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Zigen HDMI 2.0 UHD 600 MHz 4x1 Switch w/HDCP 2.2 & WebOS

ZIG-SW41



USER MANUAL Ver. 1.0

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Before You Begin

Follow all instructions marked on the device during using.
Do not attempt to maintain the device by yourself, any faults, please contact your vendor.

- Provide proper ventilation and air circulation and do not use near water.
- It is better to keep it in a dry environment.
- The system should be installed indoor only.
- Only use the power cord supplied with the device.
- Do not use liquid or aerosol cleaners to clean the device.
- Always unplug the power to the device before cleaning.
- Unplug the power cord during lightning or after a prolonged period of non-use to avoid damage to the equipment.

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Introduction

HDMI 2.0 / HDCP 2.2 / 600 MHz HDMI switch designed for switching in home and commercial environments where switching of high-bandwidth UHD (2160P60 4:4:4) content is required . The SW41-UHD features 4 HDMI 2.0(a) Inputs and 1 HDMI 2.0(a) output, digital audio de-embedding of active channel and an Ethernet port and WebOS for setup, switching, EDID management, firmware updates and remote reset. Additionally, the SW41-UHD is controllable via IR, RS-232 and Ethernet.

Typical Applications:

- Classrooms, Boardrooms, Conference rooms for switching UHD content sources via multiple control options (3rd party controllers, WebOS, simple remote or front panel buttons)
- High-end home theaters for showing UHD 2.0 content with HDCP 2.2 copy protection

Package Contents

- 1 x ZIG-SW41
- 1 x 12V/2.5A DC Power Supply
- IEC USA AC Cord 3'
- Remote Control
- 1 x User Manual

Features

- HDMI 2.0 (600 MHz UHD) on all ports.
- WebOS Interface
- Supports digital video formats up to 4K UHD (2160P60 @4:4:4 pixel format)
- Advanced EDID management.
- Supports uncompressed PCM 2- Ch., 5.1, 7.1, Dolby Digital, DTS, Dolby TrueHD, DTS HD-Master Audio and more.
- Built in IR sensor plus 3.5mm jack and remote control
- Bi-directional RS-232 – Control switch or integrate 3rd party control.
- SPDIF for audio de-embedding



Specifications

Video Bandwidth

18 GBPS

Video Resolutions

All SMPTE & VESA in HDMI 2.0 Specification. Max SMPTE UHD - 4096x2160P60/RGB/4:4:4

Color Space

RGB, YUV

Color Bit Depth

8-bit, 10-bit, 12-bit & 16-bit per pixel

Note: Resolution and video bandwidth limited – ex. 2160P60 RGB or 4:4:4 8-bit would use almost the entire 18 GBPS of bandwidth. 2160P60 4:2:2 10-bit (new Blu Ray) would exceed the previous 10.2 GBPS maximum of HDMI 1.4a and would not be able to travel over category cable using HDBaseT as of this writing.

Chroma Subsampling

4:4:4, 4:2:2, 4:2:0

See note above – chroma subsampling or color compression is related to bit depth and video resolution settings with regard to total bandwidth requirements. A 4K/60 signal at 4:4:4 chroma subsampling can have a maximum bit depth of 8 bits.

Audio

HDMI in & Out – Up to Dolby TrueHD and DTS-HD Master

SPDIF – Up to Dolby Digital & DTS 5.1

Audio Sampling Rates – Up to 1536 KHz

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Distance - HDMI – Up to 5M @ 4K

HDCP - 2.2, 1.4 or None

CEC - Pass through

Connections

- 4 x HDMI type A HDMI Input
- 1 x HDMI type A HDMI Output
- 1 x SPDIF Digital Audio Output
- 1 x RJ45 LAN Port for TCP/IP Control
- 1 x 9-pin RS-232 port
- 1 x 3.5mm IR In Port
- 1 x IR Sensor (In)
- 1 x 12 VDC Locking Connector

Temperature – Operating 32-122 F (0-50 C), Humidity: 20-90% non-condensing.

