check if the video signal gets through.*
5. *Apply EDID Copy to your display (see Section 4.2.2, EDID Setting).*

3.2 Connection Pattern

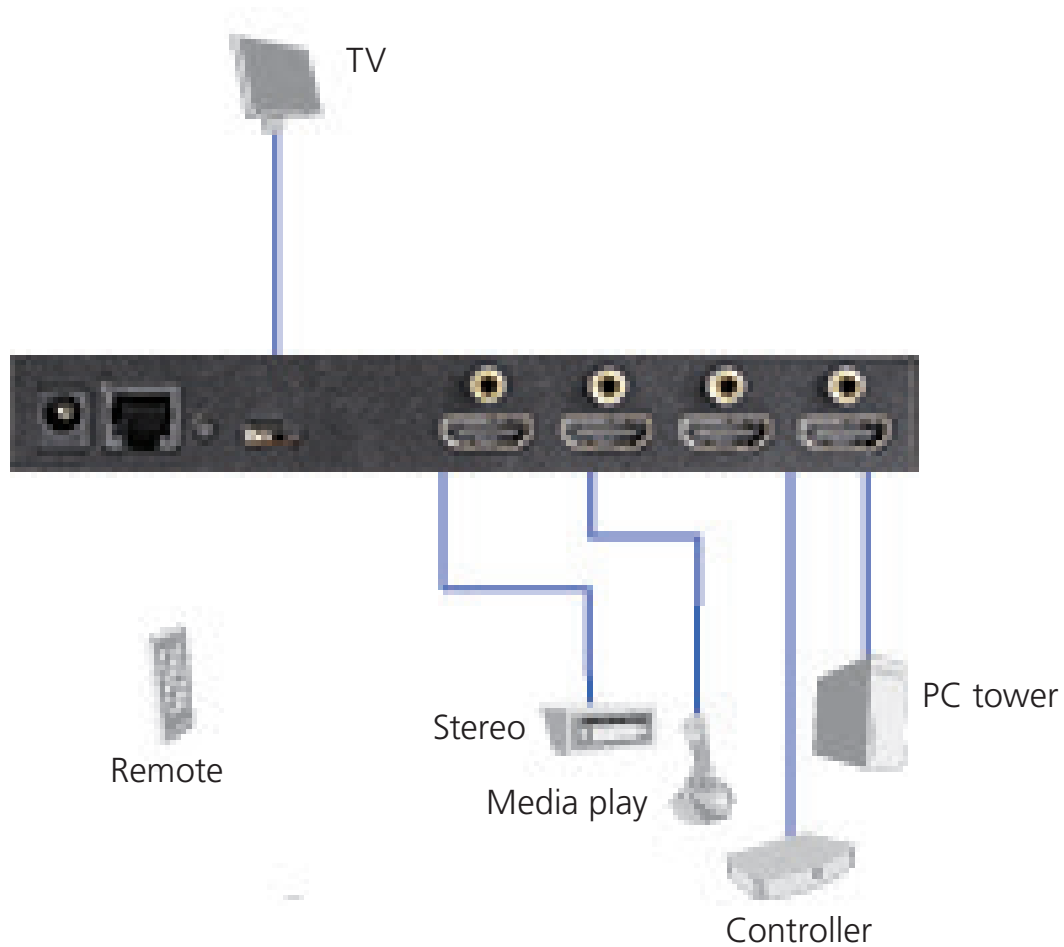


Figure 3-1. Connecting the 4 x 1 HDMI Switch 4K.

Chapter 4: Operation

4. Operation

4.1 LED Indicators



Figure 4-1. Top and front panel of the switch.

Table 4-1. LED Indicators

LEDs 1–4	Switch/Auto/Priority/Modes Status
The selected LED emits green and goes off 3 times per 2 seconds. The non-selected LED goes off.	The input video signal isn't ready.
The selected LED emits green and goes off once per 2 seconds.	The input video signal is ready but cannot detect the monitor.
The selected LED emits steady green.	The input video signal is ready and can detect the monitor.
The selected LED emits green with red flashing 3 times.	The input video signal and monitor HDCP do not match.
Off	Not selected: The LED turns off when it's not selected, no matter what the source condition is (with or without source input, HDCP...etc.).

4.2 Push Button Control

4.2.1 A/V Source Selection

Press the pushbutton (#11 in Figure 2-3) once to select the source in sequence (S1—>S2—>S3—>S4—>S1...). The monitor immediately shows the video source once selected. The corresponding LED lights when the source is selected.

4.2.2 EDID Setting

NOTE: Before starting, slide Audio/Video EDID Setting Switch (#7 in Figure 2-2) to position 2/3/4.

Copy Monitor EDID (2 methods)

Method 1

Step 1. Apply power to the unit.

Step 2. Connect the (EDID compliant) monitor to the output port of the unit and power on the monitor.

Step 3. Press and hold the button "EDID COPY" for 3~5 seconds, and release the button RIGHT AFTER the LED L1–L4 (4x1 Switch) / LED L1 and L2 (2x1 Switch) flash GREEN & RED.

Result. If the LED S1–S4 (4x1 Switch) / LED S1 & S2 (2x1 Switch) return to normal status, indicating that the EDID Copy is completed.

Method 2

NOTE: Before starting, power off the unit and connect monitor to the output port of the unit.

Step 1. Press and hold the button "EDID COPY."

Step 2. Apply power to the unit.

Step 3. Release right after the LED L1–L4 (4x1 Switch) / LED L1 & L2 (2x1 Switch) flash GREEN & RED. (3–4 sec.)

