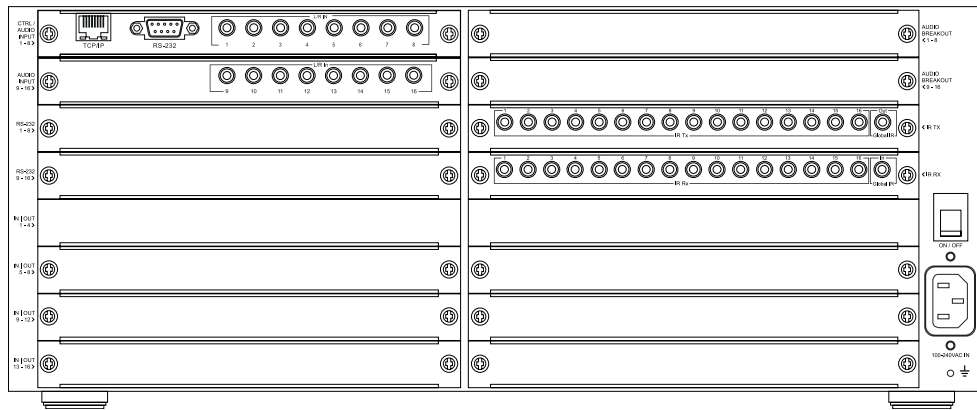# Custom Pro Hub 16

Quick Reference Guide

Introduction

The Custom Pro Hub 16 features 12 x modular bays allowing AV integrators to easily specify their desired I/O structure and choose additional control features required for a specific project. Its robust housing and interlocking board configuration make installation and maintenance a seamless experience. Advanced optional features include HDMI and HDBaseT™ boards featuring CSC (Colour Space Conversion) for support of all the latest 4K resolutions including 4K 60Hz 4:4:4 & resolutions including HDR. Supporting independent Smart-Scaling of 4K video inputs on CSC HDBaseT™ outputs, the Custom Pro Hub 16 allows displays only capable of supporting lower video resolutions to receive 4K video while still showing maximum original 4K UHD resolution on higher-definition displays. The comprehensive range of available input, output and control boards allow audio breakout with variable line level outputs, simultaneous HDBaseT™ / HDMI outputs, 2-way routed IR and RS-232 pass through. A web browser interface module for control and configuration of the matrix is included as standard as well as analogue audio embedding per zone.
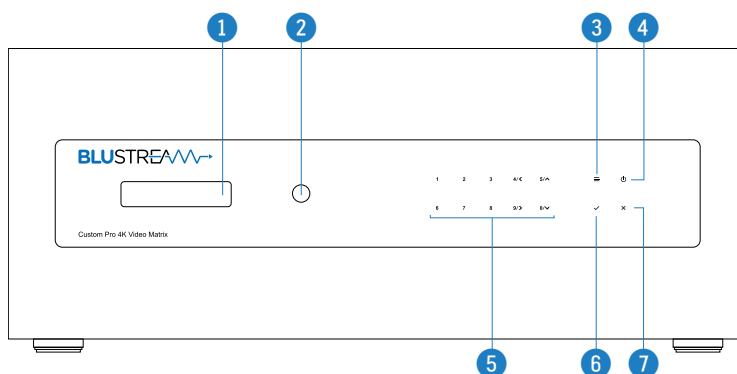
FEATURES:

- Custom Pro Matrix with 12 x modular bays for population of input, output and control boards
- Supports up to 16 x video inputs and 16 x video outputs using a combination of 2-way and 4-way interchangeable input and output boards
- Supports 4K UHD video up to 4K 60Hz 4:4:4*
- Optional Colour Space Conversion (CSC) boards support HDMI 2.0 18Gbps specification including HDR over HDBaseT™ featuring Smart-Scale technology that allows for a display only capable of supporting lower video resolutions (limited to 4K 60Hz 4:2:0 or 1080p) to receive 4K 60Hz 4:4:4 or 4K 60Hz 4:2:0 video content while still showing the native 4K UHD resolution through a HDMI output. Please note: Smart-Scale does not support 4K 4:2:2 signals to be converted to 1080p
- 16 x analogue L/R audio inputs which can be embedded onto corresponding HDMI / HDBaseT™ zone outputs
- 16 x IR outputs for routed control of local source equipment
- 16 x IR inputs for distribution of IR to compatible Blustream HDBaseT™ receivers
- Optional RS-232 control board for bi-directional IR control with HDBaseT™ Receiver
- Optional audio breakout board with line-level volume control
- Control and configuration of Matrix via front panel, RS-232, TCP/IP and Web GUI
- Supports PoC (Power over Cable) when used with compatible HDBaseT™ receivers
- 3rd Party drivers available for major control brands
- Advanced EDID management and HDCP 2.2 compliant

