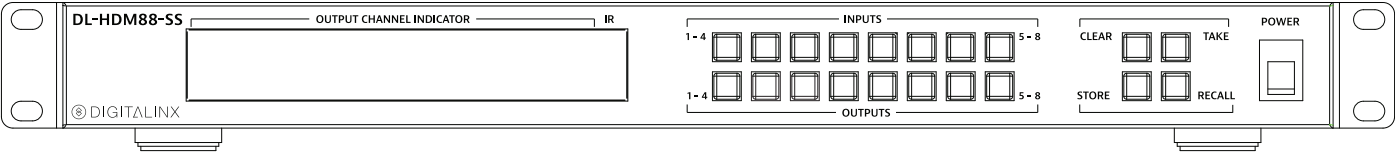
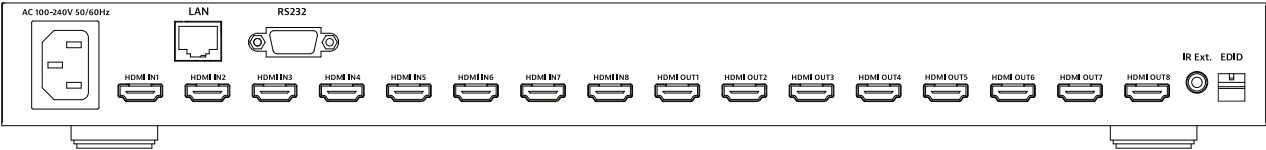


DL-HDM88-SS Installation and Operation Guide



Important Safety Instructions

- » Please completely read and verify you understand all instructions in this manual before operating this equipment.
- » Keep these instructions in a safe, accessible place for future reference.
- » Heed all warnings.
- » Follow all instructions.
- » Do not use this apparatus near water.
- » Clean only with a dry cloth.
- » Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- » Use only accessories specified or recommended by Intelix.
- » Explanation of graphical symbols:

◊ Lightning bolt/flash symbol: the lightning bolt/flash and arrowhead within an equilateral triangle symbol is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product enclosure which may be of sufficient magnitude to constitute a risk of shock to a person or persons.



◊ Exclamation point symbol: the exclamation point within an equilateral triangle symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.



- » **WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE AND OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD NOT BE PLACED ON THIS APPARATUS.**
- » Use the mains plug to disconnect the apparatus from the mains.
- » **THE MAINS PLUG OF THE POWER CORD MUST REMAIN READILY ACCESSIBLE.**
- » Do not defeat the safety purpose polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of your obsolete outlet. **Caution! To reduce the risk of electrical shock, grounding of the center pin of this plug must be maintained.**
- » Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and the point where they exit from the apparatus.
- » Do not block the air ventilation openings. Only mount the equipment per Intelix’s instructions.
- » Use only with the cart, stand, table, or rack specified by Intelix or sold with the equipment. When/if a cart is used, use caution when moving the cart/equipment combination to avoid injury from tip-over.
- » Unplug this apparatus during lightning storms or when unused for long periods of time.
- » **Caution! Shock Hazard.** Do not open the unit.
- » Refer to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



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Product Overview

The DigitaLinx DL-HDM88-SS is an eight input by eight output HDMI matrix switcher with HDCP 2.2 and a full-loading capability 4K@60Hz 4:4:4 with HDR output support for each channel. The matrix features advanced independent DIP switch for EDID management. The DL-HDM88-SS offers HDCP handling, including the ability to turn input HDCP compliance ON and OFF to ensure maximum functionality with a wide range of sources.

The DL-HDM88-SS can be controlled via front panel buttons, front panel IR, external IR, remote IR, RS232, and Ethernet. The matrix includes a simple IR remote control to allow IR switching. The matrix also features a full command set for RS232 and Ethernet control with third party control systems, plus control via a web browser.

