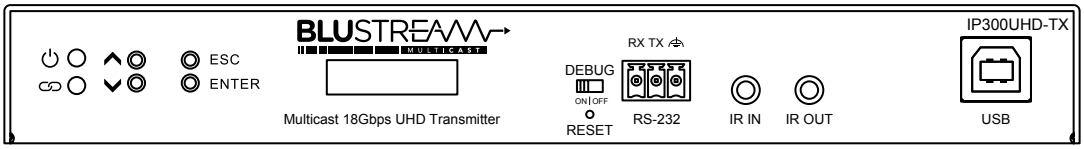

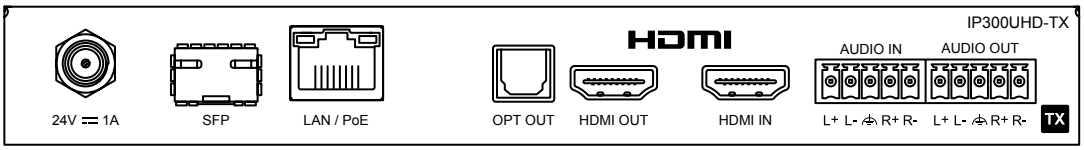

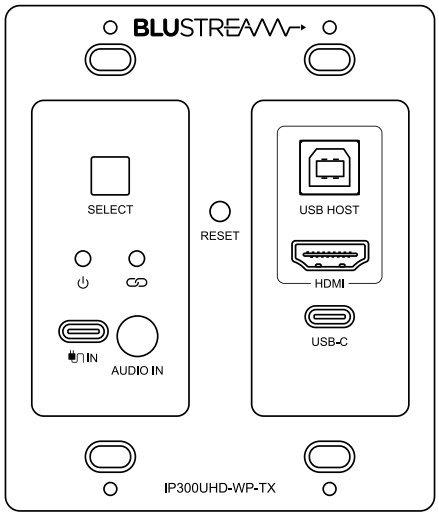

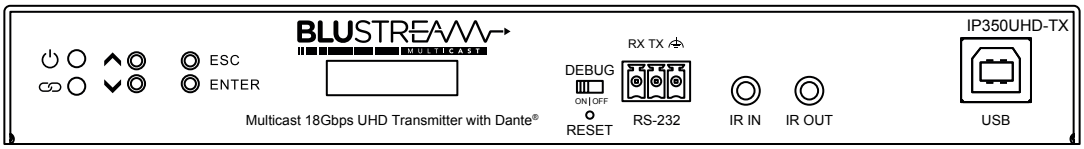

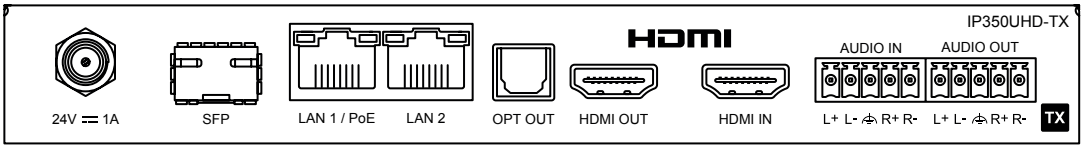

Blustream Multicast

IP300UHD-TX/RX, IP300UHD-TX-WP

IP350UHD-TX/RX

User Manual

Revision_A1 - March 2025

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

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Introduction

The Blustream IP300 series Multicast distribution platform allows virtually latency free (1 frame) distribution of 4K HDMI video over a 1Gb managed network.

Featuring full interoperability, the IP300UHD and IP350UHD-RX is an industry leading Dante enabled (IP350UHD only) 4K HDCP 2.2 video over IP platform that, using visually lossless compression technology, delivers 18Gbps HDMI, Dante & AES67 audio (IP350UHD only), bi-directional IR, RS-232 & USB/KVM up to lengths of 100m over standard copper network architecture, or greater distances using the in-built fibre SFP network interface (copper only on the IP300UHD-WP-TX). The IP350UHD series can support both video and Dante audio distribution from a single network. A second RJ45 connection allows for the Dante audio network interface to be segregated from the video over IP network if required.

With a full 18Gbps HDMI scaling chipset on-board, the HDMI output can be adjusted to lower resolutions where legacy displays are required in the same system as full 4K. The units can be powered via PoE from the network switch, or locally should the switch not support PoE. With multiple configuration options available, the flexibility of the Blustream Multicast video over IP solution makes this platform ideal for multiple installation types.

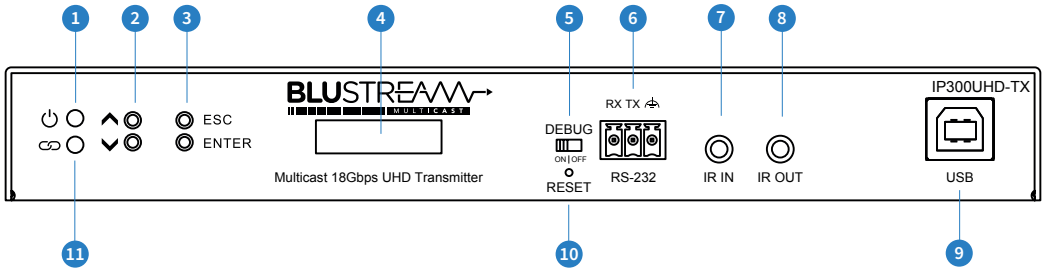
Features

- Advanced 4K HDMI 2.0 video over 1Gb managed network supporting 18Gbps HDMI signals
- Virtually unlimited system size
- Extends HDMI and Dante up to a distance of 100m over a single CAT cable (Dante available on IP350UHD only)
- Dual RJ45 network ports for independent or combined HDMI and Dante signal distribution (IP350UHD only)
- SFP port for signal distribution over fibre (IP300UHD-TX/RX and IP350UHD-TX/RX only)
- Supports up to 4K UHD 60Hz 4:4:4, and HDR including Dolby Vision LLM
- Supports all known HDMI audio formats including Dolby Atmos, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio transmission
- Advanced signal management for independent routing of IR, RS-232, USB/KVM, audio and video (IP300UHD-WP-TX does not feature IR pass-through capabilities)
- HDCP 2.2 Compliant
- PoE (Power over Ethernet) to power Blustream unit from PoE switch
- HDCP 2.2 compliant with 18Gbps scaling for inclusion of non-4K displays whilst distributing 4K to other parts of the system
- Analogue L/R audio input / output supports both balanced and unbalanced audio signals (3.5mm jack on IP300UHD-WP only)
- Optical (S/PDIF) input / output for 2ch optical audio return that can be fed into Dante network (IP350 to Dante only, no optical on IP300UHD-WP)
- OLED front panel display for advanced system information and manual configuration
- Optional 24V power supply (should Ethernet switch not support PoE)
- 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)

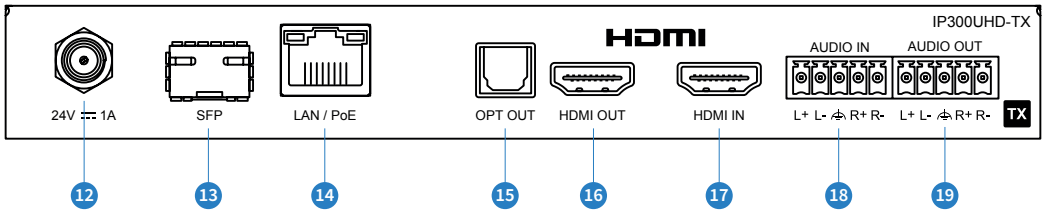
Please note: The Blustream Multicast system distributes HDMI video over Layer 2 or 3 Managed network hardware. It is advised that Blustream Multicast products are connected on an independent network switch to prevent interference or drop in signal performance due to other network products. Please take 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 - IP300UHD-TX Transmitter

IP300UHD-TX Front Panel



IP300UHD-TX Rear Panel



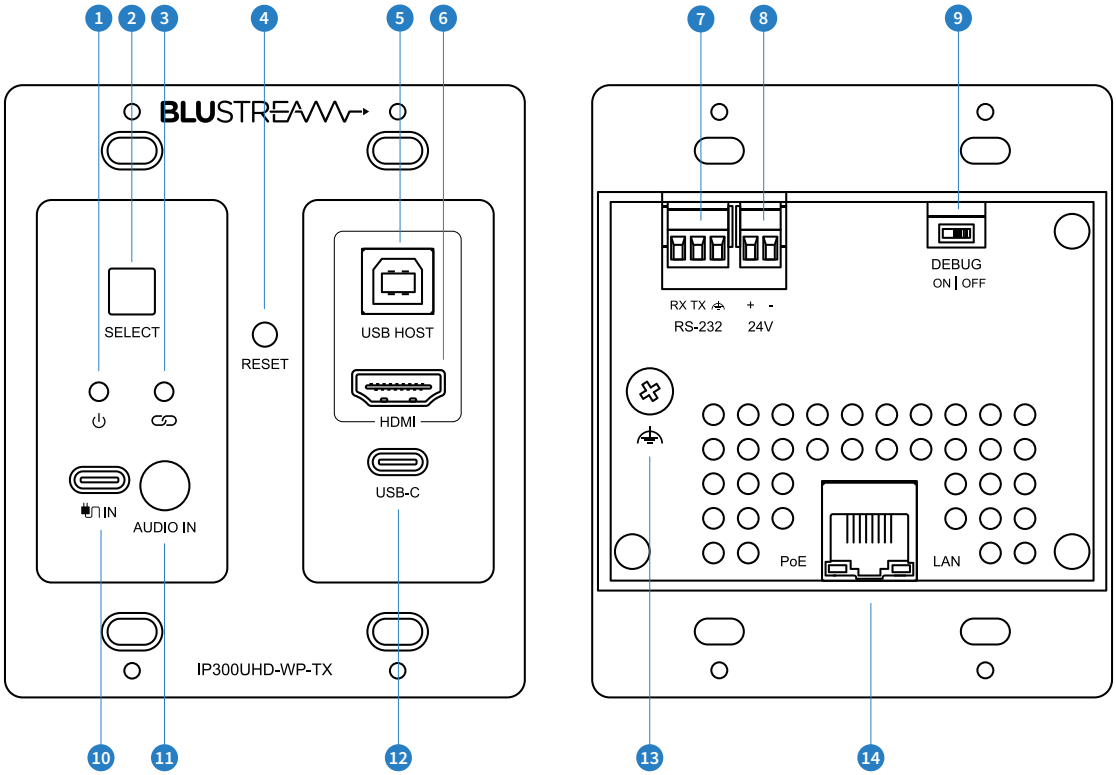
1. Power LED indicator
2. Channel select Up/Down - configure IP300UHD-TX manually and apply 'Programming mode'
3. ESC / ENTER buttons - use for manual configuration to return or select configuration option
4. OLED front panel display
5. Debug ON/OFF switch - only use as instructed during firmware recovery (set to OFF as default)
6. Assignable bi-directional RS-232 port – connect to third party control device to extend RS-232 commands to any/ multiple IP300 or IP350 series Multicast products RS-232 port
7. IR IN (IR input) – 3.5mm stereo jack. Transmits IR to any IP3xxUHD-RX receiver currently viewing the IP300UHD-TX. Please use supplied Blustream IRR 5V IR Receiver. When using the Blustream IRCAB cable (optional) ensure cable direction is correct
8. IR OUT - (IR output) - 3.5mm mono jack – routed IR from any IP3xxUHD-RX (zone output) allowing source control. Use supplied Blustream 5V IR emitters
9. USB-B host connection for USB/KVM routing within Multicast system
10. Reset button - press and hold for 5 seconds to factory reset the product
11. Link LED indicator - solid status light indicates a stable connection to the network switch
12. Power port – use 24V 1A DC adaptor (PS241 - sold separately) if not using a PoE network switch
13. SFP Fibre Port - use 1Gb SFP fibre module for connection to fibre port of network switch
14. LAN Connection (PoE) - connect to Layer 2/3 Managed switch for HDMI video distribution
15. Optical S/PDIF output port - connect to audio matrix or amplifier for optical audio return
16. HDMI output – connect to a HDMI display, or for connection to additional HDMI distribution equipment
17. HDMI input (ARC / eARC enabled) – connect to a HDMI source, or AVR output for ARC / eARC
18. Balanced / unbalanced audio input - embed 2ch analogue audio onto HDMI signal
19. Balanced / unbalanced audio output - breakout 2ch analogue audio from incoming HDMI signal

Please note: Source input must be 2ch PCM audio for analogue audio output to work. Multicast products d o not down-mix Dolby or DTS multi-channel audio signals

Panel Description - IP300UHD-WP-TX Wall Plate Transmitter

IP300UHD-WP-TX Front Panel

IP300UHD-WP-TX Rear Panel

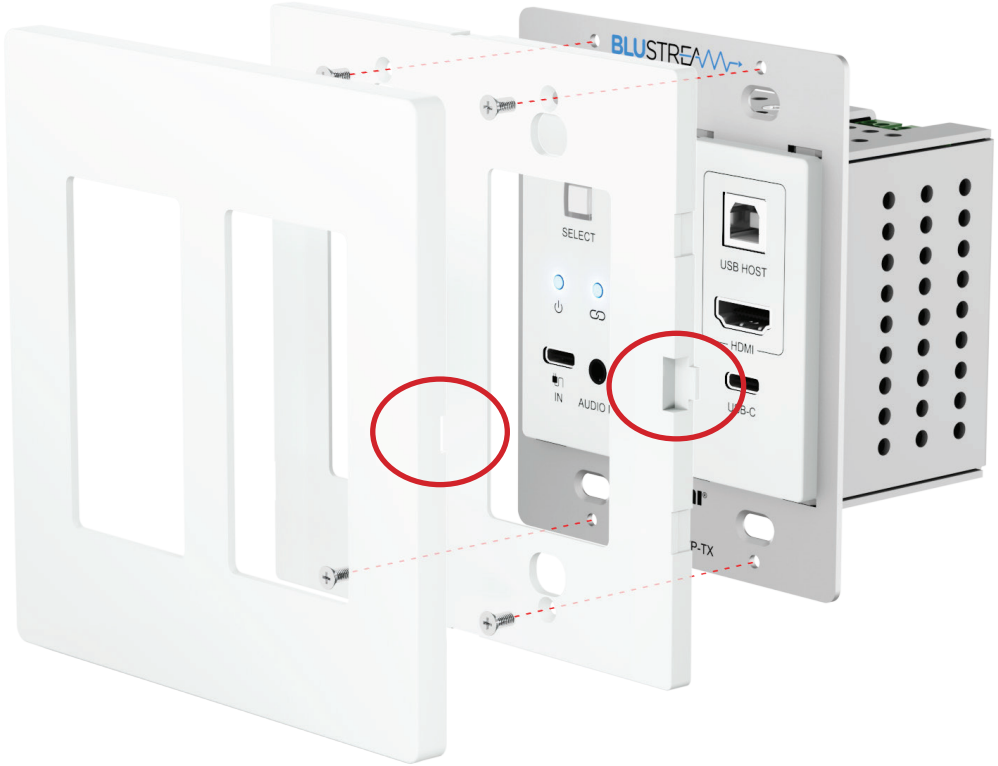


1. Power LED indicator
2. Select Button - press to manually switch between HDMI and USB-C inputs (green colour signifies HDMI connection, blue colour signifies USB-C connection). Auto switching capabilities can be disabled (enabled by default) from the ACM web-GUI
3. Link LED indicator - solid status light indicates a stable connection to the network switch
4. Reset button - press and hold for 5 seconds to factory reset the product
5. USB-B host connection for USB/KVM routing within Multicast system (linked to HDMI input)
6. HDMI input - connect to a HDMI source
7. Assignable bi-directional RS-232 port – connect to third party control device to extend RS-232 commands to any/multiple IP300 or IP350 series Multicast products RS-232 port
8. Power port – use 24V 1A DC 2-pin Phoenix adaptor (PS241-2PH - sold separately) if not using a PoE network switch
9. Debug ON/OFF switch - only use as instructed during firmware recovery (set to OFF as default)
10. USB-C PD Power connection - connect PSU for USB-C host/source device for power pass-through to host/source
11. 3.5mm Audio Input - embed 2ch analogue audio onto HDMI/USB-C video signal
12. USB-C input - connection to a USB-C video source for video and USB-C data combined (please note: this port will supply PD power to the USB-C host/source where a PSU has been connected to the USB-C Power input)
13. Ground pin - connect to the earthing/ground of the Decora wall plate backbox where required
14. LAN Connection (PoE) - connect to Layer 2/3 Managed switch for HDMI/USB-C video distribution

IP300UHD-WP-TX Backbox and Faceplate

The IP300UHD-WP-TX fits into any standard US Decora style backbox fitting (not provided). It is recommended that the backbox is a minimum of 67mm in depth to allow for the CAT cable conection when the unit is installed.

The IP300UHD-WP-TX is supplied with a removable faceplate to cover the fixings of the wall plate unit to the dual Decora style backbox, and the Reset button.

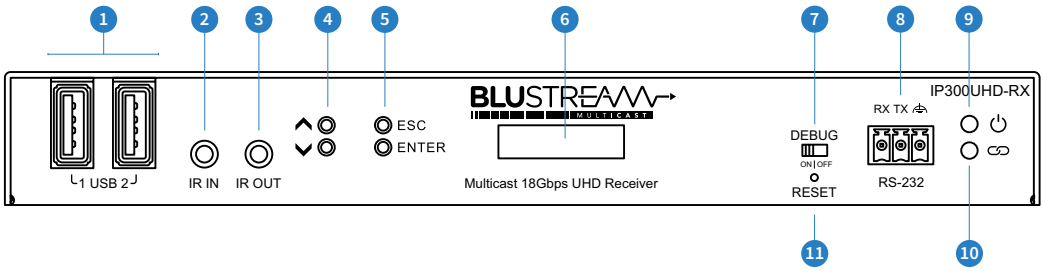


The included faceplate comes in two pieces and can be separated using the release clip on one side of the faceplate as indicated in the diagram above.

