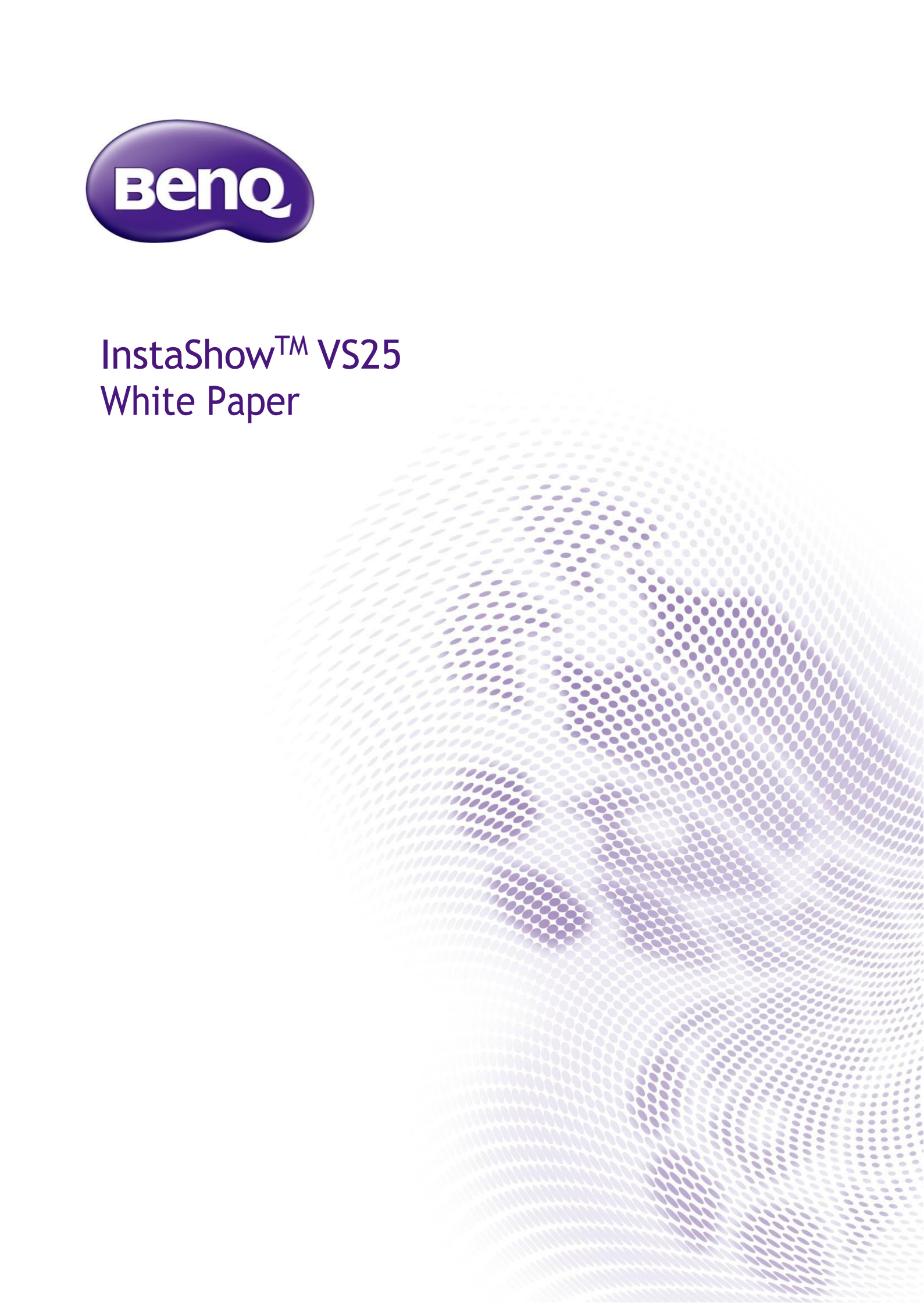
InstaShow™ VS25
White Paper



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Introduction

The InstaShow™ VS25 represents a new generation of business-grade, driver-free wireless A/V streaming solutions. The InstaShow™ VS25, the latest addition to the solution, offers enhanced capabilities for seamless and secure conferencing, embracing the principles of BYOM (Bring Your Own Meeting) and BYOD (Bring Your Own Device). This advanced system supports 4K resolution and boasts true plug-and-play functionality, eliminating the complexities associated with driver or application installation (Driver Free & App Free). The InstaShow™ VS25 provides robust network security options, empowering IT professionals across diverse sectors to implement tailored security configurations. BenQ's commitment to delivering a secure and user-friendly wireless A/V streaming and conferencing experience, facilitating BYOM and BYOD environments, is further realized in the VS25. Beyond standard wireless network packet encryption/decryption, the VS25 incorporates a sophisticated network security mechanism that fortifies enterprise network environments and minimizes IT maintenance overhead. The InstaShow™ VS25 supports both HDMI and USB Type-C video input interfaces, with USB Type-C facilitating DisplayPort video via DisplayPort Alternate Mode (DP). The VS25's inherent driver-free and app-free architecture mitigates the risk of malware infections and backdoor vulnerabilities, addressing critical security concerns for users.

The InstaShow™ Series System

BenQ pioneered the wireless A/V transmission market in 2016 with the release of the WDP02, followed by the first-generation InstaShow™ (VS10) business wireless streaming display solution in 2022. The VS10 operated with the InstaShow™ VS Assist application, seamlessly integrating all-in-one video conferencing devices and displays within the same secure network to synchronize video and displays for remote participants. The second-generation solution, InstaShow™ S (VS20), further solidified BenQ's position in the industry in 2022. Building upon the VS10, the VS20 also utilized the InstaShow™ VS Assist application and further enhanced the conferencing experience with a wireless microphone system. In late 2025, BenQ introduced the VS25, a driver-free solution that embodies the next evolution of seamless wireless conferencing technology. Through the InstaShow™ series, BenQ has consistently delivered intuitive, stable, and secure wireless A/V streaming and conferencing, providing enterprise users with comprehensive and forward-thinking collaboration solutions.

InstaShow™ VS25 Setup

The InstaShow™ VS25 system is a driver-free wireless conferencing system, comprising a receiving device (Receiver), a host transmission device (Host Button), a transmission device (Button), and a Multimedia Hub. The user simply connects the Button to the A/V source device and presses the

button, instantly projecting the video screen onto the display device connected to the Receiver. The Multimedia Hub allows users to connect video bars, cameras, and speakers, enabling seamless integration with video conferencing platforms. This streamlined process requires no software installation, ensuring a true plug-and-play conferencing experience.

The Receiver is not only a receiving device of the InstaShow™ VS25, but also the core of the entire system. The Receiver is mainly responsible for receiving the streaming data transmitted from a Button and ensuring A/V can be stable and correctly projected to the display device. The Receiver of InstaShow™ VS25 can be connected to 64 wirelessly simultaneously. The IT personnel in an enterprise can add the Receiver to the enterprise network through the LAN port on the Receiver. When the Receiver becomes one of the devices in the enterprise network, IT personnel can then connect to the Web UI of the Receiver through the network to manage the device status of the InstaShow™ VS25 remotely. Even if the Receiver becomes an enterprise LAN device, external threats still could not acquire the A/V streaming data between the Receiver and a Button through intrusion by phishing or penetration.

A Button is the transmission device in the InstaShow™ VS25 system. We support two types of interfaces for the Button, HDMI and USB Type-C in which USB Type-C supports the DisplayPort image format through DisplayPort alternate mode. There are 2 buttons with Type-C Cable, and it also comes a switchable plus design with HDMI and USB Type A cable.

The Host Button serves as the central control unit for the InstaShow™ VS25 system, orchestrating the wireless conferencing experience. It establishes a secure and reliable wireless connection with the Receiver, enabling seamless screen mirroring and content sharing from connected devices. A dedicated LED indicator provides real-time feedback on the connection status with the Multimedia Hub. Through the Host Button, users can effortlessly initiate and manage wireless video conferences, seamlessly integrating the projected content and video feeds for a truly collaborative meeting experience.

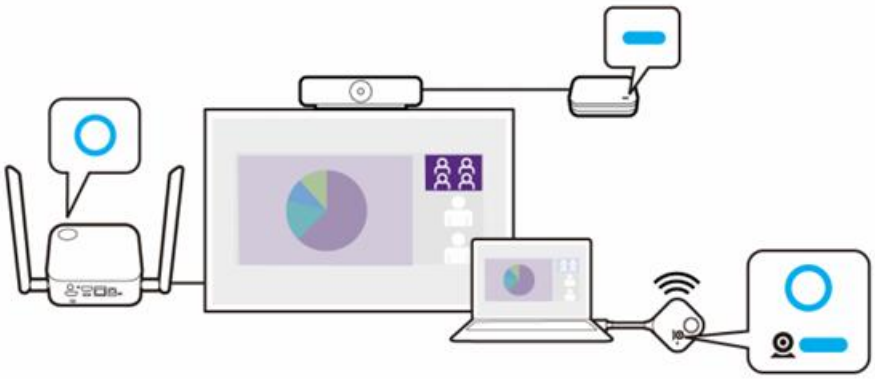
The Multimedia Hub expands the connectivity options of the InstaShow™ VS25 system. Equipped with a USB-C port and a USB-A port, the Multimedia Hub allows for seamless integration with a variety of video conferencing peripherals, such as video bars, cameras, and speakerphones, creating a complete and professional conferencing setup.

The USB Type A cable is responsible for providing power and touch screen cursor data to the Button and the HDMI cable is responsible for HDMI-formatted A/V data. HDMI devices have become quite popular and common on the market. For example most laptops, PS5, Blu-ray DVD players come equipped with HDMI ports.

The USB Type-C Button only provides power to the system through a single USB Type-C cable (supports DisplayPort alternate mode) and at the same time receives DisplayPort-formatted A/V

and touch screen cursor data. Commonly seen USB Type-C devices include laptops. mobile devices and so on. Since some USB Type-C devices only support data transmissions by common file formats and does not support DisplayPort alternate mode. That means it cannot transmit the A/V formatted signals. Therefore, before using the USB Type-C Button, the user has to make sure the USB Type-C port on the A/V source device supports DisplayPort alternate mode.

Based on the functions of the first generation InstaShow™ Series, InstaShow™ VS25 can moreover connect to HID devices (such as touchscreens, mice) through the USB Type-A port on the Receiver to transmit control signals on the HID device to the Button through the USB cable. Therefore, the USB cable on the Button in the InstaShow™ VS25 not only provides power but also supports receiving of HID commands to send back the HID commands received from the USB Type-A port on the Receiver with encryption wirelessly to the Button. After that, the Button can send back the HID commands to the A/V source device through the USB Type-A port connected to the A/V source device.



InstaShow™ VS25 Setup

System physical interface and firmware introduction

The InstaShow™ VS25 uses an embedded Linux, responsible separately for

- *Bootloader access*
- *Linux OS Kernel*
- *Linux Runtime*
- *Application Access*

Physical I/O on the Receiver:

.LED

GPIO control

.Button(s)

GPIO Scan

.Pairing Key:

Pairing with Host Button / Button

.RJ-45(Ethernet):

Web UI

BenQ DMS(Est. ready by Q3 2026)

Communication with Client

.Wi-Fi:

Web UI

Communication with Client

. USB Type-C

Power supply

Connect to HID device

DP ALT Mode Output

.USB Type A

Connect to HID device

.HDMI

Video / Audio output

.DC Jack

Power Supply

Physical I/O on the Host Button:

.LED:

GPIO control

. Multimedia LED indicator:

Indicates the connection status between the Host Button and the Multimedia Hub.

