VEO-XTI4D / VEO-XRI4D

VIDEO DISTRIBUTION OVER IP

JPEG2000 4K over IP Video Extenders with Dante®

USER MANUAL

TABLE OF CONTENTS

1. PRECAUTIONS

1.1 Important Notice

WARNING: SHOCK HAZARD - DO NOT OPEN

AVIS: RISQUE DE CHOC ÉLECTRIQUE - NE PAS OUVRIR

The flashing light with an arrowhead symbol inside an equilateral triangle on it is intended to alert the user of the presence of non-insulated “dangerous voltage” within the enclosure, which might be of sufficient magnitude to pose a risk of electric shock to users.

The exclamation mark within an equilateral triangle is intended to alert the user of the requirement for important operating and maintenance (servicing), for which instructions may be found in the literature accompanying the appliance.

WARNING (If applicable): Terminals marked with symbol “ ” may be of sufficient magnitude to pose a risk of electric shock. The external wiring connected to terminals requires installation by a technician, or the use of ready-made leads or cords.

WARNING: To prevent fire or shock hazard, do not expose this equipment to rain or humidity.

WARNING: A device with Class I manufacturing ought to be connected to a mains socket outlet with a protective earthing connection.

WARNING: Ecler products have a long lifetime of more than 10 years. This product must never be discarded as unsorted urban waste, but must be taken to the nearest electrical and electronic waste treatment centre.

1.2 Key Safety Directions

1. Read the following directions.
2. Keep the following directions.
3. Observe all warnings.
4. Follow all instructions.
5. Do not use this device in proximity to water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other devices (including amplifiers) that may release heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades, with one being wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, contact a qualified electrician for a replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at the plugs, convenience receptacles, and at the point of exit from the device.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug the device during lightning storms or when unused for long periods.
13. Refer all servicing to qualified personnel. Servicing is required when the device has been damaged in any way, such as power supply cord or plug damage, liquid spillage or objects onto the device, the device has been exposed to rain or humidity, does not operate normally, or has been dropped.
14. Disconnecting from mains: When switching off the POWER switch, all the functions and light indicators of the unit will be stopped, but fully disconnecting the device from mains is done by unplugging the power cable from the mains input socket, therefore, it should always remain easily accessible
15. Equipment is connected to a socket-outlet with an earthing connection by means of a power cord.
16. The marking information is located at the top/rear of the unit.
17. The device shall not be exposed to dripping or splashing liquids, and no liquid-filled objects, such as a filled up glass, shall be placed on top of the device.

1.3 Cleaning Directions

Clean the unit with a soft, dry clean cloth or slightly wet with water and neutral liquid soap only, then dry it with a clean cloth. Be careful that water never gets into the unit through any hole. Never use alcohol, benzine, solvents or abrasive substances to clean this unit.

NEEC AUDIO BARCELONA, S.L. accepts no liability for any damage that may be caused to people, animal, or objects due to failure to comply with the warnings above.

2. WARRANTY & ENVIRONMENT

Thank you for choosing our Ecler VEO-XTI4D and VEO-XRI4D !
We greatly value your trust.

It is **VERY IMPORTANT to carefully read this manual and to fully understand its contents before any connecting takes place** in order to make the best use of this equipment, as well as to get the best performance from it.

To ensure optimal operation of this device, **we strongly recommend that its maintenance be carried out by our authorised Technical Services.**

All ECLER products are covered by warranty, please refer to www.ecler.com or the warranty card included with this product for the period of validity and conditions.

Ecler is truly committed with the environment and planet sustainability, energy saving and CO_2 emission reduction. Recycling materials and using non-contaminant components are also top priorities in our green crusade.

Ecler has deeply evaluated and analyzed the environmental impacts of all the processes involved in the production of this product, including packaging, and has alleviated, reduced and/or compensated for them.

3. PACKAGE CONTENTS

- **VEO-XTI4D:**

  - 1x VEO-XTI4D
  - 1x IR Receiver cable (1.5 metres).
  - 1x IR Blaster cable (1.5 metres).
  - 3 x 3-pin Euroblock connector.
  - 2 x 4-pin Euroblock connector.
  - 2 Mounting ears.
  - 4 x Mounting screws.
  - 1 x PSU 12V/2.5A.
  - First Steps Guide.
  - Warranty card.

- **VEO-XRI4D:**

  - 1x VEO-XRI4D
  - 1x IR Receiver cable (1.5 metres).
  - 1x IR Blaster cable (1.5 metres).
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  - 2 x 4-pin Euroblock connector.
  - 2 Mounting ears.
  - 4 x Mounting screws.
  - 1 x PSU 12V/2.5A.
  - First Steps Guide.
  - Warranty card.

4. DESCRIPTION & FEATURES

VEO-XTI4D transmitter and VEO-XRI4D receiver are professional **JPEG2000 over IP extenders** that enable secure HDMI® distribution with 18Gbps bandwidth, supporting **4K 60Hz 4:4:4 video over 1Gb** Ethernet networks, reaching distances up to **100 meters** on a single Cat 6 or higher cable and a transmission **latency of 1-2 frames**. Equipped with dual RJ-45 ports, these units support independent or combined network configurations for **Dante® AV-A**. Designed for versatility, they feature stereo audio insertion and extraction on both the transmitter and receiver, along with digital audio outputs supporting ARC/eARC and SPDIF. Advanced **video wall** management up to a **9x9** configuration is also supported when paired with the VEO-XCTRL4D controller, along with additional control options. Front panel controls, PoE capability, and a built-in **web GUI with TCP** and **RS-232** control commands which offer straightforward setup and management, as well as **relay** and **channel GPI/GPO control port, CEC, USB 2.0 KVM** and **IR extension**, making the VEO-XTI4D and VEO-XRI4D a robust, scalable solution ideal for professional AV installations demanding leading-edge signal distribution and control.

4.1 Main Features

- Video over IP Unicast and Multicast distribution over 1Gb managed networks.
- Dante® AV-A ready.
- Support for JPEG2000 video codec with 1-2 frame latency.
- Support for HDMI® 18Gbps 4K 60Hz 4:4:4 as specified in HDMI® 2.0b.
- Transmission distance up to 100 meters over Cat 6 or higher cable.
- Support for Dante® and AES67 two channel In/Out audio.
- Support for Main and Sub stream for video preview.
- Support for video wall compositing and management up to 9 x 9 setups (via VEO-XCTLR4D).
- Support for HDR10, HDR10+, Dolby Vision.
- Support for audio formats LPCM 2.0/5.1/7.1CH, Dolby Digital/Plus/EX, Dolby True HD, Dolby Atmos, DTS, DTS-96/24, DTS-EX DSD, DTS High Res, DTS-HD Master, DTS:X, Dante/AES67 (2/2 flows).
- Advanced EDID Management (via VEO-XCTLR4D).
- HDCP 2.2 compliant.
- Dual RJ-45 network ports support joint or independent JPEG2000 and Dante® distribution.
- Stereo unbalanced analogue and digital audio insertion and extraction via Euroblock and optical connectors.
- Includes HDMI Loop Out on VEO-XTI4D.
- USB 2.0/KVM, CEC, RS-232, IR pass-through.
- Control options include front panel buttons, RS-232, Telnet, SSH control, and WebGUI.
- Support for PoE function.

5. INSTALL & CONNECT

5.1 Network Requirements and Configuration

VEO-XTI4D and VEO-XRI4D are not limited to certain brands of network hardware. However, the **network must support the following network features:**

- Layer 2 managed network switch.
- Jumbo Frame / MTU management.
- IGMP snooping support.

⚠ **To prevent malfunctioning, interference or drop in signal performance** due to other network products bandwidth requirements or network design. **It is highly recommended to check with the chosen network IT staff how to properly set the Multicast products connected to the local network switch.**

5.1.1 Setting the IP address

The default IP address is "auto IP" in the range 169.254.10.x for the transmitters and 169.254.20.x for the receivers. It can also be dynamically assigned by the VEO-XCTRL4D controller in case it is present in the network. For further details please refer to VEO-XCTRL4D controller module user manual.

💡 It is possible to **check the assigned IP address** from a transmitter or receiver **pressing and holding the ▲ (UP button) on the front panel**. For further details, refer to Additional functionalities of CH select ▲/▼ buttons section.

💡 **The IP address can be changed using the embedded web page of a transmitter or a receiver**. Both the network configuration of PC and VEO devices must be in the same network domain in order to be able to access its web settings page through an internet browser. For further details, refer to Configuration using Web interface section.

⚠ **When static IP addresses are required, the IP address of each device needs to be set manually.**

5.1.2 Video Distribution Quick Start

To begin a video transmission, a matching between a transmitter and a receiver is required. Each VEO-XTI4D transmitter can stream a video signal over the network using an ID channel number that must be unique in the same network. Each ID channel from 0 to 762 identifies a IP address and every VEO-XRI4D receiver can select one of these channels in order to receive an AV stream.

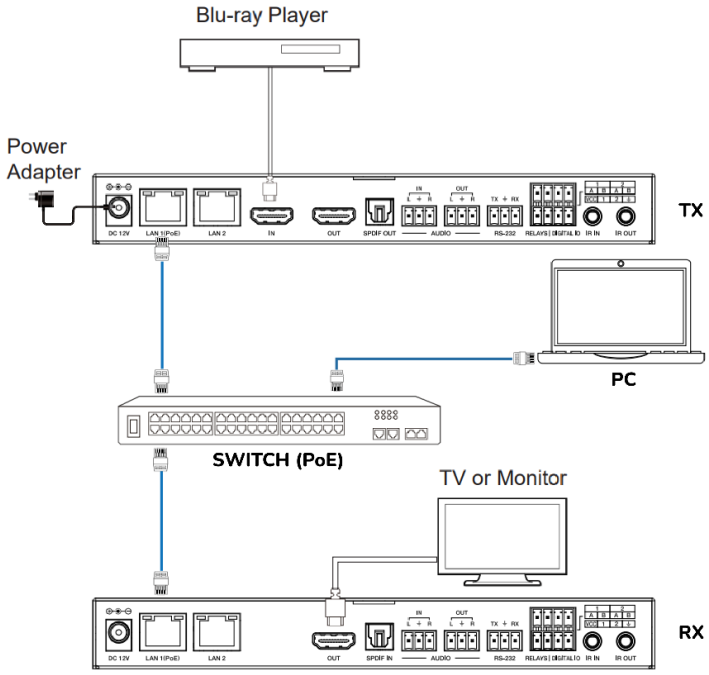
The ID channel for transmitters is usually set once during the setting up of the system while the receivers ID usually are the ones that are modified to show different content on the displays. The destination receiver ID must be set in the same channel as the transmitter broadcasting the desired source audio and video content.

The **ID channel can be selected in five different ways**:

- By using the front panel buttons of the devices VEO-XTI4D and VEO-XRI4D. Note that the ID assignment is blocked by default and should be adjusted by entering CFN mode and long-pressing the ▼ (DOWN button). For further details, refer to the Configuration section in the chapter "Additional functionalities of CH select ▲/▼ buttons" for the VEO-XTI4D or VEO-XRI4D, as appropriate.
- By using the Web Page configuration on the same device.
- By using the Web Page configuration on VEO-XCTRL4D.
- Via RS-232, Telnet.
- Via TCP using the VEO-XCTRL4D.

5.1.3 Connection Diagram

When VEO-XTI4D and VEO-XRI4D devices are connected in a point to point or point to multipoint or multipoint to multipoint topology, every transmitter and receiver should have a unique IP address. When possible, **it is recommended to create an independent IP video network using managed network switches.** Use of gigabit switches with an IGMP Snooping support will create the most appropriate scenario. For application examples check the Examples section.



⚠ **When Network Switch does not support PoE, then VEO-XTI4D, VEO-XRI4D and VEO-XCTRL4D, should be powered by the included DC power adapter.**

1. **Connect the source devices to the HDMI® ports of the VEO-XTI4D transmitters.**
2. **Connect the HDMI® endpoints to the HDMI® ports of the VEO-XRI4D receivers.**
3. **Connect Audio IN/OUT to a sound device and select the required audio mode.**
4. **Connect an RS-232 cables from the automation system to the transmitters ports.**
5. **Connect RS-232 cables from the receivers to the ports of the devices to control.**
6. **Connect all VEO devices to the network switch using Cat 6 or higher cables.**
7. **(optional)** Power VEO-XTI4D transmitter and VEO-XRI4D receiver with the included power adapter and power the switch. In case the switch supports PoE (Power over Ethernet), it will not be necessary to power the VEO devices locally.
8. **Choose the desired ID channel for each of the VEO devices** to establish the required video transmission flows. For further details see Additional functionalities of CH select ▲/▼ buttons section.

6. START-UP & OPERATION

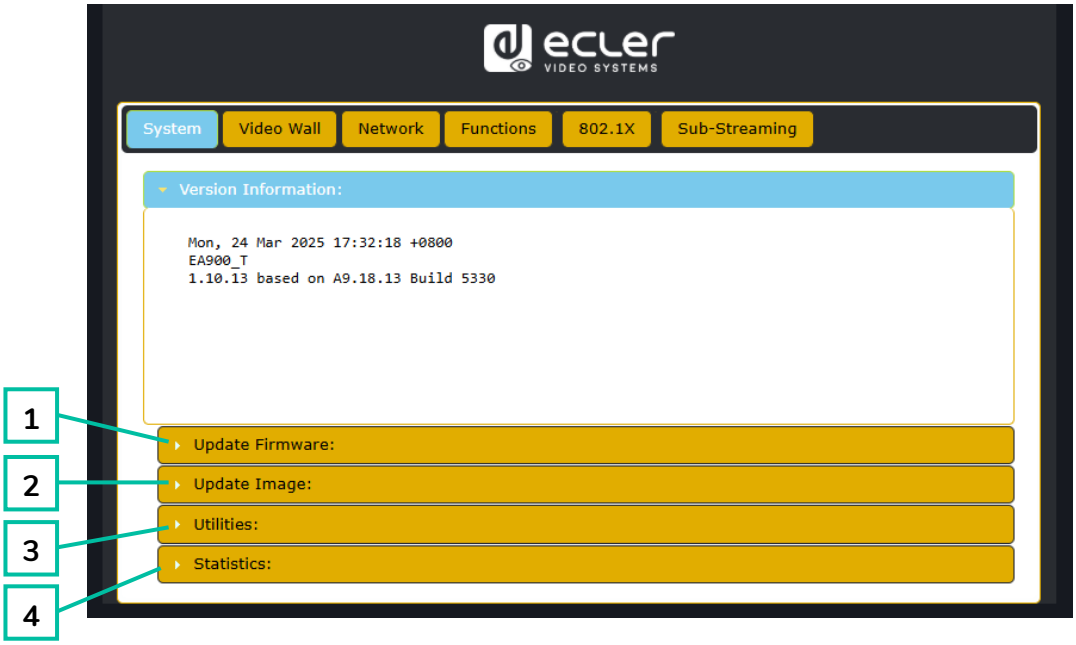
6.1 Configuration Using Web Interface

VEO-XTI4D and VEO-XRI4D devices can be configured through their own built-in web interface by simply typing the IP address of the chosen device into a web browser. Refer to Setting the IP address section for further details on how to find the IP address of a VEO-XTI4D and VEO-XRI4D.

