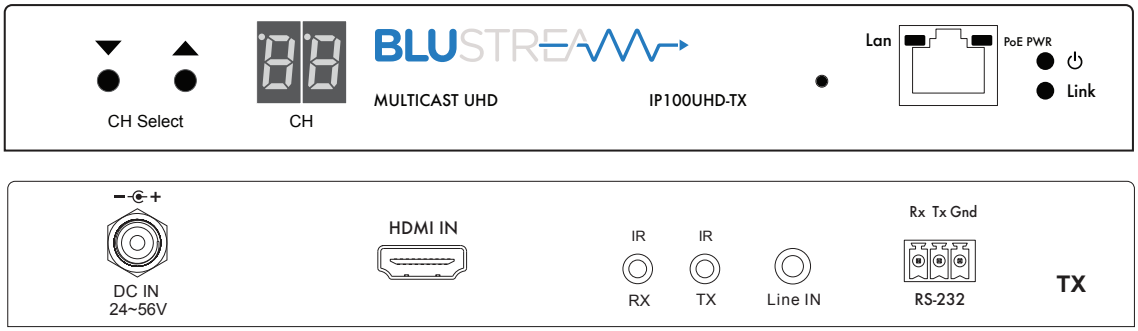


Blustream Multicast

User Manual

Updated February 2017

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 are highly recommended in order to protect and extend the life of your equipment.

Safety And 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 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 approved PoE network products or approved Blustream power supplies.

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

Contents

Introduction 04

Features 04

Panel Description - IP100UHD-TX Transmitter 05

Panel Description - IP100UHD-RX Receiver 06

Panel Description - CM100 Control Module 07

HDMI Over IP Network Configuration 08

Understanding Product Status Lights 09

Audio Connections 09

Infrared Control 10

Remote Control - REM100 10

Infrared Distribution 11

Infrared Pass-Through (Source Control) 12

RS-232 (Serial) Bi-Directional Pass-Through 13

Guest Mode - Telnet/IP Conversion To RS-232 14

Manual Configuration (without PC) 15

EDID Settings 16

Scaler Output Settings 17

Multicast PC Program 18

Supporting Documentation & Downloads 18

IP100UHD Firmware Update 19

IP100UHD Firmware Update via PC Program 20

PC Program Main Menu Overview 21

New Project Configuration 22-27

Contents continued

Transmitter Summary 28-29
Receiver Summary 30-31
Matrix Control 32
Video Preview 33
Video Wall 34
Advanced Settings 35
Preset Control 36
System Search 37
CM100 38
Accessing The Multicast Web-GUI Interface 39
Multicast Web-GUI - IP100UHD-TX - Transmitter 40-43
Multicast Web-GUI - IP100UHD-RX - Receiver 44-45
Changing Your Computer IP address 46-48
Application Diagrams - Matrix Configuration 49
Application Diagrams - Video Wall Configuration 50
Application Diagrams - 1 To 1 Configuration 51
Application Diagrams - 1 To Many Configuration 52
Terminating the interconnecting Network CAT cable 53
Specifications 54
Package Contents 54
Maintenance 54
RS-232 and Telnet Commands 55-56
IP100 Multicast Infrared Commands 57-70

Introduction

Our UHD Multicast distribution platform allows virtually latency free (1 frame) distribution of HDMI video over a 1GB Network switch. The IP100UHD-TX/RX offer industry leading 4K HDCP 2.2 HDMI distribution using a visually lossless compression technology, delivering HDMI, IR and RS-232 over standard network architecture. The CM100 Control Module allows simple third party control of the Multicast system using TCP/IP, RS-232 or IR. The Blustream Multicast products can be powered via PoE from a Network switch or locally should the switch not support PoE.

With multiple configuration options available the Multicast solution is ideal for both commercial and residential installations. Furthermore the system wizard PC configuration program and pre-built Blustream product drivers simplify Multicast product installation and negate the need for an understanding of complex network infrastructures.

Features

- Advanced UHD video over 1GB Network
- Virtually unlimited system size
- Extends HDMI over network architecture
- Compatible with all common brands of layer 3 managed network switches
- Supports up to 4K HDR UHD video (3840 x 2160 @30Hz 4:4:4, 4096 x 2160 @24Hz 4:4:4, and 4K @60Hz 4:2:0)
- Supports all known HDMI audio formats including Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio transmission
- Features 4 operational modes:
  - Matrix distribution (Requires 1GB network switch)
  - Video wall (Requires 1GB network switch)
  - One-to-one HDMI extender (No network switch required)
  - One-to-many HDMI extender (No network switch required)
- HDCP 2.2 Compliant
- Advanced EDID management
- Video up-scaling and down-scaling
- Analogue L/R audio embedding on IP100UHD-TX Transmitter
- Analogue L/R audio breakout on IP100UHD-RX Receiver
- Bi-directional RS-232 and IR pass through
- PoE (Power over Ethernet) to power Blustream products from PoE switch
- Local 24-56V power supply (should Network switch not support PoE). Sold separately
- RS-232, IR and Telnet/IP integration for control of Multicast system using Blustream CM100
- 3rd Party drivers available for all major home control brands

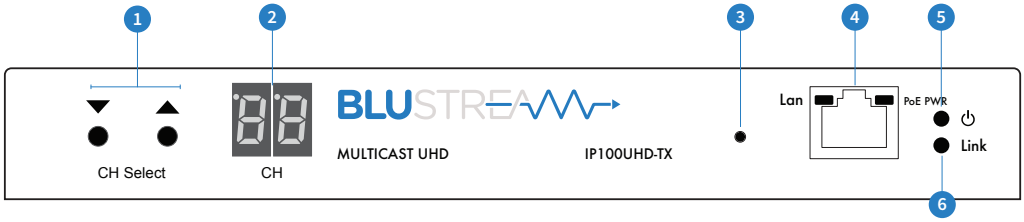
Please Note:

The Blustream Multicast system distributes HDMI video over layer 3 managed network hardware. It is advised that Blustream Multicast products are connected on an independent network switch to prevent interference or drop in signal performance due to other network products.

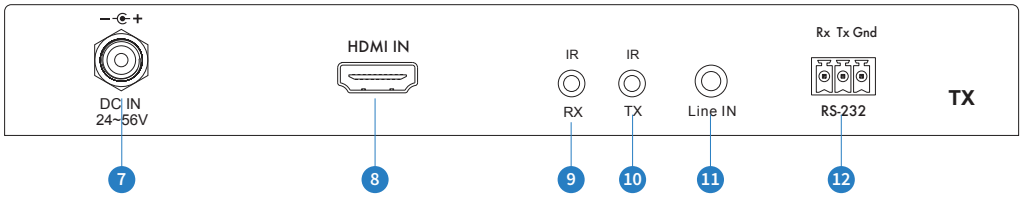
Please take care to make sure that you have read and understood the instructions in this manual and that you have setup your network switch correctly prior to connecting any Blustream Multicast products. Failure to do so will result in problems with configuration of the system and video performance.

Panel Description - IP100UHD-TX Transmitter

IP100UHD-TX Front Panel



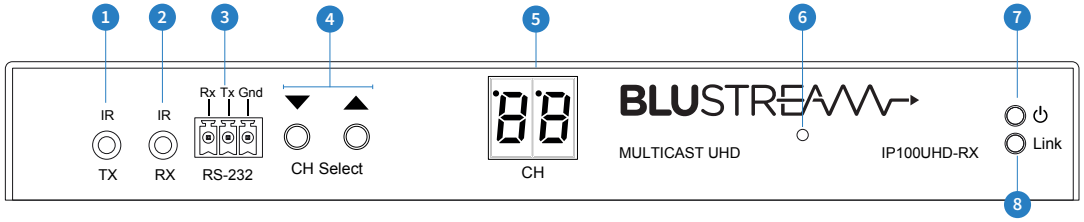
IP100UHD-TX Rear Panel



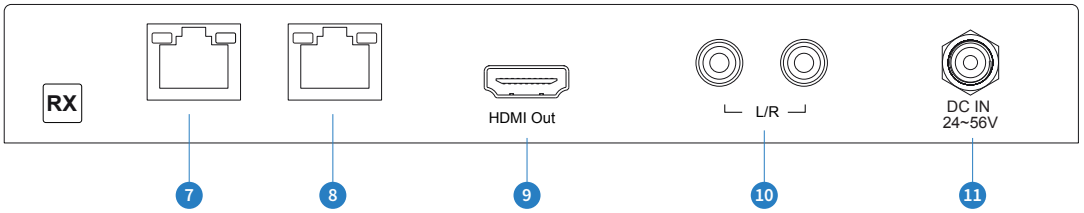
1. Channel select UP/Down - Used to setup IP100UHD-TX manually and apply 'Programming mode'
2. Channel status window - Displays product information
3. Reset button - Press and hold for 5 seconds to factory reset the product
4. LAN Connection (PoE) - Connect to Layer 3 Managed switch for HDMI video distribution
5. Power LED indicator
6. Link LED indicator - Solid status light indicates a stable connection to the network switch
7. Power port – Use 24-56V 1A DC adaptor (sold separately) if not using a PoE network switch
8. HDMI input – Connect to a HDMI source
9. IR RX (IR input) – 3.5mm stereo jack. Transmits IR to any IP100UHD-RX receiver currently viewing the IP100UHD-TX. Please use supplied Blustream IRR 5V IR Receiver. When using the Blustream IRCAB cable (optional) ensure cable direction is correct
10. IR TX - (IR output) - 3.5mm mono jack – Routed IR from any IP100UHD-RX (zone output) allowing source control. Use supplied Blustream 5V IR emitters
11. L/R Analogue audio line input - Used to embed Analogue audio onto HDMI signal
12. Assignable bi-directional RS-232 ports – Connect to third party control device to extend RS-232 commands to any/ multiple IP100UHD Multicast product RS-232 port

Panel Description - IP100UHD-RX Receiver

IP100UHD-RX Front Panel



IP100UHD-RX Rear Panel



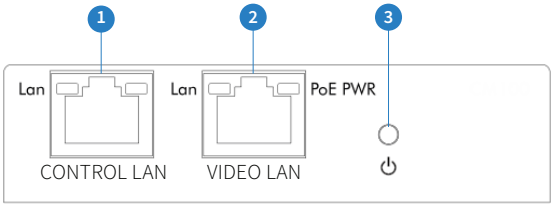
1. IR TX - (IR output) - 3.5mm mono jack – Routed IR to current selected IP100UHD-TX (Source Transmitter). Use supplied Blustream 5V IR emitters
2. IR RX (IR input) – 3.5mm stereo jack. Transmits IR to currently selected IP100UHD-TX transmitter allowing routed IR control of sources. Please use supplied Blustream IRR 5V IR Receiver. When using the Blustream IRCAB cable (optional) ensure cable direction is correct
3. Assignable bi-directional RS-232 port – Connect to third party control device to extend RS-232 commands to any/ multiple IP100UHD Multicast product RS-232 port
4. Channel select UP/Down - Used to scroll through sources (IP100UHD-TX), setup IP100UHD-RX manually and apply 'Programming mode'
5. Channel status window - Displays product information
6. Reset button - Press and hold for 5 seconds to factory reset the product
7. Power LED indicator
8. Link LED indicator - Solid status light indicates a stable connection to the network switch
9. HDMI output – Connect to a HDMI display
10. L/R Analogue audio line output - Used to breakout Analogue audio from HDMI signal

    NOTE: Source input must be PCM 2ch audio for analogue audio outputs to work. The Multicast products do not down-mix 5.1ch audio signals

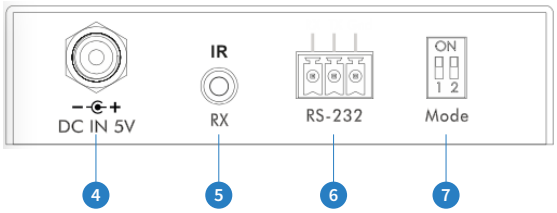
    Audio outputs are fixed line level output
11. Power port – Use 24-56V 1A DC adaptor (sold separately) if not using a PoE network switch

Panel Description - CM100 Control Module

CM100 Front Panel



CM100 Rear Panel



1. Control LAN port - Connect to existing network that your third party control system resides on. The Control LAN port is used for Telnet/IP control of the Multicast system
2. Multicast Video LAN port - Connect to the layer 3 network switch that the Blustream Multicast components are connected to
3. Power LED indicator
4. Power port – Use 5V 1A DC adaptor (sold separately) if not using a PoE network switch
5. IR RX (IR input) – 3.5mm stereo jack. Connect to third party control system if you are using IR as your method of controlling the Multicast system. Please use supplied Blustream IRR 5V IR Receiver. When using the Blustream IRCAB cable (optional) ensure cable direction is correct.
   Note: Only basic switching commands are available when using IR as a method of control. Advance Multicast features are only available using Telnet/IP and RS-232
6. RS-232 control port – Connect to a third party control device for control of the Multicast system using RS-232
7. Mode dip-switches - Used for adjusting the RS-232 control port baudrate settings as per the chart below.
   Note - If changing the Baudrate settings of the CM100 you must power cycle the unit for these to update

Baudrate	Mode Dip-Switch 1	Mode Dip-Switch 2
9600	Down	Down
19200	Down	Up
57600	Up	Down
115200	Up	Up

Data Bit: 8-bit

Parity: None

Stop Bit: 1-bit

Flow Control: None

HDMI Over IP Network Configuration

The Blustream Multicast system distributes HDMI video over layer 3 managed network hardware. It is advised that Blustream Multicast products are connected on an independent network switch to prevent interference or drop in signal performance due to other network products.

Blustream Multicast products are not limited to certain brands of network hardware but should you be using a network switch that Blustream have not tested or written instructions for you will need to make sure it supports the following network features:

Multicast

Multicast (one-to-many or many-to-many distribution) is group communication where information is addressed to a group of network devices simultaneously (Blustream IP100UHD-RX Receivers).

Instant Leave/Fast Leave/Immediate Leave

This feature is a feature associated with Multicast and means that as soon as an active connection is no longer required (the link between Transmitter and Receiver) the Multicast group and flow of track is stopped instantly. This prevents unnecessary flow of network traffic on the network switch.

IGMP Snooping

IGMP snooping is the process of listening to Internet Group Management Protocol (IGMP) network traffic. The feature allows a network switch to listen in on the IGMP conversation between hosts and routers (Transmitters and Receivers). By listening to this flow of traffic the switch maintains a map of which links need which IP multicast streams. Multicasts may be filtered from the links which do not need them and thus controls which ports receive specific multicast traffic.

Jumbo Frames/Jumbo Packets/MTU (Maximum Transmission Unit)

Jumbo frames are Ethernet frames with more than 1500 bytes of payload. Conventionally, jumbo frames can carry up to 9000 bytes of payload, but variations exist and some care must be taken using the term. Many Gigabit Ethernet switches can support jumbo frames.

Please Note:

Blustream have worked with many network switch providers to create setup guides and saved configuration files to help configure the products to work with the Multicast hardware. These configuration files can be found online at the following link and selecting the 'Drivers & Protocols' button on the website:

www.blustream.co.uk/ip100uhd

Understanding Product Status Lights

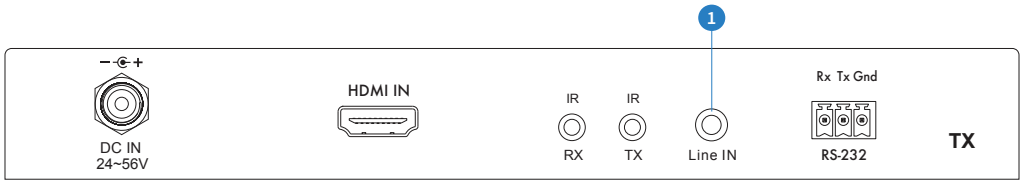
The Multicast products have several LED lights to indicate connectivity status and help diagnose connection problems.

Multicast Status Lights

1. LAN PoE status light - Solid Orange indicates PoE from the network switch powering the Multicast product
2. LAN status light - Solid Green indicates active network connection
3. Power status light - Off = No power, Flashing = Product booting, On = Power on
4. Link status light - Off = No connection to network, Flashing = not connected to any device (another Multicast product or network switch), On = Connected to Multicast device or network switch

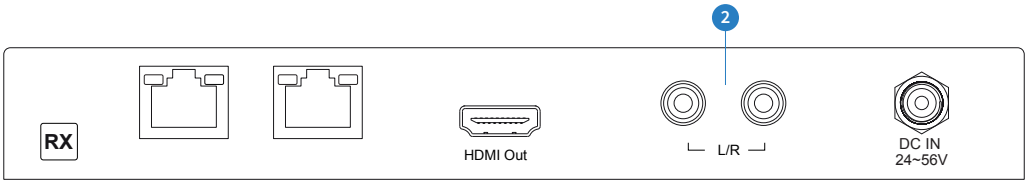
Audio Connections

Transmitter Audio Embedding



1. Analogue L/R Line Level audio input
   The Analogue line level input can be used to replace the original HDMI audio of the source connected to the Multicast Transmitter with Analogue L/R 2ch line level audio. The embedded Analogue audio is then distributed with the adjacent HDMI video signal throughout the Multicast system.
   Switching between original HDMI audio and embedded line level analogue 2ch audio is achieved using Blustream serial/Telnet/IP commands.
   Note: It is only possible to select EITHER HDMI audio or local Analogue line input. It is not possible to distribute both audio sources at the same time.

Receiver Audio Breakout



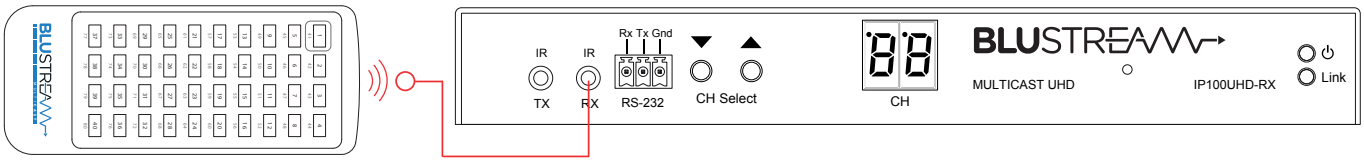
2. Analogue L/R Line Level audio output
   The IP100UHD-RX Multicast Receiver includes audio breakout from the selected HDMI source to associated Analogue L/R audio outputs. Extracted audio will be concurrent with the corresponding HDMI video output.
   Note: The source input must be PCM 2ch audio for Analogue audio outputs to work. The Blustream Multicast products do not down-mix Dolby Digital, DTS or 5.1ch audio signals.

Infrared Control

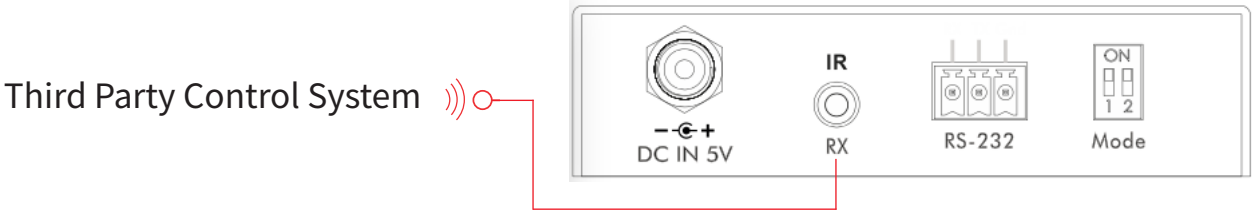
The Blustream Multicast system can be controlled using local IR hardware connected directly to the IP100UHD-RX Receiver. This prevents the need for a third party control solution. Only the source selection feature is available using local IR control through the Receiver. For advanced features such as video wall mode, audio embedding etc you will need to use RS-232 or TCP/IP control.

Blustream have created 80 IR commands allowing source selection of up to 80 IP100UHD-TX Transmitters. For systems larger than 80 source devices (IP100UHD-TX) we recommend the CM100 control module.
The full list of Blustream IR codes can be found at the rear of this manual on page 57 'IP100 Multicast Infrared Commands'

Infrared Control with REM100 and IP100UHD-RX



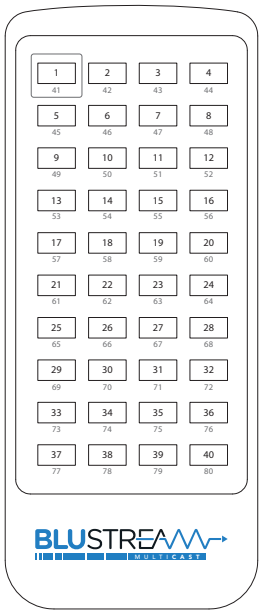
Infrared Control with Third Party Control System and CM100



Remote Control - REM100

Input (Transmitter) Selection

The Blustream REM100 remote control can be used at any Blustream IP100UHD-RX Receiver product and can select up to 80 source inputs (transmitters).



Using the remote:

Sources 1-40 are selected using the input selection buttons 1-40

Sources 41-80 are selected by first activating the 'secondary control mode' which is achieved by pressing and holding source button 1 for 5 seconds. Once this mode is active the buttons 1-40 are now selecting sources 41-80.

To return control back to source inputs 1-40 simply press and hold source button 1 for 5 seconds to revert to 'main control mode'.

Infrared Distribution

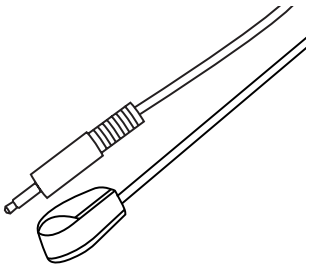
The Blustream range of Multicast products include multiple options for control and routing of IR.

IMPORTANT: Blustream Infrared products are all 5v and NOT compatible with alternative manufacturers Infrared solutions. When using third party 12v IR control solutions please use supplied Blustream IRCAB cable for IR conversion.