.Button:

GPIO Scan

.Wi-Fi:

Communication with Receiver

Communication with Multimedia Hub

.USB Type A:

Power supply and USB HID

.HDMI:

Video / Audio input

.USB Type-C(Supports DisplayPort video format):

Power supply, Video / USB HID

.Split screen key:

Press to switch to Video/Present mode, switch to split-screen mode, or pair with an InstaShow Receiver.

Physical I/O on the Button:

.LED:

GPIO control

.Button(s):

GPIO Scan

.Wi-Fi:

Communication with Receiver

.USB Type A:

Power supply and USB HID

.HDMI:

Video / Audio input

.USB Type-C(Supports DisplayPort video format):

Power supply, Video / USB HID

.Split screen key:

Press to switch to Video/Present mode, switch to split-screen mode, or pair with an InstaShow Receiver.

Physical I/O on the Media Hub:

.LED:

Indicates the connection status between the Host Button and the Multimedia Hub.

.Pairing Key:

Pairing with Host Button

.Wi-Fi:

Communication with Host Button

.USB Type A:

Video / Audio input

.USB Type-C(Supports DisplayPort video format):

Video / Audio input

.DC Jack:

Power Supply

BenQ InstaShow™ VS25 Cybersecurity statement

To solve the threats of wireless networks and enhance network security, BenQ gets rid of network threats through system modularization and thus has designed a wireless A/V streaming conferencing system without the need to install software, the InstaShow™ VS25. Designed and manufactured in Taiwan, InstaShow™ leverages advanced wireless chipsets from MediaTek to significantly strengthen connection security and provide comprehensive data protection.

The A/V module system

The interfaces of the A/V source in the InstaShow™ VS25 are HDMI and USB Type-C. USB Type-C transmits DisplayPort A/V signals through supporting DisplayPort alternate mode. Because HDMI and DisplayPort are fully digitalized A/V signals, they support uncompressed audio and video signals and both are protected by HDCP regulations. The InstaShow™ VS25 Receiver complies with HDMI 2.1 and HDCP 2.2, Button HDMI 1.4b and HDCP 1.4 certification standards. As long as the A/V source and A/V output device (sink) support HDMI 1.4b (DP 1.2) / HDCP 1.4b(DPCP 1.2), the source and sink can both be compatible with the InstaShow™ VS25. The certifications the InstaShow™ VS25 have are ATCTW-16031 (Receiver), and ATCTW-16032 (Button).

The A/V encoding/decoding module system

Since HDMI and DisplayPort transmit uncompressed audio and video signals and the amount from the uncompressed 4K@60Hz audio and video signals is tremendous, if the tremendous amount of streaming data hasn't gone through compression and transmitted wirelessly, the streaming data will take up extremely large amount of the bandwidth. To solve the problem of not enough wireless bandwidth, the InstaShow™ VS25 introduces unique A/V encoding and decoding methods to compress the bandwidth used by the tremendous A/V signals down to less than 20Mbps to provide the user with stable, smooth wireless A/V playing experience. Furthermore, in order to dedicate to the balanced distribution of A/V quality and bandwidth used by the transmission. To optimize performance based on the environment, the InstaShow™ VS25 offers both Video Mode and Presentation Mode, allowing users to prioritize video quality or screen responsiveness based on their specific needs.

The Wireless Transmission module system

The Wi-Fi transmission protocol used in the InstaShow™ VS25 is 802.11ax is coupled with WPA3 AES-128-bit encryption mode, WPA3 is the best encryption technology in the Wi-Fi 802.11ax standard.

If an InstaShow™ VS25 Receiver is used is the wireless station, then the Button is the client side equipment. Even though the Button belongs to client side equipment, the Button uses a closed system design. Therefore, external threats cannot go through HDMI, USB Type A, or USB Type-C channels to threaten, penetrate and attack the system. To further enhance security and prevent unauthorized access, the InstaShow™ VS25 offers WLAN Device Isolation. When enabled, this feature effectively blocks communication between devices connected to the Receiver's network, including Buttons, PCs, and mobile devices, creating a secure and isolated presentation environment.

Enhanced Security with WPA3 Enterprise (Est. Available by Q1 2026) and Firewall

To provide an even more robust security posture, the InstaShow™ VS25 offers WPA3 Enterprise encryption and a built-in firewall. WPA3 Enterprise provides enhanced authentication methods and stronger encryption for wireless connections, mitigating the risk of eavesdropping and unauthorized access to sensitive data. The built-in firewall acts as a network traffic controller, preventing malicious traffic from entering the InstaShow™ VS25 network and protecting connected devices from potential threats. The Enterprise version of InstaShow™ VS25 offers advanced management features, including centralized policy enforcement, detailed logging, and granular access control, empowering IT administrators to maintain a secure and compliant wireless conferencing environment.

The WAN/LAN module system

The InstaShow™ VS25 is not only a wireless A/V streaming conference system, but it can also be used as closed business wireless area network equipment. The WAN/LAN modules used in the InstaShow™ VS25 mainly provide users with network connection to the Receiver, and perform system configuration through the Web UI on the Receiver. Once the firewall is enabled through WAN on the Receiver Web UI, then external hackers cannot intrude into wireless communications equipment on the client side connected to the Receiver through WAN. You can also enable the firewall isolation function through LAN on the Receiver Web UI to make the network firewall isolated in the clients connected to the Receiver to block communications between clients in the same network segment.

Enhanced WAN Security

With the firewall enabled through the WAN interface on the Receiver's Web UI, the InstaShow™ VS25 effectively mitigates Distributed Denial-of-Service (DDoS) attacks and malicious Internet Control Message Protocol (ICMP) attacks originating from the WAN side. This robust security feature prevents external hackers from intruding into wireless communications equipment connected to the Receiver through the WAN.

You can also enable the firewall isolation function through LAN on the Receiver Web UI to create network firewall isolation in the clients connected to the Receiver, blocking communications between clients in the same network segment.

The Web UI management module system

The InstaShow™ VS25 provides users with a Receiver Web UI. Through the Web UI system status can be queried, Wi-Fi settings and system updates can be made. The user's connection device only needs to connect to the SSID network device name of the Receiver through Wi-Fi or uses the physical LAN to connect to the Receiver, then enters a valid account and password to log into the Receiver webpage, then the Web UI can be used immediately.

Enhanced Web UI Security

1. HTTPS by Default:

The InstaShow™ VS25 's Web UI is now secured by default with HTTPS (Hypertext Transfer Protocol Secure). HTTPS encrypts all communication between the user's browser and the Receiver, protecting sensitive information like passwords and configuration settings from eavesdropping and tampering.

2. Unique Default Password:

To prevent unauthorized access, each InstaShow™ VS25 unit is configured with a unique, randomly generated default Web UI login password. This eliminates the risk of malicious actors gaining access to the system from outside the meeting room using a common default account and password.

Streaming flow protection with HDCP-encrypted

Through the system's modularized threat analyses, system network security can be classified into external hacker intrusion and internal protection management. Not matter what kind of threat it is, the purpose is none other than breaking and stealing.

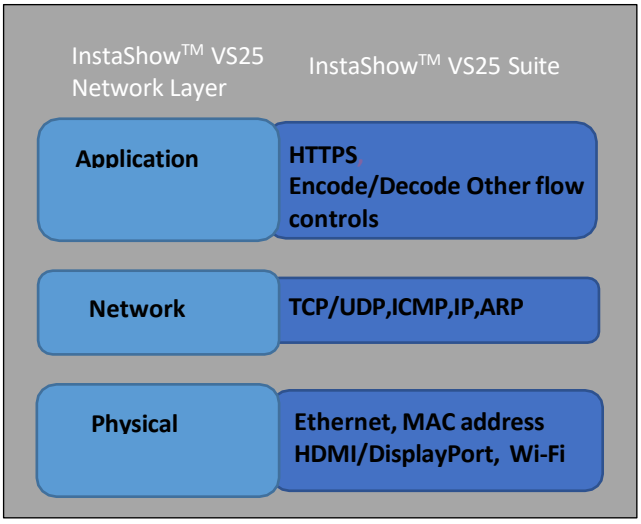
Since the InstaShow™ VS25 does A/V streaming through a wireless network to achieve the goal of wireless presentation, the network system in the InstaShow™ VS25 uses firewall and device isolation functions to prevent external hackers from intrusion. The A/V transmission formats are based on HDMI and DisplayPort without the need to install software to help realize wireless A/V streaming. You need to know that for enterprise users, the biggest security threat is installing software. The InstaShow™ VS25 satisfies the needs of enterprise users of not need to install software and also realizes the screen sharing function of multi-party conferencing to enhance the efficiency of enterprise conference presentations.

Furthermore, InstaShow™ VS25 is fully compatible with HDCP-encrypted content transmitted via HDMI and USB Type-C DisplayPort, allowing presenters to seamlessly connect any device without concerns about security breaches or blank screens. Recognizing that software installations pose a significant security risk for enterprise users, the InstaShow™ VS25 fulfills the need for a driver-free solution while facilitating multi-party screen sharing to enhance conference presentation efficiency.

InstaShow™ VS25 network architecture

The InstaShow™ VS25 is a system with security, its system architecture completely matches data confidentiality, system completeness and functional availability. Network transmission methods are divided into physical networks and wireless networks. Physical networks have the advantage of absolutely free from interference, while wireless networks in general environments and spaces will be mostly subjected to electromagnetic interference from neighboring frequency bands. As such the InstaShow™ VS25 has been treated to lower electromagnetic interferences to make electromagnetic waves not interfere with normal operations of wireless projections and is very suitable for enterprise conference and office applications.

The system architecture of the InstaShow™ VS25 has: physical layer, network layer, and application layer. We will explain in detail each of the layers of the architecture.



1. Physical layer

The physical interfaces supported by the InstaShow™ VS25 include USB Type A, HDMI/USB Type-C (DisplayPort alternate mode) and RJ-45 (Ethernet). Intruders might analyze the firmware program through the physical layer and load malware on the device. Therefore protecting the physical interface port of the device is equally important as protecting the other layers of the system.

The USB Type A of InstaShow™ VS25 supports HID command transmissions, but does not support simplex/duplex data transmissions.

USB Type-C (Receiver): The Receiver supports DP out, PD in up to 65Watt for operating the Receiver and HID command transmission

HDMI: Responsible for input/output of A/V transmissions, supports HDCP protections.

USB Type-C (Button): Supports DisplayPort alternate mode, responsible for input of DisplayPort format A/V data, the DPCP channel in its communication protocol supports the HDCP protection defined in the video.

RJ-45: Ethernet physical port. Provides users with login access to the Web UI of the Receiver to set up system functions, supports firmware updates but does not support Internet access functions.

The Ethernet of InstaShow™ VS25 supports Internet w/ firewall function.

Since the authentication mechanism for communication connections between the Receiver and the Button will not go through the above-mentioned physical ports, hackers cannot get the data and parameters shared between the Receiver and the Button from these ports. But firmware update is an exception as the firmware update program needs to verify the completeness and signature of the firmware encoding format, otherwise it won't be able to support firmware upgrades.

As the InstaShow™ VS25 supports Wi-Fi network functions we treat Wi-Fi as a hidden port. The Wi-Fi port in the InstaShow™ VS25 has complete security controls in itself, the Receiver Wi-Fi verifies when connections are made for the Receiver and the Button. When the connection is confirmed, A/V transmission is then commenced. If other devices need to visit the application layer of the Receiver, then attached authentication is needed to ensure that control mechanisms like data confidentiality and system completeness are not broken.

2. Network layer

The network system in the InstaShow™ VS25 is divided into WAN (Wide Area Network) and LAN (Local Area Network).