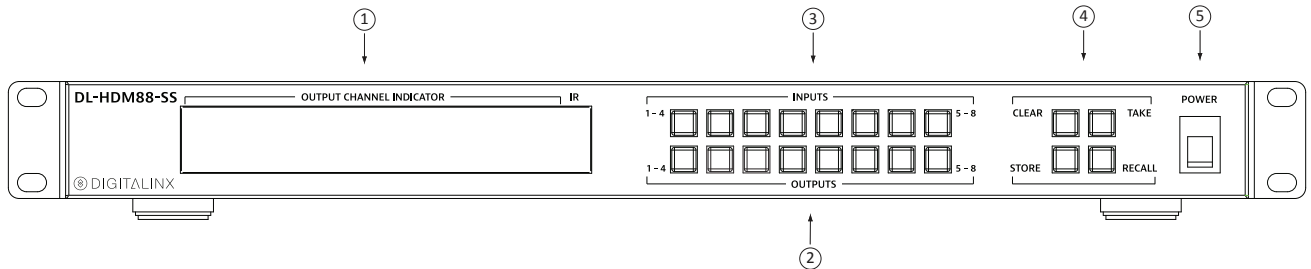
Package Contents

Please verify the following items are in the shipping box prior to installation of the DL-HDM88-SS.

- 1 ea. DL-HDM88-SS
- 1 ea. IR Remote Controller
- 1 ea. AC Power Cord
- 1 ea. USB to UART Cable
- 1 ea. Matrix Mounting Brackets (pair)
- 1 ea. IR Receiver
- 1 ea. DL-HDM88-SS Installation and Operation Guide

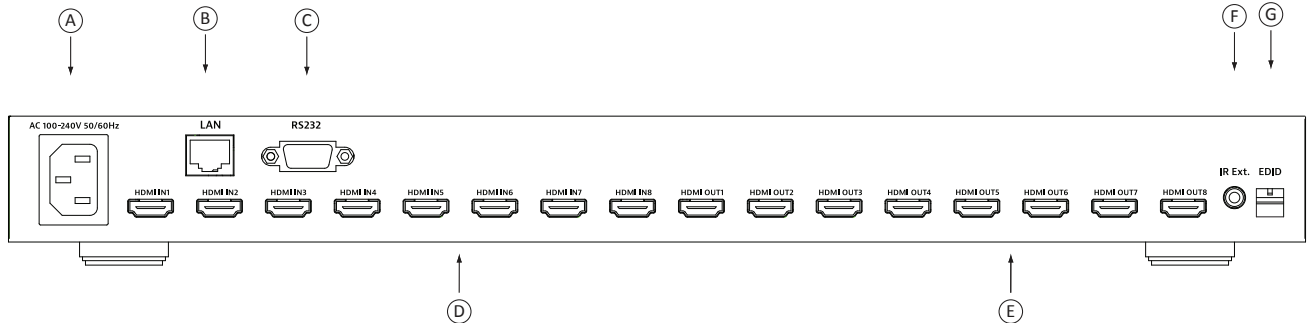
Front and Rear Panels

Front Panel



1. Output Channel Indicator
2. Output Buttons
3. Input Buttons
4. Front Panel Menu Selection
5. Power Switch

Rear Panel



- A. AC 100~240V 50/60Hz power supply input
- B. TCP/IP (Ethernet) control input for control via web browser
- C. RS232 control input
- D. HDMI Inputs
- E. HDMI Outputs
- F. IR Extension
- G. EDID DIP Switch

IR Remote

The DL-HDM88-SS includes a IR remote which performs routing functions available on the front panel of the matrix. When using the remote control locally, i.e., pointed directly at the matrix, the previous/next buttons are used to scroll between the input sources connected to the matrix for each individual output display.

Installation Instructions

Mount the Matrix

At least 2 inches of free air space is required on both sides of the DL-HDM88-SS for proper side ventilation. Avoid mounting the DL-HDM88-SS near a power amplifier or any other source of significant heat.

Rack Mounting Instructions

Remove the rubber feet from the bottom of the matrix. Remove the larger two screws on both sides of the DL-HDM88-SS.

Attach the supplied rack ears to the sides of the DL-HDM88-SS matrix. The matrix requires one rack unit (1 RU) of space. It is recommended that you leave an empty rack space above and below the DL-HDM88-SS for additional cooling.

