



TIVA[®] SWAV 41

8K HDMI[™] 4X1 SWITCHER AND AUDIO EXTRACTOR

LDSWAV41;

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1 DOCUMENT VERSIONS AND REVISIONS

Version	Date	Implemented Changes
1	11/2025	Original version

2 INTRODUCTION

2.1 YOU MADE THE RIGHT CHOICE!

This product has been developed and manufactured to the highest quality standards to ensure many years of problem-free operation. Find further information about LD Systems on our website:

<https://www.ld-systems.com/>

2.2 CONTACTS

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2.3 LINK TO THE DOWNLOAD CENTRE



You can download some information, such as CAD data or technical data, from the Download Centre. Scan the QR code or click the link to download this information:

2.4 VISUALISATION CONVENTIONS IN THIS USER MANUAL

In this manual we use graphical symbols and icons in certain contexts. Find below a table with explanations and use cases of the graphical symbols and icons.

Icon / Symbol	Designation	Context	Explanation / Example
✓	Prerequisite	Tasks	Used in task topics to indicate a prerequisite that must be met before beginning the task.
⇒	Result / Intermediate Result	Tasks	Used in task topics to indicate a result or intermediate result of an action step.
1 Step a) Substep	1 Action Step a) Substep	Tasks	Used in task topics to indicate action steps and substeps.

Icon / Symbol	Designation	Context	Explanation / Example
1	Callout	Graphics; tasks	Text-image reference or labeling of certain functions on the device
[...]	Value range indicator	Technical data; paragraphs; lists	Indicates the range of a value, such as "Compressor ratio: 1:1...20:1 ". Mostly used in tables or callouts.
*	Asterisk	Paragraphs; tables	Indicates additional information in a footnote.
The LIM LED lights up	General User Interface element	Paragraphs; tasks; tables; lists	The words presented in this way represent graphic user interface elements on the device.
PAGE button	Key / Button	Paragraphs; tasks; tables; lists	The words presented in this way represent user interface controls on the device.
<name>	User input	Paragraphs; tasks; tables; lists	The words presented in this way represent required user inputs.
<u>https://adamhall.com</u>	Weblink	Paragraphs; tables; lists	External link to a website

3 PRODUCT COMPLIANCE

3.1 MANUFACTURER'S DECLARATION

Adam Hall offers a voluntary, EU-wide manufacturer's guarantee of 5 years. The statutory warranty period is not affected by this voluntary guarantee.

Visit the Adam Hall Service Portal to access the **Download Centre**:

<https://portal.adamhall.com/>

Under the **Service & Regulations** section, you find our current detailed manufacturer's declarations, warranty conditions, and limitation of liability.

To request warranty for a product, please contact:

Adam Hall GmbH, Adam-Hall-Str. 1, 61267 Neu-Anspach

customerservice@adamhall.com

0049 (0)6081 / 9419-1000

3.2 DECLARATION OF CONFORMITY

UK
CA

Hereby, Adam Hall Ltd. declares that this product meets the following guidelines (where applicable)

- Electrical Equipment (Safety) Regulations 2016
- Electromagnetic Compatibility Regulations 2016 (SI 2016/1091)
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulation 2012 (SI 2012/3032)
- Radio Equipment Regulations 2017 (SI 2016/2015)

Products that are subject to Electrical Equipment(Safety)Regulation 2016, EMC Regulation 2016 or RoHS Regulation can be requested at info@adamhall.com. Products that are subject to the Radio Equipments Regulations 2017 (SI2017/1206) can be downloaded at <http://www.adamhall.com/compliance>.

4 SAFETY INSTRUCTIONS

4.1 INTENDED USE

This product is intended routing any of four HDMI input signals to a single 8K HDMI display.

This product has been developed for the professional use in the field of event technology. Furthermore it is intended for qualified users with specialist knowledge of event technology only.

The device is intended for fixed installation and not for mobile application.

The device is intended for indoor use only.

It is not suitable for domestic use.

Do not use the product outside the operating conditions as stated in the user manual under Technical Data. Liability for damage and third-party damage to persons and property due to inappropriate use is excluded.

This product is not suitable for children and persons with limited physical, sensory, or mental capabilities or lack of experience and knowledge.

4.2 EXPLANATION OF SAFETY AND WARNING SYMBOLS

Find the following safety and warning symbols on the device, the user manual, or the packaging:



This symbol indicates that you must read the complete user manual before using the product.



This symbol indicates a general hazardous situation.



This symbol indicates hazards that can cause electric shock.



This symbol indicates that the product is for indoor use only.



This symbol indicates that the product is not suitable for household use.



This symbol indicates that the product has no serviceable parts. Only authorized personnel is allowed to perform maintenance or service work.



This symbol indicates helpful hints or additional information.

4.3 STRUCTURE OF WARNING MESSAGES

In this user manual, warning messages are structured with a safety symbol, a signal word, a hazard description, and instructions on how to avoid injuries or death.



DANGER

Indicates a hazardous situation which will result in death or serious injury.

**WARNING**

Indicates a hazardous situation which could result in death or serious injury

**CAUTION**

Indicates a hazardous situation which could result in minor or moderate injury.

**NOTICE**

Indicates situations or conditions that could result in damage to property and/or the environment.

4.4

GENERAL SAFETY



- Read this document carefully.
- Keep this document for later reference.
- Follow closely the instructions in this document.
- This document is an integral part of the product. If you sell or pass on the product, you must include this document.
- Only use this product according to its intended use.
- Risk of choking. Keep small parts away from children and individuals with impaired physical, sensory, or mental capabilities.
- Risk of suffocation. Keep plastic bags away from children and individuals with impaired physical, sensory, or mental capabilities.
- Observe all safety instructions and warning messages in this document, on the device, and on the packaging.
- Products are subject to continuous further development. If you find discrepancies between this document and the product labeling, the information on the product always takes priority.
- Do not remove safety instructions or warning messages from the product.
- Do not open the device.
- Do not modify the product.
- If the product shows any sign of damage, do not use it.
- Do not operate the product with removed or missing covers.
- Do not expose the product to direct sunlight.
- If not further specified in the user manual under Technical Data, do not use the product in ambient temperatures that exceed 40 °C / 104 °F or fall below 0 °C / 32 °F
- Do not use the product in tropical climate.
- Do not use the product above 2000 metres of altitude.
- Unless otherwise stated, do not use the product under marine conditions.

- Use only accessories specified by the manufacturer.
- Maintenance and repairs may only be carried out by authorized service personnel.
- Store and transport the product in a dry and safe environment.
- Clean the product on a regular basis. If applicable, see the user manual for maintenance intervals.
- If the device was exposed to strong temperature changes, such as during transport, do not switch it on immediately. Wait until the device has reached ambient temperature.

4.5

ELECTRICAL SAFETY



- This is an electrical device in protection class III, using safety extra-low voltage (SELV) or protective extra-low voltage (PELV).
- Do not bypass the mains fuse.
- Use only mains fuses as specified by the manufacturer.
- Do not use kinked or otherwise damaged power cables.
- Only operate the device on compliant, tested and intact mains power outlets.
- Do not use the device in the vicinity of water. Keep the device away from splashing or dripping water.
- Make sure that the voltage and frequency of the mains power match the values specified by the manufacturer.
- Take suitable measures against overvoltage, such as lightning strikes.
- For devices with a power out connector, make sure the total current consumption of all connected devices does not exceed the value specified by the manufacturer.
- This device is suitable for continuous current.
- Disconnect the device from all poles before maintenance, repair or extend periods of non-use.
- Permanently connected power cables may only be replaced by a qualified service technician.

4.6

THERMAL SAFETY

- Do not install the device near heat sources, such as radiators or ovens.
- Do not block any ventilation openings.
- Unless otherwise stated, keep a minimum clearance of at least 20 centimetres around the device.
- Unless otherwise stated, keep flammable materials, such as paper or wood, at least 50 centimetres away from the device

4.7

DEVICE SAFETY



- Do not switch the device on and off in quick succession, because this will shorten the device lifetime.

5 PRODUCT DESCRIPTION

5.1 PRODUCT OVERVIEW

This 4x1 HDMI switcher enables you to route any of four HDMI input signals to a single 8K HDMI display.