Dimensions

5.9 x 2.9 x .95 inches
150 x 74 x 24 millimeters

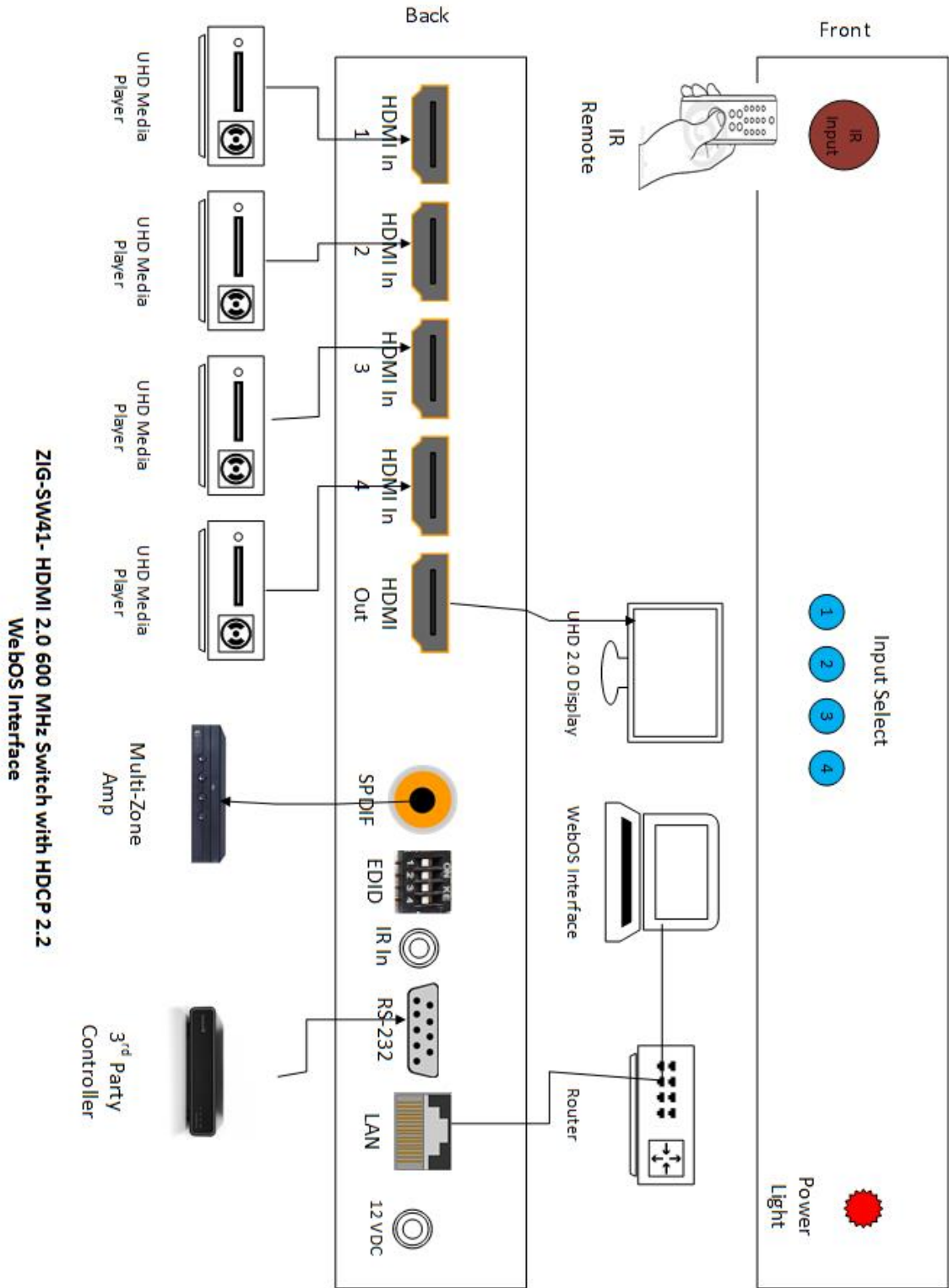
Weight

.67 pounds
303 grams

Certifications/Compliance

FCC, HDBaseT, CE, RoHS, HDCP, HDMI

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Block Diagram – Zigen ZIG-SW41

General Operation

SW41 is the ultimate in high-bandwidth UHD switchers. With a full 600 MHz pixel clock the SW41 support high bandwidth sources and displays. Additionally, the SW41 supports HDCP 2.2 copy protection so you can be sure your customer is able to view the latest 4K UHD content – either protected (movies) or computer content (un-protected).