Connect Sources

Connect the source devices to HDMI inputs using HDMI cables that are less than or equal to 1.5 meters in length for 4k60 signals. For source devices that are further away, it is highly recommended to install a Digitalinx DL-HD70 or DL-HDE100.

Connect Displays

Connect the display devices to HDMI outputs using HDMI cables that are less than or equal to 1.5 meters in length for 4k60 signals.. For display devices that are further away, it is highly recommended to install a Digitalinx DL-HD70 or DL-HDE100.

Applying Power

Insert the matrix power supply included and switch on power located on the front panel. Check that the front panel LED screen is on to indicate the matrix is ready for use.

Switching Capabilities

Switch between sources and displays using the matrix front panel buttons, IR remote control, serial RS232, or LAN. To set a route using the front panel of the DL-HDM88-SS, press the desired Input button (Source) and desired Output button (Display), then press Take.

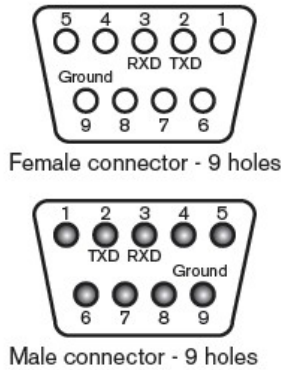
Connect External IR Control

If IR extension is required, connect the TRS 3.5 mm plug IR RX to the matrix IR EXT port, ensuring the IR receiver eye is placed in clear view of the handset used to control.

Connect RS232 Control

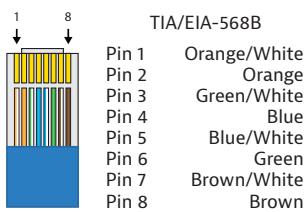
The RS232 connection on the matrix is female DB9. User can use a USB to UART cable or a direct serial cable for matrix control. See below for control system configuration.

- 9600 baud
- 8 Data Bits
- 1 Stop Bit
- Parity = none



Connect Ethernet (Web Browser) Control

The DL-HDM88-SS may be controlled via Ethernet through a web browser interface.



The TCP/IP port requires a standard straight-through Category 5 or greater cable with the TIA/EIA-568B crimp pattern for optimal operation.

The default settings for the TCP/IP port are:
 IP address: 192.168.0.178

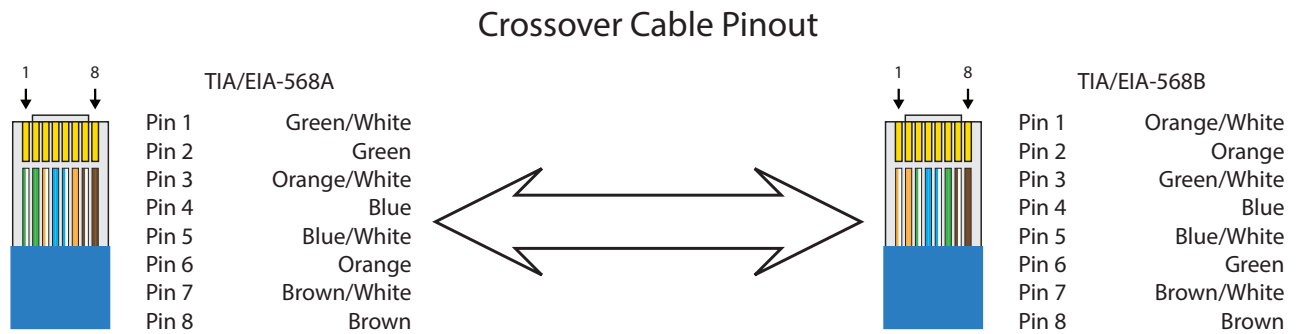
Connect the Ethernet cable between to the matrix and a router with a straight-through cable or between the matrix and a computer with a crossover cable.

Router Connection

1. Configure the router to use the same IP range as the matrix, such as 192.168.0.1.
2. Connect the computer to the router.
3. Connect the DL-HDM88-SS to the router.

