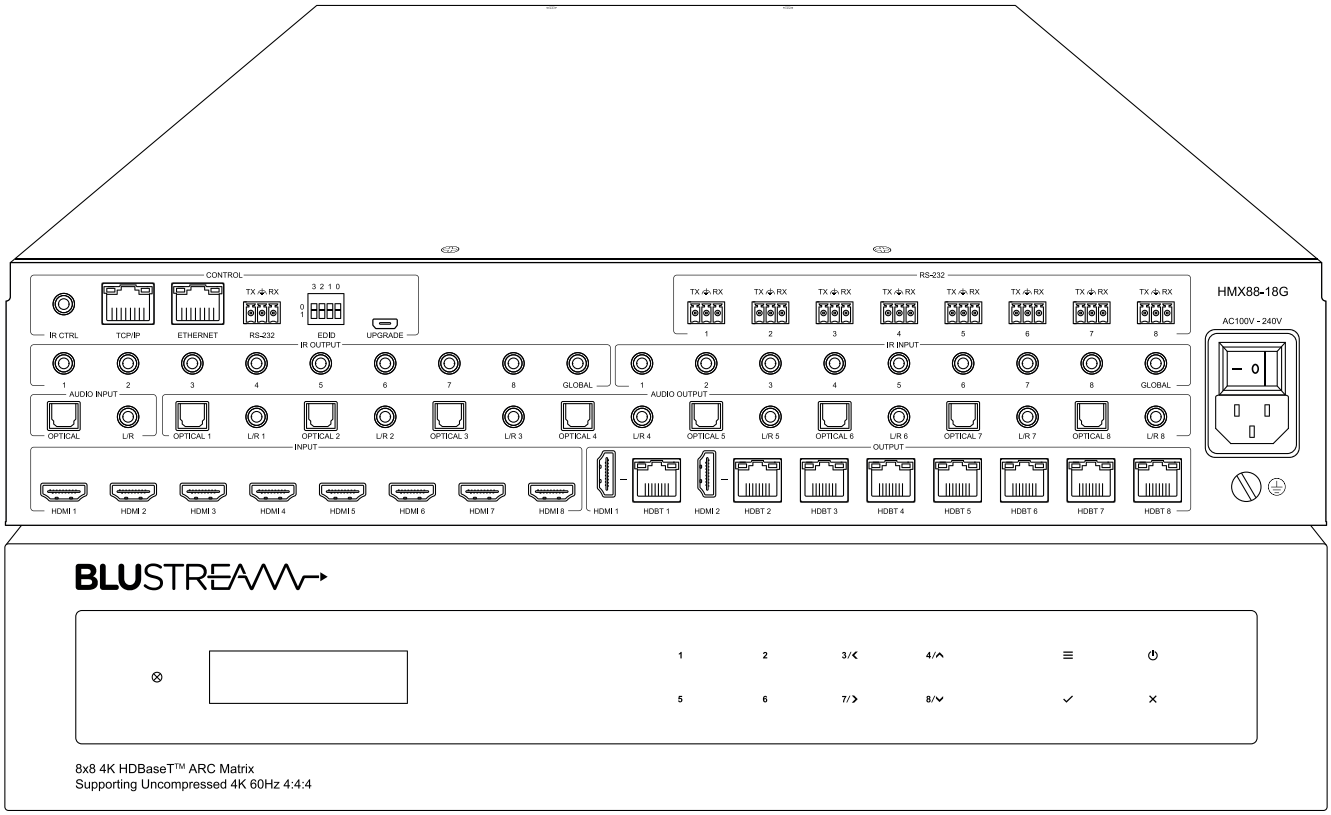


HMX88-18G

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.

Contents

Introduction

The HMX88-18G Matrix is an industry leading uncompressed, unconverted 8 x 8 HDMI 2.0 4K 60Hz 4:4:4 HDCP 2.3/2.2 solution utilising the latest in HDBaseT™ technology to deliver HDMI, Bi-directional IR & RS-232, ARC, Ethernet and PoC up to lengths of 100m over a single CAT cable.

The HMX88-18G supports uncompressed distribution of the latest HDR resolutions including HDR10/10+ and Dolby Vision resulting in the ultimate in picture quality for your critical viewing areas.

The Matrix also provides advanced features including simultaneous HDBaseT™/HDMI on outputs 1 & 2, video Smart Scaling on HDBaseT™ outputs and independent 26 x 8 audio matrix including ARC. The HMX88-18G includes in-built web browser interface module for control and configuration of the Matrix and RS-232, IR and Ethernet pass through to enable seamless 3rd party control integration.

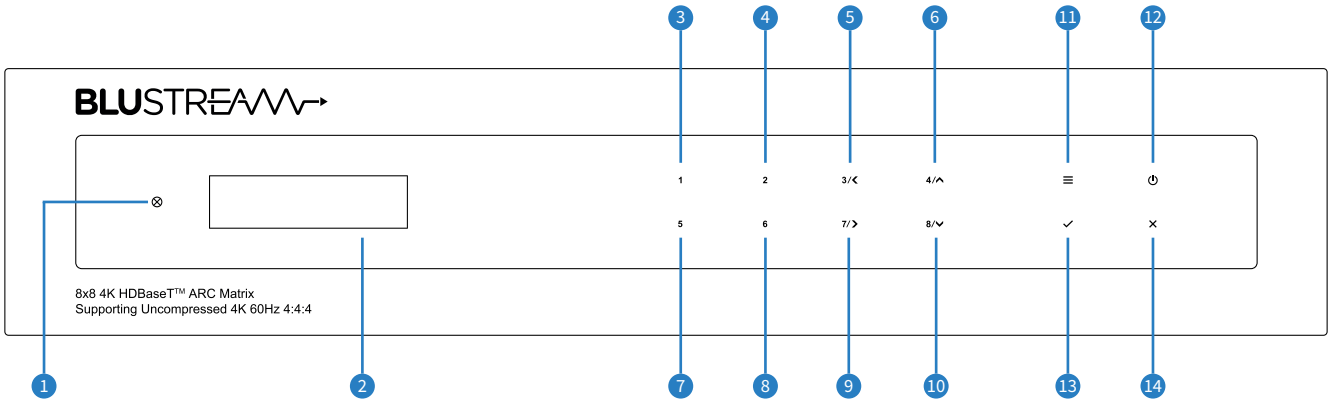
FEATURES:

- Advanced uncompressed, unconverted, HDMI over HDBaseT™ technology offering distribution of bit-for-bit 4K HDMI video and audio over a single CAT6A cable
- Features 8 x HDMI inputs which can be independently routed to 8 x HDBaseT™ outputs
- Output 1 & 2 features simultaneous HDMI and HDBaseT™ outputs
- Supports distribution of uncompressed HDMI2.0 18Gbps specification including 4K 60Hz 4:4:4 UHD video up to 100m
- Supports distribution of the latest HDR resolutions including HDR10/10+ and Dolby Vision
- 26 x 8 Audio Matrix independently controllable from video. Audio source inputs include:
  - 8 x audio breakout from HDMI source inputs
  - 8 x audio breakout from zone outputs
  - 8 x ARC from zone outputs
  - 1 x Optical and 1 x Analogue audio input
- Supports bitstream passthrough of multichannel surround sound including object-based audio formats in line with HDMI specifications
- Integrated Ethernet switch (LAN Serving) when used with Blustream RX18G receiver (1Gb maximum)
- Web interface module for control and configuration of Matrix
- Supports bi-directional IR and RS-232 on all HDBaseT™ outputs
- Control via front panel, IR, iOS / Android App, RS-232 and TCP/IP
- Supports PoC (Power over Cable) to power compatible HDBaseT™ receivers
- Advanced EDID management and HDCP 2.2 compliant

Please note: Transmission distance is subject to video format, cable type and installation environment. The HDBaseT3™ specification is based on using CAT6A F/UTP infrastructure or better. The use of CAT5e is not supported and CAT6 is not recommended due to potential bandwidth and performance issues.

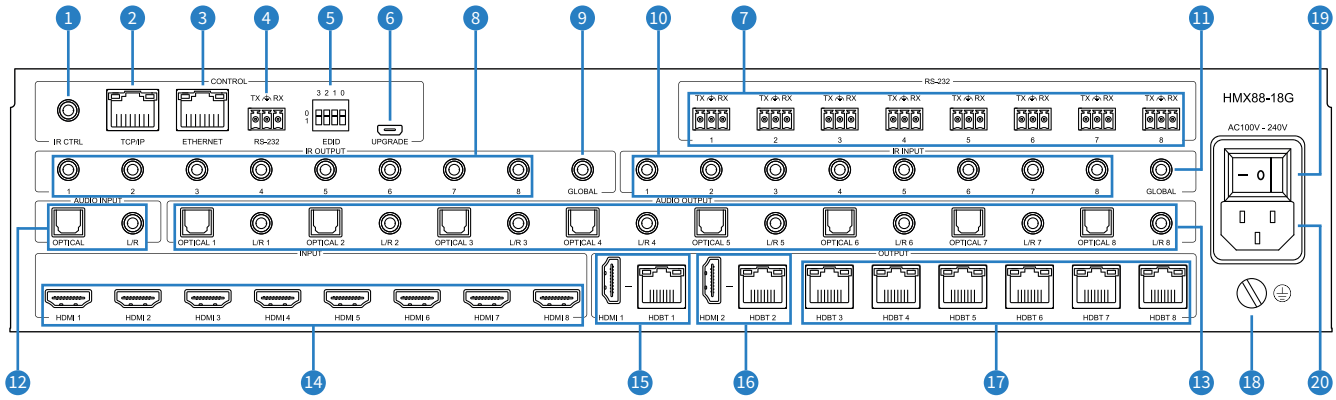
Please note: ARC feature supports HDMI ARC or Optical ARC. Compatible with RX18G only

Front Panel Description



1. IR Receiver Window
2. LCD Display — displays status of input & output selection
3. Selection 1 Button — routes input/output 1
4. Selection 2 Button — routes input/output 2
5. Selection 3 / Left Button — routes input/output 3, navigates left in menu
6. Selection 4 / Up Button — routes input/output 4, navigates up in menu
7. Selection 5 Button — routes input/output 5
8. Selection 6 Button — routes input/output 6
9. Selection 7 / Right Button — routes input/output 7, navigates right in menu
10. Selection 8 / Down Button — routes input/output 8, navigates down in menu
11. Menu Button — access front panel system menu
12. Power Button — toggle power on or off
13. Confirm Button
14. Cancel Button

Rear Panel Description



1. IR Control Port — 3.5mm stereo connector for IR control
2. TCP/IP Port — RJ45 port for network control
3. Ethernet Port — RJ45 port for Ethernet passthrough to HDBaseT™ receivers
4. RS-232 Serial Port — 3-pin Phoenix connector for serial control
5. EDID DIP Switches — used to set global EDID
6. Upgrade Port — micro-USB for firmware updates
7. Bi-directional RS-232 Ports — 8 x 3-pin Phoenix connectors for RS-232 pass-through to HDBaseT™ receivers
8. IR Outputs — 3.5mm jacks for local IR control
9. IR Global Output — 3.5mm jack for system-wide IR output
10. IR Inputs — 3.5mm jacks for IR extension via HDBaseT™
11. IR Global Input — 3.5mm jack for system-wide IR input
12. Analogue and Optical Audio Input — 3.5mm unbalanced stereo jack and Toslink (S/PDIF) input for audio embedding
13. Analogue and Optical Audio Outputs — 8 x 3.5mm unbalanced stereo jacks and 8 x Toslink (S/PDIF) outputs for audio breakout
14. HDMI Input 1-8
15. HDMI & HDBaseT™ Output 1 — HDMI loop-out for a local display
16. HDMI & HDBaseT™ Output 2 — HDMI loop-out for a local display
17. HDBaseT™ Output 3-8
18. Grounding Post
19. Power Switch
20. C14 IEC Power Connector

Resetting the HMX88-18G

To reset the HMX88-18G back to factory defaults, press and hold the × (cancel) button on the front panel for 10 seconds. The LCD display will prompt “FACTORY RESET?”

Press the ✓ (select) button to confirm.

The reset process takes approximately 30 seconds..

Operation and Connections

Basic operation of the HMX88-18G can be achieved via the front panel. After connecting the HDMI inputs, HDBaseT™ & HDMI outputs, and power to the rear of the unit, buttons 1-8 can be used for matrix selection:

- Press buttons 1–8 to select the desired output(s). Selected outputs will be shown on the matrix display.
  To select multiple outputs, press additional output buttons in quick succession
- After approximately 3 seconds, or after pressing the ✓ (select) button, the HMX88-18G will move to input selection for the chosen output(s)
- Press buttons 1–8 to select the desired input. After approximately 3 seconds, or after pressing ✓ (select), the routing will be confirmed

Global EDID settings for HDMI inputs can be configured using the DIP switches on the rear panel. For detailed DIP switch settings, see page 08.