Each Blustream Multicast Transmitter and Receiver is supplied with both an IR Receiver and Emitter, details below:

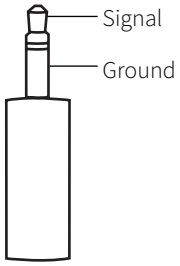
IR Emitter - IR1 & IR2 (IR2 sold separately)

Blustream 5V IR Emitter designed for discrete IR control of hardware



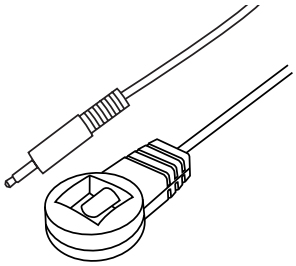
Infrared 3.5mm Pin-Out

IR Emitter - Mono 3.5mm

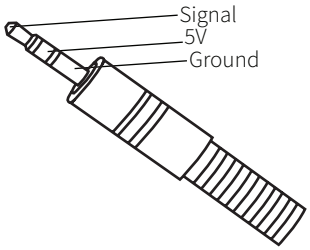


IR Receiver - IRR

Blustream 5V IR receiver to receive IR signal and distribute through Blustream products



IR Receiver - Stereo 3.5mm

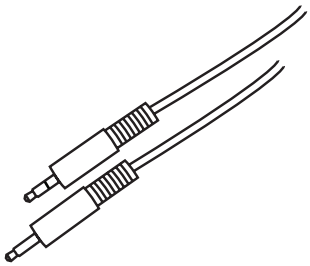


IR Control Cable - IRCAB (optional)

Blustream IR Control cable 3.5mm Mono to 3.5mm Stereo for linking third party control solutions to Blustream products.

Compatible with 12v IR third party products.

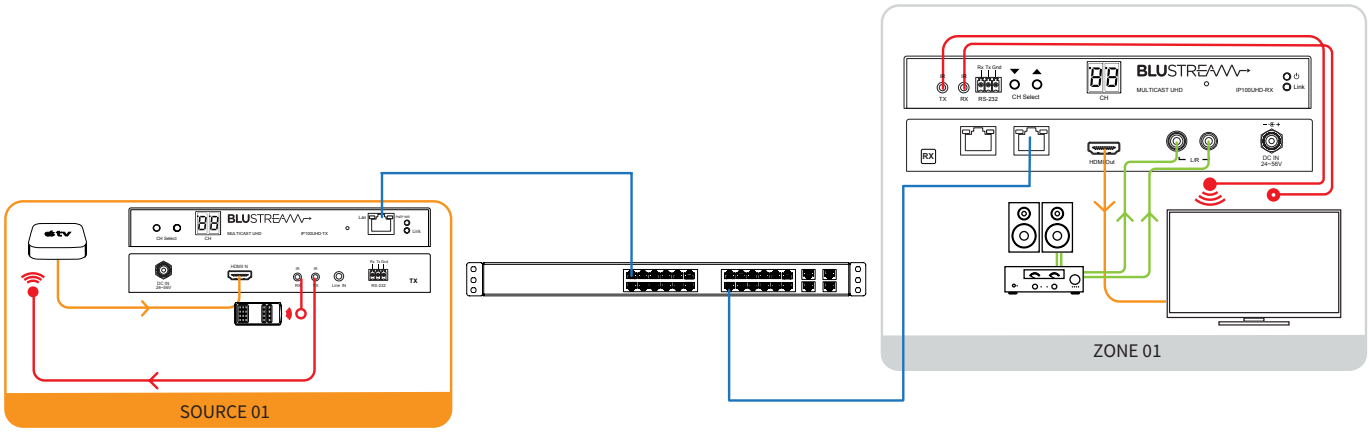
Note: Cable is directional as indicated



Infrared Pass-Through (Source Control)

The Multicast products feature Infrared pass-through allowing users to use original source remote controls in the field and control those sources located in another area.

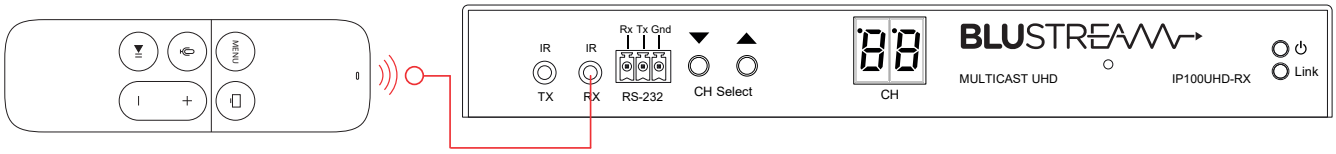
The IR signal is routed to only the current source that is selected meaning that individual source control can be achieved with installations consisting of multiple source equipment of the same type, I.E - Multiple Satellite boxes of the same make and model.



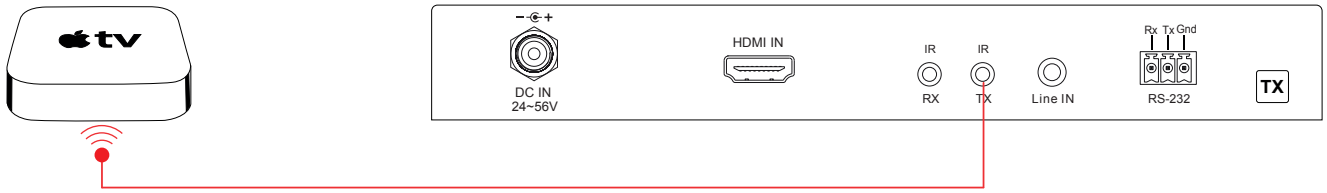
Note: The IR pass-through features are available in all modes of Multicast use (matrix mode, video-wall, one-to-one and one-to-many)

Connections:

The IR receiver is connected to the IR RX socket on the IP100UHD-RX.



The IR emitter is connected to the IR TX socket on the IP100UHD-TX and located on the IR receiver window of your source device.



RS-232 (Serial) Bi-Directional Pass-Through

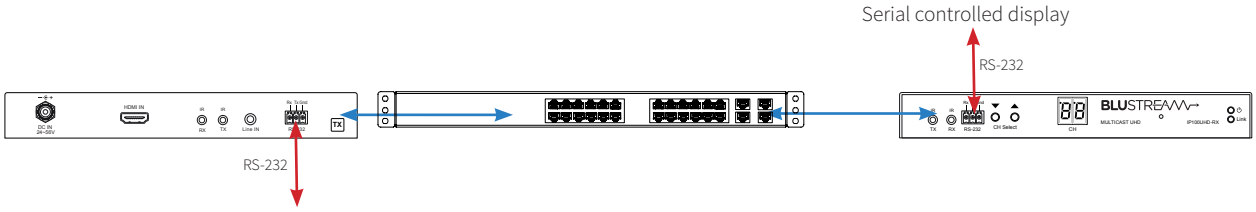
The Multicast products feature bi-directional RS-232 pass-through for control of products using serial commands.

There are multiple methods for distribution of RS-232 using the Blustream Multicast solution which include:-

1) 1-to-1 routed RS-232

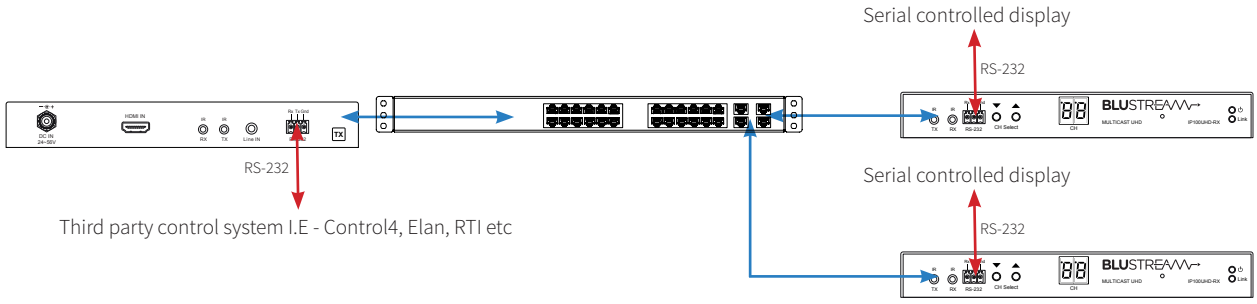
A link is programmed that creates an open connection between ANY Multicast product in the system (Transmitters or Receivers). Once established the RS-232 commands can be sent in either direction between products.

Multiple links can be created between Multicast products for additional independent product control.



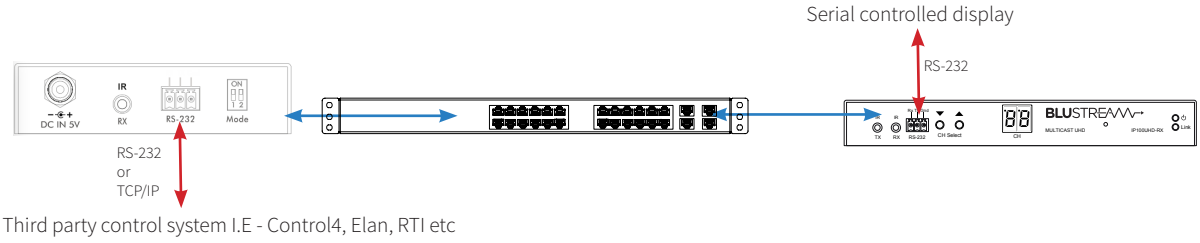
2) 1-to-many routed RS-232

A link is programmed that creates an open connection between MULTIPLE Multicast products in the system (Transmitters or Receivers). Once established the RS-232 commands can be sent in either direction between products but allows a single command to be sent to multiple products at the same time I.E - All displays powered on.



3) Guest Mode - Telnet/IP conversion to RS-232

This method of control converts a Telnet/IP control command into an RS-232 command. A link is programmed that creates an open connection between a CM100 control module and any IP100UHD-TX or RX (Transmitters or Receivers) product in the system. Telnet/IP commands are sent into the CM100 from a third party control solution. This is then converted into an RS-232/serial command for control of third party products.



Note: Only one method of RS-232 pass-through can be used at the same time. It is not possible to mix different methods of RS-232 control.

Guest Mode - Telnet/IP Conversion To RS-232

The Multicast products feature bi-directional RS-232 pass-through for control of products using serial commands from the CM100. This is also known as RS-232 Guest Mode. To utilise this you must first enable Guest Mode as follows.

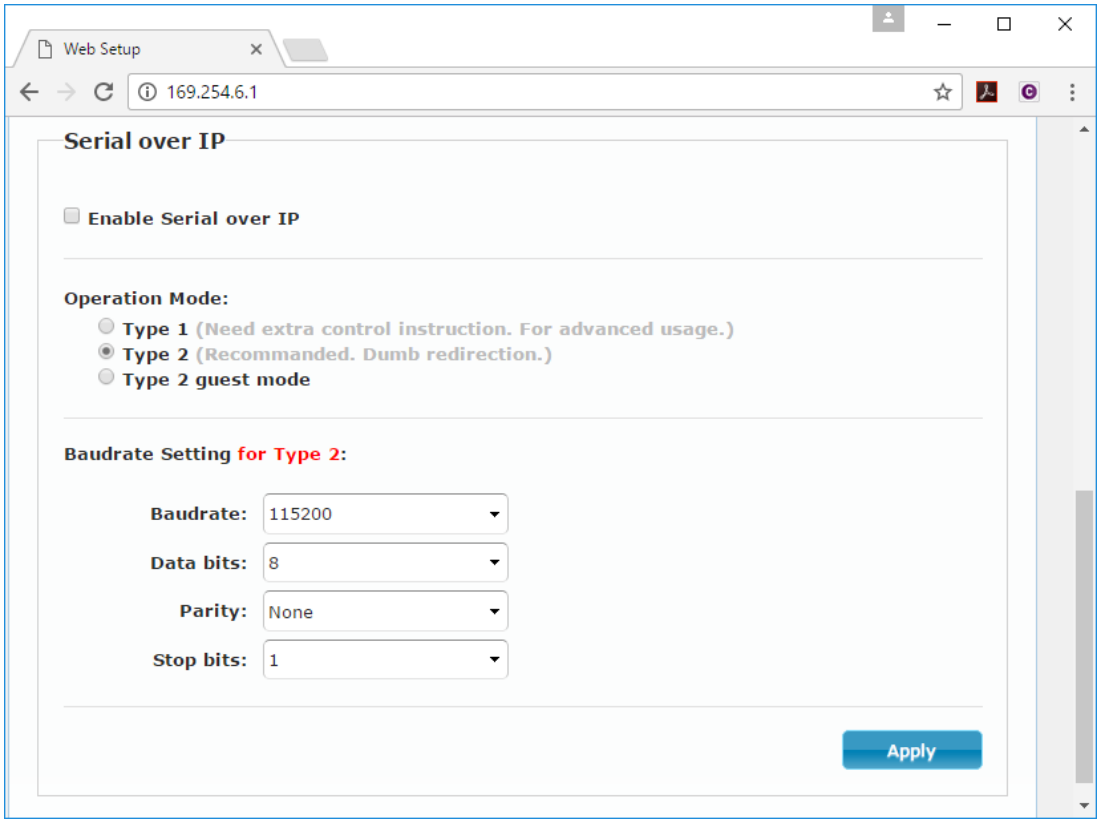
RS-232 Guest Mode Set Up

1) Guest Mode must be enabled in each IP100UHD-TX and RX unit in order to use this functionality.
Connect to the Web GUI of the IP100UHD-TX or RX that you wish to enable guest mode for by entering its IP Address in your web browser and navigate to the Functions' tab.
For example: 169.254.6.1 is the default IP address for RX ID 1.

2) Check the checkbox for 'Enable Serial over IP'

3) Select the checkbox for 'Type 2 guest mode'

Ensure all Baudrate settings are correct for the product that you wish to control.



RS-232 Guest Mode Communication

1) To open a Guest Mode connection between the CM100 and an IP100UHD-TX or RX unit you must send the following command via IP or RS-232:

INxxxGUEST Connect to TX xxx in Guest mode from the CM100

OUTxxxGUEST Connect to RX xxx in Guest mode from the CM100

Example:- Transmitter one is ID 001, meaning 'IN010GUEST' will allow bi-directional Serial or TCP/IP commands between CM100 and Transmitter 001.

2) Once a connection is established, any characters that you send from the CM100 will be transmitetd to the IP100UHD-TX or RX that you have connected with, and vice versa.

3) To close the connection you must send the escape command 0x02 (02 in Hex).
If using telnet you can also close the connection by pressing CTRL + B.

Manual Configuration of Multicast Products

The Blustream Multicast system can be configured without the need of a computer, allowing basic setup options such as addressing of products (IP configuration), EDID setup and scaler output setup.

Manual configuration does not require the product to be connected to a network switch in order to be setup, they only require the units to be powered either by local power supply (24-54V 1A) or by a PoE switch/power injector. This means total configuration can easily be achieved offsite without any network hardware.

Note: Advanced features such as video walls cannot be setup via manual configuration, and requires the PC software.

Configuring the IP100UHD-TX

1) Power the Multicast product - To configure the Multicast Transmitter first connect the product to a power supply (local or PoE network) and wait for the product to boot up. The front panel LED display will rotate whilst booting and display a 2 digit number when complete.

2) Put the Multicast product into 'Local Configuration' mode - Once the product is powered press both the 'UP' and 'DOWN' channel buttons on the front panel at the same time for 6 seconds to enter 'Local configuration' mode. You will know that the IP100UHD-TX is in this mode as the LCD front display of the product will show '**LC**'.

3) Assign the Transmitter ID (IP address) - Once the product is local configuration mode the display will begin to flash with a lowercase 't' to indicate that you are about to assign the transmitter identity. The identity will also be the IP address that is automatically assigned so it is of upmost importance that you do not assign any 2 Multicast Transmitter products with the same ID/IP address.

The first ID you should assign is ID1 = 169.254.3.1 (IP address 1)

The second ID you should assign is ID2 = 169.254.3.2 (IP address 2)

And so on....

Once you have selected the ID number press both Channel 'UP' and 'DOWN' buttons at the same time to move on to setting the EDID.

4) Set the EDID - Once the product is in EDID configuration mode the display will begin to flash with a lowercase 'e' to indicate that you are about to assign an EDID value. Use the 'UP' and 'DOWN' arrows to select the EDID setting required. A full list of EDID settings can be found on page 16 'EDID Control'.

For example: If the display shows '00' the EDID will be 1080P 2CH.

Once you have selected the EDID required press both Channel 'UP' and 'DOWN' buttons at the same time to finalise the setup. The Multicast product will reboot with the new configuration settings applied.

5) Configuring the IP100UHD-RX

Configuring the identity of the IP100UHD-RX Receiver is the same steps (steps 1 to 3) as shown above for the configuration of the IP100UHD-TX. When ID has been assigned the Receivers have the following IP addresses:

The first Receiver ID assigned is ID1 = 169.254.6.1 (IP address 1)

The second Receiver ID is ID2 = 169.254.6.2 (IP address 2)

And so on....

6) Set the Video Scaler of the Receiver - Once the product ID has been configured the display will begin to flash with a lowercase 's' to indicate that you are about to set the scaler output. Use the 'UP' and 'DOWN' arrows to select the scaler setting required. A full list of scaler settings can be found on page 17 'Scaler Output Control'.

For example: If the display shows '10' the Scaler output will be 4K 30Hz.

Once you have selected the Scaler output required press both Channel 'UP' and 'DOWN' buttons at the same time to finalise the setup. The Multicast product will reboot with the new configuration settings applied.

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 device. From this information the source will discover what the best audio and video resolutions need to be outputted.

In a normal Matrix based system issues do arise when multiple displays or video matrix switching is introduced because of the increased number of variables.

In the Blustream Multicast system each source device only communicates with a single Blustream IP100UHD-TX Transmitter meaning there is only a single EDID handshake. As each Blustream Multicast IP100UHD-RX Receiver has its own in-built video scaler, it is advised that the source EDID is set to output the best video signal possible as this can be down-scaled if required at each IP100UHD-RX Receiver.

Configuration of Multicast EDID settings can be achieved in several ways:-

1) During the manual configuration of the IP100UHD-TX Transmitter
2) Using the Blustream Multicast PC configuration software
3) Using the Multicast Web GUI interface
4) Using RS-232 commands via Blustream CM100

When configuring the EDID during manual setup or using RS-232 commands the following table indicates EDID values:

EDID	MULTICAST TRANSMITTER EDID SETTINGS
00	HDMI 1080p@60Hz, Audio 2CH PCM
01	HDMI 1080p@60Hz, Audio 5.1CH PCM/DTS/DOLBY
02	HDMI 1080p@60Hz, Audio 7.1CH PCM/DTS/DOLBY/HD
03	HDMI 1080i@60Hz, Audio 2CH PCM
04	HDMI 1080i@60Hz, Audio 5.1CH PCM/DTS/DOLBY
05	HDMI 1080i@60Hz, Audio 7.1CH PCM/DTS/DOLBY/HD
06	HDMI 1080p@60Hz/3D, Audio 2CH PCM
07	HDMI 1080p@60Hz/3D, Audio 5.1CH PCM/DTS/DOLBY
08	HDMI 1080p@60Hz/3D, Audio 7.1CH PCM/DTS/DOLBY/HD
09	HDMI 4K2K 4:4:4, Audio 2CH PCM
10	HDMI 4K2K 4:4:4, Audio 5.1CH PCM/DTS/DOLBY
11	HDMI 4K2K 4:4:4, Audio 7.1CH PCM/DTS/DOLBY/HD
12	DVI 1280x1024@60Hz, Audio None
13	DVI 1920x1080@60Hz, Audio None
14	DVI 1920x1200@60Hz, Audio None
15	Default EDID (Pass-through)
16	4K2K 4:2:0 @ 60Hz, Audio 2CH PCM
17	4K2K 4:2:0 @ 60Hz, Audio 5.1CH PCM/DTS/DOLBY
18	4K2K 4:2:0 @ 60Hz, Audio 7.1CH PCM/DTS/DOLBY/HD

Note: The Blustream Multicast products do not down-mix Dolby Digital, DTS or 5.1ch audio signals. Should your end-points (displays) only support 2CH PCM you must set the EDID value to match audio formats supported throughout the system.

Scaler Output Control

The Blustream Multicast Receiver has an in-built video scaler which can both up-scale and downscale video signals allowing the best picture quality possible at each display.

Configuration of Multicast Scaler settings can be achieved in several ways:-

1. During the manual configuration of the Multicast Receiver
2. Using the Blustream Multicast PC configuration software
3. Using the Multicast Web GUI interface
4. Using RS-232 commands via the Blustream CM100

When configuring the Scaling during manual setup or using RS-232 commands the following table indicates Scaler settings.

SCALER	MULTICAST RECEIVER SCALER SETTINGS
00	Passthrough
01	HDMI 1080p@50Hz
02	HDMI 1080p@60Hz
03	HDMI 720P@60Hz
04	HDMI 720P@50Hz
05	HDMI 1280 x 1024@60Hz
06	HDMI 1024 x 768@60Hz
07	HDMI 1360 x 768@60Hz
08	HDMI 1440 x 900@60Hz
09	HDMI 1680 x 1050@60Hz
10	HDMI 4K2K@30Hz
11	HDMI 4K2K@24Hz

Multicast PC Program

The following pages will review the Blustream Multicast PC program and Web GUI interface, giving the installer the knowledge to completely configure a full Blustream HDMI over IP system.

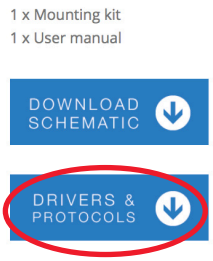
Prior to running the Blustream Multicast PC configuration software it is important that you have the following hardware available:

- PC with active LAN Network connection
- CAT network cables - straight connection
- Layer 3 managed network switch (POE) OR 24-56V DC power supply to power the units locally

Supporting Documentation & Downloads

The relevant supporting for the Blustream Multicast products can be found on the Blustream website: www.blustream.co.uk/ip100uhd

Click on the 'Drivers & Protocols' download button located on the individual Multicast product webpage:



This link will give access to the following information / documentation:

- IP100UHDTX/RX Firmware - this will always be the most current version of firmware available
- CM100 Documentation - firmware, 3rd party control drivers
- Multicast PC Program download (.exe format)
- Multicast Documentation
- Network Switch Instructions (Cisco, Luxul, etc)

IP100UHD Firmware Update

Prior to commencing installation of your Multicast system, it is important that the Blustream IP100UHD-TX/RX products are loaded with the latest firmware. The latest firmware can be found on the Blustream Website: www.blustream.co.uk/ip100uhd, using the Drivers & Protocols download button - see page 18 of this manual.

Updating the Blustream Multicast product firmware can be acheived in 2 ways:

1) Using the 'Firmware Update' feature in the 'Advanced' section of the PC program. This is the easiest method.

2) Using the products own Web GUI interface.

The below instructions are a step-by-step guide to upgrading the firmware in each Multicast product for new units that are yet to be configured. The firmware process must be completed one-by-one due to all products being shipped with the same standard factory set default IP address. **Failure to do so may end up corrupting the firmware in the products, resulting in product failure.**

Prior to upgrading the firmware in Blustream Multicast products using either of the above methods it is important you first complete the below instructions.