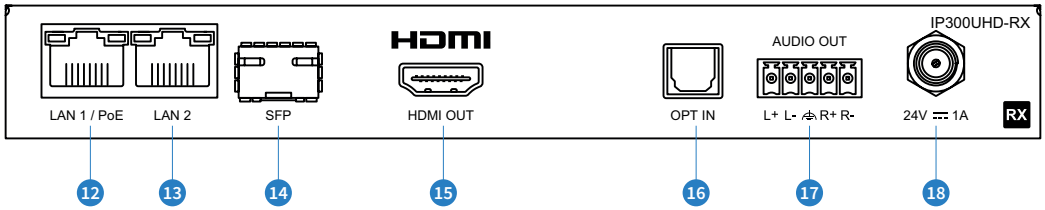
The rear part of the faceplate is secured to the top of the IP300UHD-WP after installation into the backbox. The top cover clips onto the faceplate base once the unit has been installed into the backbox, covering all screw holes. The unit is shipped with the 4 x screws to attach the faceplate to the IP300UHD-WP-TX.

Panel Description - IP300UHD-RX Receiver

IP300UHD-RX Front Panel



IP300UHD-RX Rear Panel

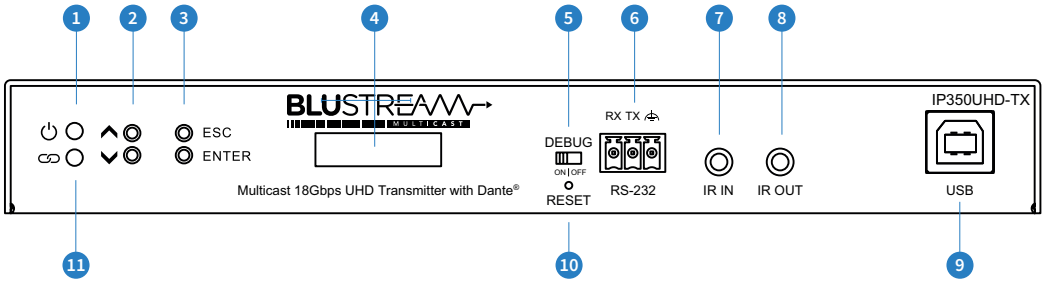


1. USB device connections for USB/KVM routing within Multicast system
2. IR IN (IR input) – 3.5mm stereo jack. Transmits IR to currently selected IP200UHD-TX transmitter allowing routed IR control of sources. Please use supplied Blustream IRR 5V IR Receiver. When using the Blustream IRCAB cable (optional) ensure cable direction is correct
3. IR OUT - (IR output) - 3.5mm mono jack – routed IR to selected IP200UHD-TX (source Transmitter). Use supplied Blustream 5V IR emitters
4. Channel select Up/Down - used to scroll through sources (IP3xxUHD-TX), setup IP300UHD-RX manually, and apply 'Programming mode'
5. ESC / ENTER buttons - use for manual configuration to return or select configuration option
6. OLED front panel display
7. Debug ON/OFF switch - only use as instructed during firmware recovery (set to OFF as default)
8. Assignable bi-directional RS-232 port – connect to third party control device to extend RS-232 commands to any/ multiple IP300 or IP350 series Multicast products RS-232 port
9. Power LED indicator
10. Link LED indicator - solid status light indicates a stable connection to the network switch
11. Reset button - press and hold for 5 seconds to factory reset the product
12. LAN 1 Connection (PoE) - connect to Layer 3 Managed switch for HDMI video distribution
13. LAN 2 Loop Out - connect to LAN Connection on subsequent IP300UHD-RX unit for daisy-chain of video IP stream
14. SFP Fibre Port - use 1Gb SFP fibre module for connection to fibre port of network switch
15. HDMI output (ARC / eARC enabled) – connect to a HDMI display
16. Optical S/PDIF Input port - connect to optical output of display for optical audio return
17. Balanced / unbalanced audio output - breakout 2ch analogue audio from incoming video signal
15. Power port – use 24V 1A DC adaptor (PS241 - sold separately) if not using a PoE network switch

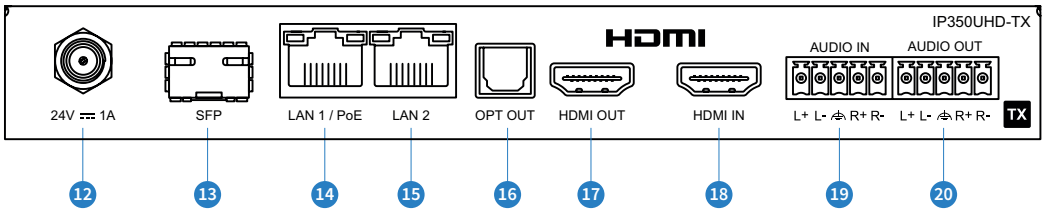
Please note: Source input must be 2ch PCM audio for analogue audio output to work. Multicast products do not down-mix Dolby or DTS multi-channel audio signals

Panel Description - IP350UHD-RX Transmitter

IP350UHD-TX Front Panel



IP350UHD-TX Rear Panel

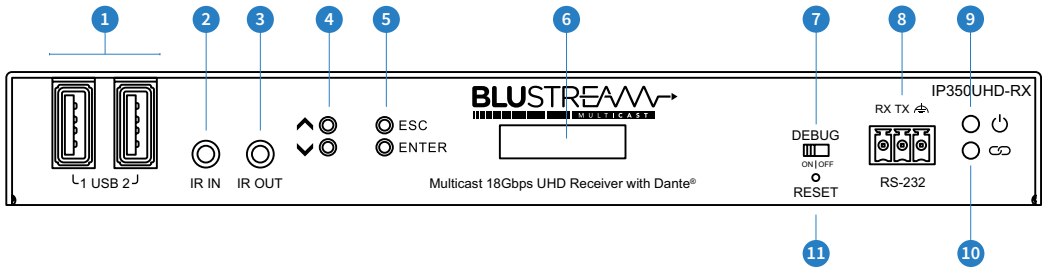


1. Power LED indicator
2. Channel select Up/Down - configure IP350UHD-TX manually and apply 'Programming mode'
3. ESC / ENTER buttons - use for manual configuration to return or select configuration option
4. OLED front panel display
5. Debug ON/OFF switch - only use as instructed during firmware recovery (set to OFF as default)
6. Assignable bi-directional RS-232 port – connect to third party control device to extend RS-232 commands to any/multiple IP300 or IP350 series Multicast products RS-232 port
7. IR IN (IR input) – 3.5mm stereo jack. Transmits IR to any IP3xxUHD-RX receiver currently viewing the IP300UHD-TX. Please use supplied Blustream IRR 5V IR Receiver. When using the Blustream IRCAB cable (optional) ensure cable direction is correct
8. IR OUT - (IR output) - 3.5mm mono jack – routed IR from any IP3xxUHD-RX (zone output) allowing source control. Use supplied Blustream 5V IR emitters
9. USB-B host connection for USB/KVM routing within Multicast system
10. Reset button - press and hold for 5 seconds to factory reset the product
11. Link LED indicator - solid status light indicates a stable connection to the network switch
12. Power port – use 24V 1A DC adaptor (PS241 - sold separately) if not using a PoE network switch
13. SFP Fibre Port - use 1Gb SFP fibre module for connection to fibre port of network switch for combined video and Dante
14. LAN 1 Connection (PoE) - connect to Layer 2/3 Managed switch for combined HDMI video / Dante distribution
15. LAN 2 Connection (Dante) - connect to Layer 2/3 Managed switch for independent Dante distribution
16. Optical S/PDIF output port - connect to audio matrix or amplifier for audio breakout or optical audio return
17. HDMI output – connect to a HDMI display, or for connection to additional HDMI distribution equipment
18. HDMI input (ARC / eARC enabled) – connect to a HDMI source, or AVR output for ARC / eARC
19. Balanced / unbalanced audio input - embed 2ch analogue audio onto HDMI signal, or into Dante network
20. Balanced / unbalanced audio output - breakout 2ch analogue audio from incoming HDMI signal, or from Dante source input

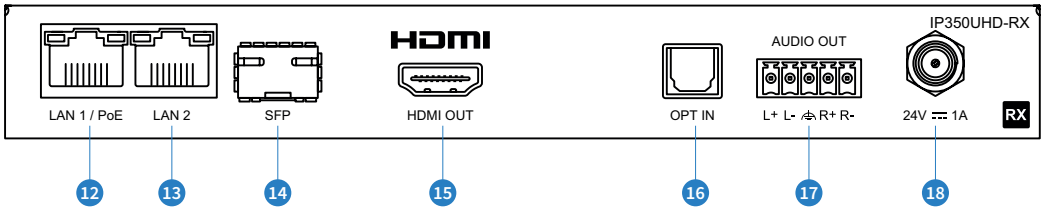
Please note: Source input must be 2ch PCM audio for analogue audio output to work. Multicast products do not down-mix Dolby or DTS multi-channel audio signals

Panel Description - IP350UHD-RX Receiver

IP350UHD-RX Front Panel



IP350UHD-RX Rear Panel



1. USB device connections for USB/KVM routing within Multicast system
2. IR IN (IR input) – 3.5mm stereo jack. Transmits IR to currently selected IP200UHD-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. IR OUT - (IR output) - 3.5mm mono jack – routed IR to selected IP200UHD-TX (source Transmitter). Use supplied Blustream 5V IR emitters
4. Channel select Up/Down - used to scroll through sources (IP3xxUHD-TX), setup IP300UHD-RX manually, and apply 'Programming mode'
5. ESC / ENTER buttons - use for manual configuration to return or select configuration option
6. OLED front panel display
7. Debug ON/OFF switch - only use as instructed during firmware recovery (set to OFF as default)
8. Assignable bi-directional RS-232 port – connect to third party control device to extend RS-232 commands to any/ multiple IP300 or IP350 series Multicast products RS-232 port
9. Power LED indicator
10. Link LED indicator - solid status light indicates a stable connection to the network switch
11. Reset button - press and hold for 5 seconds to factory reset the product
12. LAN 1 Connection (PoE) - connect to Layer 2/3 Managed switch for combined HDMI video / Dante distribution
13. LAN 2 Connection (Dante) - connect to Layer 2/3 Managed switch for independent Dante distribution
14. SFP Fibre Port - use 1Gb SFP fibre module for connection to fibre port of network switch for combined video and Dante
15. HDMI output (ARC / eARC enabled) – connect to a HDMI display
16. Optical S/PDIF Input port - connect to optical output of display for optical audio return
17. Balanced / unbalanced audio output - breakout 2ch analogue audio from incoming video signal
15. Power port – use 24V 1A DC adaptor (PS241 - sold separately) if not using a PoE network switch

Please note: Source input must be 2ch PCM audio for analogue audio output to work. Multicast products do not down-mix Dolby or DTS multi-channel audio signals

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 to an independent network switch to prevent interference or drop in signal performance due to other network products bandwidth requirements.

Blustream Multicast products are not limited to certain brands of network hardware, but should a network switch that Blustream have not tested or written instructions for be used, ensure it supports the following network features:

Multicast - (one-to-many or many-to-many distribution) is group communication where information is addressed to a group of network devices simultaneously (Blustream IP3xxUHD-RX Receivers).

Instant Leave / Fast Leave / Immediate Leave - 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 - 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) - Ethernet frames with more than 1,500 bytes of payload. Conventionally, jumbo frames can carry up to 9,216 bytes of payload, but variations exist and some care must be taken when 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 Multicast hardware. These configuration files can be downloaded from the Blustream website, by downloading the "Network Switch Guide" from any of the IP3xxUHD series products inside the Downloads tab.

Configuration & Control of an IP3xxUHD Multicast System

Manual Configuration:

The IP300UHD-TX/RX and IP350UHD TX/RX products can all be manually configured using the front panel buttons alongside the information on the OLED panel. Manual configuration can be used for smaller systems where an ACM (Advanced Control Module) controller will not be required for control. It is recommended to use the ACM for systems that contain larger numbers of units, or where more than 1x Transmitter unit is present.

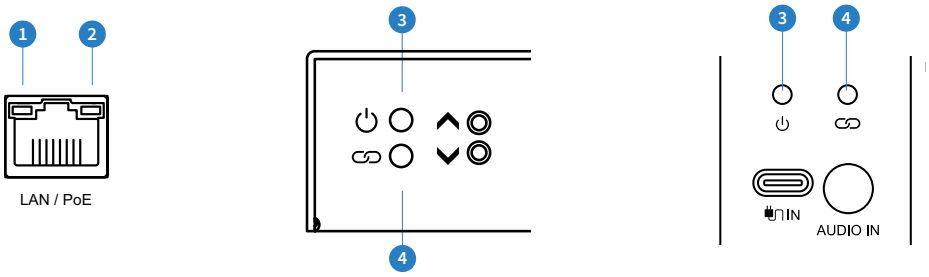
Please note: the IP300UHD-WP-TX cannot be manuallty configured and will require the ACM controller.

ACM210 - Advanced Control Module:

The Blustream ACM210 includes a web interface module for both configuration and control of a Multicast system. The web-GUI features 'drag and drop' source selection with video preview, control of independent routing of IR, RS-232, USB/KVM, CEC, Audio and Video. Pre-built Blustream product drivers simplify Multicast product installation and negate the need for an understanding of complex network infrastructures.

Understanding Product Status Lights

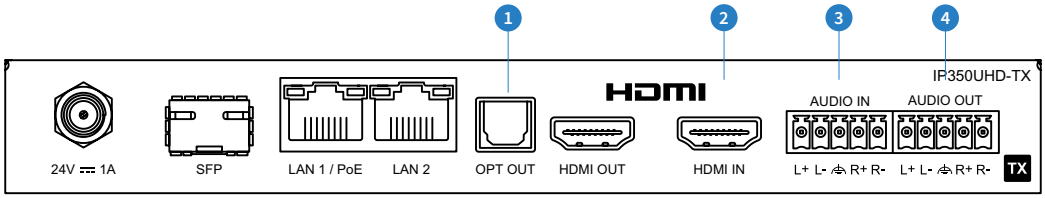
Multicast products have several LED lights to indicate connectivity status, or to help diagnose connection problems.



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



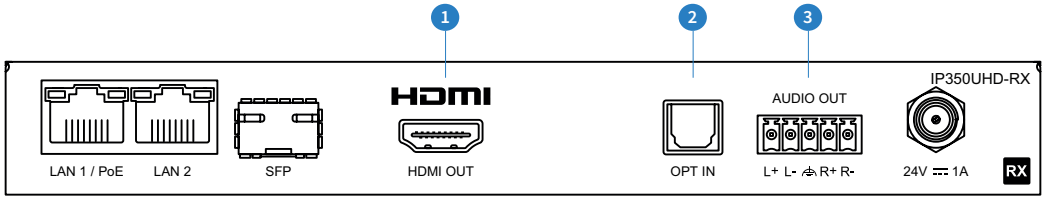
1. Optical Out - S/PDIF:
   The optical output port on an IP300UHD-TX or IP350UHD-TX can be used to breakout audio from the HDMI input source device at up to 5.1ch multi-channel audio. The output can also be paired with an IP3xxUHD-RX to bring a dedicated optical audio return channel to an amplifier from a zone (Receiver). On the IP350UHD-TX, the Optical output can also output 2ch audio from a Dante end-point connected to the Dante network.
2. HDMI In:
   The HDMI In port is eARC / ARC enabled allowing for the Transmitter on any IP300UHD-TX / IP350UHD-RX to be linked to an IP300UHD-RX or IP350UHD-RX for HDMI eARC / ARC to be passed back from a display to an AVR.
3. Audio In - 5-pin balanced / unbalanced Phoenix:
   The analogue audio input can be used to replace the original HDMI audio of the source connected to the Multicast Transmitter with analogue L/R 2ch 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, or by selecting the Audio Source within the ACM web-GUI. With the IP350UHD-TX, the analogue audio can be encoded onto a Dante stream as required and distributed via the Dante network.

Please note: It is only possible to select EITHER: HDMI audio, or local analogue line input. It is not possible to distribute both audio sources simultaneously.

4. Audio Out - 5-pin balanced / unbalanced Phoenix:
   The analogue output can be used to breakout the embedded 2ch analogue source audio from the HDMI signal. With the IP350UHD-TX, the analogue audio can instead be used to decode from a separate Dante streamfrom within the Dante network.

Please note: The source input must be PCM 2ch audio for the analogue audio output to work. The Blustream Multicast products do not down-mix Dolby Digital, DTS or multi-channel audio signals.

Audio Connections - Receiver



1. HDMI Out:
   The HDMI output port is eARC / ARC enabled allowing for a connected display to send HDMI eARC / ARC back to a linked IP300UHD-TX or IP350UHD-TX that is connected to a compatible AVR over the network.
2. Optical In - S/PDIF
   The optical input port on an IP300UHD-RX or IP350UHD-RX can be paired with an IP3xxUHD-TX to bring a dedicated optical audio return channel to an amplifier from a zone (Receiver). On the IP350UHD-RX, the Optical input can also encode 2ch audio to a Dante end-point connected to the Dante network.
3. Audio Out - 5-pin balanced / unbalanced Phoenix:
   The analogue audio output can be used to breakout 2ch audio from the HDMI video being output from the HDMI port. With the IP350UHD-RX, 2ch audiocan be decoded from an end point within a connected Dante system as required.

Please note: The HDMI stream must be PCM 2ch audio for Analogue L/R audio output to work. The Blustream Multicast products do not down-mix Dolby Digital, DTS or 5.1ch audio signals.