Additional configuration options are available through the front panel menu:

- Press ≡ (menu) to access the menu system
- Use ▼ ▲ ◀ ▶ (arrow keys) to navigate
- Press ✓ (select) to enter a configuration option or confirm a selection
- Press × (cancel) to exit or return to the previous menu

The menu system provides access to the following:

- EDID Settings
  - Configure EDID for the inputs (Global EDID must be set to Software Control mode.
- PoC Settings
  - Enable or disable PoC (Power over Cable) on the HDBaseT™ outputs
- Network Configuration
  - Set the unit to DHCP or Static IP
    When using Static mode, the IP address, gateway, and subnet mask can be configured using the arrow keys
- Firmware Version
  - View the MCU and GUI firmware versions

For full configuration of the HMX88-18G, the built in Web GUI must be utilised.

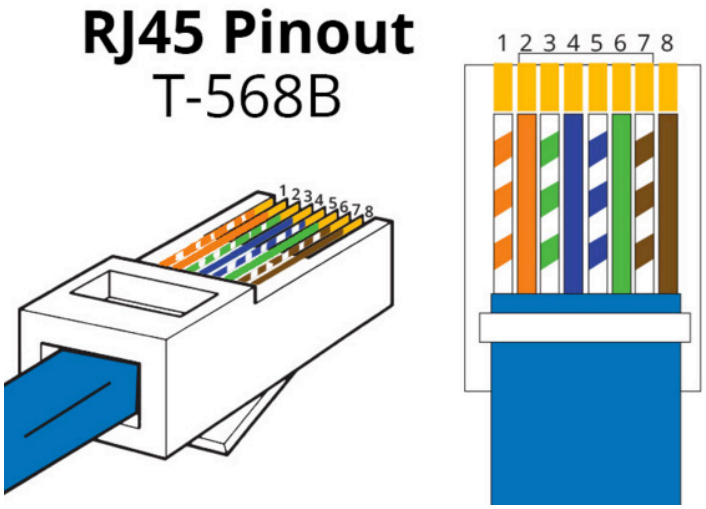
Terminating CAT Cable for use with HDBaseT™

Reliable operation of the HMX88-18G with the VS3000 HDBaseT™ chipset depends on correct cable selection and termination. All interconnecting CAT cables must be terminated using a straight-through (pin-to-pin) RJ45 configuration. Termination to the T568B standard is recommended, as it offers improved resistance to electromagnetic interference (EMI).

For optimal performance, HDBaseT™ links should be installed using continuous cable runs with no joins, couplers, or patch connections between endpoints. Maintaining signal integrity is critical, particularly at higher bandwidths.

Due to the 16Gbps data rate of the VS3000 platform, CAT6A cable (or higher specification) is required to achieve full transmission distance and performance. Use of lower-grade cabling such as CAT5e or CAT6 will significantly reduce achievable distance and may affect signal stability.

For best results, especially in longer cable runs, high-interference environments, or when distributing 4K content, the use of high-quality shielded cable, such as U/FTP, is strongly recommended.



Understanding the HDBaseT™ Status LED's

The Blustream HDBaseT™ extender solutions include status LED indicators on both the Matrix/Transmitter and Receiver products to show all connections are active and to help diagnose possible problems..

HMX88-18G:

- The orange HDBaseT™ status link light will be OFF when there is no PoC (Power over Cable) being sent via HDBaseT™ to the Blustream HDBaseT™ Receiver
- The orange HDBaseT™ status link light will be ON when there is PoC (Power over Cable) being sent via HDBaseT™ to the Blustream HDBaseT™ Receiver
- The green HDBaseT™ link light will be off when there is no CAT cable / active HDBaseT™ connection on the RJ45 HDBaseT™ output
- The green HDBaseT™ link light will blink if there is an unstable connection between the Transmitter and Receiver
- The green HDBaseT™ link light will be lit when a CAT cable is connected to the HDBaseT™ RJ45 output on the Transmitter and an active connection is achieved with the Receiver
- The link lights will only serve as an indication to the connectivity between Matrix and each HDBaseT™ Receiver unit.

The LED's will not indicate a termination, bandwidth, interference or cable length issues on a CAT cable run. Blustream always recommend qualifying / verifying / certifying a CAT cable run for suitability prior to the installation of HDBaseT™ equipment.

HDBaseT™ Receiver Compatibility

The HMX88-18G is designed for use with the Blustream RX18G HDBaseT™ receiver. The RX18G utilises the VS3000 chipset to support full, uncompressed 18Gbps bandwidth, enabling transmission of 4K HDMI video without compression. It also supports a comprehensive range of advanced features, including:

- Power over Cable (PoC)
- CEC Control
- Audio Return Channel (ARC)
- Optical and analogue audio breakout
- Ethernet passthrough
- Bi-directional RS-232 and IR control

PoC (Power over Cable):

The HMX88-18G supports PoC, allowing HDBaseT™ receivers to be powered directly from the HMX88-18G over the CAT cable, removing the need for a local power supply.

WARNING: PoC is disabled by default on the HMX88-18G to minimise the risk of damage when using incompatible HDBaseT™ receivers.

PoC can be enabled or disabled using one of the following methods:

- Front panel menu system (see page 05)
- Control commands (see 38)
- Web GUI (see page 20)

CEC Control:

The HMX88-18G supports CEC (Consumer Electronics Control) for compatible source devices and displays. CEC commands can be issued via the Web GUI or RS-232, enabling control of functions such as power on/off, input selection, and volume adjustment.

Please note: CEC functionality depends on the compatibility and correct implementation of CEC standards by connected devices. Performance may vary between manufacturers.

ARC (Audio Return Channel):

The HMX88-18G supports the return of audio from compatible displays through the HDBaseT™ receivers. ARC audio can be transmitted back either via HDMI ARC or Optical Audio Return.

Audio return routing is configured within the Audio page of the Web GUI, allowing ARC sources to be assigned to the desired outputs.

EDID Control

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 the HMX88-18G EDID settings can be achieved by:

1. Using control commands via RS-232
2. Using the global EDID dipswitches on the rear of the unit
3. Using the front panel menu system
4. Using the Web GUI

RS-232:

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

EDID xx DF yy
Set Input xx EDID To Default EDID yy
xx = Input On Product (00 Refers To ALL Inputs, 02 = Input 2 Etc)
yy = 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 DIP Switches:

To configure the global EDID for all inputs via the DIP switch, use the settings below.

Please note: EDID DIP switch settings will override and disallow any EDID settings configured via other methods.

3	2	1	0	EDID Type
DIP Positions				
0	0	0	0	1080p@60Hz, 2ch PCM (default)
0	0	0	1	1080p@60Hz, 5.1ch PCM/DTS/DOLBY
0	0	1	0	1080p@60Hz, 7.1ch PCM/DTS/DOLBY/HD
0	0	1	1	4K@60Hz 4:2:0 / 4K@30Hz 4:4:4, 2ch PCM
0	1	0	0	4K@60Hz 4:2:0 / 4K@30Hz 4:4:4, 5.1ch PCM/DTS/DOLBY
0	1	0	1	4K@60Hz 4:2:0 / 4K@30Hz 4:4:4, 7.1ch PCM/DTS/DOLBY
0	1	1	0	4K@60Hz 4:4:4, 8-bit, 2ch PCM
0	1	1	1	4K@60Hz 4:4:4, 8-bit, 5.1ch PCM/DTS/DOLBY
1	0	0	0	4K@60Hz 4:4:4, 8-bit, 7.1ch PCM/DTS/DOLBY
1	0	0	1	4K@60Hz 4:4:4, 10-bit HDR, 2ch PCM
1	0	1	0	4K@60Hz 4:4:4, 10-bit HDR, 5.1ch PCM/DTS/DOLBY
1	0	1	1	4K@60Hz 4:4:4, 10-bit HDR, 7.1ch PCM/DTS/DOLBY
1	1	0	0	DVI 1920x1080@60Hz, Audio None
1	1	0	1	DVI 1920x1200@60Hz, Audio None
1	1	1	0	EDID pass-through (Copy from Output 1)
1	1	1	1	EDID Software

Front Panel Menu System:

Press the ≡ (menu) button and use ▼ ▲ ◀ ▶ (arrow keys) to scroll to EDID Management, then press ✓ (select) to enter configuration mode.

Choose one of the following options:

- Built-In EDID
  - Choose the input channel(s) (1–8) to apply the EDID, then press ✓ (select) to proceed.
  - Select the desired video resolution and audio format, then press ✓ (select) to apply.
- Copy HDBT x Output
  - Choose the input channel(s) (1–8) to apply the EDID, then press ✓ (select) to apply
  - **Please note:** EDID copy is not available if no display is connected to the selected HDBaseT™ output.

The front panel will display SUCCESS and the ✓ (select) button will flash orange to indicate the configuration has been successfully applied.

Web GUI:

EDIDs can be set from the Web GUI via the Configuration page (see page 08).

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 (included / 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

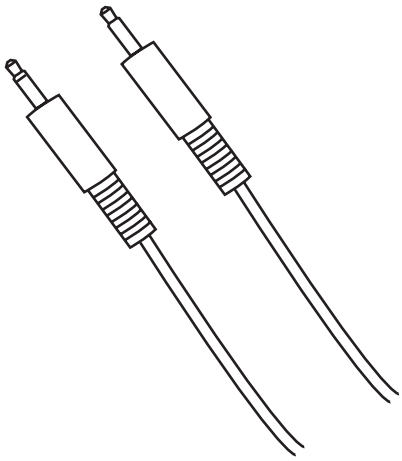
Please note: Cable is directional as indicated

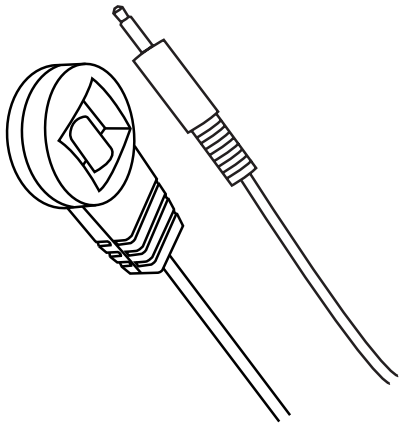
IRR - IR Receiver Stereo 3.5mm Jack (included / optional)

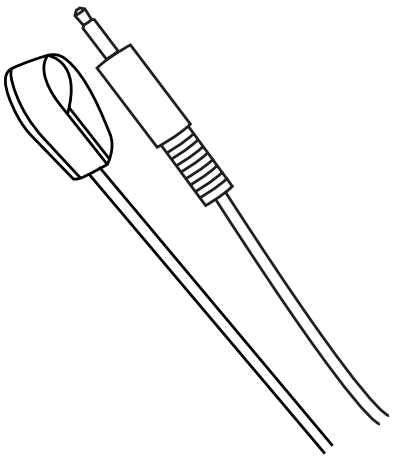
Blustream 5V IR Receiver 3.5mm stereo (TRS) jack to receive an IR signal and distribute through Blustream products

IRE - IR Emitter Mono 3.5mm Jack (included / optional)

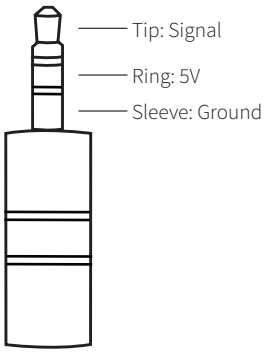
Blustream 5V IR Emitter 3.5mm mono (TR) jack to emit an IR signal for discreet IR control



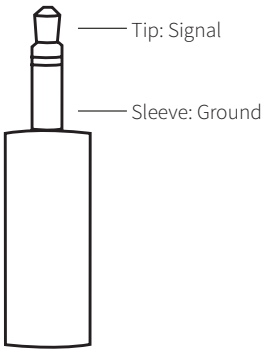




IR Stereo (TRS) 3.5mm Pinout:



IR Mono (TS) 3.5mm Pinout:

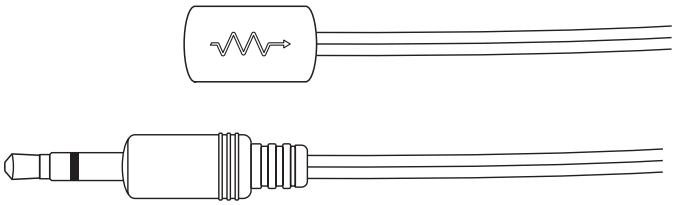


IR Desginer Series (Optional)

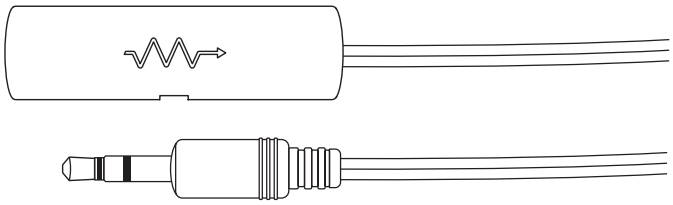
In addition to standard IR accessories, Blustream also offers a range of designer series IR receivers and emitters that provide a discreet way to enhance IR control.

The IRDE1 and IRDIR include a visible red LED indicator for quick confirmation of IR activity, and feature a recessed cable exit that allows clean routing for professional finish. Designed to integrate seamlessly with Blustream systems, these accessories offer a simple yet polished upgrade to any IR installation.