Crossover Cable Connection

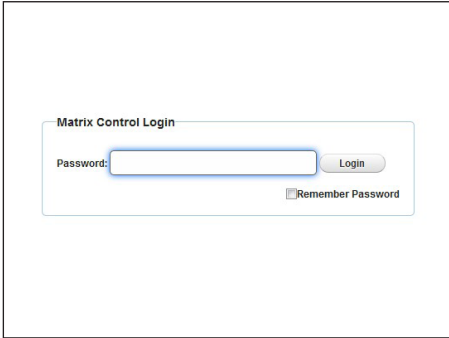
1. Configure the computer to use the same network prefix as the IP address assigned to the matrix. *For example, the IP address of the matrix is 192.168.0.178. Set the computer to use a static IP address within the same network range, such as 192.168.0.42.*
2. Connect the network crossover cable to the computer and to the TCP/IP port on the DL-HDM88-SS.



Web Browser Control

The DL-HDM88-SS includes a web portal to allow control of the matrix via a standard web browser. The IP address is the same address that is used for TCP/IP control.

Web Browser Control

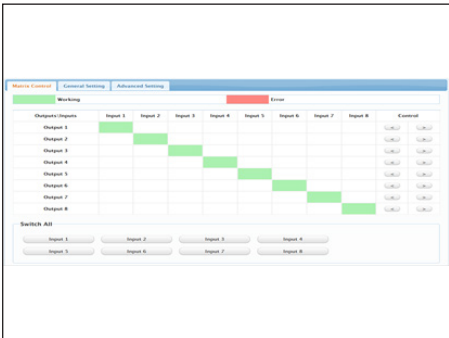


Open a web browser and go to the IP address of the DL-HDM88-SS. The default IP address is 192.168.0.178.

The matrix login screen will appear. The default password is 0000000000.

After logging in, the main screen appears. It contains three sub-menus:

1. Matrix Control
2. General Setting
3. Advanced Setting



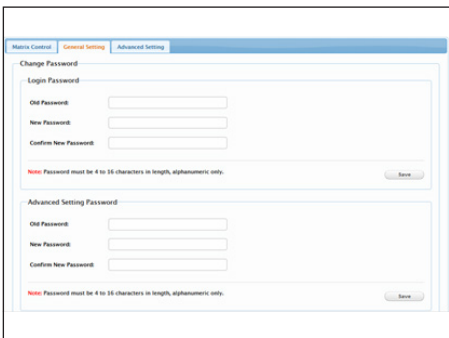
The Matrix Control submenu manages the connection configurations of displays and sources. The green bar represents that input and output are routed. The white bar represents that input and output are not routed. Click the white bar, it will become green, which represents that input and output are routed.

Switch All: Users can also switch all outputs to the same input.



The user can load any one of three presets to the device. Once a preset is selected, the user clicks on Load1/Load2/Load3 to show the connection configuration of the given preset.

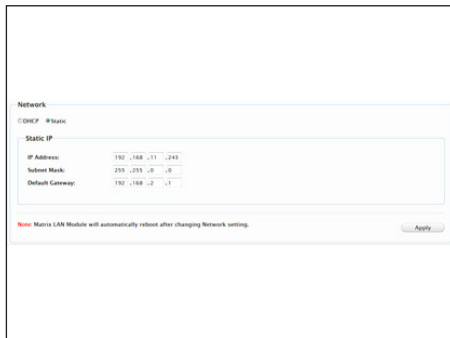
To modify a given preset, such as preset 1, users click Load 1, then make changes to the connections between displays and sources. Once all changes are made, the users clicks on Save 1. This effectively modified the connection configuration of the given preset.



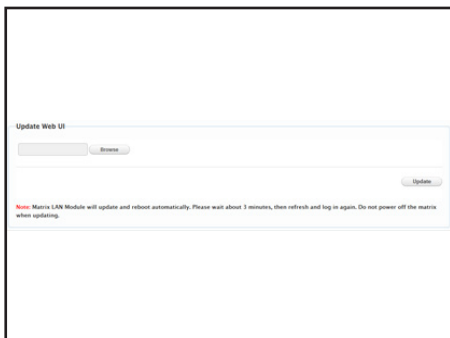
In the Change Password column, the user can modify the login password and the Advanced Setting password. Click **Save** button to save the changes.