Interoperability

The IP300 series units are all interoperable with eachother (IP300UHD, IP300UHD-WP, and IP350UHD), but are not compatible with other Blustream Multicast equipment (IP50HD, IP200UHD, or IP500UHD series) as differing codecs are used for the transport of the video through the network.

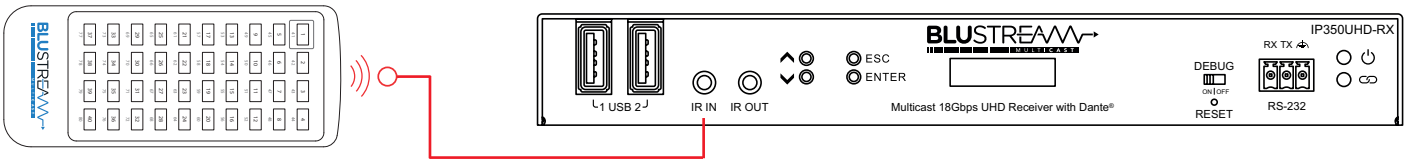
The IP300 series is also not compatible with older / legacy IP100UHD systems from Blustream.

InfraRed Control

The Blustream Multicast system can be controlled using local IR hardware connected directly to the IP300 series Receivers. This prevents the need for a third party control solution, or where simple IR control is all that is required. 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 RS-232 or TCP/IP control will need to be used.

Blustream have created 80x IR commands allowing source selection of up to 80x IP300 series Transmitters. For systems larger than 80x source devices (IP300 series Transmitters) the ACM210 control module is recommended.

Infrared Control of IP300 series Receivers using REM100 (sold separately):



Infrared Control using Third Party Control System and ACM210

Remote Control - REM100

Input (Transmitter) Selection

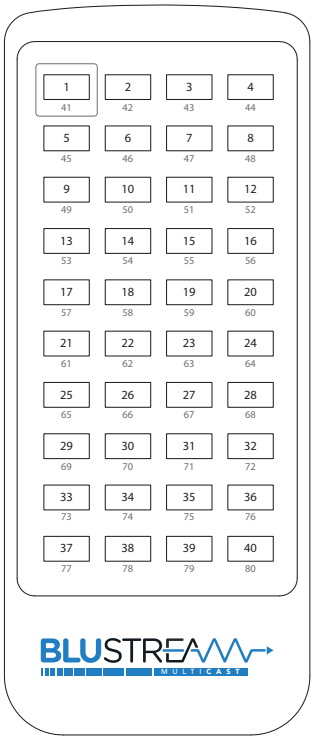
The Blustream REM100 remote control can be used at any Blustream Multicast RX Receiver product and can select up to 80x source inputs (Transmitters).

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 (top left) 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

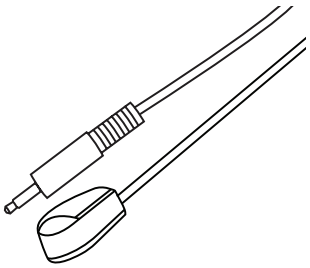
The Blustream range of Multicast products include multiple options for control and routing of IR.

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 the Blustream IR-CAB cable for IR conversion.

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

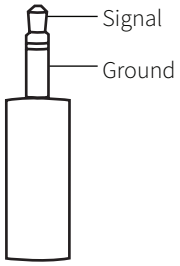
IR Emitter - IR1 & IR2 (IR2 sold separately)

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



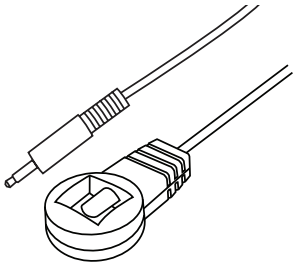
Infrared 3.5mm Pin-Out

IR Emitter - Mono 3.5mm

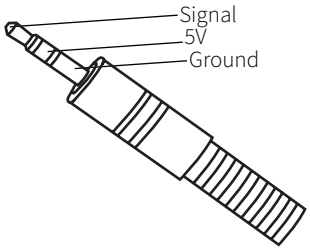


IR Receiver - IRR

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



IR Receiver - Stereo 3.5mm

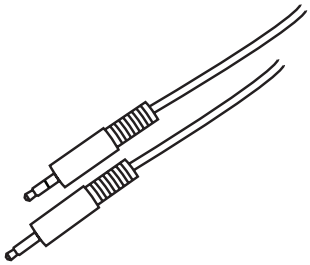


IR Control Cable - IR-CAB (sold separately)

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.

Please note: Cable is directional as indicated



InfraRed Pass-Through (Source Control)

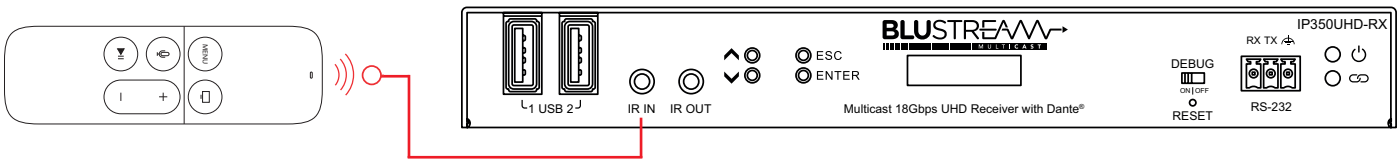
The Multicast products feature InfraRed pass-through allowing users to use an original source remote to control the sources located in another area.

The IR signal is routed discreetly to the source that is currently 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 / model.

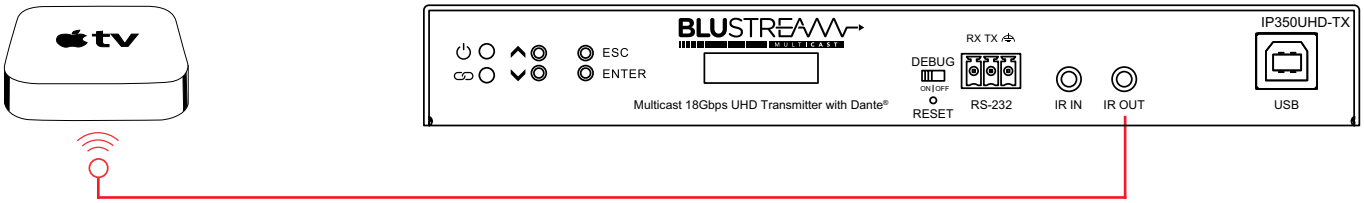
Please note: The IR pass-through features are available in all modes of Multicast use (matrix mode, video-wall, one-to-one, and one-to-many)

Connections:

The IRR - IR receiver is connected to the IR IN socket on the IP300 series Receiver.



The IR1 - IR emitter is connected to the IR OUT socket on the IP300 series Transmitter and the bud should be located directly on top of the IR receiver window of the source device.



Please note: the IP300UHD-WP-TX does not feature IR pass-through capabilities.

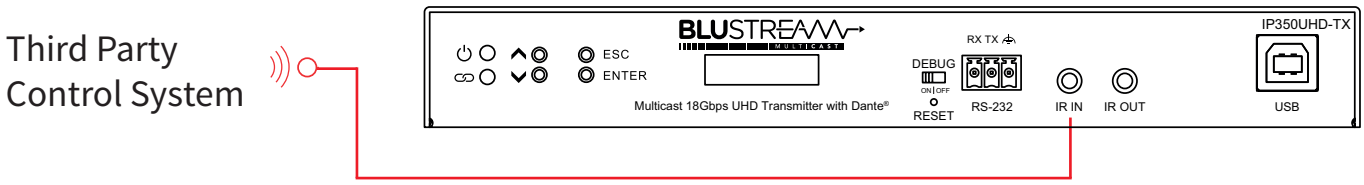
InfraRed Pass-Through (Display Control)

With the ACM210, IR can be routed independently from any IP300UHD-TX or IP350UHD-TX to any IP300 series Receiver unit for display control, regardless of the current video stream routing between a receiver and another transmitter.

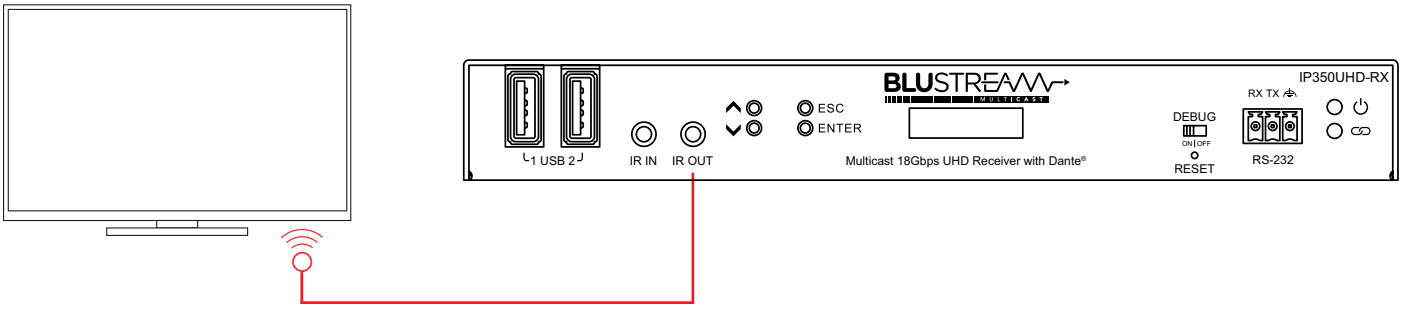
Instructions for the confiuguration of Fixed Routing can be found in the ACM210 User Manual, downloadable from the Blustream website. The commands for fixed routing can be found within the API of the ACM.

Connections:

When using third party 12V IR control solutions please use Blustream IR-CAB cable for IR conversion from 12V to 5V. If the control system uses a 5V IR line, then a straight-through stereo 3.5mm cable can be used. Connect the IR output of the third party control system to the IR IN of the IP300 series Transmitter.



The IR1 - IR emitter is connected to the IR OUT socket on the IP300 series Receiver and the bud should be located directly on top of the IR receiver window of the display device.



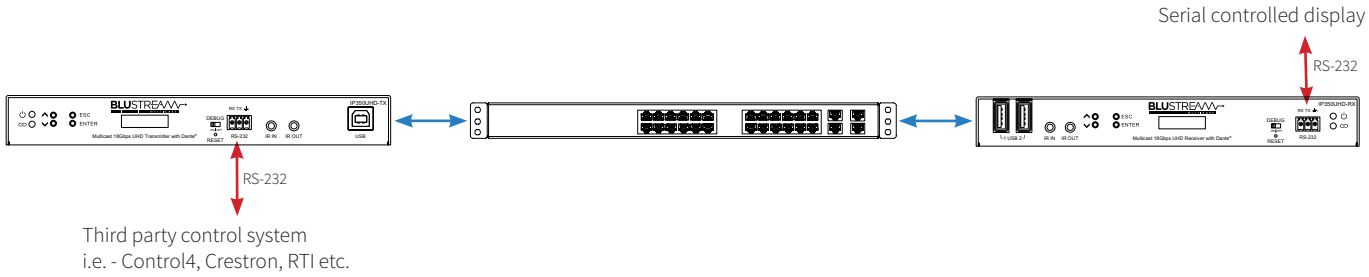
RS-232 (Serial) Bi-Directional Pass-Through

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:

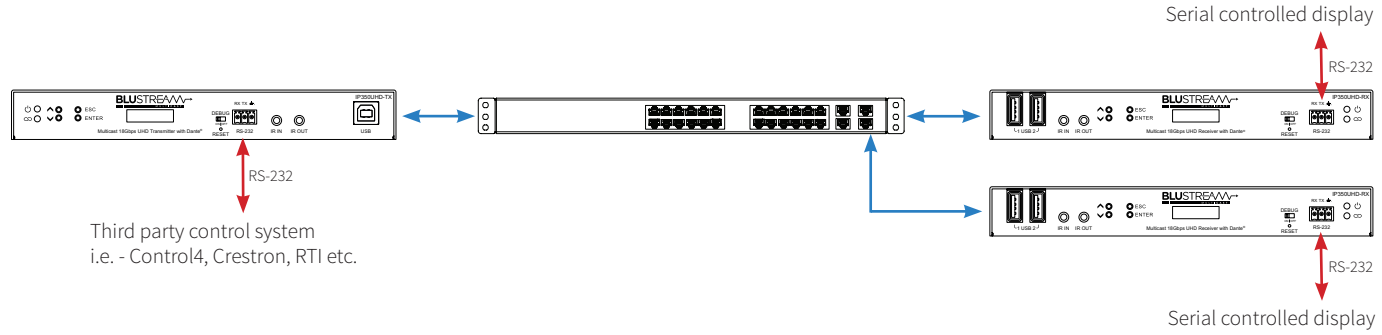
1) Type-1 Redirection Mode: 1-to-1 routed RS-232

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.



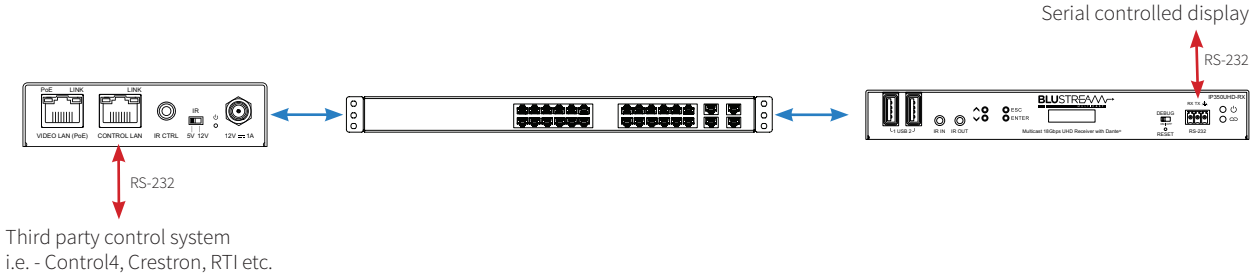
2) Type 2 Dumb Redirection Mode - 1-to-many routed RS-232

A link is opened when a receiver(s) is connected to a transmitter in the system. Once established the RS-232 commands can be sent in either direction between products, allowing a single command to be sent to 1 or many receivers at the same time i.e. - All displays powered on.



3) Type 2 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 an ACM210 control module and any IP300 series TX or RX (Transmitter or Receiver) product in the system. Telnet/IP commands are sent into the ACM210 from a third party control solution. This is then converted into an RS-232/serial command for control of third party products.



Please 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 simultaneously.

Type-1 Redirection Mode - 1-to-1 Routed RS-232

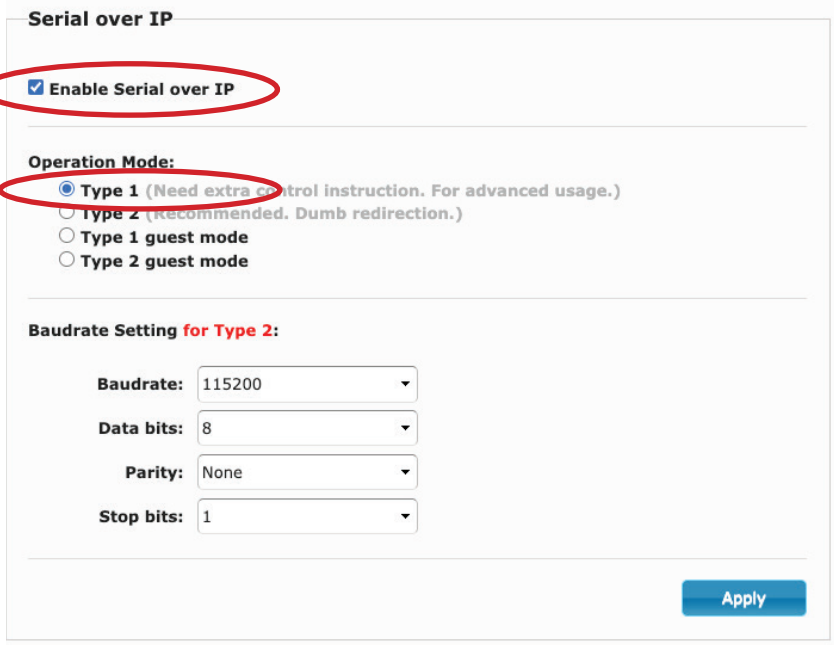
The Multicast products feature bi-directional RS-232 pass-through for control of products using serial commands from a fixed RX/TX to another. This is also known as Type 1, 1 to 1 routed RS-232 mode. To utilise this enable Type 1 RS-232 mode as follows:

Type 1 RS-232 Mode Set Up

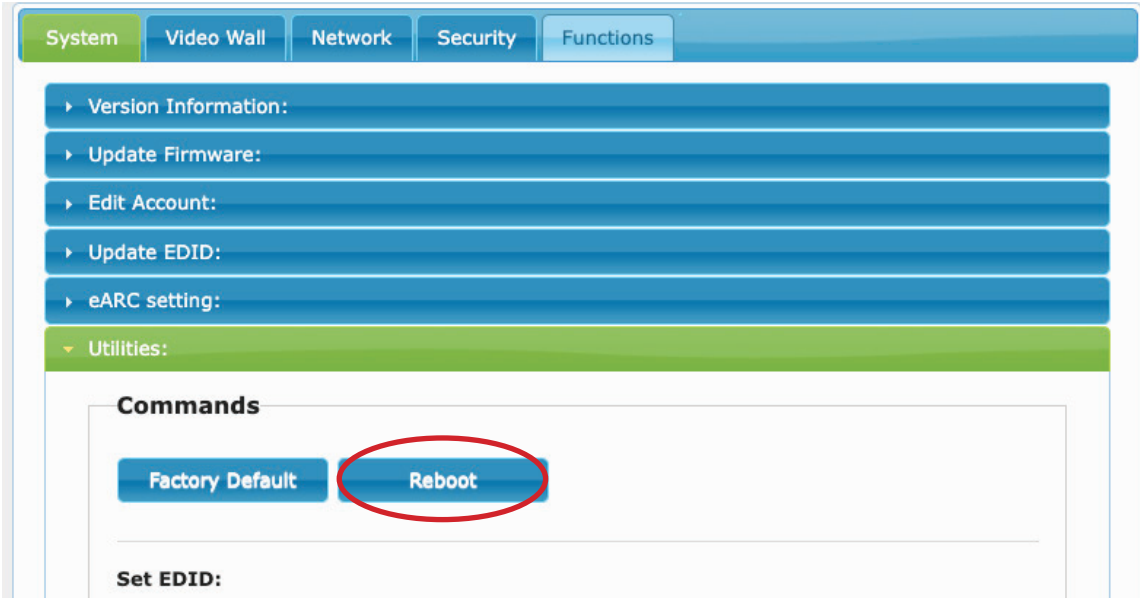
1) Connect to the Web GUI of the IP300 series Transmitter or Receiver to enable Type 1 mode for by entering its IP Address in a web browser and navigate to the Functions' tab.
For example: 169.254.6.1 is the default IP address for RX ID 1.