    * Full 4K 60Hz 4:4:4 support is subject to input / output boards specified
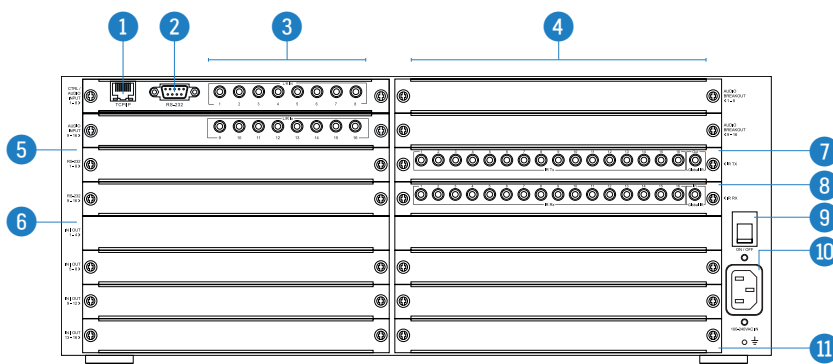
Panel Descriptions

Front Panel

❶ LCD display – Shows the status of input / output selection, EDID etc...

❷ IR receiver window

❸ Menu button - Press to access Matrix menu. Refer to full manual for details

❹ Power button – Press to power on/off the Matrix. Press and hold button for 10 seconds to lock Matrix front panel

❺ Selection buttons - Multi-use buttons
Primary Use:
First press = HDMI output selection buttons 0 to 9 – Press to select the output from 0 to 9. Output selected will be displayed on the Matrix display
Second Press = HDMI input selection buttons 0 to 9
Press to select the input from 0 to 9. Input selected will be displayed on the Matrix display

❻ Select button – Press to confirm changes within the Matrix menu

❼ ESC - Press to exit MENU mode
Secondary Use:
When the MENU button has been pressed buttons 4,5,9 & 0 are used as cursors to navigate the MENU system
4 = Left
5 = Up
9 = Right
0 = Down

Rear Panel

❶ TCP/IP (RJ45) – Connect to LAN for TCP/IP & web browser interface control of Matrix

❷ RS-232 port - For control of the Matrix from from PC or third party control processor

❸ Analogue L/R line level input (3.5mm stereo jack) audio can be embedded onto video outputs

❹ Audio output cards (optional) - Coaxial digital audio output and L/R line level analogue audio outputs (3.5mm stereo jack). Extracted audio will be concurrent with the corresponding HDMI video output. Please note: input must be PCM 2ch audio as Matrix does not down-mix 5.1ch audio signals

❺ RS-232 routing cards 1-2 (optional) - Bi-directional RS-232 ports. Connect to third party control device to extend RS-232 commands to HDBaseT receivers RS-232 port

❻ Video input cards 1-4 - Connect to source devices

❼ IR TX routing card - IR inputs (3.5mm stereo jacks)

❽ IR RX routing card - IR outputs (3.5mm mono jacks)

❾ Power switch

❿ Power port – Use supplied IEC cable to power Matrix

⓫ Video output cards 1-4 - Connect to HDMI or HDBaseT™, display devices

Understanding the Matrix / Receiver Status Lights

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

Blustream Matrix:

- The Yellow HDBaseT™ status link light will be off when the zone output has been turned off or there is a problem with the specific Matrix output.

- The Yellow HDBaseT™ status link light will blink when the zone output is on and working

- The Green HDBaseT™ link light will blink if there is an unstable connection between the Blustream Matrix and HDBaseT™ Receiver

- The Green HDBaseT™ link light will be lit when a there is an active HDBaseT™ Receiver connected to the Matrix

- The Green HDBaseT™ link light will be off when a there is no connection with a HDBaseT™ receiver

Blustream HDBaseT™ Receiver:

- The HDMI link light will be off when there is no connection with a display

- The HDMI link light will be on when there is an active connection with a display (Note: Not all HDBaseT™ RX feature a HDMI status LED)

- The HDBaseT™ link light will be off when there is no CAT cable/active HDBaseT connection on the RJ45 HDBaseT™ input

- The HDBaseT™ link light will blink if there is an unstable connection between the Blustream Matrix and HDBaseT™ receiver

- The HDBaseT™ link light will be lit when a CAT cable is connected to the HDBaseT™ RJ45 output on the Matrix and an active connection is achieved with the Blustream HDBaseT™ Receiver.