The matrix can be controlled over LAN, through which it may be accessed through Web GUI or Telnet after obtaining the matrix IP address. The default IP address is 192.168.0.178



Set a Static IP Address, Select Static to manually input the IP functions if no address appears or if the system is unable to detect an IP address. Enter an IP address (such as 192.168.0.178) ensuring the IP addresses of the matrix and your computer are in the same subnet segment. Click **Apply** to save the changes.

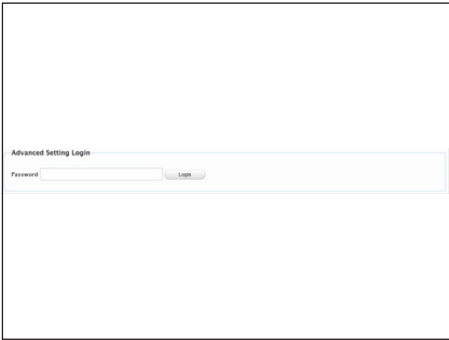


Update Web UI column, users can update Matrix Web UI.

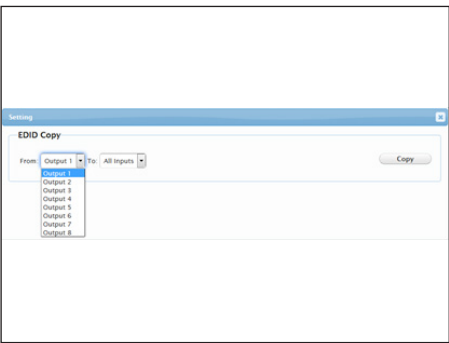


In LAN to Serial column, the user can enable or disable the LAN to Serial function. By default, LAN to Serial function is enabled.

Choose **Enable**, users can control the matrix via LAN.
Choose **Disable**, users cannot control the matrix via LAN.

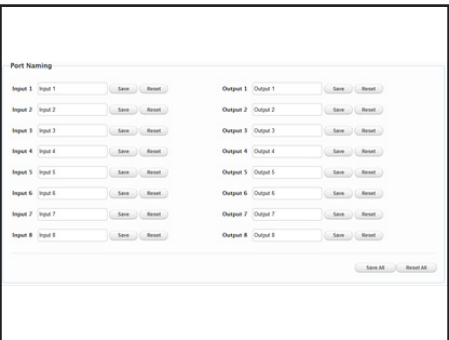


In Advanced Setting Login column, the users can login another setting page. The default password is 123456, click Login button, a new page appears.



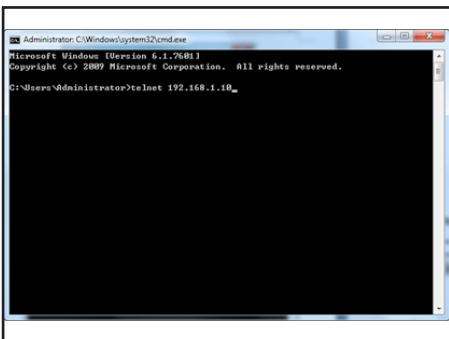
Copies output ports 1-8 EDID to all inputs or specific input ports. Select the output port and input port in the drop-down list, then click on Copy.

The EDID Setting allows users to access and configure EDID settings that can be read, written, saved and recalled, with optimized viewing achieved by writing the output port of a particular display to a specific input port.



Port Naming: Give the sources and displays different names which will be easier for users to remember, user can modify port names in this column.

Click on **Save** to save these modifications, click **Reset** to reset the name.



Telnet

To access the device through Telnet, follow these steps (Window 7 as an example).

- Step 1. Click Start menu, go to Run. Input cmd, click OK.
- Step 2. Input telnet 192.168.0.178, press Enter. Now you can control the matrix.