The WAN way is to connect to the network server through the RJ-45 port, the InstaShow™ VS25 enables the firewall to provide system network administrators the convenience to control the system fully in the application layer through the authentication mechanism of the enterprise network server(s). The network system and access control in the InstaShow™ VS25 is an independently working VLAN (Virtual Local Area Network) isolated from the enterprise network.

The LAN way is to establish LAN connections through Wi-Fi and the Button or other Wi-Fi devices. The protection mechanism of Wi-Fi is based on the security standard of 802.11i that provides WPA3 to couple with a pre-shared key (PSK) as the authentication. WPA3 improves upon the vulnerabilities of WPA2-PSK by using Simultaneous Authentication of Equals (SAE) for handshaking, providing stronger protection against password cracking and eavesdropping. WPA3 encryption ensures the confidentiality and completeness of all data passing through wireless communications. The data encryption mode used is AES with 128 bits of key length, the limit on the key length has

to be between 8 and 63 bits. Completeness is an examination method that goes through the Counter Mode CBC-MAC protocol (CCMP) and coupled with MIC (Message Integrity Check). The WPA3 password and SSID name can both be set up using the network administrator privilege through the Receiver RJ-45 port.

3. Application layer

The core operating system of the InstaShow™ VS25 Receiver and Button is Linux. In terms of the application layer, it provides system configuration, wireless pairing management, wireless projection network performance management, A/V format conversion and A/V format encoding/decoding functions. We will describe each of the functions in the following.

Wireless pairing management: Before the system can work fully, the Receiver and the Button need to establish a Wi-Fi connection. The Receiver then ensures that the Button has passed the security authentication mechanism. During pairing, the Receiver verifies that the Button's transmitted ID and Key serial number can pass a complex algorithm calculation and validation process. This ensures that only authorized Buttons can connect to the Receiver. After successful authentication, the Receiver performs an additional Button verification step using the MAC address.

A/V format conversion and A/V format encoding/decoding: A/V streaming data conversion is a critical aspect of the InstaShow™ VS25. Uncompressed 4K@60Hz HDMI/DisplayPort A/V data can reach a bandwidth of up to 15GB. While the InstaShow™ VS25 utilizes 802.11ac wireless network bandwidth and speed, the raw data rate of uncompressed 4K@60Hz video, reaching up to 15GB, exceeds the capacity of the wireless network. To address this challenge, the InstaShow™ VS25 employs a high-performance core processor to perform format conversion, compression, decompression, and restoration in four key steps. This process, coupled with dynamic compression ratios and wireless projection network performance management, ensures stable and smooth playback with high picture quality.

System configuration: The InstaShow™ VS25 system configuration utilizes a Web UI to ensure authenticated connections through HTTPS service. HTTPS (Hypertext Transfer Protocol Secure) encrypts all communication between the user's browser and the Receiver, protecting sensitive information such as login credentials and configuration settings from eavesdropping and tampering. This ensures a secure and reliable management experience. As such, the user's login status is bound to the Web login page of the Receiver. Within the valid time period, the user's login status remains valid until the user account privilege has been revoked or the cookie session has timed out.

InstaShow™ VS25 CVSS4.0 Security Certification (Est. availability by Q1 2026)

The InstaShow™ VS25 has undergone rigorous security assessment and is estimated to achieve CVSS

4.0 certification by Q1 2026 from an ISO27001 and ISO17025 accredited laboratory, ensuring a high level of information security assurance. This certification, once obtained, will underscore BenQ's commitment to providing a secure and reliable wireless conferencing solution.

InstaShow™ VS25 Compliance with Radio Equipment Directive (RED)

The InstaShow™ VS25 is fully compliant with the European Radio Equipment Directive (RED) 2014/53/EU, including all relevant essential requirements. Specifically, the InstaShow™ VS25 has undergone rigorous testing and has been certified to meet the requirements of:

- **Article 3.1a** (Health and Safety)
- **Article 3.1(b)** (Ensures the device does not cause undue electromagnetic disturbance)
- **Article 3.2** (Ensures the device effectively uses the radio spectrum and avoids harmful interference)
- **Article 3.3(d), 3.3(e)** related to cybersecurity and personal data protection, in line with the RED Delegated Act (RED-DA) requirements on:
    - Network Protection
    - Personal Data Protection and Privacy

Test reports and the full **EU Declaration of Conformity** are available upon request.

BenQ InstaShow™ VS25 Application note

Receiver Installation Notice

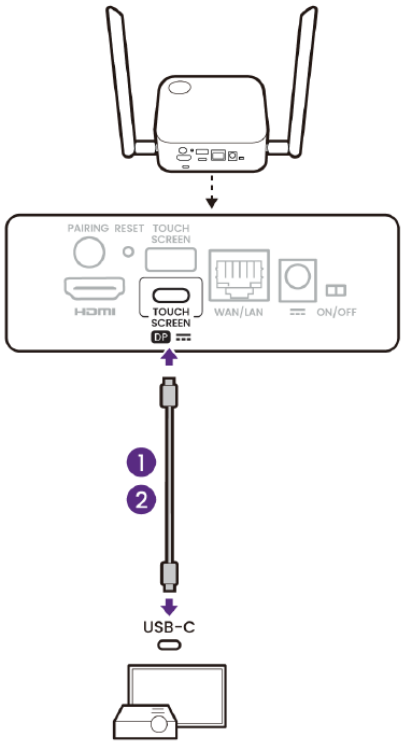
1. Power Supply

- **InstaShow™ VS25 Receiver for Projector**

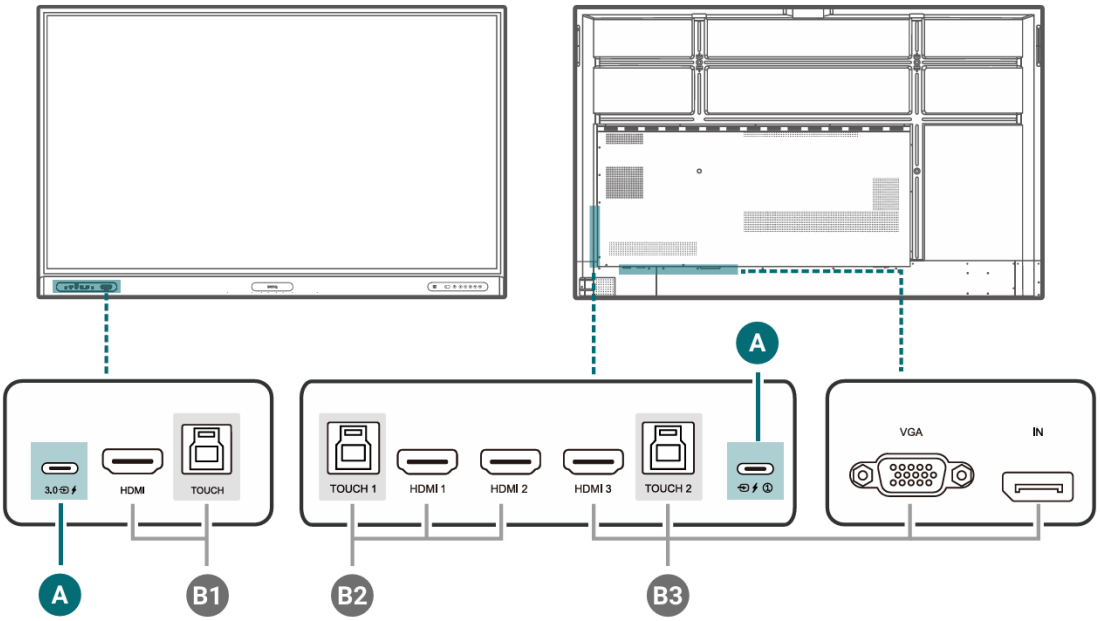
Since VS25 Receiver comes with a 36Watt power supply, please find a power plug to supply the power

- **InstaShow™ VS25 Receiver for BenQ Interactive Flat Panel with Touch:**

The VS25 Receiver supports Power Delivery (PD 2.0) for power and touchback via a single USB-C cable. Ensure the BenQ Interactive Flat Panel supports USB-C PD 2.0. Refer to the BenQ Interactive Flat Panel with USB-C Interface Specification for compatible models.



To utilize one USB-C cable for power, display, and touch, connect the cable to the designated USB-C port (marked as "A" on RP04 series).



Note: Powering the VS25 Receiver via displays with less than PD 2.0 or non-BenQ IFPs is not guaranteed.

2. Positioning the Receiver Antennas

- **For Projector:**

Refer to the VS25 User Manual for ceiling and pole mount installation guidelines.

- **For Flat Panel (Interactive or Non-Interactive):**

For flat panels with mobile carts, place the receiver above the touch pen holder.

- **Panel on Wall Mount:**

For small and medium-sized meeting rooms with wall-mounted panels, placing the InstaShow™

Receiver at the back corner of the panel is acceptable. Avoid placing it behind large metal components of the panel to prevent wireless signal blockage.

- **For LED Wall:**

For LED wall setups, contact your local BenQ customer service for specific installation guidance due to varying decoration and environmental factors.

Receiver Integration with Video Conference Codec Notice

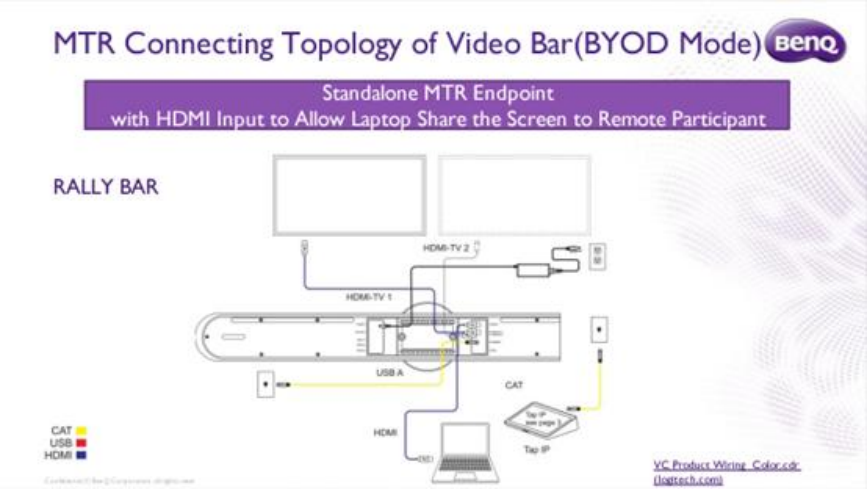
To seamlessly integrate the InstaShow™ VS25 with video conference codecs, particularly video bar types with integrated UC&C applications such as the Logitech Rally Bar with Microsoft Teams Room (MTR), the following installation is recommended. The InstaShow™ serves as the wireless presentation system, replacing the direct HDMI input cable connection from attendee laptops to the video conference codec. This enables true BYOD screen sharing without requiring users to log into the UC&C application.

To integrate InstaShow™ VS25 with the Rally Bar, ensure that the Rally Bar is set to BYOD mode.

