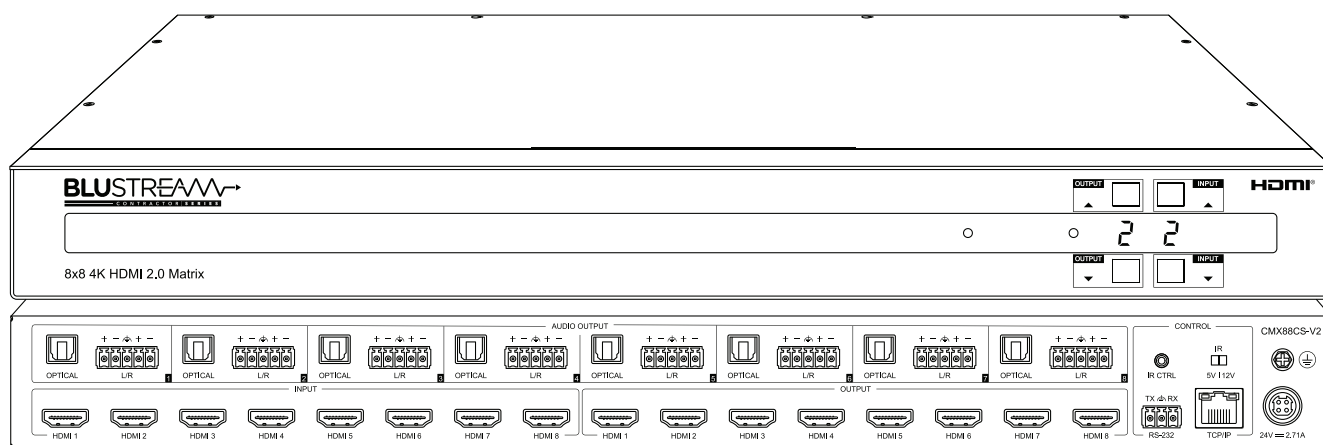




► CMX88CS-V2 User Manual

Thank you for purchasing this product.

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.



Surge Protection Device Recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.



Eco Friendly Packaging

This product has been packaged with fully recyclable materials, including compostable bags. Please help us to help the environment.

Safety and performance notice

Do not substitute or use any other power supply other than approved Blustream power supplies.

Do not disassemble the device for any reason. Doing so will void the manufacturer's warranty.

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Introduction

The Contractor Series CMX88CS-V2 4K 8x8 HDMI Matrix delivers outstanding performance and exceptional value for the Pro and Custom installation markets.

Supporting HDMI 2.0 and HDCP 2.2, the CMX88CS-V2 enables seamless distribution of up to eight HDMI 2.0 sources across eight independent displays, providing complete flexibility to route any source to any screen within a true matrix configuration.

Designed to handle today's demanding AV environments, the unit supports all HDMI video resolutions up to 4K 60Hz 4:4:4, with intelligent automatic downscaling to ensure compatibility with mixed display systems. The matrix also features integrated audio breakout and advanced EDID management per source input, allowing installers to optimise performance and maintain reliable system operation across every installation.

FEATURES:

- Features 8 x HDMI inputs which can be independently routed to 8 x HDMI outputs
- Supports HDMI 2.0 18Gbps specification including HDR
- Supports up to 4K UHD 60Hz 4:4:4
- Video down-conversion on outputs allowing a display only capable of supporting lower video resolutions (4K 60Hz 4:2:0 or 1080p) to receive 4K 60Hz 4:4:4 video content while still showing maximum original 4K UHD resolution on remaining video outputs
- Supports all industry standard video resolutions including VGA-WUXGA and 480i-4K
- Supports bitstream passthrough of multichannel surround sound including object-based audio formats in line with HDMI specifications
- HDMI zone audio breakout to balanced/unbalanced analogue L/R audio and optical digital outputs concurrently
- Control via front panel, IR, RS-232, TCP/IP and web GUI
- 3rd party drivers available for major control brands
- Advanced EDID management
- HDCP2.2 compliant
- 1U design for 19" rack mount integration - mounting kit included

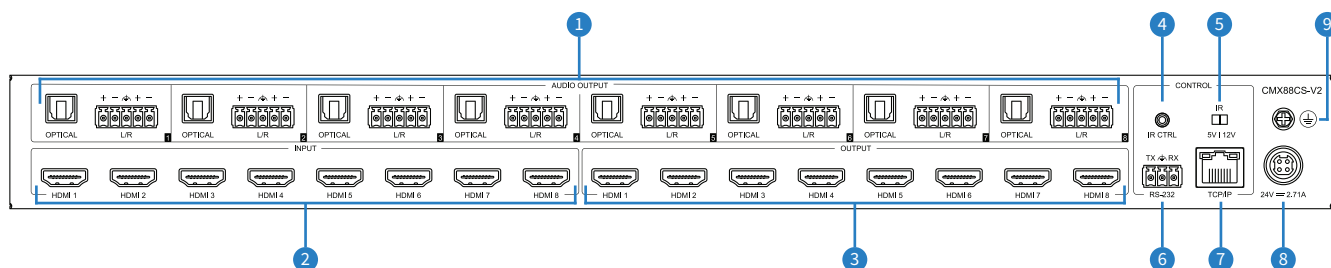
Front Panel Description



- ❶ IR Receiver Window
- ❷ Power Status LED
- ❸ Output Select Up
- ❹ Output Select Down

- ❺ Input Select Up
- ❻ Input Select Down

Rear Panel Description



- ❶ Optical and Analogue Audio Outputs — 8 x balanced/unbalanced 5-pin phoenix connectors & Toslink (S/PDIF)
- ❷ HDMI Input 1-8
- ❸ HDMI Output 1-8
- ❹ IR Control Input — 3.5mm stereo jack

- ❺ IR Select — 5V or 12V
- ❻ RS-232 Serial Port — 3-pin Phoenix connector
- ❼ RJ45 Port — TCP/IP Control
- ❽ Power Supply Input — 24V/2.71A
- ❾ Ground Screw

Resetting the CMX88CS-V2

To reset the CMX88CS-V2 back to factory defaults, press and hold the Output Up and Output Down buttons simultaneously. Hold for at least 10 seconds before releasing.

The reset process takes approximately 30 seconds.

Operation and Connections

Basic operation of the CMX88CS-V2 can be achieved via the front panel: connect the HDMI source devices, the HDMI outputs and power to the rear of the unit:

- Use the Input UP/DOWN and Output UP/DOWN buttons to set routing
- Press and hold Input Up for 3 seconds to turn the CMX88CS-V2 on or off
- Press and hold Output Up for 3 second to enter Port-to-Port (PTP) mode
 - PTP mode routes Input 1 to Output 1, Input 2 to Output 2, etc.
- Press and hold Output Down for 10 seconds to lock or unlock the front panel
 - While locked, the front panel buttons are unable to be used and the LCD will display **Lc**

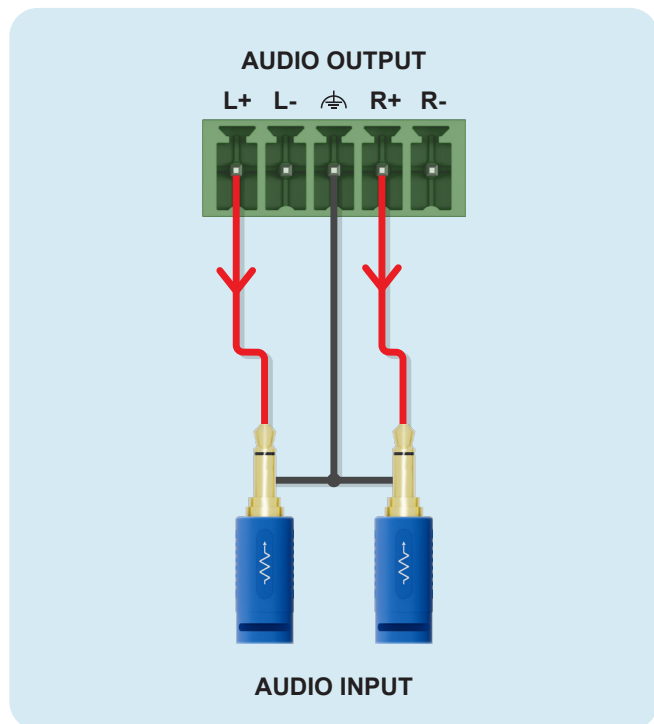
For full configuration, the in-built Web GUI must be utilised.

Audio Wiring Configuration

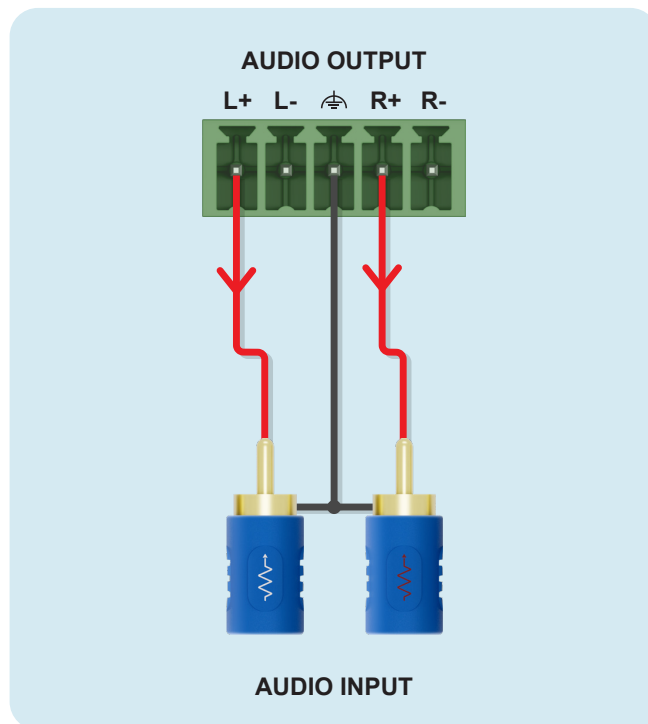
The Audio Output connections provides analogue stereo audio through a balanced Phoenix connector. Use the appropriate wiring configuration below when connecting the output to balanced or unbalanced audio equipment.