INTEGRATION-FRIENDLY FEATURES:

- Auto or manual input switching mode
- Control via front panel buttons, IR remote, and ASCII command API.
- Advanced EDID management

PERFORMANCE-ENHANCING FEATURES:

- Built-in signal equalizer, retiming, and driver
- Digital and analog audio de-embedding
 - Analog audio output with gain control
- Video resolution support:
 - Up to 8K@60 YCbCr 4:2:0 12bit
 - 8K@30 RGB/YCbCr 4:4:4 12bit
 - 4K@120 RGB/YCbCr 4:4:4 12bit
 - As specified in HDMI 2.1

COMPATIBILITY FEATURES:

- HDCP 2.3 compliant
- HDR formats pass-through:
 - HDR, HDR10, HDR10+, Dolby Vision
- HDMI audio formats pass-through:
 - LPCM, Dolby Digital/Plus/EX, Dolby TrueHD, Dolby Atmos
 - DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD
- ALLM (Auto Low Latency Mode) / VRR (Variable Refresh Rate) pass-through

5.2 TECHNICAL DATA

Technical

HDMI compliance	HDMI 2.1
HDCP ocpliance	HDCP 2.3
Video bandwidth	48Gbps
Audio latency	< 3 ms

Technical	
Video latency	No latency
Video resolution	Up to 8K60 YCbCr 4:2:0 12bit, 8K30 RGB/YCbCr 4:4:4 12bit or 4K120 RGB/YCbCr 4:4:4 12bit
Colour depth	8-bit/10-bit/12-bit
Colour space	RGB, YCbCr_4:4:4, YCbCr_4:2:2, YCbCr_4:2:0
HDR	HDR, HDR10, HDR10+, Dolby Vision, HLG
IR level	12Vp-p
IR frequency	Wideband 20 kHz ... 60 kHz
Audio formats	HDMI input/output: LPCM, Dolby Digital/Plus/EX, Dolby TrueHD, Dolby Atmos, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD Audio de-embedding output: Optical: Up to LPCM/Dolby/DTS 5.1CH Analog: Only LPCM 2CH
ESD protection	IEC 61000-4-2: ±8kV (Air-gap discharge) & ±4kV (Contact discharge)
Connection	
Input	4x HDMI IN [Type A, 19-pin female]
Output	1x HDMI OUT [Type A, 19-pin female] 1x OPTICAL AUDIO OUT [S/PDIF, female] 1x L/R AUDIO OUT [5pin-3.5 mm terminal block connector]
Control	1x Ethernet [RJ45 connector] 1x IR CTL [3.5 mm stereo mini-jack] 1x SERVICE [USB Type C, Update port]
Mechanical	
Housing	Metal enclosure
Silkscreen colour	Black
Dimensions	220 mm [W] × 110 mm [D] × 21.5 mm [H]
Weight	595 g
Power supply	Input: AC100 - 240 V 50/60 Hz Output: DC 12 V / 1 A (US/EU standards, CE/FCC/UL certified)
Power consumption	5.4 W (Max)
Operation temperature	-10 °C ... 45 °C / 14 °F ... 113 °F
Storage temperature	-20 °C ... 60 °C / -4 °F ... 140 °F

Mechanical

Relative humidity 20 % ... 90 % RH (non-condensing)

Recommended HDMI Cable

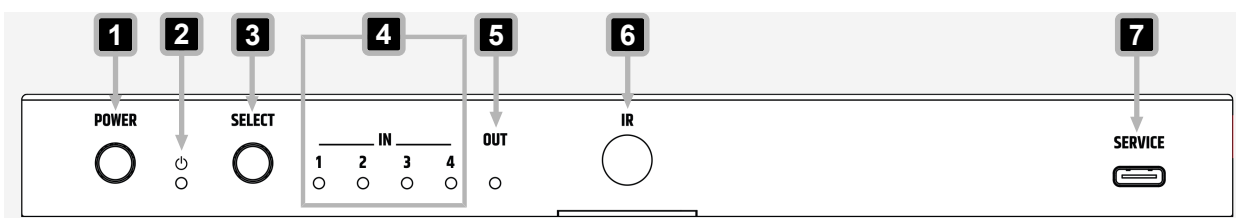
Video resolution	8K	4K60	4K24	1080P
HDMI cable length (HDMI IN / OUT)	3 m / 10 ft (Ultra HDMI 2.1)	8 m / 26 ft	12 m / 39 ft	15 m / 49 ft

We recommend using a Premium High Speed HDMI cable.

You can find further information and ordering options here: [4 STAR HDMI 0300](#)

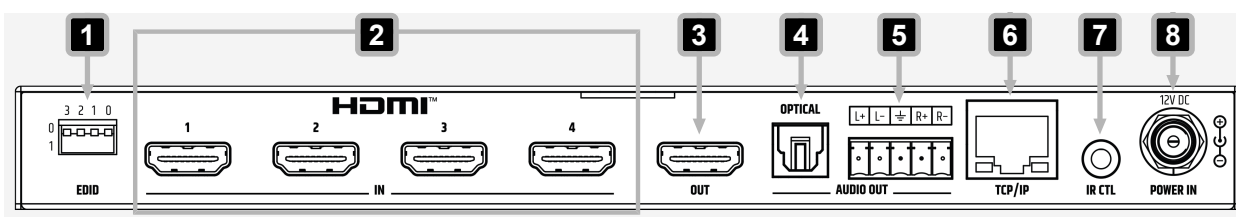
5.3 USER INTERFACE

5.3.1 FRONT PANEL OVERVIEW



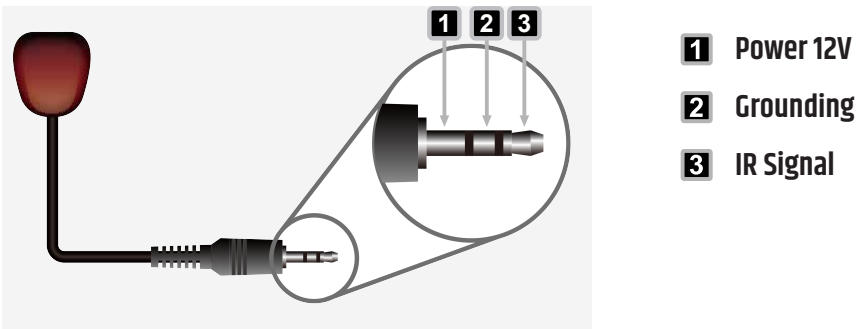
- 1** **POWER Button** - Turns the device on or off
- 2** **LED** - Lights up white when the device is powered on
- 3** **SELECT Button** - Cycles through HDMI inputs (1 ... 4), routing the active signal to HDMI OUT
- 4** **IN 1 ... 4** - Light up white to indicate the currently selected HDMI IN port
- 5** **OUT** - Lights up white when a display is connected and signal is output via the HDMI OUT port
- 6** **IR** - Receives infrared input signals from the remote control
- 7** **SERVICE** - Provides access via USB-C port for firmware update, software debugging, and API control

5.3.2 REAR PANEL OVERVIEW



- 1** **EDID Dip Switch Unit** - Sets EDID configurations via Dip Switches
- 2** **HDMI IN 1 ... 4** - Receive signals from HDMI source devices.
- 3** **HDMI OUT** - Sends signals to an HDMI display device
- 4** **OPTICAL** - Transmits digital audio signals via S/PDIF optical fiber connection.
- 5** **L+L- R+R- AUDIO OUT** - Transmits balanced (max 2 Vrms) or unbalanced (max 1 Vrms) audio signals
- 6** **TCP / IP** - Provides remote access to the built-in web interface for configuration and monitoring. The device can also be managed via **QUESTRA®** software or controlled by third-party systems using the API commands described in this manual.
- 7** **IR CTL** - Connects the included 1.5m IR wideband receiver cable when the front IR sensor is inaccessible, enabling flexible placement of the IR receiver
- 8** **DC 12V / 1A POWER IN** - Connects the included multinational locking power supply