6.2 VEO-XTI4D Web Interface

6.2.1 System

The System page **displays the version information for the VEO-XTI4D firmware**.



1. **Update Firmware:** allows to upload a file for firmware update of the device.

2. **Update Image:** allows to upload an image for the standby and logo image of the device.

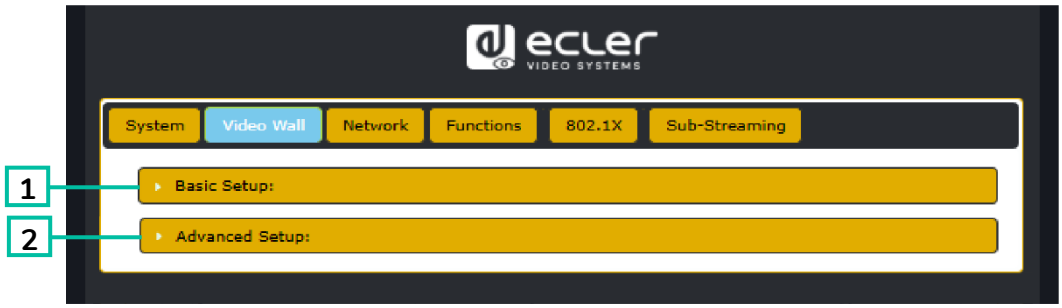
3. **Utilities:** this section provides basic system maintenance tools:
   - **Factory Default:** restores the device to its original factory settings.
   - **Reboot:** restarts the device without affecting configuration.
   - **Reset EDID to Default Value:** allows selection of the default EDID (HDMI, DVI, or VGA) to be applied.
   - **Console API Command:** enables the user to send manual API commands directly to the device. The output result is shown below the input field.

4. **Statistics:** this section provides real-time system information and diagnostics.

- **State Machine:** indicates the current system state.
- **Network:** displays hostname, IP address, subnet mask, gateway, MAC address, casting mode, and link status/speed.
- **Video:** shows the active EDID in use, local video output status, and detailed video timing parameters such as resolution, refresh rate, scan mode, colour depth, HDR, HDCP, and capture windows.

6.2.2 Video Wall

This section **provides tools for creating and customizing multi-screen layouts.** It enables users to configure display alignment, monitor positions, and advanced scaling options for seamless video wall performance.

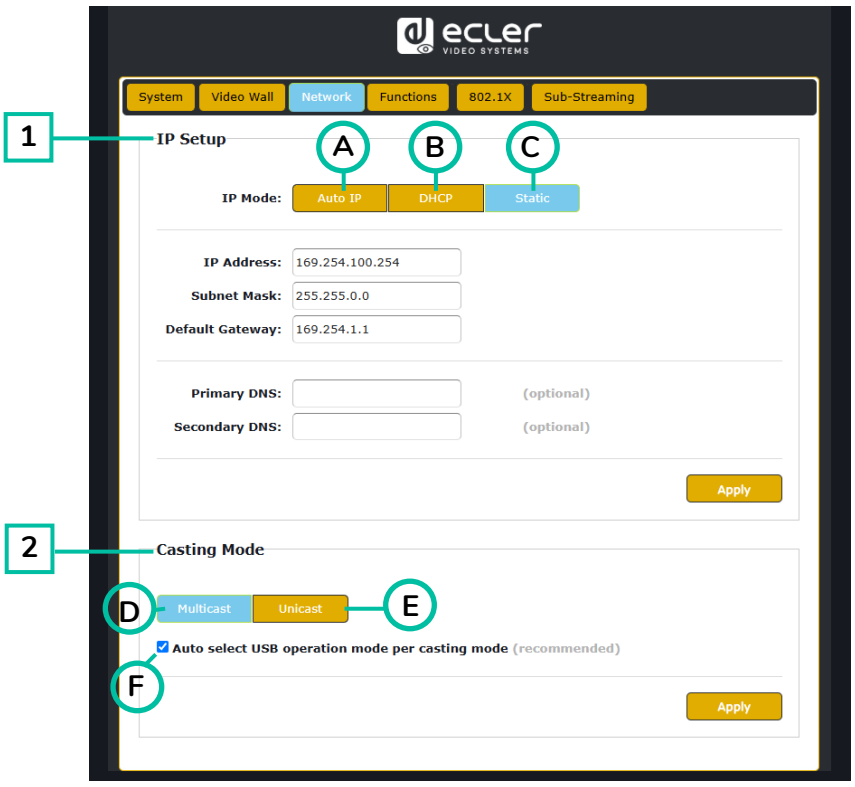


1. **Basic setup:** This section allows configuration of the video wall layout and visual alignment.
   - **Bezel and Gap Compensation:** Adjusts bezel width (OW, OH) and viewable area (VW, VH) in 0.1 mm units to correct display gaps.
   - **Wall Size and Position Layout:** Defines the number of monitors in the video wall (horizontal and vertical) and assigns the current unit's position (row and column) within the layout.
   - **Preferences:**
     - **Stretch Type:** Selects how the image fits the screen (e.g. Fit In, Fill).
     - **Rotate and Flip:** Adjusts screen orientation (0°, 90°, 180°, 270°).
     - **Apply To:** Applies the settings to one or multiple devices.
     - **Show OSD:** Enables on-screen display indicators for layout assistance.
2. **Advanced setup:** This section allows fine-tuning of individual screen positions and scaling within a video wall layout.
   - **Step 1 – Choose Control Target:** Assign the transmitter linked to a specific panel to configure within the wall matrix. Navigation arrows and the preview box help identify the selected unit.

- **Step 2 – Control Options:**
  - **Reset to Basic Setup:** Restores the current panel's layout to the default configuration.
  - **Stretch Type & Rotation:** Adjusts image fitting and screen rotation.
  - **Screen Layout:** Defines the total size of the video wall (rows × columns).
  - **Row/Column Position:** Sets the current screen's position in the layout.
  - **Horizontal / Vertical Shift:** Fine-adjusts panel alignment in pixels.
  - **Horizontal / Vertical Scale Up:** Scales the image size proportionally per panel.
  - **Console API Command:** Allows manual input of control commands for advanced configuration.

6.2.3 Network

This interface **allows users to configure the device's IP settings and select the casting mode (Multicast or Unicast).**



1. **Three IP modes are available:**
   - **A. Auto IP:** The IP address is assigned automatically. A new address is randomly generated each time the device is powered off and restarted.
   - **B. DHCP:** The IP address is assigned dynamically by a DHCP server (e.g. a router).
   - **C. Static:** A fixed IP address manually assigned by the user.

2. **Casting Mode:** This section allows users to select how the video stream is distributed over the network.

   D. **Multicast:** The device sends the stream to multiple receivers simultaneously using a single transmission. This is efficient for large-scale distribution and minimizes bandwidth usage.

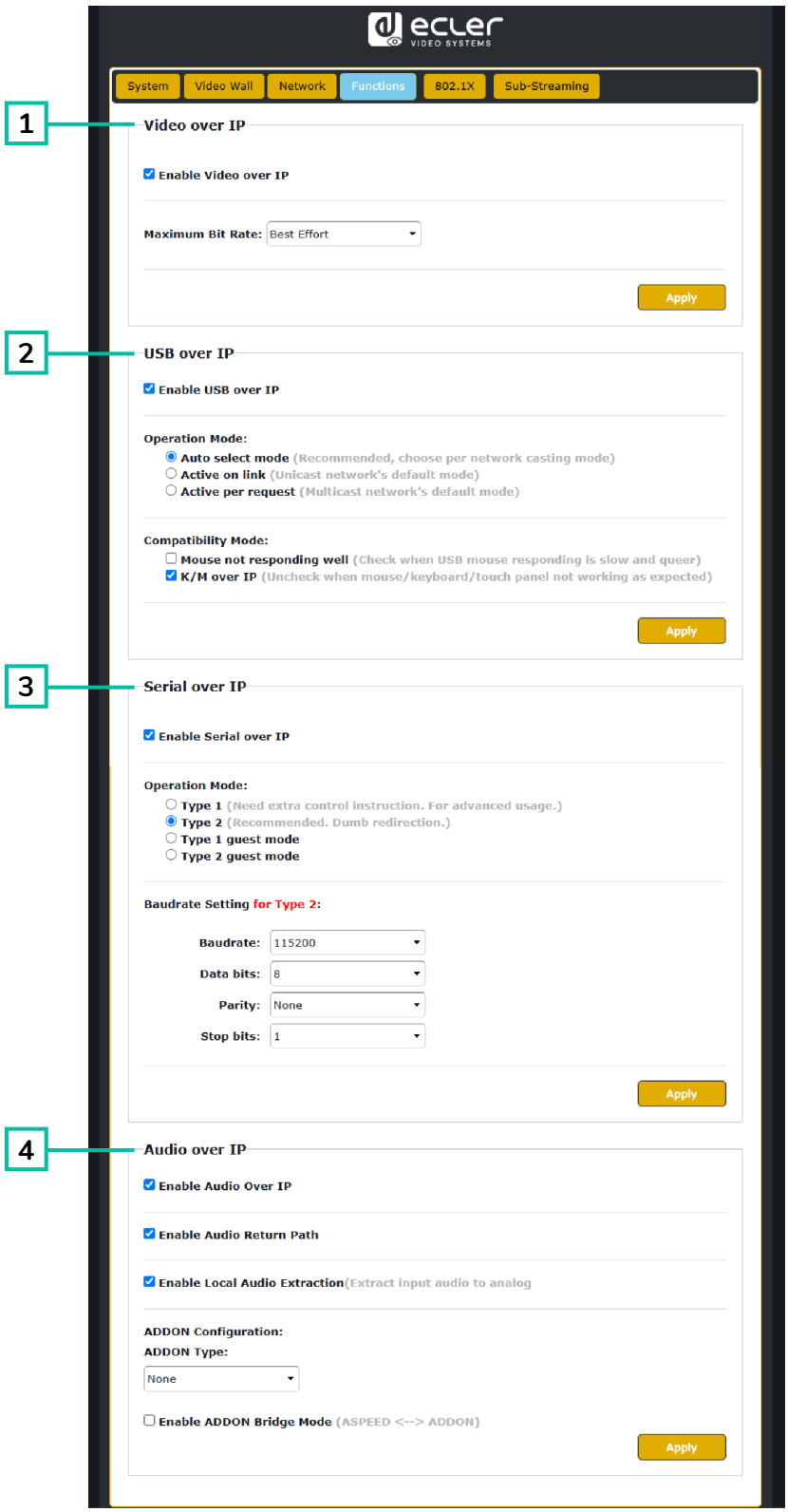
   E. **Unicast:** The device sends a separate stream to each receiver. This mode is suitable for direct one-to-one connections but consumes more bandwidth when multiple receivers are connected.

   F. **Auto Select USB Mode per Casting Mode:** When this option is enabled, it automatically adjusts the USB operation mode based on the selected casting mode.

   It is recommended to keep this option enabled for optimal performance.

6.2.4 Functions

This section **allows users to activate and configure key data transmission features over IP, including video, USB, and serial signals**. These settings enable flexible and optimized device communication within a networked environment.

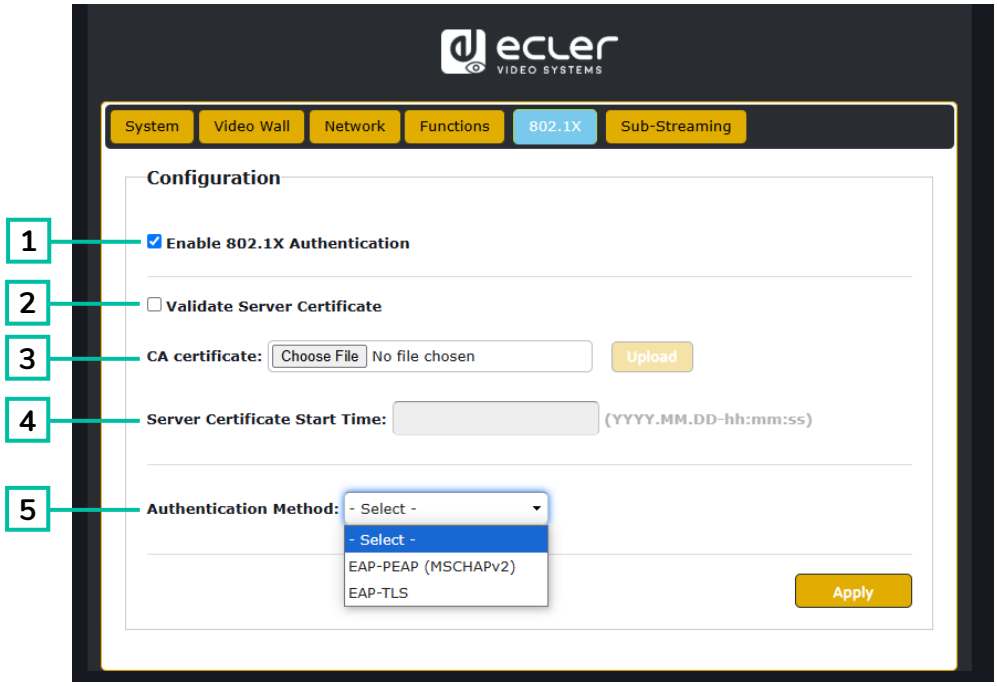


1. **Video over IP**: This section enables video transmission over the network and allows users to define the maximum streaming bitrate.
    - **Enable Video over IP:** Activates video signal delivery over IP.
    - **Maximum Bit Rate:** Limits the bandwidth used for video streaming. Options include:
        - **Best Effort:** The device automatically adapts the bitrate based on current network conditions.
        - **500 / 400 / 300 / 200 Mbps:** Fixed bitrate values to match network capacity and performance requirements.
2. **USB over IP:** This section enables the transmission of USB signals over the network, allowing remote control of connected devices such as a mouse, keyboard or touch panel.
    - **Enable USB over IP:** Activates the USB-over-IP functionality.
    - **Operation Mode:**
        - **Auto select mode:** Recommended. Automatically adapts to the network casting mode (Unicast or Multicast).
        - **Active on link:** USB becomes active when a network link is established (default for Unicast).
        - **Active per request:** USB becomes active only when manually requested (default for Multicast).
    - **Compatibility Mode:**
        - **Mouse not responding well:** Use when USB mouse response is laggy or unstable.
        - **K/M over IP:** Enables keyboard and mouse transmission over IP. Uncheck if input devices fail to respond properly.
3. **Serial over IP**: This section allows serial communication to be transmitted over the network, typically used for remote device control via RS-232.
    - **Enable Serial over IP:** Activates serial-over-IP functionality.
    - **Operation Mode:**
        - **Type 1:** Requires specific control instructions. Intended for advanced users.
        - **Type 2:** Recommended mode. Simple redirection of serial data without processing.
        - **Type 1 guest mode / Type 2 guest mode:** Variants of the above for specific device configurations.
    - **Baudrate Settings for Type 2:**
        - **Baudrate:** Transmission speed (e.g., 115200 bps).
        - **Data bits:** Number of data bits per character (typically 8).
        - **Parity:** Error checking method (None, Even, Odd).
        - **Stop bits:** End of transmission bit (1 or 2).