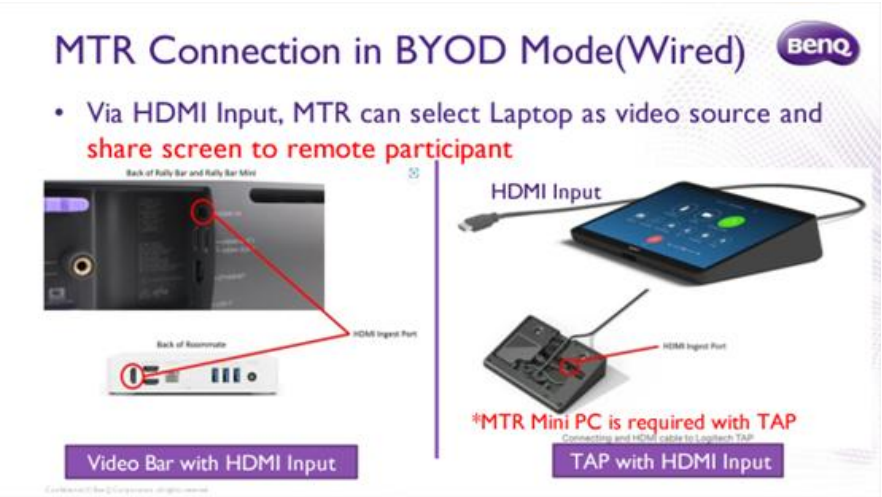
1. BYOD MODE of RALLY BAR

Logitech Appliance-based Room system with Tap controller and Rally Bar

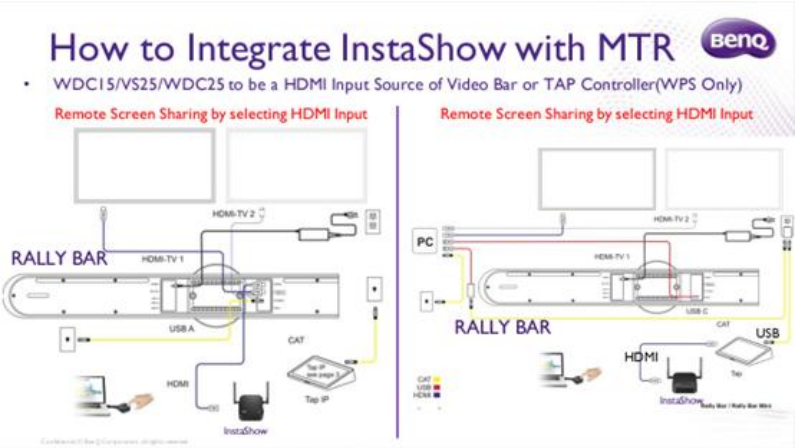
In BYOD mode, the presenter’ s laptop is connected to RALLY BAR HDMI Input as a screen sharing source to remote during the online meeting.



The HDMI input of RALLY BAR for online meeting has 2 ways. One is directly connected to RALLY BAR HDMI input (Left), the other is to connect to TAP HDMI Ingest port (HDMI Input)(Right).



The integration should under BYOD mode shows below.



2. Black or Green Screen through HDMI Input of Video Conference Codec

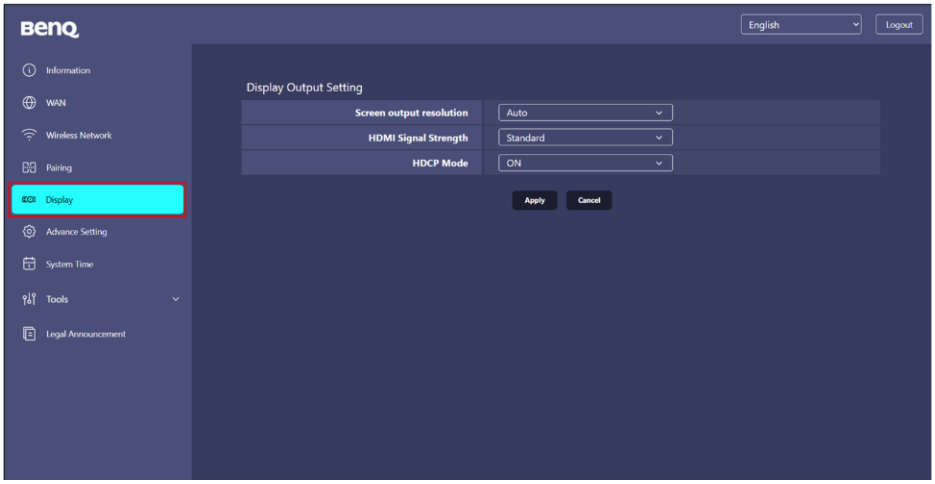
Some video conference codecs may not support HDCP. To verify, connect a laptop (especially Macbooks or laptops with AMD CPUs) directly to the video conference codec's HDMI input to check if

HDCP is enabled or disabled. If the video conference codec does not support HDCP, disable HDCP on the InstaShow™ VS25 receiver by following these steps:

Step 1: Access the WD Web management interface.

Step 2: Navigate to the Display page and locate the "HDCP Mode" setting.

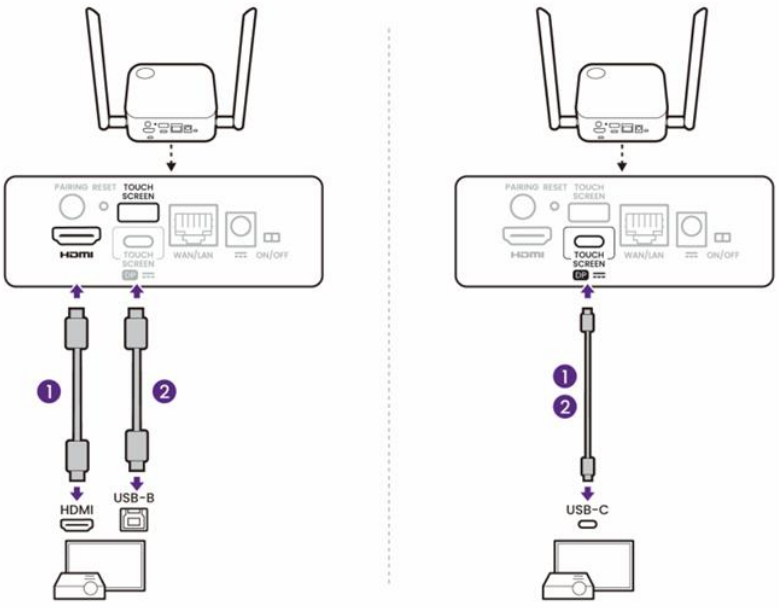
Step 3: Set HDCP Mode to OFF and click "Apply."



USB Touchback Installation

1. Connecting the InstaShow™ VS25 Receiver for Touch Screen Support

The InstaShow™ VS25 Receiver supports touch screen functionality, allowing remote control of a presenter's PC via touch gestures (touchback). To enable this feature, connect the TOUCH SCREEN USB-A or USB-C port on the Receiver to the corresponding USB port on the touch screen display.



Notes:

- Touchback functionality is only supported for Windows-based PCs and Macs (Available in Q1 2026).
- Touchback is not supported for smartphones connected via screen casting technologies.
- USB hot-plugging for touchback is not supported. Ensure the USB touch connection is properly established before powering on the device.
- Touchback does not support HDMI+USB-A and USB-C for 2 different Interactive Flat Panel, which may cause the system to work abnormally.

Simultaneously, connect an HDMI cable to the appropriate HDMI Source Input port on IFP and power on the VS25 receiver. For example, to utilize the VS25 USB TOUCH SCREEN port with a BenQ RE7504, connect the VS25 HDMI and TOUCH SCREEN cables to the corresponding ports on the IFP. Then, switch the video source to the connected HDMI input and initiate projection via the InstaShow™ Button.

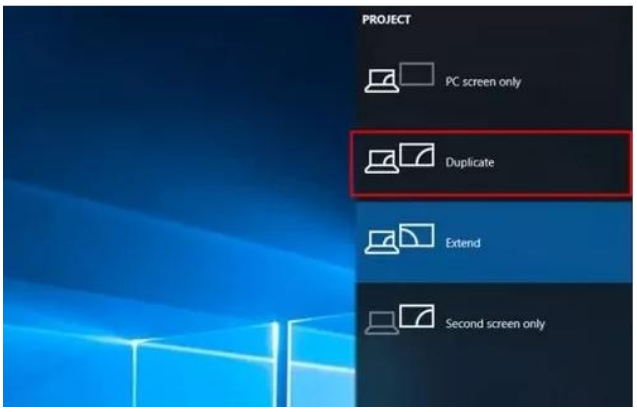
Important Notes:

- Connect all cables before powering on the receiver to avoid potential touch issues.
- The touch function will be activated when you start projection via the InstaShow™ Button.
- When switching the IFP source from the current HDMI source with touch to another video source (e.g., Android Home, Intel NUC, or other HDMI source), the IFP will trigger "Unload USB Touch Device" events to the InstaShow™ Receiver, forcing the Button projection to leave the projection condition. When switching back to the current HDMI source, the IFP will trigger "Load USB Touch Device" events again to the InstaShow™ Receiver. Simply start the projection again via the InstaShow™ Button to reload the USB Touch Device events.

1. Optimizing Touchback Performance

- Select "Duplicate" the Screen:

  Touchback functionality works best when the screen is duplicated. Otherwise, touch point misalignment may occur.



- Select the 16:9 Resolution:

  The InstaShow™ Receiver supports a 16:9 output format to fit 4K IFPs. If a laptop's native panel is not 16:9 (e.g., 1920x1200), the touch location may be misaligned. In this case, change the duplicate screen resolution to 16:9 1920x1080 to align the touch location.

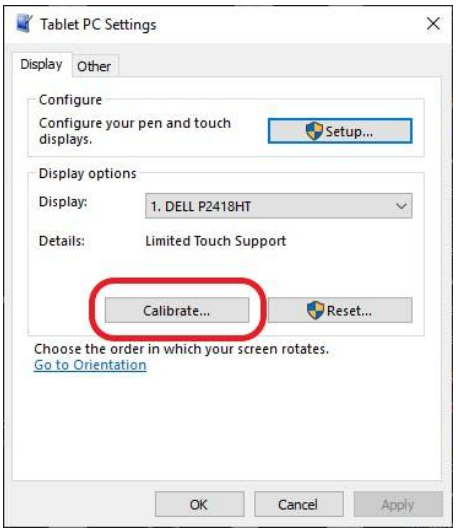
2. Calibrating the Touch Location Mapping:

If you experience touch cursor misalignment when using a laptop with a 1920x1200 (16:10) panel, follow these steps to calibrate the touch screen:

1. Click the Start button and type Control Panel, then open the result.

2. Change the "View by" option to Large icons or Small icons to see all the options.

3. Click on Tablet PC Settings.



4. In the "Display" tab, select your touch screen from the dropdown menu and click Calibrate.

5. Follow the on-screen prompts to tap the crosshairs that appear on BenQ IFP

6. Once complete, click OK in the Tablet PC Settings window.

3. Supported BenQ Interactive Flat Panel Models

We officially support the following BenQ models:

- BenQ 03 Series: RE65” / 75” / 86” / 98”, RM65”/ 75” /86”, RP65”/ 75” /86”
- BenQ 04 Series: RE65” / 75” / 86”, RM65”/ 75” /86”, RP65”/ 75” /86”

For the latest compatibility model, please find in BenQ web site.

Note:

- While the InstaShow™ VS25 may function with IFPs from other brands, BenQ cannot guarantee touch functionality compatibility due to variations in touchscreen architecture. For inquiries regarding compatibility with non-BenQ IFPs, please contact your BenQ customer service.
- The USB-C for BenQ RE7503A could not provide enough power through USB PD to VS25 Receiver and USB-C for RE6503A output screen will be shifted. Some 03 series with USB-C could have trouble with power and touchback. To solve this condition, please apply HDMI + USB-A and standalone power adapter.

