

▶ Custom Pro Matrix

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 save / 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.

Safety & Performance Notice

The transmission distances of HDMI over UTP cables are measured using TE CONNECTIVITY 1427071-6

EIA/TIA-568-B termination (T568B) of cables is recommended for optimal performance.

To minimise interference of the unshielded twisted pairs in the CAT5e/6/6a cable do not run the

HDBaseT™ / CAT5e/6/6a cabling with or in close parallel proximity to mains power cables.

Do not substitute or use any other power supply other than the enclosed unit, or a Blustream approved replacement.

Do not disassemble either the Transmitter or Receiver units for any reason. Doing so will void the manufacturer's warranty.

Contents

Introduction & Key Features	03
Modular Matrix Options Overview	03
Panel Descriptions - 8x8 Chassis	04
Panel Descriptions - 16x16 Chassis	05
Modular Options - Main Communication Board	06
Modular Options - Input Boards	07 - 08
Modular Options - Output Boards	09 - 11
Automatic Smart Scaling Functionality in CSC	11
Modular Options - Feature Boards	12
Installing Modular Matrix Boards	13
HDBaseT™ Transmitter & Receiver Options	14
Matrix Front Panel Control	15
Advanced EDID Management	16
Terminating CAT Cables for use with HDBaseT™	16
Understanding the HDBaseT™ Status LED's	17
Audio Functionality	18
Infrared Distribution	19
Infrared Control	20
Example Schematic - 8x8 Chassis	21
Example Schematic - 16x16 Chassis	22
Specifications, Package Contents & Maintenance	23
Infrared Commands - 8x8 Matrix	24 - 25
Infrared Commands - 16x16 Matrix	26 - 27
RS-232 and Telnet Commands	28 - 30
Certifications	31
Notes	32

Introduction

The Blustream Custom Pro matrix series achieves new levels of performance and flexibility. AV installers can now easily specify their desired I/O structure and choose the additional control features required for a specific project. The Custom Pro matrix chassis' have been specifically designed to operate in challenging AV environments. The robust housing and interlocking board configuration make both installation and maintenance a seamless experience. Advanced features include audio breakout, IR routing, HDBaseT™ inputs, simultaneous HDBaseT™ / HDMI outputs, RS-232 pass through and a web browser interface module for control and configuration of the matrix (subject to I/O card specification).

Key Features

- 2-way and 4-way interchangeable input & output boards
- Optional control boards: IR routing (8x8 chassis only), zone audio breakout, RS-232 pass-through to supported HDBaseT™ receivers
- Supports 4K UHD video up to 70m (4K @60Hz 4:4:4) and up to 100m 1080p using HDBaseT™ distribution for all 2nd generation HDMI2.0 and HDBaseT™ CSC input / output boards (subject to output board specifications)
- Web browser interface for control and configuration of the matrix
- Control via front panel, IR, RS-232, TCP/IP, and iOS / Android apps (search: 'Blustream Matrix')
- Supports PoC (Power over Cable) to power compatible HDBaseT™ receivers
- 3rd party drivers available for major control brands - refer to Blustream website for more details
- Advanced EDID management
- HDCP 2.2 compliant

Modular Matrix Options Overview

The Custom Pro series allows AV integrators to easily specify their desired input / output structure, choosing the additional control features as required for a specific project. The available modular board options are shown below:

Chassis	
CUSTOMPRO-HUB	Custom Pro Matrix Hub (8x8)
CUSTOMPRO-HUB16	Custom Pro Matrix Hub (16x16)

Feature & Control Boards	
PRO-8IR*	8-Way IR Control Board (5V IR only)
PRO-8IR-V2*	8-Way IR Control Board w. 5V & 12V IR
PRO-8RS232	8-Way RS-232 Breakout Board
PRO-8AB	8-Way Audio Breakout Board
PRO-8AB-V2	8-Way Audio Breakout Board w. LL Volume

18Gbps Video Input Boards (4K 60Hz 4:4:4)	
PRO-IN2HAB	2-Way HDMI 2.0 Input Board w. Audio B/O
PRO-IN4HAB	4-Way HDMI 2.0 Input Board w. Audio B/O
PRO-IN2H2V	4-Way HDMI 2.0 & VGA Input Board
PRO-IN2H2TCS	2-Way HDBaseT™ & HDMI 2.0 Input Board