4. **Audio over IP**: This section allows audio transmission over the network and additional configuration options for audio return and extraction.
    - **Enable Audio Over IP:** Activates audio streaming over IP.
    - **Enable Audio Return Path:** Sends audio from the display device back to the source.
    - **Enable Local Audio Extraction:** Converts and outputs the received audio as analog locally.
    - **ADDON Configuration:**
        - **ADDON Type:** Select the compatible add-on module if used.
        - **Enable ADDON Bridge Mode:** Links audio between the main unit and the add-on module (ASPEED <--> ADDON).

6.2.5 802.1X

This section **allows users to configure secure network access using 802.1X authentication**, typically required in enterprise or managed network environments.

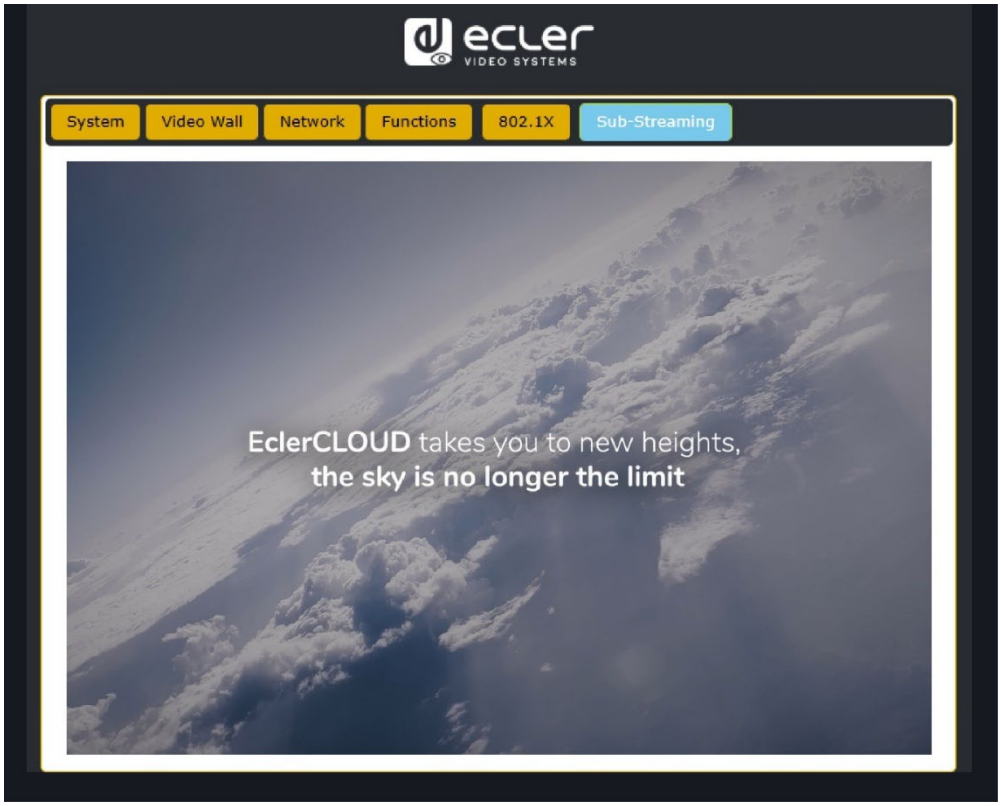


1. **Enable 802.1X Authentication:** Activates secure login to the network using credential-based access.
2. **Validate Server Certificate:** Enables certificate-based server verification.
3. **CA Certificate:** Uploads the certificate authority file used to validate the authentication server.

4. **Server Certificate Start Time:** Sets the start time for certificate validity (format: YYYY.MM.DD-hh:mm:ss).
5. **Authentication Method:**
    - **EAP-PEAP (MSCHAPv2):** Username/password-based authentication with encrypted tunnel.
    - **EAP-TLS:** Certificate-based mutual authentication, requiring both client and server certificates.

6.2.6 Sub-Streaming

This section **displays a real-time preview of the content currently being played on the device**. It reflects exactly what is shown on the screen, including any interface or media, **allowing remote monitoring for verification or demonstration purposes.**



6.3 VEO-XRI4D Web Interface

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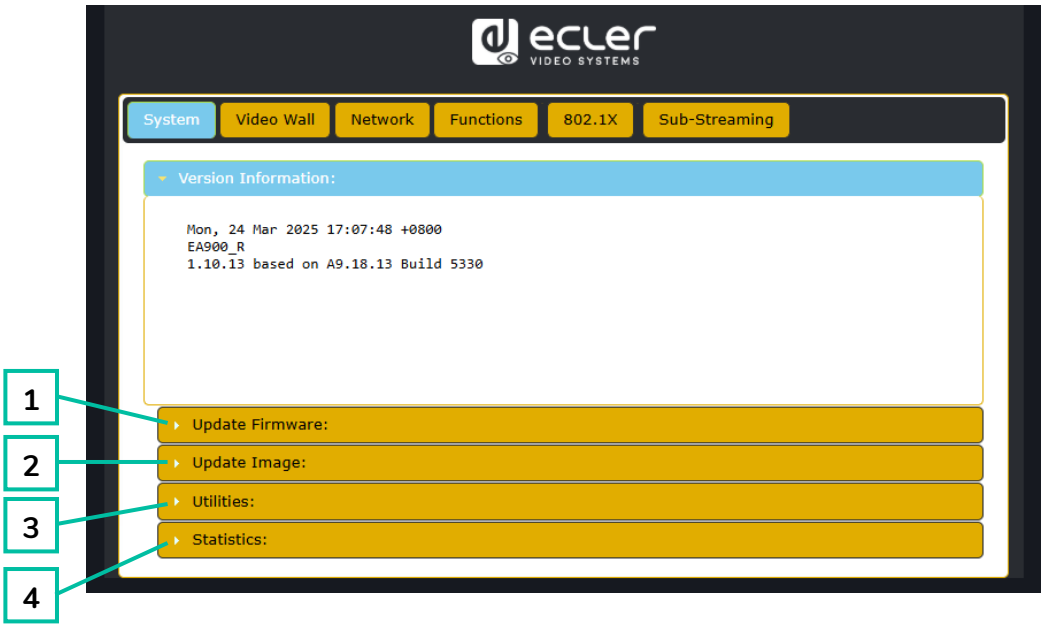

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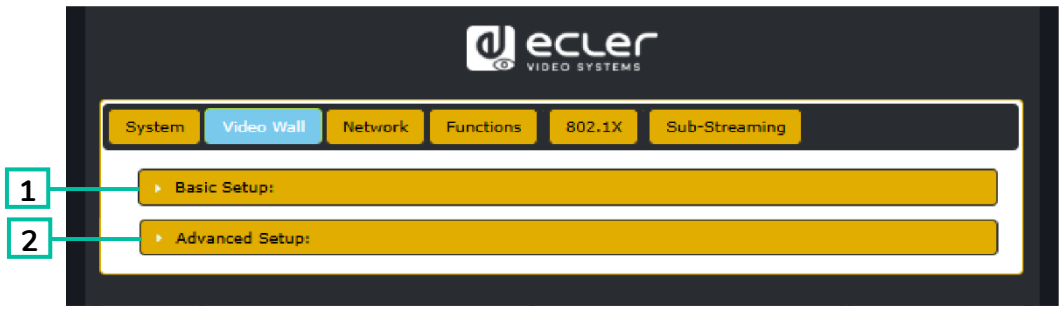

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   - **Bezel and Gap Compensation:** Adjusts bezel width (OW, OH) and viewable area (VW, VH) in 0.1 mm units to correct display gaps.
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2. **Advanced setup:** This section allows fine-tuning of individual screen positions and scaling within a video wall layout.
   - **Step 1 – Choose Control Target:** Selects the receiver set to a specific panel to configure within the wall matrix. Navigation arrows and the preview box help identify the selected unit.
   - **Step 2 – Control Options:**
     - **Reset to Basic Setup:** Restores the current panel's layout to the default configuration.
     - **Stretch Type & Rotation:** Adjusts image fitting and screen rotation.
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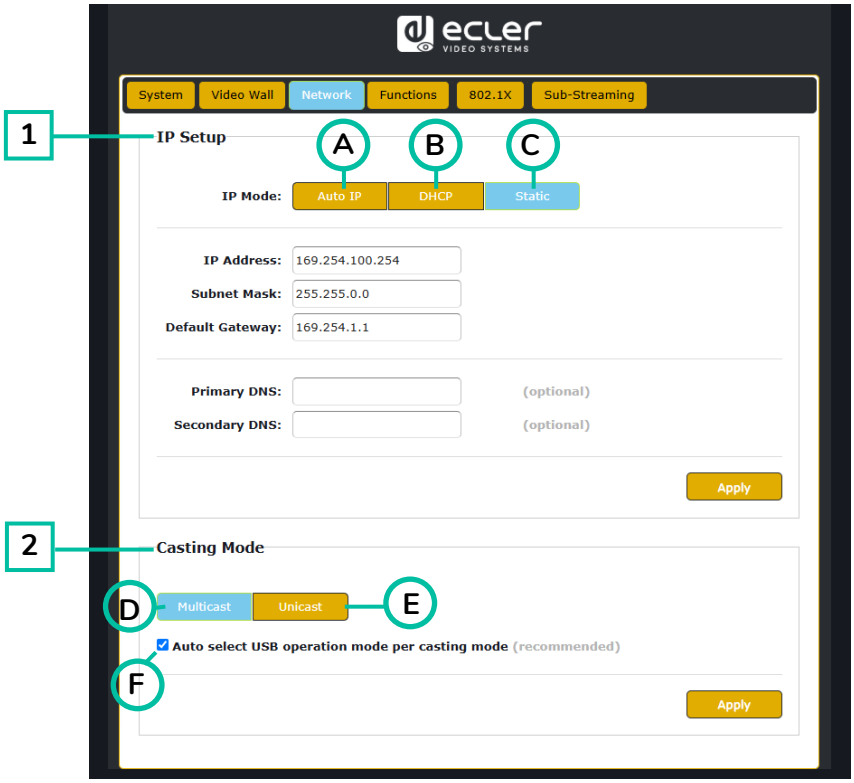

1. **Three IP modes are available:**
   - A. **Auto IP:** The IP address is assigned automatically. A new address is randomly generated each time the device is powered off and restarted.
   - B. **DHCP:** The IP address is assigned dynamically by a DHCP server (e.g. a router).
   - C. **Static:** A fixed IP address manually assigned by the user.

2. **Casting Mode:** This section allows users to select how the video stream is distributed over the network.
   - D. **Multicast:** The device sends the stream to multiple receivers simultaneously using a single transmission. This is efficient for large-scale distribution and minimizes bandwidth usage.
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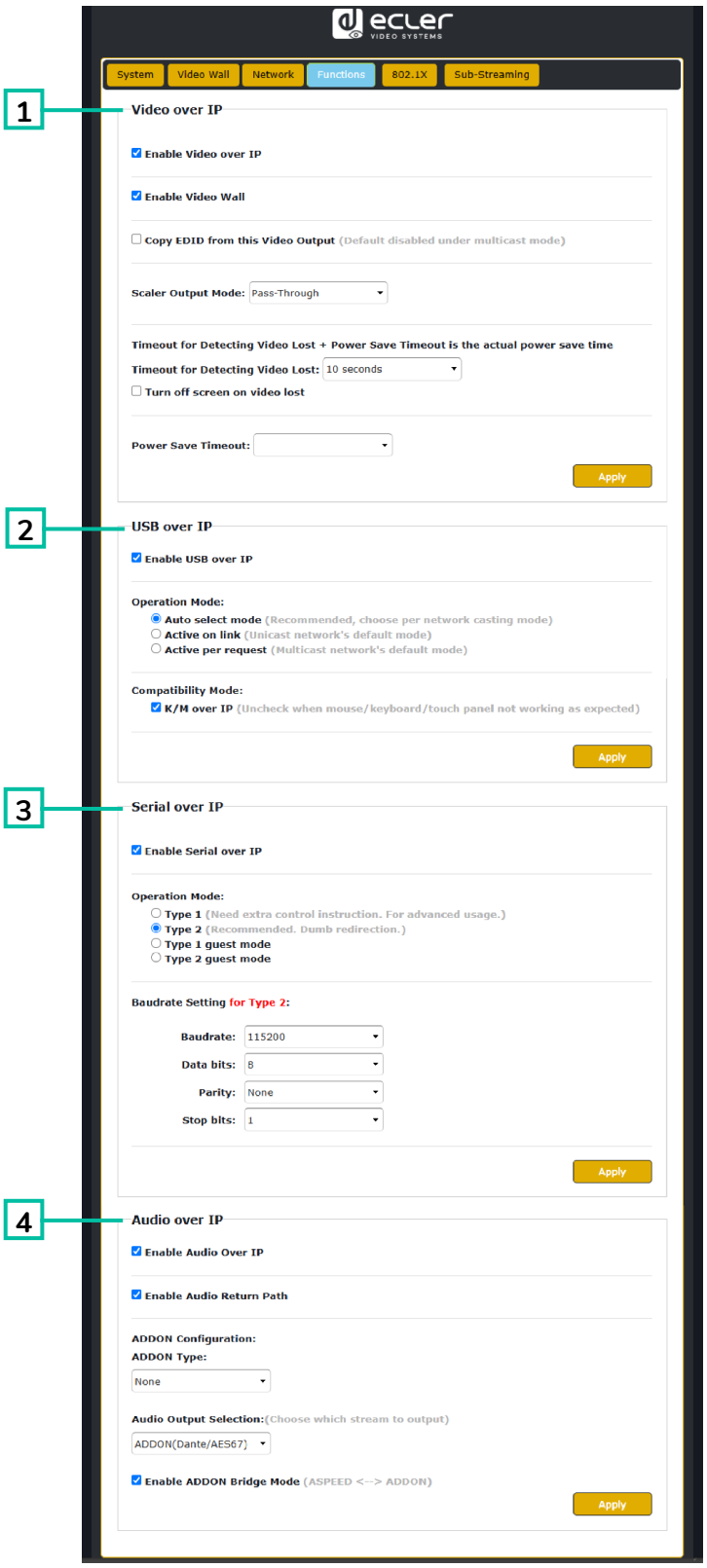


1. **Video over IP**: This section allows the user to enable or disable video transmission over the IP network and configure various video output and power-saving options.
    - **Enable Video over IP**: When this checkbox is selected, video streaming over the IP network is activated.
    - **Enable Video Wall**: When enabled, the system operates in video wall mode, allowing screen tiling and layout configurations. This setting should match the receiver's expected display format.
    - **Copy EDID from this Video Output** *(optional)*: If enabled, the device attempts to copy the EDID (Extended Display Identification Data) from the display connected to the video output.