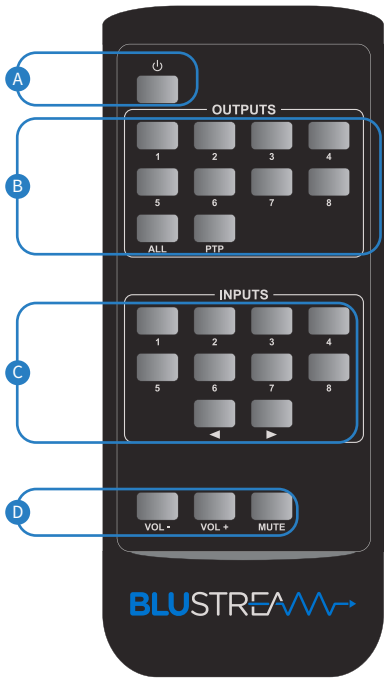
IRDE1- IR Emitter Mono 3.5mm Jack:



IRDIR - IR Receiver Stereo 3.5mm Jack:



Remote Control



Power On / Power Off:

A Press the power button

Input and Output Selection:

B Select the output to be changed

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

C Select the inputs to assign to the select output

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

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

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

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

The PTP button maps each input to the same numbered output

Volume:

D The line level volume or mute can be adjusted for each of the outputs by pressing the desired output button first, and then pressing Vol +, Vol - or Mute

IR Commands

COMMAND	NEC IR CODE	HEX IR CODE
Power	14	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 003F 0016 0689
Output 1	09	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 003F 0016 0689
Output 2	1D	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 003F 0016 0689
Output 3	1F	0AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 003F 0016 003F 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 003F 0016 0689
Output 4	0D	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 003F 0016 0689
Output 5	19	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 003F 0016 0689
Output 6	1B	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 003F 0016 0689
Output 7	11	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 003F 0016 0689
Output 8	15	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 003F 0016 0689
Output All	17	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 003F 0016 0689
Output PTP	12	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 003F 0016 0689
Input 1	50	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 003F 0016 0689
Input 2	55	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 003F 0016 0689
Input 3	48	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 003F 0016 0689
Input 4	4A	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 003F 0016 0689

IR Commands (continued)

COMMAND	NEC IR CODE	HEX IR CODE
Input 5	5E	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 0689
Input 6	06	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 003F 0016 003F 0016 003F 0016 0689
Input 7	05	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 0016 0016 003F 0016 003F 0016 003F 0016 003F 0016 003F 0016 0689
Input 8	03	0000 006D 0000 0022 0157 00AC 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 003F 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 003F 0016 003F 0016 003F 0016 003F 0016 003F 0016 003F 0016 0689
Input Down	07	0000 006C 0000 0022 015B 00AD 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0679
Input Up	40	0000 006C 0000 0022 015B 00AD 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0679
Vol -	DB	0000 006C 0000 0022 015B 00AD 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0041 0016 0016 0016 0041 0016 0041 0016 0016 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0041 0016 0016 0016 0016 0016 0041 0016 0016 0016 0016 0016 0679
Vol +	DC	0000 006C 0000 0022 015B 00AD 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0041 0016 0016 0016 0041 0016 0041 0016 0016 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0041 0016 0016 0016 0016 0016 0041 0016 0016 0016 0016 0016 0679
Mute	DD	0000 006C 0000 0022 015B 00AD 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0041 0016 0016 0016 0041 0016 0041 0016 0016 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0041 0016 0016 0016 0016 0016 0041 0016 0016 0016 0016 0016 0679

Web GUI - Log In and Initialisation

The Web GUI allows for full configuration, ongoing maintenance and control of the HMX88-18G through a web portal. Connect a TCP/IP RJ45 socket to the local network, or directly from a computer, to the HMX88-18G in order to access the Web GUI.

By default, the HMX88-18G 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 HMX88-18G is not known, it can be found by:

- Using the front panel menu system
- Using a 3rd party IP scanning tool
- Using an RS-232 connection and sending 'STATUS' command; this will return all settings of the HMX88-18G
- Using the default mDNS hostname address
  - The HMX88-18G can be accessed via its mDNS hostname when the IP address is not known.
  - The default mDNS name is **hmx88-18g.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 HMX88-18G 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 and Audio page of the Web GUI without logging in. Depending on the permissions set, control for the routing matrix and audio outputs can be accessed from here.

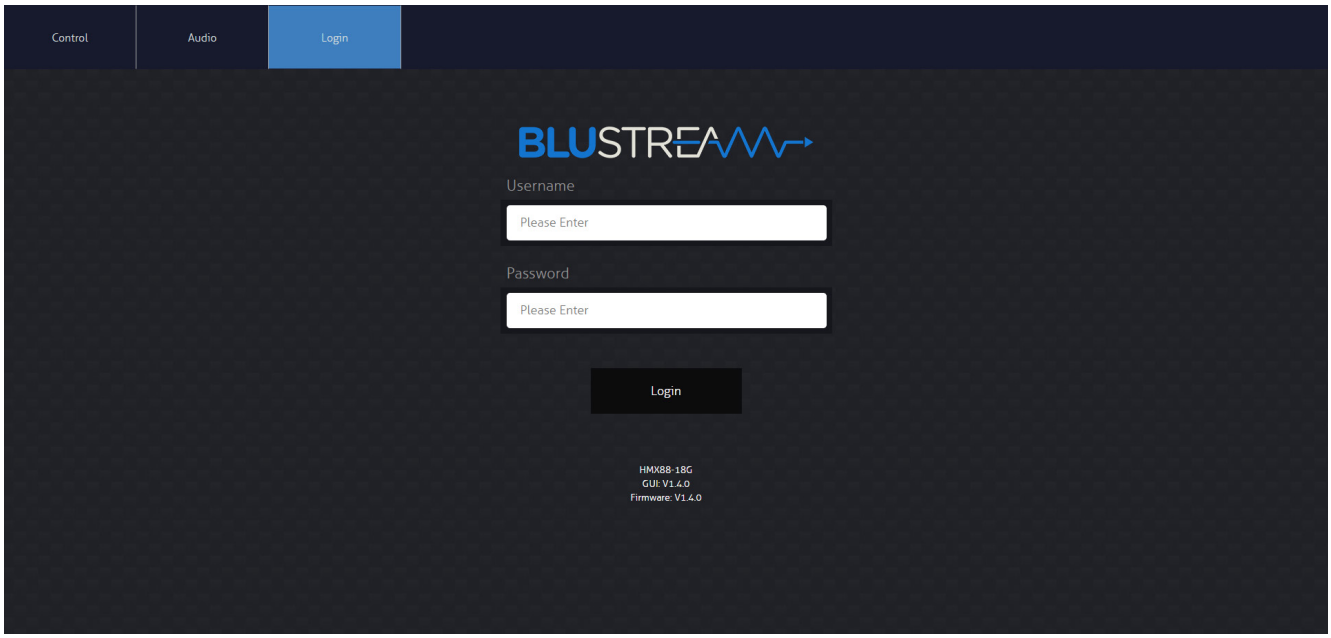
Permissions can be set or revoked from the Users page when logged in, depending on the requirements of the installation.

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:

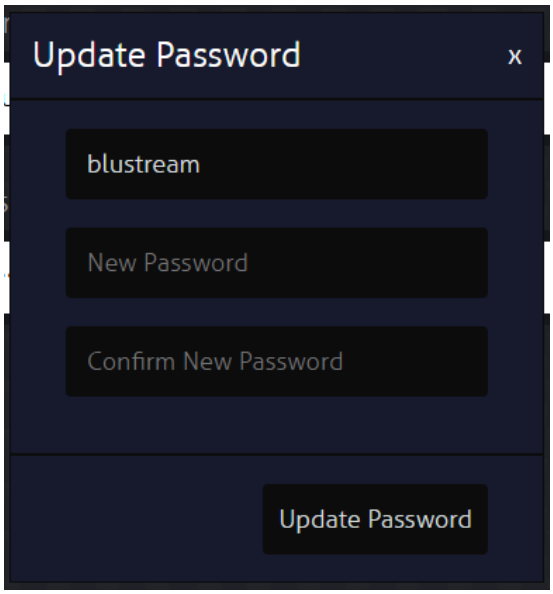
Administrator (Blustream)	The Administrator account allows full access to all functions and configuration of the device and is always enabled
Guest	When enabled, various Web GUI pages can be accessed without logging in depending on the permissions set
User Accounts	User accounts can be utilised, each 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 HMX88-18G 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 HDMI input & HDBaseT™ output routing via the control matrix and preset selection.

Control Matrix:

- To route a HDMI input to a HDBaseT™ output, select the button corresponding to the required input (row) and output (column)
- The video and audio of each output can be turned off by pressing the corresponding button in the **Video Mute** row

Presets:

- The HMX88-18G 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 recalled by selecting the desired preset button, and pressing the Recall button

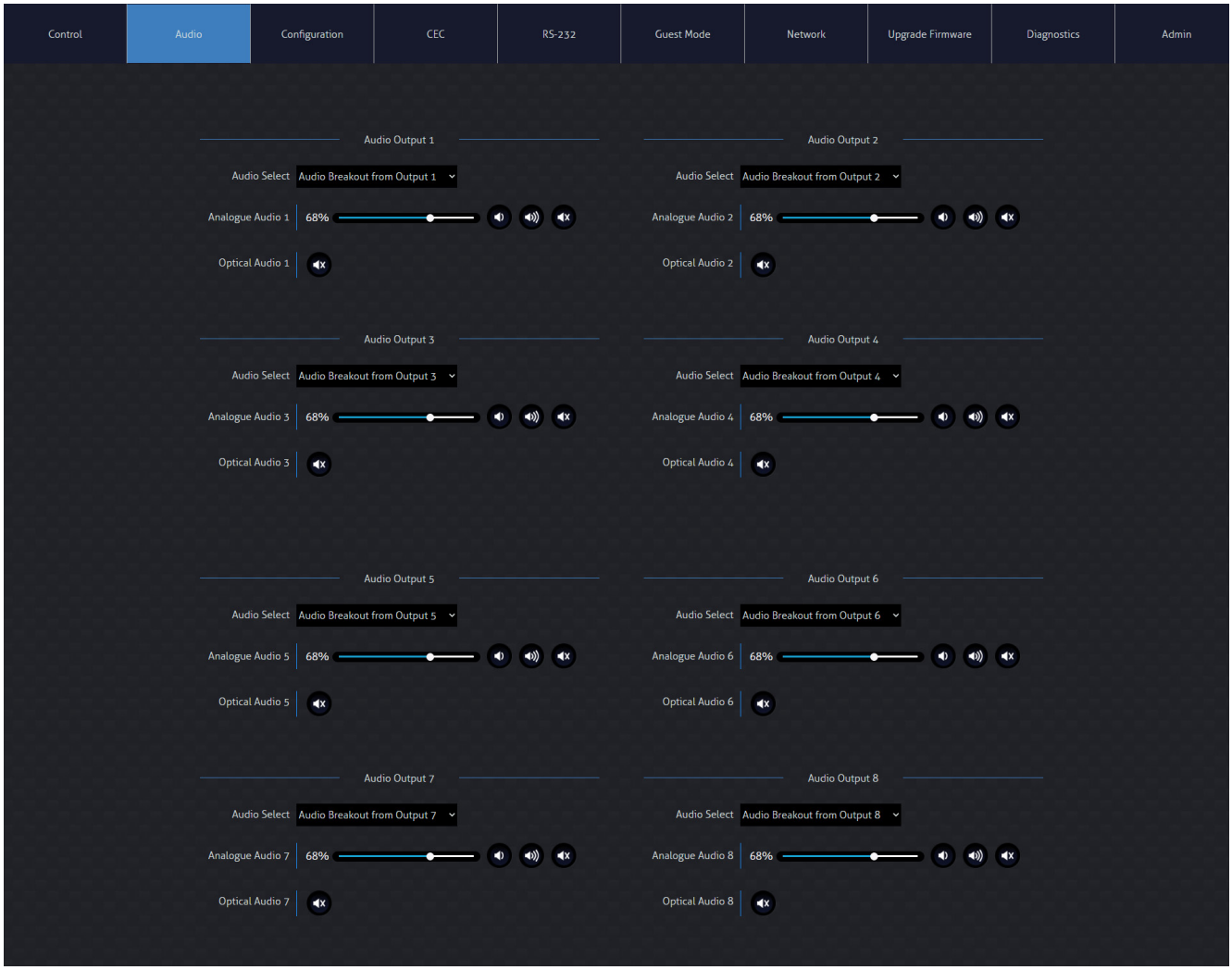
Web GUI - Audio

The Audio page allows you to configure the analogue and optical audio outputs of the HMX88-18G.

For each audio output, the desired source can be selected from the following options:

- Audio from any HDMI input
- Audio breakout from HDBaseT™ outputs
- Optical audio return from an RX18G receiver
- HDMI ARC from an RX18G receiver
- Local analogue or optical audio inputs on the HMX88-18G

Please note: The analogue audio outputs require a 2-channel PCM audio input. The HMX88-18G does not support downmixing of multichannel audio signals.



Audio Select

- Select the audio source to be routed to the audio output

Analogue Audio

- Adjust the output volume and enable / disable mute for the analogue audio output

Optical Audio

- Enable / Disable mute for the optical audio output

Web GUI - Configuration

The Configuration page allows configuration of various HMX88-18G functions, including IR matrix routing, HDMI input settings, HDBaseT™ output settings, and the naming of audio sources and presets.