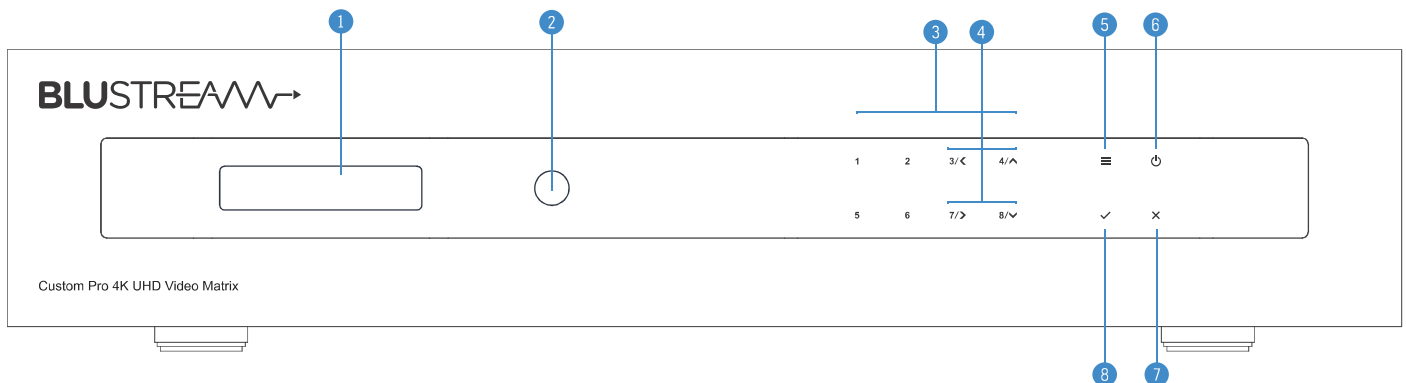
18Gbps Video Output Boards (4K 60Hz 4:4:4)	
PRO-OUT2H-V2	2-Way HDMI 2.0 Output Board
PRO-OUT4H-V2	4-Way HDMI 2.0 Output Board
PRO-OUT2TCS	2-Way HDBaseT™ CSC Output Board (100m 1080p)
PRO-OUT4TCS	4-Way HDBaseT™ CSC Output Board (100m 1080p)
PRO-OUT4HTCS	4-Way HDBaseT™ CSC / HDMI Output Board (100m 1080p)
PRO-OUT2TL-V2	2-Way HDBaseT™ CSC Output Board (70m 1080p)
PRO-OUT4TL-V2	4-Way HDBaseT™ CSC Output Board (70m 1080p)
PRO-OUT4TLS-V2	4-Way HDBaseT™ CSC / HDMI Output Board (70m 1080p)

* IR control boards are included within the CUSTOMPRO-HUB16

Please note that the legacy (HDMI1.4, HDBaseT™ 4K 60Hz 4:2:0) Custom Pro input and output boards are not included within this user guide. Please contact your authorised Blustream distributor or reseller for further information.