5.3.3 **INFRARED RECEIVER PIN ASSIGNMENT OVERVIEW**



5.3.3.1 **IR RECEIVER TRANSMISSION DISTANCE**

Angle Between IR Receiver and Remote Control	Transmission Distance
$\pm 45^{\circ}$	0-5 metres
$\pm 0^{\circ}$	0-8 metres

6 PREPARATION

6.1 SCOPE OF DELIVERY

Item Description	Quantity
Device	1
Remote control	1
5pin-3.5 mm terminal block connector (male)	1
IR wideband receiver cable (1.5 m)	1
Mounting ear	2
Metric screw (M3 x 4)	4
12 V / 1 A Multinational locking power supply	1
Safety Compliance Information (en, de, fr, it, pl, es)	1

7 OPERATION

7.1 POWER SUPPLY

7.1.1 CONNECTING THE POWER ADAPTER

**WARNING****Mains voltage**

Risk of electric shock

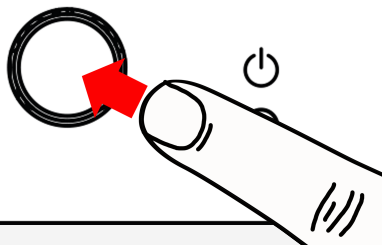
- a. Do not use kinked or damaged mains power cables.

**NOTICE****Damage to the device**

- a. Make sure that the voltage of the mains power socket matches the device operating voltage.
- b. Do not plug the device under load.

- 1 Plug the DC output of the power adapter into the device's **POWER IN** connector.
- 2 Plug the AC input of the power adapter into a mains power socket.

7.1.2 TURNING THE DEVICE ON OR OFF

POWER

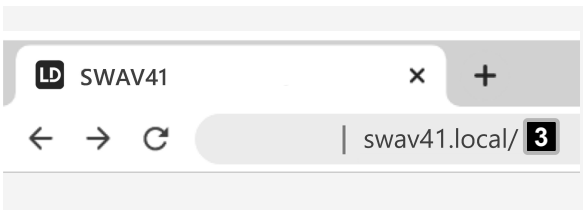
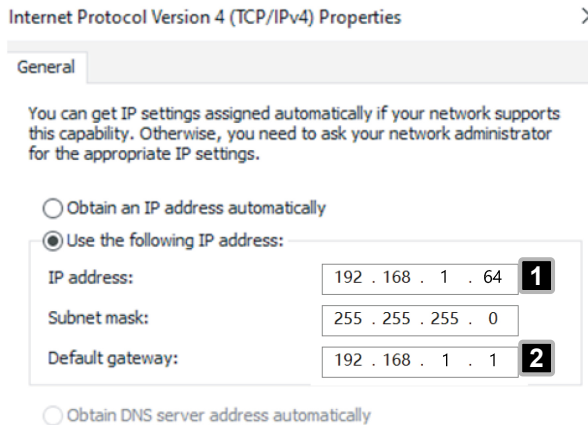
- 1 Press the **POWER** button to turn the device on.
- 2 Press the **POWER** button again to turn the device off.

7.2 WEB-BASED CONTROL

7.2.1 ABOUT WEB-BASED CONTROL

You can control the device via a web-based graphical user interface (GUI). Log in through a standard browser - preferably Google Chrome - on a computer, tablet, or smartphone to configure system parameters efficiently and securely.

7.2.2 ACCESSING THE WEB-INTERFACE



✓ UTP RJ45 Ethernet cable

- 1 Connect the Ethernet port of your device to your PC.
- 2 Open the network adapter settings on your PC.
- 3 Configure your PC's IP address **1** to be in the same subnet as the device **2**.

The default settings of the device are:

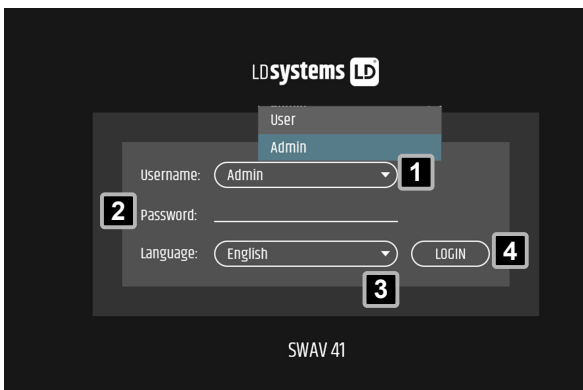
IP address:	192.168.1.41
Subnet mask:	255.255.255.0
Gateway:	192.168.1.1

- 4 Open a web browser on the connected PC.

We recommend using Google Chrome for the best compatibility.

- 5 Enter `<swav41.local/>` into the address bar. **3**
- 6 Press the **return button** on your keyboard to access the web-based graphical user interface.

7.2.3 LOGGING INTO THE WEB-INTERFACE



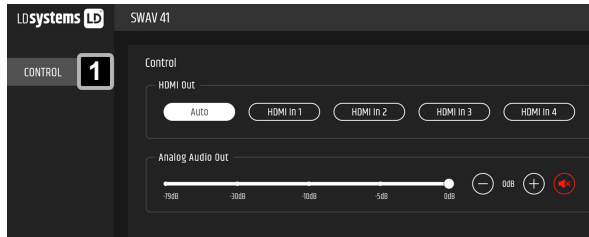
- 1 Open the **Username** drop-down menu to choose a user role **1** (Admin, User).

We recommend logging in as an **Admin** first in order to change the passwords in the **SYSTEM** section. The default admin password is **ldsystems**.

- 2 Enter your password **2**.
- 3 Open the **Language** drop-down menu to choose a language **3**.
- 4 Click **LOGIN** to access the selection screen **4**.

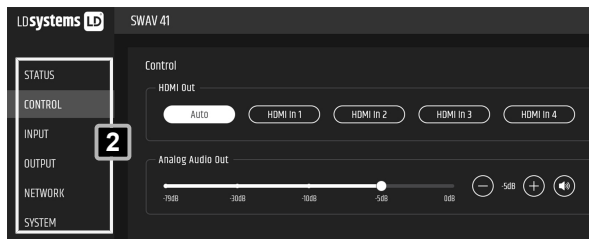
7.2.4 ABOUT ACCESS PERMISSIONS

USER ACCESS



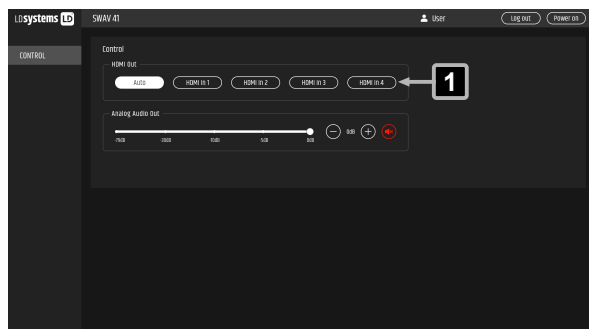
Users with standard user permissions only have access to the **CONTROL** section **1**.

ADMIN ACCESS



Users with administrative permissions have full access to all sections **2**.

7.2.5 CONTROLLING THE AUDIO OUTPUT (USER & ADMIN ACCESS)



- 1** Click on one of the available options (**Auto**, **HDMI In 1 ... HDMI In 4**) to select the input source **1**.
- 2** Adjust the analog audio output level using the **−** and **+** buttons.
- 3** Click the **🔊** icon to mute or unmute the analog audio output.

7.2.6 ADMIN ACCESS OVERVIEWS

7.2.6.1 STATUS SECTION OVERVIEW

The screenshot shows the LDsystems SWAV 41 web interface. The top bar includes the LDsystems logo, the device name 'SWAV 41', the user 'Admin', and buttons for 'Log out' and 'Power on'. The left sidebar contains a menu with the following items: STATUS, CONTROL, INPUT, OUTPUT, NETWORK, and SYSTEM. The main content area displays the 'Status' section, which contains a table with the following data:

Status	
Model	SWAV41
MCU Version	1.01.00
WEB Version	1.01.00
IP Address	192.168.1.44
Subnet Mask	255.255.255.0
Gateway	192.168.1.1
MAC Address	6C:DF:FB:0C:20:A5

A callout box with the number '1' points to the table.