      This option is disabled by default in multicast mode.

    - **Scaler Output Mode:** This dropdown menu defines how the output video resolution is handled. Available modes include:
        - **Pass-Through:** Keeps the original resolution from the source.
        - **Pass-Through (Strict):** Ensures exact match with the source, with tighter restrictions.
        - **Auto Detect (Per EDID):** Detects resolution based on connected display EDID.
        - **Full HD 1080p60 / 1080p50:** Forces output to 1920x1080 at 60 or 50 Hz.
        - **Ultra HD 2160p60 / 2160p50 / 2160p30 / 2160p25 / 2160p24:** Forces 4K output at selected frame rate.
        - **Customize:** Allows manual configuration.
    - **Timeout for Detecting Video Lost**: Determines how long the device waits after detecting a video loss before triggering the power-saving process. Options include:
        - **3 / 5 / 10 / 20 / 30 / 60 seconds**.
        - **Never Timeout:** No action will be taken even if video is lost.
    - **Turn off screen on video lost** *(optional)*: If selected, the display will be powered off when video signal is lost.
    - **Power Save Timeout**: Specifies the delay before entering power-saving mode after a video loss is detected. Works in conjunction with the detection timeout for calculating the total delay.
2. **USB over IP:** This section enables the transmission of USB signals over the network, allowing remote control of connected devices such as a mouse, keyboard or touch panel.
    - **Enable USB over IP:** Activates the USB-over-IP functionality.
    - **Operation Mode:**
        - **Auto select mode:** Recommended. Automatically adapts to the network casting mode (Unicast or Multicast).

- **Active on link:** USB becomes active when a network link is established (default for Unicast).
- **Active per request:** USB becomes active only when manually requested (default for Multicast).

- **Compatibility Mode:**
  - **K/M over IP:** Enables keyboard and mouse transmission over IP. Uncheck if input devices fail to respond properly.

3. **Serial over IP**: This section allows serial communication to be transmitted over the network, typically used for remote device control via RS-232.
   - **Enable Serial over IP:** Activates serial-over-IP functionality.
   - **Operation Mode:**
     - **Type 1:** Requires specific control instructions. Intended for advanced users.
     - **Type 2:** Recommended mode. Simple redirection of serial data without processing.
     - **Type 1 guest mode / Type 2 guest mode:** Variants of the above for specific device configurations.
   - **Baudrate Settings for Type 2:**
     - **Baudrate:** Transmission speed (e.g., 115200 bps).
     - **Data bits:** Number of data bits per character (typically 8).
     - **Parity:** Error checking method (None, Even, Odd).
     - **Stop bits:** End of transmission bit (1 or 2).

4. **Audio over IP**: This section allows audio transmission over the network and additional configuration options for audio return and extraction.
   - **Enable Audio Over IP:** Enables transmission of audio signals over the network.
   - **Enable Audio Return Path:** Allows audio to be returned from the receiver to the transmitter over IP.
   - **ADDON Configuration**
     - **ADDON Type:**
       - **None:** No additional audio-over-IP module is used.
       - **AES67:** Activates support for the AES67 audio-over-IP interoperability standard.

When AES67 is selected, integration with third-party AoIP platforms such as Dante (when compatible) is enabled.

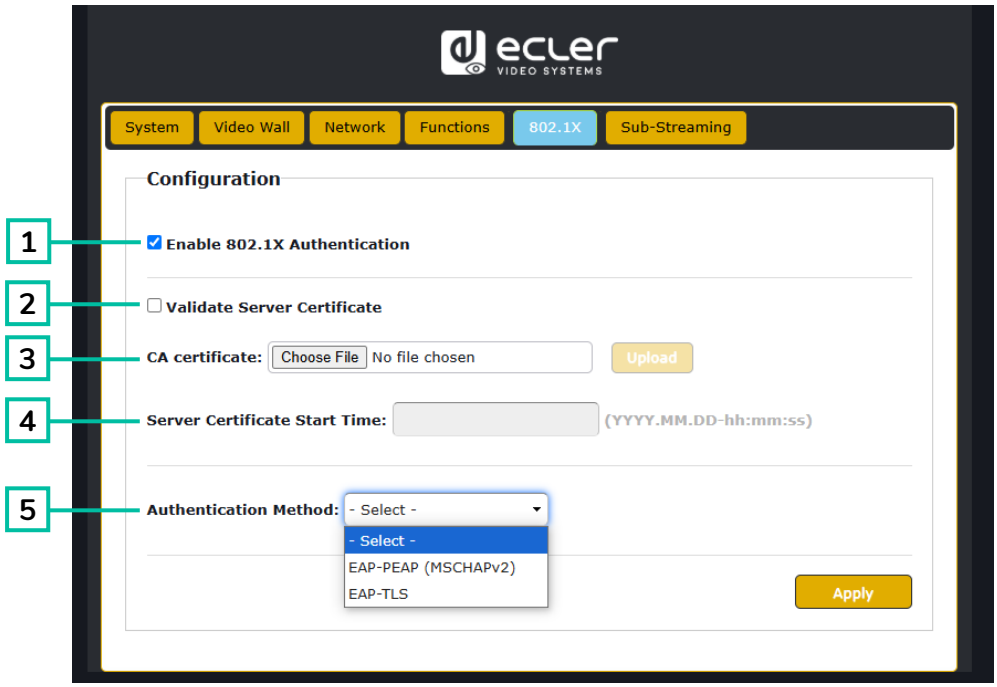
   - **Audio Output Selection:** Allows users to choose the stream to route to the analog output.
     - **ADDON (Dante/AES67)**: Selects the audio stream provided by the external ADDON module (e.g., a Dante or AES67 stream).

- **Enable ADDON Bridge Mode**:

  - When activated, this mode bridges the audio stream between the main SoC (ASPEED) and the ADDON interface.
  - Useful for bidirectional routing between the HDMI-embedded audio and an external network-based audio system (e.g., Dante/AES67).

6.3.5 802.1X

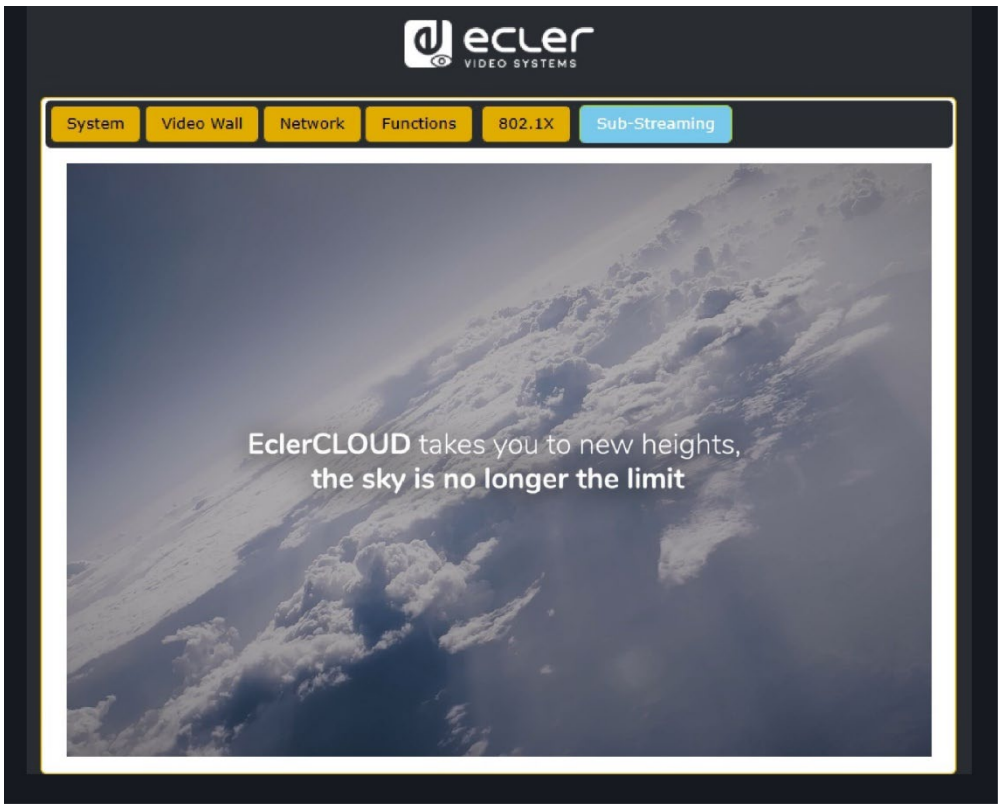
This section **allows users to configure secure network access using 802.1X authentication**, typically required in enterprise or managed network environments.



1. **Enable 802.1X Authentication:** Activates secure login to the network using credential-based access.
2. **Validate Server Certificate:** Enables certificate-based server verification.
3. **CA Certificate:** Uploads the certificate authority file used to validate the authentication server.
4. **Server Certificate Start Time:** Sets the start time for certificate validity (format: YYYY.MM.DD-hh:mm:ss).
5. **Authentication Method:**
   - **EAP-PEAP (MSCHAPv2):** Username/password-based authentication with encrypted tunnel.
   - **EAP-TLS:** Certificate-based mutual authentication, requiring both client and server certificates.

6.3.6 Sub-Streaming

This section **displays a real-time preview of the content currently being played on the device**. It reflects exactly what is shown on the screen, including any interface or media, **allowing remote monitoring for verification or demonstration purposes.**



6.4 Remote Controlling

6.4.1 RS-232

To match the ID from a transmitter to a receiver, connect the RS-232 port of VEO-XTI4D and VEO-XRI4D to a PC serial interface or a RS-232 control system or use VEO-XCTRL4D optional controller module.

6.4.1.1 RS-232 Communication protocol

The **serial parameters for a correct transmission** are:

Baud rate 115200 Data bits 8 Stop bits 1 Parity None Flow control None

6.4.1.2 Command List

It is important to add carriage return (<CR>,\r,0x0D) and line feed (<LF>,\n,0x0A) characters at the end of each command.

How do you have to enter the command?

To launch a remote control command, it needs to be written as follows:

"<Command> [Param 1] <Variable> [Param 2]"

[Param 1], [Param 2] will not always be required for every command.

EXAMPLE OF USE:

Switch the channel of transmission of a VEO-XRI4D (Rx) to receive the content of a VEO-XTI4D (Tx) :

- **VEO-XTI4D:** "Local ID" parameter defines a unique ID for the transmitter as well as the transmission channel.
- **VEO-XRI4D:** "Local ID" parameter defines a unique ID for the receiver. "Source Local ID" defines the transmission channel in which the receiver is tuned to.

For further details see Startup and Operation section.

The command to use is "SET DEC [dec] SWITCH [enc] ALL"

"SET DEC 1 SWITCH 2 ALL\r\n"

VEO-XRI4D with Local ID 1 will switch its "Source local ID" to 2, tuning all services (video, audio, RS-232) to channel transmission 2 assigned the VEO-XTI4D with "Local ID" 2.

Transmitter and Receiver Control		
Command	**Variable**	**Description**
SET ENC [enc][(1)] PRESET or SET DEC [dec][(2)] PRESET	IPMODE [mode] • mode=[0:AUTOIP 1:DHCP 2:STATIC]	Preset transmitter or receiver ip mode.
	START IP [start address] • start address = [xxx.xxx.xxx.xxx]	Preset transmitter or receiver start ip address.
	END IP [end address] • end address = [xxx.xxx.xxx.xxx]	Preset transmitter or receiver end ip address.
	GW [gateway ip] • gateway ip=[xxx.xxx.xxx.xxx]	Preset transmitter or receiver gateway ip address.
	SM [subnetmask] • subnetmask = [xxx.xxx.xxx.xxx]	Preset transmitter or receiver subnet mask address.
	APPLY	Apply the transmitter or receiver preset ip configuration.
SET ENC [enc][(1)] IPMODE or SET DEC [dec][(2)] IPMODE	DHCP	Set the transmitter or receiver dhcp mode.
	STATIC	Set the transmitter or receiver static ip address.
SET ENC [enc] [(1)] or SET DEC [dec][(2)]	STATIC IP [ip address] • ip address = [xxx.xxx.xxx.xxx]	Set the transmitter or receiver static ip address.
	STATIC GATEWAY [gateway ip] • gateway ip=[xxx.xxx.xxx.xxx]	Set the transmitter or receiver static gateway address.
	STATIC MASK [subnetmask] • subnetmask = [xxx.xxx.xxx.xxx]	Set the transmitter or receiver static subnet mask address.
	NETWORK REBOOT	Set the transmitter or receiver network reboot.
	ID [id] • id = [1..762]	Set the index ID of the transmitter or receiver.
	DELETE	Delete the transmitter or receiver in the current configuration.
	REBOOT	Set the transmitter or receiver reboot.
	RESET	Set the transmitter or receiver factory reset.
	NAME [name] • name: max 16 characters	Set the name of the transmitter or receiver.
	LED [state] • state = [ON, OFF]	Set the transmitter or receiver flash power LED or disable flash power LED.
	LED ON 90	Set the transmitter or receiver flash power LED timeout in 90 seconds.
	FPLED [fl] • fl: [0: Always On 9: On 90s]	Set the transmitter or receiver front panel LED automatic off time.