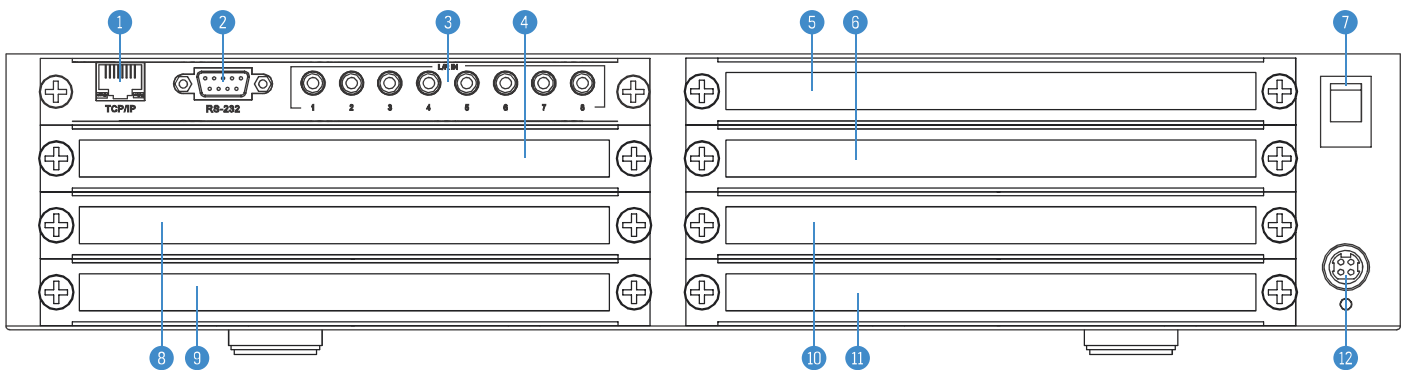
Panel Descriptions - 8x8 Chassis

Front Panel



- 1 LCD display - shows the status of input / output selection, EDID etc.
- 2 IR receiver window
- 3 Input / output selection buttons - select output number first followed by the input to be viewed
- 4 Up / Down / Left / Right selection buttons - for use when navigating through matrix menu
- 5 Menu button - press to enter menu structure - see page 15 for more details
- 6 Power button - press and hold for 2 seconds to power off
- 7 Exit / Cancel button - return to last menu page / exit to main display page
- 8 Enter / Confirm button

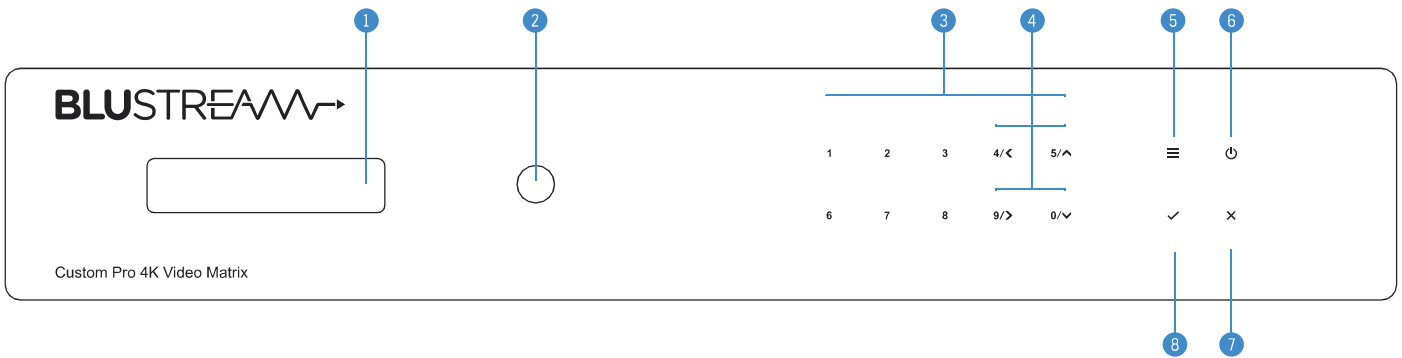
Rear Panel



- 1 TCP/IP port - for control of the matrix from PC or third party control processor
- 2 RS-232 / serial connector - for control of the matrix (as above)
- 3 Analogue L/R line level input (3.5mm stereo jack) audio can be embedded onto video inputs
- 4 RS-232 control card slots - insert optional RS-232 control cards for serial control at HDBaseT™ receivers
- 5 Audio output card slot - insert optional audio card for zone / output audio breakout
- 6 IR control card slot - insert optional IR control card for 2-way & Global IR control
- 7 Mains power switch
- 8 Video input card 1 (inputs 1-4) - insert video input card to connect to source devices (mandatory)
- 9 Video input card 2 (inputs 5-8) - insert video input card to connect to source devices (optional)
- 10 Video output card 1 (outputs 1-4) - insert video output card (mandatory)
- 11 Video output card 2 (outputs 5-8) - insert video output card (optional)
- 12 Power port – use supplied 24V 8A DC adaptor to power matrix