IR Select:

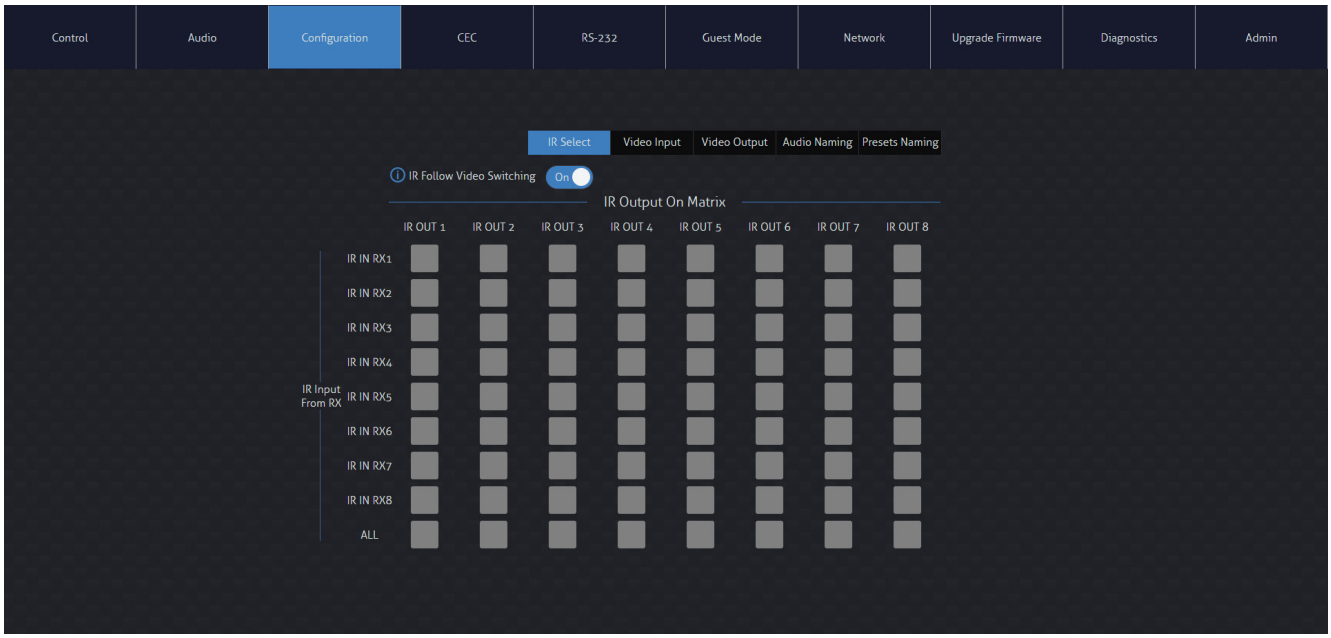
IR inputs from RX18G receivers can be routed to the IR outputs of the HMX88-18G using the IR Select routing matrix.

IR Follow Video Switching

- By default, IR routing follows the switching configuration defined in the Control matrix. To apply fixed IR routing, this setting must be disabled

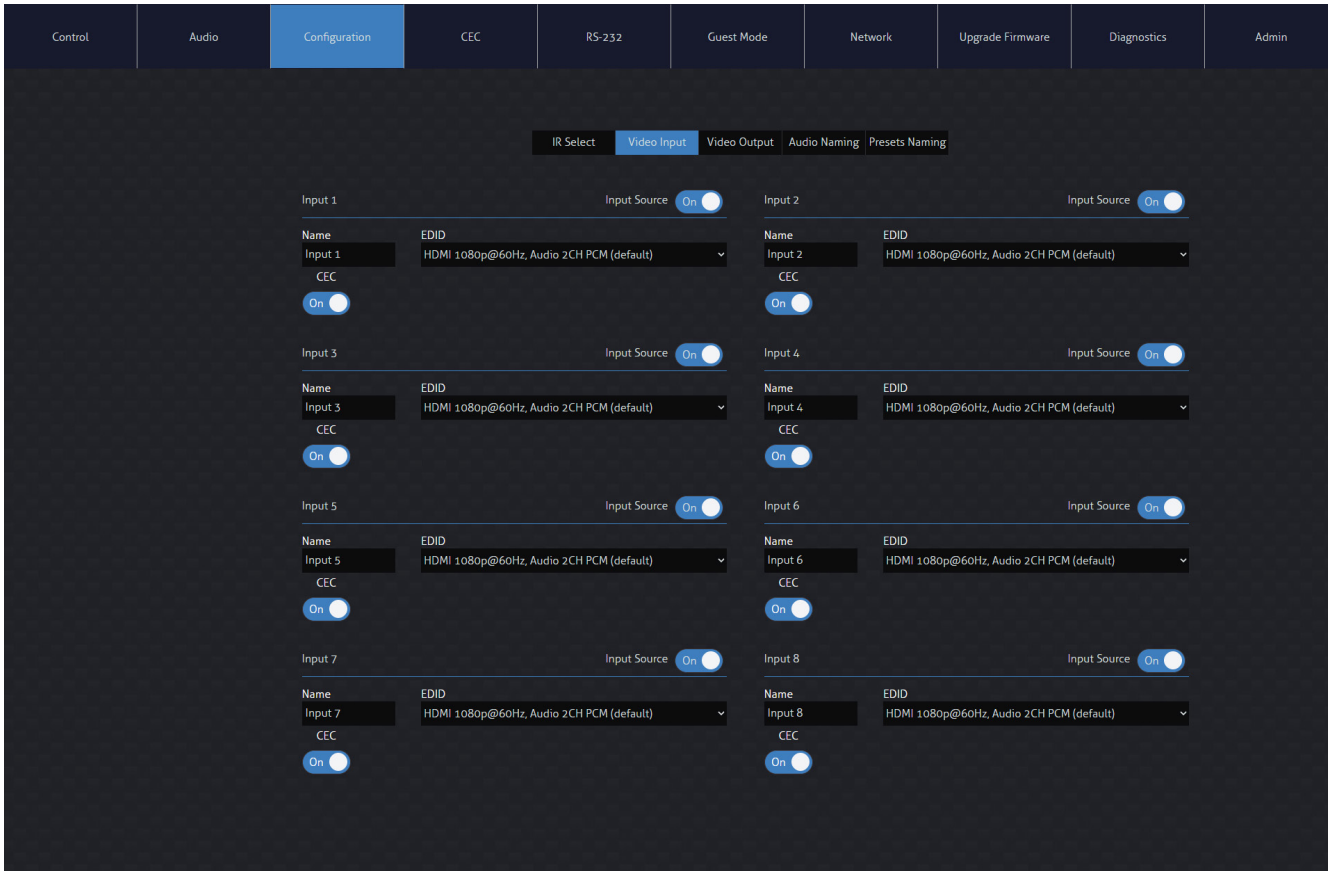
IR Select Matrix

- To route an IR input from an RX18G receiver to an IR output on the HMX88-18G, select the button corresponding to the required input (row) and output (column)
- To quickly assign all IR inputs to a single output, select the appropriate button in the **All** row



Video Input:

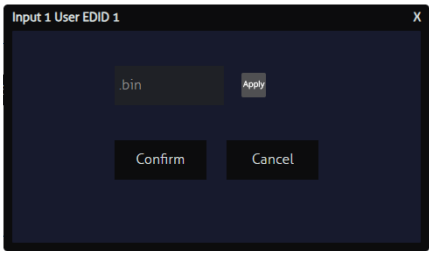
Settings for each HDMI input can be configured from the Video Input tab.



Input 1-8

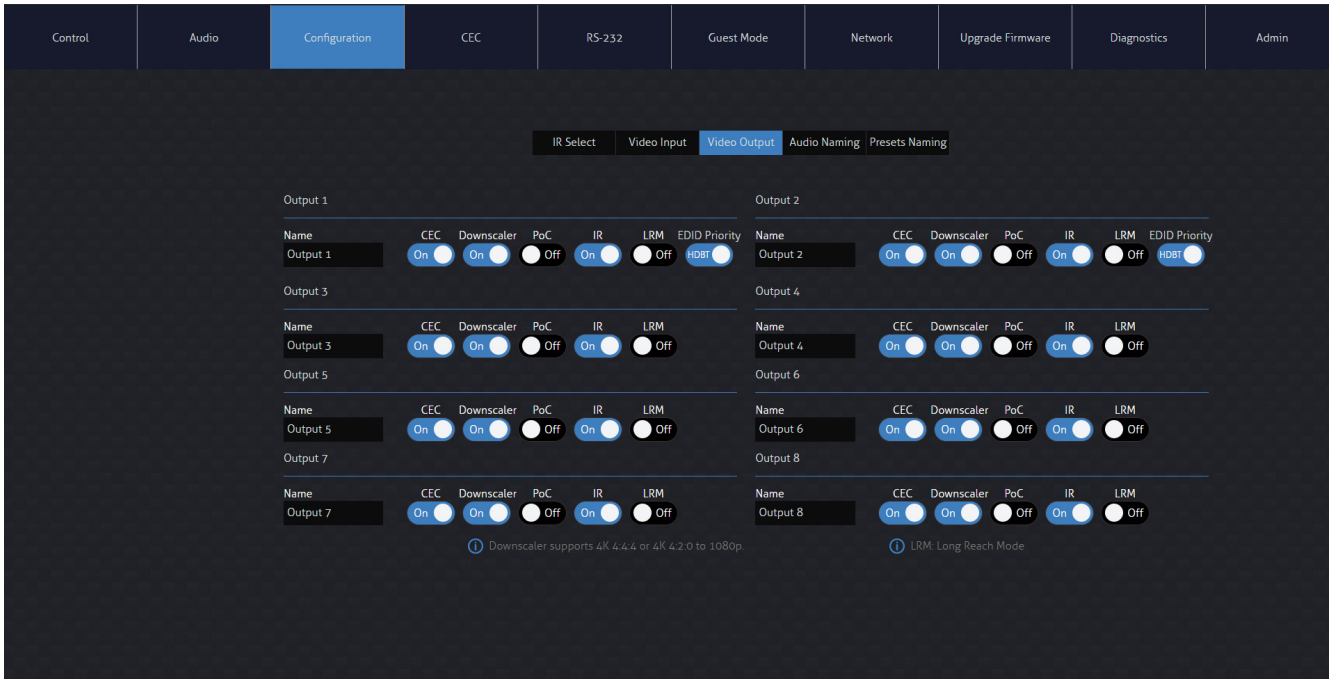
- Input Source
  - Enable / Disable the HDMI input
- Name
  - Displays the name of the input. The name can be updated by entering a new name into the name field I
- EDID
  - Configure the EDID for the HDMI input. Options include selecting from predefined EDIDs, copying from any HDMI/HDBaseT™ output, using up to two user-uploaded EDIDs, or enabling passthrough.
- CEC
  - Enable / Disable CEC passthrough

Upload User EDID:



Video Output:

Settings for each HDBaseT™ output can be configured from the Video Output tab.

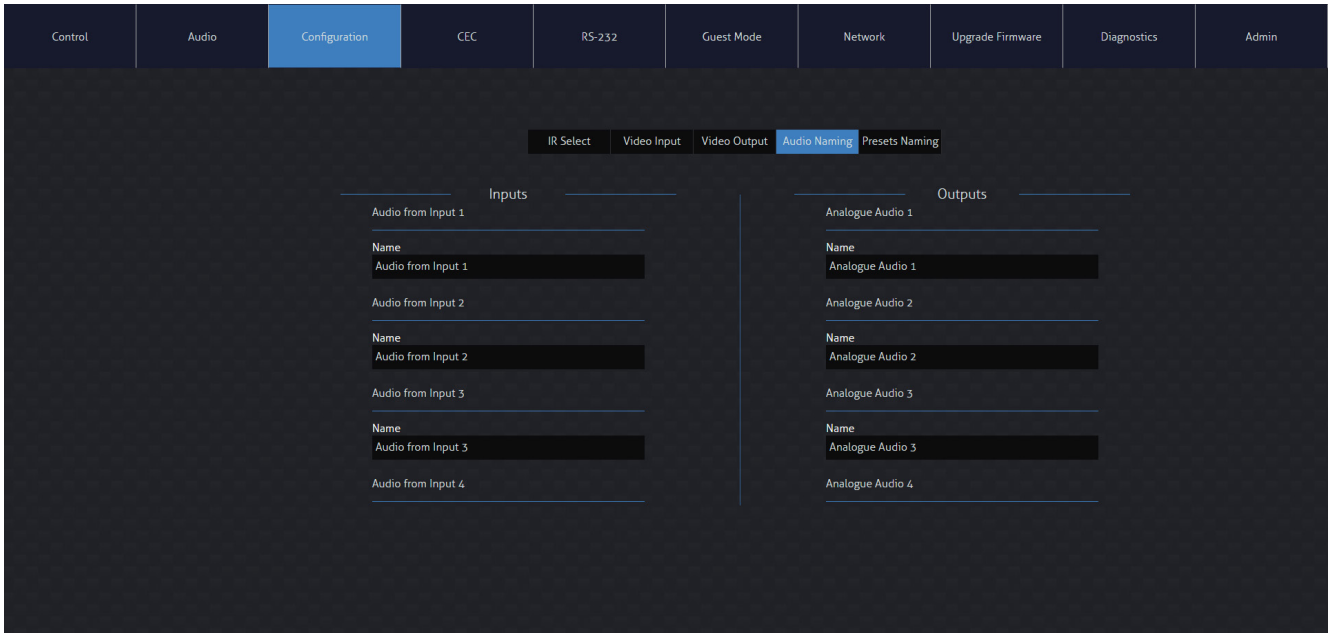


Output 1-8

- Name
  - Displays the name of the output. The name can be updated by entering a new name into the name field
- Consumer Electronics Control(CEC)
  - Enable / Disable CEC passthrough from the connected receiver
- Downscaler
  - Enable / Disable Downscaler. The HMX88-18G can automatically downscale from 4K 60Hz 4:4:4 to 4K 60Hz 4:2:0 for displays that do not support 18Gbps HDMI signals. Downscaling will depend on resolutions supported by the display device
- POC
  - Enable / Disable PoC
  - **WARNING:** PoC is disabled by default on the HMX88-18G to minimise the risk of damage when using incompatible HDBaseT™ receivers
- IR
  - Enable / Disable IR passthrough from the connected receiver
- Long Reach Mode (LRM)
  - Enable or disable Long Reach Mode. When enabled, the HMX88-18G extends HDBaseT™ transmission up to 150 m by limiting the HDMI signal to 1080p resolution
- EDID Priority (Outputs 1 & 2 only)
  - When using features such as **Copy EDID**, select whether the HDMI or HDBaseT™ output takes priority

Audio Naming:

Rename the audio inputs and outputs for ease of recognition across the Web GUI.