Please note: A balanced-to-unbalanced connection may result in a lower gain compared with a balanced-to-balanced connection.

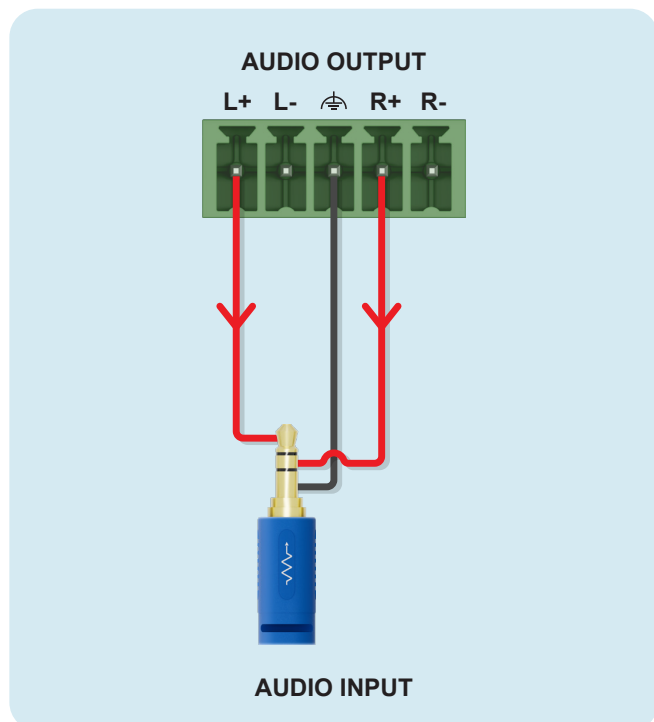
Balanced Phoenix Output to Unbalanced TS Input



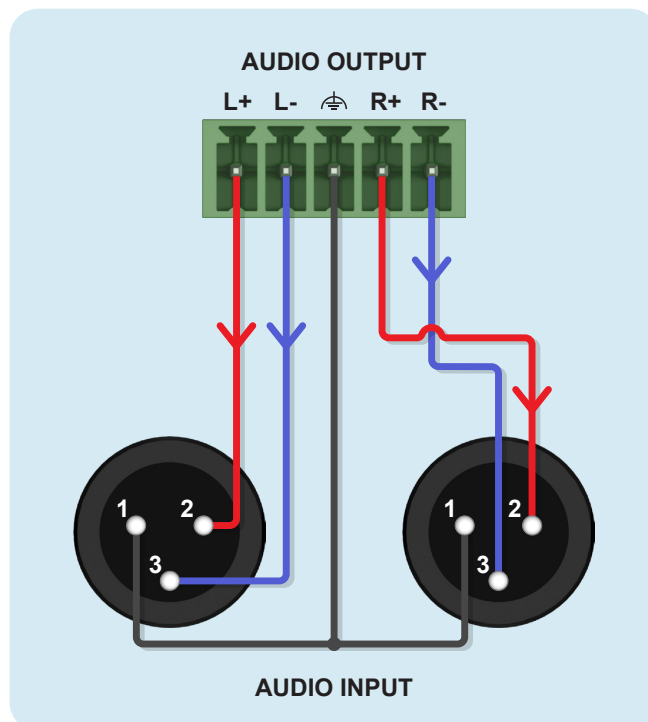
Balanced Phoenix Output to Unbalanced RCA Input



Balanced Phoenix Output to Unbalanced TRS Input



Balanced Phoenix Output to Balanced XLR Input



IR Control

Infrared (IR) control is available via the IR Control 3.5mm jack. This allows control from third-party control systems or direct control using an IR remote.

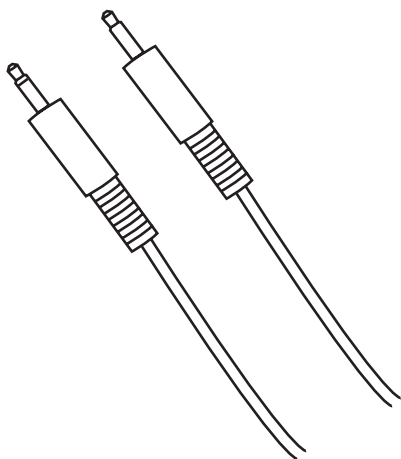
Please note: All Blustream-supplied IR cabling is rated for 5V operation.

IR-CAB - IR Cable 3.5mm Mono to 3.5mm (optional)

Blustream IR 3.5mm Mono (TS) to 3.5mm Stereo (TRS) Cable for linking third party control solutions to Blustream products

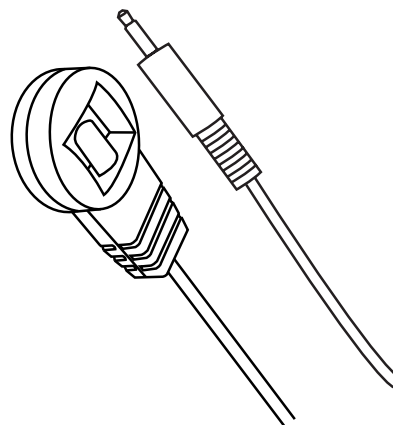
12V to 5V step down conversion

Please note: Cable is directional as indicated

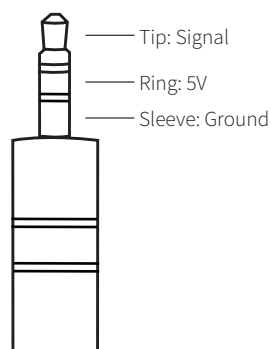


IRR - IR Receiver Stereo 3.5mm Jack (included)

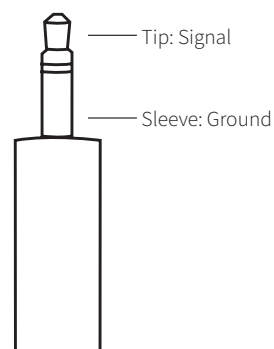
Blustream 5V IR Receiver 3.5mm stereo (TRS) jack to receive an IR signal and distribute through Blustream products



IR Stereo (TRS) 3.5mm Pinout:



IR Mono (TS) 3.5mm Pinout:



Remote Control

Power On / Power Off:

A Select the power button

Input & Output Selection:

B Select the input to be changed

(Numbers 1 - 8 correspond to inputs 1 - 8)

C Select the output to assign to the select input

(Numbers 1 - 8 correspond to outputs 1 - 8)

For example: To assign input 2 to output 4, press 2 in section **B** and 4 in section **C**

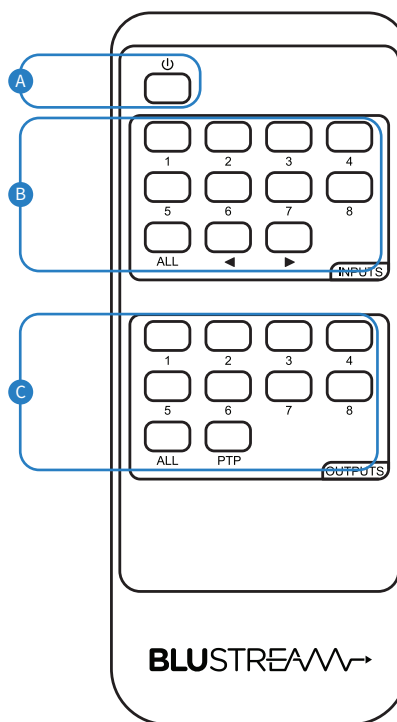
Press < or > to cycle through the inputs for the selected output

All Button:

Pressing All in section **C** selects all outputs. The next selected input will be assigned to all outputs

PTP:

The PTP button maps each input to the same numbered output



EDID Management

EDID (Extended Display Identification Data) is a data structure that is used between a display and a source. This data is used by the source to find out what audio and video resolutions are supported by the display. By pre-determining the video resolution and audio format of the source and display device you can reduce the time needed for EDID hand shaking thus making switching quicker and more reliable.