Basic connections are 4 HDMI 2.0 sources (or below) and one HDMI output to the display or projector. There is a SPDIF port that de-embeds audio from the currently selected input and routes it to your audio matrix or multi-zone amplifier.

Advanced EDID management is available through a combination of the 4-pin dipswitch and WebOS. 15 EDID tables are available, plus you can load custom EDID tables. Or, leave the SW41 in the default mode and it will pull the EDID from the connected/selected display. By being able to manage the EDID and HPD (Hot Plug Detection) you can speed up switching in mixed format systems.

Control the SW41 via the supplied remote control (IR – to built-in sensor or run an IR receiver to the 3.5mm IR jack). You can also control the SW41 via 3rd party control, RS-232, LAN (WebOS/Telnet), or via the input selector switch on the front panel.

DIP Switch Settings

DIP 1: EDID

OFF (UP): As a default the downstream EDID is copied and used from output port 1.

While DIP 1 is OFF (UP) DIP 2 & 3 are active as follows:

DIP 2: (OFF/UP) audio according to downstream capabilities

DIP 2: (ON/DOWN) audio is restricted to 2-channel regardless of downstream EDID.

DIP 3: (OFF/UP) audio according to downstream capabilities.

DIP 3: (ON/DOWN) audio is modified for SPDIF maximum capabilities. This ensures that the SPDIF output always outputs all SPDIF supported formats.

DIP 2 overrides DIP 3. If DIP 2 is down, stereo is selected.

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While DIP 1 is ON (DOWN) the EDID is selected using the WebOS

WebOS has 15 EDID tables to select from (more to come) for various use cases (see screen shot below). Additionally via the WebOS and custom EDID table can be loaded into the device. This gives maximum flexibility as customers can load any EDID they want for the desired application.

Edid Management

For custom edid tables, make sure dip1 is ON (down)

Active edid table:

New edid table:

Upload custom

Load Edid

Admin

Serial: 12345678

Firmware: 0.99

Hardware: 0001

IP Address: 169

Hostname: da14

Change Name

Factory Reset

Screen Shot – EDID Tables in WebOS

Note: While DIP 1 is ON (DOWN), DIPs 2 and 3 are not used.

DIP 4: Hot Plug Force

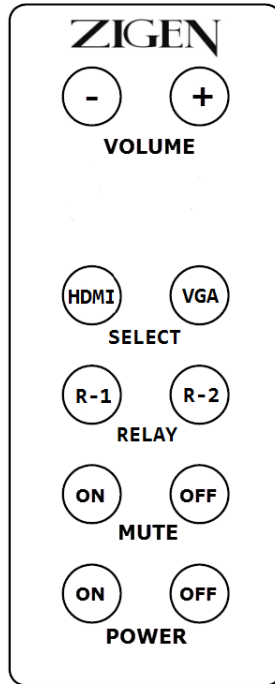
UP (OFF) – Hot Plug Detection (HPD) is normal

DOWN (ON) – HPD is forced active. In this mode the DA14 does not process HPD events from downstream to upstream (from the sink back to the source).

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This speeds up the HDMI pipeline and can be very useful to avoid a looping condition when multiple HDMI devices are connected in series.