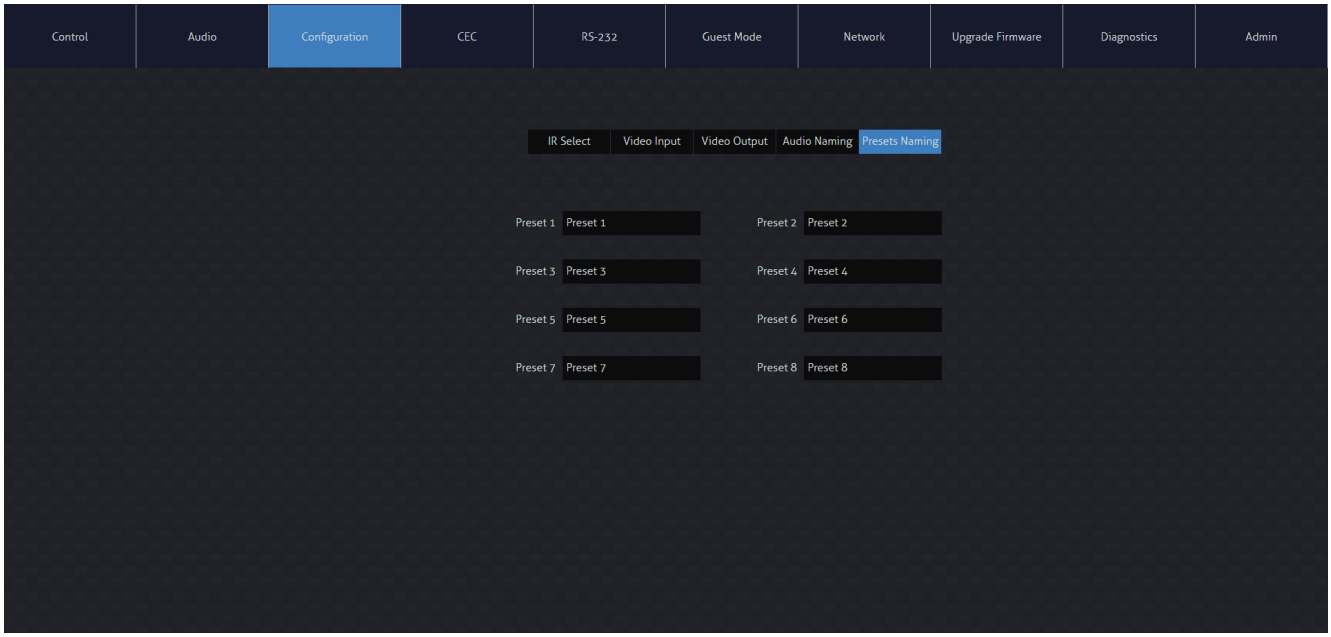


Inputs / Outputs

- Name
  - Displays the name of the input/output. The name can be updated by entering a new name into the name field

Presets Naming:

Rename the presets for ease of recognition across the Web GUI.



Preset 1-8

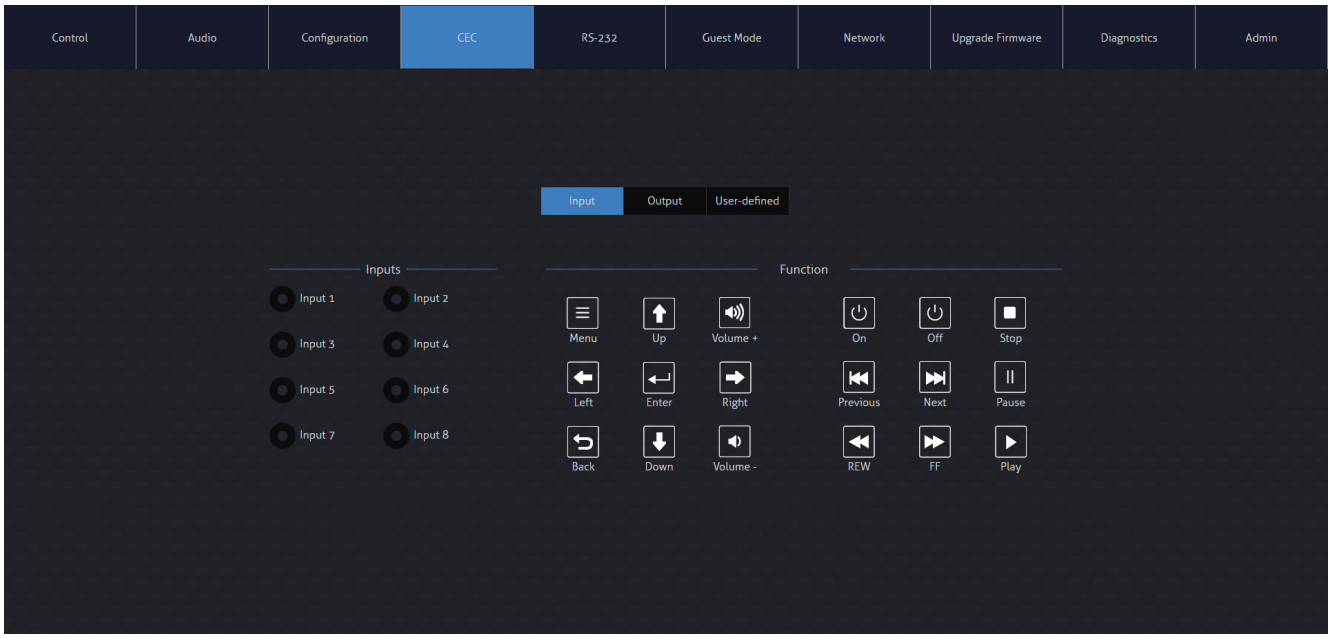
- Displays the name of the input/output. The name can be updated by entering a new name into the name field

Web GUI - CEC

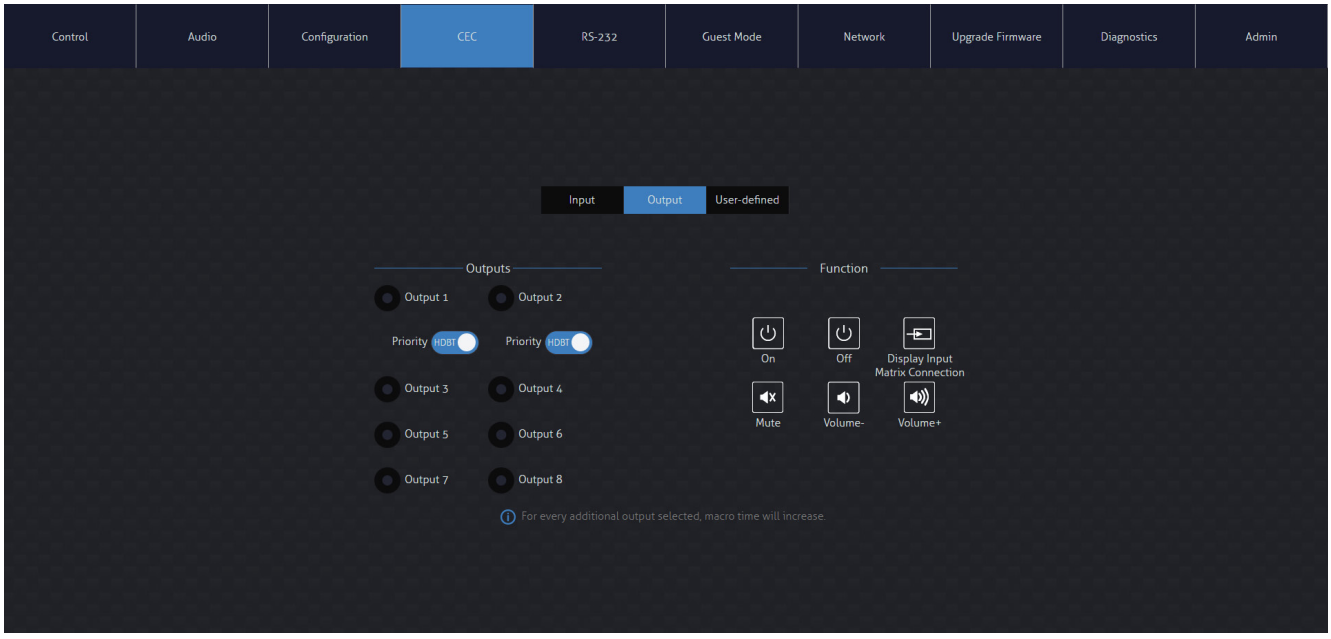
The CEC Advanced Control page allows users to send standard and user defined CEC commands to both the input and output connected devices.

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

Input:

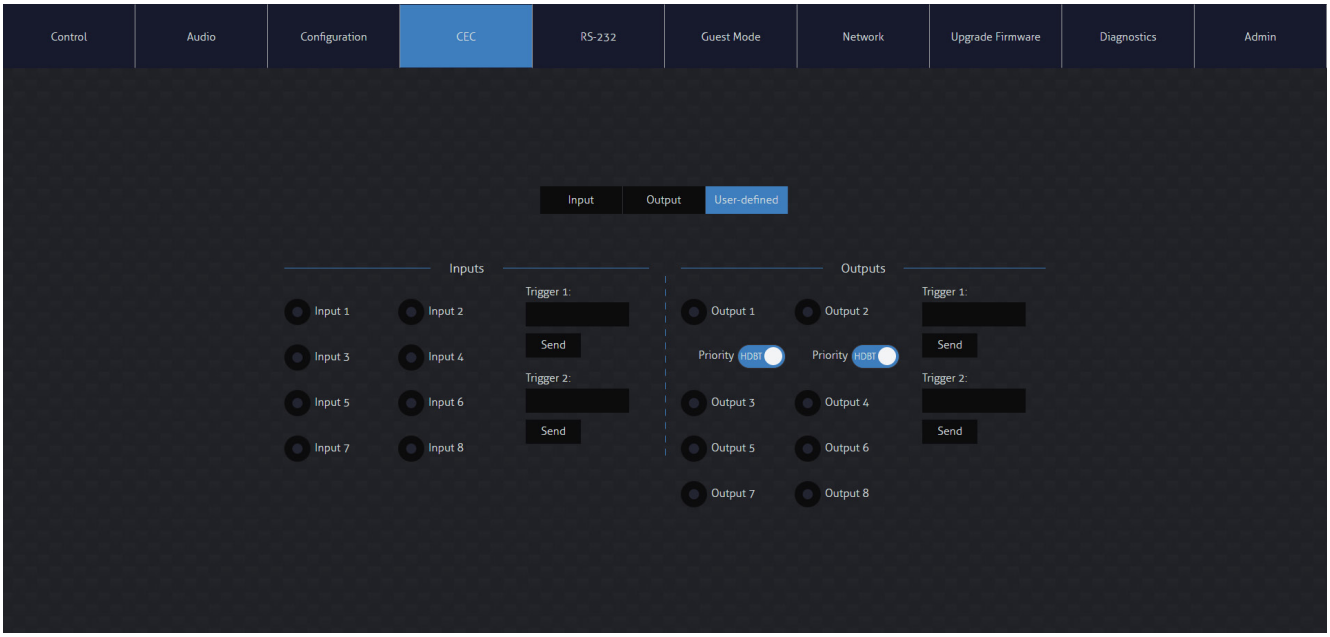


Output:



User-defined:

The HMX88-18G can also store and send up to four user defined CEC commands: two for the inputs and two for the outputs.