Configuration of CMX88CS-V2 EDID settings can be achieved by:

- 1 Using control commands

Control Commands:

Configuration of the EDID settings for each input can be achieved using the following control commands to specify the required EDID:

EDID xx DF zz Set Input:xx EDID To Default EDID:zz

xx=00: Select All Input Port
 xx=[01...04]: Select One Input Port
 yy=[01...02]: Select One Output Port
 zz=00: HDMI 1080p@60Hz, Audio 2CH PCM
 zz=01: HDMI 1080p@60Hz, Audio 5.1CH DTS/DOLBY
 zz=02: HDMI 1080p@60Hz, Audio 7.1CH DTS/DOLBY/HD
 zz=03: HDMI 1080i@60Hz, Audio 2CH PCM
 zz=04: HDMI 1080i@60Hz, Audio 5.1CH DTS/DOLBY
 zz=05: HDMI 1080i@60Hz, Audio 7.1CH DTS/DOLBY/HD
 zz=06: HDMI 1080p@60Hz/3D, Audio 2CH PCM
 zz=07: HDMI 1080p@60Hz/3D, Audio 5.1CH DTS/DOLBY
 zz=08: HDMI 1080p@60Hz/3D, Audio 7.1CH DTS/DOLBY/HD
 zz=09: HDMI 4K@30Hz 4:4:4, Audio 2CH PCM
 zz=10: HDMI 4K@30Hz 4:4:4, Audio 5.1CH DTS/DOLBY
 zz=11: HDMI 4K@30Hz 4:4:4, Audio 7.1CH DTS/DOLBY/HD
 zz=12: HDMI 4K@60Hz 4:2:0/4K@30Hz 4:4:4, Audio 2CH PCM
 zz=13: HDMI 4K@60Hz 4:2:0/4K@30Hz 4:4:4, Audio 5.1CH DTS/DOLBY
 zz=14: HDMI 4K@60Hz 4:2:0/4K@30Hz 4:4:4, Audio 7.1CH DTS/DOLBY/HD
 zz=15: HDMI 4K@60Hz 4:4:4, 8-bit, Audio 2CH PCM
 zz=16: HDMI 4K@60Hz 4:4:4, 8-bit, Audio 5.1CH DTS/DOLBY
 zz=17: HDMI 4K@60Hz 4:4:4, 8-bit, Audio 7.1CH DTS/DOLBY/HD
 zz=18: HDMI 4K@60Hz 4:4:4, HDR 10-bit, Audio 2CH PCM
 zz=19: HDMI 4K@60Hz 4:4:4, HDR 10-bit, Audio 5.1CH DTS/DOLBY
 zz=20: HDMI 4K@60Hz 4:4:4, HDR 10-bit, Audio 7.1CH DTS/DOLBY/HD
 zz=21: HDMI 4K@60Hz 4:4:4, HDR 12-bit, Audio 2CH PCM
 zz=22: HDMI 4K@60Hz 4:4:4, HDR 12-bit, Audio 5.1CH DTS/DOLBY
 zz=23: HDMI 4K@60Hz 4:4:4, HDR 12-bit, Audio 7.1CH DTS/DOLBY/HD
 zz=24: HDMI 4K@60Hz 4:4:4, HDR 10-bit (Inc DV), Audio 2CH PCM
 zz=25: HDMI 4K@60Hz 4:4:4, HDR 10-bit (Inc DV), Audio 5.1CH DTS/DOLBY
 zz=26: HDMI 4K@60Hz 4:4:4, HDR 10-bit (Inc DV), Audio 7.1CH DTS/DOLBY/HD
 zz=27: HDMI 4K@60Hz 4:4:4, HDR 12-bit (Inc DV), Audio 2CH PCM
 zz=28: HDMI 4K@60Hz 4:4:4, HDR 12-bit (Inc DV), Audio 5.1CH DTS/DOLBY
 zz=29: HDMI 4K@60Hz 4:4:4, HDR 12-bit (Inc DV), Audio 7.1CH DTS/DOLBY/HD
 zz=30: DVI 1280x1024@60Hz, Audio None
 zz=31: DVI 1920x1080@60Hz, Audio None
 zz=32: DVI 1920x1200@60Hz, Audio None
 zz=33: HDMI 1920x1200@60Hz, Audio 2CH PCM/6CH PCM
 zz=34: User EDID 1
 zz=35: User EDID 2
 zz=36: EDID pass-through (Copy from Sink 1)

Web GUI - Log In and Initialisation

The Web GUI allows for full configuration, ongoing maintenance and control of the CMX88CS-V2 through a web portal. Connect a TCP/IP RJ45 socket to the local network, or directly from a computer, to the CMX88CS-V2 in order to access the Web GUI.

By default, the CMX88CS-V2 is set to obtain an IP address via DHCP; however, if a DHCP server (eg: network router) is not installed, the IP address will revert to below details:

Default IP Address is: **192.168.0.200**

Default Admin Username is: **blustream**

Default Admin Password is: **@Bls1234**

If the IP address of the CMX88CS-V2 is not known, it can be found by:

- Using a 3rd party IP scanning tool
- Using an RS-232 connection and sending 'STATUS' command; this will return all settings of the CMX88CS-V2
- Using the default mDNS hostname address
 - The CMX88CS-V2 can be accessed via its mDNS hostname when the IP address is not known.
 - The default mDNS name is **cmx88cs-v2.local**, which allows devices on the same local network to resolve the product's IP address without requiring a dedicated DNS server.

When initially accessing the Web-GUI of the CMX88CS-V2, the Guest Control page is shown as below. Permissions for the Guest can be set so as to restrict control for users who are not logged in.



Guest Control Page:

The Guest user is able to access the Control page of the Web GUI without logging in. Depending on the permissions set, control for specific inputs, outputs, presets and various Web GUI pages can be accessed from here.

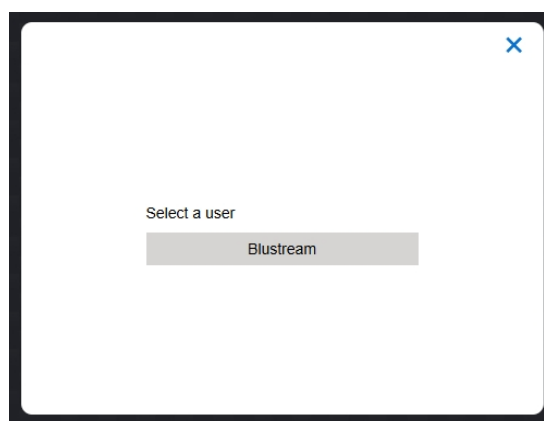
Permissions can be set or revoked from the Users page when logged in, depending on the requirements of the installation.

It is recommended to set permissions for the Guest user to avoid unwanted access or changes.

Login Page:

The Web GUI supports multiple users along with multiple user permissions as follows:

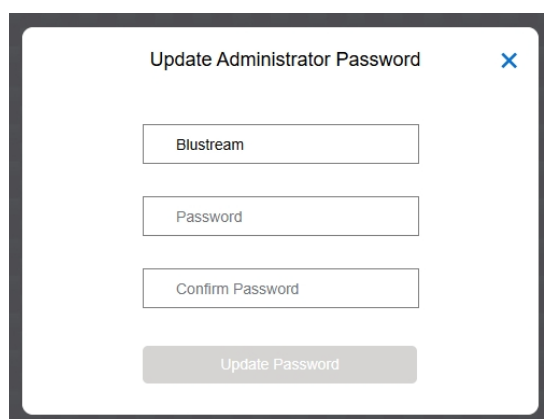
Administrator (Blustream)	The Administrator account allows full access to all functions and configuration of the device and is always enabled
Guest	When enabled, various Web GUI pages can be accessed without logging in depending on the permissions set
User Accounts	User accounts can be utilised, each with individual login details and can be assigned permissions to specific areas and functions



Please note: the first time the Administrator logs into the Web GUI of the CMX88CS-V2 the default password must be changed to a unique password. Please retain this password for future use. Forgetting the password will mean having to factory reset the device, losing all prior network and configuration settings.

New password regulations require passwords being set for products to be a minimum of 8 characters and contain a minimum of: 1 x uppercase letter, 1 x lowercase letter, 1 x symbol and 1 x number.

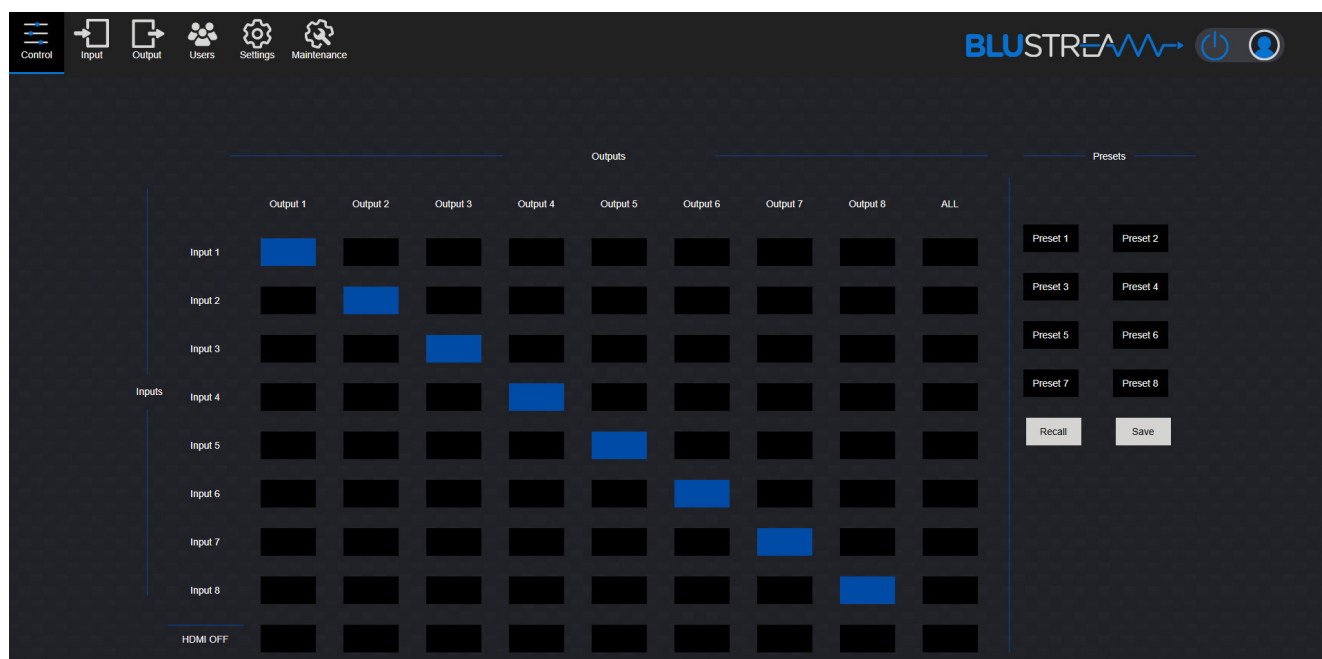
Passwords can be changed as required within the Web GUI of the device once logged in.