1) In order to communicate with the Blustream Multicast hardware your computer will need to be physically connected to either:-

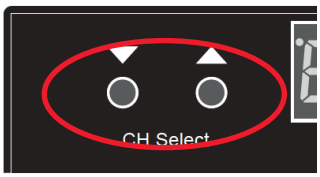
a) A PoE network switch using an Ethernet network cable which is in turn connected to the Blustream IP100UHD-TX/RX product

b) The Blustream IP100UHD product directly which must be powered locally using a 24-56V DC power supply (sold separately)

2) IMPORTANT: Prior to connecting the Blustream Multicast IP100 product to your network switch/local power supply, it is recommended that the product is forced into 'firmware update mode'. Firmware Upgrade Mode stops the Multicast products from streaming video and activates a status for only updating product firmware.

To activate Firmware Update Mode:

a) Press both the '**CH SELECT UP**' and '**CH SELECT DOWN'** buttons located on the product front panel at the same time. Whilst holding these buttons down...



b) Insert the PoE network cable or local 24-56V DC power supply

c) Do not release the buttons until the product shows 'PG' in the status window on the front panel

Product firmware can be updated without 'Firmware Update Mode' but you must stop any streaming service to/from the product before you proceed with the firmware upgrade. Failure to do so may result in loss of firmware transmission packets due to un-necessary traffic on the network.

3) In order to be able to communicate with the Blustream IP products your computer must also be in the same IP range as the Blustream IP100UHD-TX/RX default IP address. If you are unsure how to update your computer IP range follow the 'Changing your computer IP address' instructions at the rear of this guide.

The default IP address of all new Multicast IP100UHD-TX/RX is:

169.254.100.254

IP100UHD Firmware Update via PC Program

To update the firmware in either of the Transmitter or Receiver Multicast products using the Blustream PC program please follow the below steps:

1) Open the Blustream PC Program (see page 18 for instructions of how to download this program)

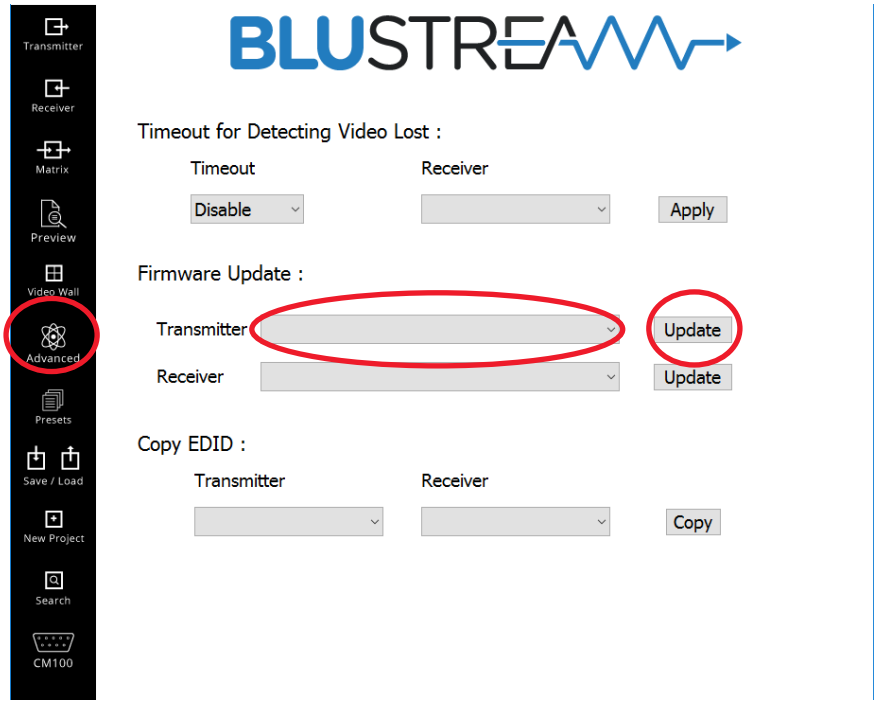
2) Select the 'ADVANCED' tab in the side menu. In the following screen you will see the '**Firmware Update**' option on the Advanced settings page

3) Select the product you wish to update (Transmitter or Receiver) from the drop-down box. If the product is a new default unit select

   'New Product - Default IP 169.254.100.254'

4) Click the corresponding '**Update**' button

   A warning window will open and request that the product is put into Firmware Update Mode - see page 19



5) Download the most recent IP100UHD-TX or -RX firmware from the Blustreasm website.
   Click '**Browse'** and open the folder in which you have saved the Blustream IP100UHD-TX/RX firmware files.

6) Select the required 'Transmitter.BIN' or 'Receiver.BIN' file

7) Click '**Upload'** which will begin the firmware upgrade process

8) Once the upgrade has completed please disconnect the network cable/power and re-connect to reboot the product. The Transmitter/Receiver display will no longer display 'PG' when complete.

Please note:

DO NOT unplug the power or network connection to the IP100UHD-TX/RX as this may result in failure to upgrade firmware, which may lead to possible failure of the unit.

The firmware upgrade process may take several minutes. Do not connect any other Blustream product that has the same IP address during this time.

PC Program Main Menu Overview

When you first run the Blustream PC Wizard you will see multiple options in the side menu for configuration and control of the Multicast system.

Transmitter - page shows a summary of all IP100UHD-TX (Transmitters) installed, with options for EDID management, checking FW version, updating settings, adding new transmitters, replacing or rebooting products etc.

Receiver - page shows a summary of all IP100UHD-RX (Receivers) installed, with options for resolution output (HDR and scaling), function (video wall mode or matrix), updating settings, adding new receivers, replacing or rebooting products etc.

Matrix - this page is used for system testing and includes a matrix switching control of any installed IP100 Transmitter and Receiver

Preview - this page is used for system testing and includes a video preview of any installed IP100 Transmitter and Receiver

Video Wall - page is used for the set-up, configuration and control of IP100UHD receivers to create a video wall array of up to a size of 16x16, including: bezel & gap compensation, monitor position layout, stretch / fit, and screen rotation

Advanced - page contains advanced settings for the Multicast products including firmware upgrading of transmitters or receivers and time out for video lost detection

Preset - create and recall advance presets, allowing a single button recall of custom system setup (8 presets maximum)

Save / Load - used to save or load system configuration files

New Project - used to configure a new Blustream Multicast system

Search - find all active Multicast products installed if installer does not have the saved system file

CM100 - allows you to update firmware and set the IP Address of a CM100 if connected to the Multicast system

New Project Configuration

The Blustream PC Program includes a wizard for configuring all components of the Multicast system. It has been designed to include a simple step-by-step tutorial that will guide you through the setup procedure, resulting in a system in which all components are assigned a name and IP address ready for basic system use.

It is important to follow the wizard instructions. Failure to do so will result in incorrectly configured Multicast products.

Please see below summary of the setup process:-

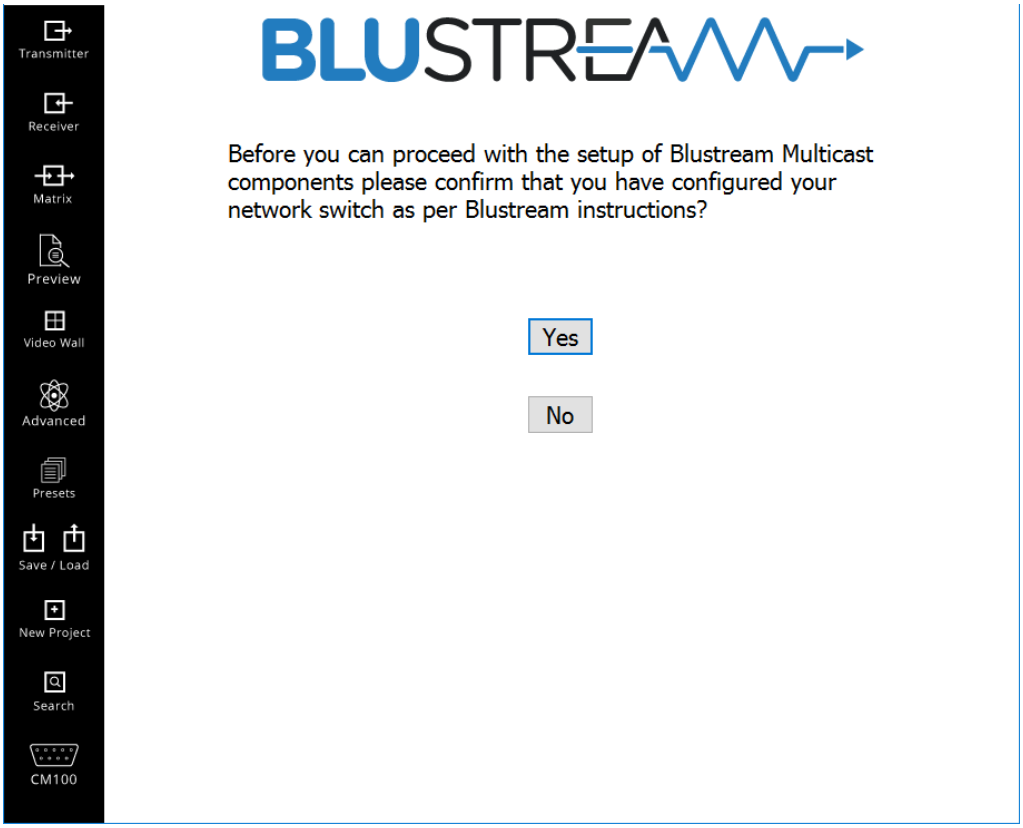
1) Connecting your PC to the network switch/Multicast product

In order to configure the Blustream Multicast products your PC must first be physically connected to the products, this can be acheived by:

a) A PoE network switch using a Ethernet network cable which is in turn connected to the Blustream IP100UHD-TX/RX products

b) Connected directly to the Blustream IP100UHD product which must be powered locally using a 24-56V DC power supply

In order to be able to communicate with the Blustream IP products your computer must also be in the same IP range as the Blustream IP100UHD-TX/RX default IP address. If you are unsure how to update your computer IP range follow the 'Changing your computer IP address' instructions at the rear of this guide.



Click '**YES**' to continue with the wizard configuration

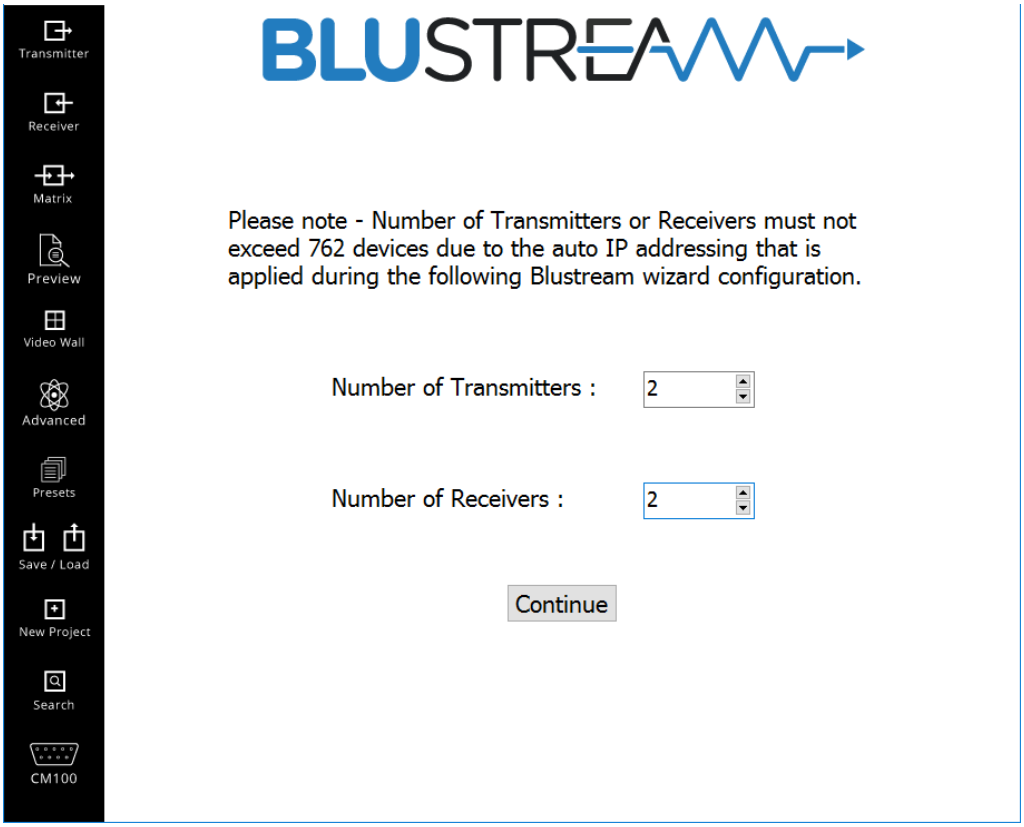
2) Confirming the number of Multicast Transmitter and Receiver products to be setup

The following window is used to confirm how many Transmitter and Receiver products you are about to configure.

It is important that these totals are correct as the wizard will guide you through the setup of each product one-by -one. You can add tranmistters or receivers to the system at a later stage if required.

During the setup of each product the PC wizard will automatically assign an IP address to each product.

The number of Transmitters or Receivers must not exceed 762 devices due to the auto IP address configuration. If you plan to connect more than 762x transmitters or 762x receivers to the system, please contact Blustream Support.



Transmitters

The first product to be assigned an IP address is an IP100UHD-TX Transmitter which will be given the IP address of 169.254.3.1. The next Transmitter will be assigned an IP address of 169.254.3.2 and so on....

Once the IP range of 169.254.3.x is filled (254 units), the PC wizard will auto assign an IP address of 169.254.4.1 and so on...

Once the IP range of 169.254.4.x is filled the PC wizard will auto assign an IP address of 169.254.5.1 and so on until 169.254.4.254

Receivers

After all Transmitter products have been setup the PC wizard will automatically assign an IP address to the Multicast Receivers. The first IP100UHD-RX Receiver will be given the IP address of 169.254.6.1. The next Receiver will be assigned an IP address of 169.254.6.2 and so on....

Once the IP range of 169.254.6.x is filled (254 units) the PC wizard will auto assign an IP address of 169.254.7.1 and so on...

Once the IP range of 169.254.7.x is filled the PC wizard will auto assign an IP address of 169.254.8.1 and so on until 169.254.8.254

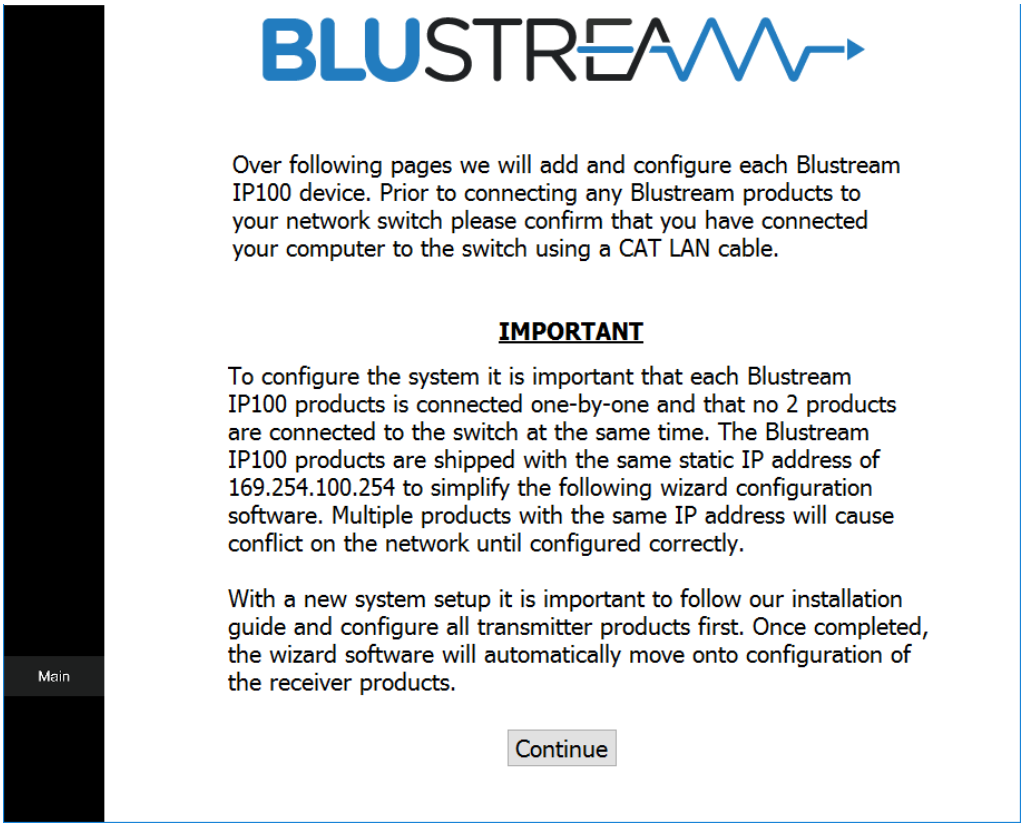
The above automatic IP configuration is why the system component quantity limitations are 762x Transmitters and 762x Receivers.

3) Setup warning!

Each Blustream Multicast products is shipped with the default IP address of 169.254.100.254

Each time the PC wizard looks for a new Multicast component to configure it is looking for the default IP address ONLY.

It is important that only 1 new Blustream Multicast product is connected/configured at a time. Multiple products with the same IP address will cause an IP conflict on the network until configured correctly.

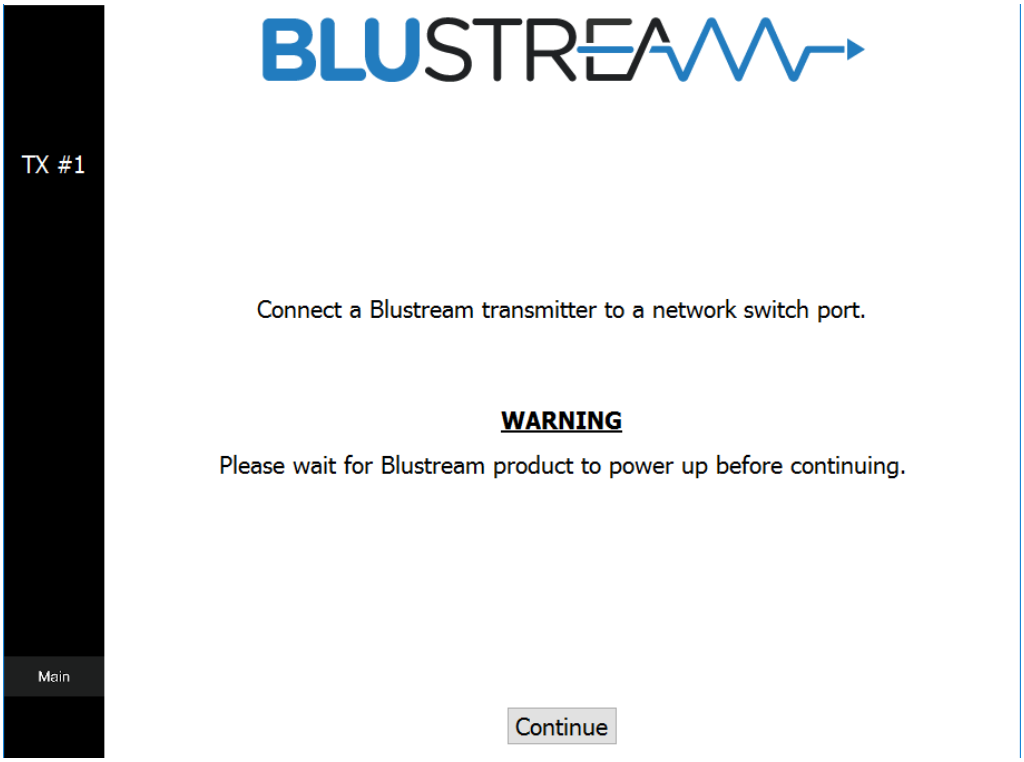


4) Connect the first Blustream IP100HD-TX Transmitter

The PC wizard now prompts you to connect your first Multicast Transmitter.

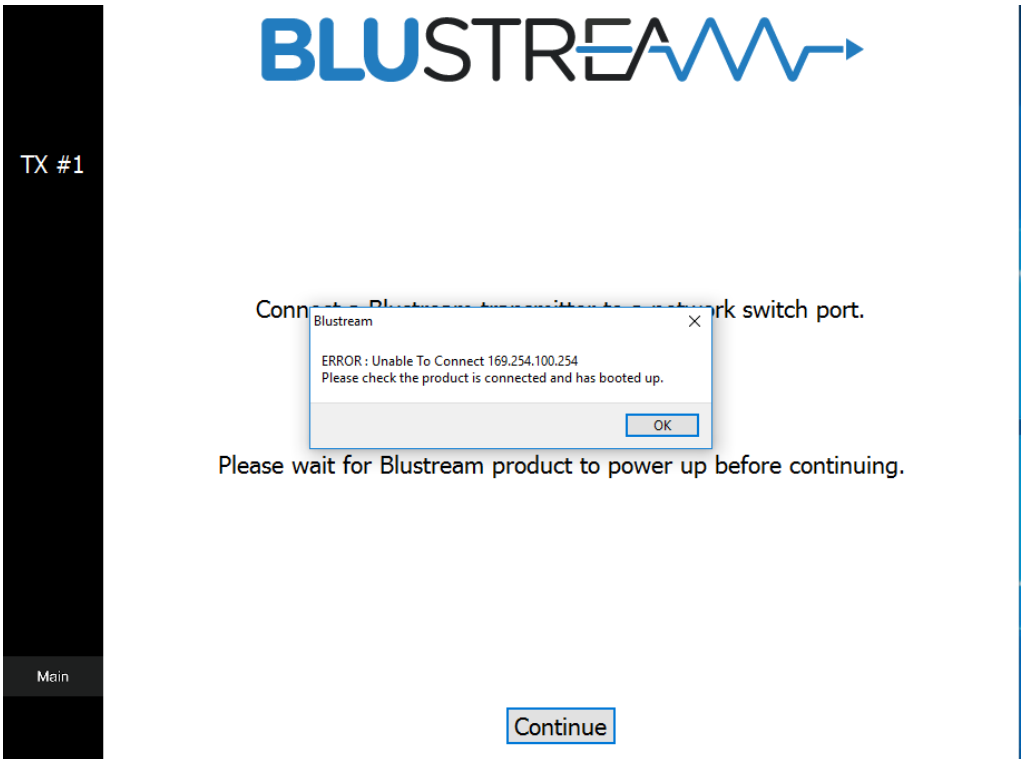
Please wait for the product to power up (both the CHANNEL ID LEDs and POWER LED should be lit). On connecting the transmitter, the CH display will rotate until powered and connected.