	GUEST [state] BR [br] BIT [bit] • state = [ON, OFF] • br = [0:300 1:600 2:1200 3:2400 4:4800 5:9600 6:19200 7:38400 8:57600 9:115200] • bit = Data Bits + Parity + Stop Bits example: 8n1 Data Bits=[5...8], Parity=[n o e] Stop Bits=[1..2]	Set the transmitter or receiver serial guest configuration.
	GUEST	Start serial guest mode to transmitter “enc” or receiver “dec”
	IR VOL [vol] • vol = [5V, 12V]	Set the transmitter or receiver IR voltage 5V or 12V.
EXITGUEST		To close guest mode
GET ENC [enc](1) or GET DEC [dec](2)	STATUS	Get the transmitter or receiver Status.
SET ENC [enc](1)	STREAM BITRATE [rate] • rate = [0:1Mb 1:4Mb 2:8Mb 3:16Mb 4:20Mb]	Set the transmitter stream encoding bitrate.
	AUDIO FORMAT [format] • format = [PCM, AAC]	Set the transmitter audio encoding format PCM or AAC.
	AUDIO INPUT [input] • input = [HDMI, ANA]	Set the transmitter audio input HDMI or embedded analogue L/R.
	EDID COPY [dec](2)	Set the transmitter EDID copy from receiver.
	EDID DEFAULT [edid] • edid = 00: HDMI 1080p@60Hz, Audio 2CH PCM 01: HDMI 720p@60Hz, Audio 2CH PCM 02: DVI 1280x1024@60Hz, Audio None 03: DVI 1920x1080@60Hz, Audio None 04: DVI 1920x1200@60Hz, Audio None 05:HDMI 1920x1200p@60Hz, Audio 2CH PCM 06: Copy EDID 07: User EDID 1 08: User EDID 2	Set the transmitter Default EDID.

SET DEC [dec][2] SWITCH [enc][1]	ALL	Set the receiver switch all signals. Note: enc=0 mean no source in this case.
	VIDEO	Set the receiver switch video only signals.
	IR	Set the receiver switch IR only signals.
	RS232	Set the receiver switch RS232 only signals.
	USB	Set the receiver switch USB only signals.
SET DEC [dec][2] OUTPUT	[state] state = [ON, OFF]	Set the receiver output ON or OFF.
	OSD [state] state = [ON, OFF]	Set the receiver output to show ID OSD or hide ID OSD.
	OSD ON 90	Set the receiver output show ID OSD timeout in 90 seconds.
	OSD COLOR [co] • co = [0:WHITE 1:GRAY 2:BLACK 3:RED 4:MAROON 5:YELLOW 6:OLIVE 7:LIME 8:GREEN 9:AQUA 10:TEAL 11:BLUE 12:NAVY 13:FUCHSIA 14:PURPLE]	Set the receiver output OSD colour.
	RESOLUTION [res] • res = [0:Bypass 1:1080p@60 2:1080p@50 3:1080p@30 4:1080p@25 5:1080p@24 6:720@p60 7:720p@50 8:576p@50 9:480p@60 10:640x480@60 11:800x600@60 12:1024x768@60 13:1280x800@60 14:1280x1024@60 15:1366x768@60 16:1440x900@60 17:1600x1200@60 18:1680x1050@60 19:1920x1200@60]	Set the receiver output resolution.
	ROTATE [rtt] • rtt = [0:0 1:90 2:180 3:270]	Set the receiver output rotate.
	PAUSE [state] • state = [ON, OFF]	Set the receiver output pause ON or OFF.
	MUTE [state] • state = [ON, OFF]	Set the receiver output mute ON or OFF.
	AUTO [state] • state = [ON, OFF]	Set the receiver output Automatically ON or OFF.
	LOST [time] • time = [0...60]	Set the receiver output video lost timeout in minute. Note: time = 0 Output lost disabled.

SET DEC [dec][(2)]	BUTTON [state] • state = [ON, OFF]	Set the receiver front panel button enable ON or OFF.
	IR [state] • state = [ON, OFF]	Set the receiver rear panel IR enable ON or OFF.
	MODE [mode] • mode = [MX, VW]	Set the receiver output mode to matrix or video wall.
	STREAM [stream] • stream = [UNICAST, MULTICAST]	Set the receiver output stream transmission mode UNICAST or MULTICAST.

[(1)]enc=000: All transmitters

enc=[001...762]: One transmitter

[(2)]dec=000: All receivers

dec=[001...762]: One receiver

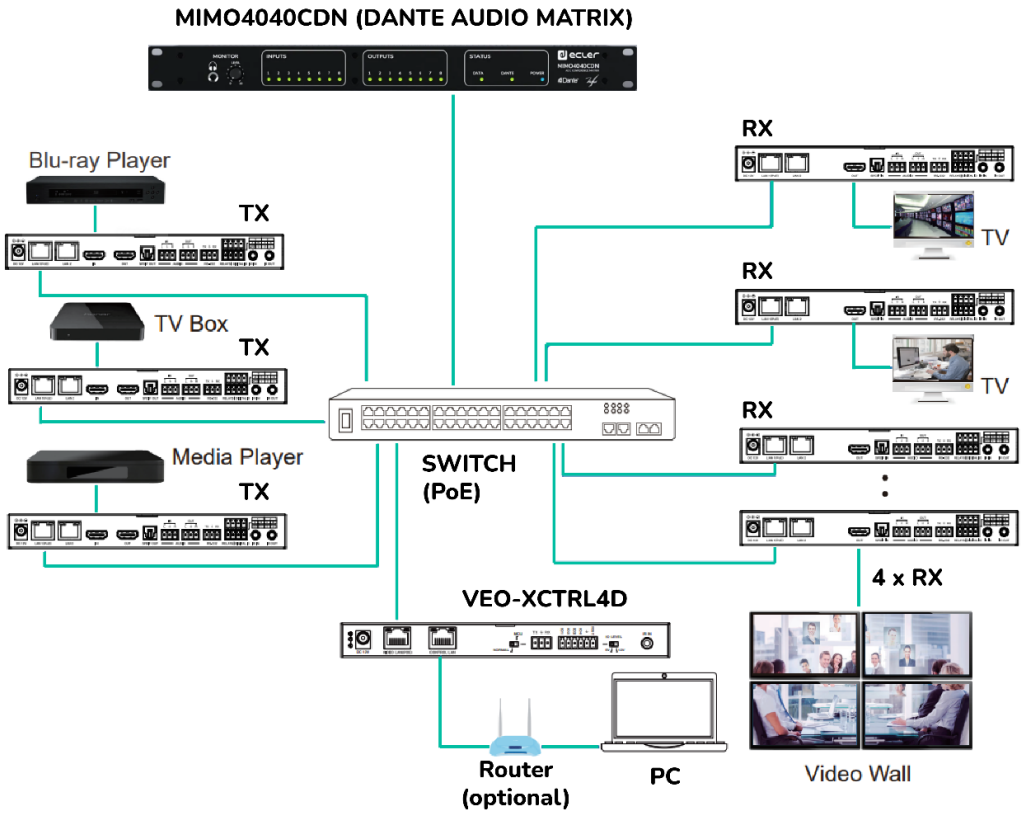
6.4.2 Advanced Network Management

For larger AV over IP multicast scenarios involving several VEO-XTI4D and VEO-XRI4D devices, it is recommended to add a VEO-XCTRL4D controller module in the system. This unit will allow the user to manage and operate all the transmitters and receivers from a unique Web interface, including Preview mode, Matrix control, Video Wall management control or even the use of TCP commands to remotely communicate with VEO-XTI4D and VEO-XRI4D units present in the network. For further details on how to set up an advanced networked installation control layout interface, please refer to VEO-XCTRL4D controller module user manual.

6.4.2.1 Application Example LAN Mode 1

In **LAN Mode 1**, only the **LAN 1 (PoE)** port of the **VEO-XTI4D** and **VEO-XRI4D** is enabled, serving as the single interface for both **JPEG2000 video** and **Dante audio** transmission. The **LAN 2** port remains inactive in this mode.

This configuration is ideal for simplified installations, where a unified network handles both AV and control traffic. LAN Mode 1 can be selected either via the **Controller VEO-XCTRL4D Web GUI** or directly using the **front panel buttons** on the **VEO-XTI4D** and **VEO-XRI4D**.

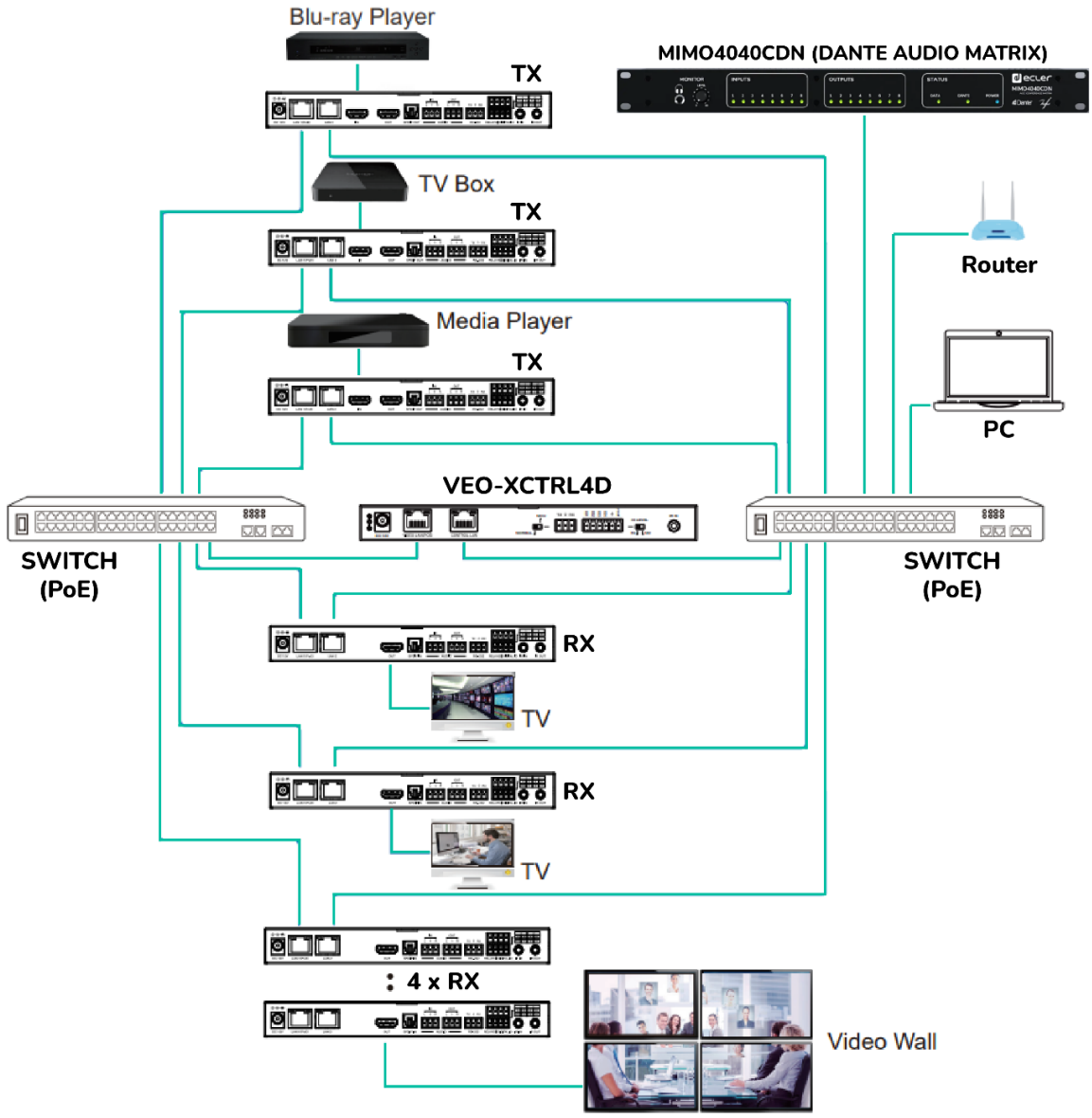


6.4.2.2 Application Example LAN Mode 2

In **LAN Mode 2**, the **VEO-XTI4D** and **VEO-XRI4D operate using two separate Ethernet ports: LAN 1 (PoE)** and **LAN 2**. **In this configuration, LAN 1 is dedicated to JPEG2000 video transmission, while LAN 2 is used exclusively for Dante audio.**

This mode is designed for advanced setups where network separation is required between video and audio traffic. It enhances system scalability and minimises interference or congestion by distributing data flows across distinct network paths.

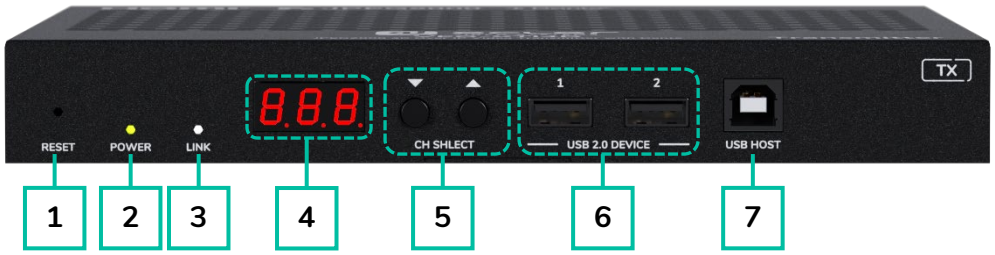
LAN Mode 2 can be selected via the Controller VEO-XCTRL4D Web GUI or through the **front panel buttons** on the **VEO-XTI4D** and **VEO-XRI4D**.



7. PANEL FUNCTIONS

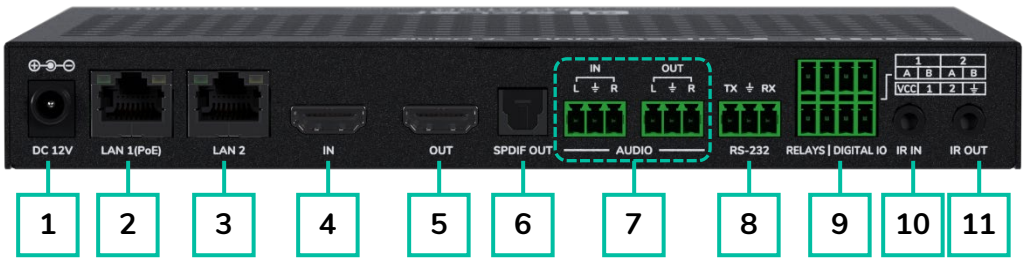
7.1 VEO-XTI4D (TX, transmitter)

7.1.1 Front Panel



1. **RESET**: System reset button. Pressing and holding for 5 seconds will restart and restore factory settings on the device.
2. **POWER LED**: The LED flashes when the device is power supplied and stays lid (GREEN) after the start up is complete.
3. **LINK LED**: Network connection status LED (WHITE):
   - **Light on**: Network connection is stable and there's a compatible video signal.
   - **Light off**: No network connection.
   - **Light flashing**: Network connection is stable but there's no video signal.
4. **STATUS DISPLAY**: indicates current ID channel and further device information. For further details, refer to the VEO-XTI4D Additional functionalities of CH select ▲/▼ buttons section.
5. **CH SELECT (▲UP/▼DOWN):** Use these buttons to set the ID channel of the device. It is also possible to adjust audio mode, manage EDID, consult IP address, or enter configuration mode. For further details, refer to Additional functionalities of CH select ▲/▼ buttons .
6. **USB 2.0 DEVICE:** Connection ports for USB 2.0 devices.
7. **USB HOST:** USB Host port for connection to a PC.