USB Peripheral Installation and Integration for Video Conferencing

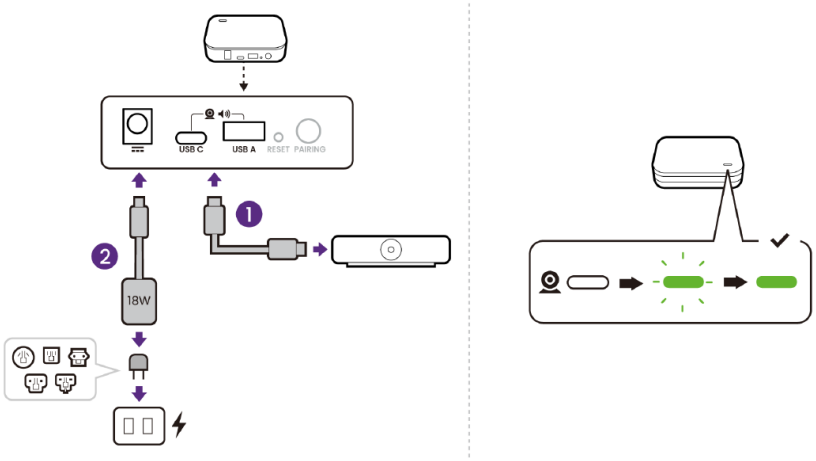
The InstaShow™ VS25 Multimedia Hub supports a variety of USB peripherals for enhanced video conferencing capabilities, including USB cameras (with or without microphones), all-in-one video bars (camera, microphone, and speaker), and speakerphones (microphone and speaker). While the InstaShow™ VS25 Multimedia Hub is designed to be compatible with a wide range of devices, BenQ recommends using only verified devices to ensure optimal performance. A list of verified devices can be found on the BenQ website.

1. Connecting USB Peripherals:

A. Connect the USB-A or USB-C connector of the peripheral device to one of the USB ports on the rear of the Multimedia Hub, following the recommended port setup:

- USB-C Port: All-in-one video bar or standalone camera or Speakerphone
- USB-A Port: Speakerphone or Webcam

Note: The port priority is USB-C > USB-A, meaning the device connected to the USB-C port will be selected as the default.



A. Power on the Multimedia Hub before connecting the Host Button to your laptop. Allow time for the connection between the Multimedia Hub and Host Button to establish. The Multimedia LED indicator on the Host Button will turn green to indicate a successful connection.

B. Open your video conferencing software (e.g., Microsoft Teams, Zoom) and select the appropriate camera, microphone, and speaker devices. The InstaShow™ VS25 provides transparent USB Device Names, allowing you to easily identify the correct devices.

2. Important Considerations:

- **Pre-Power On Setup:** Always plug in USB peripherals before powering on the Multimedia Hub for better USB device synchronization.
- **Avoid Hot-Plugging:** Do not re-plug or switch USB peripherals while the Multimedia Hub is in operation, as this may cause compatibility issues.
- **USB Version:** The USB-A and USB-C ports on the Multimedia Hub are USB 2.0. The Host Button USB version is also USB 2.0.
- **Power Supply:** Use only the USB cable and power adapter originally supplied with your peripheral. The InstaShow™ VS25 Multimedia Hub provides a maximum of 900mA for each USB port.
- **Direct Connection:** Do not connect peripherals to an external USB switch/hub before

connecting to the VS25 Multimedia Hub, as this may cause insufficient power or compatibility issues.

- **Single Device per Function:** Connecting only a single USB peripheral per function (e.g., only one webcam) is recommended to avoid conflicts.
- **Compatibility:** Some USB devices that are not backward compatible with USB 2.0 may not be recognized by the VS25 Multimedia Hub. Peripherals not listed on the BenQ website may still work, but compatibility is not guaranteed.

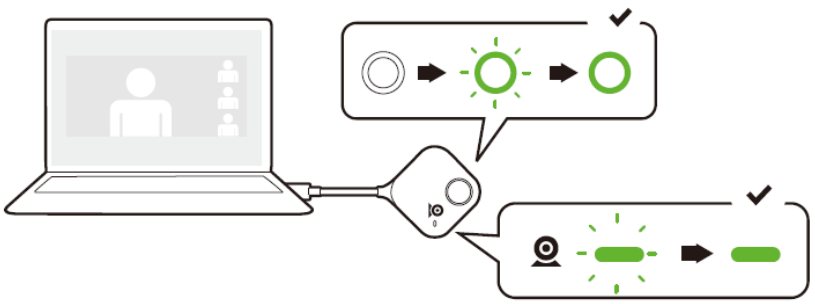
The recommended port setup for USB peripherals is shown below

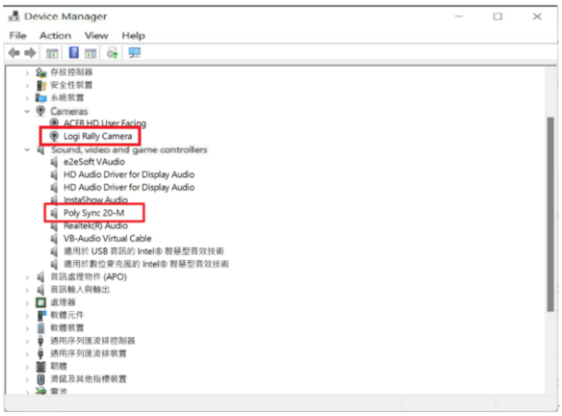
VS25	USB-C Port	USB-A Port
USB Device	All-in-one video bar	NA
USB Device	Standalone Camera	Speakerphone
USB Device	Speakerphone	Webcam

- **Transparent USB Device Name:** This feature is currently supported on Windows.

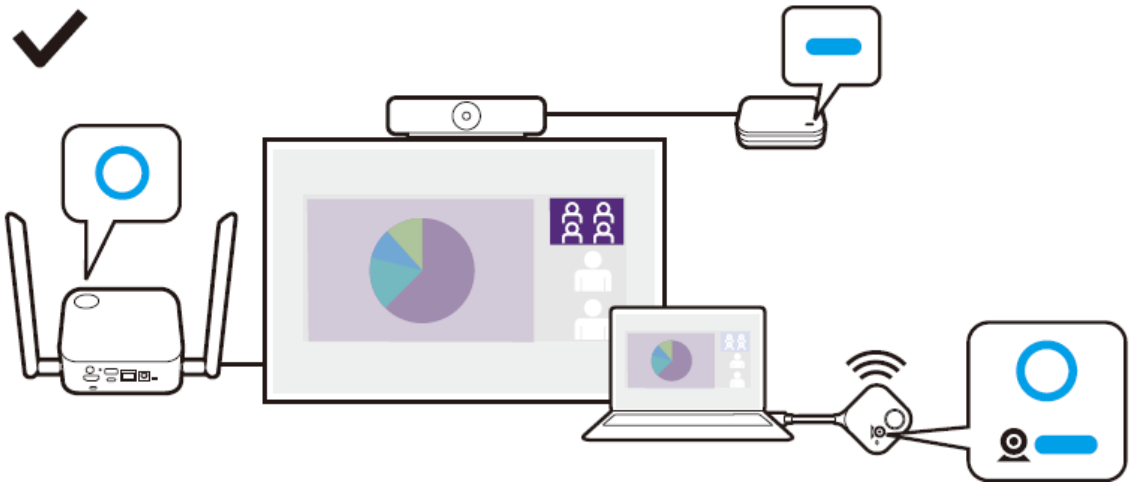
3. Power on Multimedia Hub:

After connecting your USB peripherals to the Multimedia Hub, power on the unit. Next, connect the Host Button to your laptop and wait for the connection between the Multimedia Hub and Host Button to establish. Once the connection is complete, the Multimedia LED indicator on the top of the Host Button will illuminate, signaling that the linking between the Host Button and Multimedia Hub is ready. Note: During the Host Button powering up process, it may reboot itself more than once as it re-initializes the attached USB devices on the Multimedia Hub.





Once the meeting room devices attached to the Multimedia Hub are properly opened by the video conferencing software, the Multimedia LED indicator on the top of the Host Button will turn blue.



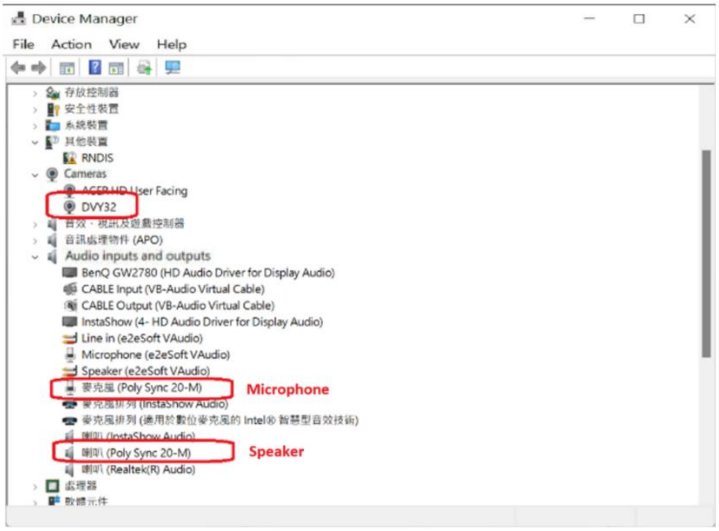
- **Example Configuration:**

If you want to use a BenQ DVY32 (with microphone) and a POLY SYNC 20-M speakerphone (with microphone and speaker) with the Multimedia Hub, follow these steps:

1. Connect the POLY SYNC 20-M to the USB-C port of the Multimedia Hub.
2. Connect the BenQ DVY32 webcam to the USB-A port of the Multimedia Hub.
3. Power on the VS25 Multimedia Hub.

Based on the Port Priority Rule, the enabled functions will be:

VS25 Function	USB-C Port	USB-A Port
Speaker	POLY SYNC 20-M	NA
Microphone	POLY SYNC 20-M	NA
Camera		BenQ DVY32



Note: In this configuration, the microphone function of the BenQ dvy32 will not be enabled. The speaker and microphone functions of the POLY SYNC 20-M are enabled instead. This configuration also avoids echo issues since the speaker and microphone functions are integrated into the POLY SYNC 20-M, enabling echo cancellation.

1. How to Check the Compatibility of Connected USB Peripherals:

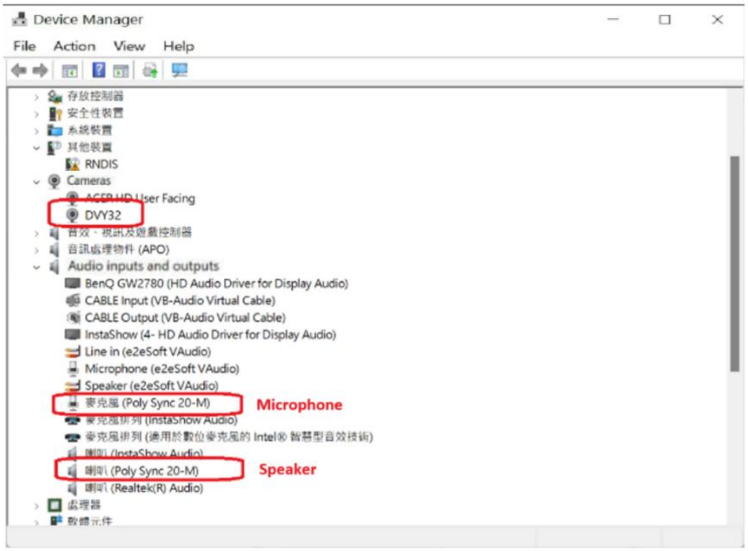
To ensure your connected USB peripherals are functioning correctly with the InstaShow™ VS25 Multimedia Hub, follow these steps to check their compatibility:

(1) Check the Display OSD (On-Screen Display):

Access the display's OSD to verify that the camera, speaker, and microphone are correctly linked between the Multimedia Hub and the Host Button. (Refer to the display's user manual for instructions on accessing the OSD.)