Once the unit is powered click 'CONTINUE'



5) Unable to find new product

Should you press 'CONTINUE' prior to the Multicast product being connected or powered you will see the below warning window.



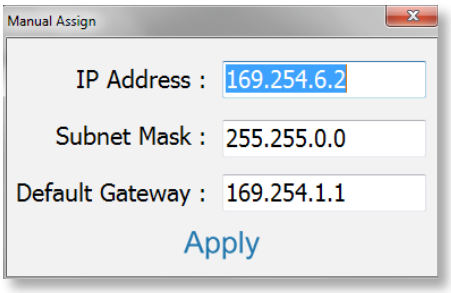
Check the product is powered and connected and click 'OK' to try again.

6) Transmitter configuration

The below image is the Transmitter summary screen

From this configuration page you can:

1. Name the Source device the transmitter will be connected to (i.e. Apple TV, Laptop, Blu-Ray etc.)
2. Auto Assign IP - the PC Wizard will assign the product IP address as explained on page 23. Manual Assign IP - Installer can manually assign IP address details. For example:



Please note: It is not advised that IP address of Multicast products are manually confugured as the Blustream CM100 and drivers are configured to the default PC wizard IP address range. Manually assigning IP addresses will prevent the CM100 control module from working.

3. Multicast mode - standard default setting that allows multiple Receivers (display) to view the source (Transmitters) at the same time.
4. Unicast Mode - setting that limits each Transmitter (source) to only be viewed by a single display (Receiver) at the same time. This mode is not advised.

Press '**CONTINUE**' when finished to apply the changes to the Blustream Transmitter. You will note the Transmitter will automatically reboot itself in order for the settings to be applied. This may take a couple of minutes.

Check the product is powered and connected and click 'OK' to try again.

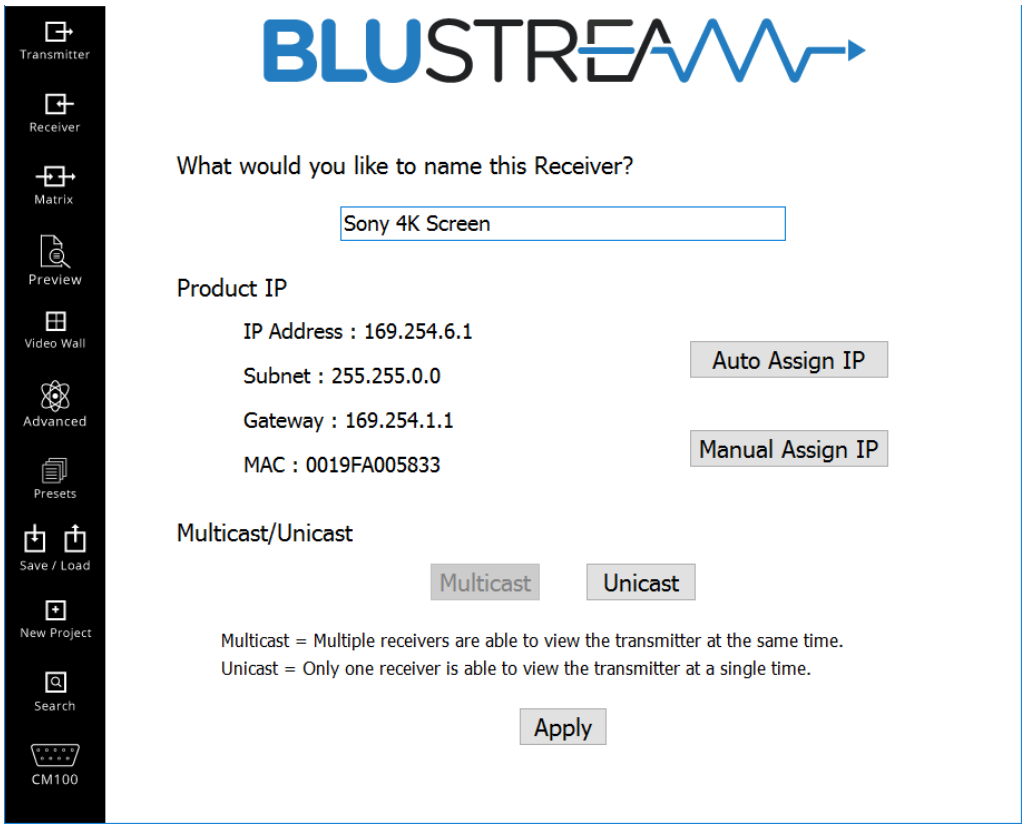
5. Repeat the Transmitter configuration process for all products.

Remember to not connect any additional Transmitter products until the previous unit has rebooted and been assigned its new IP address.

7) Receiver configuration

Once all the Blustream Multicast Transmitters have been configured the PC wizard will automatically move onto configuring the Receiver products.

Configuration of the Receivers is identical to the Transmitters, simply name the Receivers as required (i.e Study, Kitchen TV, Gym etc.)



8) Configuration complete!

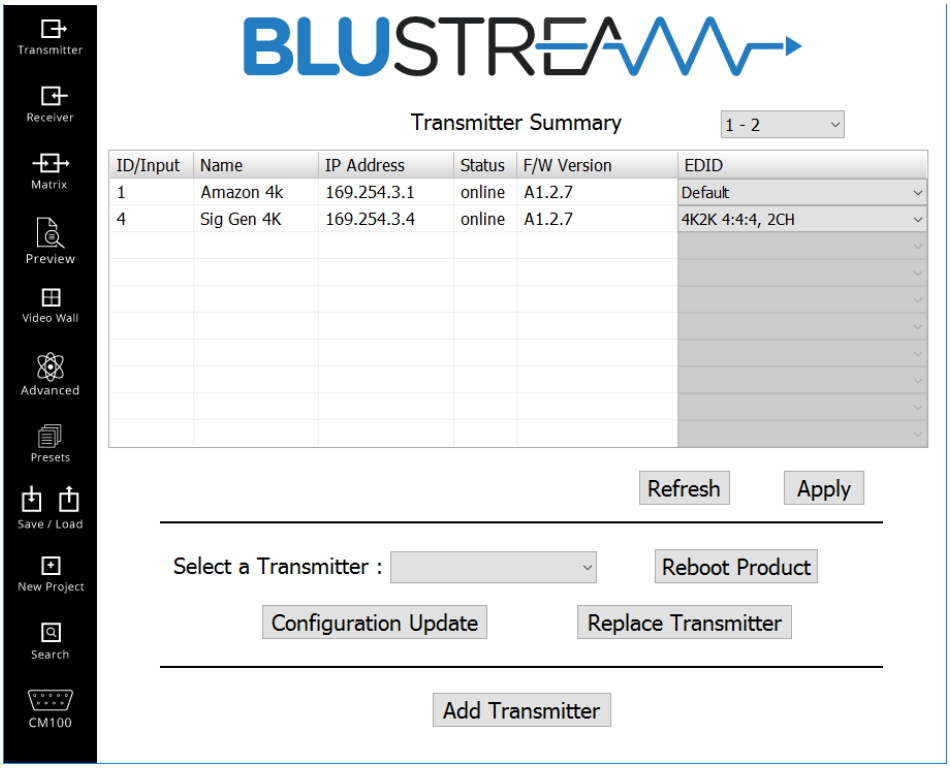
Once all Transmitter and Receiver products have been configured click '**FINISH**' which will take you to the Transmitter summary window.

It is advised that once basic configuration has been completed you review the additional settings in the Multicast products such as:

- Fixing the EDID values for the Transmitter products (see page 16)
- Adjusting the Scaler resolutions for the Receiver products (see page 17)

Transmitter Summary

The Blustream Multicast Transmitter summary window gives an overview of all of the Transmitter products that have been configured in the system, with the ability to update and add to the system.



Features of the Transmitter summary page include:

1. Transmitter summary (page drop down) - each page can show a summary of 10 Transmitter products connected to the system. To view further products in the system select further pages from the drop-down box.
2. ID/Input - automatically assigned during the PC wizard configuration. This number is used for control of the Multicast system using third party drivers.
3. Name - configured during the PC wizard configuration, can be amended using the Configuration Update button on the same page.
4. IP Address - the IP address assigned to the unit during configuration, can be amended using the Configuration Update button on the same page.
5. Status - shows the online / offline status of a product
6. F/W Version - this should marry up with the firmware version that you can find on the Blustream website (see page 19 for more details)
7. EDID - allows you to fix the EDID value for each Transmitter (source)
8. Refresh - will refresh the product details shown. When the Transmitter summary window is first selected you will need to press '**Refresh**' in order to display system details.
9. Apply - press apply once any details or settings have been updated within this page
10. Select Transmitter - when using the three function in this section of the page (Reboot / Configuration / Replace) you must first use the drop down box to select the Transmitter you wish to address
11. Reboot Product - you must select the Transmitter to reboot (using the adjacent drop-down selection box) prior to pressing '**Reboot Products**'
12. Configuration Update - allows you to update the IP address, name and multicast/unicast settings of each Transmitter. You must select the Transmitter using the adjacent drop-down selection box prior to pressing '**Configuration Update**'
13. Replace Transmitter - should a Blustream IP100UHD Transmitter unit become faulty, the PC program has a simplified way of replacing the product. Please see page 29 for detailed instructions.
14. Add Transmitter - if an additional Transmitter is required in the system the PC wizard will assist in configuring the new IP100UHD-TX to become part of the existing system setup. This process is the same process as described in 'NEW PROJECT CONFIGURATION' (page 22).

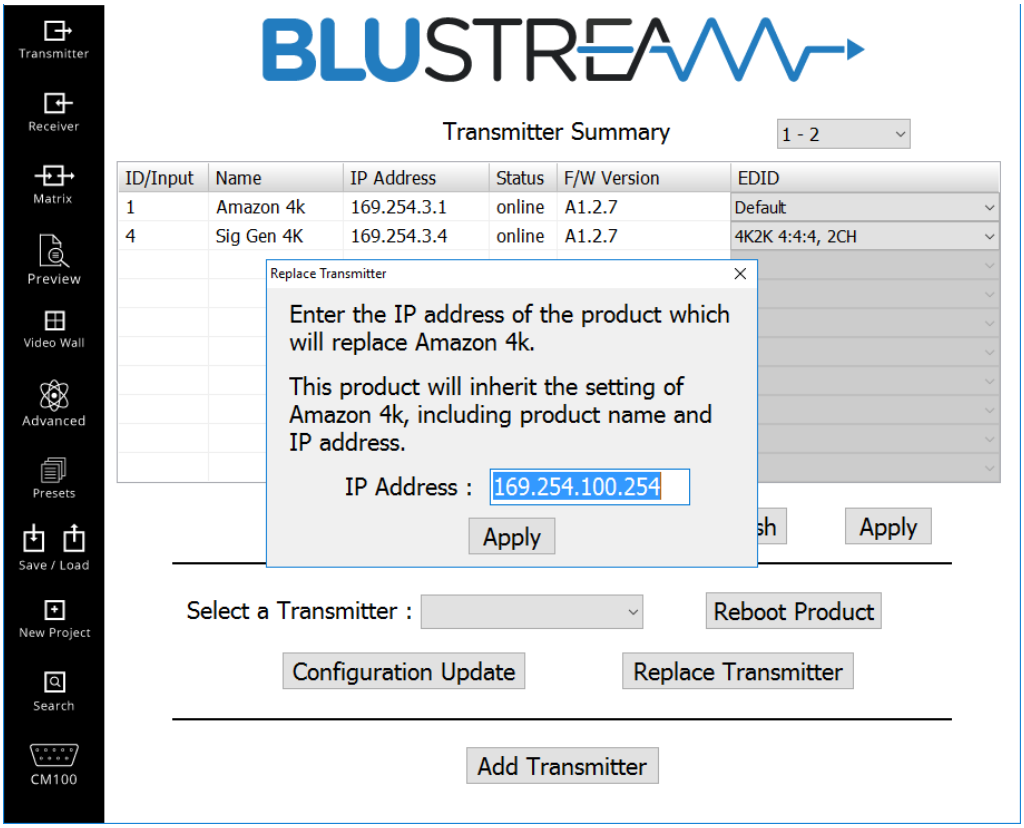
Replacing a Transmitter

There may be a time in which a Blustream Multicast product has stopped working. Using the summary window the product will show 'OFFLINE' in the status window. If after reviewing the faulty product with Blustream Technical Support it is deemed necessary to replace the unit please follow the below steps:

1) Select the faulty Transmitter from the drop down box

2) Click '**Replace Transmitter**'

The following window will open:



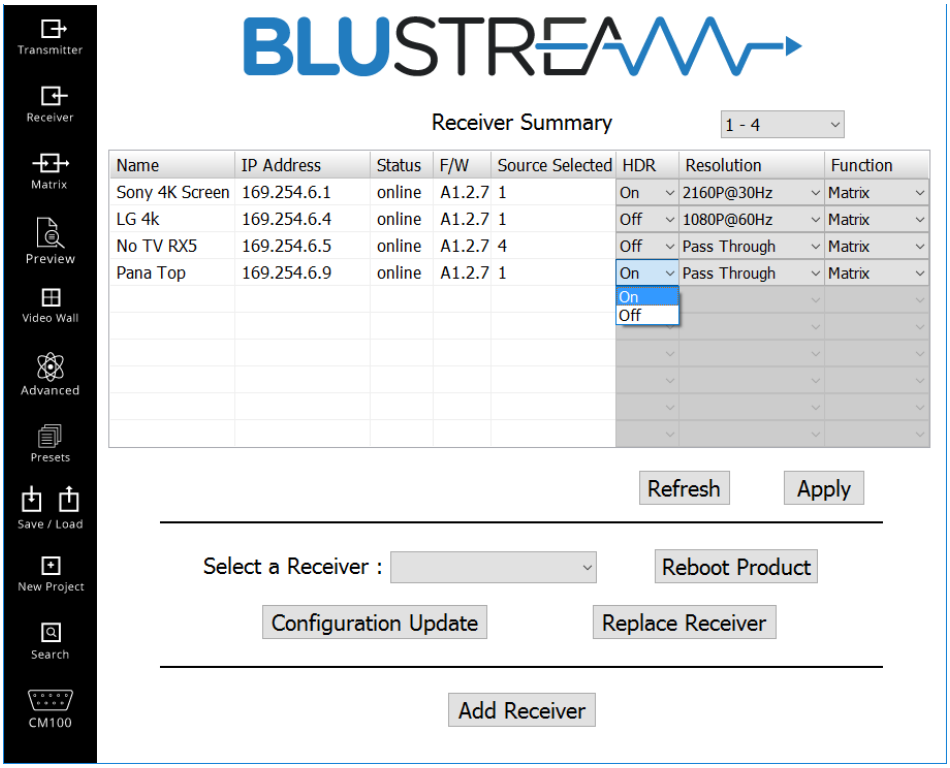
3) Enter the IP address of the product that will be used to replace the faulty unit. If this is a new factory default unit the IP address will be '169.254.100.254'

4) Click '**Apply**'

5) The Transmitter will reboot and will now be configured with the same ID, name, and IP address as the unit that has been replaced.

Receiver Summary

The Blustream Multicast Receiver summary window gives an overview of all of the Receiver products that have been configured in the system and the ability to update and add to the system.



Features of the Receiver summary page include:

1. Receiver summary (page drop down) - each page can show a summary of 10 Receiver products connected to the system. To view further products in the system select further pages from the drop-down box.
2. ID / Output - automatically assigned during the PC wizard configuration. This number is used for control of the Multicast system using third party drivers.
3. Name - configured during the PC wizard configuration, can be amended using the Configuration Update button on the same page.
4. IP Address - the IP address assigned to the unit during configuration, can be amended using the Configuration Update button on the same page.
5. Status - shows the online / offline status of a product
6. F/W Version - this should marry up with the firmware version that you can find on the Blustream website (see page 19 for more details)
7. HDR On/Off - turns on HDR compatibillity - only use on screens that support HDR
8. Resolution - adjust the output resolution using the built-in video scaler inside the IP100UHD-RX Receiver. The scaler is cable of both upscaling and downscaling the incoming video signal.
   Output resolutions include:
   Pass Through - the Receiver will output the same resolution that the source is outputting (no scaling)
   2160p @ 30Hz
   2160p @ 24Hz
   1080p @ 60Hz
   1080p @ 50Hz
   720p @ 60Hz
   720p @ 50Hz
   1280x1024 @ 60Hz
   1024x768 @ 60Hz
   1360x768 @ 60Hz
   1440x900 @ 60Hz
   1680x1050 @ 60Hz

1. Function - switch Multicast receiver between 'MATRIX' mode and 'VIDEO WALL' mode.
2. Refresh - will refresh the product details shown. When the Transmitter summary window is first selected you will need to press '**Refresh**' in order to display system details.
3. Apply - press apply once any details or settings have been updated within this page
4. Reboot Product - you must select the Receiver to reboot (using the adjacent drop-down selection box) prior to pressing '**Reboot Product**'
5. Configuration Update - allows you to update the IP address, name and multicast/unicast settings of each Receiver. You must select the Receiver using the adjacent drop-down selection box prior to pressing '**Configuration Update**'
6. Replace Receiver - should a Blustream Receiver unit become faulty, the PC program has a simplified way of replacing the product. Please see below for detailed instructions.
7. Add Receiver - if an additional Receiver is required in the system the PC wizard will assist in configuring the new IP100UHD-RX to become part of the exisiting system setup. This process is the same process as described in 'NEW PROJECT CONFIGURATION' (page 22).

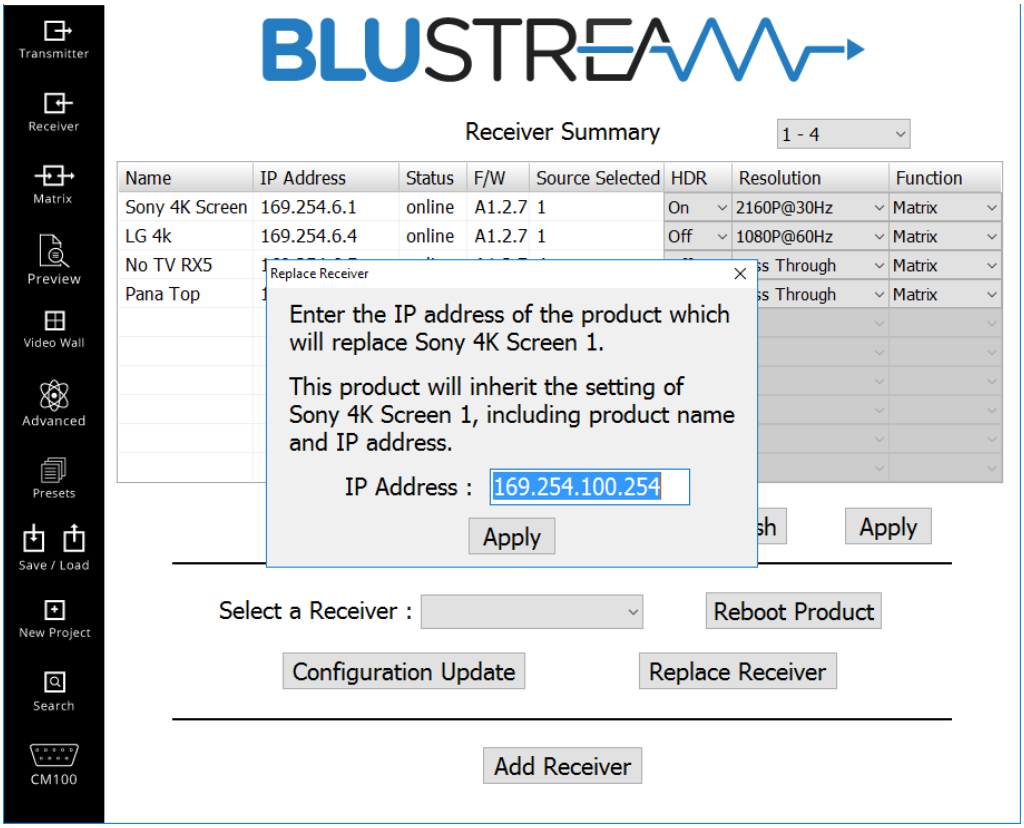
Replacing a Receiver

There may be a time in which a Blustream Multicast product has stopped working. Using the summary window the product will show 'OFFLINE' in the status window. If after reviewing the faulty product with Blustream Technical Support it is deemed necessary to replace the unit please follow the below steps:

1) Select the faulty Receiver from the drop down box

2) Click '**Replace Receiver**'

The following window will open:



3) Enter the IP address of the product that will be used to replace the faulty unit. If this is a new factory default unit the IP address will be '**169.254.100.254**'

4) Click 'Apply'

5) The Receiver will reboot and be configured with the same ID, name and IP address as the unit it has replaced.

Matrix Control

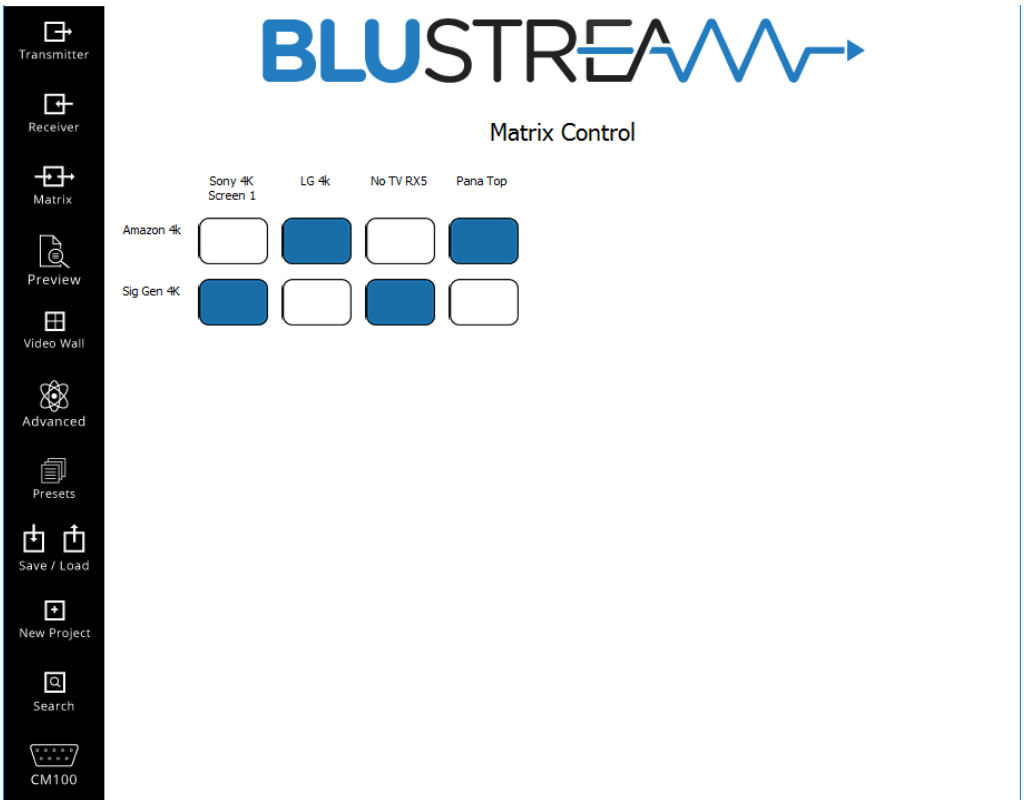
The Blustream PC software Matrix control page is used to quickly and simply change source inputs (Transmitters) for each display (Receiver). This page has been designed to allow for the installer to quickly switch the I/O configuration, not for end user control.