Web GUI - Control

Once logged in as the Administrator, the user will be directed to the Control page and additional pages become available from within the Web GUI. These can be navigated to by using the navigation bar at the top of the Web GUI and pressing the corresponding icon.

The Control page allows for input & output selection via control matrix, preset selection, and advanced CEC control (see page 14).



Control Matrix:

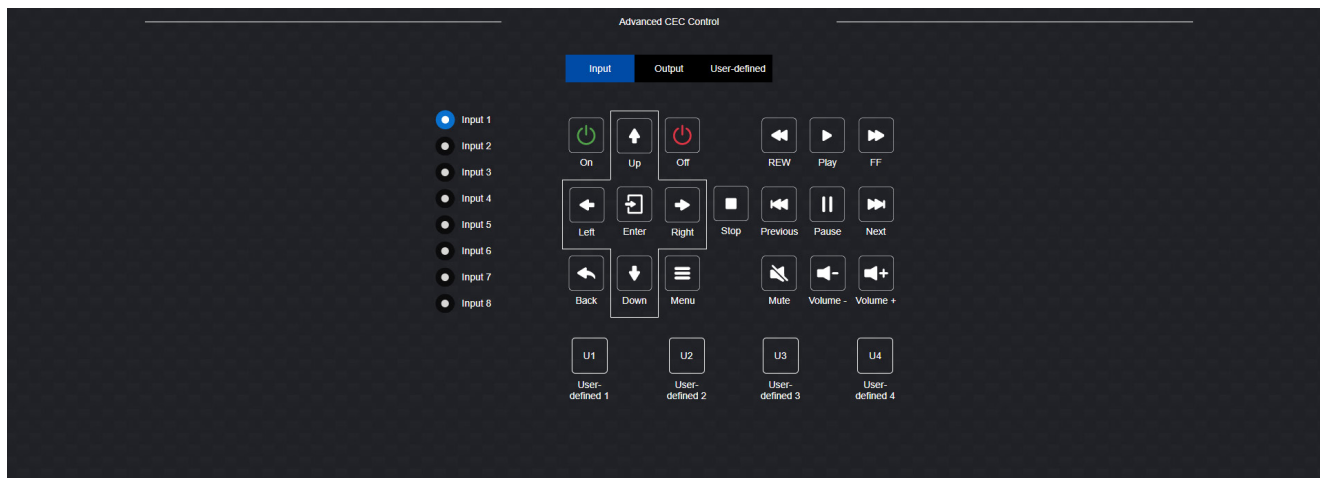
- To route an input to an output, select the button that corresponds with the input (row) and output (column) you wish to change.
- The video and audio of each output can be turned off by pressing the corresponding button in the **HDMI OFF** row.

Presets:

- The CMX88CS-V2 contains 8 custom presets that can be switched to by pressing the corresponding preset button. These can be used to easily recall matrix configurations.
- Once a desired configuration has been set in the control matrix, select a preset button, and then press the **Save** button to assign it. The configuration will be saved to the selected preset number.
- The preset can then be recalled by selecting the desired preset button, and pressing the **Recall** button.

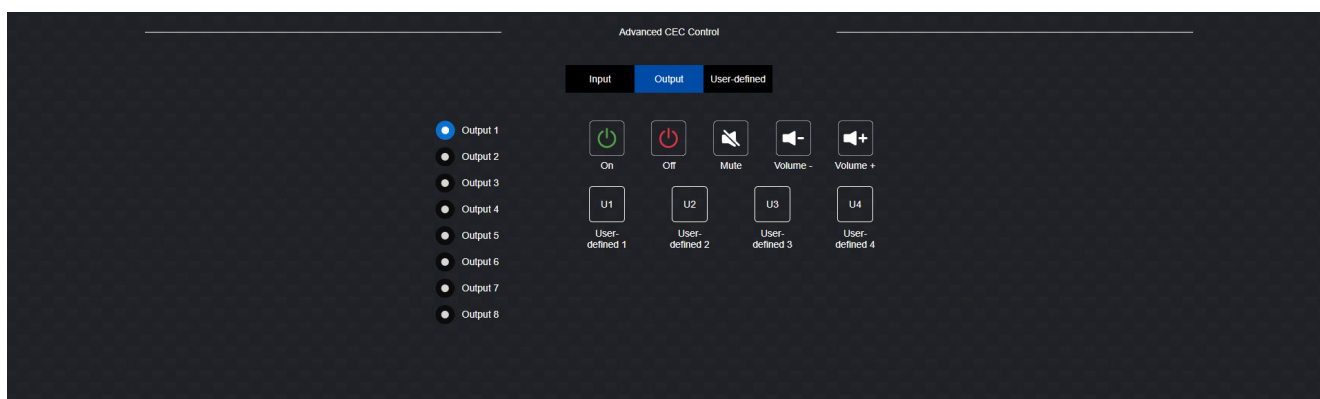
Advanced CEC Control

When Advanced CEC Control is enabled under the Settings page in the Web GUI, the Advanced CEC Control pane will be accessible on the Control page.



The CEC Advanced Control page allows users to send standard and user defined CEC commands to both the input and output connected devices.

Standard CEC commands can be sent by selecting the desired input or output, and pressing the corresponding buttons on the remote control.



Advanced CEC Control (continued)

The CMX88CS-V2 can also store and send up to four user defined CEC commands.

The screenshot displays the 'Advanced CEC Control' web interface with the 'User-defined' tab selected. The interface is divided into two main sections: 'Input' on the left and 'Output' on the right. Each section contains a list of numbered inputs/outputs (Input 1-8 and Output 1-8) with radio buttons. Below each list are two rows of configuration fields: 'Trigger 1' and 'Trigger 2'. Each trigger row includes a text input for the CEC command, a 'Send' button, a 'Button' dropdown menu (currently set to 'none'), a 'Function Name' text input, and a 'Mapping' button. At the bottom center, there is a red 'Reset Button Mapping' button.

Trigger

- Enter the CEC command you want to send

Button

- Select the button number that the command will be assigned to

Function Name

- Enter a descriptive name for the command. This name is displayed across the Web GUI

Send

- Sends the command immediately for testing purposes. Use this button to verify that the command behaves as expected before mapping it

Mapping

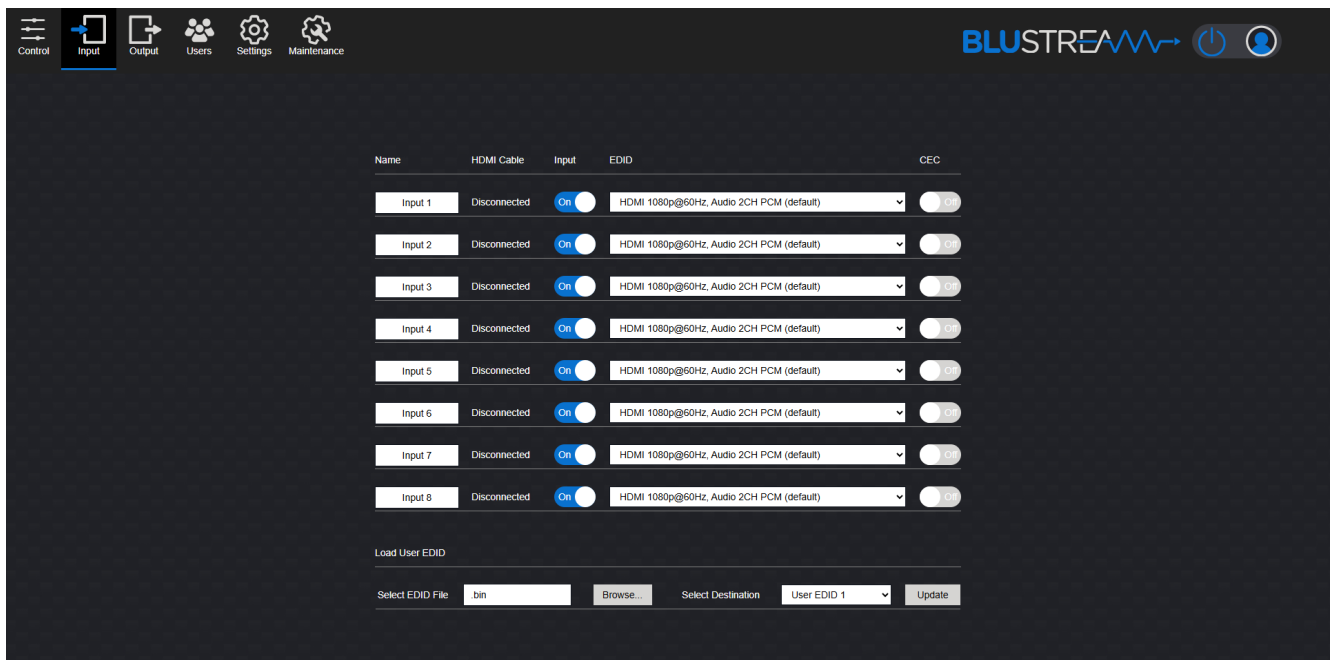
- Saves the command and name, and assigns them to the selected user-defined button

Reset Button Mapping

- Reset all user defined button settings

Web GUI - Input

The Input page allows for configuration of each input the CMX88CS-V2, and loading of custom EDID files.