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

3) Select the checkbox for 'Type 1'



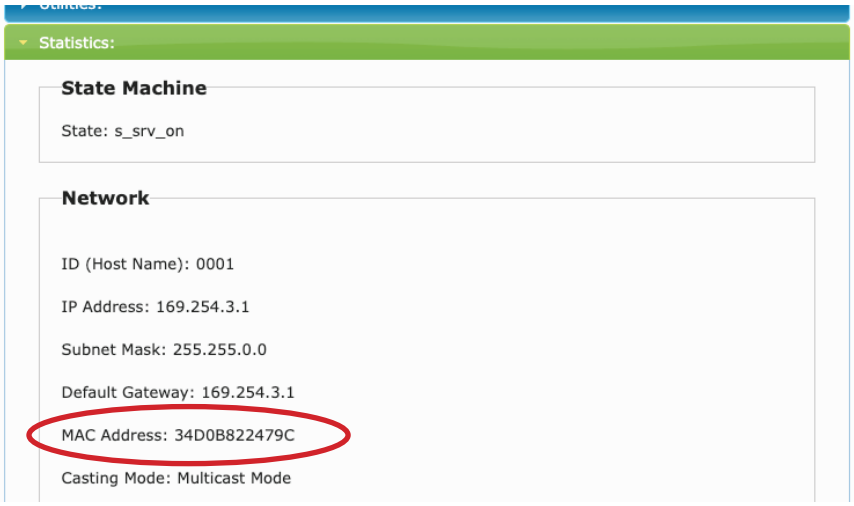
4) Select the System tab and navigate to the Utilities section.
Select the Reboot button to restart the Multicast unit.



Type-1 Redirection Mode - 1-to-1 Routed RS-232

5) Connect to the Web GUI of Multicast product, and navigate to the Statistics section under the System menu and note the products MAC Address.

Use this MAC Address to create the routed RS-232 connection.



6) Next, send the following messages directly into the Blustream Multicast TX or RX serial port. The command will open a connection between the Blustream products. Connect a computer or control system serial port (or USB to serial cable) directly to the 3-Pin serial connection on the TX or RX product.

7) Use a serial control program to send the below commands into the Multicast TX/RX product.

Please note: Some serial command programs require the carriage return <CR> to be entered after the commands. Some programs will automatically add this.

8) Using the PC serial command program enter the following commands:

0E (in hex format)

This will put the unit into command mode and a command prompt will be displayed ">".

9) Send the connect command as follows:

ast_c <MAC ADDRESS> <BAUD>8N1

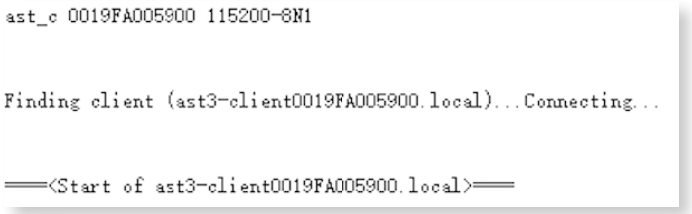
<CR>

Where <MAC ADDRESS> is the MAC Address of the target device (TX or RX) that was collected earlier and <BAUD> is the baudrate of the device to be communicated with.

For example: ast_c 0019FA0059A3 115200-8N1

<CR>

10) A start message showing the connection has been established will be displayed.



Commands can now be sent to/from the device.

11) To disconnect, send the control message **0E** (in hex format)

Please note: As soon as the IP200UHD-TX or -RX sees the command '0E' (even if part of a third party command) it will close serial communication between the Multicast products.

Type 2 Guest Mode - Telnet/IP Conversion To RS-232

Multicast products feature bi-directional RS-232 pass-through for control of products using serial commands from the ACM210. This is also known as RS-232 Guest Mode. To utilise this, enable Guest Mode first as follows.

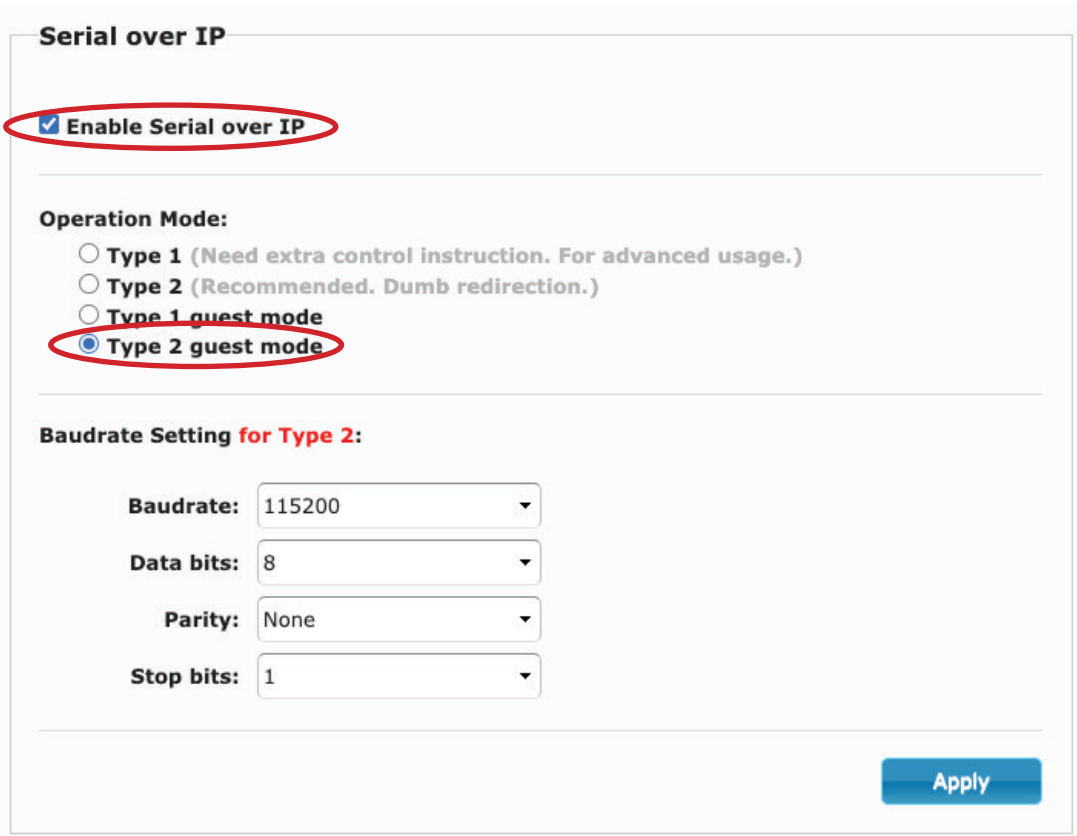
RS-232 Guest Mode Set Up

1) Guest Mode must be enabled in each IP300 series unit in order to use this functionality.
Connect to the Web GUI of the IP300 series unit to enable Guest Mode for by entering the products IP Address in a 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 to be controlled.



RS-232 Guest Mode Communication

1) To open a Guest Mode connection between the ACM210 and an IP300 series unit send the following command via IP or RS-232:

INxxxGUEST Connect to TX xxx in Guest Mode from the ACM210

OUTxxxGUEST Connect to RX xxx in Guest Mode from the ACM210

Example: Transmitter one is ID 001, meaning 'IN001GUEST' will allow bi-directional Serial or TCP/IP commands between ACM210 and Transmitter 001.

2) Once a connection is established, any characters sent from the ACM210 will be transmitetd to the IP300 series unit it is connected with, and vice versa.

3) To close the connection send the escape command 0x02 (02 in Hex). If using Telnet, 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 selection, and Scaler output selection.

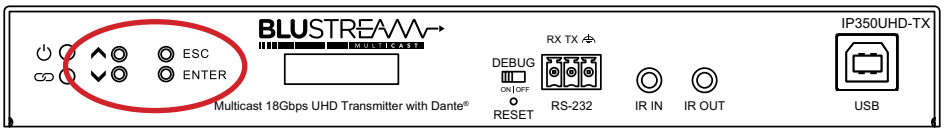
Manual configuration does not require the product to be connected to a network switch in order to be set-up, it only requires the units to be powered either by local power supply (24V 1A) or by a PoE switch/power injector. This means that a basic configuration can easily be achieved offsite, without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

Please note: Advanced features such as video walls cannot be setup via manual configuration, the ACM210 web-GUI is required for this.

Configuring the IP300 series Transmitter:

1) Power the IP300 series Transmitter - 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.

2) Put the IP300 series Transmitter into 'Manual 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 'Manual Configuration' mode.



3) Assign the Transmitter ID / IP address - once the product is in Manual Configuration mode the display will display the IP address that the unit is going t be set to, starting with 169.254.3.1. Use the UP and DOWN buttons to choose the IP address you want the TX to be set to.

- The first IP that should be assigned will be ID / input 001 = 169.254.3.1
- The second IP that should be assigned will be ID / input 002 = 169.254.3.2

and so on....

Once the address has been selected and is correct, confirm the selection by pressing the Enter button.

4) Set the EDID - once the IP address has been selected, use the UP and DOWN buttons to select the EDID setting required. The EDID will be displayed on the OLED screen - select the EDID that matches the source devices the TX is going to be connected to.

Once the required EDID has been selected, press Enter to finalise the manual configuration.

The Multicast Transmitter will reboot with the new settings applied.

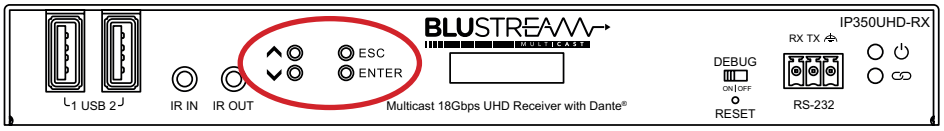
Pressing the Escape button at any point returns to the previous step. Pressing the Escape button twice, cancels all manual configuration, and takes the Transmitter back to normal operation.

Please note: the name of the TX device can only be set from the ACM210 web-GUI. The IP300UHD-WP-TX can only be configured from the ACM210, and does not feature the front panel button configuration option of the other products in this series.

Configuring the IP300 series Receiver:

1) Power the IP300 series Receiver - to configure the Multicast Receiver first connect the product to a power supply (local or PoE network) and wait for the product to boot up.

2) Put the IP300 series Receiver into 'Manual 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 'Manual Configuration' mode.



3) Assign the Receiver ID / IP address - once the product is in Manual Configuration mode the display will display the IP address that the unit is going t be set to, starting with 169.254.6.1. Use the UP and DOWN buttons to choose the IP address you want the RX to be set to.

- The first IP that should be assigned will be ID / output 001 = 169.254.6.1
- The second IP that should be assigned will be ID / output 002 = 169.254.6.2

and so on....

Once the address has been selected and is correct, confirm the selection by pressing the Enter button.

4) Set the Video Scaler of the Receiver - once the IP address has been selected, use the UP and DOWN buttons to select the scaler output setting required. The resolution will be displayed on the OLED screen - select the scaler output that matches the display devices the RX is going to be connected to.

Once the required scaled output has been selected, press Enter to finalise the manual configuration.

The Multicast Receiver will reboot with the new settings applied.

Pressing the Escape button at any point returns to the previous step. Pressing the Escape button twice, cancels all manual configuration, and takes the Receiver back to normal operation.

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 output. As each Blustream Multicast IP300 series 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 (as required) at each Receiver.

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 4K@30Hz 4:4:4, Audio 2ch PCM
10	HDMI 4K@30Hz 4:4:4, Audio 5.1ch PCM/DTS/DOLBY
11	HDMI 4K@30Hz 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	4K@60Hz 4:2:0, Audio 2ch PCM
17	4K@60Hz 4:2:0, Audio 5.1ch PCM/DTS/DOLBY
18	4K@60Hz 4:2:0, Audio 7.1ch PCM/DTS/DOLBY/HD
19	4K@60Hz 4:4:4, Audio 2ch PCM
20	4K@60Hz 4:4:4, Audio 5.1ch PCM/DTS/DOLBY
21	4K@60Hz 4:4:4, Audio 7.1ch PCM/DTS/DOLBY/HD
22	4K@60Hz HDR10, Audio 2ch PCM
23	4K@60Hz HDR10, Audio 5.1ch PCM/DTS/DOLBY
24	4K@60Hz HDR10, Audio 7.1ch PCM/DTS/DOLBY/HD
25	4K@60Hz HDR12, Audio 2ch PCM
26	4K@60Hz HDR12, Audio 5.1ch PCM/DTS/DOLBY
27	4K@60Hz HDR12, Audio 7.1ch PCM/DTS/DOLBY/HD
28	4K@60Hz HDR10 with DV, Audio 2ch PCM
29	4K@60Hz HDR10 with DV, Audio 5.1ch PCM/DTS/DOLBY
30	4K@60Hz HDR10 with DV, Audio 7.1ch PCM/DTS/DOLBY/HD
31	4K@60Hz HDR12 with DV, Audio 2ch PCM
32	4K@60Hz HDR12 with DV, Audio 5.1ch PCM/DTS/DOLBY
33	4K@60Hz HDR12 with DV, Audio 7.1ch PCM/DTS/DOLBY/HD

Scaler Output Control

The Blustream Multicast Receiver has an in-built video scaler which can both up-scale and downscale video signals allowing for differing image resolutions at each display.

Configuration of the Multicast Receivers scaler settings can be achieved in several ways:

1) During the manual configuration of the IP300 series Receiver - see previous pages

2) Using the Multicast web-GUI interface (by addressing the unit via it's IP Address within a browser)

3) Using the Web-GUI of the Blustream ACM210

4) Using RS-232 commands via the Blustream ACM210

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

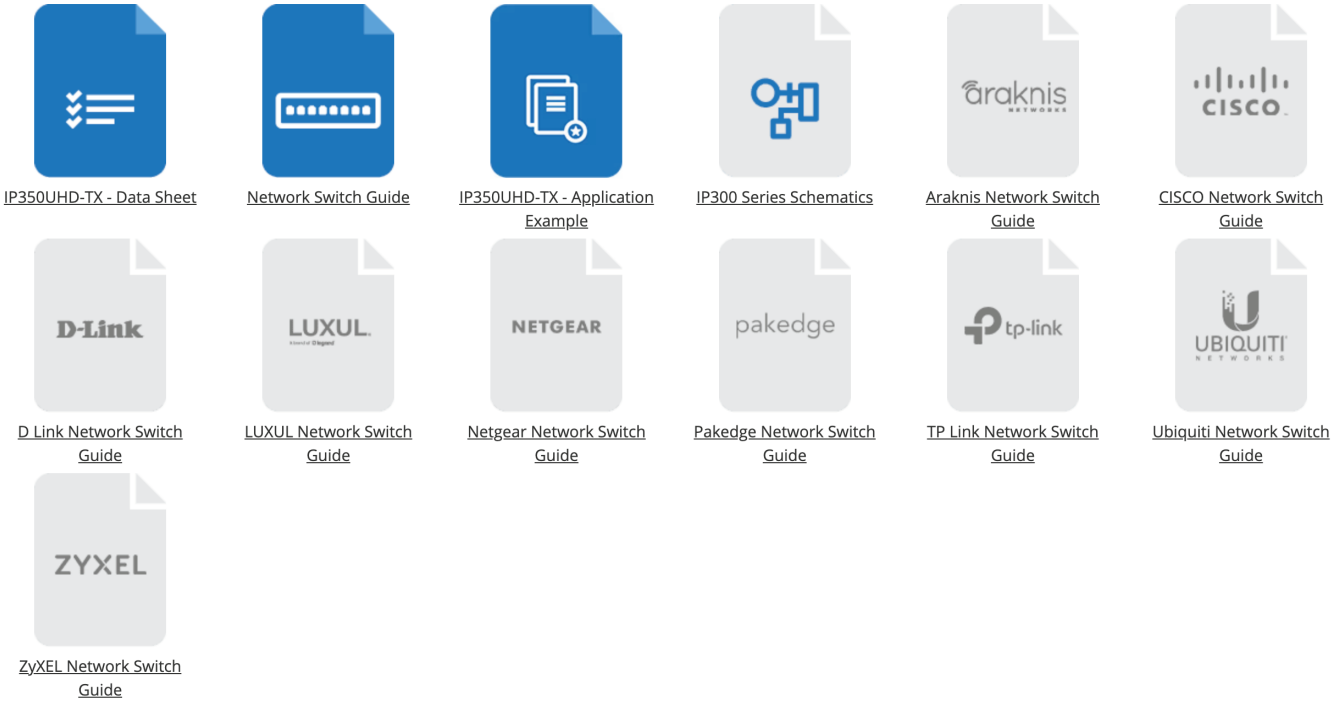
SCALER	MULTICAST RECEIVER SCALER SETTINGS
00	Pass Through - allows native source resolution to pass-through to display (default setting)
01	1080p 50Hz
02	1080p 60Hz
03	720p 60Hz
04	720p 50Hz
05	1280x1024 60Hz
06	1024x768 60Hz
07	1360x768 60Hz
08	1440x900 60Hz
09	1680x1050 60Hz
10	4K (3840x2160) 30Hz
11	4K (3840x2160) 24Hz
12	4K (3840x2160) 50Hz
13	4K (3840x2160) 60Hz
14	DCI 4K (4096x2160) 25Hz
15	DCI 4K (4096x2160) 30Hz
16	DCI 4K (4096x2160) 50Hz
17	DCI 4K (4096x2160) 60Hz
18	1280x800 60Hz
19	1920x1200 60Hz

Please note: it is recommended to try, as best as possible, to match frame rates throughout the system to reduce the potential of juddery images.