Result. If the LED L1–L4 (4x1 Switch) / LED L1 & L2 (2x1 Switch) return to normal status, it indicates that the EDID Copy is completed.

Otherwise, the LED flashes RED indicating that:

- a. The monitor is not properly connected.
- b. The monitor is not powered on.
- c. EDID data of the monitor is not applicable.

Chapter 4: Operation

4.2.3 EDID Emulation

Slide the switch (#7 in Figure 2-2) to the desired position.

Table 4-1. EDID emulation switch functions.

Mode	Video	Audio
1	Auto (Va)	Auto (Va)
2	Auto (Va)	Inventory (Ai)
3	Inventory (Vi)	Auto (Aa)
4	Inventory (Vi)	Inventory (Ai)

Va) Video Auto: Automatically use the EDID of the attached display (video algorithm).

Aa) Audio Auto: Automatically use the EDID of the attached display (audio algorithm).

Vi) Video Inventory: After copying Video EDID, use the copied Video EDID to the connected display.

Ai) Audio Inventory: After copying Audio EDID, use the copied Audio EDID to the connected display.

4.2.4 EQ Adjustment

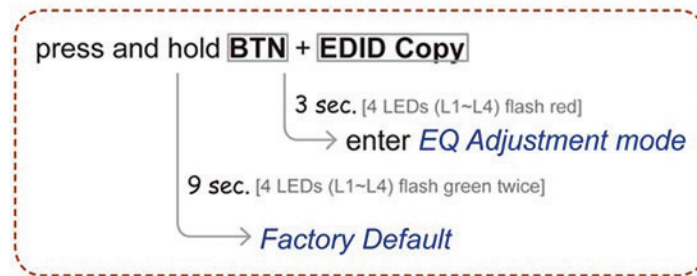
To optimize video quality, users can adjust the video equalization (sharpness) for all video output ports through push button configuration. Press the pushbutton (#11 in Figure 2-3) and the EDID Copy button (#6 in Figure 2-2) for 3 seconds and release right after 4 LEDs (L1–L4) flash red, then the LED flashes indicating which level is on. Then press BTN sequentially to adjust EQ level. (8 levels; GREEN: level 1–4, RED: level 5–8). Finally, press the EDID Copy button once to exit the setting.

pushbutton + EDID Copy (3 seconds)→4 LEDs (L1–L4) flash red→release→EQ Setting mode→BTN press once to the next level→EQ Setting mode (repeat as needed)→EDID Copy→Exit EQ Setting mode

4.2.5 Factory Default Setting

To return all settings to factory state, press the BTN & EDID Copy button for 9 seconds and release right after 4 LEDs (L1–L4) flash green twice.

BTN + EDID Copy (9 seconds) → 4 LEDs (L1–L4) flash green twice → release



4.3 IR Remote Control

A/V Source selection:

Press 1/2/3/4: Select Source1/Source 2/Source/Source 4

Chapter 5: Serial Control (4-Port model only)

5. Serial Control (4-Port model 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: 38400 bps

Data Bits: 8

Parity: None

Stop Bits: 1

Flow Control: None



```
Booting ..  
=====
```

Digital Switch Splitter 4 x 1 (MIC30)
H/W version: 01 F/W version: 003-14
RC ID: none
=====

CE=n,a1,a2 - Copy EDID (Inventory) to all input ports
n: Method. a1,a2: Options
1. Copy from specified monitor a1
2. Copy from corresponding monitor (1 on 1)
3. Make 1024 x 768 EDID
4. Make 1280 x 800 EDID
5. Make 1280 x 1024 EDID
6. Make 1360 x 768 EDID
7. Make 1400 x 1050 EDID
8. Make 1440 x 900 EDID
9. Make 1600 x 900 EDID
10. Make 1600 x 1200 EDID
11. Make 1680 x 1050 EDID
12. Make 1920 x 1080 EDID
13. Make 1920 x 1200 EDID
14. Make 1920 x 1440 EDID
15. Make 2048 x 1152 EDID

when n = 1:
a1: monitor index (1~2), a2: not required
when n = 2:
a1,a2: not required
when n = 3~15:
a1: video options
1. DVI 2. HDMI(20) 3. HDMI(30)
a2: audio options
1. LPCM 2 ch 8. DTS 5.1 ch
2. LPCM 5.1 ch 9. DTS HD 5.1 ch
3. LPCM 7.1 ch 10. DTS HD 7.1 ch
4. Dolby AC3 5.1 ch 11. MPEG4 AAC 5.1 ch
5. Dolby TrueHD 5.1 ch 12. 5.1 ch combination
6. Dolby TrueHD 7.1 ch 13. 7.1 ch combination
7. Dolby E-AC3 7.1 ch

AVI=n - Select input port n as the source of all output ports
AVOEN=n - Enable output port n
n : 1~max - output port, * - All ports
AVODIS=n - Disable output port n
n : 1~max - output port, * - All ports
VS - View current settings
EQ=n - Set EQ level as n (1~8)
FACTORY - Reset as factory default setting
REBOOT - Reboot the device
More...

RCID=n - Set Remote Control ID as n
n: 0 - Reset as null (Always on)
1~16 - Valid ID

TI=n - Set terminal interface n: 0 - Human 167 - Machine
LCK=n - Lock / Unlock device n: 0 - Unlock 167 - Lock
000
>

Connected 0:01:01 Auto detect 38400 8-N-1 [SCROLL] [CAPS] [NUM] [Capture] [Print echo]

Figure 5-1. Hyperterminal screen.

NOTES

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