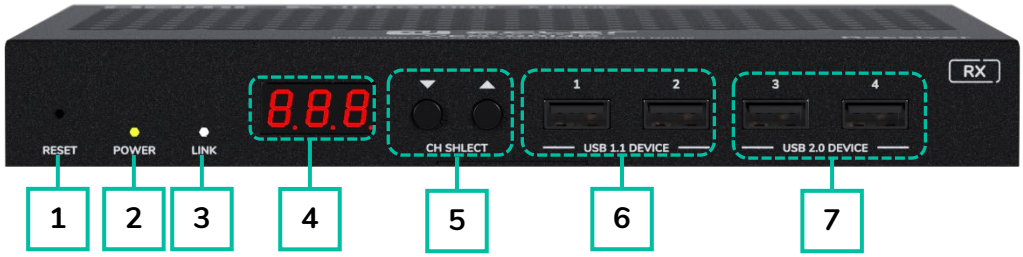
7.1.2 Rear Panel



1. **DC 12V Port:** Allows power supply via 12V/2.5A adapter or PoE. If PoE is available from the network switch, no external adapter is needed.
2. **LAN 1 (PoE):** 1G Ethernet port with PoE support. Transmits JPEG2000 video by default. In LAN Mode 1, also transmits Dante audio.
   - **Yellow LED:** Blinks with data activity.
   - **Green LED:** On when network is linked.
3. **LAN 2:** 1G Ethernet port for Dante audio transmission. Inactive in LAN Mode 1.
   - **Yellow LED:** Blinks with data activity.
   - **Green LED:** On when network is linked.
4. **HDMI IN:** HDMI input for connecting a source device such as a Blu-ray player or set-top box.
5. **HDMI OUT:** HDMI loop output for connecting to a local display device.
6. **S/PDIF OUT:** Outputs ARC or S/PDIF audio returned from the decoder when both units are set to audio return mode. Configurable via controller box (Multicast) or front panel (Unicast).
7. **AUDIO**
   - **AUDIO IN:** Analogue audio input for embedding into the HDMI signal or looping out via the AUDIO OUT port.
   - **AUDIO OUT:** Outputs audio extracted from HDMI IN (LPCM) or analogue audio from the decoder's AUDIO IN in unicast mode.
8. **RS-232:** Serial port for remote control. Signal pass-through supported.
9. **RELAYS | DIGITAL IO:**
   - **VCC:** Configurable power output (12V by default, switchable to 5V). Provides up to 50mA at 12V or 100mA at 5V.
   - **RELAYS:** Two independent and isolated low-voltage relay channels, supporting up to 1A at 30VDC each. Contacts are open by default.
   - **DIGITAL IO:** Two configurable GPIO channels for output control or input detection (up to 12V). Output mode sinks up to 50mA (low level). High-level drive capacity: 2mA @ 5V or 5mA @ 12V. In input mode, each channel has a 2.2kΩ internal pull-up to VCC.
10. **IR IN:** Infrared signal input. IR level can be set to 5V or 12V (default) via the front panel. For further details refer to the IR Mode section of VEO-XTI4D Additional Functionalities of CH Select ▲/▼ Buttons chapter.
11. **IR OUT:** Infrared signal output. IR level can be set to 5V or 12V (default) via the front panel. For further details refer to the IR Mode section of VEO-XTI4D Additional Functionalities of CH Select ▲/▼ Buttons chapter.

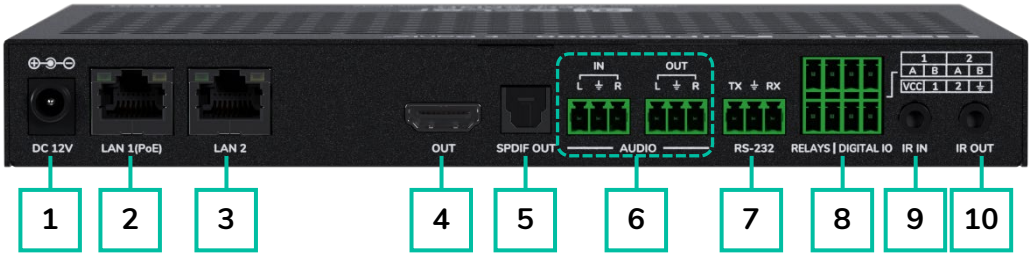
7.2 VEO-XRI4D (RX, receiver)

7.2.1 Front Panel



1. **RESET**: System reset button. Pressing and holding for 5 seconds will restart and restore factory settings on the device.
2. **POWER LED**: The LED flashes when the device is power supplied and stays lid (GREEN) after the start up is complete.
3. **LINK LED**: Network connection status LED (WHITE):
   - **Light on**: Network connection is stable and there's a compatible video signal.
   - **Light off**: No network connection.
   - **Light flashing**: Network connection is stable but there's no video signal.
4. **STATUS DISPLAY**: indicates current ID channel and further device information. For further details, refer to the VEO-XRI4D Additional functionalities of CH select ▲/▼ buttons section.
5. **CH SELECT (▲UP/▼DOWN):** Use these buttons to set the ID channel of the device. It is also possible to adjust audio mode, manage EDID, consult IP address, or enter configuration mode. For further details, refer to the VEO-XRI4D Additional functionalities of CH select ▲/▼ buttons section.
6. **USB 1.1 DEVICE:** Connection ports for USB 1.1 devices, such as Keyboard or Mouse.
7. **USB 2.0 DEVICE:** Connection ports for USB 2.0 devices, such as USB flash disk or USB Camera.

7.2.1 Rear Panel



1. **DC 12V Port:** Allows power supply via 12V/2.5A adapter or PoE. If PoE is available from the network switch, no external adapter is needed.
2. **LAN 1 (PoE):** 1G Ethernet port with PoE support. Transmits JPEG2000 video by default. In LAN Mode 1, also transmits Dante audio.
   - **Yellow LED:** Blinks with data activity.
   - **Green LED:** On when network is linked.
3. **LAN 2:** 1G Ethernet port for Dante audio transmission. Inactive in LAN Mode 1.
   - **Yellow LED:** Blinks with data activity.
   - **Green LED:** On when network is linked.
4. **HDMI OUT:** HDMI loop output for connecting to a local display device.
5. **S/PDIF IN:** S/PDIF signal input port.
6. **AUDIO:**
   - **AUDIO IN:** Analogue audio input for embedding into the HDMI signal or looping out via the AUDIO OUT port.
   - **AUDIO OUT:** Outputs audio extracted from HDMI IN (LPCM) or analogue audio from the decoder's AUDIO IN in unicast mode.
7. **RS-232:** Serial port for remote control. Signal pass-through supported.
8. **RELAYS | DIGITAL IO:**
   - **VCC:** Configurable power output (12V by default, switchable to 5V). Provides up to 50mA at 12V or 100mA at 5V.
   - **RELAYS:** Two independent and isolated low-voltage relay channels, supporting up to 1A at 30VDC each. Contacts are open by default.
   - **DIGITAL IO:** Two configurable GPIO channels for output control or input detection (up to 12V). Output mode sinks up to 50mA (low level). High-level drive capacity: 2mA @ 5V or 5mA @ 12V. In input mode, each channel has a 2.2kΩ internal pull-up to VCC.
9. **IR IN:** Infrared signal input. IR level can be set to 5V or 12V (default) via the front panel. For further details refer to the IR Mode section of VEO-XRI4D Additional Functionalities Of CH Select ▲/▼ Buttons chapter.
10. **IR OUT:** Infrared signal output. IR level can be set to 5V or 12V (default) via the front panel. For further details refer to the IR Mode section of VEO-XRI4D Additional Functionalities Of CH Select ▲/▼ Buttons chapter.

7.3 Additional Functionalities of CH Select ▲/▼ buttons

7.3.1 VEO-XTI4D

Settings	Buttons Pressed	Description
IP Address	▲	Pressing and holding the ▲ button for 5 seconds will show the current IP address of VEO-XTI4D device in the Status display. This message will appear following the sequence "xxx", "xxx", "xxx", "xxx".
ID	▼	Pressing and holding the ▼ button for 5 seconds will show the current IDs of VEO-XTI4D device in the Status display. This message will appear following the sequence "xxx".
Wake up	▲ or ▼	After the system is powered on, the VEO-XTI4D device Status display will show the ID Channel. When idle and Display configured as OFF, pressing ▲ or ▼ button will turn on the Status display and show the current ID Channel number (e.g. 001).
Configuration	▲ and ▼	Pressing and holding ▲ and ▼ buttons together at the same time for 5 seconds will enter the "Configuration" mode with "CFN" displaying on the status display. Further long pressing of ▲ and ▼ buttons will allow to confirm and enter in the next configuration menu. Available menus are: • Device ID (e.g.: "001"). • EDID settings (e.g.: "E00"). • IR Mode (e.g.: "IR2"). • Audio Embedding (e.g.: "HDI"/ "ANA"). • IP Mode (e.g.: "IP1"/"IP2"/"IP3"). • Multicast Mode (e.g.: "CA1"/"CA2"). • Audio Return Mode (e.g.: "C2C"/"A2A"). • LAN Mode (e.g.: "L01"/"L02").
Device ID	▲ and ▼	VEO-XTI4D Transmitter ID must be unique in a network so the procedure to change the ID is not so immediate. Pressing and holding ▲ and ▼ buttons both together at the same time for 5 seconds will enter the "Device ID" mode. The ID Channel will flash, then pressing the ▲ or ▼ button will select the desired ID Channel and pressing and hold ▲ and ▼ buttons once again both together at the same time for 5 seconds, will confirm the selected ID Channel and exit "Device ID" mode and go to the next menu. The device ID can not be modified in Controller Box mode.

<table>
<tr>
<td>EDID Settings</td>
<td>▲ and ▼</td>
<td>After showing ID settings menu, long pressing the ▲ or ▼ button until the Status display shows “E00” (in which “E” refers to EDID, “00” to EDID ID) in the Status display. Then pressing and holding ▲ and ▼ buttons both together at the same time buttons for 5 seconds will enter “EDID Settings” mode. The EDID ID number (e.g. E01) on the Status display will flash. Then pressing the ▲ or ▼ button will select the desired EDID ID:
<table>
<tr><th>EDID ID</th><th>EDID Description</th></tr>
<tr><td>E00</td><td>1080P_Stereo_Audio_2.0_SDR</td></tr>
<tr><td>E01</td><td>1080P_DolbyDTS_5.1_SDR</td></tr>
<tr><td>E02</td><td>1080P_HD_Audio_7.1_SDR</td></tr>
<tr><td>E03</td><td>1080I_Stereo_Audio_2.0_SDR</td></tr>
<tr><td>E04</td><td>1080I_DolbyDTS_5.1_SDR</td></tr>
<tr><td>E05</td><td>1080I_HD_Audio_7.1_SDR</td></tr>
<tr><td>E06</td><td>3D_Stereo_Audio_2.0_SDR</td></tr>
<tr><td>E07</td><td>3D_DolbyDTS_5.1_SDR</td></tr>
<tr><td>E08</td><td>3D_HD_Audio_7.1_SDR</td></tr>
<tr><td>E09</td><td>4K2K30_444_Stereo_Audio_2.0_SDR</td></tr>
<tr><td>E10</td><td>4K2K30_444_DolbyDTS_5.1_SDR</td></tr>
<tr><td>E11</td><td>4K2K30_444_HD_Audio_7.1_SDR</td></tr>
<tr><td>E12</td><td>4K2K60_420_Stereo_Audio_2.0_SDR</td></tr>
<tr><td>E13</td><td>4K2K60_420_DolbyDTS_5.1_SDR</td></tr>
<tr><td>E14</td><td>4K2K60_420_HD_Audio_7.1_SDR</td></tr>
<tr><td>E15</td><td>4K2K60_444_Stereo_Audio_2.0_SDR</td></tr>
<tr><td>E16</td><td>4K2K60_444_DolbyDTS_5.1_SDR</td></tr>
<tr><td>E17</td><td>4K2K60_444_HD_Audio_7.1_SDR</td></tr>
<tr><td>E18</td><td>4K2K60_444_Stereo_Audio_2.0_HDR_10-bit</td></tr>
<tr><td>E19</td><td>4K2K60_444_DolbyDTS_5.1_HDR_10-bit</td></tr>
<tr><td>E20</td><td>4K2K60_444_HD_Audio_7.1_HDR_10-bit</td></tr>
<tr><td>E21</td><td>DVI_1280x1024</td></tr>
<tr><td>E22</td><td>DVI_1920x1080</td></tr>
<tr><td>E23</td><td>DVI_1920x1200</td></tr>
</table>
Pressing and holding ▲ and ▼ buttons both together for 5 seconds will confirm the selected EDID ID and exit “EDID Settings” mode.</td>
</tr>
<tr>
<td>IR Mode</td>
<td>▲ and ▼</td>
<td>After showing EDID menu, long pressing ▲ or ▼ button until the Status display shows “IR2”. Then pressing and holding ▲ and ▼ buttons both together for 5 seconds will enter the “IR Mode”. The current IR mode will appear flashing. Pressing ▲ or ▼ button will select the desired option:

IR2 (default): 12V IR wire.
IR1: 5V IR wire.