Fast switching can be achieved with the Multicast IP300 series Receivers by applying the relevant scaled output setting which matches the capabilities of the screen. Leaving the scaled output of a Receiver in it's default setting of 'Pass-through' will allow for a standard HDMI handshake to happen when switching sources.

Supporting Documentation & Downloads

The relevant supporting documents for each of the Blustream Multicast products can be found on the individual pages of each product inside the Downloads tab:



- The Data Sheet for each individual product can be downloaded for basic operational features of the product
- Network Switch Guides will download the most up-to-date guide of the network switch hardware Blustream has tested and approved for use with Multicast products. The Network Switch Guide also provides a basic overview of the network switch settings required for Multicast to work
- The Application Example is a marketing guide to outline some of the use cases that the Multicast system can be deployed into
- The Schematic diagrams show a few different basic wiring / connection diagram overviews
- The branded Network Switch Guides contain the set-up guides for each of the brands of switch listed in the Network Switch Guide

IP300 Series Firmware Update

It is important that the Transmitter and Receiver firmwares are all of a similar age to ensure consistent functionality of all of the supported features of the Multicast system. The latest firmware can be found on the Blustream Website - within the tab marked 'Firmware'.

Updating firmware can be acheived in 2 ways:

1) Using the ACM210 web-GUI

2) Using the IP300 series Transmitter or Receiver web-GUI interface

We recommend updating firmware using a hard-wired connection to the system where the chances of the firmware package not being transmitted fully are limited. **Disconnection of the product during firmware update may result in 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 to first complete the below:

1) In order to communicate with the Blustream Multicast hardware a computer should be physically connected to either:

a) PoE network switch using an Ethernet network cable which is in turn connected to the Blustream IP300 series product

b) The Blustream IP300 series product directly which must be powered locally using a 24V 1A power supply (sold separately)

2) The computer must also be in the same IP range as the Blustream IP300 series IP address. Instructions to update a computers IP range can be found in the 'Changing your computer IP address' instructions towards the rear of this guide.

The default IP address of all new Multicast IP300 series product is:

169.254.100.254

Updating the IP300 series products from the ACM210 will require the system to have been configured so that it is possible to deploy the firmware from the ACM210. Please note: if using the ACM210 for firmware updating, only one product can be updated at a time. Please refer to the ACM210 manual for further instructions of how to update a units firmware.

Updating the IP300 series products from the web-GUI of the product can be done simultaneously with up to 4 other products (5 max at a time). This is achieved by accessing the units on their individual IP addresses - see the following pages for the overview of the individual units web-GUI.

Please note: if updating firmware via the units web-GUI: closing, refreshing, or opening another browser window using the IP address of a unit already in the process of being updated, will corrupt the firmware package, and will result in product failure.

Accessing the IP300 Series Web-GUI Interface

Each Blustream Multicast product is shipped with a fixed IP address of 169.254.100.254. Once the PC network is amended to work in the same IP range as the fixed IP of the Multicast products, it is possible to communicate directly with the built-in web server in each Multicast IP300 Series Transmitter or Receiver.

Following configuration using either the ACM210 web-GUI, or by manual configuration, or the web-GUI interface of the product, the unit will have a different IP address to that of the factory default. The IP address of a configured Multicast product can be found on the front OLED panel.

On entering the unit IP address into a web browser, a username and password prompt will be displayed.

Enter the username: **blustream**

Enter thas password: **1 2 3 4**

Transmitters:

The first product to be assigned an IP address when using the ACM210 Set-up Wizard, 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 (254x units), the unit will be auto-assigned of an IP address from 169.254.4.1 and so on...

Once the IP range of 169.254.4.x is filled (254x units), the unit will be auto-assigned of an IP address from 169.254.5.1 up to 169.254.5.254 - this gives a maximum configuration of 762x Transmitters in any system using the ACM210.

Receivers:

The first product to be assigned an IP address when using the ACM210 Set-up Wizard, 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 (254x units), the unit will be auto-assigned of an IP address from 169.254.7.1 and so on...

Once the IP range of 169.254.7.x is filled (254x units), the unit will be auto-assigned of an IP address from 169.254.8.1 up to 169.254.8.254 - this gives a maximum configuration of 762x Receivers in any system using the ACM210.

This part of the guide will explain the use of directly communicating with an individual unit. It is assumed the IP address of the unit is known. The units 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 - the ACM210 Set-up Wizard has been designed to easily configure a new system from scratch.

Multicast Web-GUI - IP300 Series

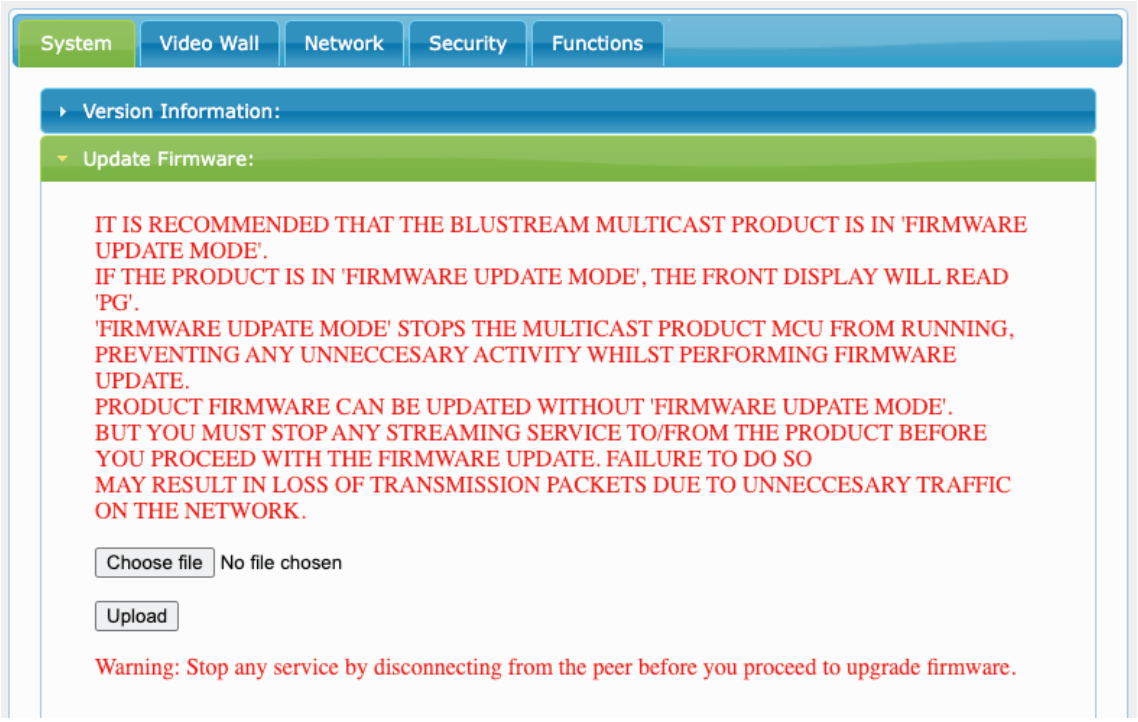
The menu structure for the built-in web-GUI is as follows...

System (same for all TX and RX units): Version Information: an overview of the individual unit, 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 a PC. To update the Blustream IP300 series units, please follow the below instructions:

Click the **'Update Firmware'** option under Version Information:

1) Click 'Browse...' and open the folder in which the firmware file has been saved.



2) Select the required 'Transmitter.bin' or 'Receiver.bin' file

3) Click 'Upload' to begin the firmware upgrade process

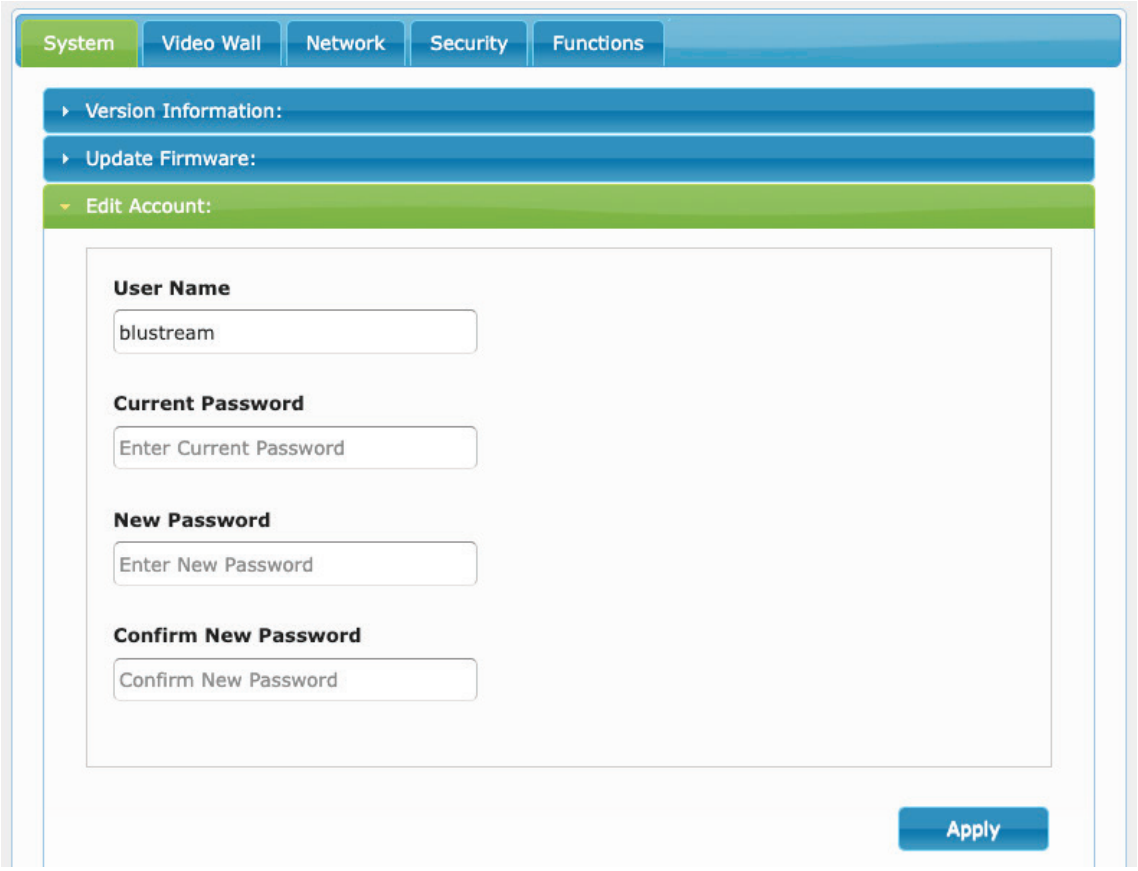
4) Once the upgrade has completed, disconnect the network cable/power and reconnect to reboot the product. The Transmitter/Receiver display will no longer display 'PG' when complete.

Please note: DO NOT unplug the power or network connection to the IP300 series product during upgrade as this will result in failure to upgrade the firmware, which may lead to failure of the unit.

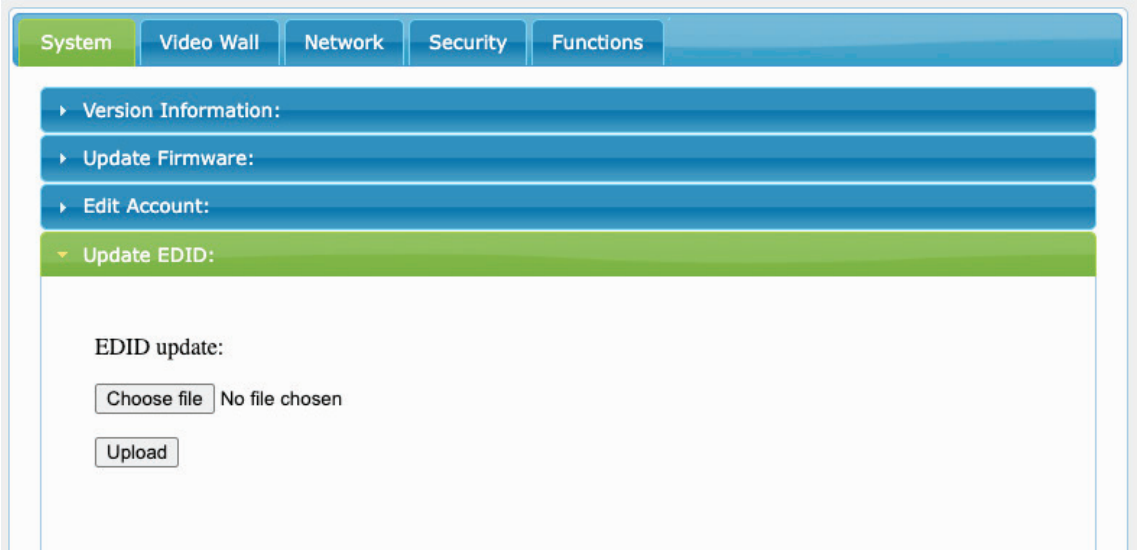
The firmware upgrade process will take several minutes. Do not connect any other Blustream Multicast product to the network that has the same IP address during this time, refresh, or navigate away from the browser window the update is being uploaded from.

Multicast Web-GUI - IP300 Series

Edit Account (same for all TX and RX units): Allows the user to amend the username and password for accessing the IP300 units. The username and password is not recoverable without performing a factory default on the unit/s in question. Please ensure that a note is made of any new credentials that are set on these units.

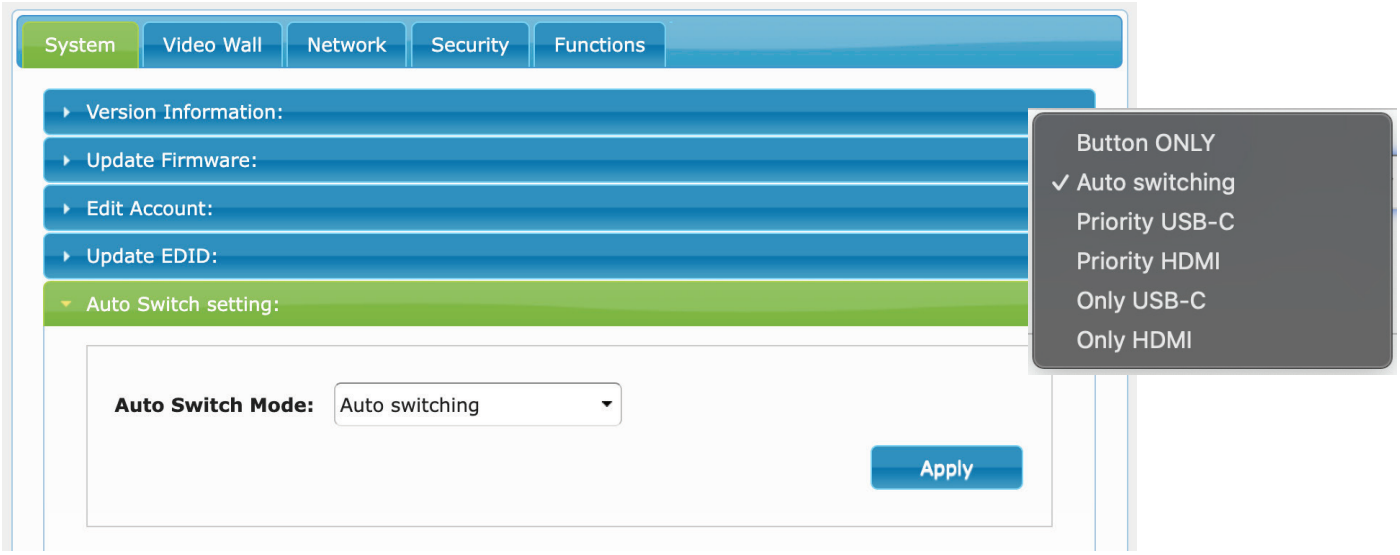


Update EDID: (TX units only): Allows the user to upload a custom EDID .bin file to the unit. Once the EDID has been uploaded, the specific EDID will be available to select within the Utilities tab.