Once the system has been configured the Matrix Control page will show all online Multicast Transmitter and Receiver products. Due to the display window if the number of Transmitters and Receivers is above 10 products it is advised you use the advanced matrix switching control within the 'Video Preview' menu.

All Displays (Receivers) are displayed along the horizontal axis

All Sources (Transmitters) are displayed along the vertical axis

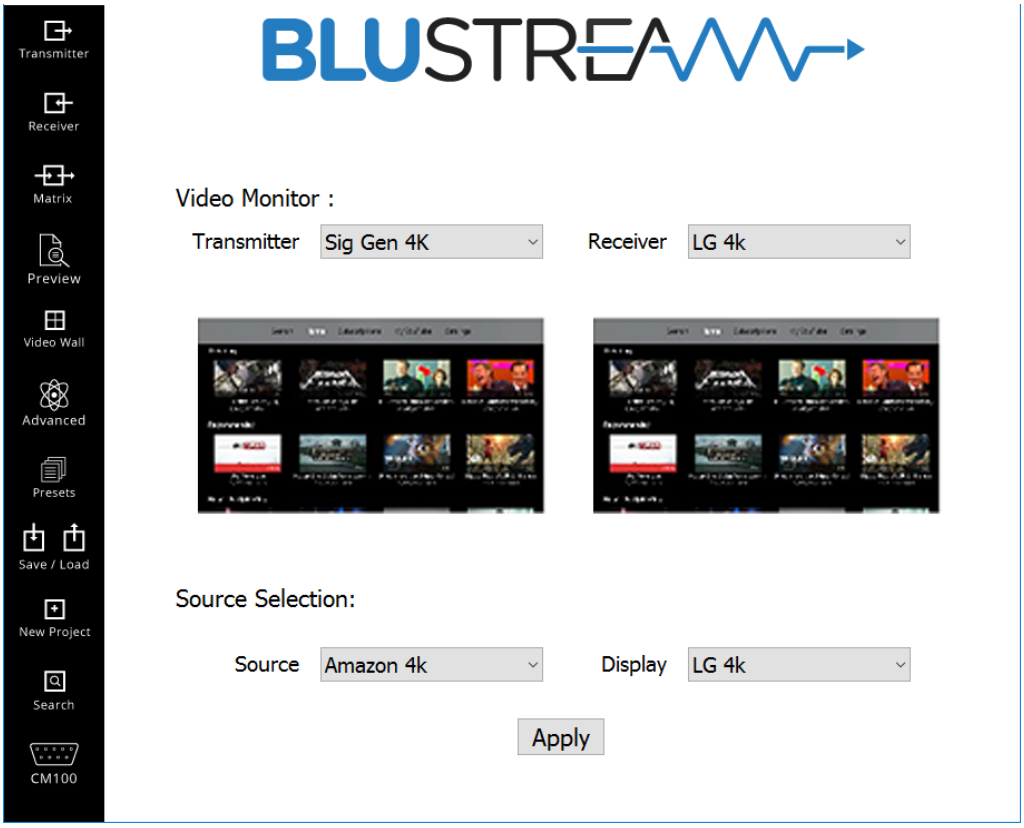
To switch sources simply click on the required source per Receiver. The selected source box will turn **BLUE** to symbolise the current selection.



Video Preview

The video preview page allows you to view what video signal is passing through all Transmitters and Receivers in the live system.

The preview windows are a tool to help diagnose faults with the video distribution system, allowing you to see if each transmitter is receiving a signal from the source, and whether each receiver is transmitting a signal to the display. This can all be acheived from your computer, meaning you do not have to walk to each display in the system.



To view the video output from a source (Transmitter) simply select the required Transmitter from the Transmitter drop-down box.

To view the video output to a display from a Receiver simply select the Receiver from the Receiver drop-down box.

The image that is shown in both preview windows is a single frame that is refreshed every 2 seconds.

Matrix Switch Control

If the number of Transmitter and Receiver units are too many to display in the previous 'MATRIX CONTROL' window it may be easier to use the matrix switch control option at the bottom of the 'VIDEO PREVIEW' page.

To switch sources to different screens:

1) Select the required source from the Source drop-down box

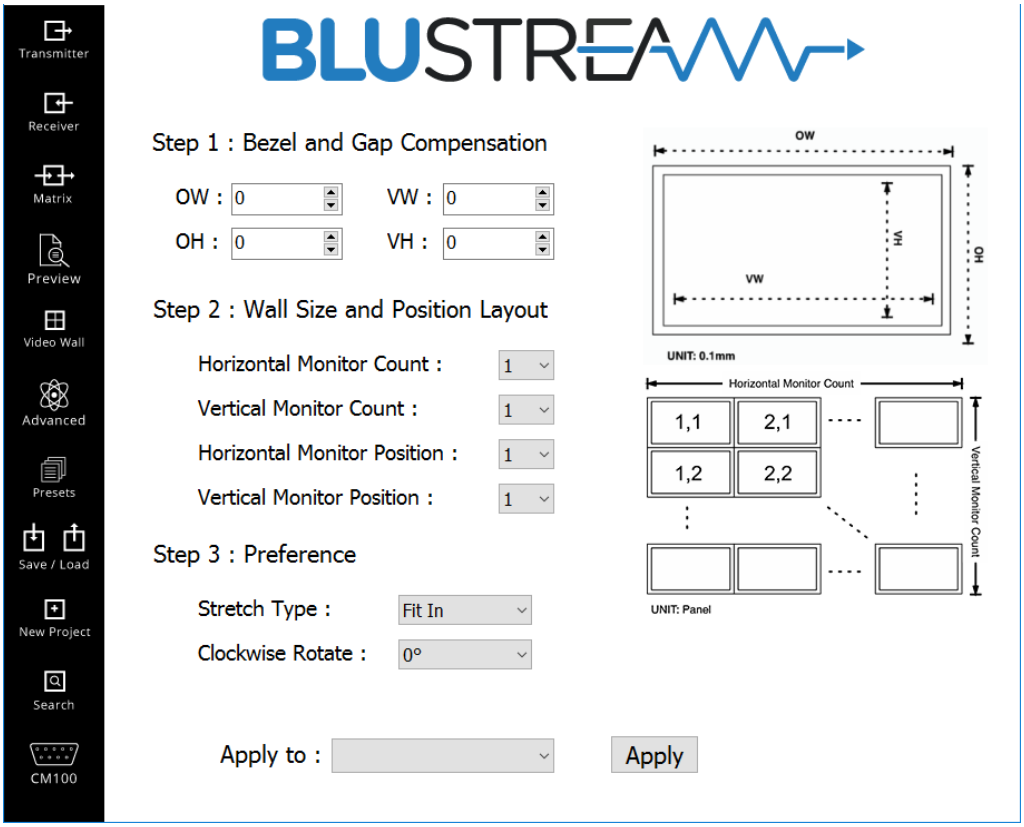
2) Select the display you wish to view the previously selected source (Transmitter) using the Display drop-down box

3) Click 'Apply' for the input changes to apply

4) The video preview function can be utilised to ensure the switch has taken place

Video Wall

Blustream Multicast receivers can be setup to be part of a video wall array. Each system can contain mulitple video wall arrays of differing sizes. Each video wall can be assigned a number of screens and different layouts that range from 1x2 up to 16x16.



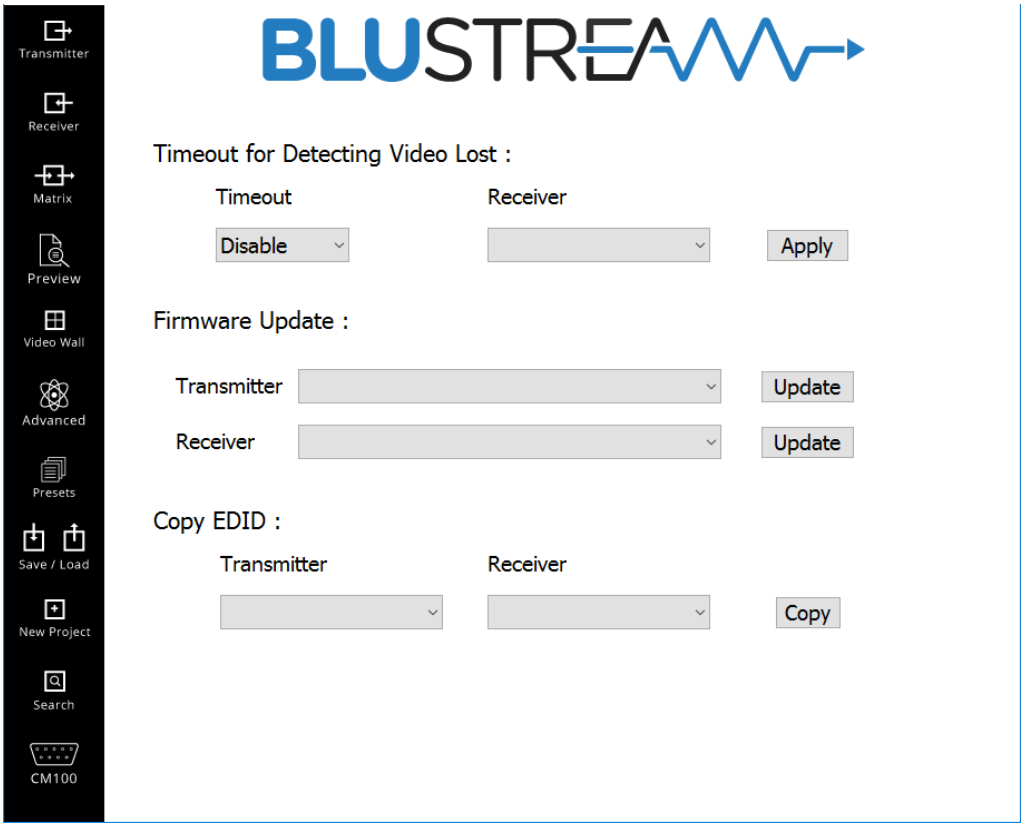
Features of the Video Wall setup page include:

1. Bezel and Gap Compensation - this allows you to alter the overall size (OW) and visable image (VW) displayed per screen. This allows you to compensate for the size of each screen bezel, alternatively any gaps in-between screens.
2. Wall Size and Position - this is broken down into 4 settings:
   Vertical Monitor Count = how many screens there are vertically (overall video wall array size)
   Horizontal Monitor Count = how many screens there are horizontally (overall video wall array size)
   Vertical Monitor Position = assigns the vertical location of one individual IP100UHD-RX Receiver.
   For example the top row of screens are all vertical location 1.
   Horizontal monitor position = assigns the horizontal location of one individual IP100UHD-RX Receiver.
   For example the left column of screens are all horizontal location 1.
3. Stretch Type - adjusts the picture to fit to new video wall confuration size. There are 2 modes:
   Fit In - displays the normal aspect ratio of the image as output by the source (usually 16:9)
   Stretch Out - will 'stretch-to-fit' the image into the video wall array area
4. Clockwise Rotation - each screen image can be adjusted to rotate through 0, 90, 180 & 270 degrees.
5. 'Apply To' - once you have made changes to video wall configuration you can select the Receiver that you wish to apply the changes to from the drop-down box and click **'Apply**'

Please note: each Multicast Receiver must be configured individually to be part of a video wall configuration. When being controlled via a third party control system each IP100UHD Receiver needs to be sent the relevant video wall switching command individually.

Advanced Settings

The advanced settings page has further configuration settings for the Blustream Multicast range.



Features of the Advanced Settings page include:

1. Time out - once there is no video signal the Receiver will turn off. Time-out ranges from 'Disable' (unit will never turn off) up to 60 seconds. To apply this to a Receiver please select the appropriate Receiver from the drop-down box and click '**Apply'.**
2. Firmware update - used to update Multicast product firmware. Please see page 19 for further details.
3. Copy EDID - Allows you to copy the EDID from a display connected to a receiver, to a selected transmitter.

Preset Control

The Preset control page allows you to save and recall system presets from within the PC program, saving the need for individually changing sources and system settings for each Multicast product one-by-one. Please note that the Preset set-up is only available within the PC program.

For example: Receiver 1 viewing Transmitter 3

Receiver 2 viewing Transmitter 4

Receiver 3 assigned as top left screen in a 2x2 video wall, viewing Transmitter 1

Receiver 4 assigned as top right screen in a 2x2 video wall, viewing Transmitter 1

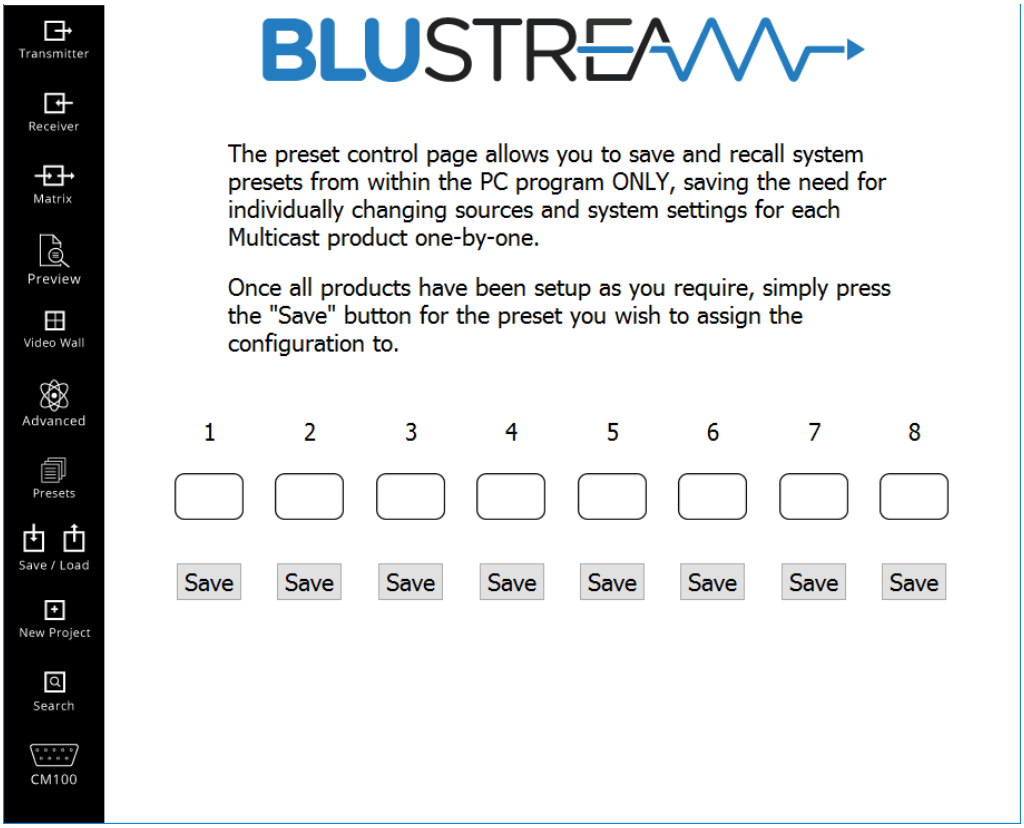
Receiver 5 assigned as bottom left screen in a 2x2 video wall, viewing Transmitter 1

Receiver 6 assigned as bottom right screen in a 2x2 video wall, viewing Transmitter 1

Once all Receivers have been setup as you require simply press the '**SAVE**' button for the preset you wish to assign the configuration to.

When 'PRESET 1' button is pressed all receivers will return to this saved state.

Repeat this process for presets 1-8 (8 presets max)



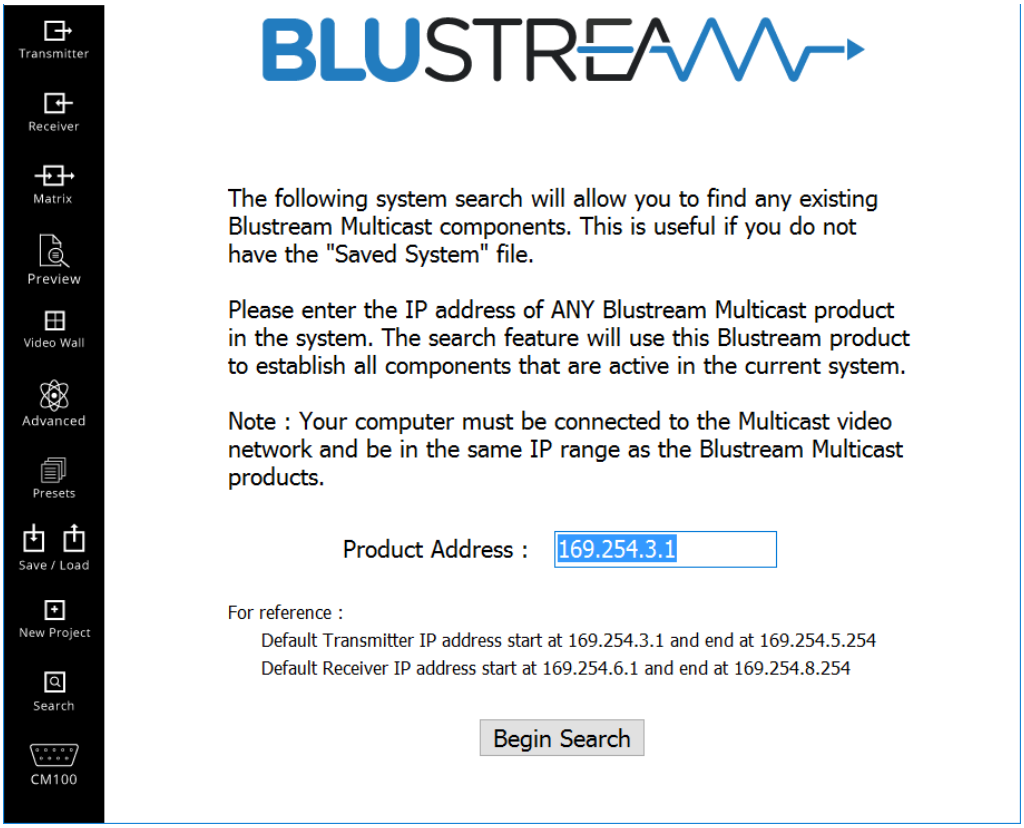
Please note:

- All Multicast Receivers will reboot when a preset mode is selected
- You must configure all Multicast products in the system and not just the ones you wish to change as the Preset mode saves the configuration of every Multicast product within each preset.
- Presets can only be recalled using the PC program. Presets cannot be recalled using external third party control systems.

System Search

The system search page is used for times when you do not have a saved system file, have not configured a system from scratch, or you need to interrupt the New Project wizard andf come back t the set-up at a later date/time. Using the search system you are able to find all 'ACTIVE' Blustream Multicast products that are on the system. The search will not find products that are not actively connected to the LAN switch at the time of the search.

In order for the search function to work you must know the IP address of at least **ONE** of the Multicast products installed. If you have used the PC wizard program then we would advise to use the first product that is configured which is a Blustream IP100UHD-TX with the address of 169.254.3.1.



Enter the Multicast product IP address and click '**BEGIN SEARCH'.** The system will report back all Multicast products found.

Please note:-

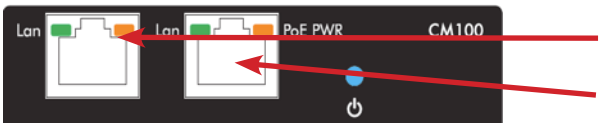
- The search feature will not recall custom assigned names of the Multicast products, only ID and IP address. For this information you will require the saved system file.
- If you use your own static IP address for the Multicast products (not advised) then you will need to find the IP address of a single unit. Blustream would recommend using programs such as 'FING', 'IP SCANNER' or 'BONJOUR BROWSER'.

CM100

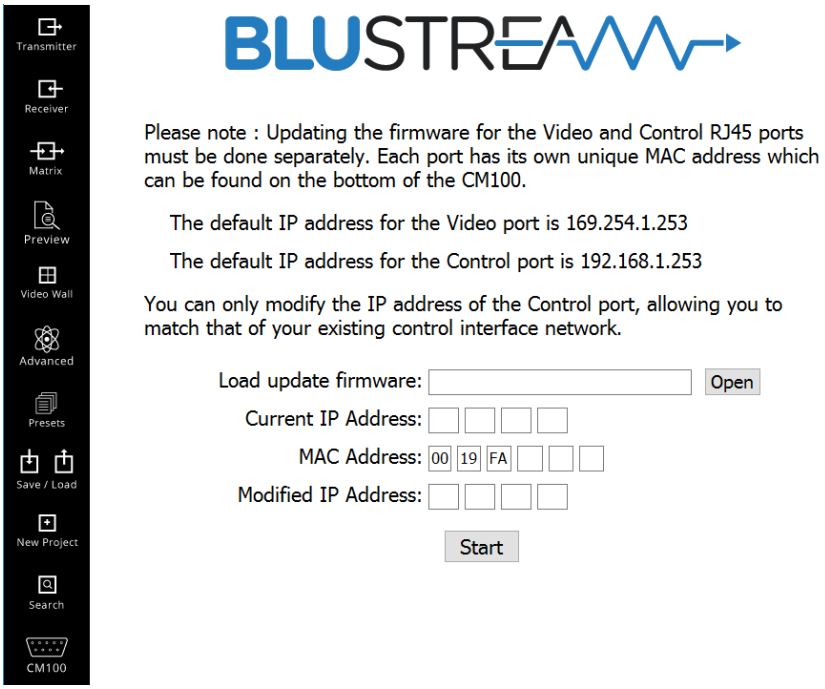
You may need to update both the Control port and Video port of the CM100.