Name

- Displays the name of the input. The name can be updated by entering a new name into the name field and pressing **Enter**

HDMI Cable

- Displays the connection status of the HDMI input port

Input

- Enable / Disable the input

EDID

- An EDID can be defined for each input, allowing the CMX88CS-V2 to communicate preferred video resolutions and audio formats to the connected source devices
- The drop down menu contains all of the EDIDs supported, the ability to copy the EDID from another output with a connected display, and also the ability to load up to two user defined EDIDs

CEC

- Enable / Disable CEC

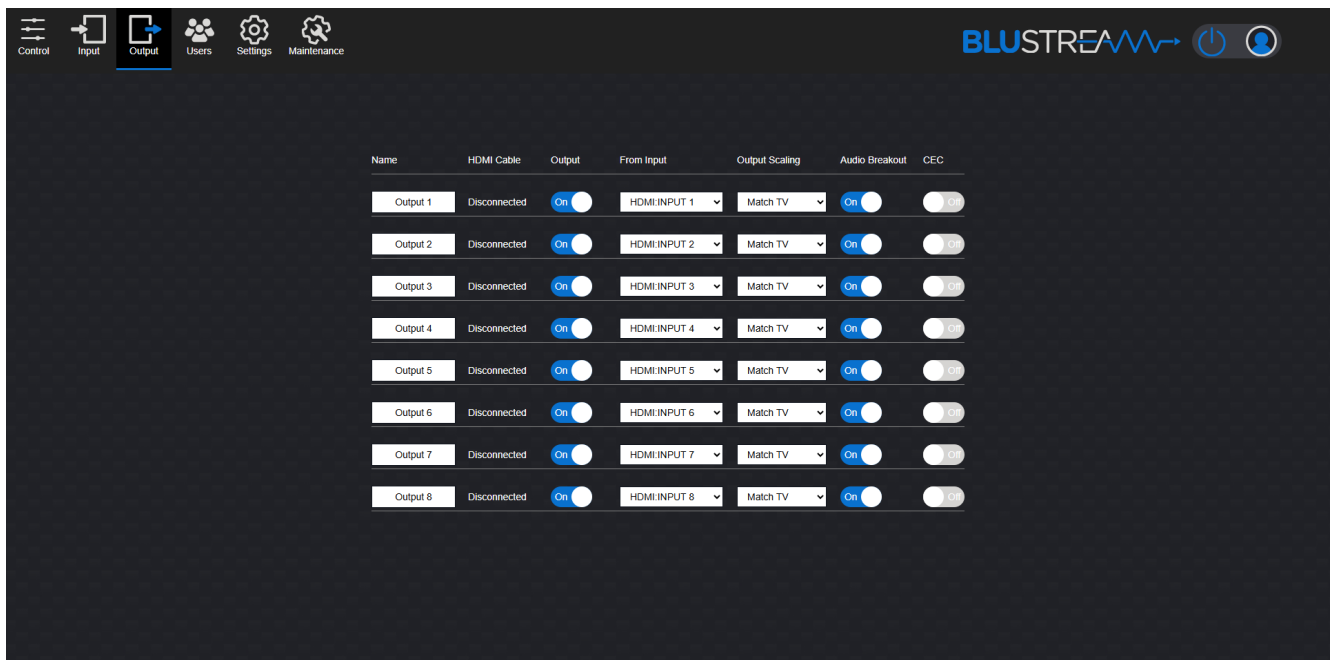
Web GUI - Input (continued)

Load User EDID

- It is possible to upload custom EDID .bin files to the CMX88CS-V2 if a specific EDID is not listed within the included formats. A custom EDID file can be generated from a third party EDID generation tool and uploaded using the **Browse** and **Update** buttons. There are two custom EDID slots available that can be selected via the **Select Destination** dropdown
- Once a file has been uploaded, it's can be directed at any of the four inputs via their EDID dropdown menus and selecting **User EDID 1** or **User EDID 2** respectively.

Web GUI - Output

The Output page allows for configuration of the outputs of the CMX88CS-V2



Name:

- Displays the name of the output. The name can be updated by entering a new name into the name field and pressing **Enter**

HDMI Cable

- Displays the connection status of the HDMI output port

Output

- Enable / Disable the output

From Input

- Manually select an input to route to the output by using a dropdown menu

Output Scaling:

- Select the scaler mode for each output
 - Bypass
 - Force 1080p
 - Match TV

Audio Breakout

- Enable / Disable Audio Breakout on the Toslink (S/PDIF) optical and 5-pin phoenix analogue audio outputs

CEC

- Enable / Disable CEC

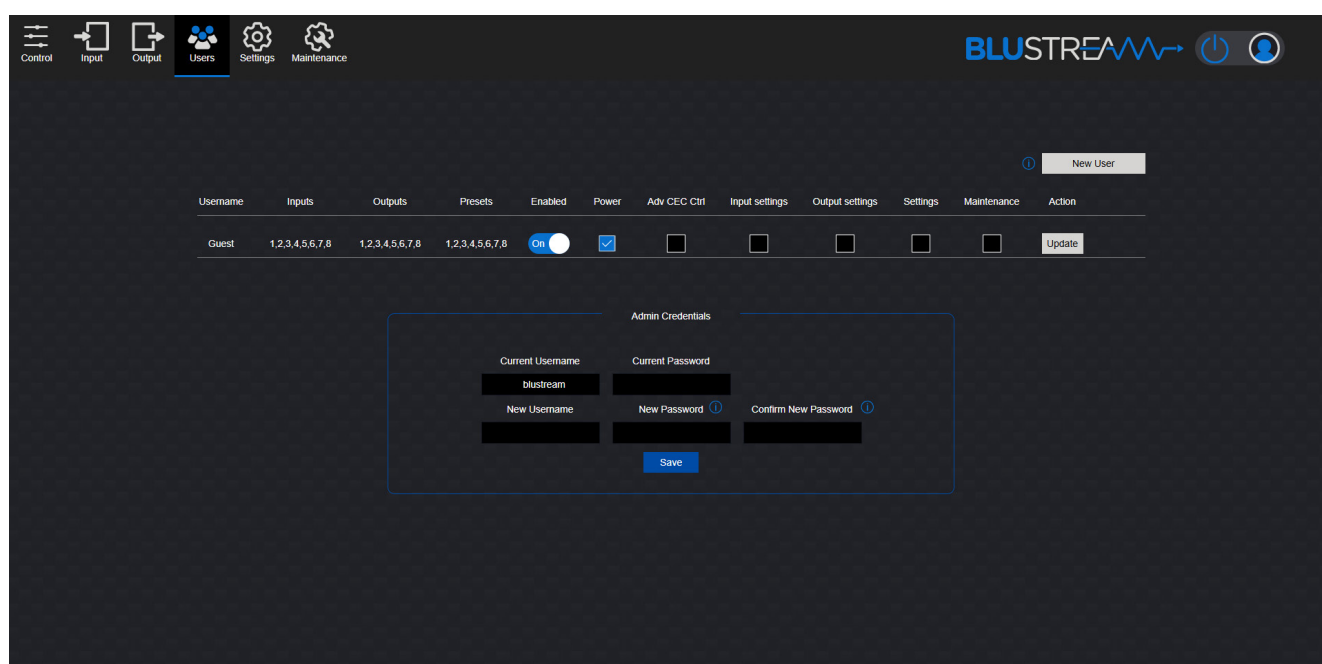
Web GUI - Users

The CMX88CS-V2 offers flexible user management, allowing multiple users to be configured with unique log ins and customisable access privileges. Access to inputs, outputs, presets, and various Web GUI pages can be configured per user.

Please note: A dedicated user should be set up and used after installation of the device in order to prevent non-administrator users from changing settings and potentially damaging connected equipment. The guest user should also be disabled or have permissions set to prevent unwanted access, as they do not require credentials for control of the device.

By default, there is an Administrator and Guest user.

The login details for the Administrator can be modified from **Admin Credentials**.



To add a new user, select **New User**.

Enter a username, password, and select which inputs, outputs and presets the user will be allowed to control.

Press Save to create the new user.

Additional permissions for access to Web GUI pages can be assigned by ticking the corresponding box.

Web GUI - Settings

The Settings page allows for advanced configuration of the CMX88CS-V2.