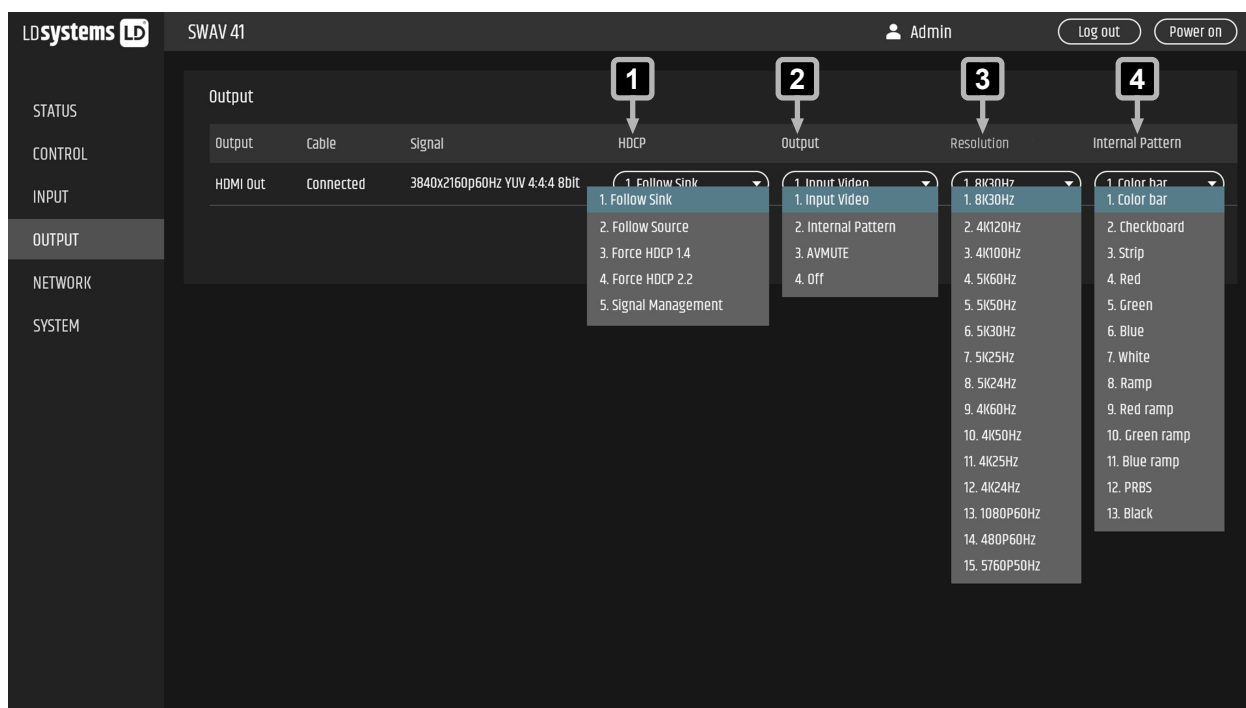
1**Status** - Displays the current system state (read-only)

7.2.6.2 INPUT SECTION OVERVIEW

The screenshot shows the LDsystems SWAV 41 web interface. The sidebar on the left contains navigation tabs: STATUS, CONTROL, INPUT (highlighted), OUTPUT, NETWORK, and SYSTEM. The main content area is titled 'INPUT' and contains a table with the following columns: Input, Name, Cable, EDID, and HDCP. The table lists four input ports: HDMI In 1, HDMI In 2, HDMI In 3, and HDMI In 4. The 'Cable' column shows 'Connected' for the first three and 'Disconnected' for the last. The 'EDID' column has a dropdown menu open for 'HDMI In 1', displaying a list of 33 options. A 'Download EDID From' dropdown is also visible, with options for 'User Defined 1 EDID' and 'User Defined 2 EDID'. Numbered callouts 1 through 7 are placed over the interface to highlight specific features.

- 1** **Input** - Displays the available input ports
- 2** **Name** - Allows editing of input port names
- 3** **Cable** - Shows cable connection status (**Connected**, **Disconnected**)
- 4** **EDID** - Allows selection of video and audio configurations via drop-down menu
- 5** **HDCP** ☒ On ☐ Off - Toggles HDCP on/off
- 6** **Download EDID From** - Selects EDID from HDMI ports or previously saved user-defined configurations via drop-down menu
- 7** **User Defined 1 & 2 EDID** - Selects and stores user-defined EDID configurations via drop-down menu

7.2.6.3 OUTPUT SECTION OVERVIEW

**1****HDCP** - Selects the HDCP mode for the HDMI output**2****Output** - Selects the signal source for the HDMI output

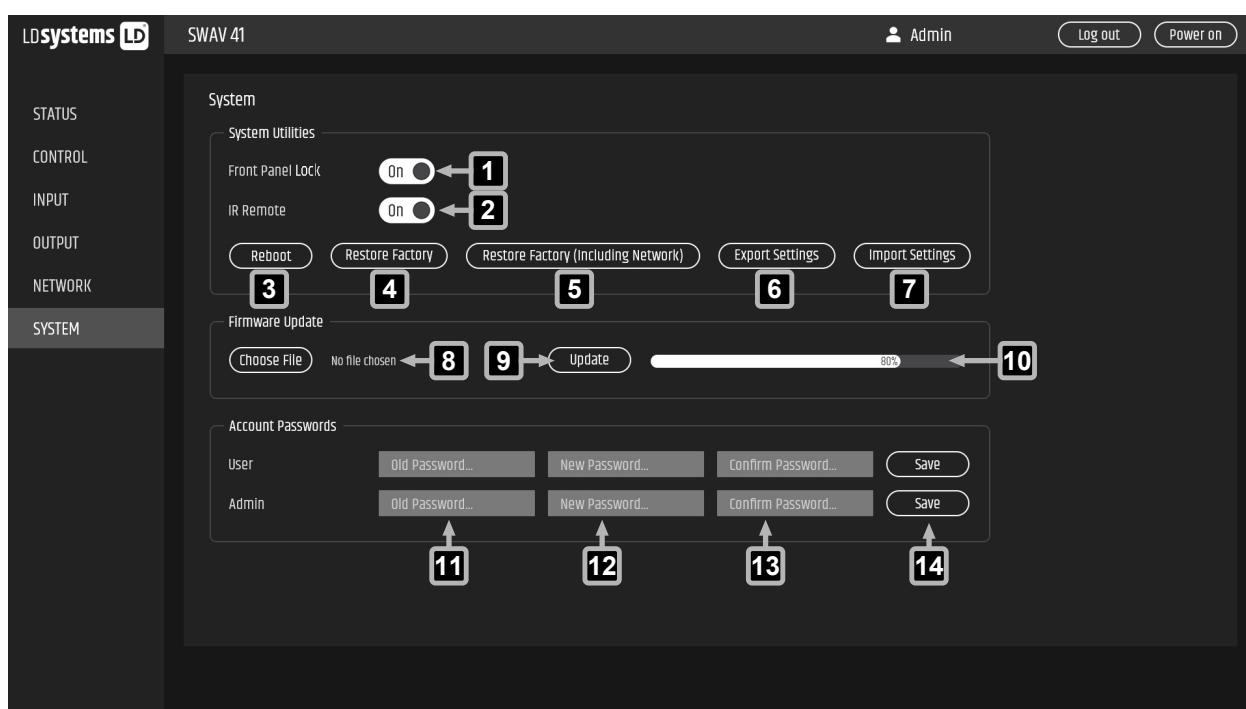
- **1. Input Video** – Sends the currently selected video input source to the HDMI output of the switcher
- **2. Internal Pattern** – Sends the selected test pattern from the internal signal generator to the HDMI output
- **3. AVMUTE** – Mutes the video output by displaying a black screen on the HDMI output
- **4. Off** – Disables the HDMI output entirely

3**Internal Timing** - Selects internal output resolution and refresh rate**4****Internal Pattern** - Selects a built-in video pattern for testing, calibration, or display verification