The process is identical for both ports however your computers IP Address will be different. Follow the below instructions and complete each update separately.

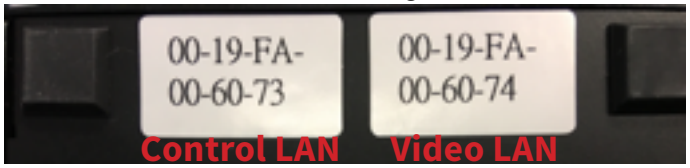
1. Connect your PC's Ethernet port to the CM100 Ethernet port using a straight through CAT cable.



Note: To update the CONTROL port, your computers IP Address must be in the 192.168.1.x range.
To update the VIDEO port, your computers IP Address must be in the 169.254.1.x range.



2. Click 'OPEN' and select the firmware file from your PC.
For example: c:\Users\user\Desktop\CM100 Firmware
Note: If you are updating the CONTROL port, the firmware will be called 'CONTROL_xx.hex'
If you are updating the VIDEO port, the firmware will be called 'VIDEO_xx.hex'
3. In the "Current IP Address" field, enter the IP address of port you wish to update.
Note: The CONTROL port default IP address is 192.168.1.253
The VIDEO port IP address is 169.254.1.253.
4. Enter the MAC address of the port you are connected to.
You will find this printed on the sticker on the bottom of the unit.
Note: The CONTROL port MAC Address is shown on the left side of the rear of the CM100.
The VIDEO port MAC Address is shown on the right side of the rear of the CM100.



6. If you are updating the VIDEO port, DO NOT CHANGE the Modified IP Address section.
If you are updating the CONTROL port, and you wish to change the IP Address of the CONTROL port to suit your network, you can enter the CM100's new IP Address in the Modified IP Address section
7. Click 'START'. The program will take around 30 seconds to run and will update the firmware. You will see a success message when complete

Accessing The Multicast Web-GUI Interface

Each Blustream Multicast product comes out of the box with a fixed IP address of 169.254.100.254. Once your PC network is amended to work in the same IP range as the fixed IP of the Multicast products, you can communicate directly with the built-in web server in each Multicast IP100 Transmitter or Receiver.

Once a Multicast product has been configured using the PC Wizard program, manual configuration or the Web GUI interface, it will have a different IP address to that of the factory default unit. If you are unsure of the IP address of the Multicast product you can press and hold the 'UP' channel button on each product for several seconds which will show the product ID/IP address. You can also use the Blustream Multicast Wizard PC programs 'Search' feature to show all available Multicast products on the system.

Entering the fixed IP address (for new units), or the configured IP address of an already set-up unit, into a web browser on your PC, gives you access to the units configuration for monitoring, resetting, firmware upgrading, or further configuration.

Transmitters

The first product to be assigned an IP address when using the PC Wizard is an IP100UHD-TX Transmitter which will be given the IP address of 169.254.3.1. The next Transmitter will be assigned an IP address of 169.254.3.2 and so on....

Once the IP range of 169.254.3.x is filled (254 units), the PC wizard will continue the auto assign of an IP address from 169.254.4.1 and so on...

Once the IP range of 169.254.4.x is filled the PC wizard will auto assign an IP address of 169.254.5.1 and so on until 169.254.4.254

Receivers

After all Transmitter products have been setup the PC wizard will automatically assign an IP address to the Multicast Receivers. The first IP100UHD-RX Receiver will be given the IP address of 169.254.6.1. The next Receiver will be assigned an IP address of 169.254.6.2 and so on....

Once the IP range of 169.254.6.x is filled (254 units) the PC wizard will continue the auto assign of an IP address from 169.254.7.1 and so on...

Once the IP range of 169.254.7.x is filled the PC wizard will auto assign an IP address of 169.254.8.1 and so on until 169.254.8.254

Once a system has been set-up, it can be difficult to know what products have been configured within the system. This part of the guide will explain the use of directly comunicating with an individual unit. It is assumed therefore that you will already know the IP address of the unit you want to communicate with. The Web-GUI is similar in function to the Blustream Multicast PC Program with the majority of options on the Web-GUI being concurrently available within the PC program, however the Web-GUI should primarily be used as a tool for checking configuration, or problem solving, rather than as a method for setting up a new system.

Below is the 'home' screen of both the Transmitter and Receiver units that will be displayed on entering the IP address of the unit you are connected to:

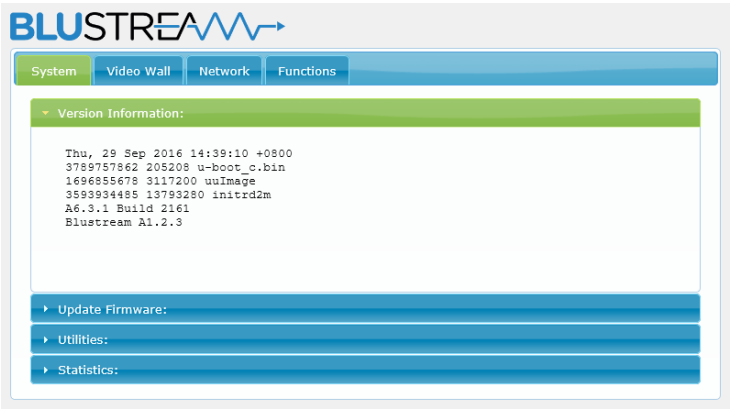
Multicast Web-GUI - IP100UHD-TX - Transmitter

The menu structure for the built-in Web-GUI is as follows...

System:

Version Information:

This gives the user an overview of the individual unit you are connected to, including model number and firmware version



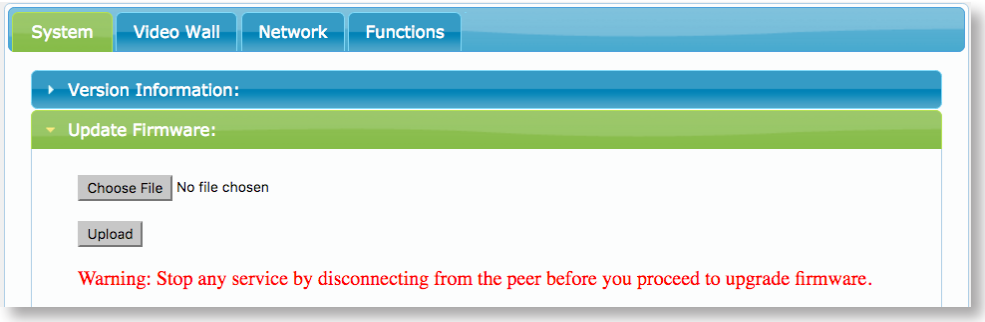
Update Firmware:

It may be necessary to update the firmware of the Blustream Multicast products. It is advised to check the Blustream website to see if any firmware updates have been uploaded. Download these files and save them to your PC.

To update the Blustream IP100UHD-TX & IP100UHD-RX please follow the below instructions:-

Click '**Update Firmware**'

1) Click '**CHOOSE FILE'** and open the folder in which you have saved the **Blustream Firmware Update PC PROGRAM/Web GUI files.**



2) Select the require 'Transmitter.BIN' or 'Receiver.BIN' file

3) Click 'UPLOAD' which will begin the firmware upgrade process

4) Once the upgrade has completed please disconnect the network cable/power and re-connect to reboot the product. The Transmitter/Receiver display will no longer display 'PG' when complete.

Please note:

DO NOT unplug the power or network connection to the IP100UHD-TX/RX as this may result in failure to upgrade firmware, which may lead to possible failure of the unit.

Firmware upgrade process will take several minutes. Do not connect any other Blustream product that has the same IP address during this time.

Utilities:

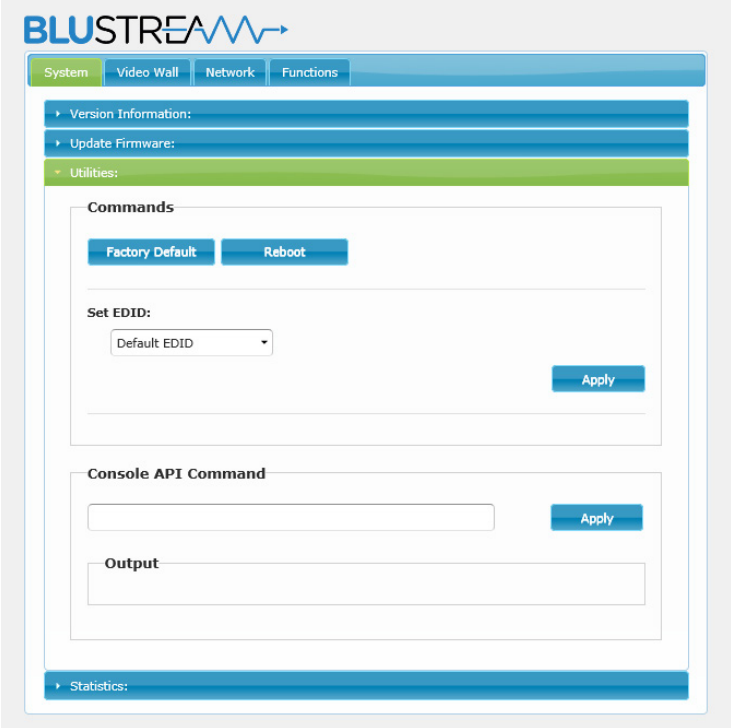
Factory Default - resets your transmitter unit back to factory settings. The IP address will revert to: 169.254.100.254

Reboot - reboots the transmitter unit

Set EDID - as per page 16, allows you to fix the EDID value for each Transmitter (source) , click Apply to save new settings

Console API Command - please use the CM100 to provide API commands to this unit

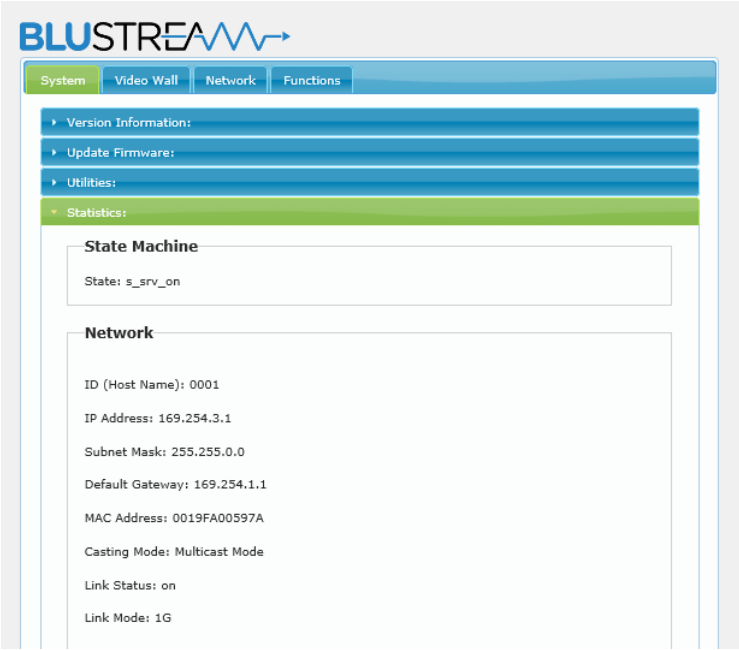
Output - this section is the feedback from the API command above - please utilise the CM100 for feedback routing



Statistics:

Network - details information about the connection status of the unit you are communicating directly with (unit ID, IP address, subnet, gateway, MAC address, casting mode (Multicast / Unicast), link status and link mode). Changes to the units IP address details can only be viewed from this section, please refer to the Network tab to amend the IP structure of the unit

Video - this is the EDID response from the piece of equipment you are connected to. Not required.

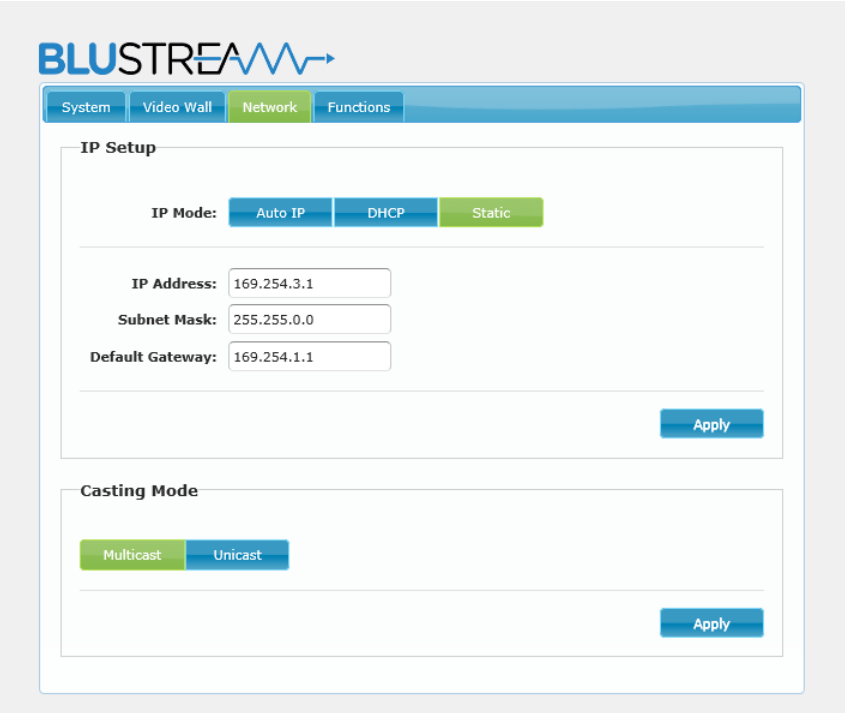


Video wall:

Please see page 34 of this manual for the details on video wall array configuration

Network:

The network tab allows for the address details for the unit to be amended to fit in with alternative IP address ranges. You can also swap between Unicast and Multicast functionality of the transmitter. Please note: amending the IP address of Multicast products will prevent the Multicast CM100 control unit from working as this has been configured using default Blustream Multicast IP addresses (169.254.x.x). This is not recommended.



Functions:

Enable Video over IP:

This check box should always be ticked

Enable Video Wall:

This check box should always be ticked

Maximum Bit Rate:

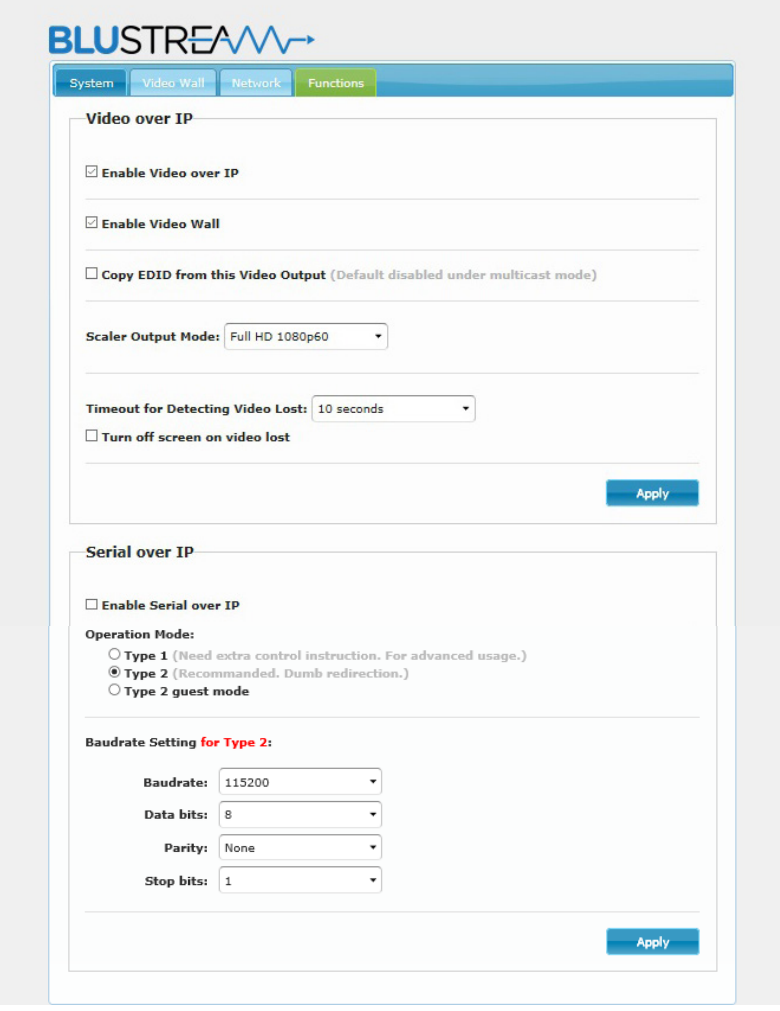
You can manually alter the bit-rate if the data stream from the source into the switch using the options within the drop down box. Please note: image quality will be degraded when setting this to anything less than 'Best Effort' - if the Multicast video network is kept independent to other networks there will be no additional network traffic and therefore the Mulitcast products will continue to stream 4K HDMI at the maximum possible picture quality without needing to lower the Bit rate.

Maximum Frame Rate:

Allows for the adjustment of the number of frames captured / distributed across the IP network. It is recommended to keep this at 100%

Serial over IP:

To enable RS232 pass through from the transmitter, please utilise this section to configure the serial settings of your system. Please refer to separate Blustream manual 'Advanced Multicast RS-232 Distribution' which can be found on the Blustream website.



Multicast Web-GUI - IP100UHD-RX - Receiver

The menu structure for the built-in Web-GUI is as follows...

System:

Version Information:

This gives the user an overview of the individual unit you are connected to, including model number and firmware version

Update Firmware:

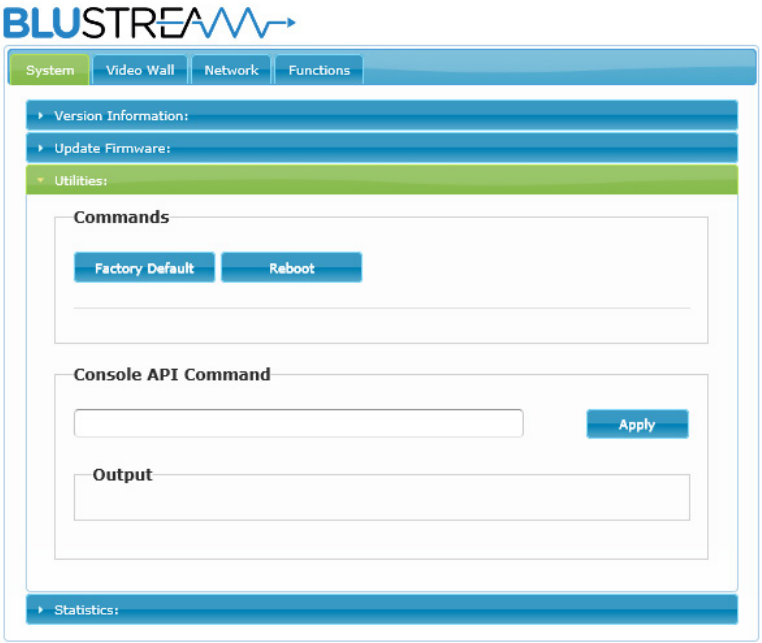
Please see page 19 for more information on firmware upgrading your IP100UHD-RX Utilities:

Factory Default - resets your receiver unit back to factory settings. The IP address will revert to: 169.254.100.254

Reboot - reboots the receiver unit

Console API Command - please use the CM100 to provide API commands to this unit

Output - this section is the feedback from the API command above - please utilise the CM100 for feedback



Statistics:

Network - details information about the connection status of the unit you are communicating directly with (unit ID, IP address, subnet, gateway, MAC address, casting mode (Multicast / Unicast), link status and link mode) . Changes to the units IP address details can only be viewed from this section, please refer to the Network tab to amend the IP structure of the unit

Video - this is the EDID response from the piece of equipment you are connected to. Not required.

Video Wall:

Basic Set-Up:

Please see page 34 of this manual for the details on video wall set-up

Advanced Set-Up:

This is sub-section is a continuation of the Video Wall section within the Blustream PC Program - please refer to page 35

Network:

The network tab allows for the address details for the unit to be amended to fit with alternative IP address ranges. You can also swap between Unicast and Multicast functionality of the receiver. Please note: amending the IP address details manually will complicate the use of the Blustream PC Software when working with a system - not recommended

Functions:

Enable Video over IP:

This check box should always be ticked

Enable Video Wall:

This check box should always be ticked

Copy EDID from this Video Output:

This is an advanced feature if the EDID settings within the Blustream PC Wizard program, Web GUI interface, or manual configuration are not compatible with the display. As soon as this feature is selected any IP100UHD-TX Transmitter that is selected by the IP100UHD-RX Receiver will copy the EDID from the display connected. It is advised that this is only done for 1 Transmitter at a time and this feature is turned off prior to selecting other Transmitter/sources.

Scaler Output Mode:

Select the output resolution to the maximum the screen will handle, or the resolution you require the in-built scaler to output

Timeout for Detecting Video Lost:

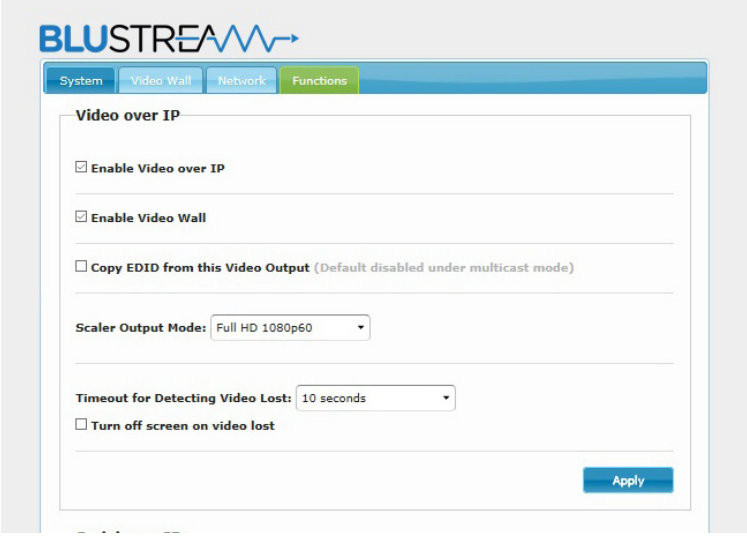
Blustream Multicast receivers have their own Multicast logo that will display on the connected screen after a set amount of time when no video signal is sensed. Please select from time options in the drop-down box.