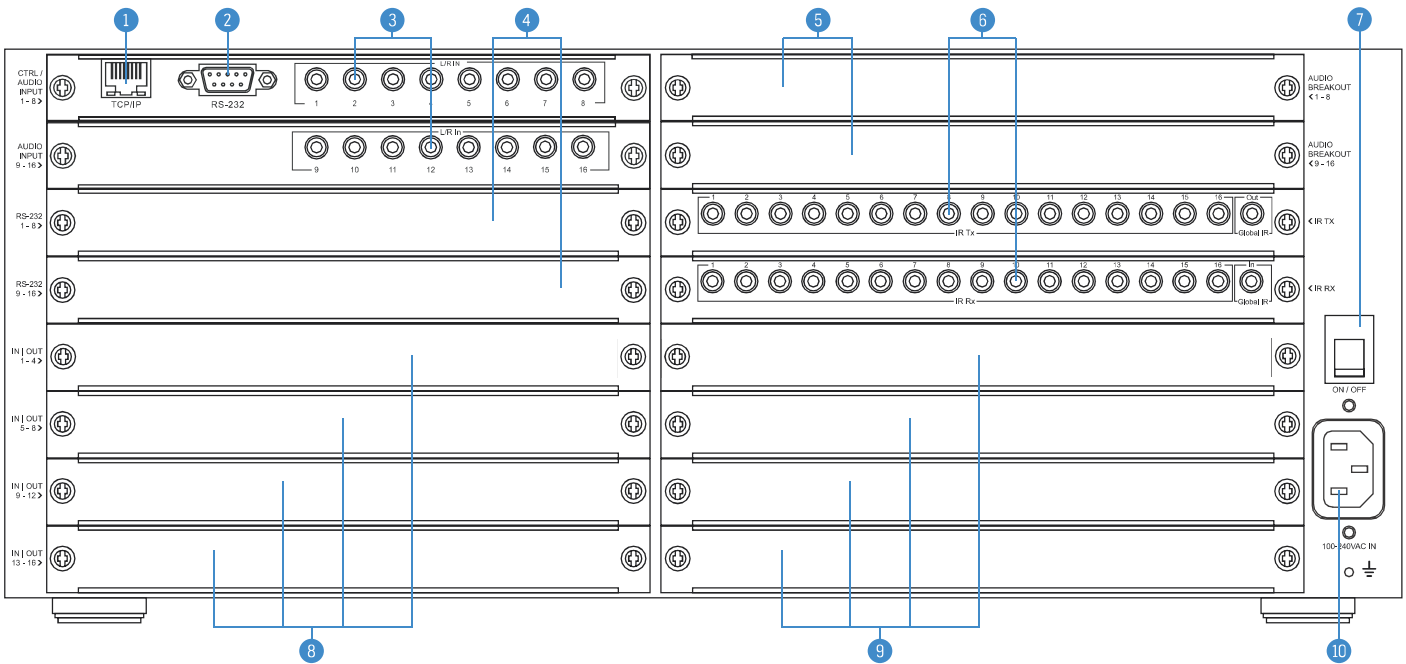
Panel Descriptions - 16x16 Chassis

Front Panel - touch panel shown only for illustrative purposes



- 1 LCD display - shows the status of input / output selection, EDID etc.
- 2 IR receiver window
- 3 Input / output selection buttons - select output number first (up to 2 digits), followed by enter, then input number
- 4 Up / Down / Left / Right selection buttons
- 5 Menu button -press to enter menu structure - see page 15 for more details
- 6 Power button - press and hold for 2 seconds to power off
- 7 Exit / Cancel button- return to last menu page / exit to main display page
- 8 Enter / Confirm button

Rear Panel



- 1 TCP/IP port - for control of the Matrix from PC or third party control processor
- 2 RS-232 / serial connector - for control of the matrix (as above)
- 3 Analogue L/R line level inputs (3.5mm stereo jack) Audio can be embedded onto video outputs
- 4 RS-232 control card slots - insert optional RS-232 control cards for serial control at HDBase™ receivers
- 5 Audio output card slots - insert optional audio cards for zone / output audio breakout
- 6 IR control card slots - IR control card for 2-way & Global IR control (supplied within 16x16 chassis)
- 7 Mains power switch
- 8 Video input card slots 1-4 (inputs 1-16) - insert video input cards to connect to source devices (input card slot 1 mandatory; 2-4 optional)
- 9 Video output card slots 1-4 (outputs 1-16) - insert video output cards (output card slot 1 mandatory; 2-4 optional)
- 10 Power port – use supplied IEC cable to power matrix