Front Panel Lock

- Enable / Disable the front panel buttons

Advanced CEC Control

- Enable / Disable Advanced CEC Control on the Control page (see page 14)

LCD Control

- Enable / Disable the seven segment LCD front panel display

Beep Control

- Enable / Disable audio feedback upon system change

Network:

DHCP / Static

- Set the CMX88CS-V2 to obtain an IP address through DHCP or to set a static IP address

MAC Address

- Displays the MAC Address

IP Address

- Set the static IP address of TCP/IP port

Subnet

- Set the subnet mask of the TCP/IP port

Gateway

- Set the gateway address of the TCP/IP port

Press **Save** to apply any changes.

mDNS

- Enable / Disabled mDNS broadcasting

Port 8000

- Enable / Disable TCP/IP Access

Telnet Access

- Enable / Disable Telnet Access

Telnet Port

- Set the Telnet port
- Default is 23

mDNS Name

- mDNS is a protocol used in network environments to resolve hostnames to IP addresses within local networks without the need for a dedicated DNS server. The CMX88CS-V2 is able to be accessed via the hostname if the IP address is not known.
- By default this is set to **cmx88cs-v2.local**

Press **Save** to apply any changes.

Presets Naming

The names of the eight presets can be updated by entering a new name into the name field and pressing **Enter**

IR Control:

Front Panel IR

- Enable / Disable the IR receiver window on the front panel

GUI Logout Time:

Logout Time

- Set the amount of time in minutes until the Web GUI will log out a user

Serial / RS-232:

System Baud Rate

- 2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200

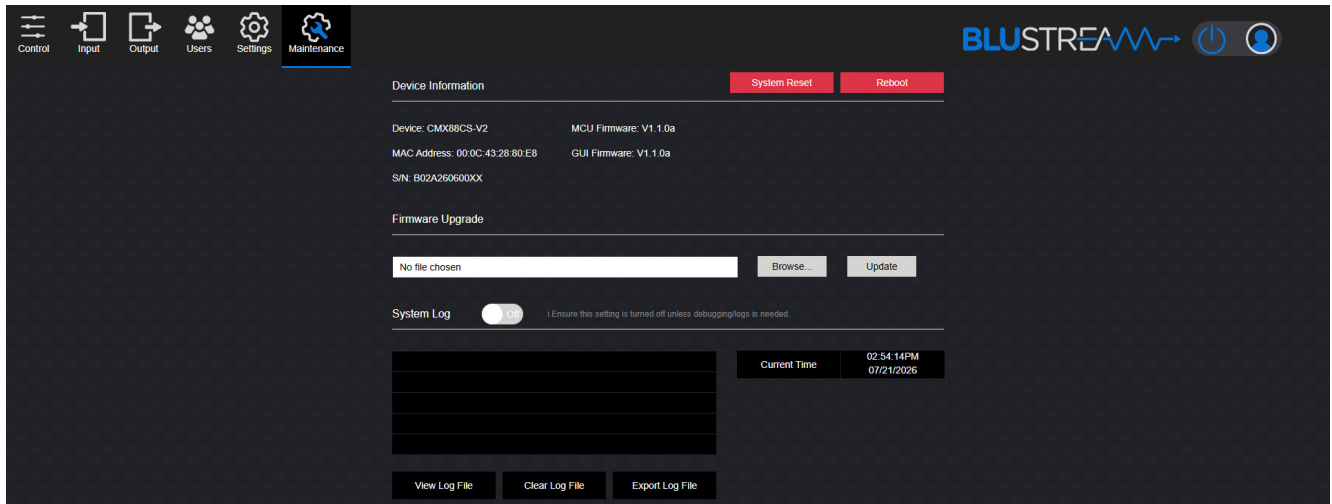
External Control

The CMX88CS-V2 can send RS-232 commands out from its serial port to an external device. This can be used for testing or external serial control of a locally connected device via TCP/IP

- Character Set
 - ASCII / HEX
- Baud Rate
 - 2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200
- Command Ending
 - NULL / CR / LF / CR+LF
- Parity
 - None / Even / Odd
- RS-232 Command
 - Enter the string to send into the input field
 - Press **Send** to transmit the command, or press **Cancel** to clear the command

Web GUI - Maintenance

The Maintenance page allows the firmware of the CMX88CS-V2 to be upgraded. Various debugging tools are also available from this page.



System Reset

- Factory reset the CMX88CS-V2
- To reset but retain network configuration, select Reset System
- To fully reset, select Reset System and Network

Reboot

- Reboots the CMX88CS-V2

Device Information:

Display various system information including firmware version.

Firmware Upgrade:

The latest firmware for the CMX88CS-V2 can be found on the Blustream website.

Download the firmware file and press **Browse** to locate and select the file.

Once selected, press **Update** to begin the upgrade process.

System Log:

The System Log is intended strictly for debugging and advanced troubleshooting. It is recommended to keep this disabled during normal operation.

Enable/Disable

- Switches the background recording of system events on or off

View Log File

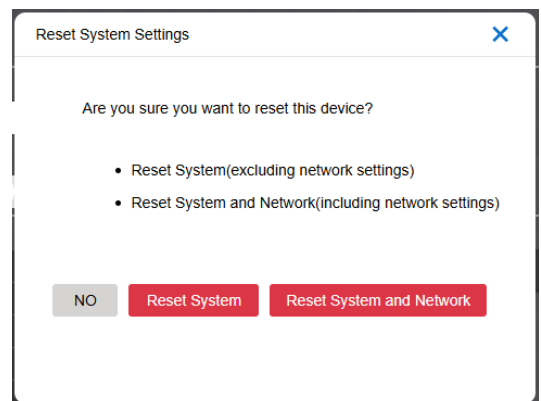
- Opens a window to scroll through current log entries

Clear Log File

- Deletes all current log entries

Export Log File

- Exports the current log entries as a .txt file



Signal Information:

The Signal Information section provides a real time overview of the HDMI signals passing through the CMX88CS-V2.

In addition to signal metadata, each HDMI Output features an Export EDID button, allowing the EDID from a connected display to be captured.

Signal Information		
Input 1	Source Info	-
	Resolution	no signal
	Source	Disconnected
	EDID Detail	1920x1080p@60 SDR 2.0CH LPCM
	CEC	OFF
	Bandwidth	0.00Gbps
Input 2	Source Info	-
	Resolution	no signal
	Source	Disconnected
	EDID Detail	1920x1080p@60 SDR 2.0CH LPCM
	CEC	OFF
	Bandwidth	0.00Gbps
Input 3	Source Info	-
	Resolution	no signal
	Source	Disconnected
	EDID Detail	1920x1080p@60 SDR 2.0CH LPCM
	CEC	OFF
	Bandwidth	0.00Gbps
Input 4	Source Info	-
	Resolution	no signal
	Source	Disconnected
	EDID Detail	1920x1080p@60 SDR 2.0CH LPCM
	CEC	OFF
	Bandwidth	0.00Gbps
Input 5	Source Info	-
	Resolution	no signal
	Source	Disconnected
	EDID Detail	1920x1080p@60 SDR 2.0CH LPCM
	CEC	OFF
	Bandwidth	0.00Gbps
Input 6	Source Info	-
	Resolution	no signal
	Source	Disconnected
	EDID Detail	1920x1080p@60 SDR 2.0CH LPCM
	CEC	OFF
	Bandwidth	0.00Gbps
Input 7	Source Info	-
	Resolution	no signal
	Source	Disconnected
	EDID Detail	1920x1080p@60 SDR 2.0CH LPCM
	CEC	OFF
	Bandwidth	0.00Gbps
Input 8	Source Info	-
	Resolution	no signal
	Source	Disconnected
	EDID Detail	1920x1080p@60 SDR 2.0CH LPCM
	CEC	OFF
	Bandwidth	0.00Gbps
Output 1	Video From	Input 1
	Display Info	-
	Display	Disconnected
	EDID Detail	-
	CEC	OFF
	Bandwidth	0.00Gbps
OUTPUT 1 EDID	Export	
Output 2	Video From	Input 2
	Display Info	-
	Display	Disconnected
	EDID Detail	-
	CEC	OFF
	Bandwidth	0.00Gbps
OUTPUT 2 EDID	Export	
Output 3	Video From	Input 3
	Display Info	-
	Display	Disconnected
	EDID Detail	-
	CEC	OFF
	Bandwidth	0.00Gbps
OUTPUT 3 EDID	Export	
Output 4	Video From	Input 4
	Display Info	-
	Display	Disconnected
	EDID Detail	-
	CEC	OFF
	Bandwidth	0.00Gbps
OUTPUT 4 EDID	Export	

Specifications

- **Video Input Connectors:** 8 x HDMI Type A, 19-pin, female
- **Video Output Connectors:** 8 x HDMI Type A, 19-pin, female
- **Audio Output Connectors:** 8 x Optical Digital (S/PDIF), 8 x 5-pin Phoenix connector (2ch balanced/un-balanced analogue audio)
- **RS-232 serial port:** 3-pin Phoenix connector
- **IR Input ports:** 1 x 3.5mm stereo jack (5V)
- **19" Rack mounting kit included**
- **Casing Dimensions (W x D x H):** 437mm x 226mm x 44mm
- **Dimensions Including Connections & Feet (W x D x H):** 437mm x 226mm x 54mm
- **Shipping Weight:** 5.2kg
- **Operating Temperature:** 32°F to 104°F (0°C to 40°C)
- **Storage Temperature:** -4°F to 140°F (-20°C to 60°C)
- **Power Supply:** 24V 2.71A DC, 4-pin DIN (PS242.71)

NOTE: Specifications are subject to change without notice. Weights and dimensions are approximate.