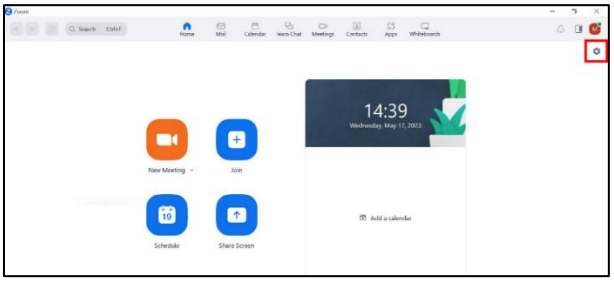
(2) Verify Device Recognition in the Operating System:

Windows: Open the Device Manager (search for "Device Manager" in the Windows search bar). Verify that the connected devices (e.g., POLY devices) are listed and recognized by the operating system.



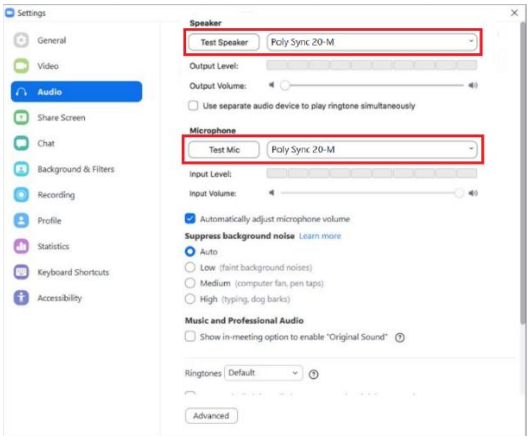
(3) Test Peripherals within Video Conferencing Software (Example: Zoom):

i. Open your video conferencing software (e.g., Zoom) and click the settings button.



ii. Test each peripheral device:

- Camera: Select the Video menu and choose your camera (e.g., BenQ DVY32) to check the camera video feed.
- Microphone: Select the Audio menu and choose your microphone (e.g., POLY SYNC 60-M) from the drop-down menu. Click "Test Mic" to check the playback of a recorded sound clip.
- Speakers: Select the Audio menu and choose your speakers (e.g., POLY SYNC 60-M) from the drop-down menu. Click "Test Speaker" to check the playback of a sample sound clip.



Note:

If any of the tests are unsuccessful, try the following:

(1) Re-plug the Host Button and wait for the Multimedia LED indicator to turn green.

(2) Power off the Multimedia Hub, wait a few minutes, and then power it back on.

(3) Change to other USB peripherals, as there may be compatibility issues with the attached devices.

2. The Relation of Video Conference Software and Camera Video Resolution

The quality of camera video during online meetings is primarily determined by the algorithms of the Unified Communications and Collaboration (UC&C) applications and the quality of the internet connection. While the InstaShow™ VS25 Multimedia Hub can support cameras with high resolutions, the actual video resolution experienced by participants is dynamically adjusted by the UC&C application based on various factors.

(1) Factors Affecting Camera Video Quality:

- UC&C Application Algorithms: UC&C applications (e.g., Microsoft Teams, Zoom, Google Meet) use algorithms to optimize video quality based on network conditions and device capabilities.
- Internet Connection Quality: A stable and high-bandwidth internet connection is crucial for maintaining good video quality. Microsoft recommends a stable 10-20Mbps connection for optimal performance.
- Video Codec and Transcoding: Most UC&C applications do not directly acquire raw video streams from USB UVC cameras. Instead, they transcode the video stream (typically MJPEG or YUV2) to H.264 or VP8 and dynamically adjust the resolution and frame rate.

(2) Supported Camera Capabilities in UC&C Applications (Windows Platform):

The following table summarizes the typical camera capabilities supported by popular UC&C applications on Windows:

UC&C Application	Resolution	Frame Rate (fps)
Win Teams Desktop App	640x360	Up to 30
	1280x720	Up to 30
	1920x1080*	Up to 30
Win Zoom Desktop App	640x360	Up to 30
	1280x720	Up to 30
	1920x1080*	Up to 30
Google Meet Chrome Browser	640x360	Up to 30
	1280x720	Up to 30
	1920x1080*	Up to 30

*Business subscription plan required for 1920x1080 resolution.

Note:

- OS and Application Variations: Different operating systems and application versions may use different selection algorithms for camera resolution.
- Codec Preference: UC&C applications typically prefer MJPEG over YUV2 due to its lower bandwidth consumption.
- Dedicated Meeting Room Systems: Dedicated meeting room systems (e.g., Microsoft Teams Room, Zoom Rooms) are not included in the scope of BYOM configurations.

3. Supported Camera Input Resolution and Codec:

The InstaShow™ VS25 Multimedia Hub supports USB web cameras with the MJPEG format. While it can accommodate cameras with up to 4K resolution, the actual resolution used during video conferencing is often dynamically adjusted by the UC&C application based on network conditions and other factors.

(1) Supported Formats, Resolutions, and Frame Rates:

The following table lists the supported formats, resolutions, and frame rates for camera input:

Format	Resolution	FPS
MJPEG	320x240	5/10/15/30
MJPEG	640x360	5/10/15/30
MJPEG	640x480	5/10/15/30
MJPEG	1280x720	5/10/15/30
MJPEG	1920x1080	5/10/15/30

(2) Understanding Camera Resolution in Video Conferencing

As discussed in the previous section, video conferencing software (UC&C Apps) will dynamically adjust the camera resolution during the meeting based on the current network status. UC&C Apps will not always select the highest resolution for the meeting. Instead, they prioritize a smooth meeting experience by adjusting the resolution, frame rate, and compression rate. Most UC&C Apps typically select MJPEG 360p30fps or 720p30fps, but may support up to 1080p30fps depending on your license and subscription.

Note:

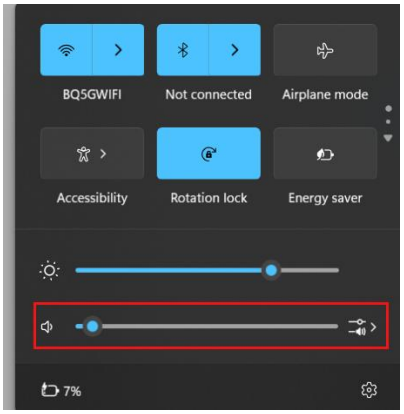
MJPEG is the most commonly supported codec for USB web cameras. However, cameras that do not support MJPEG will not be compatible with the InstaShow™ VS25 Multimedia Hub. For details regarding supported resolutions and codecs, please refer to the specifications provided by the camera manufacturer.

4. Understanding the Default Audio Output:

The InstaShow™ VS25 system intelligently manages audio output based on the connected devices and connection scenarios. The default audio output is automatically selected to provide the best possible audio experience.

Scenario	Default Audio Output Port/Device	Recommendation
Only HDMI connection connected to VS25 Receiver (For example, the built-in speakers on your HDMI display is the only audio output)	VS25 Receiver's HDMI Port	
One USB-A device with speakerphone function connected to VS25 Multimedia Hub and power on	USB-A	InstaShow™ VS25 Multimedia Hub will not in charge of Echo-Cancelation when Speaker and Microphone are not in built-in one device. Be care for not to plug single function individually into USB-C and USB-A
One USB-A and one USB-C devices with speakerphone function connected to Multimedia Hub and power on	USB-C	

User can change the Audio output via Audio Panel ->Output Device as below. However, be careful of Echo when setting different default Audio Output especially when your USB device (Speakerphone or All-in-one) has built-in echo-cancelation functions.



Note:

If you select InstaShow™ (HD Audio Driver for Display Audio) and Microphone from the device attached to VS25 Multimedia Hub, the echo may occur because of audio input and output are not in the same built-in speakerphone device.

5. Optimizing Camera Performance Before Online Meetings:

The quality of your camera video during online meetings can be affected by various factors. While the InstaShow™ VS25 automatically selects the best settings based on network conditions, there are times when the local wireless environment, such as a crowded network, can lead to choppy or flickering video. Here are some tips to optimize camera performance and reduce wireless traffic usage:

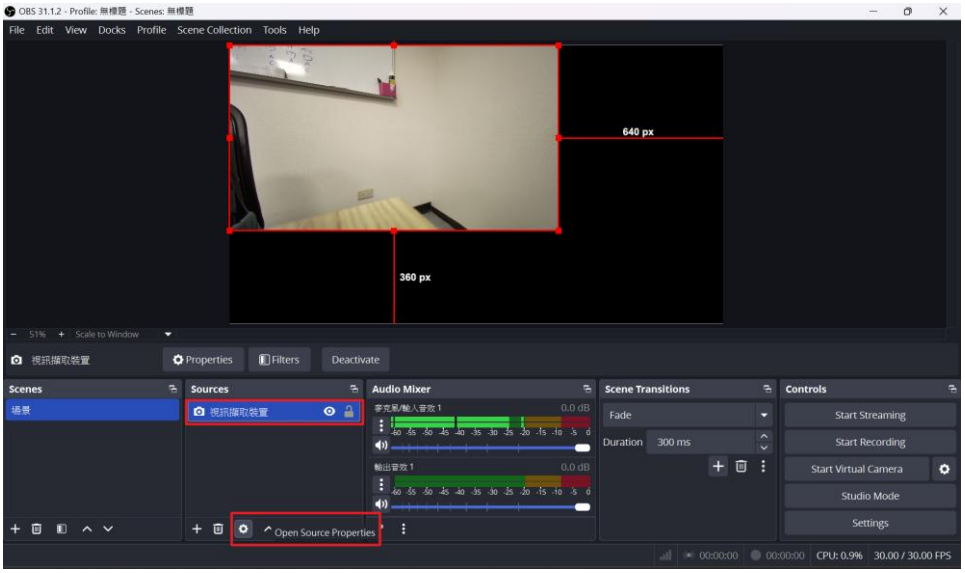
(1) Using Virtual Camera Software (OBS Studio)

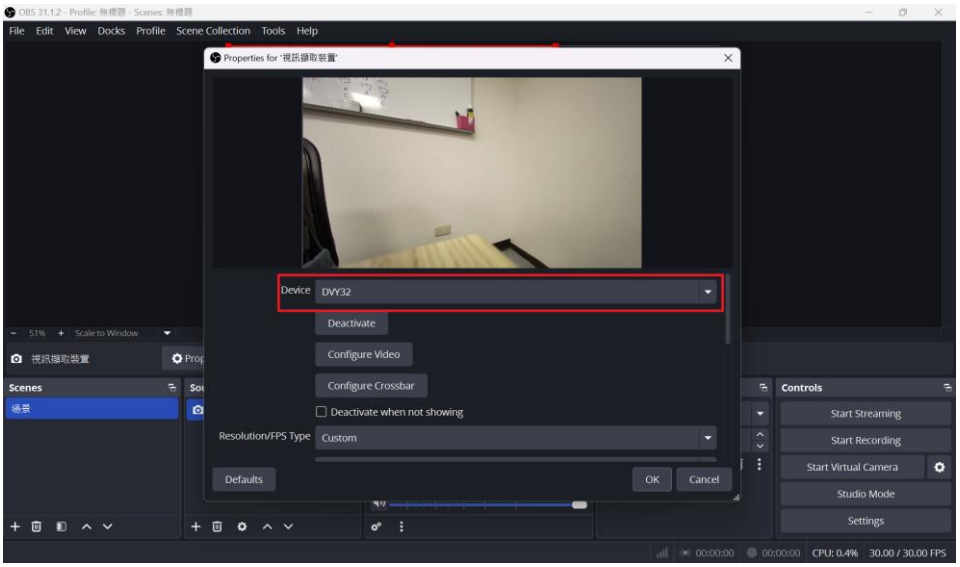
Virtual camera software allows you to convert your camera source and adjust its settings.