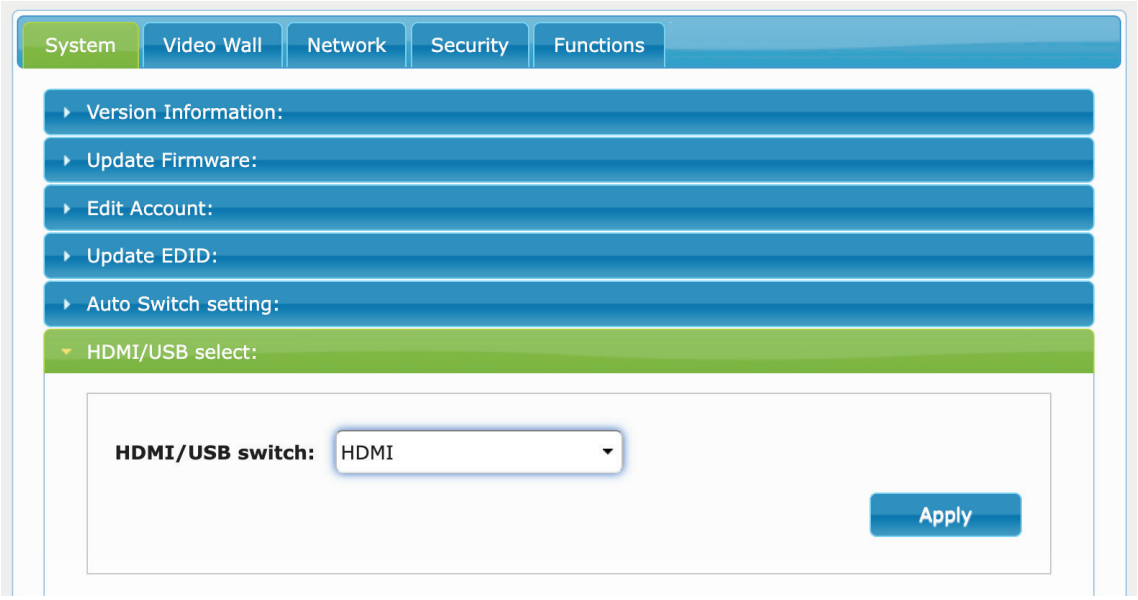


Multicast Web-GUI - IP300 Series

Auto Switch setting: (IP300UHD-WP-TX unit only): Amend the auto switching capabilities of the dual inputs (HDMI / USB-C) of the IP300UHD-WP-TX. Choose between: Button press only, Auto Switching (default), Priority USB-C, Priority HDMI, Only USB-C, or Only HDMI.

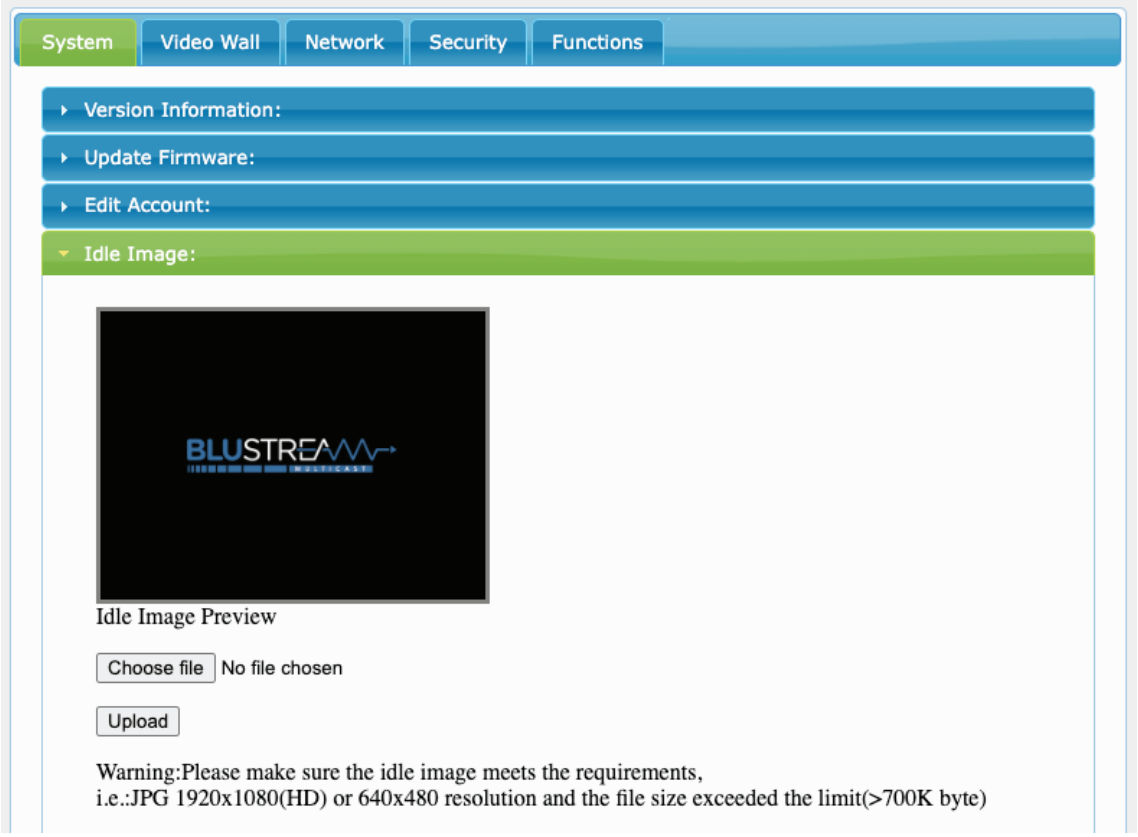


HDMI / USB Select: (IP300UHD-WP-TX unit only): The USB type B port can be used to pair alongside the HDMI connection to combine the host video with devices in a remote zone. The USB connection can also be segregated from the HDMI input to allow for control from a separate host device to be passed through the system independently.



Multicast Web-GUI - IP300 Series

Idle Image (RX units only): Upload a customised splashscreen that will be shown if there is no source being shown on an RX. File size is recommended to be 1920x1080, uploaded in .jpg format and less than 700Kb in size.



eARC Setting (IP300UHD-TX and IP350UHD-TX only): Manually apply settings for the capabilities of the Transmitter to receiver eARC or ARC from a selected Receiver in the system. Enable eARC / ARC capabilities in the first drop down, then select am unused Channel ID that is the same as the Receiver it is to receive the audio return from.

Please note: if the TX shares the same Channel ID as another, the eARC / ARC function will not work. It is recommended to use the same Channel ID as the last digit of the IP address / Input / ID number, this way, the Channel ID will never be repeated.

Multicast Web-GUI - IP300 Series

Utilities (same for all TX and RX units):

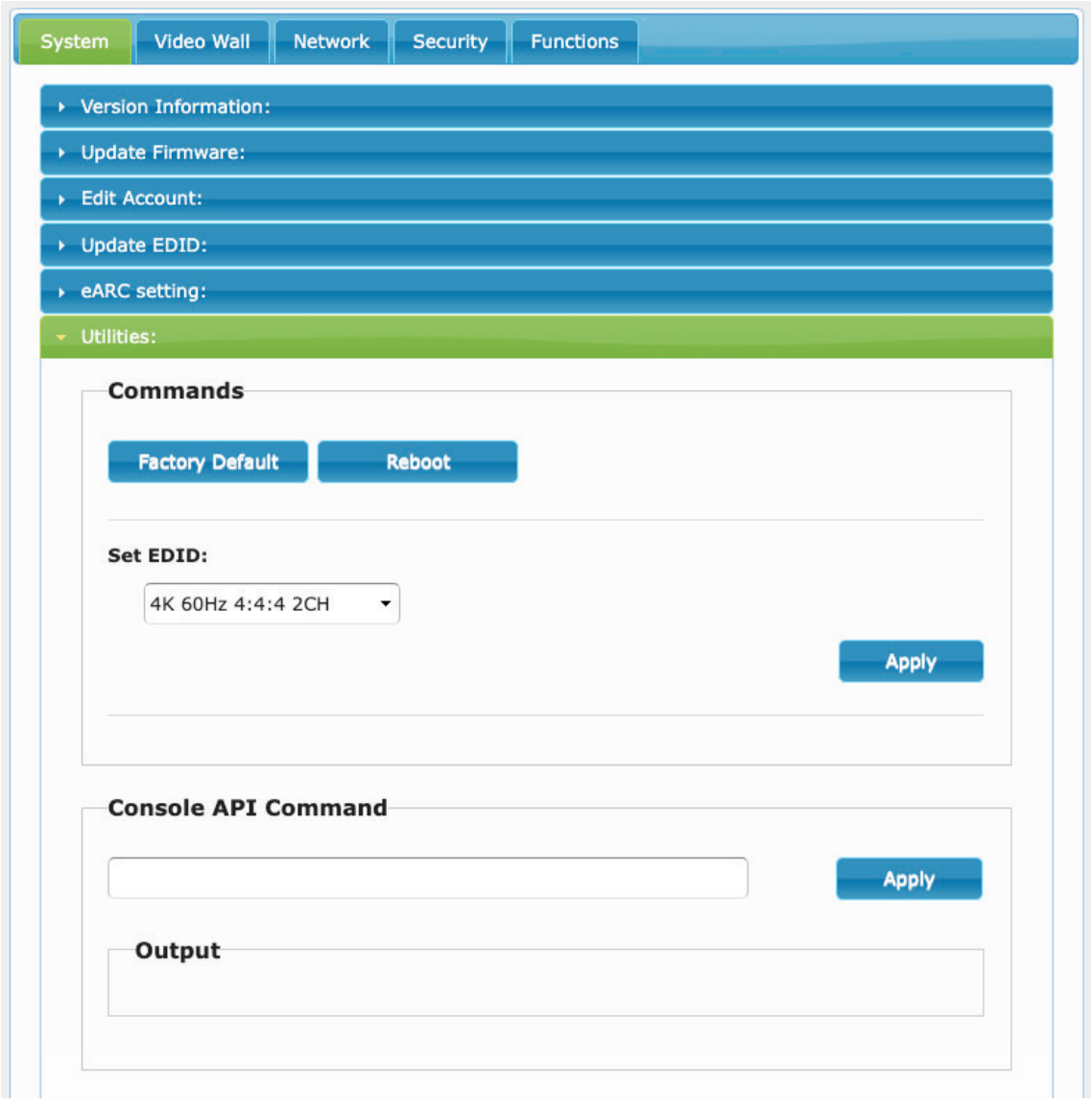
Factory Default - resets the Transmitter or Receiver to factory default settings. The IP address will be changed back to the default address of: 169.254.100.254 once the unit has rebooted.

Reboot - reboots the Transmitter or Receiver unit.

Set EDID (Transmitter units only) - fix the EDID value for a Transmitter (source).

Console API Command - only to be used as instructed by a member of the Blustream Technical Support team.

Output - feedback from the API command inserted above.



Multicast Web-GUI - IP300 Series

Statistics:

The Statistics tab gives a detailed overview of the current configurationof the unit, and video information being distributed by the unit. This information may be asked for by one of the Blustream Technical Support Team if assisting with troubleshooting a system.

Network - detailed information about the connection status of the Transmitter or Receiver (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 (not recommended).

Video (Transmitter units) -

- EDID Used - the EDID structure being used between source and Transmitter.
- Local Video Output - connection status of the video signal being received from the source device.
- Video Timing Information - detailed information of the media being accepted from the source: Resolution, Pixel rate, HDMI blanking information, Colour Depth, HDCP, Window sizes, Scan mode and Signal Type / Aspect Ratio

Video (Receiver units) -

- Local Video Output - connection status of the video signal being received from the source device, HDMI mode, Signal type, Feature support, and Preferred timing
- EDID Used - the EDID structure being used between Receiver and display device.
- Video Timing Information - Timing / Frame rate conversion, Resolution, Pixel rate, HDMI blanking information, Colour Depth, HDCP, Window sizes, Scan mode and Signal Type / Aspect Ratio

Multicast Web-GUI - IP300 Series

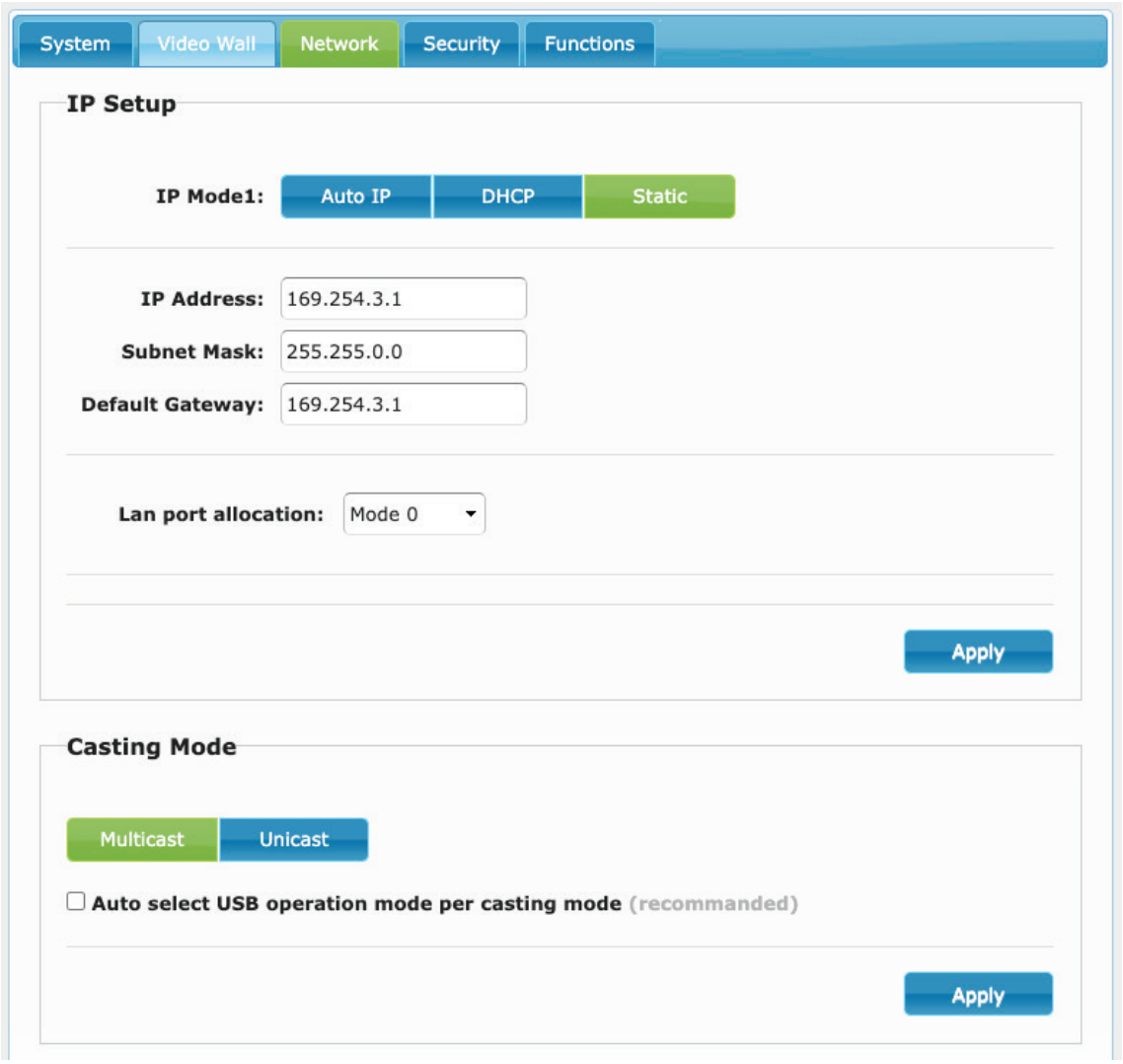
Video Wall:

It is recommended that Video Wall arrays are configured and managed using the ACM210 web-GUI software only.

Network (same for both TX and RX):

Allows for the IP address details for the unit to be amended to fit with alternative IP address ranges (not recommended). The LAN port allocation function configures the dual LAN and SFP port combinations for the IP350UHD-TX and IP350UHD-RX where specific network configurations are required for the combining, or segregation of video and Dante traffic.

MODE	LAN 1 (POE)	LAN 2	FIBRE SFP
0 (default)	Video & Dante	Disabled	Video & Dante
1	Video	Dante	Disabled
2	Video & Dante	Follow PoE / LAN Port	Video & Dante



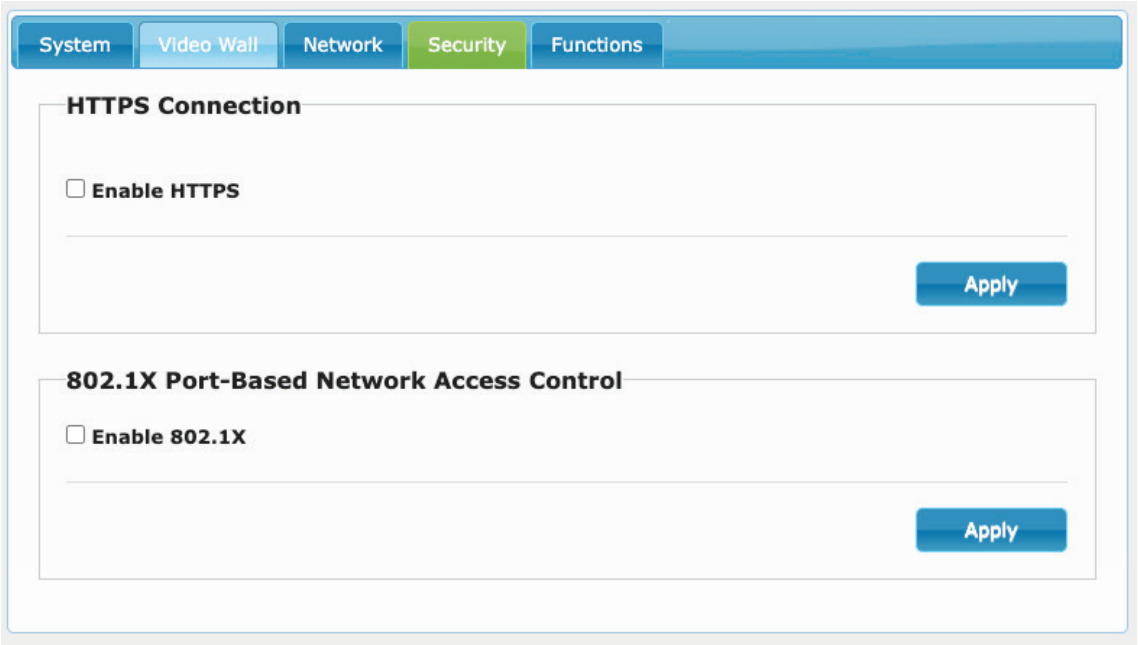
The unit can be set to Unicast (one-to-one), or Multicast (one-to-many, or many-to-many). Unicast would only be used where there are multiple point-to-point extenders on the same network where matrix functionality is not required. All Blustream units are shipped with Multicast set as default.