7.2.6.4 NETWORK SECTION OVERVIEW

- 1** **DHCP Enabled** ☐ On ☒ Off - Toggles on or off the automatic assignment of network settings via DHCP.
- 2** **IP Address & Subnet Mask Input Fields** -
DHCP Off: Allows to enter <IP address>, <subnet mask>, and <gateway>.
DHCP On: Receives IP address, subnet mask, and gateway from the DHCP server.
 Manual configuration is disabled in this mode.
- 3** **Telnet Port Input Field** - Allows to specify the port number for Telnet connections. (The default is usually port 23 unless configured otherwise)
- 4** **Domain Name Input field** - Allows to enter a unique name for the device.
 The full network name will be <name>.local, used for identification within the local network.
- 5** **Cancel Button** - Reverts changes without saving
- 6** **Save Button** - Saves the changes made and applies the new settings

7.2.6.5 SYSTEM SECTION OVERVIEW



- 1** **Front Panel Lock** ☐ - Enables or disables access via the device's front panel keys
- 2** **IR Remote** ☐ - Enables or disables control via the infrared remote
- 3** **Reboot** - Restarts the device without changing any settings
- 4** **Restore Factory** - Resets the device to its original factory settings. All user configurations will be lost.
- 5** **Restore Factory (Including Network)** - Resets the device to factory defaults, including all network settings. All user configurations will be lost.
- 6** **Export Settings** - Creates a backup file containing the current configuration settings for download or transfer
- 7** **Import Settings** - Loads a configuration file to apply previously saved settings to the device
- 8** **Choose File** - Opens a file dialog to select a firmware update file. The selected file name will be displayed next to the button.
- 9** **Update** - Starts the firmware update process using the selected file
- 10** **Update Progress Bar** - Indicates the current progress of the firmware update process
- 11** **Old Password...** - Allows to enter their current password to authorise changes or verify identity
- 12** **New Password...** - Allows to enter a new password
- 13** **Confirm Password...** - Allows to re-enter the new password to avoid input errors

- 14** **Save** - Saves the changes made and applies the new settings

7.3 QUESTRA®

7.3.1 DOWNLOADING QUESTRA® AND QUESTRA® PANELS APP



Visit the **LD Systems** website to download the **QUESTRA®** software. You will also find links to the Google Play Store and Apple App Store to download the **QUESTRA®** Panels app.

www.ld-systems.com/questra

QUESTRA® DOWNLOADS



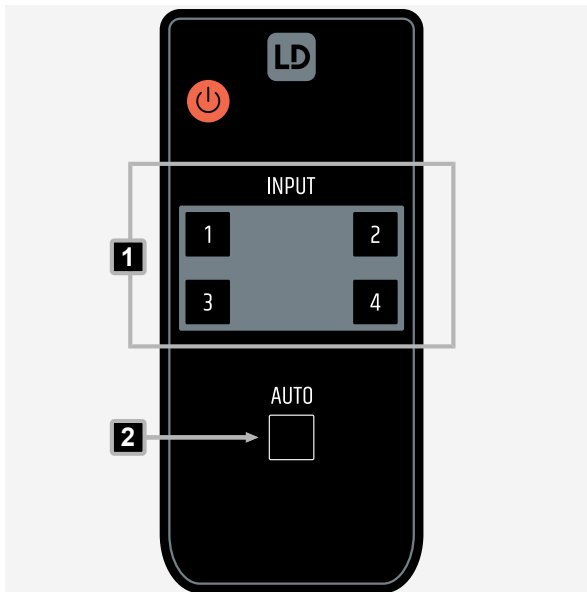
Durch das Herunterladen der QUESTRA® Software oder der QUESTRA® Panels App akzeptiere ich die **EULA** und bestätige, dass ich die Software oder die App nur gemäß den in der **EULA** beschriebenen Bedingungen nutzen werde.

7.4 REMOTE CONTROL

7.4.1 USING THE REMOTE CONTROL



You have to insert one CR2025 button cell battery to operate the device.
The battery is not included in the scope of delivery.



✓ One CR2025 button cell battery

- 1** Press the  button to toggle between power on and standby mode.
- 2** Press the source buttons (1 ... 4) **1** to select the HDMI input signal source for the HDMI output.
- 3** Press the **AUTO** button **2** to cycle through the available HDMI input sources (**HDMI IN 1 ... 4**).

7.5 EXTENDED DISPLAY IDENTIFICATION DATA (EDID) MODE

7.5.1 ABOUT EDID MODE

EDID stands for Extended Display Identification Data. It is a standardised data format used by display devices (such as monitors, TVs, or projectors) to communicate information to a video source.

This includes information such as:

- Supported resolutions (e.g. 1080p, 4K, 8K)
- Refresh rates
- Audio formats (e.g. stereo, 5.1, 7.1)
- Colour depth and HDR support



To prevent compatibility problems, set a suitable EDID profile using either the DIP switch unit or the input section of the web-based interface.

7.5.2 ABOUT EDID MODE CONFIGURATION METHODS

The switcher supports advanced EDID management with two configuration methods:

METHOD 1: DIP SWITCH CONFIGURATION

You can set the EDID information manually using the DIP switch unit.

METHOD 2: API COMMAND CONFIGURATION

You can configure EDID settings using API commands when the DIP switches are set to 1-1-1-1.

7.5.3 USING THE EDID DIP SWITCH UNIT

FACTORY DEFAULT SETTING

- 1 Set the DIP switches to 0-0-0-0 to enable EDID pass-through mode.



This will pass through the EDID from the display connected to output port 1 and use it as the source configuration.

PREDEFINED EDID SETTINGS

- 2 Set the DIP switches to select the predefined EDID modes.

0-0-0-1	HDMI 1080p@60Hz		Audio 2CH PCM
0-0-1-0	HDMI 1080p@60Hz		Audio 5.1CH DTS/DOLBY
0-0-1-1	HDMI 4K@60Hz 4:4:4	8-bit	Audio 2CH PCM
0-1-0-0	HDMI 4K@60Hz 4:4:4	8-bit	Audio 5.1CH DTS/DOLBY
0-1-0-1	HDMI 4K@120Hz 4:4:4	10-bit HDR/DV	Audio 2CH PCM
0-1-1-0	HDMI 4K@120Hz 4:4:4	10-bit HDR/DV	Audio 5.1CH DTS/DOLBY
0-1-1-1	HDMI 4K@120Hz 4:4:4	12-bit HDR/DV	Audio 2CH PCM
1-0-0-0	HDMI 4K@120Hz 4:4:4	12-bit HDR/DV	Audio 5.1CH DTS/DOLBY
1-0-0-1	HDMI 8K@60Hz 4:2:0	10-bit HDR/DV	Audio 2CH PCM
1-0-1-0	HDMI 8K@60Hz 4:2:0	10-bit HDR/DV	Audio 5.1CH DTS/ DOLBY
1-0-1-1	HDMI 8K@60Hz 4:2:0	12-bit HDR/DV	Audio 2CH PCM
1-1-0-0	HDMI 8K@60Hz 4:2:0	12-bit HDR/DV	Audio 5.1CH DTS/ DOLBY
1-1-0-1	HDMI 8K@60Hz 4:2:0	12-bit HDR/DV	Audio 2CH PCM - Inc VRR/DSC
1-1-1-0	HDMI 8K@60Hz 4:2:0	12-bit HDR/DV	Audio 5.1CH DTS DOLBY - Inc VRR/DSC
1-1-1-1	Set EDID via API commands.		Audio 2CH PCM

Default settings are HDMI 1080p@60Hz.

7.6 ASCII COMMAND API

7.6.1 ABOUT EXTENDED ASCII CODES

ASCII (American Standard Code for Information Interchange) is a character encoding standard used to represent text in digital systems. With 8 data bits, the system can represent up to 256 characters, known as Extended ASCII. This extended set is commonly used in serial communication.

7.6.2 USING ASCII-COMMANDS TO OPERATE THE TIVA® SWAV 41

- ✓ Serial command tool

✓ RJ45 Ethernet cable or USB-C cable

- 1 Connect the **TCP/IP** port or USB-C **SERVICE** port of the switcher to your PC.
- 2 Open a serial command tool on your PC.
- 3 Send ASCII commands to the switcher, to control its functions.