Trigger

- Enter the CEC command you want to send

Send

- Sends the command

Priority (Outputs 1 & 2 only)

- Select whether the HDMI or HDBaseT™ output will take priority when sending CEC commands

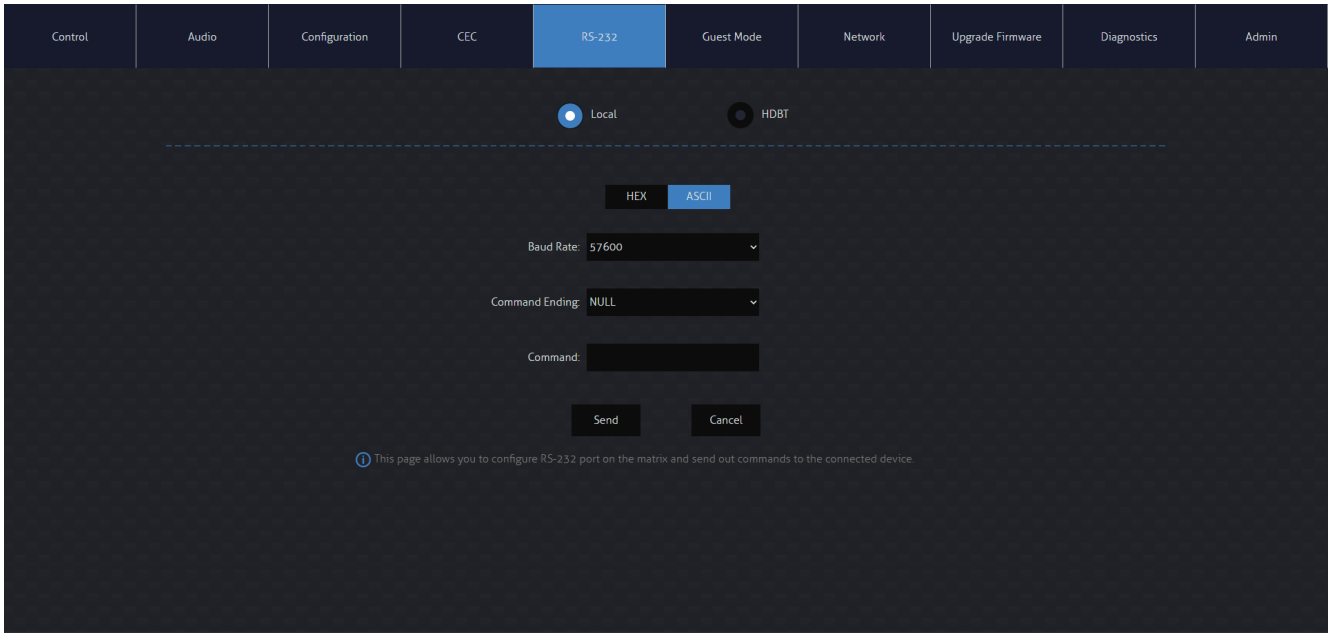
Web GUI - RS-232

In addition to local control of the HMX88-18G via the RS-232 port, the HMX88-18G can transmit commands to third-party devices either through the TX pin of the local RS-232 port or via HDBaseT™ to a connected receiver's RS-232 port.

The RS-232 page allows configuration of serial communication settings and automation functions.

Local:

The Local tab allows configuration of serial settings for the HMX88-18G's RS-232 port. It also provides the ability to enter and send commands directly, which is useful for testing and troubleshooting.



Character Set

- HEX / ASCII

Baud Rate

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

Command Ending

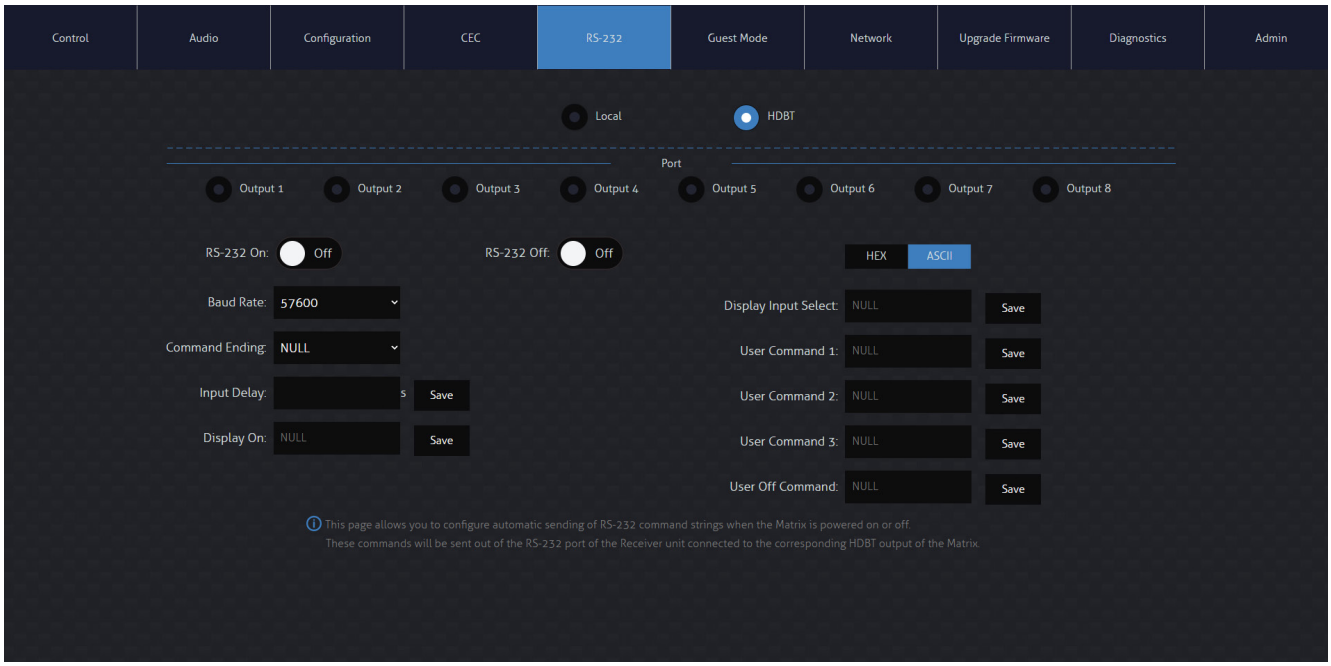
- NULL / CR / LF / CR+LF

Command

- Enter the string to send into the input field
- Press **Send** to transmit the command

HDBT:

The HDBT tab allows each HDBaseT™ output to send serial commands through the RS-232 port of the connected receiver. These commands can be automated to send when the HMX88-18G is powered on or off.



Port

- Select the HDBaseT™ output to configure

RS-232 On

- When enabled, Display On, Display Input Select, User Command 1, User Command 2 and User Command 3, are all sent out of the HDBaseT™ Receiver's RS-232 port when the HMX88-18G is turned on

RS-232 Off

- When enabled, User Off Command is sent out of the HDBaseT™ Receiver's RS-232 port when the HMX88-18G is turned off

Character Set

- HEX / ASCII

Baud Rate

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

Command Ending

- NULL / CR / LF / CR+LF

Input Delay

- Set how many seconds until each command is triggered

Display On / Display Input Select / User Command 1 / User Command 2 / User Command 3

- Set the command to be sent to the HDBaseT™ receiver's RS-232 port when the HMX88-18G is powered on

User Off Command

- Set the command to be sent to the HDBaseT™ receiver's RS-232 port when the HMX88-18G is powered off

Press **Save** when updating each command field.

Web GUI - Guest Mode

Guest Mode is an extension of TCP/IP and RS-232 control that allows serial commands to be sent the RS-232 ports of connected HDBaseT™ receivers. When enabled, commands sent to the HMX88-18G via Telnet or RS-232 can be forwarded to the serial ports of any HDBaseT™ receiver.

This allows third-party control systems to communicate with RS-232 devices connected to a HDBaseT™ receiver.

With Guest Mode, commands can be sent to the HMX88-18G, using either the 3-pin Phoenix port or Telnet, and routed through HDBaseT™ to output via the TX pin on the Phoenix port of a receiver. Similarly, any data received on the RX pin on the Phoenix port of a receiver will be returned to the HMX88-18G and displayed in it's communication protocol feedback.

Name

- Displays the name of the output

Telnet Port

- Displays the Telnet port number used to connect to the corresponding output for Guest Mode control
- Connecting to this port allows commands to be sent to the RS-232 port of the receiver connected to that output

Status

- Enables / Disables Guest Mode for the corresponding output

Baud Rate

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

Commands

- HEX / ASCII

Web GUI - Guest Mode (continued)

Direction

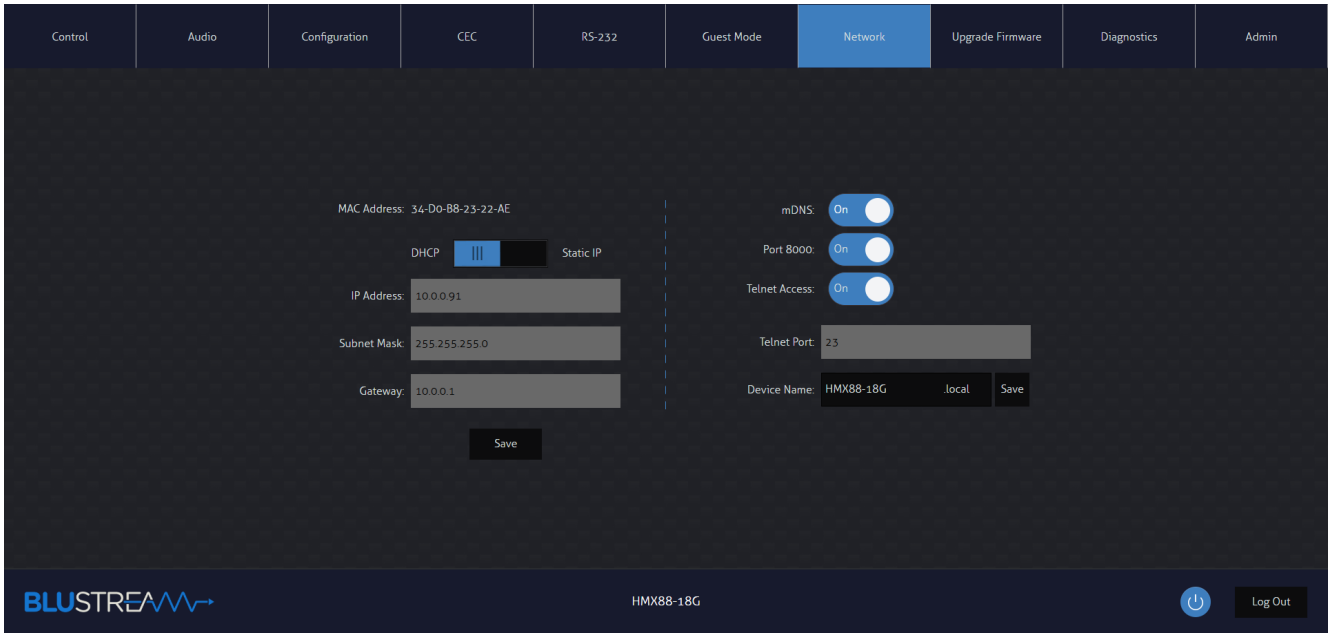
- Sets the communication direction for the RS-232 connection
  - Bidirectional: Commands can be sent to the connected device, and feedback from the device will be returned via Telnet
  - One Directional: Commands are sent to the connected device only, with no feedback returned

Delay

- Sets the delay time for RS-232 feedback

Web GUI - Network

The Network page allows network settings to be configured for access to the HMX88-18G.



MAC Address

- Displays the MAC Address

DHCP / Static

- Set the HMX88-18G to obtain an IP address through DHCP or to set a static IP 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

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

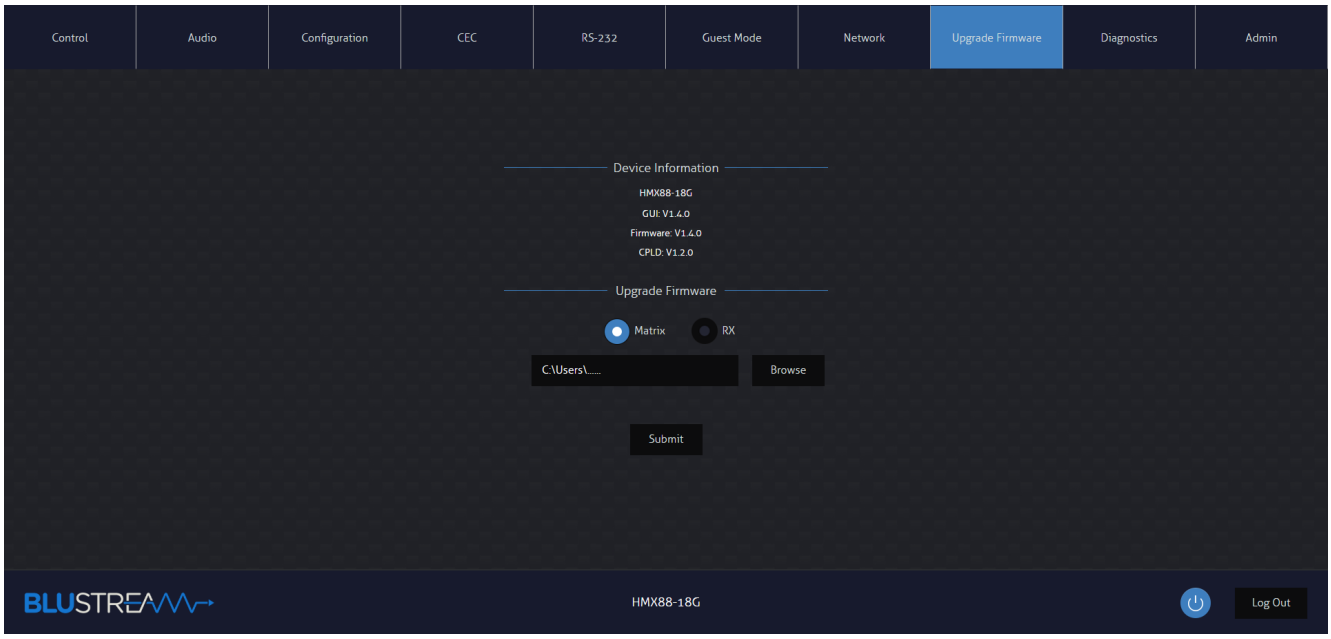
Device Name

- 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 HMX88-18G is able to be accessed via the hostname if the IP address is not known.
- By default this is set to **hmx88-18g.local**

Press **Save** to apply any changes.