ZIG-SW41 Remote Control – NEED TO INSERT



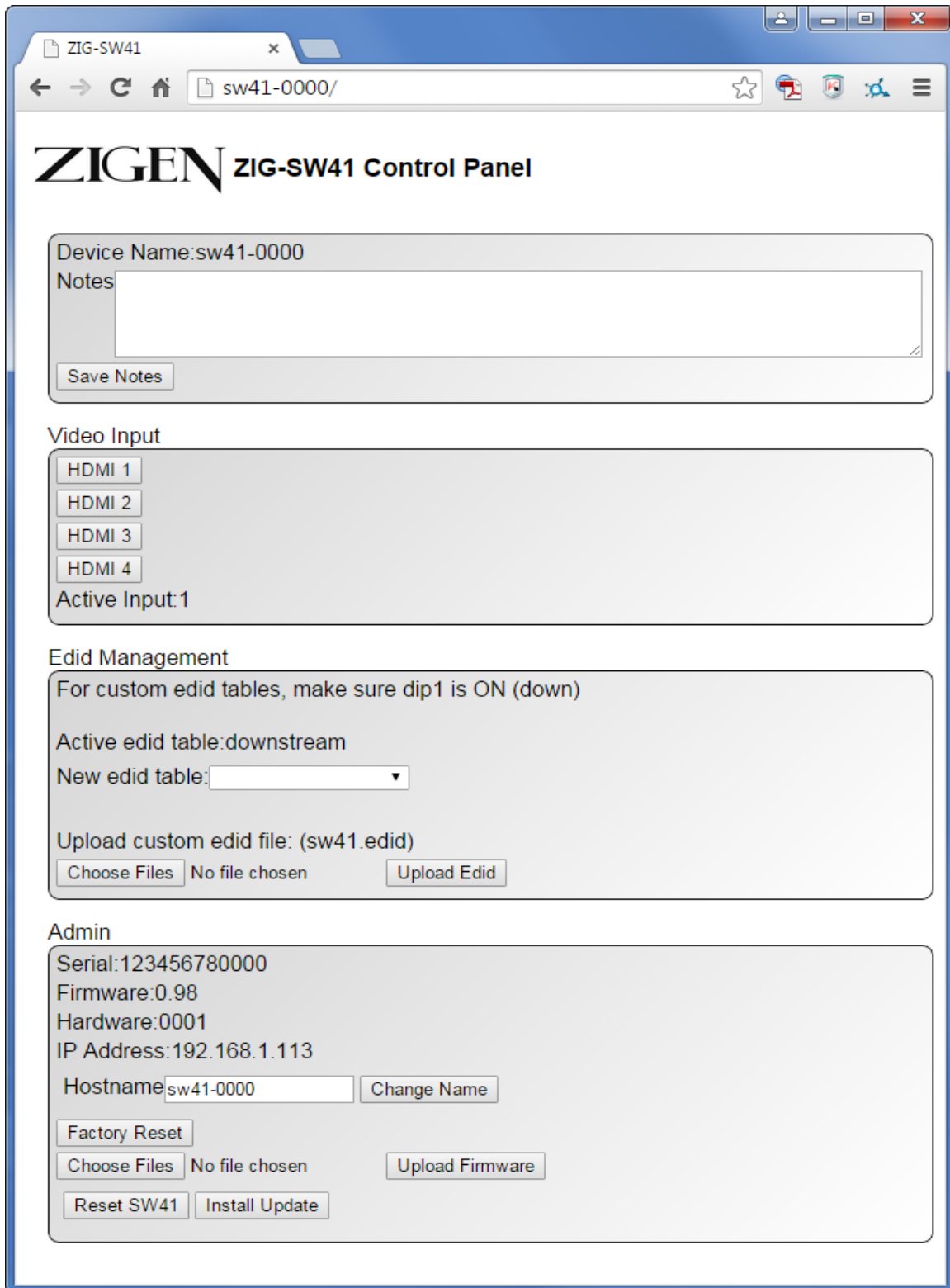
SW41 remote control can be used for switching between inputs and powering the SW41 up or down.