If you want to set EDID settings via API commands, make sure the DIP switches are set to **1-1-1-1**. This is not required for general remote control via ASCII commands.

7.6.3 SERIAL COMMUNICATION PARAMETERS

USB SERVICE Port for Internal Debugging

Baud rate 115200 (Fixed)

Data bit 8

Stop bit 1

Parity bit none

End mark of command <CR><LF>

Ethernet Interface

TCP ports

- System TCP port: 8000
- Communication (Com) TCP port: 8001

UDP ports

- System UDP local port: 9000, remote port: 1000
- Com UDP local port: 9001, remote port: 1001

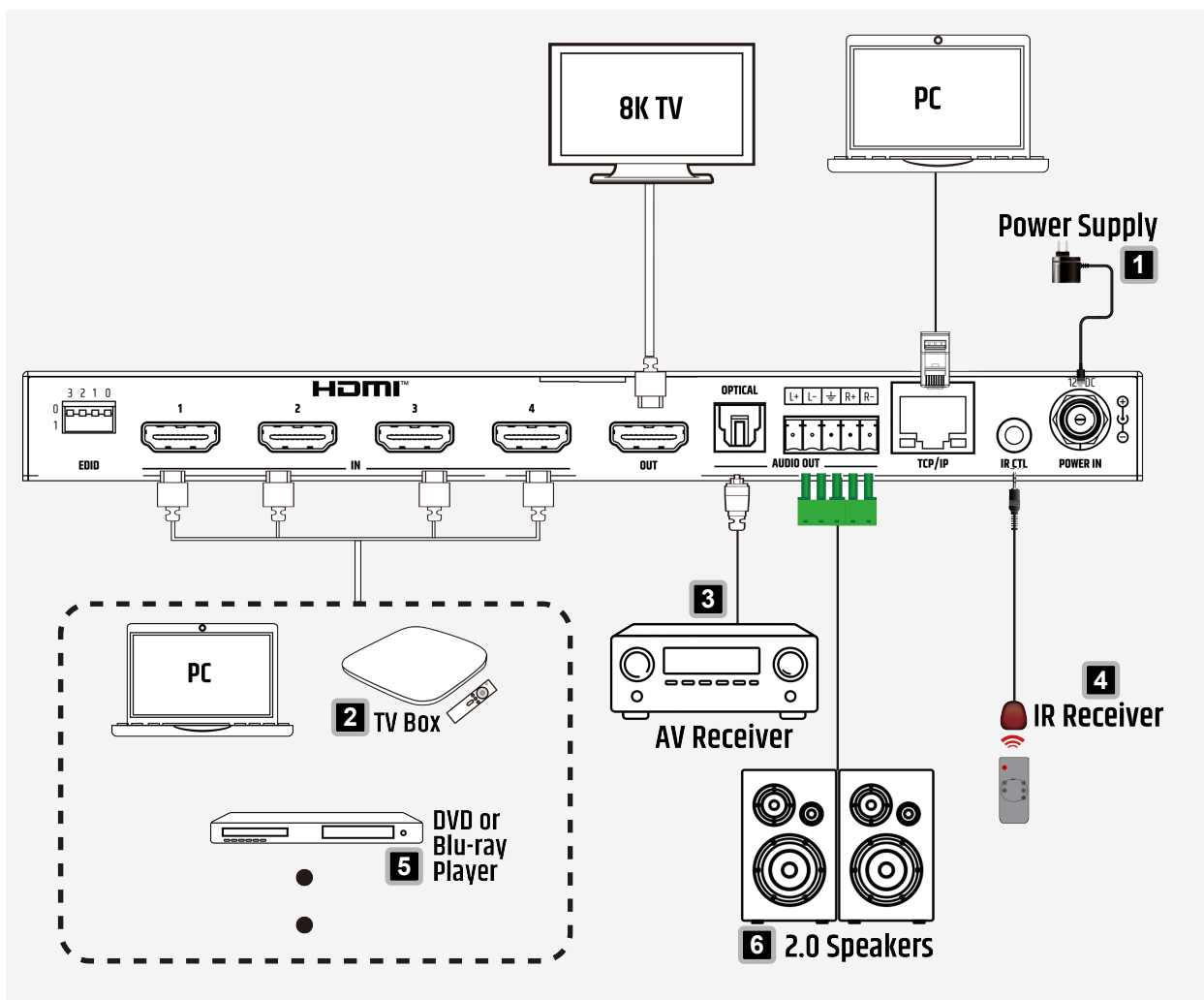
Network settings

- IP address: 192.168.1.41
- Subnet mask: 255.255.255.0
- Gateway: 192.168.1.1
- DHCP: Off (static IP configuration)

Ethernet mode TCP/UDP, default is TCP

7.7

USE CASE



- 1** Power Supply
- 2** TV Box
- 3** AV Receiver
- 4** IR Receiver
- 5** DVD or Blu-ray Player
- 6** Active Speakers

7.8

EXTENDED ASCII-CODES

7.8.1

COMMAND STRUCTURE AND ERROR CODES

The following information applies to the **SERVICE** USB-C port and the control commands sent via Ethernet.

COMMAND STRUCTURE

Placeholder for parameters x, y, z

ERROR CODES

Unknown command E00

Parameter out of range E01

Failed to retrieve EDID data E02

7.8.2 EXTENDED ASCII-CODES OVERVIEW**SYSTEM SETTINGS**

Command Code	Function Description	Example	Feedback	Factory Default
?	Get the list of all commands	?	List all commands	
help	Get the list of all commands	help!	List all commands	
get model	Get device model	get model	SWAV41	
status	Get device current status	status	Please refer to the output example at the end of this list	
get version	Get firmware version	get version	MCU FW 1.01.00 WEB FW 1.01.00	
power on	Power on the device	power on	Power on System initializing... initialization Fin- ished! MCU FW 1.01.00 WEB FW 1.01.00	
power off	Power off the device	power off	Power off...	
get power	Get current power state	get power	Power on	
reboot	Reboot the device	reboot	Reboot... System initializing... Initialization Fin- ished! MCU FW 1.01.00 WEB FW 1.01.00	

Command Code	Function Description	Example	Feedback	Factory Default
reset	Reset system settings to default (Should type "yes" to confirm, "no" to discard)	reset	Sure to reset system settings to default? Type "yes" after next prompt to confirm...	
reset all	Reset system and network settings to default (Should type "yes" to confirm, "no" to discard)	reset all	Sure to reset system and network settings to default? Type "yes" after next prompt to confirm...	
set front key x	Set front key locked on/off (x=0~1) x=0: Unlocked x=1: Locked	set front key 0	Front key unlocked	0
get front key	Get front key locked on/off status	get front key	Front key unlocked	
set ir x	Set IR on/off (x=0~1) x=0: Off x=1: On	set ir 1	IR on	1
get ir	Get IR on/off status	get ir	IR on	

INPUT SETTINGS

Command Code	Function Description	Example	Feedback	Factory Default
set input x	Select input source (x=1~4) x=1~4: HDMI input 1~4	set input 1	HDMI input 1	1
get input	Get input source	get input	HDMI input 1	
set auto-switch x	Set auto-switching on/off (x=0~1) x=0: Off x=1: On	set autoswitch 1	Autoswitch on	1
get auto-switch	Get auto-switching on/off status	get autoswitch	Autoswitch on	
set input x name y	Set input ports (x=1~4) name to y (max 16 characters) x=1~4: HDMI input 1~4	set input 1 name AppleTV1	HDMI input 1: AppleTV1	HDMI In 1