Please note: amending the IP address of Multicast products may prevent other Multicast equipment, or the ACM210 from being able to communicate with the unit.

Multicast Web-GUI - IP300 Series

Security (same for both TX and RX):

Manage and configue HTTPS or 802.1X Access Control. Please note that enabling these features will require a compatible firmware on the ACM210 to enabled global control of the estate of TX and RX units in a system. Please consult your local Blustream Technical Support Team as required.



Functions (Transmitter):

Enable Video over IP: on by default. Do not un-check this box.

HDCP Mode: the IP300 series product allows for the user to select between the following HDCP settings: Passthrough (the HDCP version encoded at the source will continue through the system), or Force HDCP 2.2 / Force HDCP 1.4 (the source content will be encoded with the HDCP version selected by the user).

Audio over IP: the IP350 series has the capabilities of embedding, de-embedding and encoding / decoding to and from Dante. This section allows for the cross-point audio functionality to be set.

USB over IP: individual settings for the use of USB / KVM over Multicast. Choose between differing operational and compatibility modes.

Serial over IP: enable RS232 pass-through from the Transmitter, utilise this section to configure the serial settings of the system.

Functions (Receiver):

Enable Video over IP: on by default. Do not un-check this box.

Enable Video Wall: on by default. Un-checking this will remove Video Wall functionality from the unit.

Copy EDID from the Video Output: it is recommended to use the ACM210 web-GUI to perform the Copy EDID function within a system.

Scaler Output Mode: set the scaled output to match the maximum resolution of the display connected where the display cannot accept the full resolution of the source device.

HDCP Mode: the IP300 series product allows for the user to select between the following HDCP settings: Passthrough (the HDCP version encoded at the source will continue through the system), or Force HDCP 2.2 / Force HDCP 1.4 (the source content will be encoded with the HDCP version selected by the user).

Timeout for Detecting Video Lost: 10 seconds by default. Adjust this setting to hold the last frame of media received by the Receiver device before reverting to the Blustream Multicast splash screen where source device is turned off, or the connection is lost between the source and Transmitter.

Audio over IP: the IP350 series has the capabilities of embedding, de-embedding and encoding / decoding to and from Dante. This section allows for the cross-point audio functionality to be set.

USB over IP: individual settings for the use of USB / KVM over Multicast. Choose between differing operational and compatibility modes.

Serial over IP: enable RS232 pass-through from the Transmitter, utilise this section to configure serial settings of the system.

Please note: within any of the Transmitter or Receiver web-GUI sections, click 'Apply' to save new or amended settings.

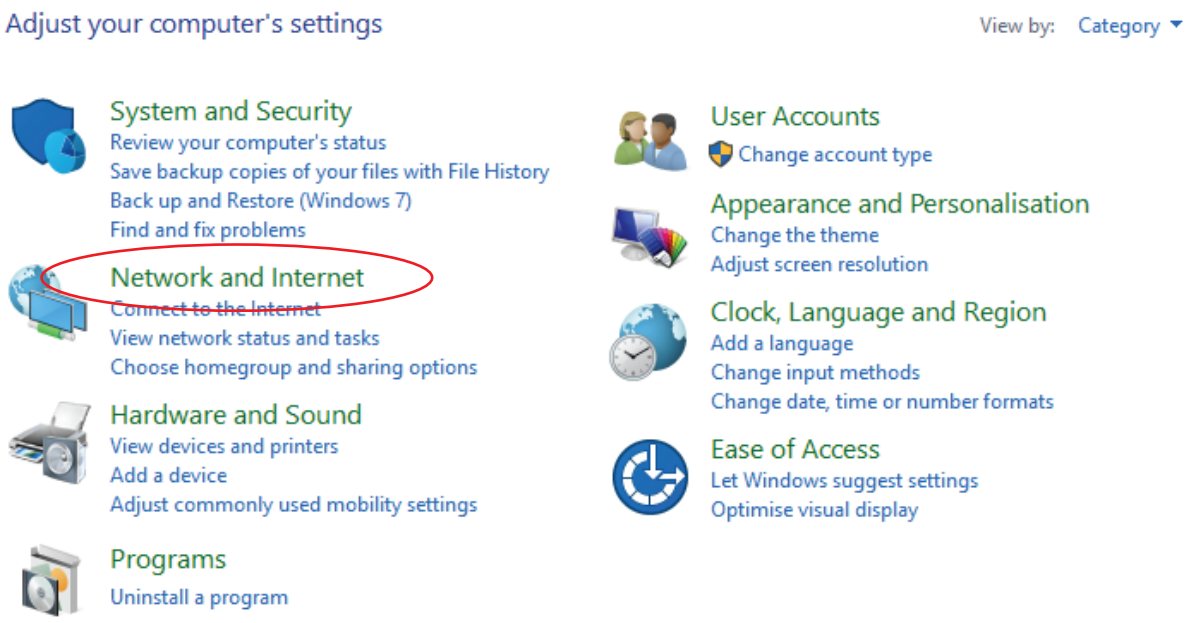
Changing a Computer IP address

To communicate with the Control Network or Multicast Video Network, the IP Address of the computer being used may need to be amended to communicate with the either network.

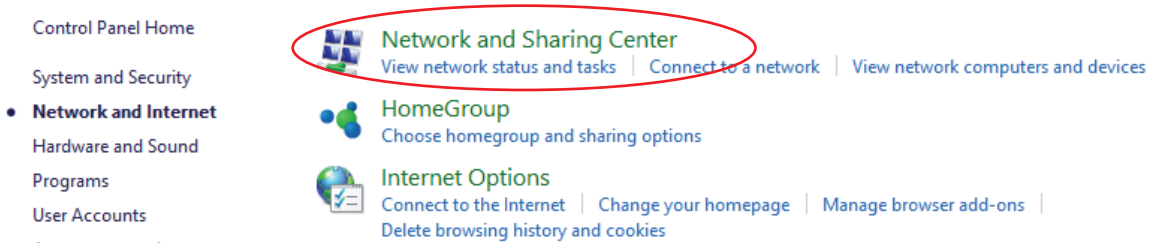
1) Connect the computer to the Multicast network switch using an Ethernet cable.

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

3) Select 'NETWORK AND INTERNET'.

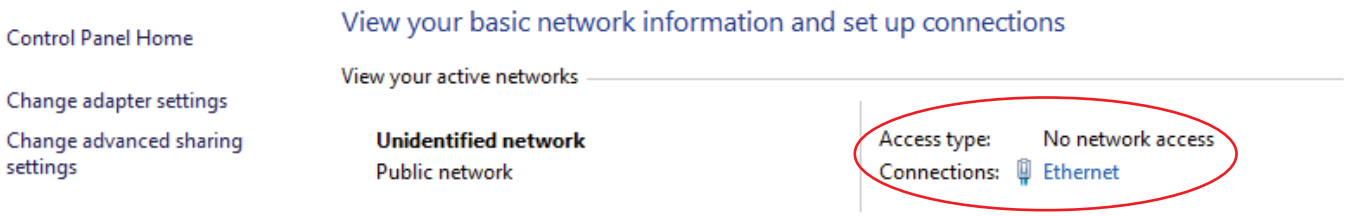


5) Select 'NETWORK AND SHARING CENTER'.

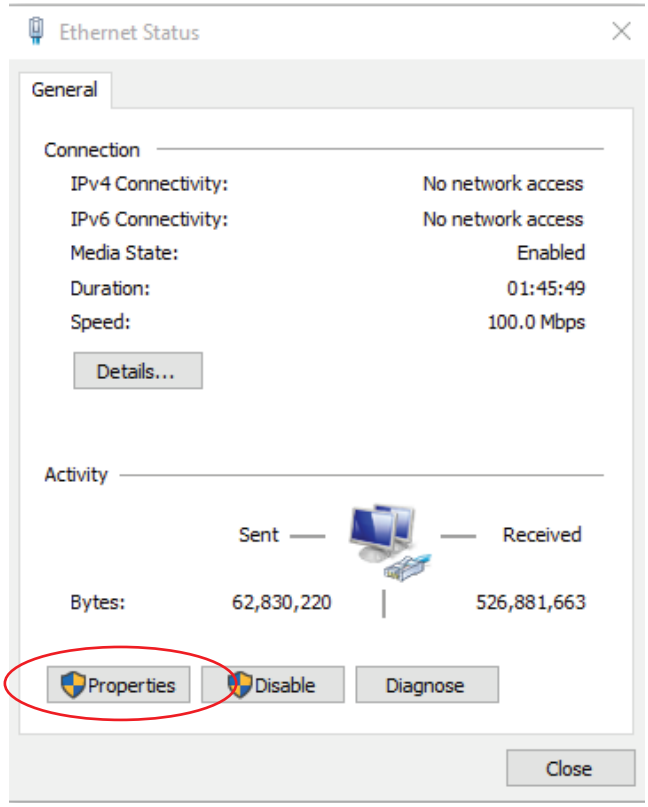


6) Under 'View your Active Networks' see connection types available.

Select 'Local Area Connection' as this is the method of communication being used with the switch.

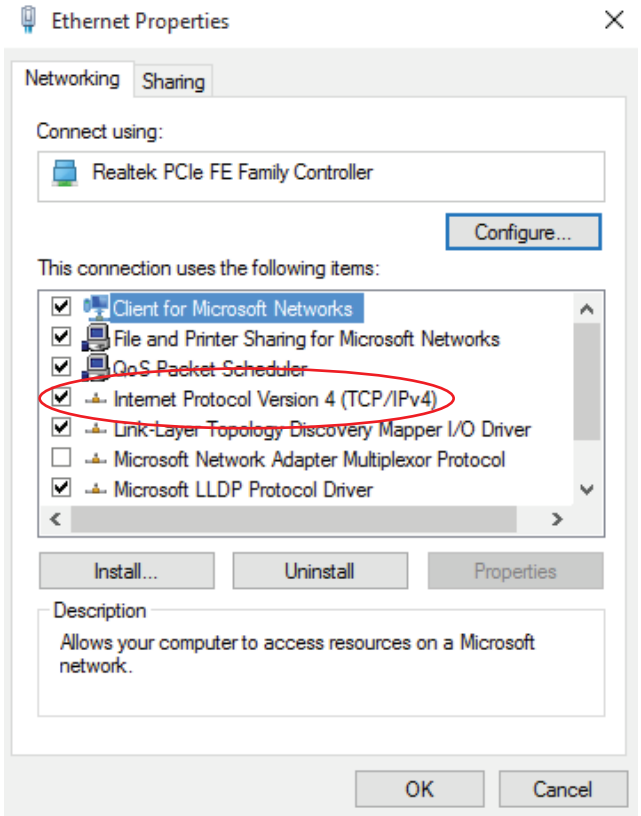


7) In the next window select 'PROPERTIES'



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'

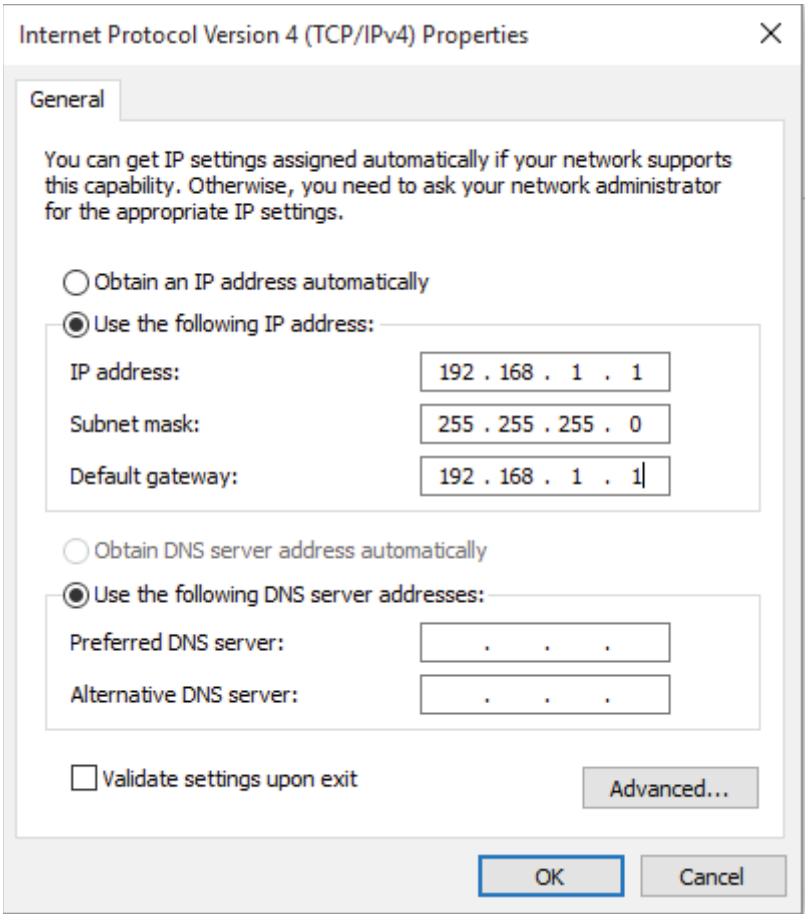
B. Enter the following FIXED IP network details for the configuration of the **Network Switch** or the **ACM210** (check with the manufacturer of the LAN switch if this address is relevant in advance)

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

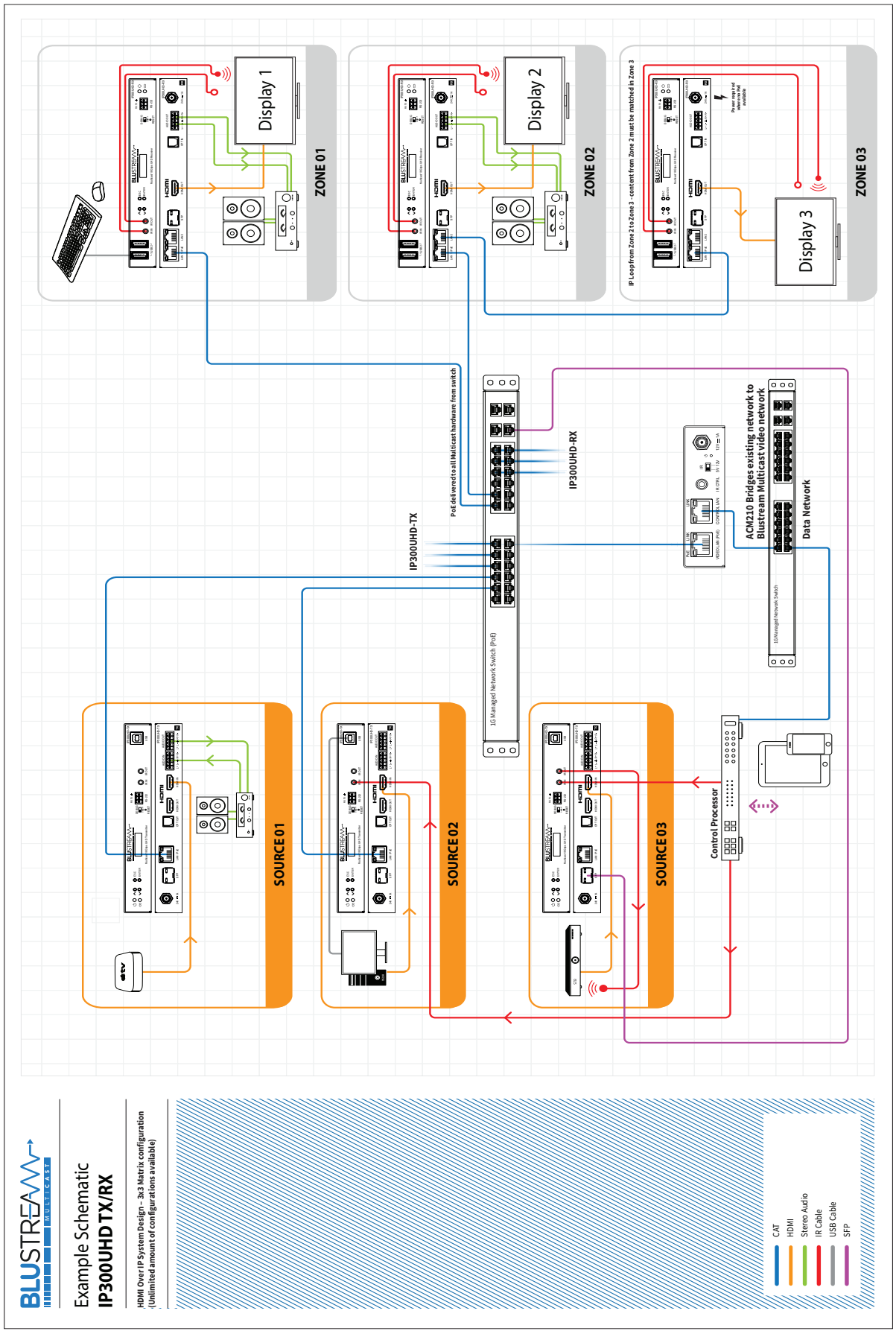
It is important to have the IP address range of the PC configured to the correct range when setting up the LAN switch. Once configuration of the LAN switch has been completed, the IP address range of the PC will need to be amended if using the Multicast Tansmitter or Receiver web-GUI's.