EDID Management

EDID (Extended Display Identification Data) is data generated from each display in the system to communicate the capabilities of the device. The matrix features an EDID copy mode that can be used when the EDID's do not meet the installation requirements

EDID Presets

Note: If you change the EDID, repower the matrix for the changes to take effect.

EDID Setting	Position 1	Position 2	Position 3
EDID Copy or Manual by Web GUI Control	DOWN	DOWN	DOWN
3840x2160@30Hz / 5.1CH / HDR Support	DOWN	DOWN	UP
1920x1080P@60Hz / 7.1CH	DOWN	UP	DOWN
1920x1080P@60Hz / 5.1CH	DOWN	UP	UP
1920x1080P@60Hz / 2CH	UP	DOWN	DOWN
1920x1080P 3D / 2CH	UP	DOWN	UP
3840x2160@30Hz / 2CH/ HDR Support	UP	UP	DOWN
3840x2160@60Hz / 2CH / HDR Support	UP	UP	UP

RS232 Commands

RS232 Settings:

- 9600 baud
- 8 Data Bits
- 1 Stop Bit
- Parity = none

<CR> = Carriage return.

<LF> = Line feed

All commands will end with <CR><LF>. All commands are in CAPS. If a command is entered incorrectly, device responds with COMMAND ERROR<CR><LF>.

HDCP Management Commands

Description	Command Example	Response
Get HDCP status of source input 14: means HDCP 1.4 22: means HDCP 2.2 off: means Non-HDCP	<i>GET HDCPV IN 01<CR><LF></i>	<i>HDCPV IN 01 14<CR><LF></i>
Enable/Disable HDCP support of matrix input port	<i>SET HDCP IN 01 on<CR><LF></i>	<i>HDCP IN 01 on<CR><LF></i>
Get HDCP support status of matrix input port	<i>GET HDCP IN 01<CR><LF></i>	<i>HDCP IN 01 on<CR><LF></i>
Get Output HDCP Status 14: means HDCP 1.4 22: means HDCP 2.2 off: means Non-HDCP	<i>GET HDCPV OUT 01<CR><LF></i>	<i>HDCPV OUT 01 14<CR><LF></i>

Matrix Routing Commands

Description	Command Example	Response
Get a specific output port routing information	<i>GET 01<CR><LF></i>	<i>02>01<CR><LF></i> <i>Description: Output port 1 is routed to input port 2</i>
SET input/output Routes	<i>SET 04 02<CR><LF></i>	<i>04>02<CR><LF></i>
SET input Routes to all outputs	<i>SET 02 ALL<CR><LF></i>	<i>02>01<CR><LF></i> <i>02>02<CR><LF></i> <i>02>03<CR><LF></i> <i>02>04<CR><LF></i> <i>02>05<CR><LF></i> <i>02>06<CR><LF></i> <i>02>07<CR><LF></i> <i>02>08<CR><LF></i>
Gets routing status of all inputs to all outputs	<i>GET ALL<CR><LF></i>	<i>01>01<CR><LF></i> <i>02>02<CR><LF></i> <i>03>03<CR><LF></i> <i>04>04<CR><LF></i> <i>05>05<CR><LF></i> <i>06>06<CR><LF></i> <i>07>07<CR><LF></i> <i>08>08<CR><LF></i>

EDID Management Commands

Description	Command Example	Response
Copies the EDID from the output to the specified input	<code>EDIDC 03 10<CR><LF></code>	<pre>EDIDC03>01<CR><LF> EDIDC03>02<CR><LF> EDIDC03>03<CR><LF> EDIDC03>04<CR><LF> EDIDC03>05<CR><LF> EDIDC03>06<CR><LF> EDIDC03>07<CR><LF> EDIDC03>08<CR><LF></pre> <p><i>This command only works when the DIP switches are in EDID copy mode.</i></p>
Access the EDID Edit Menu	<code>edm<CR><LF></code>	<code>edm<CR><LF></code>
Write EDID	<code>wed 00 00<CR><LF></code>	<pre>ok<CR><LF></pre> <p><i>After you receive OK, it begins to write the next one "wed subaddr data<CR><LF>", till subaddr changes to 255, and you receive OK, the EDID write is completed.</i></p>
Read EDID	<code>red 00<CR><LF></code>	<code>ok 00<CR><LF></code>
Exit from the Setting Menu	<code>edo<CR><LF></code>	<code>edo<CR><LF></code>