After selecting the desired option, press and hold ▲ and ▼ buttons again for 5 seconds to confirm the selection and stop flashing.</td>
</tr>
</table>

Audio Embedding	▲ and ▼	After showing IR Mode menu, long pressing ▲ **or** ▼ button until the status display shows **"HDI"**. Then pressing and holding ▲ **and** ▼ buttons together for **5 seconds** will enter the **"Audio Embedding Mode"**. The current audio mode will appear **flashing**. Pressing ▲ **or** ▼ button will select the desired option: • **HDI (default)**: HDMI audio embedding • **ANA**: Analog audio embedding After selecting the desired option, press and hold ▲ **and** ▼ buttons again for **5 seconds** to **confirm** the selection and stop flashing.
IP Mode	▲ and ▼	After showing Audio Embedding menu, long pressing ▲ **or** ▼ button until the status display shows **"IP3"**. Then pressing and holding ▲ **and** ▼ buttons together for **5 seconds** will enter the **"IP Mode"**. The current IP mode (**IP1/IP2/IP3**) will appear **flashing**. Pressing ▲ **or** ▼ button will select the desired option: • **IP1**: Static IP mode Default IP: **169.254.100.254** • **IP2**: DHCP IP mode Automatically assigned from network DHCP • **IP3** (default): Auto IP mode Assigned from default segment: **169.254.xxx.xxx** After selecting the desired option, press and hold ▲ **and** ▼ buttons again for **5 seconds** to **confirm** the selection and stop flashing. The unit will **reboot automatically**. **IP mode cannot be modified in Controller Box mode.**
Multicast Mode	▲ and ▼	After showing IP Mode menu, long pressing ▲ **or** ▼ button until the status display shows **"CA1"**. Then pressing and holding ▲ **and** ▼ buttons together for **5 seconds** will enter the **"Multicast Mode".** The current multicast mode (**CA1/CA2**) will appear **flashing**. Pressing ▲ **or** ▼ button will select the desired option: • **CA1**: Unicast mode • **CA2**: Multicast mode After selecting the desired option, press and hold ▲ **and** ▼ buttons again for **5 seconds** to **confirm** the selection and stop flashing. The unit will **reboot automatically**.

Audio Return Mode	▲ and ▼	After showing Multicast Mode menu, long pressing ▲ **or** ▼ button until the status display shows **"C2C"**. Then pressing and holding ▲ **and** ▼ buttons together for **5 seconds** will enter the **"Audio Return Mode"**. The current return mode (**C2C/A2A**) will appear **flashing**. Pressing ▲ **or** ▼ button will select the desired option: • **C2C**: eARC/ARC or S/PDIF audio from the **Receiver** is returned to the **Transmitter** Output goes to: **HDMI IN or S/PDIF OUT** on the Transmitter • **A2A**: Analog audio embedded in the **Receiver** is sent to the transmitter Output goes to: **AUDIO OUT (analog)** on the transmitter. After selecting the desired option, press and hold ▲ **and** ▼ again for **5 seconds** to **confirm** the selection and stop flashing. The unit will **reboot automatically**.
LAN Mode	▲ and ▼	After showing Audio Return Mode menu, long pressing ▲ **or** ▼ button until the status display shows **"L02"** (default). Then pressing and holding ▲ **and** ▼ buttons together for **5 seconds** will enter the **"LAN Mode"**. The current LAN mode (**L01/L02**) will appear **flashing**. Pressing ▲ **or** ▼ button will select the desired option: • **L01**: Both **JPEG2000 video** and **Dante audio** are transmitted through **LAN 1 (PoE)** **LAN 2 is disabled** • **L02 (default)**: **JPEG2000 video** is transmitted via **LAN 1 (PoE)** **Dante audio** is transmitted via **LAN 2** After selecting the desired option, press and hold ▲ **and** ▼ again for **5 seconds** to **confirm** the selection and stop flashing. The unit will **reboot automatically**.

- **To quickly exit any setting mode, press and hold ▼.**
- **If no button is pressed within 5 seconds, the system will automatically return to the previous screen.**

7.3.2 VEO-XRI4D

Settings	Buttons Pressed	Description
IP Address	▲	Pressing and holding the ▲ button for 5 seconds will show the current IP address of VEO-XRI4D device in the Status display. This message will appear following the sequence "xxx", "xxx", "xxx", "xxx".
ID	▼	Pressing and holding the ▼ button for 5 seconds will show the current IDs of VEO-XRI4D device in the Status display. This message will appear following the sequence "xxx".
Wake up	▲ or ▼	After the system is powered on, the VEO-XRI4D device Status display will show the ID Channel. When idle and Display configured as OFF, pressing ▲ or ▼ button will turn on the Status display and show the current ID Channel number (e.g. 001).
Configuration	▲ and ▼	Pressing and holding ▲ and ▼ buttons together at the same time for 5 seconds will enter the "Configuration" mode with "CFN" displaying on the status display. Further long pressing of ▲ and ▼ buttons buttons will allow to confirm and enter in the next configuration menu. **Available menus are:** • Device ID (e.g.: "001"). • Scaling Mode (e.g.: "S00"). • IR Mode (e.g.: "IR2"). • Audio Return Settings (e.g.: "ARC"/ "SPD"). • IP Mode (e.g.: "IP1"/"IP2"/"IP3"). • Multicast Mode (e.g.: "CA1"/"CA2"). • Audio Return Mode (e.g.: "C2C"/"A2A"). • LAN Mode (e.g.: "L01"/"L02").
Device ID	▲ and ▼	The ID can be changed just pressing the ▲ or ▼ buttons and this allows to receive the desired streaming from the transmitter. Pressing and holding ▲ and ▼ buttons both together at the same time for 5 seconds will enter the "Device ID" mode. The ID Channel will flash, then pressing the ▲ or ▼ button will select the desired ID Channel and pressing and hold ▲ and ▼ buttons once again both together at the same time for 5 seconds, will confirm the selected ID Channel and exit "Device ID" mode and go to the next menu. **The device ID can not be modified in Controller Box mode.**

<table>
<tr>
<td>Scaling Mode</td>
<td>▲ and ▼</td>
<td>After showing Device ID menu, long pressing the ▲ or ▼ button until the Status display shows “S00”. Then pressing and holding ▲ and ▼ buttons both together at the same time buttons for 5 seconds will enter “Scaling Mode”. The Scaling ID number (e.g. S01) on the Status display will flash. Then pressing the ▲ or ▼ button will select the desired Scaling ID:
<table>
<tr><th>Scaling ID</th><th>Resolution</th></tr>
<tr><td>S00</td><td>bypass</td></tr>
<tr><td>S01</td><td>1080P50</td></tr>
<tr><td>S02</td><td>1080P60</td></tr>
<tr><td>S03</td><td>720P50</td></tr>
<tr><td>S04</td><td>720P60</td></tr>
<tr><td>S05</td><td>2160P24</td></tr>
<tr><td>S06</td><td>2160P30</td></tr>
<tr><td>S07</td><td>2160P50</td></tr>
<tr><td>S08</td><td>2160P60</td></tr>
<tr><td>S09</td><td>1280x1024</td></tr>
<tr><td>S10</td><td>1360x768</td></tr>
<tr><td>S11</td><td>1440x900</td></tr>
<tr><td>S12</td><td>1680x1050</td></tr>
<tr><td>S13</td><td>1920x1200</td></tr>
</table>
After selecting the desired option, press and hold ▲ and ▼ buttons again for 5 seconds to confirm the selection and stop flashing.</td>
</tr>
<tr>
<td>IR Mode</td>
<td>▲ and ▼</td>
<td>After showing Scaling menu, long pressing ▲ or ▼ button until the Status display shows “IR2”. Then pressing and holding ▲ and ▼ buttons both together for 5 seconds will enter the “IR Mode”. The current IR mode will appear flashing. Pressing ▲ or ▼ button will select the desired option:

IR2 (default): 12V IR wire.
IR1: 5V IR wire.

After selecting the desired option, press and hold ▲ and ▼ buttons again for 5 seconds to confirm the selection and stop flashing.</td>
</tr>
</table>

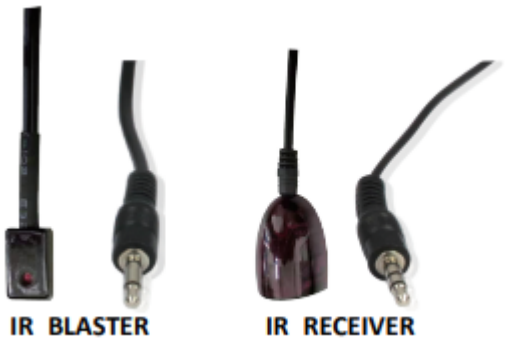
<table>
<tr>
<td>Audio Return Settings</td>
<td>▲ and ▼</td>
<td>After showing IR Mode menu, long pressing ▲ or ▼ button until the status display shows “ARC” (default). Then pressing and holding ▲ and ▼ buttons together for 5 seconds will enter the Audio Return Mode. The current audio return mode (ARC/SPD) will appear flashing. Pressing ▲ or ▼ button will select the desired option:
• ARC: The audio from the HDMI OUT port of the Receiver, is returned to the HDMI IN port of the Transmitter
• SPD: The audio from the S/PDIF IN port of the Receiver, is returned to the S/PDIF OUT port of the Transmitter.
Audio return mode cannot be changed from front panel in Controller Box or Multicast mode.
• Both Encoder and Decoder must be set to C2C mode for ARC or SPDIF to work.
• For proper ARC setup:
○ Use ARC amplifier on Transmitter HDMI IN.
○ Use ARC TV on Receiver HDMI OUT.</td>
</tr>
<tr>
<td>IP Mode</td>
<td>▲ and ▼</td>
<td>After showing Audio Return Settings menu, long pressing ▲ or ▼ button until the status display shows “IP3”. Then pressing and holding ▲ and ▼ buttons together for 5 seconds will enter the “IP Mode”. The current IP mode (IP1/IP2/IP3) will appear flashing. Pressing ▲ or ▼ button will select the desired option:
• IP1: Static IP mode
Default IP: 169.254.100.253
• IP2: DHCP IP mode
Automatically assigned from network DHCP
• IP3 (default): Auto IP mode
Assigned from default segment: 169.254.xxx.xxx
After selecting the desired option, press and hold ▲ and ▼ buttons again for 5 seconds to confirm the selection and stop flashing. The unit will reboot automatically.
IP mode cannot be modified in Controller Box mode.</td>
</tr>
</table>

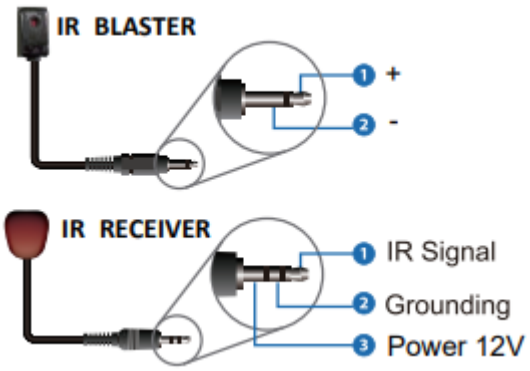
Multicast Mode	▲ and ▼	After showing IP Mode menu, long pressing ▲ **or** ▼ button until the status display shows **"CA1"**. Then pressing and holding ▲ **and** ▼ buttons together for **5 seconds** will enter the **"Multicast Mode"**. The current multicast mode (**CA1/CA2**) will appear **flashing**. Pressing ▲ **or** ▼ button will select the desired option: • **CA1**: Unicast mode • **CA2**: Multicast mode After selecting the desired option, press and hold ▲ **and** ▼ buttons again for **5 seconds** to **confirm** the selection and stop flashing. The unit will **reboot automatically**.
Audio Return Mode	▲ and ▼	After showing Multicast Mode menu, long pressing ▲ **or** ▼ button until the status display shows **"C2C"**. Then pressing and holding ▲ **and** ▼ buttons together for **5 seconds** will enter the **"Audio Return Mode"**. The current return mode (**C2C/A2A**) will appear **flashing**. Pressing ▲ **or** ▼ button will select the desired option: • **C2C**: eARC/ARC or S/PDIF audio from the **Receiver** is returned to the **Transmitter.** Output goes to: **HDMI IN or S/PDIF OUT** on the Transmitter. • **A2A**: Analog audio embedded in the **Receiver** is sent to the transmitter. Output goes to: **AUDIO OUT (analog)** on the transmitter. After selecting the desired option, press and hold ▲ **and** ▼ again for **5 seconds** to **confirm** the selection and stop flashing. The unit will **reboot automatically**.
LAN Mode	▲ and ▼	After showing Audio Return Mode menu, long pressing ▲ **or** ▼ button until the status display shows **"L02"** (default). Then pressing and holding ▲ **and** ▼ buttons together for **5 seconds** will enter the **"LAN Mode"**. The current LAN mode (**L01/L02**) will appear **flashing**. Pressing ▲ **or** ▼ button will select the desired option: • **L01: Both JPEG2000 video and Dante audio are transmitted through LAN 1 (PoE).** • **LAN 2 is disabled.** • **L02 (default)**: **JPEG2000 video is transmitted via LAN 1 (PoE).** **Dante audio** is transmitted via **LAN 2** After selecting the desired option, press and hold ▲ **and** ▼ again for **5 seconds** to **confirm** the selection and stop flashing. The unit will **reboot automatically**.

- **To quickly exit any setting mode, press and hold ▼.**
- **If no button is pressed within 5 seconds, the system will automatically return to the previous screen.**

7.4 IR Pin Definition

For both models, VEO-XPTI4D and VEO-XRI4D, the IR ports use standard 3.5mm stereo jacks and are compatible with both IR Blasters and IR Receivers. Each device type has a different pin configuration, which must be considered when connecting external IR accessories.