Command Code	Function Description	Example	Feedback	Factory Default
get input x name	Get input ports (x=0~4) name x=0: All inputs x=1~4: HDMI input 1~4	get input 0 name	HDMI input 1 name: AppleTV1 HDMI input 2 name: AppleTV2 HDMI input 3 name: AppleTV3 HDMI input 4 name: AppleTV4	
get input x cable	Get input ports (x=0~4) cable status x=0: All inputs x=1~4: HDMI input 1~4	get input 0 cable	HDMI input 1 cable: connected HDMI input 2 cable: connected HDMI input 3 cable: disconnected HDMI input 4 cable: disconnected	
set input x edid y	Set input ports (x=0~4) EDID (y=0~33) x=0: All inputs x=1~4: HDMI input 1~4 y=01: HDMI 1080p@60Hz, Audio 2CH PCM y=02: HDMI 1080p@60Hz, Audio 5.1CH DTS/DOLBY y=03: HDMI 1080p@60Hz, Audio 7.1CH DTS/DOLBY/HD y=04: HDMI 4K@60Hz 4:4:4, 8-bit, Audio 2CH PCM y=05: HDMI 4K@60Hz 4:4:4, 8-bit, Audio 5.1CH DTS/DOLBY y=06: HDMI 4K@60Hz 4:4:4, 8-bit, Audio 7.1CH DTS/DOLBY/HD y=07: HDMI 4K@120Hz 4:4:4, 8-bit, Audio 2CH PCM y=08: HDMI 4K@120Hz 4:4:4, 8-bit, Audio 5.1CH DTS/DOLBY y=09: HDMI 4K@120Hz 4:4:4, 8-bit, Audio 7.1CH DTS/DOLBY/HD	set input 0 edid 1	HDMI input 1 EDID SDF_01: HDMI 1080p@60Hz, Audio 2CH PCM HDMI input 2 EDID SDF_01: HDMI 1080p@60Hz, Audio 2CH PCM HDMI input 3 EDID SDF_01: HDMI 1080p@60Hz, Audio 2CH PCM HDMI input 4 EDID SDF_01: HDMI 1080p@60Hz, Audio 2CH PCM	

Command Code	Function Description	Example	Feedback	Factory Default
	y=10: HDMI 4K@120Hz 4:4:4, 10-bit HDR/ DV, Audio 2CH PCM			
	y=11: HDMI 4K@120Hz 4:4:4, 10-bit HDR/ DV, Audio 5.1CH DTS/DOLBY			
	y=12: HDMI 4K@120Hz 4:4:4, 10-bit HDR/ DV, Audio 7.1CH DTS/DOLBY/HD			
	y=13: HDMI 4K@120Hz 4:4:4, 12-bit HDR/ DV, Audio 2CH PCM			
	y=14: HDMI 4K@120Hz 4:4:4, 12-bit HDR/ DV, Audio 5.1CH DTS/DOLBY			
	y=15: HDMI 4K@120Hz 4:4:4, 12-bit HDR/ DV, Audio 7.1CH DTS/DOLBY/HD			
	y=16: HDMI 4K@120Hz 4:4:4, 12-bit HDR/ DV, Audio 2CH PCM - Inc VRR/DSC			
	y=17: HDMI 4K@120Hz 4:4:4, 12-bit HDR/ DV, Audio 5.1CH DTS/DOLBY - Inc VRR/DSC			
	y=18: HDMI 4K@120Hz 4:4:4, 12-bit HDR/ DV, Audio 7.1CH DTS/DOLBY/HD - Inc VRR/ DSC			
	y=19: HDMI 8K@60Hz 4:2:0, 10-bit HDR/ DV, Audio 2CH PCM			
	y=20: HDMI 8K@60Hz 4:2:0, 10-bit HDR/ DV, Audio 5.1CH DTS/DOLBY			
	y=21: HDMI 8K@60Hz 4:2:0, 10-bit HDR/ DV, Audio 7.1CH DTS/DOLBY/HD			
	y=22: HDMI 8K@60Hz 4:2:0, 12-bit HDR/ DV, Audio 2CH PCM			
	y=23: HDMI 8K@60Hz 4:2:0, 12-bit HDR/ DV, Audio 5.1CH DTS/DOLBY			
	y=24: HDMI 8K@60Hz 4:2:0, 12-bit HDR/ DV, Audio 7.1CH DTS/DOLBY/HD			
	y=25: HDMI 8K@60Hz 4:2:0, 12-bit HDR/ DV, Audio 2CH PCM - Inc VRR/DSC			
	y=26: HDMI 8K@60Hz 4:2:0, 12-bit HDR/ DV, Audio 5.1CH DTS/DOLBY - Inc VRR/DSC			
	y=27: HDMI 8K@60Hz 4:2:0, 12-bit HDR/			

Command Code	Function Description	Example	Feedback	Factory Default
	DV, Audio 7.1CH DTS/DOLBY/HD - Inc VRR/ DSC y=28: DVI 1920x1080@60Hz, Audio None y=29: DVI 1920x1200@60Hz, Audio None y=30: HDMI 1920x1200@60Hz, Audio 2CH PCM y=31: User defined 1 y=32: User defined 2 y=33: EDID pass-through (copy from out- put)			
get input x edid	Get input ports (x=0~4) EDID mode x=0: All inputs x=1~4: HDMI input 1~4	get input 0 edid	HDMI input 1 EDID SDF_01: HDMI 1080p@60Hz, Audio 2CH PCM HDMI input 2 EDID SDF_01: HDMI 1080p@60Hz, Audio 2CH PCM HDMI input 3 EDID SDF_01: HDMI 1080p@60Hz, Audio 2CH PCM HDMI input 4 EDID SDF_01: HDMI 1080p@60Hz, Audio 2CH PCM	
set user edid x <y>	Set user defined EDID (x=1~2) x=1: User defined 1 x=2: User defined 2 y = 00 FF FF FF (y is 256 bytes EDID data)	set user edid 1 <00 FF FF FF....>	User defined 1 EDID is loaded success- fully	
get edid data x	Get EDID data (x=0~7) x=0: All EDID x=1~4: HDMI input 1~4	get edid data 0	HDMI input 1 EDID <00 FF FF FF....> HDMI input 2 EDID <00 FF FF FF....>	

Command Code	Function Description	Example	Feedback	Factory Default
	x=5: HDMI output x=6: User defined 1 x=7: User defined 2		HDMI input 3 EDID <00 FF FF FF....> HDMI input 4 EDID <00 FF FF FF....> HDMI output EDID <00 FF FF FF....> User defined 1 EDID <00 FF FF FF....> User defined 2 EDID <00 FF FF FF....>	
set input x hdcp y	Set input ports (x=0~4) HDCP on/off (y=0~1) x=0: All inputs x=1~4: HDMI input 1~4 y=0: Off y=1: On	set input 0 hdcp 1	HDMI input 1 HDCP: on HDMI input 2 HDCP: on HDMI input 3 HDCP: on HDMI input 4 HDCP: on	
get input x hdcp	Get input ports (x=0~4) HDCP on/off status x=0: All inputs x=1~4: HDMI input 1~4	get input 0 hdcp	HDMI input 1 HDCP: on HDMI input 2 HDCP: on HDMI input 3 HDCP: on HDMI input 4 HDCP: on	

OUTPUT SETTINGS

Command Code	Function Description	Example	Feedback	Factory Default
get output cable	Get output port cable status	get output cable	HDMI output cable: connected	
get output signal	Get output port signal status	get output signal	3840x2160p60Hz YUV 4:4:4 8bit	

Command Code	Function Description	Example	Feedback	Factory Default
set output hdcp y	Set output port HDCP mode (y=1~5) y=1: Follow sink (default) y=2: Follow source y=3: Force HDCP 1.4 y=4: Force HDCP 2.2 y=5: Signal management	set output hdcp 1	HDMI output HDCP: follow sink	1
get output hdcp	Get output port HDCP mode	get output hdcp	HDMI output HDCP: follow sink	
set output display y	Set output port display mode (y=1~4) y=1: Input video y=2: Internal pattern y=3: Avmute y=4: Off (disable TMDS output)	set output display 2	HDMI output display: internal pattern	1
get output display	Get output port display mode	get output display	HDMI output display: internal pattern	
set pattern x y	Set internal pattern generator resolution (x=1~15) pattern (y=1~13) x=01: 8K30Hz x=02: 4K120Hz x=03: 4K100Hz x=04: 5K60Hz x=05: 5K50Hz x=06: 5K30Hz x=07: 5K25Hz x=08: 5K24Hz x=09: 4K60Hz x=10: 4K50Hz x=11: 4K25Hz x=12: 4K24Hz x=13: 1080P60Hz x=14: 480P60Hz x=15: 5760P50Hz y=01: Color bar y=02: Checkboard	set pattern 11	Pattern 8K30Hz color bar	