Package Contents

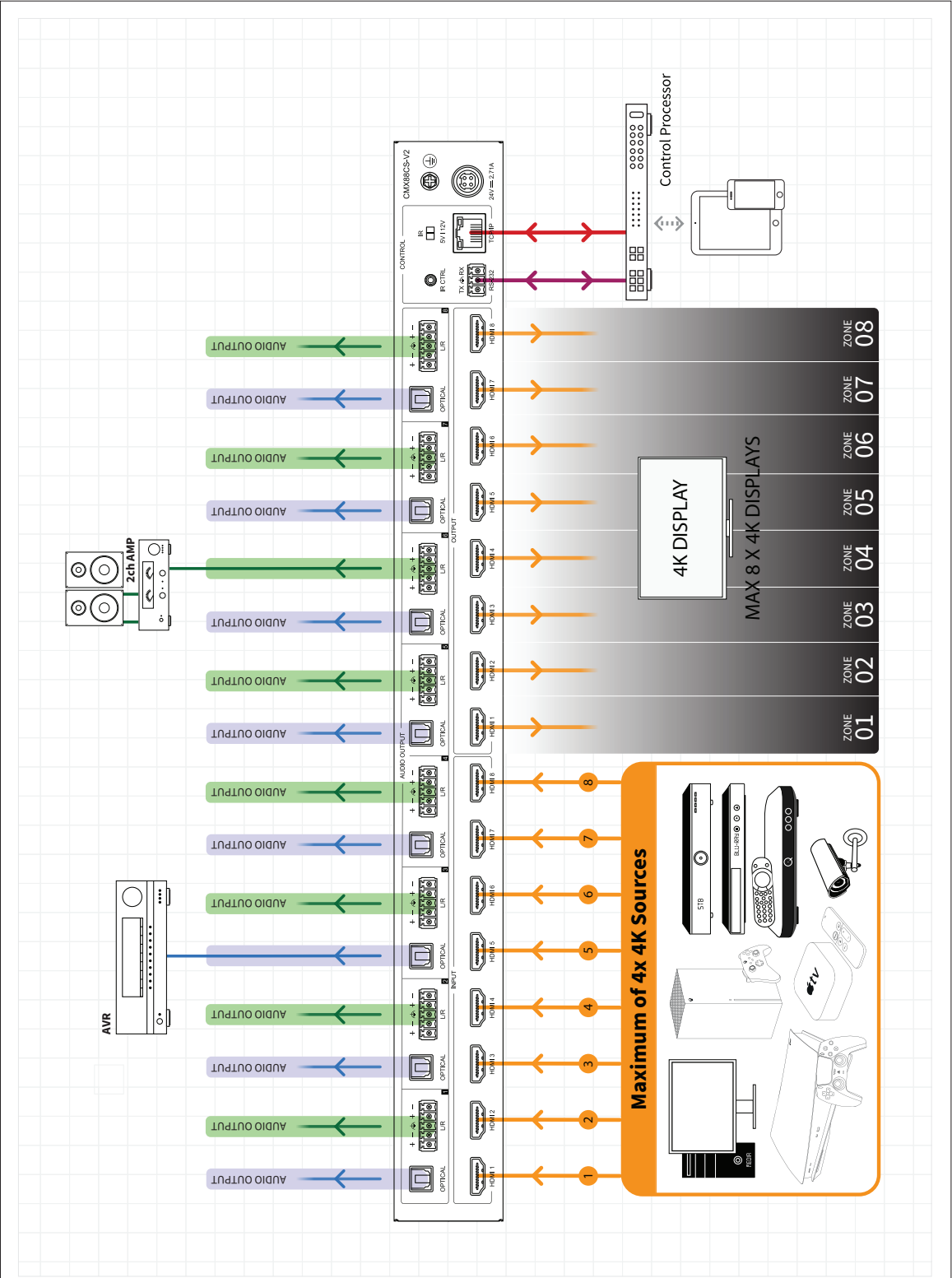
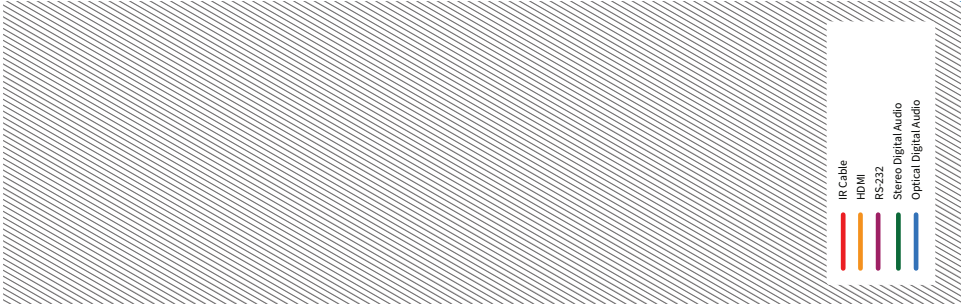
- 1 x CMX88CS-V2
- 1 x 24V 2.71A DC power supply
- 1 x Remote control
- 1 x IRR - IR receiver (5V)
- 1 x Rack mounting kit
- 1 x Quick Reference Card

Maintenance

Clean this device with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this device.

BLUSTREAM
CONTRACTOR SERIES

Example Schematic
CMX88CS-V2



Communication Protocols and Commands

The CMX88CS-V2 can be controlled with control commands via serial (RS-232) and TCP/IP (Telnet, SSH).

The default RS-232 communication settings are:

- **Baud rate:** 57600
- **Data bits:** 8
- **Stop bits:** 1
- **Parity bit:** none

The following pages list all available control commands.

Commonly Used Control Commands:

There are several commands that are commonly used for control and testing:

STATUS	Status will give feedback on the CMX88CS-V2 and connected AVoIP devices.
OUTxxFRyy	Routing an output to an input Example: OUT01FR01 (This would set output 1 to input 1)
PRESETppAPPLY	Recall Preset xx Example: PRE01AP (This would apply Preset 1)

Common Mistakes:

- Control Character
 - Serial terminal applications and control software vary in how they handle command termination. Some applications automatically append a Carriage Return CR and/or Line Feed LF character when transmitting a command. Other applications transmit the command string exactly as entered, requiring control characters to be added manually.
 - Blustream products require a Carriage Return (CR, 0D, /r) + Line Feed (LF, 0A, /n) at the end of each serial command. Commands that are not terminated with these characters will not be recognized.
 - Before troubleshooting serial communication issues, confirm how the application handles command termination and ensure that CR and LF characters are appended to every transmitted command.
- Spaces
 - Blustream commands do not require space between commands unless specified. There may be some applications that require spacing in order to work.
 - How the string should look is as follows: OUTON
 - How the string may look if spaces are required: OUT{Space}ON
- Baud rate, or other serial protocol settings, not set correctly

Communication Protocols and Commands (continued)

COMMAND	ACTION
?/HELP	Print Help Information
REBOOT	Reboot System
STATUS	Print System Status And Port Status
INSTA	Print All Input Status
OUTSTA	Print All Output Status
CTRLSTA	Print All Control Status
PRESETSTATUS	Print All Preset Configurations
OUT xx DIAG	Get Output xx Diagnostics Status xx = [00-08] : 00 : All Outputs, Output 1 - 8
IN xx DIAG	Get Input xx Diagnostics Status xx = [00-08] : 00 : All Inputs, Input 1 - 8
FWVER	Print All Firmware Version
PON/OFF	Set System Power On Or Off
KEY ON/OFF	Set System Key Control On Or Off
IR ON/OFF	Set System Front Panel IR Control On Or Off
BEEP ON/OFF	Set Onboard Beep On Or Off
LCD ON/OFF	Set LCD Always On Or Set LCD Off After No Operation 30 Seconds
RESET	Reset System To Default Setting
RESET ALL	Reset System And Network To Default Setting (Type ""Yes"" To Confirm, Or Send Other Command To Discard)
DIAGPRINT ON/OFF	Enable Or Disable Diagnostics Log Print
SYSTEMLOG ON/OFF	Enable Or Disable System Log Print
IN yy ON	Set Input yy On
IN yy OFF	Set Input yy Off yy = 00 : All Inputs yy = [01-08] : Input 1 - 8
OUT xx ON	Set Output xx On
OUT xx OFF	Set Output xx Off xx = 00 : All Outputs xx = [01-08] : Output 1 - 8
OUT xx FR yy	Set Output xx From Input yy xx = 00 : All Outputs xx = [01-08] : Output 1 - 8 yy = [01-08] : Input 1 - 8
OUT xx SCALING	yy Set Output:xx Video Mode zz xx = 00 : All Outputs xx = [01-08] : Output 1 - 8 zz=[01]: Select Output Port Video Mode Bypass zz=[02]: Select Output Port Video Mode Force 1080p zz=[03]: Select Output Port Video Mode Match TV