- **IR Blaster:** Used to transmit IR signals to control external devices (e.g., displays, media players).
  - Pin 1: + (Power)
  - Pin 2: – (Ground)
- **IR Receiver:** Used to receive IR signals from remote controls.
  - Pin 1: IR Signal
  - Pin 2: Ground
  - Pin 3: Power (12V)

⚠ **Incorrect wiring may cause malfunction or damage to the IR components. Always verify pinout compatibility when using third-party IR hardware.**

8. TECHNICAL DATA

8.1 Technical Specifications

8.1.1 VEO-XTI4D

VEO-XTI4D	
Video performances	
Video Input Connectors	1 x HDMI® Type A Female, 2.0, 18Gbps
Video Output Connectors	1 x HDMI® Type A Female, 2.0, 18Gbps
Video Input Resolutions	480i, 480p, 720i, 720p, 1080i, 1080p up to 60Hz, 4K up to 60Hz
Video Output Resolutions	1080p up to 60Hz, 4K up to 60Hz
Video Codec	JPEG2000
Transmission Latency	1-2 Frames
Chroma Subsampling	4:4:4, 4:2:2, 4:2:0
Colour Depth	8-bit (4K 60Hz 4:4:4), 10-bit / 12-bit (4K 60Hz 4:2:2 – 4:2:0)
Colour Space	RGB, YCbCr, YUV
HDCP	2.2
HDR	HDR10, HDR10+, Dolby Vision
Video Composing Capabilities	Videowall up to 9x9 (via VEO-XCTRL4D)
Scaling Features	Up to 4K 60Hz
HDMI® Distance	Up to 4K/60Hz: 5m with IN/OUT HDMI® Cable Up to 1080p/60Hz: 10m with IN/OUT HDMI® Cable
Audio performances	
Audio Input Connectors	1 x 3-pin unbalanced Euroblock
Audio Output Connectors	1 x 3-pin unbalanced Euroblock, 1 x Optical SPDIF
Audio Formats	LPCM 2.0/5.1/7.1CH, Dolby Digital/Plus/EX, Dolby True HD, Dolby Atmos, DTS, DTS-96/24, DTS-EX DSD, DTS High Res, DTS-HD Master, DTS:X, Dante/AES67 (2/2 flows)
Sample Rate	48KHz, 96KHz, 192KHZ
Bit Depth	Up to 24-bit
Frequency Response	20Hz-20KHz (±3dB)
ARC/eARC	Yes
Device control	
Control Connectors	1 x RJ-45, 1 x 3-pin Euroblock, 1 x Jack 3,5mm
Control Protocols	Web, Telnet, RS-232, IR
Control Buttons	1 x Reset button, 2 x Input selection
EDID Management	EDID Settings
Status Indicators	Power LED, Link LED, 3 digit display
Pass-through control	
Pass-through Connectors	2 x USB Type A, 1 x USB Type B, 1 x 3-pin Euroblock, 2 x 4-pin Euroblock, 2 x 3.5mm Jack, 1 x HDMI®
Pass-through Protocols	USB 2.0, USB 1.1, RS-232, Relay IO, IR, CEC
Network	
Network Connectors	2 x RJ-45
Network Requirements	Jumbo Frame, IGMP Management
Average Streaming Bitrate	200 - 500Mbps (configurable via WebGUI)
Transmission Distance	100m via Ethernet (Cat 6 / 6A / 7)

Electrical	
Power supply	PoE; External: Input 100-240 VAC @ 50/60Hz, Output: 12VDC-2.5A
AC mains connector	External PSU. Included 4 region power blades (UK,US,AU,EU)
DC mains connector	DC Locking
Power consumption	9.12W
Physical	
Operating temperature	Min: 0°C ; 32°F Max: 40°C ; 104°F
Operating humidity	20% - 90% RH, no condensing
Storage temperature	Min: -20°C ; -4°F Max: 60°C ; 140°F
Storage humidity	20% - 90% RH, no condensing
Included accessories	1 x IR Receiver cable (1.5 meters),1 x IR Blaster cable (1.5 meters), 3 x 3-pin 3.5mm Euroblock connector, 2 x 4-pin 3.5mm Euroblock connector, 4 x Mounting ears, 8 x Mounting screw, 1 x PSU 12V/2.5A
Optional accessories	VEO-XCTRL4D
Dimensions (WxHxD)	204 x 25.5 x 136 mm / 8.03 x 1.0 x 5.35 in.
Weight	0.631 Kg / 1.391 lb
Shipping dimensions (WxHxD)	280 x 80 x 180 mm / 11.02 x 3.15 x 7.09 in.
Shipping weight	1.16 kg / 2.56 lb
Chassis material	Metal
Finished colour	Black

8.1.2 VEO-XRI4D

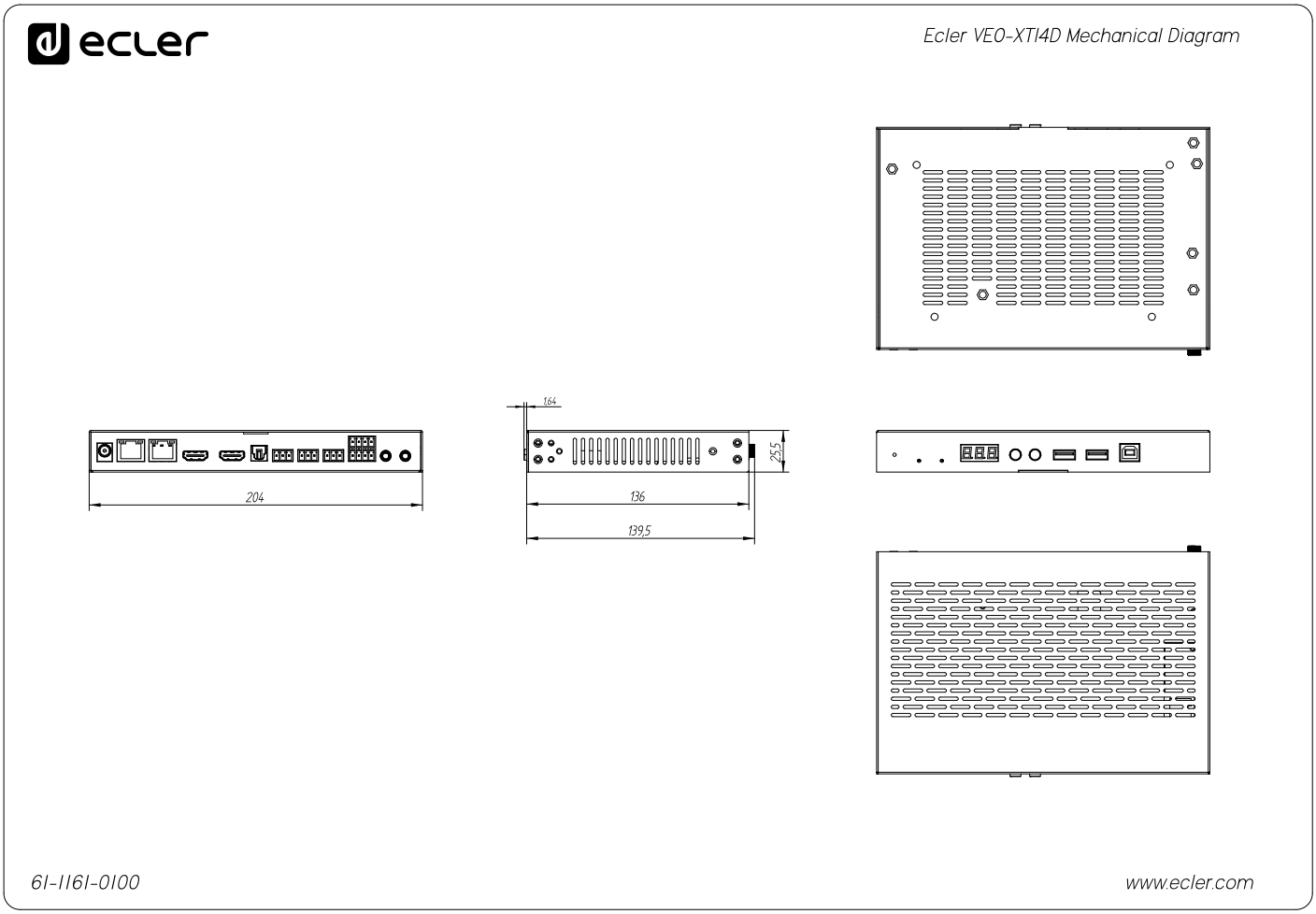
VEO-XRI4D	
Video performances	
Video Output Connectors	1 x HDMI® Type A Female, 2.0, 18Gbps
Video Input Resolutions	480i, 480p, 720i, 720p, 1080i, 1080p up to 60Hz, 4K up to 60Hz
Video Output Resolutions	1080p up to 60Hz, 4K up to 60Hz
Video Codec	JPEG2000
Transmission Latency	1-2 Frames
Chroma Subsampling	4:4:4, 4:2:2, 4:2:0
Colour Depth	8-bit (4K 60Hz 4:4:4) , 10-bit / 12-bit (4K 60Hz 4:2:2 – 4:2:0)
Colour Space	RGB, YCbCr, YUV
HDCP	2.2
HDR	HDR10, HDR10+, Dolby Vision
Video Composing Capabilities	Videowall up to 9x9
Scaling Features	Up to 4K 60Hz
HDMI® Distance	Up to 4K/60Hz: 5m with IN/OUT HDMI® Cable Up to 1080p/60Hz: 10m with IN/OUT HDMI® Cable
Audio performances	
Audio Input Connectors	1 x 3-pin unbalanced Euroblock, 1 x Optical SPDIF
Audio Output Connectors	1 x 3-pin unbalanced Euroblock
Audio Formats	LPCM 2.0/5.1/7.1CH, Dolby Digital/Plus/EX, Dolby True HD, Dolby Atmos, DTS, DTS-96/24, DTS-EX DSD, DTS High Res, DTS-HD Master, DTS:X, Dante/AES67 (2/2 flows)
Sample Rate	48KHz, 96KHz, 192KHZ
Bit Depth	Up to 24-bit
Frequency Response	20Hz-20KHz (±3dB)
ARC/eARC	Yes
Device control	
Control Connectors	1x RJ-45, 1 x 3-pin Euroblock, 2 x Jack 3,5mm
Control Protocols	Web, Telnet, RS-232, IR
Control Buttons	1 x Reset button, 2 x Input selection
EDID Management	EDID Settings
Status Indicators	Power LED, Link LED, 3 digit display
Pass-through control	
Pass-through Connectors	4 x USB Type A, 1 x 3-pin Euroblock, 2 x 4-pin Euroblock , 2 x 3.5mm Jack, 1 x HDMI®
Pass-through Protocols	USB 2.0, USB 1.1, RS-232, Relay IO, IR, CEC
Network	
Network Connectors	2 x RJ-45
Network Requirements	Jumbo Frame, IGMP Management
Average Streaming Bitrate	680Mbps for 4K/60Hz
Transmission Distance	100m via Ethernet (Cat 6 / 6A / 7)
Electrical	
Power supply	PoE; External: Input 100-240 VAC @ 50/60Hz, Output: 12VDC-2.5A
AC mains connector	External PSU. Included 4 region power blades (UK,US,AU,EU)
DC mains connector	DC Locking
Power consumption	7.8W

Physical	
Operating temperature	Min: 0°C ; 32°F Max: 40°C ; 104°F
Operating humidity	20% - 90% RH, no condensing
Storage temperature	Min: -20°C ; -4°F Max: 60°C ; 140°F
Storage humidity	20% - 90% RH, no condensing
Included accessories	1 x IR Receiver cable (1.5 meters),1 x IR Blaster cable (1.5 meters), 3 x 3-pin 3.5mm Euroblock connector, 2 x 4-pin 3.5mm Euroblock connector, 4 x Mounting ears, 8 x Mounting screw, 1 x PSU 12V/2.5A
Optional accessories	VEO-XCTRL4D
Dimensions (WxHxD)	204 x 25.5 x 136 mm / 8.03 x 1.0 x 5.35 in.
Weight	0.626 Kg / 1.38 lb
Shipping dimensions (WxHxD)	280 x 80 x 180 mm / 11.02 x 3.15 x 7.09 in.
Shipping weight	1.16 kg / 2.56 lb
Chassis material	Metal
Finished colour	Black

8.2 Mechanical Diagram

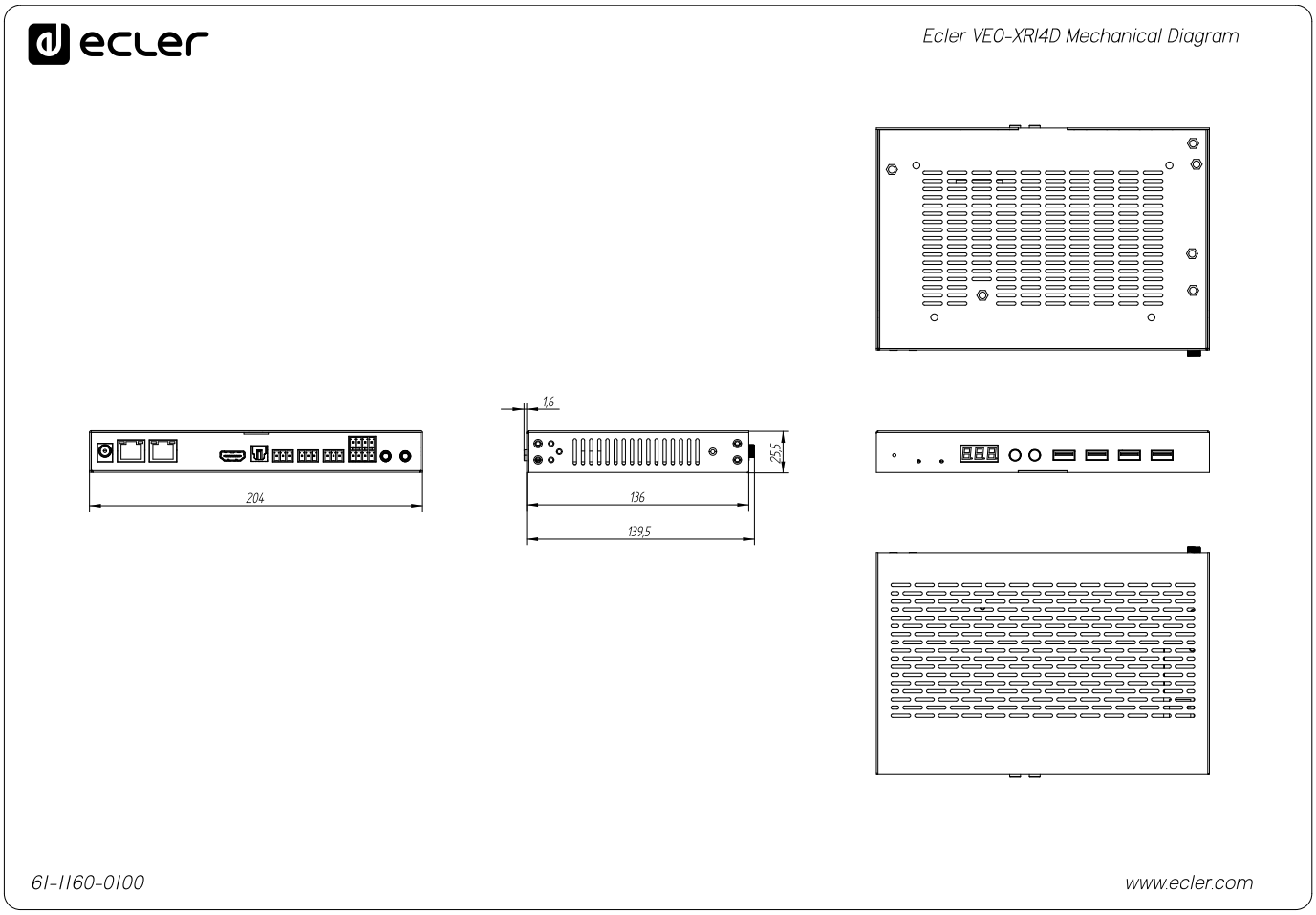
8.2.1 VEO-XTI4D

All measurements are **in mm.**



8.2.2 VEO-XRI4D

All measurements are **in mm.**



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