System Commands

Description	Command Example	Response
Saves a matrix state to one of three memory	<i>SAVE 02<CR><LF></i>	<i>PRESET SAVED<CR><LF></i>
Loads a matrix state from one of three memory locations	<i>LOAD 01<CR><LF></i>	01>01<CR><LF> 02>02<CR><LF> 03>03<CR><LF> 04>04<CR><LF> 05>05<CR><LF> 06>06<CR><LF> 07>07<CR><LF> 08>08<CR><LF>
Restores the matrix to factory defaults	<i>RST<CR><LF></i>	<i>RESTORING FACTORY DEFAULTS<CR><LF></i>
System Reboot	<i>REBOOT<CR><LF></i>	<i>Reboot the device <CR><LF></i>
Switch to Standby Mode	<i>STANDBY [CR/LF]</i>	<i>STANDBY! [CR/LF]</i>
Switch to Wake Mode	<i>WAKE [CR/LF]</i>	<i>WAKE! [CR/LF]</i>
Get Standby Status	<i>GET STANDBY [CR/LF]</i>	<i>STANDBY! [CR/LF]</i>

Troubleshooting

Matrix does not power on

- » Verify power outlet is active.
- » Verify continuity in power cable.

Cannot view 4K content

- » Verify the EDID settings of the matrix.
- » Verify display is 4K compatible.
- » Verify source device can output 4K content.

Cannot hear surround sound audio

- » Verify output can broadcast surround sound audio.
- » Verify source device is configured to output surround sound audio.

Technical Specifications

Input/Output Connections	
HDMI Inputs	Eight (8) HDMI Type A Receptacle
HDMI Outputs	Eight (8) HDMI Type A Receptacle
IR All In	One (1) 3.5mm TRS
TCP/IP	One (1) 8P8C Port (Shielded RJ45 Female)
RS232	One (1) DB9 Port Female
Power	One (1) IEC C14
Supported Audio, Video, and Embedded Control	
Video Resolutions	Up to 4K@60Hz 4:4:4 8 bit Color Depth: 1080p 48bit / 4K 24bit
Maximum Passive HDMI Cable Distance	1.5 meters for 4k60 signals
Video Compliance	HDMI 2.0 and HDCP 2.2
Embedded Audio	Up to PCM 8 channel, Dolby Digital TrueHD, and DTS-HD Master Audio
Embedded RS232 Baud Rate	9600 baud
Device Control Parameters	
IR Carrier Frequency Range	33-55kHz at 5 volts
Ethernet	100BaseT
RS232 Baud Rate	9600 baud
Chassis and Environmental	
Enclosure	Painted Aluminum
Dimensions (H x W x D)	43 mm x 437 mm x 299 mm (1.69 in x 17.20 in x 11.77 in) – 1 RU
Shipping Weight	4.22kg (9.30 lbs.)
Operating Temperature	0° to +45° C (+32° to +113° F)
Operating Humidity	10% to 90%, Non-condensing
Storage Temperature	-20° to +70° C (-4° to +140° F)
Storage Humidity	10% to 90%, Non-condensing
Power, ESD, and Regulatory	
Power Supply	100V-240VAC / 50-60 Hz
Power Consumption	45W (Max.)
ESD Protection	8kV air, 4kV contact
Product Regulatory	FCC, CE, RoHS
Other	
Standard Warranty	2 years
Diagnostic Indicators	System LCD
Included Accessories	Installation Guide, IR Remote, IR Receiver, Rack Mounting Ears with Screws, US Power Cable, USB to UART Cable

Distances and picture quality may be affected by cable grade, cable quality, source and destination equipment, RF and electrical interference, and cable patches.

Thank you for your purchase.

Please contact us with your questions and comments.

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