COMMAND	ACTION
	Set Input xx EDID To Default EDID zz xx = Input On Product (00 Refers To ALL Inputs, 02 = Input 2 Etc) zz = 00 : HDMI 1080p@60Hz, Audio 2CH PCM (Default) 01 : HDMI 1080p@60Hz, Audio 5.1CH DTS/DOLBY 02 : HDMI 1080p@60Hz, Audio 7.1CH DTS/DOLBY/HD 03 : HDMI 1080i@60Hz, Audio 2CH PCM 04 : HDMI 1080i@60Hz, Audio 5.1CH DTS/DOLBY 05 : HDMI 1080i@60Hz, Audio 7.1CH DTS/DOLBY/HD 06 : HDMI 1080p@60Hz/3D, Audio 2CH PCM 07 : HDMI 1080p@60Hz/3D, Audio 5.1CH DTS/DOLBY 08 : HDMI 1080p@60Hz/3D, Audio 7.1CH DTS/DOLBY/HD 09 : HDMI 4K@30Hz 4:4:4, Audio 2CH PCM 10 : HDMI 4K@30Hz 4:4:4, Audio 5.1CH DTS/DOLBY 11 : HDMI 4K@30Hz 4:4:4, Audio 7.1CH DTS/DOLBY/HD 12 : HDMI 4K@60Hz 4:2:0/4K@30Hz 4:4:4, Audio 2CH PCM 13 : HDMI 4K@60Hz 4:2:0/4K@30Hz 4:4:4, Audio 5.1CH DTS/DOLBY 14 : HDMI 4K@60Hz 4:2:0/4K@30Hz 4:4:4, Audio 7.1CH DTS/DOLBY/HD 15 : HDMI 4K@60Hz 4:4:4, 8-bit, Audio 2CH PCM 16 : HDMI 4K@60Hz 4:4:4, 8-bit, Audio 5.1CH DTS/DOLBY 17 : HDMI 4K@60Hz 4:4:4, 8-bit, Audio 7.1CH DTS/DOLBY/HD 18 : HDMI 4K@60Hz 4:4:4, HDR 10-bit, Audio 2CH PCM 19 : HDMI 4K@60Hz 4:4:4, HDR 10-bit, Audio 5.1CH DTS/DOLBY 20 : HDMI 4K@60Hz 4:4:4, HDR 10-bit, Audio 7.1CH DTS/DOLBY/HD 21 : HDMI 4K@60Hz 4:4:4, HDR 12-bit, Audio 2CH PCM 22 : HDMI 4K@60Hz 4:4:4, HDR 12-bit, Audio 5.1CH DTS/DOLBY 23 : HDMI 4K@60Hz 4:4:4, HDR 12-bit, Audio 7.1CH DTS/DOLBY/HD 24 : HDMI 4K@60Hz 4:4:4, HDR 10-bit(Inc DV), Audio 2CH PCM 25 : HDMI 4K@60Hz 4:4:4, HDR 10-bit(Inc DV), Audio 5.1CH DTS/DOLBY 26 : HDMI 4K@60Hz 4:4:4, HDR 10-bit(Inc DV), Audio 7.1CH DTS/DOLBY/HD 27 : HDMI 4K@60Hz 4:4:4, HDR 12-bit(Inc DV), Audio 2CH PCM 28 : HDMI 4K@60Hz 4:4:4, HDR 12-bit(Inc DV), Audio 5.1CH DTS/DOLBY 29 : HDMI 4K@60Hz 4:4:4, HDR 12-bit(Inc DV), Audio 7.1CH DTS/DOLBY/HD 30 : DVI 1280x1024@60Hz, Audio None 31 : DVI 1920x1080@60Hz, Audio None 32 : DVI 1920x1200@60Hz, Audio None 33 : HDMI 1920x1200@60Hz, Audio 2CH PCM/6CH PCM 34 : User EDID 1 35 : User EDID 2 36 : EDID pass-through (copy from Sink 1)
EDID xx DF zz	
EDID xx CP yy	Copy EDID From Output yy To Input xx xx = [00-08] : 00 : All Inputs ,Input 1 - 8 yy = [01-08] : Output 1 - 8
EDID SAVE yy TO zz	Save External EDID yy Into Slot zz yy = [01-08]: EDID Copy Output 1 - 8 yy = 00: EDID Via RS232 Send To Matrix zz = 00: All User EDID zz = 01 or 34: User EDID 1 zz = 02 or 35: User EDID 2

Communication Protocols and Commands (continued)

COMMAND	ACTION
PRESET pp SAVE	Save Current Output Connections To Preset pp Config
PRESET pp CLR	Delete Preset pp Config pp = [00-09] : 00 : All Presets, Preset 1 - 9
PRESET pp APPLY	Apply Preset pp Config To Output Connection pp = [01-09] : Presets 1 - 9
AUDOUT xx ON/OFF	Set Audio Output xx On/Off xx = 00: All Audio Outputs xx = 01 - 08: Audio Output 1 To 8
OUTxx CEC ENABLE	Enable CEC Control On Output xx
OUTxx CEC DISABLE	Disable CEC Control On Output xx
OUTxx CEC OK	Confirm Operation (Enter) On Output xx
OUTxx CEC UP	UP On Output xx
OUTxx CEC DOWN	DOWN On Output xx
OUTxx CEC LEFT	LEFT On Output xx
OUTxx CEC RIGHT	RIGHT On Output xx
OUTxx CEC RETURN	RETURN On Output xx
OUTxx CEC EXIT	EXIT On Output xx
OUTxx CEC VOLUP	VOLUME UP On Output xx
OUTxx CEC VOLDOWN	VOLUME DOWN On Output xx
OUTxx CEC MUTE	Toggle Audio MUTE Status On Output xx
OUTxx CEC PLAY	PLAY On Output xx
OUTxx CEC STOP	STOP On Output xx
OUTxx CEC PAUSE	PAUSE On Output xx
OUTxx CEC RECORD	RECORD On Output xx
OUTxx CEC INPUTyy	Input Channel yy Selection On Output xx, The Operation Needs To Wait For TV Communication To Succeed xx = 00: All Output Port xx = [01-08]: Output 1 - 8 yy = [01-04]: TV's HDMI Input 1 - 4 yy = [00]: Current HDMI Input yy = []:(No Parameter) Will Show Input Select Menu If TV Support
OUTxx CEC POFF	POWER OFF On Output xx
OUTxx CEC PON	POWER ON On Output xx xx = 00: All Output Port xx = [01-08]: Output 1 - 8
INxx CEC ENABLE	Enable CEC Control On Input xx
INxx CEC DISABLE	Disable CEC Control On Input xx
INxx CEC OK	Confirm Operation (Enter) On Input xx
INxx CEC UP	UP On Input xx
INxx CEC DOWN	DOWN On Input xx
INxx CEC LEFT	LEFT On Input xx
INxx CEC RIGHT	RIGHT On Input xx
INxx CEC RETURN	RETURN On Input xx
INxx CEC EXIT	EXIT On Input xx
INxx CEC VOLUP	VOLUME UP On Input xx
INxx CEC VOLDOWN	VOLUME DOWN On Input xx
INxx CEC PLAY	PLAY On Input xx
INxx CEC STOP	STOP On Input xx
INxx CEC PAUSE	PAUSE On Input xx
INxx CEC RECORD	RECORD On Input xx

COMMAND	ACTION
INxx CEC REWIND	REWIND On Input xx
INxx CEC FF	FAST FORWARD On Input xx
INxx CEC FWD	FORWARD On Input xx
INxx CEC BWD	BACKWARD On Input xx
INxx CEC POFF	POWER OFF On Input xx
INxx CEC PON	POWER ON On Input xx xx = 00: All Input Port xx = [01-08]: Input 1 - 8
CECUSERCMD <u8DevID u8Addr u8Opcode pu8Operand[MAX]>	u8DevID: 00 Select All CEC Input Port u8DevID: [01-08] Input 1 - 8 u8DevID: F0 Select All CEC Output Port u8DevID: [F1-F8] Output 1 - 8 pu8Operand[MAX] : MAX 0 - 14 Eg:CECUSERCMD <F0 40 44 41 > (ALL OUT CEC VOLUP) Eg:CECUSERCMD <F0 40 44 42 > (ALL OUT CEC VOLDOWN)
RSB x	Set RS232 Baud Rate To x bps x = 0 115200, 1 57600 (Default), 2 38400, 3 19200, 4 9300, 5 4800, 6 2400
RS232ONOUT y:z:a	Send y Type Of Command a Stored In Local RS232 Whose Baud Rate Is z y = a ASCII, h HEX z = 0 115200, 1 57600 (Default), 2 38400, 3 19200, 4 9300, 5 4800, 6 2400 a = RS232 Command
NET DHCP ON/OFF	Set Auto IP(DHCP) On Or Off
NET TN ON/OFF	Set Telnet Port On Or Off
NET TN8000 ON/OFF	Set Telnet Port 8000 On Or Off
NET MDNS ON/OFF	Set mDNS On Or Off
NET MDNS xxxx.local	Set mDNS Name to xxxx.local
NET IP xxx.xxx.xxx.xxx	Set IP Address
NET GW xxx.xxx.xxx.xxx	Set Gateway Address
NET SM xxx.xxx.xxx.xxx	Set Subnet Mask Address
NET RB	Set Network Reboot And Apply New Config!!!
NET TN xxxx	Set Telnet Port
NET GW xxx.xxx.xxx.xxx	Set Gateway Address
NET SM xxx.xxx.xxx.xxx	Set Subnet Mask Address
NET RB	Set Network Reboot And Apply New Config!!!
NET TN xxxx	Set Telnet Port

IR Commands

[illegible]

Certifications

FCC Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

CAUTION - changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Canada, Industry Canada (IC) Notices

This Class B digital apparatus complies with Canadian ICES-003.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Canada, avis d'Industry Canada (IC)

Cet appareil numérique de classe B est conforme aux normes canadiennes ICES-003.

Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas causer d'interférence et (2) cet appareil doit accepter toute interférence, notamment les interférences qui peuvent affecter son fonctionnement.

Correct Disposal of this product

This marking indicates that this product should not be disposed with other household wastes. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmentally safe recycling.





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