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 then from this information the source will discover what the best audio and video resolutions need to be outputted.
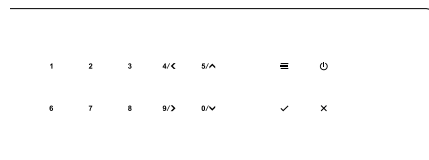
While the objective of EDID is to make connecting a digital display to a source a simple plug and play procedure issues do arise when multiple displays or video matrix switching is introduced because of the increased number of variables.

By pre-determining the video resolution and audio format of the source and display device you can reduce the time need for EDID hand shaking thus making switching quicker, and more reliable.

Configuration of Matrix EDID settings can be acheived in one of two ways:
1   Using Matrix web browser interface
2   Using Matrix Front Panel (see below)

To change the input signal type using the Matrix front panel press the following:

Using Matrix Front Panel Buttons:
    a. Press the MENU button

    b. Matrix front panel will display 'EDID settings'. Press the SELECT button to enter into EDID configuration mode

    c. Select the input you wish to fix the EDID on (1-8) or select 'All'. Use UP/DOWN buttons (buttons 4 & 8) to toggle the selection and press the RIGHT button (button 7) to move to resolution setup

    d. Select video resolution required (4K, 1080p, 3D etc). Use UP/DOWN buttons (buttons 4 & 8) to toggle the selection and press the RIGHT button (button 7) to move to resolution setup

    e. Select audio resolution required (2ch, 5.1 or 7.1). Use UP/DOWN buttons (buttons 4 & 8) to toggle the selection and press the SELECT button to confirm

    f. Press the ESC button to exit

Specifications

Specifications are for CUSTOMPRO-HUB16 modular chassis only.

Audio Input Connections: 16 x 3.5mm stereo jack

TCP/IP Control: 1 x RJ45, female

RS-232 Serial Port: 1 x DB-9, female

IR Input Connections: 16 x 3.5mm stereo jack

IR Output Connections: 16 x 3.5mm mono jack

Rack-Mountable: 4U rack height, rack ears included

Casing Dimensions (W x H x D): 440mm x 173mm x 422mm, without feet

Dimensions (W x H x D): 440mm x 178mm x 430mm, with feet

Shipping Weight: 23.5 kg

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: Internal 100-240v AC

Package Contents

- 1 x CUSTOMPRO-HUB16
- 1 x Rack Mounting Kit
- 5 x IR Receiver
- 4 x IR Emitter

- 5 x IR Control Cable - 3.5mm-3.5mm Cable
- 1 x Remote Control
- 1 x Quick Reference Guide
- IEC Power Cable

NOTE: *Custom Pro Matrix input / output cards are sold separately.*

Pro Matrix Solution Modular Options

Custom Pro Feature Boards	
PRO-8RS232	8-Way RS-232 Control Board
PRO-8AB	8-Way Audio Breakout Board
PRO-8ABV	8-Way Audio Breakout Board with Volume Control

Custom Pro Video Input Boards	
PRO-IN2H	2 Input HDMI Board
PRO-IN4H	4 Input HDMI Board
PRO-IN2H2V	4 Input HDMI 2.0 & VGA Board
PRO-IN2HAB	2 Input HDMI 2.0 Board with Audio Breakout
PRO-IN4HAB	4 Input HDMI 2.0 Board with Audio Breakout

Custom Pro Video Output Boards	
PRO-OUT2H	2 Output HDMI Board
PRO-OUT4H	4 Output HDMI Board
PRO-OUT2TL	2 Output HDBaseT™ Lite Board (70m)
PRO-OUT4TL	4 Output HDBaseT™ Lite Board (70m)
PRO-OUT4TLS	4 Output HDBaseT™ Lite / HDMI Board (70m)
PRO-OUT2H-V2	2 Output HDMI 2.0 Board
PRO-OUT4H-V2	4 Output HDMI 2.0 Board
PRO-OUT2TL-V2	2 Output HDBaseT™ Lite CSC Board (70m)
PRO-OUT4TL-V2	4 Output HDBaseT™ Lite CSC Board (70m)
PRO-OUT4TLS-V2	4 Output Dual HDMI 2.0/HDBaseT™ Lite CSC Board (70m)
PRO-OUT2TCS	2 Output HDBaseT™ CSC Board (100m)
PRO-OUT4TCS	4 Output HDBaseT™ CSC Board (100m)
PRO-OUT4HTCS	4 Output Dual HDMI 2.0/HDBaseT™ CSC Board (100m)

For the full Custom Pro Matrix User Manual please visit the Blustream website.