Turn Off Screen on Video Lost:

Should you not wish for the Blustream Multicast logo to be shown when no video signal is sensed then select the adjacent tickbox. This feature may be used for commercial displays that can automatically turn off when no video feed is present.

Serial over IP:

The Blustream Multicast system can be used to control thrird party products using RS-232. For full details please refer to the separate Blustream manual 'Advanced Multicast RS-232 Distribution' which can be found on the Blustream website.



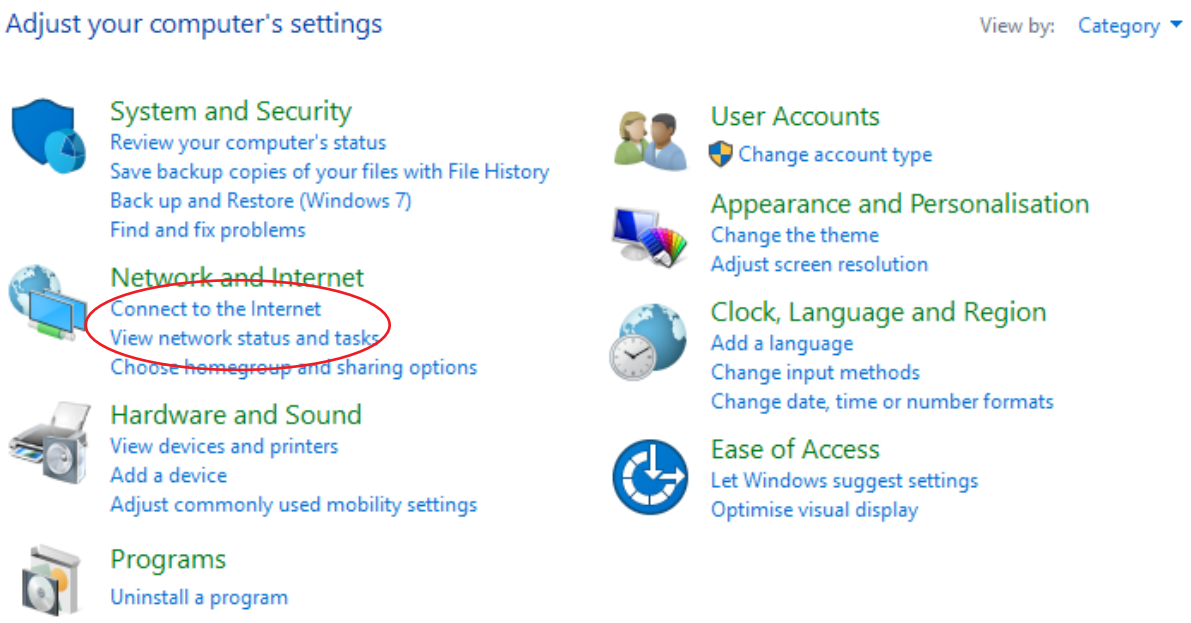
Changing Your Computer IP address

To communicate with the Control Network or Multicast Video Network, you may need to change your IP Address.

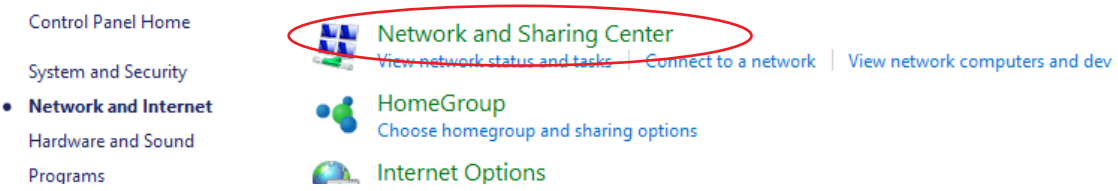
1) Connect your computer to your network switch using an Ethernet cable

2) In the Windows toolbar navigate to 'CONTROL PANEL'

3) Select 'NETWORK AND INTERNET'



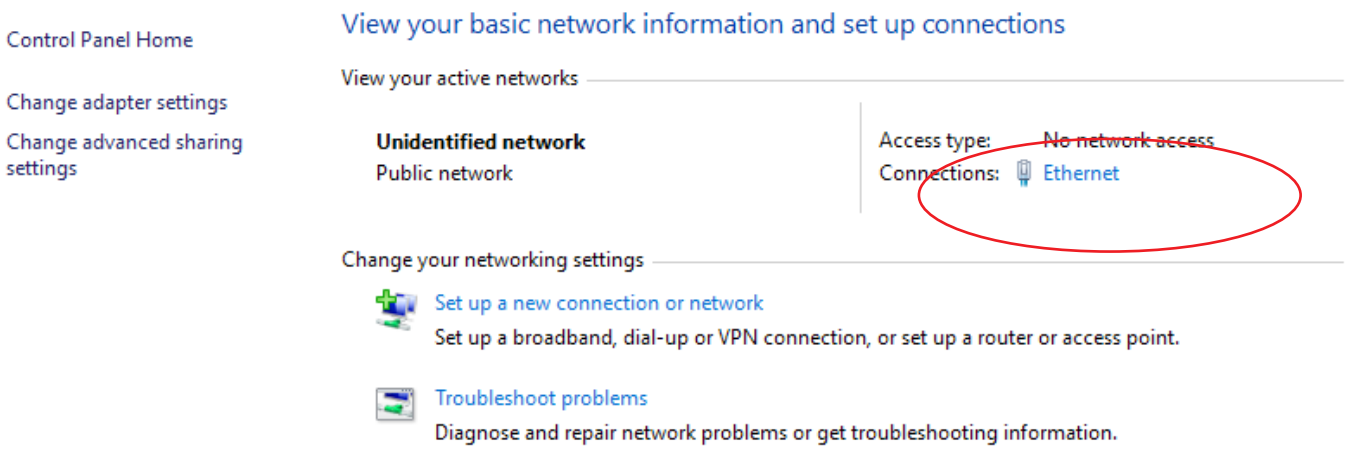
5) Select 'NETWORK AND SHARING CENTER'



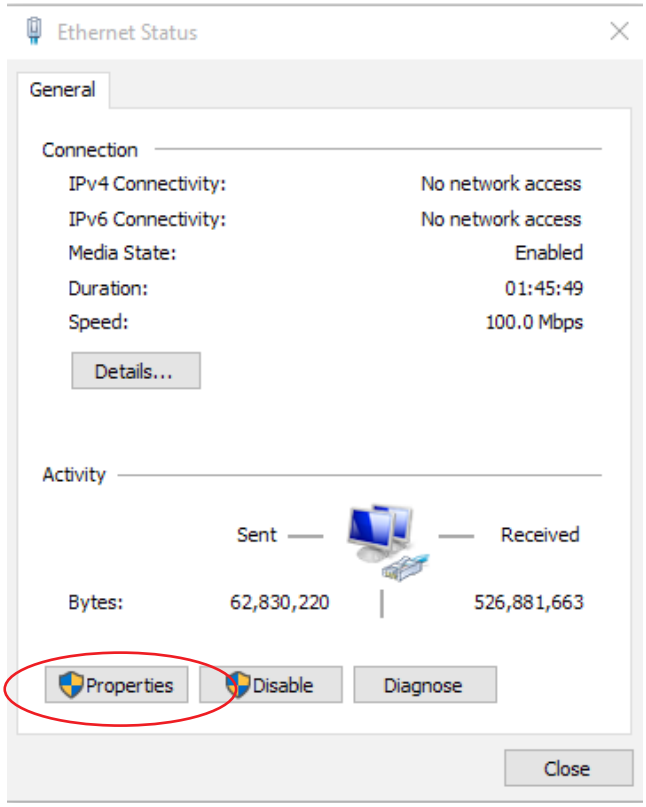
6) Under 'View your Active Networks' you can see connection types available.

The example below shows both LAN (local area connection) and Wireless.

Select 'Local Area Connection' as this is the method of communication you are using with the switch.

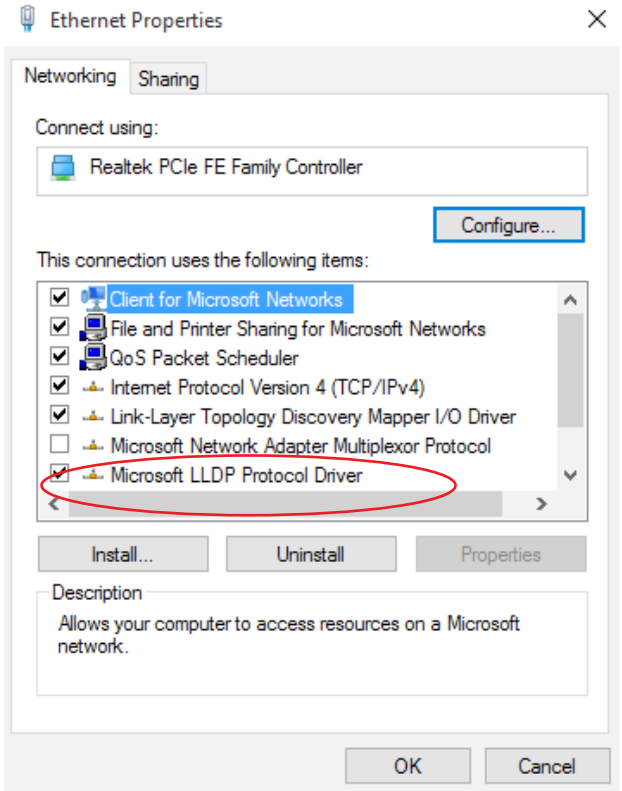


7) In the next window select 'PROPERTIES'



8) A. In the 'NETWORKING' window highlight/select 'INTERNET PROTOCOL VERSION 4 (TCP/IPv4)'

B. Select 'PROPERTIES', or double click on 'INTERNET PROTOCOL VERSION 4 (TCP/IPv4)'



9) A. Under the 'General' tab select 'USE THE FOLLOWING IP ADDRESS'

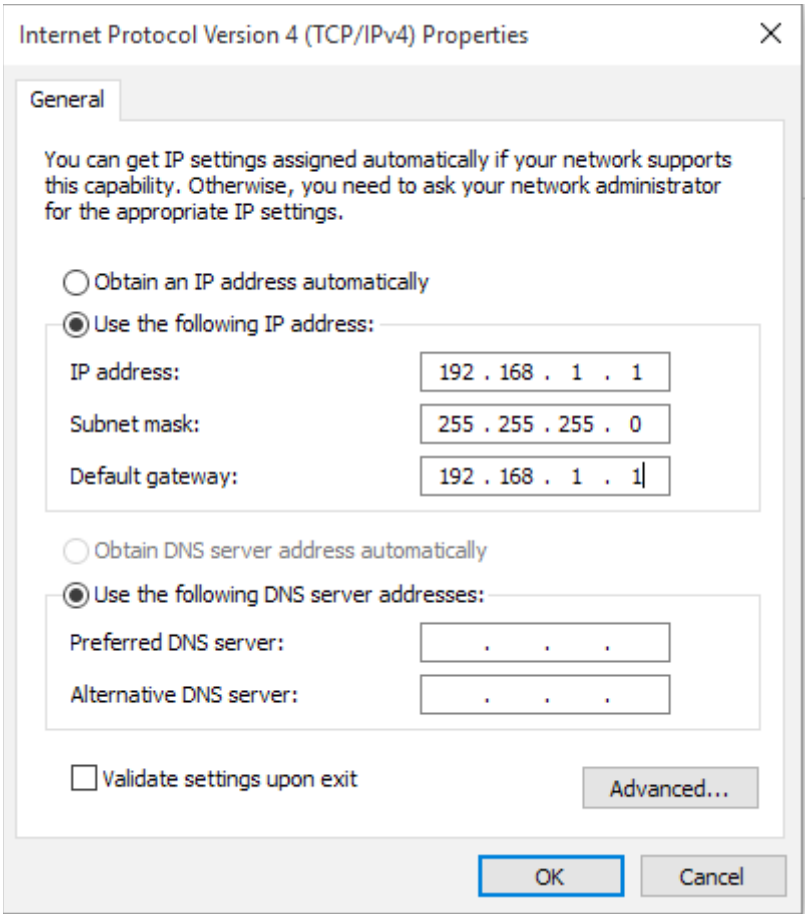
B. Enter the following FIXED IP network details for your **Network Switch** (check with the manufacturer of the LAN switch if this address is relevant in advance)

IP Address	192.168.1.1
Subnet Mask	255.255.255.0
Default Gateway	192.169.1.1

C. Enter the following FIXED IP network details for **Blustream Multicast products**

IP Address	169.254.1.100
Subnet Mask	255.255.0.0
Default Gateway	169.254.1.1

It is important that you have the IP address range of your PC configured to the correct range when setting up your LAN switch. Once you have finished setting up your LAN switch, you will need to amend the IP address range of your PC to utilise the features of the PC Wizard and set up your multicast system.



10) Click 'OK' and exit the network setup

11) Enter the default Network Switch or Blustream Multicast address in your web browser and check that you can connect to the unit. If you have already configured the Transmitter and Receiver products enter the address of one of these (it is advised to use 169.254.3.1 which will be the default first Transmitter IP address).

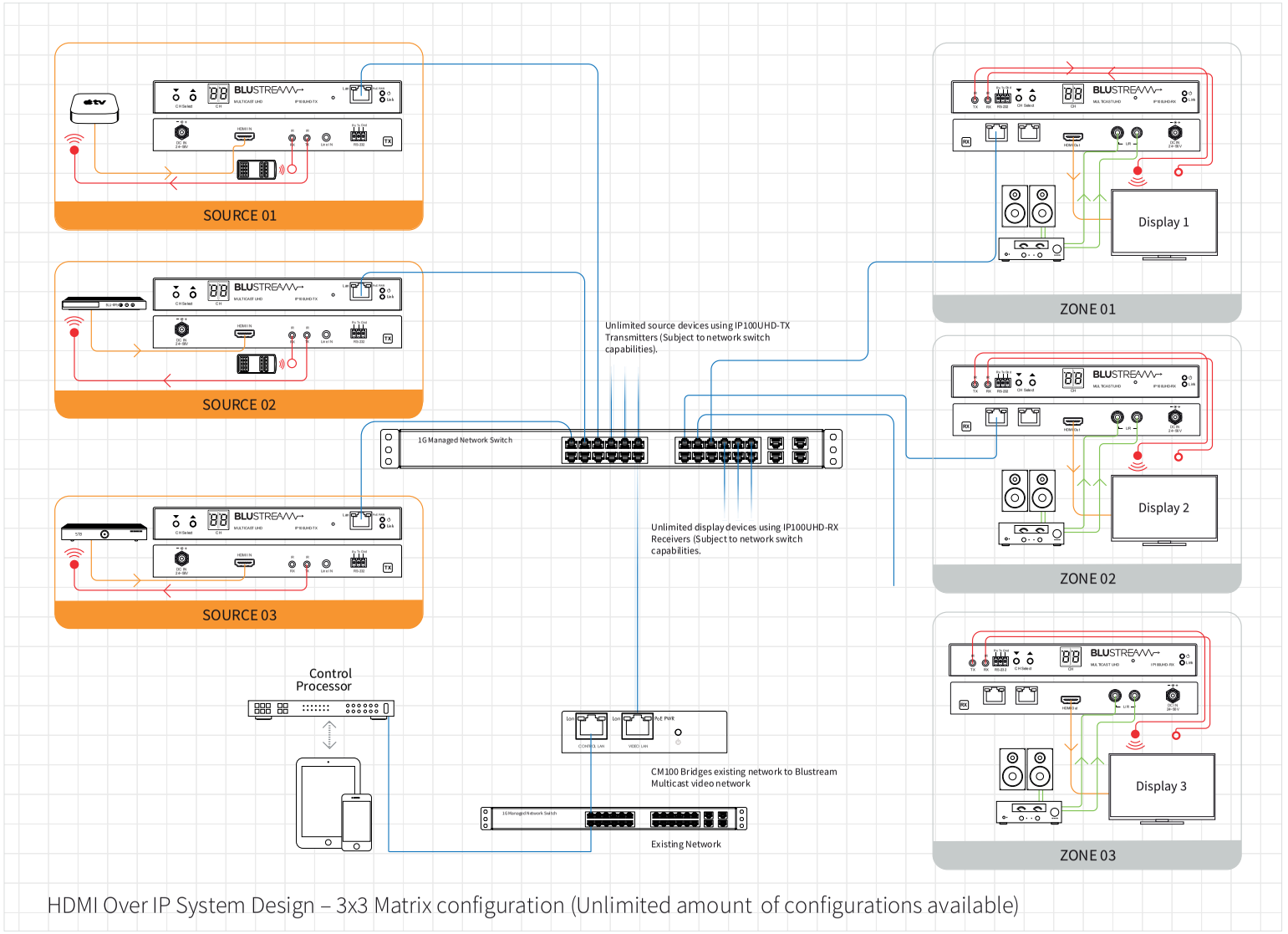
Application Diagrams - Matrix Configuration

BLUSTREAM MULTICAST

Example Schematic

IP100UHD-RX/TX

3x3 Matrix configuration

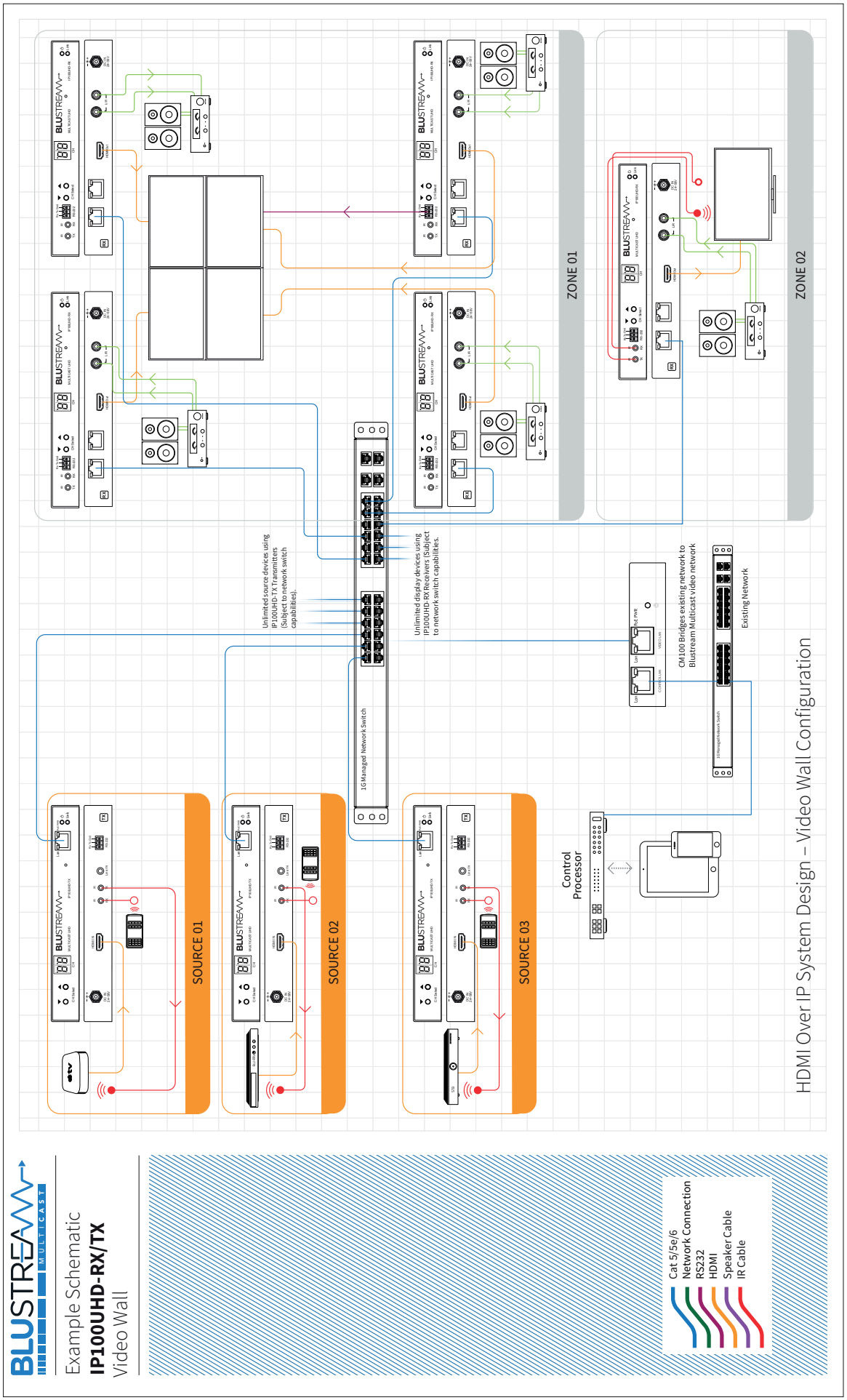


HDMI Over IP System Design – 3x3 Matrix configuration (Unlimited amount of configurations available)