Steps:

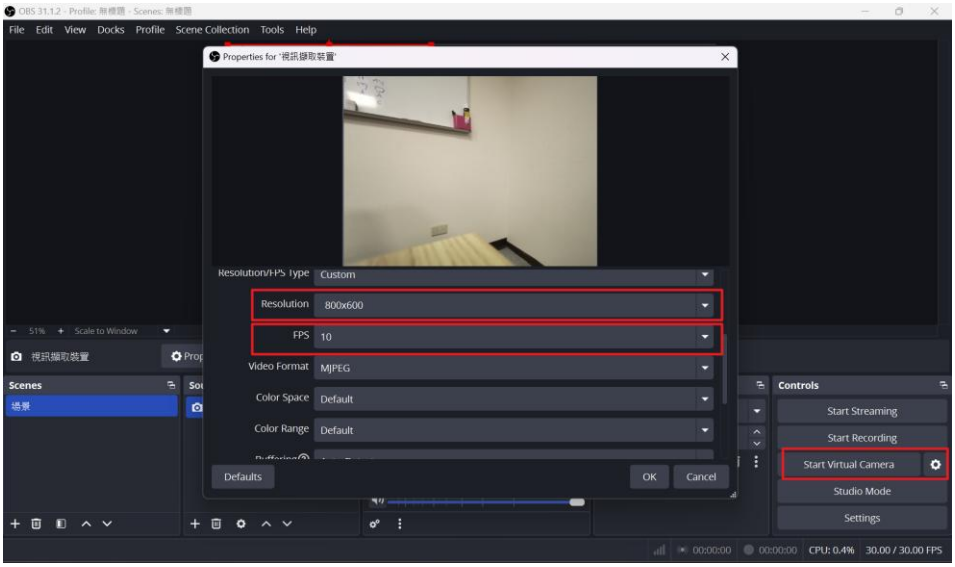
i. Download and install OBS Studio.

ii. Configure OBS to use your UVC camera as a source.

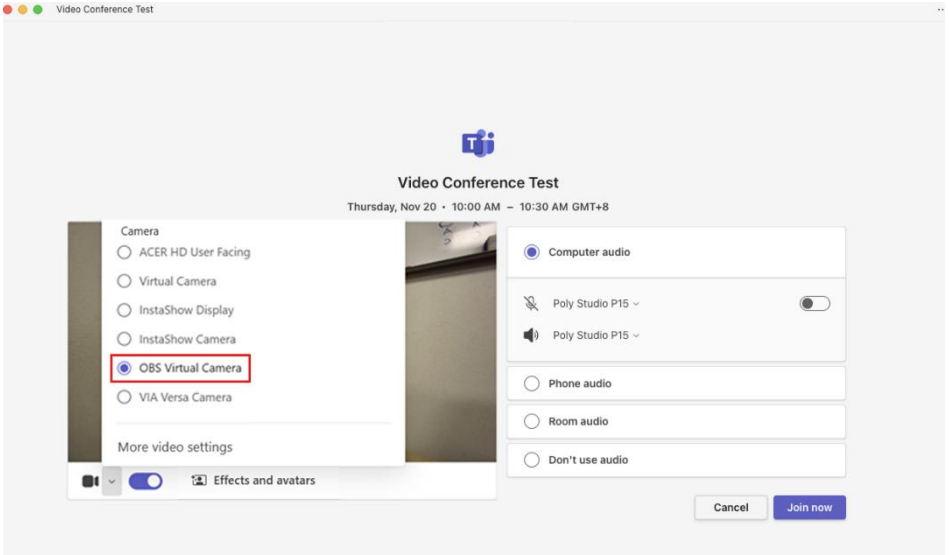




iii. Adjust the camera's resolution and frame rate within the OBS settings. For example, reduce the resolution to 800x600 and set the FPS to 10 to save bandwidth.



iv. Click "Start Virtual Camera" to activate the OBS virtual camera.



v. In your video conferencing software (e.g., Teams), select "OBS Virtual Camera" as your camera source in the device settings.

(2) Using 3rd Party Software (Logitech or other software)

Some webcam and video bar brands, such as Logitech, provide dedicated software that allows you to create a virtual camera and adjust camera settings.

(3) Adjusting Display Resolution

Avoid setting the display resolution higher than your laptop's native panel resolution, especially when using an extended screen. We recommend setting the display resolution to 1920x1080 or 1920x1200 to reduce wireless traffic.

(4) Setting Host/TX Button Picture Quality to VIDEO MODE

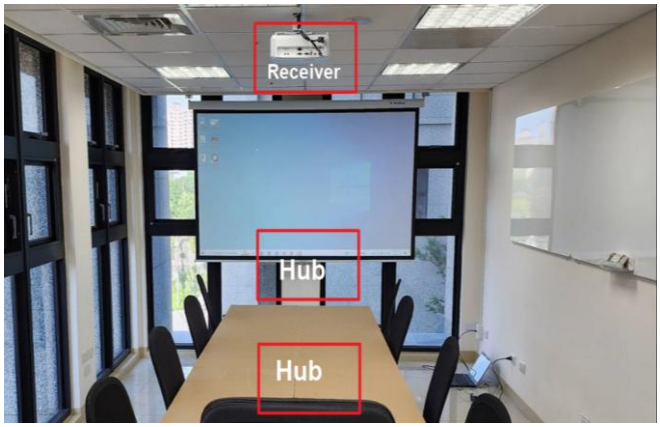
In the InstaShow™ VS25 system, the VIDEO MODE consumes less wireless traffic than the PRESENTATION MODE. Setting the Host/TX Button Picture Quality to VIDEO MODE can improve the smoothness of camera video when using the Multimedia Hub.

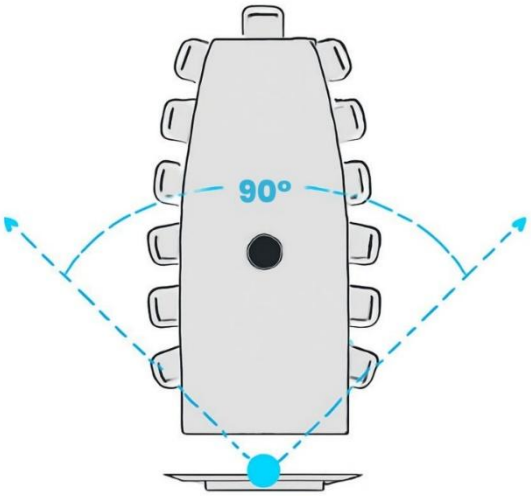
6. Suggested Multimedia Hub Placement in Meeting Rooms

The optimal placement of the InstaShow™ VS25 Multimedia Hub depends on the display and USB device types used in the meeting room. The system is designed to provide flexibility for installers to accommodate various setups.

- **Example Scenario: Projector on Ceiling Mount:**

When using a projector mounted on the ceiling, the Receiver is typically positioned near the projector. The Multimedia Hub, along with the connected USB video bar, can be placed under the projection screen or on a tabletop, providing greater flexibility for installers. The VS25 Multimedia Hub is compatible with tabletop video bars such as the Logitech Conference Cam Connect.





7. Frequently Asked Questions (FAQ)

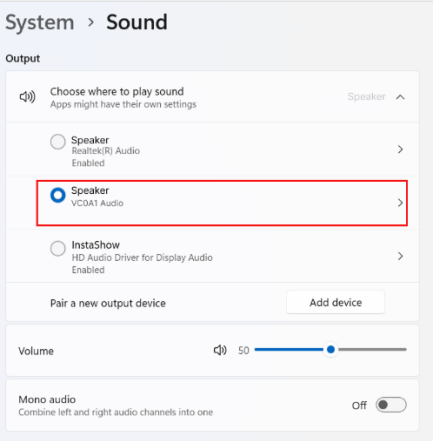
This section addresses common questions regarding the InstaShow™ VS25 Multimedia Hub and its integration with video conferencing peripherals.

- Q1: Since UC&C tools don't select 4K stream as input, what benefit do I get from using a 4K camera/video in a meeting?

A: Even if the UC&C tool doesn't utilize the full 4K resolution, a camera with a better lens and components (especially optical zoom) will generally provide a better image quality than a lower resolution camera, even at the same output resolution.

- **Q2:** I'm using Zoom as a BYOM verification tool, but why can't I hear the music from the Speaker Test?

A: Some Windows laptops may have trouble with Zoom's "Speaker Test". Try playing a video or music file to see if you can hear the audio through the BYOM speaker output. Also, check your default speaker selection in System -> Sound settings. Another way to test speaker is play a video or music file, you will hear the sound from remote speaker.



- **Q3:** What camera format and maximum camera resolution does the VS25 Multimedia Hub support?

A: The VS25 currently supports the MJPEG format. See the table for supported resolutions and frame rates.

Resolution	FPS
320x240	5/10/15/30
640x360	5/10/15/30
Ot 640x480	5/10/15/30
1280x720	5/10/15/30
1920x1080	5/10/15/30

- **Q4:** What power wattage do you provide for the USB-A and USB-C ports?

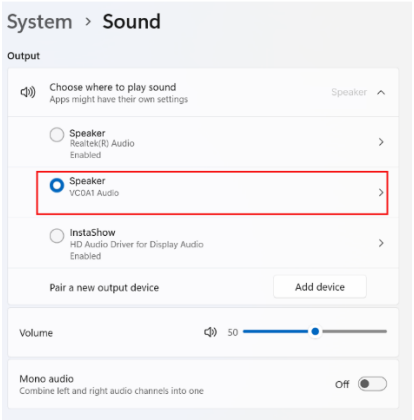
  A: The USB-C port provides up to 4.5Watt (5V/900mA), and the USB-A port provides up to 4.5Watt (5V/900mA). When both ports are connected, the total power output is up to 8.5Watt (5V/1.7A).

- **Q5:** Does the VS25 Multimedia Hub support USB Touch Screens?

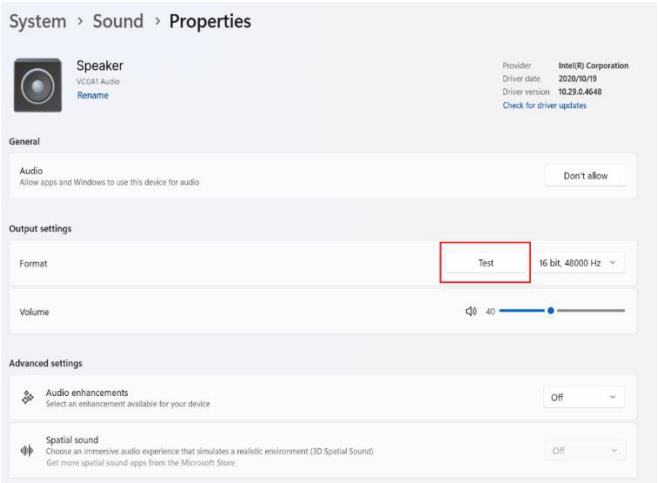
  A: No, the VS25 only supports the USB Touch of IFPs (Touchback Feature) or any touch screen for the VS25 Receiver. Plugging the USB Touch into the Multimedia Hub will cause unexpected problems.

Q6: Why do I get no sound from Zoom's "Speaker Test" but sound from the "Microphone Test"?

A:Select the Windows System -> Sound and select the remote device as default speaker output. For example, I have trouble while using Zoom “Speaker Test”, but I go to System -> Sound and select VC01A as default Speaker



Click V01A Audio item and get inside. Select Test to check the sound comes out from your device.