Command Code	Function Description	Example	Feedback	Factory Default
	y=03: Strip y=04: Red y=05: Green y=06: Blue y=07: White y=08: Ramp y=09: Red ramp y=10: Green ramp y=11: Blue ramp y=12: PRBS y=13: Black			
get pattern	Get internal pattern generator resolution and pattern	get pattern	Pattern 8K30Hz color bar	
set analog audio gain x	Set analog audio gain (x=0dB ~ -79dB)	set analog audio gain -5	Analog audio gain: -5dB	0dB
get analog audio gain	Get analog audio gain value	get analog audio gain	Analog audio gain: -5dB	
set analog audio gain+ set analog audio gain+x	Increase analog audio gain +1dB Increase analog audio gain +xdB	set analog audio gain+ set analog audio gain+5	Analog audio gain: -4dB Analog audio gain: 0dB	
set analog audio gain- set analog audio gain-x	Increase analog audio gain -1dB Increase analog audio gain -xdB	set analog audio gain- set analog audio gain-5	Analog audio gain: -6dB Analog audio gain: -10dB	
set analog audio mute x	Set analog audio mute on/off (x=0~1) x=0: Off x=1: On	set analog audio mute 1	Analog audio mute off	0
get analog audio mute	Get analog audio mute on/off status	get analog audio mute	Analog audio mute off	

NETWORK SETTINGS

Command Code	Function Description	Example	Feedback	Factory Default
get ipconfig	Get the current IP configuration	get ipconfig	IP Mode: DHCP IP address: 192.168.62.106 Subnet mask: 255.255.255.0 Gateway: 192.168.62.1 TCP/IP port: 8000 Telnet port: 23 MAC address: 6C:DF:FB:0C:B3:8E (Static: 169.254.100.200 255.255.0.0 169.254.100.1)	default static IP is 192.168.1. 41/255.25 5.0.0/192. 168.1.1
get mac addr	Get network MAC address	get mac addr	MAC address: 6C:DF:FB:0C:B3:8E	
set ip mode x	Set network IP mode to static IP or DHCP (x=0~1) x=0: Static x=1: DHCP	set ip mode 0	IP mode: static (Please use "set net reboot" command to apply new config!)	1
get ip mode	Get network IP mode	get ip mode	IP mode: static	
set ip addr xxx.xxx.xxx.xx	Set network IP address	set ip addr 192.168.1.100	IP address: 192.168.1.100 (Please use "set net reboot" command to apply new config!) DHCP on, device can't config static address, set DHCP off first.	
get ip addr	Get network IP address	get ip addr	IP address: 192.168.1.100	

Command Code	Function Description	Example	Feedback	Factory Default
set subnet xxx.xxx.xxx.x xx	Set network subnet mask	set subnet 255.255.255.0	Subnet mask: 255.255.255.0 (Please use "set net reboot" command to apply new con- fig!) DHCP on, device can't config subnet mask, set DHCP off first.	
get subnet	Get network subnet mask	get subnet	Subnet mask: 255.255.255.0	
set gate- way xxx.xxx.xxx.x xx	Set network gateway	set gateway 192.168.1.1	Gateway: 192.168.1.1 (Please use "set net reboot" command to apply new con- fig!) DHCP on, device can't config gate- way, set DHCP off first.	
get gate- way	Get network gateway	get gateway	Gateway: 192.168.1.1	
set tcp/ip port x	Set network TCP/IP port (x=1~65535)	set tcp/ip port 8000	TCP/IP port: 8000	8000
get tcp/ip port	Get network TCP/IP port	get tcp/ip port	TCP/IP port: 8000	
set telnet port x	Set network telnet port(x=1~65535)	set telnet port 23	Telnet port: 23	23
get telnet port	Get network telnet port	get telnet port	Telnet port: 23	
set net re- boot	Reboot network modules	set net reboot	Network reboot... Search for IP,Please wait ...! IP Mode: DHCP IP ad- dress: 192.168.62.106 Subnet mask:	

Command Code	Function Description	Example	Feedback	Factory Default
			255.255.255.0 Gateway: 192.168.62.1 TCP/IP port: 8000 Telnet port: 23 MAC address: 6C:DF:FB:0C:B3:8E (Static: 169.254.100.200 255.255.0.0 169.254.100.1)	
set net hostname xxxx	Set network hostname to xxxx (xxxx=[32 characters max])	set net hostname swav41	Hostname: swav41	
get net hostname	Get network hostname	get net hostname	Hostname: swav41	

PASSWORD SETTINGS

Command Code	Function Description	Example	Feedback	Factory Default
set admin password x	Set admin login password (x=[16 characters max])	set admin password ldsystems	Admin password: ldsystems	ldsystems
get admin password	Get admin login password	get admin password	Admin password: ldsystems	
set user password x	Set user login password (x=[16 characters max])	set user password ldsystems	Admin password: ldsystems	ldsystems
get user password	Get user login password	get user password	Admin password: ldsystems	

7.8.2.1

ABOUT SYSTEM STATUS OUTPUT

EXAMPLE OUTPUT RETURNED BY THE <GET STATUS> COMMAND:

```
=====
Status Info SWAV41
MCU: V1.01.00  WEB: V1.01.00

Power    Key    IR    AutoSwitch
On       On     On     On

Input    Name          Cable      EDID          HDCP
01       HDMI In 1     Connected  DIP_0000:EDID pass-through  On
02       HDMI In 2     Connected  DIP_0000:EDID pass-through  On
03       HDMI In 3     Connected  DIP_0000:EDID pass-through  On
04       HDMI In 4     Disconnected DIP_0000:EDID pass-through  Off

Output   FromIn       Cable      Signal        HDCP          Output
01       01           Connected  3840x2160p60Hz_YUV_4:4:4_8bit Follow_sink    Input_video

TCP/IP   Telnet       MAC
8000    0023        6C:DF:FB:0C:B3:8E

DHCP     IP           Gateway     SubnetMask
On       192.168.062.111 192.168.062.001 255.255.000.000
```

8 MAINTENANCE

8.1

PRODUCT MAINTENANCE



CAUTION

Mains Voltage

Risk of electric shock

- a. Before you perform maintenance work on the device, disconnect the device from all poles.



NOTICE

Damage to the device and void of warranty

- a. Do not use cleaning agents, disinfectants, alcohol, or agents with abrasive effect for cleaning.

Carry out the maintenance measures listed below on a regular basis. The frequency of cleaning depends on the environment in which you use the product. Damp or dirty environments may cause increased soiling and wear.

VISUAL INSPECTION

Check the following points before operating the device.

-  **WARNING! Risk of electric shock.** Check mains power cables for damage or material fatigue.
- Check all air inlets and outlets for damage, dust, or dirt deposits.
- Check all outside screws and covers for corrosion, damage or excessive wear.
- Check all connectors and rubber sealing caps for damage, dust, or dirt deposits.
-  **WARNING! Risk of falling objects.** Check that all screws, fasteners, and rigging points are securely tightened.

CLEANING

- Clean the surface with a clean and damp lint-free cotton cloth. Wipe off all excess moisture.
-  **NOTICE! Do not use compressed air.** Clean any air inlets and outlets of dust and dirt deposits with a clean and damp lint-free cotton cloth.
- Clean all plug contacts from dust and dirt with a dry lint-free cotton cloth.

9 DISPOSAL

9.1

PACKAGING DISPOSAL



1. You can feed the packaging into the reusable material cycle using the usual disposal methods.
2. Separate the packaging in accordance with the applicable disposal laws and recycling regulations in your country

9.2

DEVICE DISPOSAL



1. This device is subject to the European Directive on Waste Electrical and Electronic Equipment, as amended. WEEE Directive Waste Electrical and Electronic Equipment. Old appliances do not belong in the household waste. The old device must be disposed of via an approved disposal company or a municipal disposal facility. Observe the applicable regulations in your country.
2. Observe all disposal laws applicable in your country.
3. As a private customer, you can obtain information on environmentally friendly disposal options from the seller of the product or the appropriate regional authorities.