Application Diagrams - Video Wall Configuration

BLUSTREAM MULTICAST

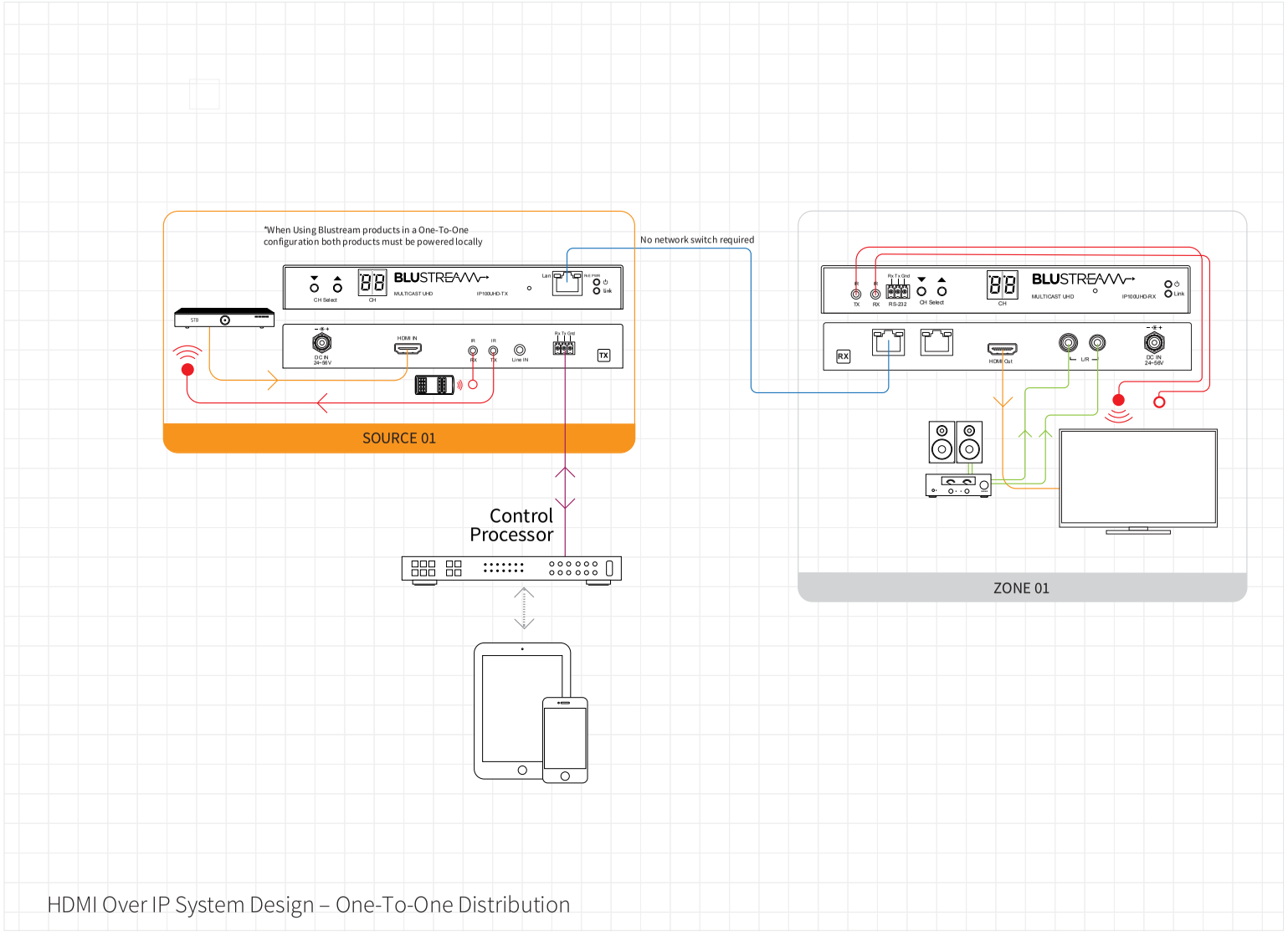
Example Schematic
IP100UHD-RX/TX
Video Wall



Application Diagrams - 1 To 1 Configuration

BLUSTREAM

Example Schematic
IP100UHD-RX/TX
MULTICAST SOLUTION



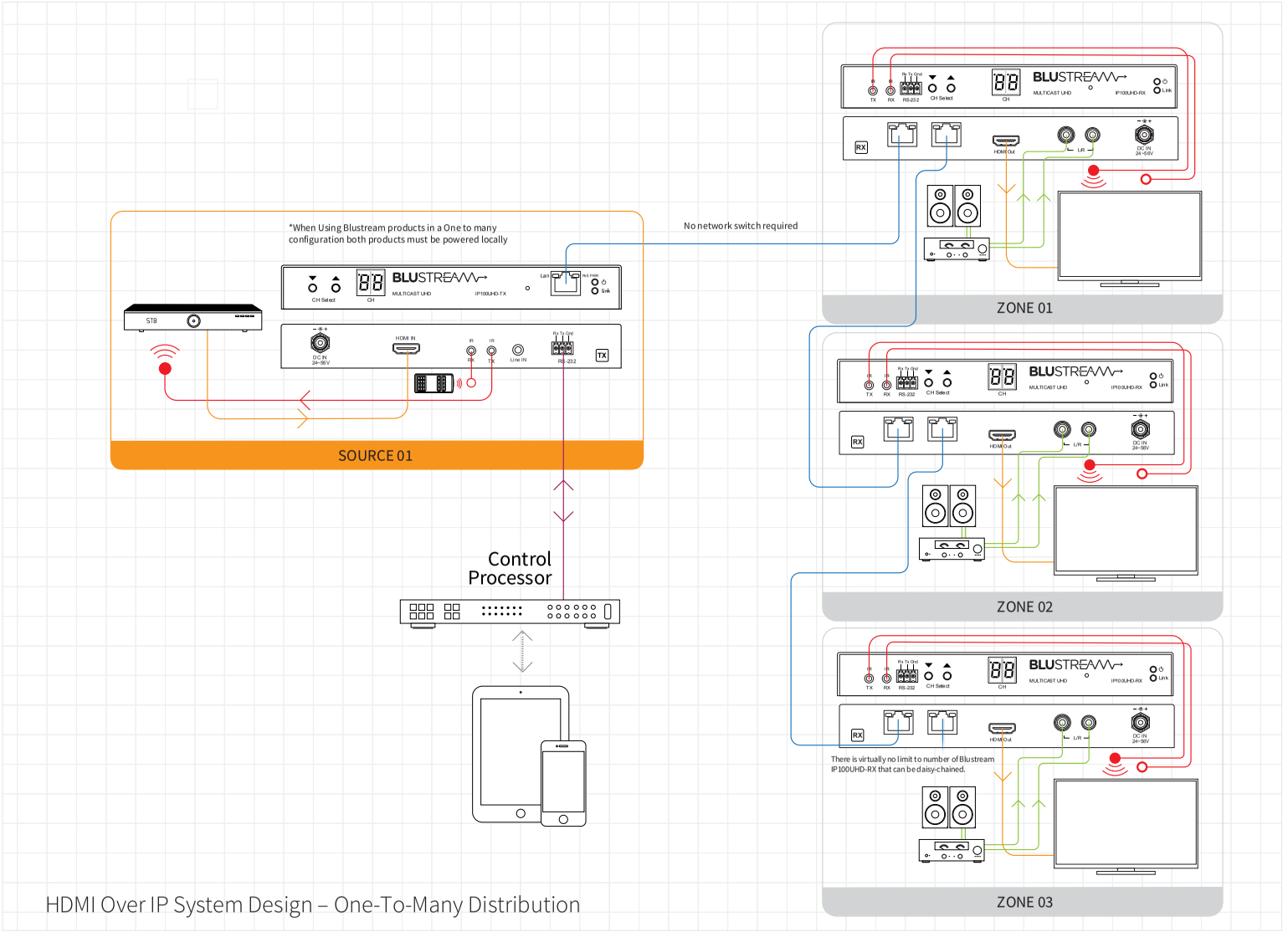
HDMI Over IP System Design – One-To-One Distribution

Application Diagrams - 1 To Many Configuration

BLUSTREAM

Example Schematic
IP100UHD-RX/TX
MULTICAST SOLUTION

Cat 5/5e/6
RS232
HDMI
IR Cable



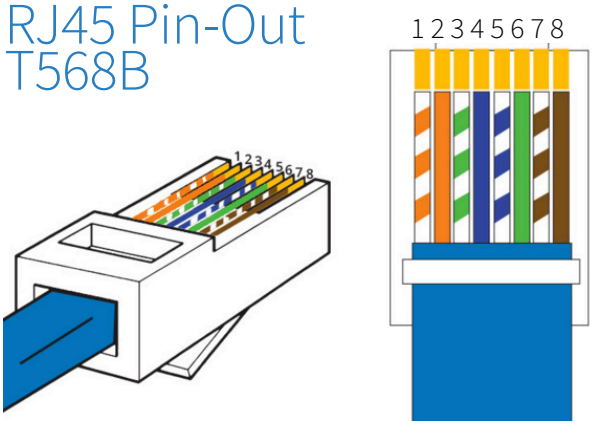
HDMI Over IP System Design – One-To-Many Distribution

Terminating the interconnecting Network CAT cable

It is important that the interconnecting CAT cable between the Blustream Multicast products is terminated using the correct RJ45 pin configuration. The link CAT cable ***MUST*** be a 'straight' (pin-to-pin) CAT cable and it is advised that this is wired to the T568B wiring standard as this format is less prone to EMI (Electro-Magnetic Interference).

When installing CAT cables it is advised that you use the best possible CAT cable quality possible. HDMI distribution products will only work if used with CAT5e standard cable or above. Blustream recommends using a CAT6 cable for your installations, especially when running over longer distances, in areas of high EMI, or with 4K signal distribution.

RJ45 Pin-Out T568B



Specifications

IP100UHD-TX

- Video input: 1x HDMI type A, female
- Video output: 1x LAN RJ45 connector
- Audio input:1x 3.5mm L/R analogue audio
- Ethernet port: 1x LAN RJ45 connector
- RS-232 serial port: 1x 3-pin phoenix connector
- IR input: 1x 3.5mm stereo jack
- IR output: 1x 3.5mm mono jack
- Mounting kit included
- Dimensions (W x D x H): 190mm x 108mm x 25mm
- Shipping weight (Kit): 0.75kg
- Operating temperature: 32°F to 104°F (0°C to 40°C)
- Storage temperature: -4°F to 140°F (-20°C to 60°C)

IP100UHD-RX

- Video input: 1x LAN RJ45 connector,
- Video output: 1x HDMI type A, female
- Audio output: 2x RCA L/R analogue audio
- Ethernet port: 1x LAN RJ45 connector (video extension)
- RS-232 serial port: 1x 3-pin phoenix connector
- IR input: 1x 3.5mm stereo jack
- IR output: 1x 3.5mm mono jack
- Mounting kit included
- Dimensions (W x D x H): 190mm x 108mm x 25mm
- Shipping weight (Kit): 0.75kg
- Operating temperature: 32°F to 104°F (0°C to 40°C)
- Storage temperature: -4°F to 140°F (-20°C to 60°C)

CM100

- Ethernet port: 2x LAN RJ45 connector
- RS-232 serial port: 1x 3-pin phoenix connector
- IR input: 1x 3.5mm stereo jack
- Dimensions (W x D x H): 89mm x 85mm x 23mm
- Shipping weight (Kit): 0.4kg
- Operating temperature: 32°F to 104°F (0°C to 40°C)
- Storage temperature: -4°F to 140°F (-20°C to 60°C)

Package Contents

IP100UHD-TX

- 1x IP100UHD-TX
- 1x Mounting kit for IP100UHD-TX
- 1x IR emitter
- 1x IR receiver
- 1x ID sticker

IP100UHD-RX

- 1x IP100UHD-RX
- 1x Mounting kit for IP100UHD-RX
- 1x IR emitter
- 1x IR receiver
- 1x ID sticker

CM100

- 1x CM100
- 1x IRCAB IR Control cable
- 1x Serial 3-pin phoenix connector

Maintenance

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

RS-232 and Telnet Commands

The Blustream Multicast system can be controlled via serial and TCP/IP. The following pages list all available serial commands for the Multicast solution. Details of RS-232 pin assignment can be found below:

Commonly used Serial commands:

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

OUTxxxSTATUS Status will give feedback on Transmitter or Receiver requested

OUTxxxFRyyy (xxx is the Receiver, yyy is the transmitter)

Example:- OUT001FR004 (This would switch Receiver 1 to Transmitter/input 4)

Common Mistakes

- Carriage return – Some programs do not require the carriage return where as other will not work unless sent directly after the string. In the case of some Terminal software the token <CR> is used to execute a carriage return. Depending on the program you are using this token maybe different. Some other examples that other control systems deploy include \r or 0D (in hex)
- Spaces – Blustream commands do not require space between commands unless specified. There may be some programs that require spacing in order to work.
  - How the string should look is as follows OUT001FR002
  - How the string may look if spaces are required: OUT{Space}001{Space}FR002
- Baud rate or other serial protocol settings not correct - please see below for Multicast settings

Blustream Multicast commands and feedback

COMMAND DESCRIPTION	COMMAND	RESPONSE
Set OUTPUT:xxx From INPUT:yyy (xxx:001~762) (yyy:001~762)	OUTxxxFRyyy	Set OUTPUT:xxx From INPUT:yyy
Set TX Audio source to HDMI audio (yyy:001~762)	INyyyAUDORG	Set Audio source:xxx to HDMI
Set TX Audio source to Analog (yyy:001~762)	INyyyAUDANA	Set Audio source:xxx to Analog
Set TX Audio source to Auto (yyy:001~762)	INyyyAUDAUTO	Set Audio source:xxx to Auto
Set Scaler Output Resolution (xxx:001~762) rr=00: PASS rr=01: 1080P@50Hz rr=02: 1080P@60Hz rr=03: 720P@60Hz rr=04: 720P@50Hz rr=05: 1280x1024@60Hz rr=06: 1024x768@60Hz rr=07: 1360x768@60Hz rr=08: 1440x900@60Hz rr=09: 1680x1050@60Hz rr=10: 4K@30Hz rr=11: 4K@24Hz	OUTxxxOUTRESrr	Set OUTPUT:xxx Resolution rr

RS-232 and Telnet Commands

COMMAND DESCRIPTION	COMMAND	RESPONSE
Set Input: yyy EDID To Default EDID:zz (yyy:001~762) zz=00: HDMI 1080p@60Hz, Audio 2CH PCM zz=01: HDMI 1080p@60Hz, Audio 5.1CH PCM/DTS/DOLBY zz=02: HDMI 1080p@60Hz, Audio 7.1CH PCM/DTS/DOLBY/HD zz=03: HDMI 1080i@60Hz, Audio 2CH PCM zz=04: HDMI 1080i@60Hz, Audio 5.1CH PCM/DTS/DOLBY zz=05: HDMI 1080i@60Hz, Audio 7.1CH PCM/DTS/DOLBY/HD zz=06: HDMI 1080p@60Hz/3D, Audio 2CH PCM zz=07: HDMI 1080p@60Hz/3D, Audio 5.1CH PCM/DTS/DOLBY zz=08: HDMI 1080p@60Hz/3D, Audio 7.1CH PCM/DTS/DOLBY/HD zz=09: HDMI 4K2K 4:4:4, Audio 2CH PCM zz=10: HDMI 4K2K 4:4:4, Audio 5.1CH PCM/DTS/DOLBY zz=11: HDMI 4K2K 4:4:4, Audio 7.1CH PCM/DTS/DOLBY/HD zz=12: DVI 1280x1024@60Hz, Audio None zz=13: DVI 1920x1080@60Hz, Audio None zz=14: DVI 1920x1200@60Hz, Audio None zz=15: Default EDID zz=16: 4K2K 4:2:0 @ 60Hz, Audio 2CH PCM zz=17: 4K2K 4:2:0 @ 60Hz, Audio 5.1CH PCM/DTS/DOLBY zz=18: 4K2K 4:2:0 @ 60Hz, Audio 7.1CH PCM/DTS/DOLBY/HD	INyyyEDIDzz	Set INPUT:yyy to Setting EDID: zz
Set Video Wall OUTPUT:xxx (xxx:001~762) Rows Max number:aa (aa:01~30) Columns Max number:bb (bb:01~30) Rows Position index (mm:01~30) Columns Position index (nn:01~30)	OUTxxxVWaaXbbRmmCnn	Set OUTPUT:xxx To aaXbb Rows index:mm Columns index:nn
OUTPUT:xxx Restore factory settings (xxx:001~762)	OUTxxxRESET	Set OUTPUT:xxx RESET
INPUT:xxx Restore factory settings (xxx:001~762)	INxxxRESET	Set INPUT:yyy RESET
OUTPUT:xxx Reboot (xxx:001~762)	OUTxxxREBOOT	Set OUTPUT:xxx REBOOT
INPUT:xxx Reboot (xxx:001~762)	INxxxREBOOT	Set INPUT:xxx REBOOT
OUTPUT:xxx HDR ON (xxx:001~762)	OUTxxxHDRON	Set OUTPUT:xxx HDR ON
OUTPUT:xxx HDR OFF (xxx:001~762)	OUTxxxHDROFF	Set OUTPUT:xxx HDR OFF
OUTPUT:xxx STATUS (xxx:001~762)	OUTxxxSTATUS	Multicast IP: xx.xx.xx.xx Channel: xxxx Ethernet Link Status: on/off Video Status: WAITING_HOST_MODE Please Enter command:
INPUT:yyy STATUS (yyy:001~762)	INxxxSTATUS	Multicast IP: xx.xx.xx.xx Channel: xxxx Ethernet Link Status: on/off Video Status: WAITING_HOST_MODE Please Enter command:
When command is successful		Success! Please Enter command:
When command fails (time out)		Fail! Please Enter command:
When command has error		error command! Please Enter command:

IP100 Multicast Infrared Commands

IP100/CM100	NEC IR: CUSTOMER CODE 1898	HEX IR
Input (TX) 1	30	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 2	31	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 3	32	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 4	33	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 5	34	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 6	35	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 7	36	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 8	37	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 9	38	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 10	39	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 11	3A	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 12	3B	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 13	3C	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689

IP100 Multicast Infrared Commands

IP100/CM100	NEC IR: CUSTOMER CODE 1898	HEX IR
Input (TX) 14	3D	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 15	3E	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 16	3F	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 17	70	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 18	71	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 19	72	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 20	73	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 21	74	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 22	75	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 23	76	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 24	77	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 25	78	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689
Input (TX) 26	79	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0689

IP100 Multicast Infrared Commands

IP100/CM100	NEC IR: CUSTOMER CODE 1898	HEX IR
Input (TX) 27	7A	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0689
Input (TX) 28	7B	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0689
Input (TX) 29	7C	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0689
Input (TX) 30	7D	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0689
Input (TX) 31	7E	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0689
Input (TX) 32	7F	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0689
Input (TX) 33	80	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Input (TX) 34	81	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Input (TX) 35	82	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Input (TX) 36	83	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Input (TX) 37	84	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Input (TX) 38	85	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Input (TX) 39	86	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689

IP100 Multicast Infrared Commands

IP100/CM100	NEC IR: CUSTOMER CODE 1898	HEX IR
Input (TX) 40	87	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Input (TX) 41	A0	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 42	A1	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 43	A2	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 44	A3	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 45	A4	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 46	A5	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 47	A6	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 48	A7	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 49	A8	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 50	A9	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 51	AA	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 52	AB	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0689

IP100 Multicast Infrared Commands

IP100/CM100	NEC IR: CUSTOMER CODE 1898	HEX IR
Input (TX) 53	AC	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 54	AD	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 55	AE	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 56	AF	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 57	B0	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 58	B1	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 59	B2	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 60	B3	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 61	B4	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 62	B5	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 63	B6	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 64	B7	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 65	B8	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689

IP100 Multicast Infrared Commands

IP100/CM100	NEC IR: CUSTOMER CODE 1898	HEX IR
Input (TX) 53	AC	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Input (TX) 54	AD	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Input (TX) 55	AE	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Input (TX) 56	AF	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Input (TX) 57	B0	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Input (TX) 58	B1	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Input (TX) 59	B2	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Input (TX) 60	B3	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Input (TX) 61	B4	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Input (TX) 62	B5	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Input (TX) 63	B6	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Input (TX) 64	B7	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Input (TX) 65	B8	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689

IP100 Multicast Infrared Commands

IP100/CM100	NEC IR: CUSTOMER CODE 1898	HEX IR
Input (TX) 66	B9	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 67	BA	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 68	BB	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 69	BC	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 70	BD	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 71	BE	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 72	BF	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0689
Input (TX) 73	88	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Input (TX) 74	89	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Input (TX) 75	8A	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Input (TX) 76	8B	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Input (TX) 77	8C	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Input (TX) 78	8D	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689

IP100 Multicast Infrared Commands

IP100/CM100	NEC IR: CUSTOMER CODE 1898	HEX IR
Input (TX) 79	8E	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Input (TX) 80	8F	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Output (RX) 1	C0	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Output (RX) 2	C1	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Output (RX) 3	C2	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Output (RX) 4	C3	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Output (RX) 5	C4	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Output (RX) 6	C5	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Output (RX) 7	C6	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Output (RX) 8	C7	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Output (RX) 9	C8	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Output (RX) 10	C9	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689
Output (RX) 11	CA	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0689

IP100 Multicast Infrared Commands

IP100/CM100	NEC IR: CUSTOMER CODE 1898	HEX IR
Output (RX) 12	CB	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 13	CC	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 14	CD	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 15	CE	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 16	CF	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 17	D0	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 18	D1	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 19	D2	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 20	D3	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 21	D4	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 22	D5	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 23	D6	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 24	D7	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689

IP100 Multicast Infrared Commands

IP100/CM100	NEC IR: CUSTOMER CODE 1898	HEX IR
Output (RX) 25	D8	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 26	D9	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 27	DA	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 28	DB	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 29	DC	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 30	DD	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 31	DE	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 32	DF	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 33	E0	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 34	E1	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 35	E2	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 36	E3	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 37	E4	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0689

IP100 Multicast Infrared Commands

IP100/CM100	NEC IR: CUSTOMER CODE 1898	HEX IR
Output (RX) 38	E5	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 39	E6	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 40	E7	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 41	E8	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 42	E9	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 43	EA	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 44	EB	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 45	EC	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 46	ED	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 47	EE	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 48	EF	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 49	F0	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689
Output (RX) 50	F1	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0689

IP100 Multicast Infrared Commands

IP100/CM100	NEC IR: CUSTOMER CODE 1898	HEX IR
Output (RX) 51	F2	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0689
Output (RX) 52	F3	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0689
Output (RX) 53	F4	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0689
Output (RX) 54	F5	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0689
Output (RX) 55	F6	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0689
Output (RX) 56	F7	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0689
Output (RX) 57	F8	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0689
Output (RX) 58	F9	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0689
Output (RX) 59	FA	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0689
Output (RX) 60	FB	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0689
Output (RX) 61	FC	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0689
Output (RX) 62	FD	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0689
Output (RX) 63	FE	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0689

IP100 Multicast Infrared Commands

IP100/CM100	NEC IR: CUSTOMER CODE 1898	HEX IR
Output (RX) 64	FF	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0689
Output (RX) 65	20	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 66	21	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 67	22	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 68	23	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 69	24	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 70	25	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 71	26	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 72	27	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 73	28	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 74	29	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 75	2A	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 76	2B	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689

IP100 Multicast Infrared Commands

IP100/CM100	NEC IR: CUSTOMER CODE 1898	HEX IR
Output (RX) 77	2C	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 78	2D	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 79	2E	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 80	2F	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 68	23	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 69	24	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 70	25	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 71	26	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 72	27	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 73	28	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 74	29	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 75	2A	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689
Output (RX) 76	2B	0000 006D 0000 0022 0157 00AC 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0016 0015 0016 0015 0041 0015 0041 0015 0016 0015 0041 0015 0041 0015 0689

www.blustream.co.uk
www.blustream.com.au