Web GUI - Upgrade Firmware

The Upgrade Firmware page displays device information about the HMX88-18G. The firmware for the HMX88-18G and connected receivers can be upgraded from here.

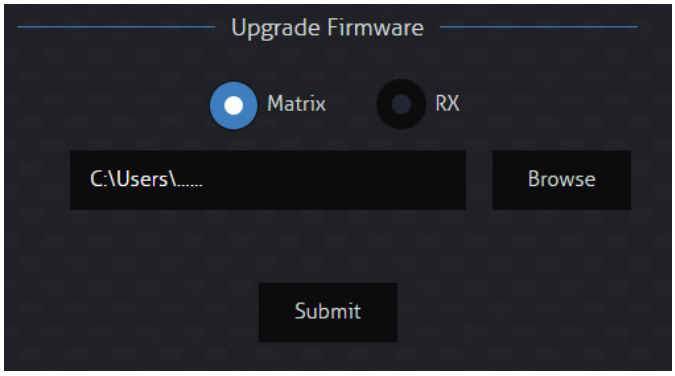


Upgrade Firmware:

To upgrade the firmware of the HMX88-18G:

- Press **Matrix** and select **Browse**.
- Select the Z_MCU firmware .app file.
- Press **Submit** to begin the MCU firmware upgrade process.
- The update takes approximately 3-5min and will disable access to the Web GUI.
- Once the Web GUI is accessible again, power cycle the unit.
- To confirm the update was successful, please check the MCU version number from the login page or from the Maintenance page.

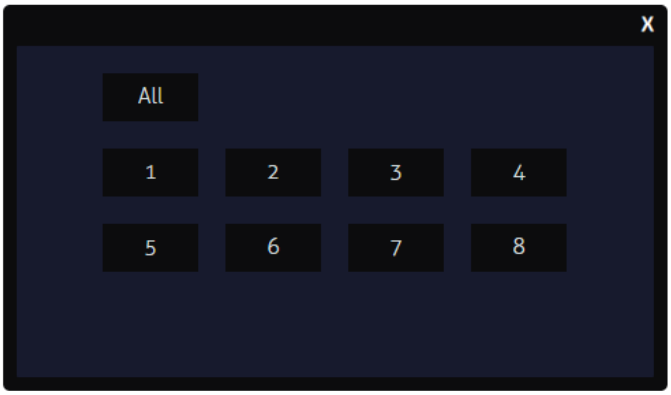
Upgrade Firmware:



To upgrade the firmware of the connected receivers:

- Press **RX** and select **Browse**.
- Select the Z_MCU firmware .app file.
- Press **Submit**, and select the receivers to upgrade.
- The update takes approximately 3-5min.

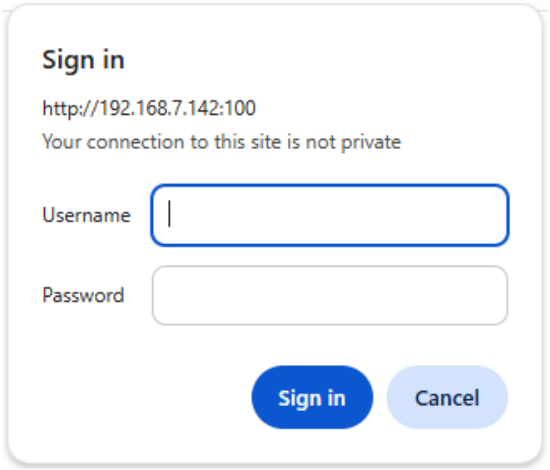
Upgrade Firmware - Select RX:



Upgrading the Web GUI

Navigate to the following IP address: **xxx.xxx.xxx.xxx:100** where xxx is the IP address of the HMX88-18G and login with the default username and password:

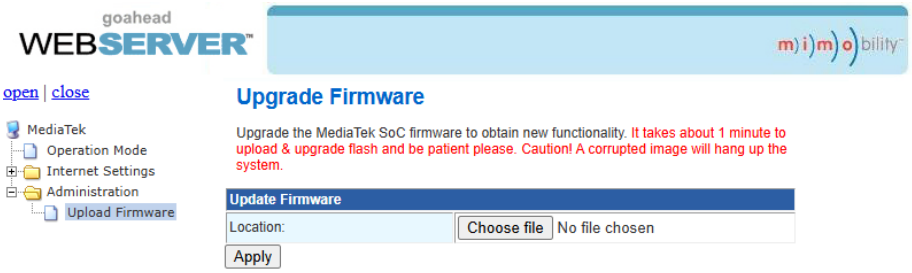
Default Username is: **blustream** Default Password is: **@Bls1234**



Locate the Administration folder in the file tree on the left, expand it, and select **Upload Firmware**.

Upgrading the Web GUI (continued)

Locate the Administration folder in the file tree on the left, expand it and select Upload Firmware.



Select **Choose file**, under the Update Firmware section.

Select the Z_GUI firmware .bin file.

Press **Apply** to begin the GUI firmware upgrade process.

The update takes approximately 3-5min and will disable access to the Web GUI.

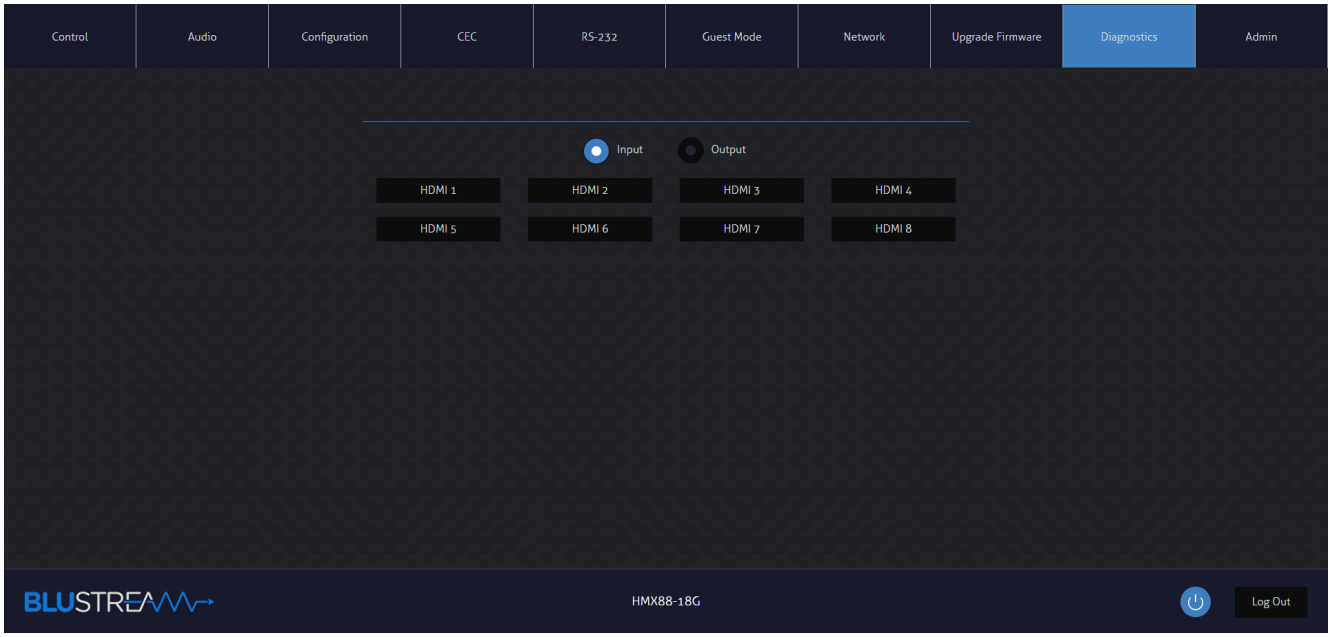
Once the Web GUI is accessible again, power cycle the unit.

To confirm the update was successful, please check the GUI version number from the login page or from the Maintenance page.

Web GUI - Diagnostics

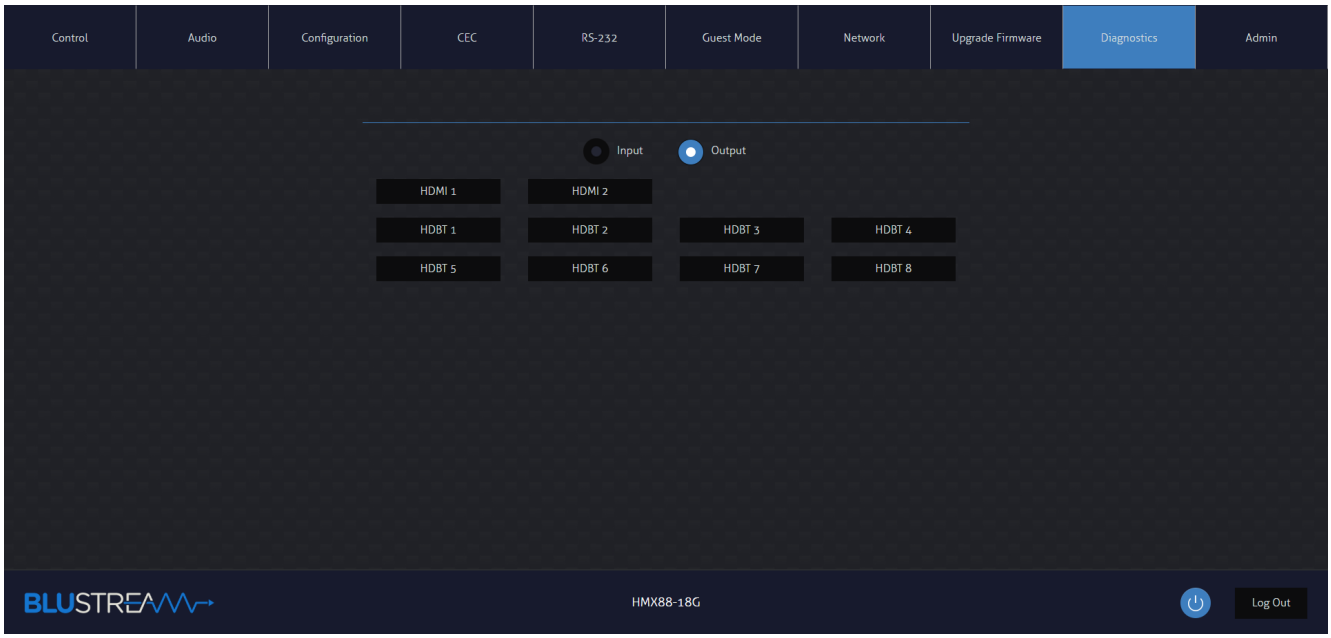
The Diagnostics page allow signal monitoring of each of the HDMI inputs and HDMI / HDBaseT™ outputs.

Input:



HDMI Input Signal Monitor:

Output:



HDMI Output Signal Monitor:

HDBaseT™ Output Signal Monitor:

Web GUI - Admin

The Admin pages allows for user management and factory resetting of the HMX88-18G.

Admin Credentials:

To update the administrator credentials created during the initial Web GUI login:

- Enter the current administrator password
- Enter the new password
- Re-enter the new password in the Confirm New Password field
- Select **Confirm** to apply any changes

Please note: The new password must follow the password requirements listed in Web GUI - Initialisation and Login.

User Authorization:

The Web GUI supports up to 7 individual user accounts and a Guest account . Each user can be enabled or disabled and assigned specific access permissions.

To configure a user account:

- Set the required user toggle to On
- Select the corresponding user from the User selection row
- Enter a unique username
- Create a password that meets the Web GUI password requirements
- Assign the required permissions by selecting the relevant checkboxes

Select **Confirm** to save any changes.