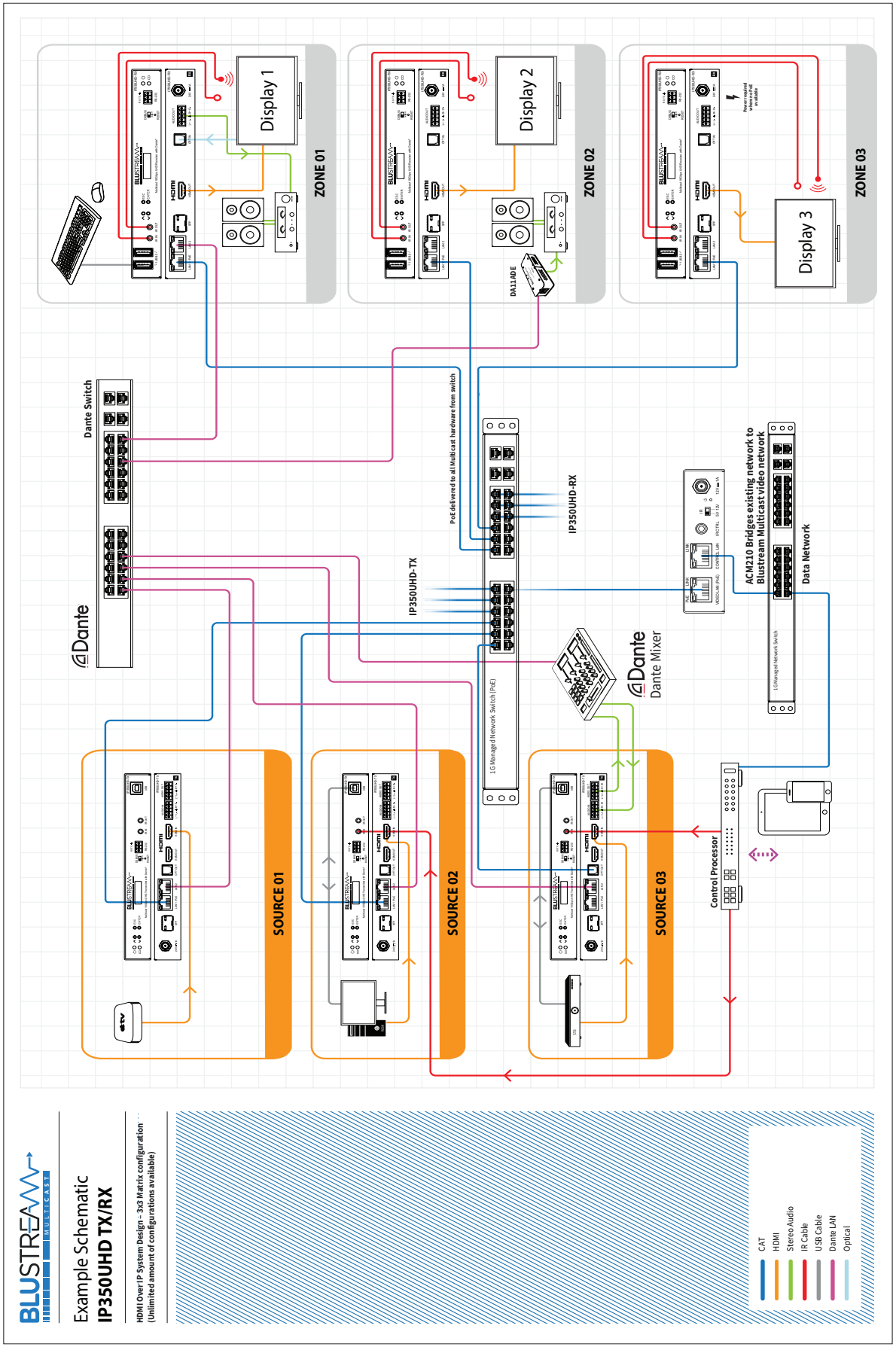
10) Click 'OK' and exit the network setup

11) Enter the default Network Switch, ACM210 or Blustream Multicast address into a web browser and check for connection to the unit. If the Transmitter and Receiver products have already been configured, enter the address of one of these (it is advised to use 169.254.3.1 - this will be the first default Transmitter IP address).

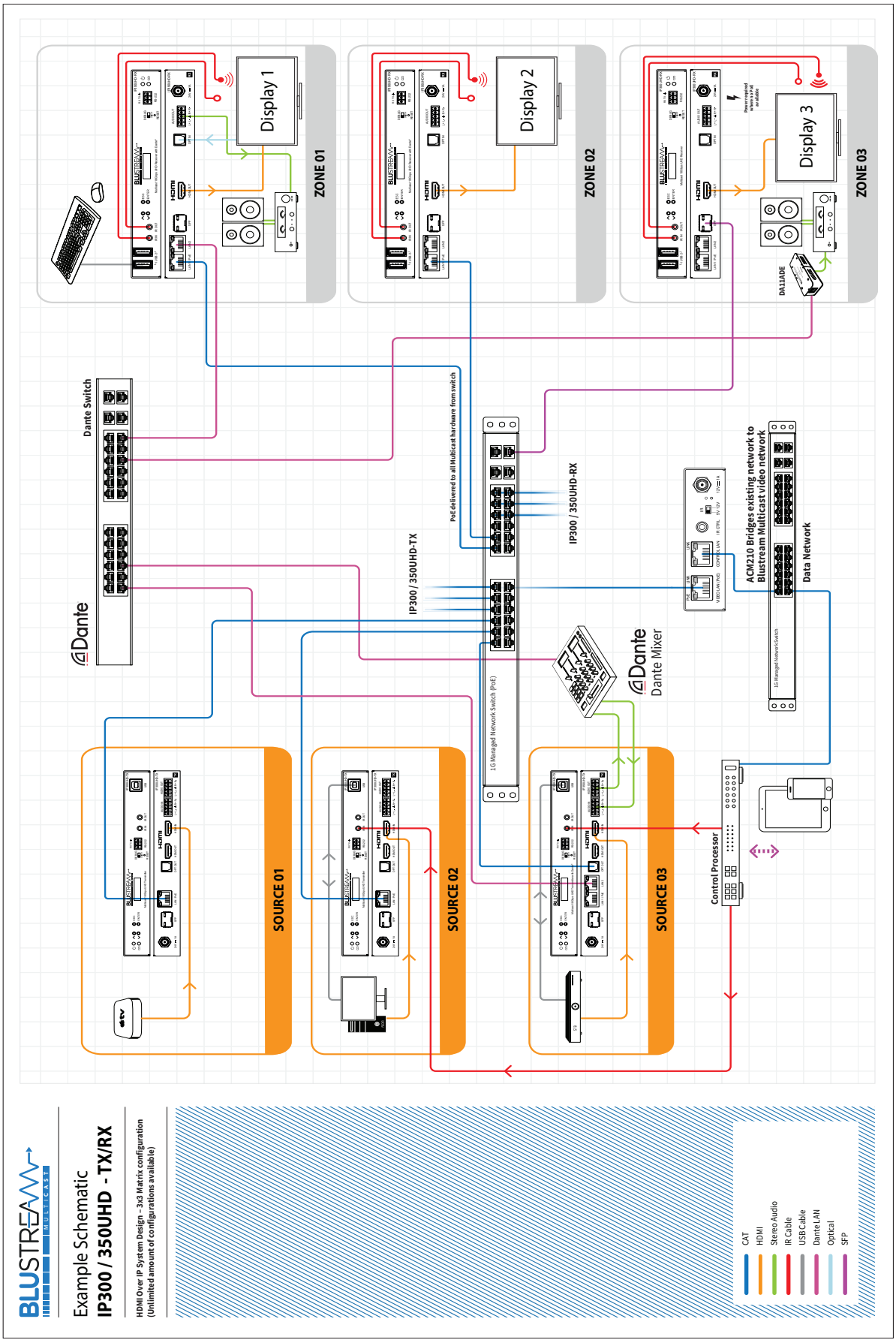
Application Diagrams - IP300UHD



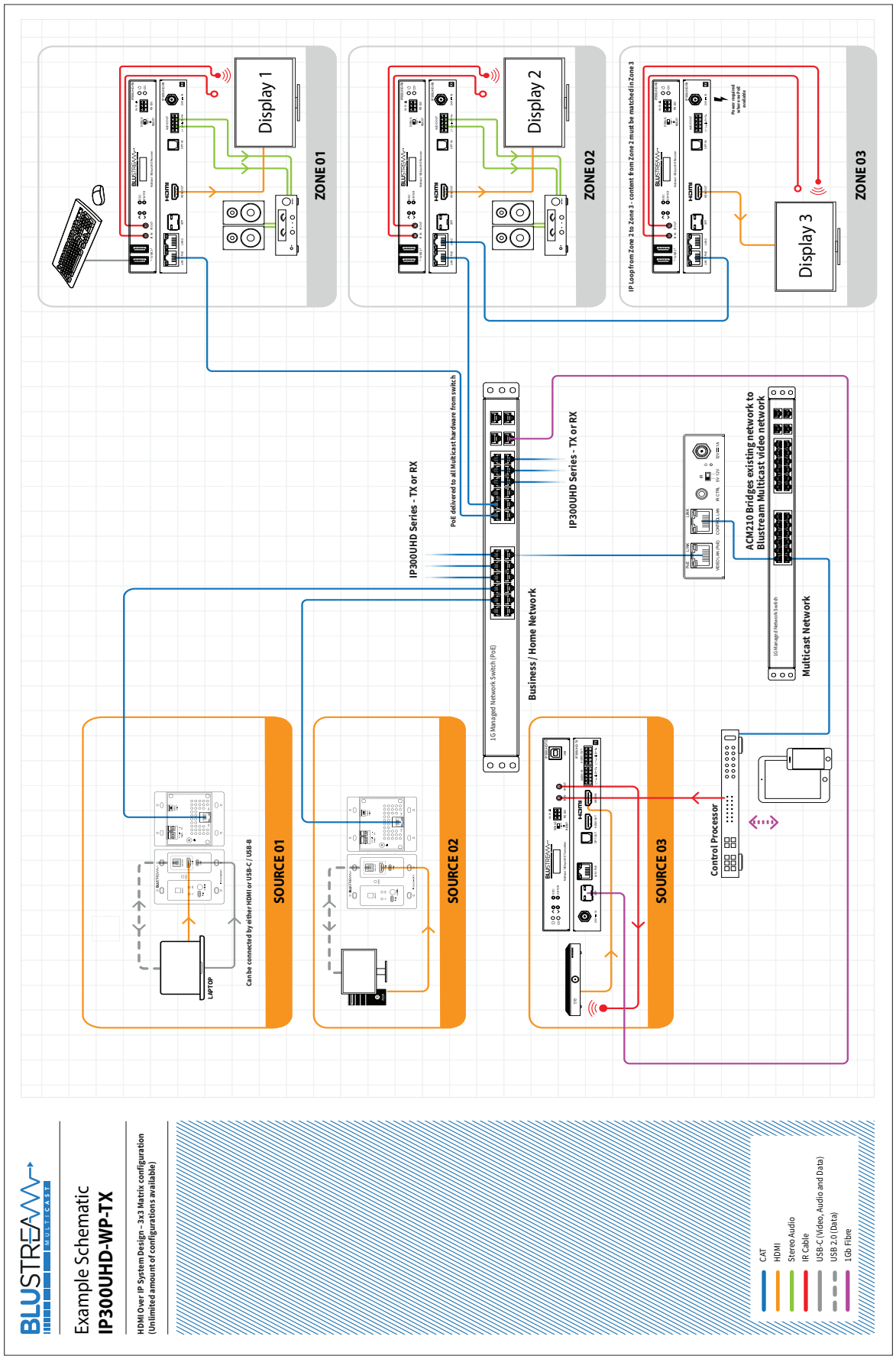
Application Diagrams - IP350UHD



Application Diagrams - IP300UHD & IP350UHD



Application Diagrams - IP300UHD-WP-TX & IP300UHD

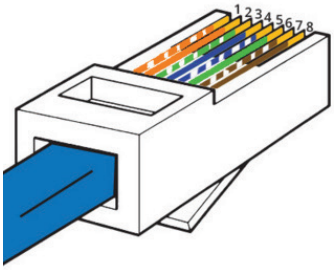


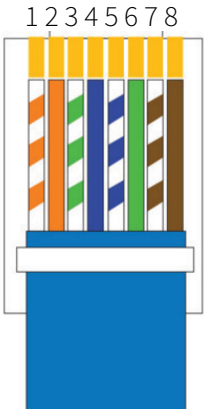
Terminating the interconnecting Network CAT cable

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 should 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 to use the best 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 installations, especially when running over longer distances, in areas of high EMI, or with 4K signal distribution.

RJ45 Pin-Out T568B





Specifications - IP300UHD-TX & RX

IP300UHD-TX

- Video input: 1 x HDMI type A, female
- Video output: 1 x LAN RJ45 connector
- Audio input: 1 x 5-pin Phoenix connector
- Audio output: 1 x 5-pin Phoenix connector, 1 x Optical S/PDIF
- Ethernet port: 1 x LAN RJ45 connector (PoE)
- USB / KVM: 1 x USB, type B
- RS-232 serial port: 1 x 3-pin phoenix connector
- IR input: 1 x 3.5mm stereo jack
- IR output: 1 x 3.5mm mono jack
- Power: 24V 1A barrell with captive screw (PSU not supplied)
- Mounting kit included
- Dimensions (W x D x H): 190mm x 140mm x 25mm
- Shipping weight: 0.95kg
- Operating temperature: 32°F to 104°F (0°C to 40°C)
- Storage temperature: -4°F to 140°F (-20°C to 60°C)

IP300UHD-RX

- Video input: 1 x LAN RJ45 connector
- Video output: 1 x HDMI type A, female
- Audio input: 1 x Optical S/PDIF
- Audio output:1 x 5-pin Phoenix connector
- Ethernet port: 1 x LAN RJ45 connector (video extension)
- USB / KVM: 2 x USB, type A
- RS-232 serial port: 1 x 3-pin Phoenix connector
- IR input: 1 x 3.5mm stereo jack
- IR output: 1 x 3.5mm mono jack
- Power: 24V 1A barrell with captive screw (PSU not supplied)
- Mounting kit included
- Dimensions (W x D x H): 190mm x 140mm x 25mm
- Shipping weight: 0.95kg
- Operating temperature: 32°F to 104°F (0°C to 40°C)
- Storage temperature: -4°F to 140°F (-20°C to 60°C)

Specifications - IP300UHD-WP-TX

IP300UHD-WP-TX

- Video input: 1 x HDMI type A, female; 1 x USB-C, female
- Audio input: 1 x 3.5mm stereo Jack, female
- Ethernet port: 1 x LAN RJ45 connector (PoE)
- USB / KVM: 1 x USB, type B, female (linked to HDMI connection)
- RS-232 serial port: 1 x 3-pin phoenix connector
- Power: 24V 1A 2-pin Phoenix connector (PSU not supplied)
- 2-piece Dual Decora Faceplate included
- Dimensions (W x D x H): 90mm x 52mm x 106mm
- Faceplate dimensions (W x D x H): 115mm x 6mm x 115mm
- Shipping weight: 0.6kg
- Operating temperature: 32°F to 104°F (0°C to 40°C)
- Storage temperature: -4°F to 140°F (-20°C to 60°C)

Specifications - IP350UHD-TX & RX

IP350UHD-TX

- Video input: 1 x HDMI type A, female
- Video output: 1 x LAN RJ45 connector
- Audio input: 1 x 5-pin Phoenix connector
- Audio output: 1 x 5-pin Phoenix connector, 1 x Optical S/PDIF
- Ethernet port: 2 x LAN RJ45 connector (PoE)
- USB / KVM: 1 x USB, type B
- RS-232 serial port: 1 x 3-pin phoenix connector
- IR input: 1 x 3.5mm stereo jack
- IR output: 1 x 3.5mm mono jack
- Power: 24V 1A barrell with captive screw (PSU not supplied)
- Mounting kit included
- Dimensions (W x D x H): 190mm x 140mm x 25mm
- Shipping weight: 0.95kg
- Operating temperature: 32°F to 104°F (0°C to 40°C)
- Storage temperature: -4°F to 140°F (-20°C to 60°C)

IP350UHD-RX

- Video input: 1 x LAN RJ45 connector
- Video output: 1 x HDMI type A, female
- Audio input: 1 x Optical S/PDIF
- Audio output:1 x 5-pin Phoenix connector
- Ethernet port: 2 x LAN RJ45 connector
- USB / KVM: 2 x USB, type A
- RS-232 serial port: 1 x 3-pin Phoenix connector
- IR input: 1 x 3.5mm stereo jack
- IR output: 1 x 3.5mm mono jack
- Power: 24V 1A barrell with captive screw (PSU not supplied)
- Mounting kit included
- Dimensions (W x D x H): 190mm x 140mm x 25mm
- Shipping weight: 0.95kg
- 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

IP300UHD-TX

- 1 x IP300UHD-TX
- 1 x Mounting kit for IP300UHD-TX
- 1 x 5v IR emitter (IR1)
- 1 x 5v IR receiver (IRR)
- 1 x ID sticker

IP300UHD-RX

- 1 x IP300UHD-RX
- 1 x Mounting kit for IP300UHD-RX
- 1 x 5v IR emitter (IR1)
- 1 x 5v IR receiver (IRR)
- 1 x ID sticker

IP300UHD-WP-TX

- 1 x IP300UHD-WP-TX
- 1 x 2-piece Dual Decora Faceplate (with 4 x faceplate screws)

IP350UHD-TX

- 1 x IP350UHD-TX
- 1 x Mounting kit for IP350UHD-TX
- 1 x 5v IR emitter (IR1)
- 1 x 5v IR receiver (IRR)
- 1 x ID sticker

IP350UHD-RX

- 1 x IP350UHD-RX
- 1 x Mounting kit for IP350UHD-RX
- 1 x 5v IR emitter (IR1)
- 1 x 5v IR receiver (IRR)
- 1 x ID sticker

Maintenance

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

Certifications

FCC NOTICE

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

• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

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

CANADA, INDUSTRY CANADA (IC) NOTICES

This Class B digital apparatus complies with Canadian ICES-003.
Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

CORRECT DISPOSAL OF THIS PRODUCT

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

Installer Notes...

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