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SW41 Web OS Screenshot

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WebOS

Device Name & Notes

- Device Name – default out of the box is ZIG-SW41-XXXX (last 4 digits of the serial number). You should change it if you are using more than 1 device (Change Name below) to whatever you want – ex. CR100SW – for conference room number 100 switcher.
- Notes – free form field for entering installer notes.

Video Input

- Use to select the input you want showing on the display

EDID Management

Edid Management

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New edid table:

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Admin

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Firmware: 0.99

Hardware: 0001

IP Address: 169

Hostname: da14

Factory Reset

Change Name

2160p60 HD Audio

2160p60 5.1 Audio

2160p60 2ch Audio

2160p30 HD Audio

2160p30 5.1 Audio

2160p30 2ch Audio

1080p 3D HD Audio

1080p 3D 5.1 Audio

1080p 3D 2ch Audio

1080p HD Audio

1080p 5.1 Audio

1080p 2ch Audio

1080i HD Audio

1080i 5.1 Audio

1080i 2ch Audio

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Note: To use WebOS EDID management make sure DIP 1 is ON (UP)

Active EDID table is shown. You can load one of the presets from the previous page or load a custom EDID table from your PC – simply browse and upload the custom EDID if required.

Admin/Firmware/Reset/Info

- Serial Number – serial number of SW41
- Firmware – Current firmware revision
- Hardware – for internal use
- IP Address – IP address of the unit assigned by your DHCP Server
- Hostname – this is what you want to call the unit – syntax example CR100RX_k123. This is also the name you type into your browser to access the WebOS. Don't use spaces or special characters.
- Factory Reset – will erase user entered data like installer notes.
- Choose File/Upload Firmware – when necessary, this is where you select a new firmware file and upload firmware.
- Reset DA14 – will reset the ZIG-SW41 remotely.
- Install Update – when necessary is for installing new software updates to the unit.

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Command Syntax

RS-232 & IP Commands – note the same commands are available via RS-232 and IP – use @ for RS232, nothing for IP.

RS-232

@SW41-XXXX(last 4 of SN)<sp> <parameter> <sp>... <parameter> <sp>
<end of response>

Default RS232 Protocol Settings (can be changed in WebOS if required):

Baud Rate = 115200 Data Bits = 8
Parity = None
Stop Bit = 1

Flow control = None

IP

DA14-XXXX <sp> <parameter> <sp>... <parameter> <sp> <end of response>

Commands (shown in RS-232 format):

Help

@SW41-XXXX help

Shows a list of available commands

Disco

@SW41-XXXX disco

I can't get this to work.....

Uptime

@SW41-XXXX uptime

Shows day, hours, minutes and seconds the SW41 has been running.

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Version

@SW41-XXXX version

Shows Zigen SW41, firmware release, firmware revision, build date and serial number.

Get Device Status

@SW41-XXXX st

Shows active and inactive ports – ex. Port 1 active, port 2 off, etc.

HDMI Input Selection

@SW41-XXXX insel <1|2|3|4>

Lets you change the input.

Audio Return Channel

@sw41 arc <on/off>

Need an explanation on this?????

Power

@SW41-XXXX <on or off>

Powers device on or off. Ports remain active – no picture or sound.



Warranty Information

LIMITED WARRANTY – with the exceptions noted in the next paragraph, ZIGEN warrants the original purchaser that the equipment it manufactures or sells will be free from defects in materials and workmanship for a period of three years from the date of purchase. The proof of sale is required in order to claim warranty. Should this product, in ZIGEN's opinion, prove defective within this warranty period, ZIGEN, at its option, will repair or replace this product without charge. Customers outside of US are responsible for shipping charges to and from ZIGEN. Any defective parts replaced become the property of ZIGEN. This warranty does not apply to those products which have been damaged due to accident, unauthorized alterations, improper repair, modifications, inadequate maintenance and care, or use in any manner for which the product was not originally intended for. Items integrated into ZIGEN products that are made by other manufacturers, notably computer hard drives and liquid crystal display panels, are limited to the term of the warranty offered by the respective manufacturers. Such specific warranties are available upon request to ZIGEN.

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