Main Features:

Front Panel Lock

- Enables or disables control from the physical front panel

Front Panel IR

- Enables or disables infrared control from the front panel

Reset

- Factory reset the HMX88-18G

Specifications

- **Video Input Connectors:** 8x HDMI Type A, 19-pin, female
- **Video Output Connectors:** 2x HDMI Type A, 19-pin, female, 8x HDBaseT™ RJ45 connector
- **Audio input Connectors:** 1x Analogue audio L/R (3.5mm stereo Jack), 1x Optical (SPDIF)
- **Audio Output Connectors:** 8x Analogue audio L/R (3.5mm stereo Jack), 8x Optical (SPDIF)
- **RS-232 serial ports:** 9x 3-pin pheonix connector
- **TCP/IP Control:** 1x RJ45, female
- **Ethernet/Network:** 1x RJ45, female
- **IR Input ports:** 10x 3.5mm stereo jack
- **IR Output ports:** 9x 3.5mm mono jack
- **Product upgrade:** 1x Micro USB, female
- **Rack-Mountable:** 2U rack height, rack ears included
- **Casing Dimensions (WxDxH):** 436mm x 400mm x 88mm (without feet)
- **Shipping Weight:** 10.5kg
- **Operating Temperature:** 32°F to 104°F (-5°C to +55°C)
- **Storage Temperature :** -4°F to 140°F (-25°C to +70°C)
- **Power Supply:** Internal 100-240v AC

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

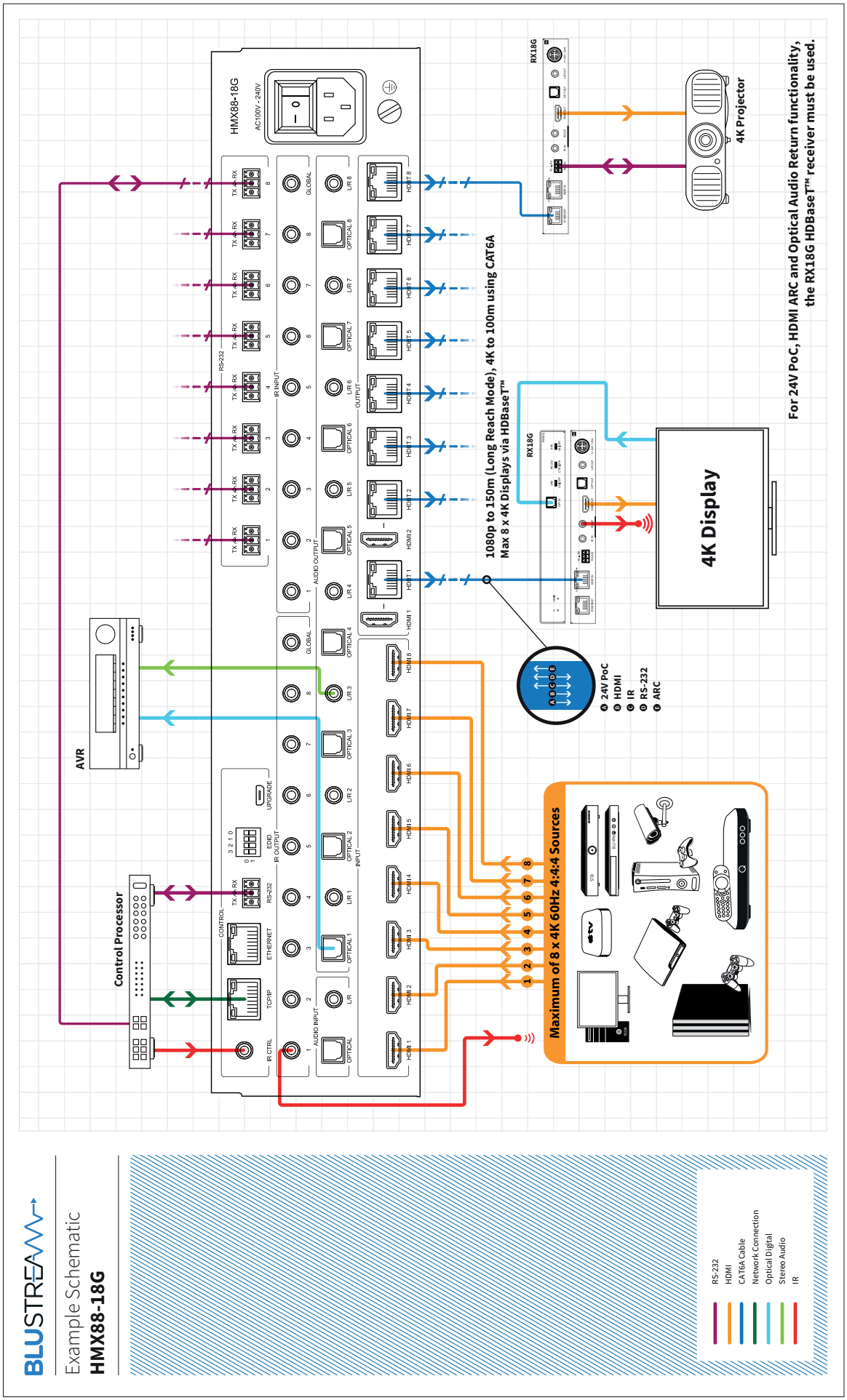
Package Contents

- 1 x HMX88-18G
- 1 x Rack mounting kit
- 1 x Remote control
- 8 x IR emitters
- 9 x IR receivers
- 1 x Serial Cable - DB9 to 3-pin phoenix connector
- 1 x IR Control Cable - 3.5mm-3.5mm Cable
- 1 x IEC Power Cable
- 1 x Quick Reference Guide

Maintenance

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

Connection Schematic



Communication Protocols and Commands

The HMX88-18G can be controlled with control commands via serial (RS-232) and TCP/IP (Telnet).

The default RS-232 communication settings are:

- **Baud rate:** 57600
- **Data bits:** 8
- **Stop bits:** 1
- **Parity bit:** none
- **Control Character:** CR+LF (Carriage Return 0x0D /r + Line Feed 0x0A /n)

The following pages list all available control commands.

Commonly Used Commands:

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

STATUS	Status will give feedback on the switcher such as outputs on, type of connection, etc.
PON	Power on
POFF	Power off
OUTxxFRyy	Routing an output to an input
	Example: OUT00FR01 (This would set all outputs to analogue input channel 1)
VOLxxTXyy	Setting the volume level of an output
	Example: VOL50TX00 (This would set all output volume levels to 50

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
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
AUDSTA	Print All Audio Status
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
FWVERSION	Print FW 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
LCD ON/OFF	Set LCD Always On Or Set LCD Off After No Operation 30 Seconds
IROUTxx ON	Enable IR Remote-control Mode On HDBT Output xx
IROUTxx OFF	Disable IR Remote-control Mode On HDBT Output xx
DIAGPRINT ON/OFF	Enable Or Disable Diagnostics Log Print
RESET	Reset System To Default Setting (Type “Yes” To Confirm, Or Send Other Command To Discard)
OUTxx EH	Priority Output for EDID Copy and CEC = HDMI
OUTxx ET	Priority Output for EDID Copy and CEC = HDBT xx = 00 : Output 1&2 xx = [01-02] : Output 1 - 2
POCOUTxx ON	Set PoC On On Output xx
POCOUTxx OFF	Set PoC Off On Output xx
OUT xx GUEST ON	Set System Guest Mode xx On
OUT xx GUEST OFF	Set System Guest Mode xx Off (Please note, this will disconnect any active telnet connections to this matrix)
INyy ON	Set Input yy On
INyy OFF	Set Input yy Off
OUTxx ON	Set Output xx On
OUTxx OFF	Set Output xx Off
OUTxx LRM ON	Set Output xx Long Reach Mode On
OUTxx LRM OFF	Set Output xx Long Reach Mode Off
OUTxx FR yy	Set Output xx From Input yy xx = 00 : All Outputs xx = [01-08] : Output 1 - 8 yy = [01-08] : Input 1 - 8
AUDIOxx FR yy	Set Audio Output xx From Input yy xx = 00 : All Outputs xx = [01-08] : Output 1 - 8 yy = [01-08] : Audio From Input 1-8 yy = [09-16] : Audio From Output 1-8 yy = [17-24] : Audio From ARC 1-8 yy = [25] : Optical Input yy = [33] : Analogue Input

COMMAND	ACTION
MXIR xx FR yy	Local Matrix IR Out xx From Remote Rx yy IR In xx = [01-08] : Local IR Out 1 - 8 yy = 00 : All Remote Rx IR In yy = [01-08] : Remote Rx IR In 1 - 8
MUTE mm TX xx	Turn Mute On/Off On Output xx mm = On mm = Off xx = 00 : All Outputs xx = [01-08] : Analogue Output 1 To 8 xx = [09-16] : Optical Output 1 To 8
AUDOUT xx mm	Turn Mute On/Off On Output xx mm = On mm = Off xx = 00 : All Outputs xx = [01-08] : Analogue Output 1 To 8 xx = [09-16] : Optical Output 1 To 8
VOL xx TX yy	Set Volume Level xx On Output yy xx = [0...100] : Set Volume Level xx = + : Volume Level Increases xx = - : Volume Level Decreases yy = 00 : Select All Output Ports yy = [01-08] : Select Single Output Port 01 To 08
OUT xx ARC aa	Set RX On Output xx To ARC Mode aa xx = 00 : All Outputs xx = [01-08] : Output 1 - 8 aa = 01 : ARC From Optical aa = 02 : ARC From HDMI
OUT xx SCALING	ON/OFF Set Output xx Scaling ON/OFF xx = 00 : All Outputs xx = [01-08] : Output 1 - 8
IRFV ON/OFF	Local Matrix IR Out Follow Video Switching ON/OFF
OUT xx IRHEXSEND yy	Send Pronto Hex Code To Remote End xx = 00 : All Outputs xx = [01-08] : Output 1 - 8 yy = IR Value(Hex Format)

Communication Protocols and Commands (continued)

COMMAND	ACTION
EDID xx DF yy	Set Input xx EDID To Default EDID yy xx = Input On Product (00 Refers To ALL Inputs, 02 = Input 2 Etc) yy = 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 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 xx TO yy	Save External EDID xx Into Slot yy xx = [01-08]: EDID Copy Output 1 - 8 xx = 00: EDID Via RS232 Send To Matrix yy = 00: All User EDID yy = 01 or 34: User EDID 1 yy = 02 or 35: User EDID 2

COMMAND	ACTION
PRESET xx SAVE	Save Current Output Connections To Preset xx Config
PRESET xx CLR	Delete Preset xx Config xx = [00-09] : 00 : All Presets, Preset 1 - 9
PRESET xx APPLY	Apply Preset xx Config To Output Connection xx = [01-09] : Presets 1 - 9
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
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
INxx CEC REWIND	REWIND On Input xx
INxx CEC FF	FAST FORWARD On Input xx

Communication Protocols and Commands (continued)

COMMAND	ACTION
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)
RS232BAUD xx	Set RS232 Baud Rate To xx xx = 1 2400, 2 4800, 3 9600, 4 19200, 5 38400, 6 57600 (Default), 7 115200
OUT xx RS232SEND yy:zz:aa:bb	Send b To RS232 Port xx And Wait yy Seconds For Feedback xx = 00 : Local RS232 Port xx = [01-08] : Output 1 - 8 yy = [00-10] : Wait For The Feedback yy Seconds zz = a ASCII, h HEX aa = 1 2400, 2 4800, 3 9600, 4 19200, 5 38400, 6 57600 (Default), 7 115200 bb = RS232 command
RS232DLYOUTxx:yy	Set Send Output xx Interval Time In yy Seconds Between RS232 On And User Commands xx = 00: All Output Port xx = [01-08]: Output 1 - 8 yy = [0-180]: Delay yy Seconds
RS232OUTxx ON	Enable RS232 Remote-control Mode On HDBT Output xx
RS232OUTxx OFF	Disable RS232 Remote-control Mode On HDBT Output xx
RS232ONOUTxx yy:zz:aa:bb	Save RS232ON Commands To Output xx xx = 00: All Output Port xx = [01-08]: Output 1 - 8 yy = 1 RS232 Display On yy = 2 RS232 Display Input Select yy = 3 RS232 User Command 1 yy = 4 RS232 User Command 2 yy = 5 RS232 User Command 3 zz = a ASCII, h HEX aa = 1 2400, 2 4800, 3 9600, 4 19200, 5 38400, 6 57600 (Default), 7 115200 bb = RS232 Command
RS232OFFOUTxx zz:aa:bb	Save RS232OFF Command To Output xx zz= a ASCII, h HEX aa = 1 2400, 2 4800, 3 9600, 4 19200, 5 38400, 6 57600 (Default), 7 115200 bb = RS232 Command
RS232ONOUTxx DISABLE	Disable Auto RS232 Commands When Detecting A Signal On Output xx
RS232OFFOUTxx DISABLE	Disable Auto RS232 Commands When Not Detecting A Signal On Output xx xx = 00: All Output Port xx = [01-08]: Output 1 - 8
NET DHCP ON/OFF	Set Auto IP(DHCP) On Or Off
NET TN ON/OFF	Set Telnet Port On Or Off

COMMAND	ACTION
NET TN8000 ON/OFF	Set Telnet Port 8000 On Or Off
NET MDNS ON/OFF	Set mDNS On Or Off
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	Set Telnet Port

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.

www.blustream.com.au
www.blustream-us.com
www.blustream.co.uk