- Q7: What Audio Formats does the VS25 Multimedia Hub support?

  A: The VS25 supports the following audio formats. Only one rate will be selected and set active:

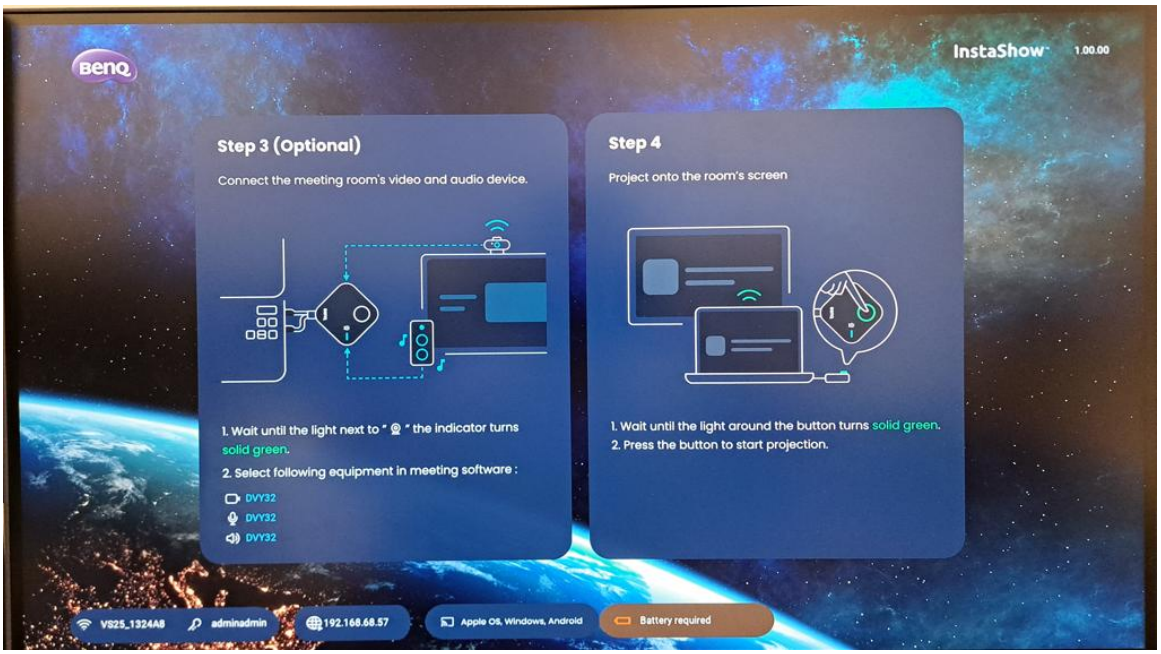
Channel Number	Data Bits	Sampling Rate
1/2	16	8000/16000/32000/44100/48000

- Q8: Why does my Host Button reboot again during powering on?

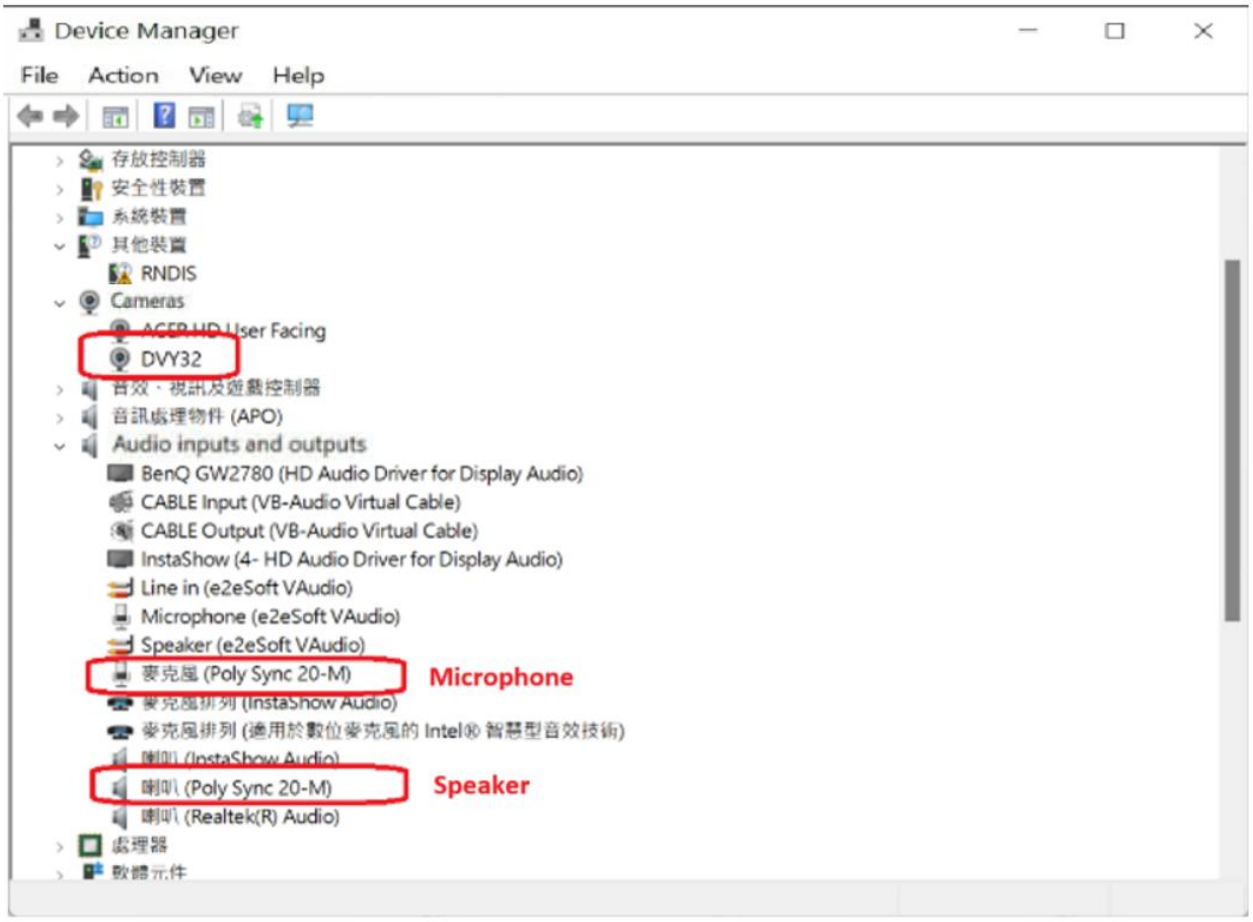
  A: The Host Button reboots to re-synchronize to the USB device information when you have changed the attached USB devices to the Multimedia Hub.

- Q9: Why do I have the wrong USB Device Name, especially when combining a webcam and a speakerphone with below setting? I got all DVY32 showed on OSD.

VS25	USB-C Port	USB-A Port
USB Device	BenQ DVY32	POLY SYNC 20 Speakerphone

- 

  A: The VS25 may misunderstand the device name when the same features exist on two USB devices. Follow the USB-C Port priority rule and connect the devices accordingly. The OSD showed the wrong microphone and speaker with DVY32. However, the device function names are correct in Windows Device Manager as below. It won't affect the using UC&C Apps. (Est. updated FW by Q1 2026).To display the correct USB Device Name, please follow the USB-C Port priority rule and connect the devices accordingly.



- Q10: I use a VS25 Host Button and a Webcam with the Mac version of the Teams Desktop application, but I get a flickering camera video. Why?

  A: There is a known compatibility issue with some external USB webcams directly connected to a Macbook when using the Mac version of the Teams Desktop application. Here are some troubleshooting steps you can try:

  Microsoft Suggestion: Microsoft suggests using the Teams Web version to avoid this symptom.

  Check Teams Web App: See if the flickering happens in the Teams web app (https://www.microsoft.com/en-us/microsoft-teams/log-in). This helps isolate if the problem is with the Teams desktop app itself.

  Clear Teams App Cache: A corrupted cache can sometimes cause app issues. Here's how to clear the Teams cache on Mac:

  (1) Quit Teams completely.

  (2) Open Finder and go to "Applications".

(3) Right-click on "Microsoft Teams.app" and select "Show Package Contents".

(4) Navigate to "Contents" -> "Resources" -> "Application Data" -> "cache".

(5) Delete the contents of the "cache" folder.

(6) Restart Teams and check if the camera works properly.

Check for Software Conflicts: Rarely, other software running on your Mac might conflict with Teams. Try quitting any unnecessary applications before starting Teams to see if it resolves the issue.

Reinstall Teams: Uninstall Teams and then download and reinstall the latest version from the Microsoft website. Reinstalling Teams can sometimes fix persistent issues like camera flickering.

- Q11: I see my Host Button LED light with static blue after I've plugged, why?

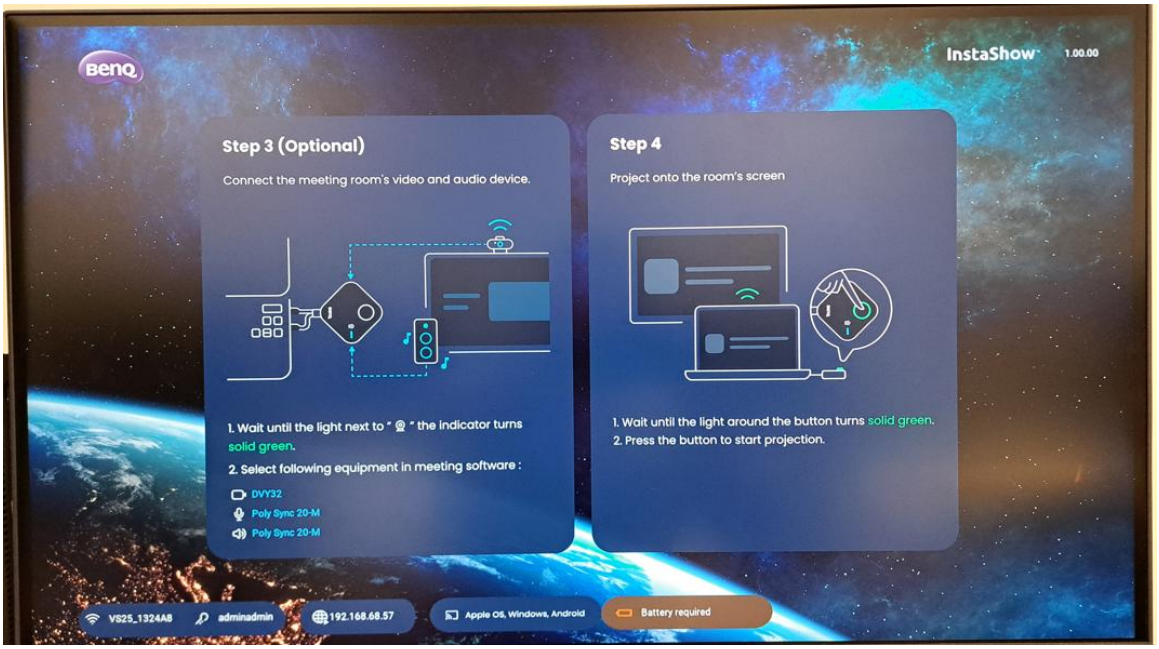
  A: When USB devices are connected, Windows automatically assigns them as the default active devices. This behavior follows the Windows USB device logic, which prioritizes external USB peripherals such as camera, microphone, and speaker over internal components. After connecting the Multimedia Hub, its integrated USB devices will be detected and set as the default active devices by Windows. As a result, these devices will appear as "in use" by the operating system.

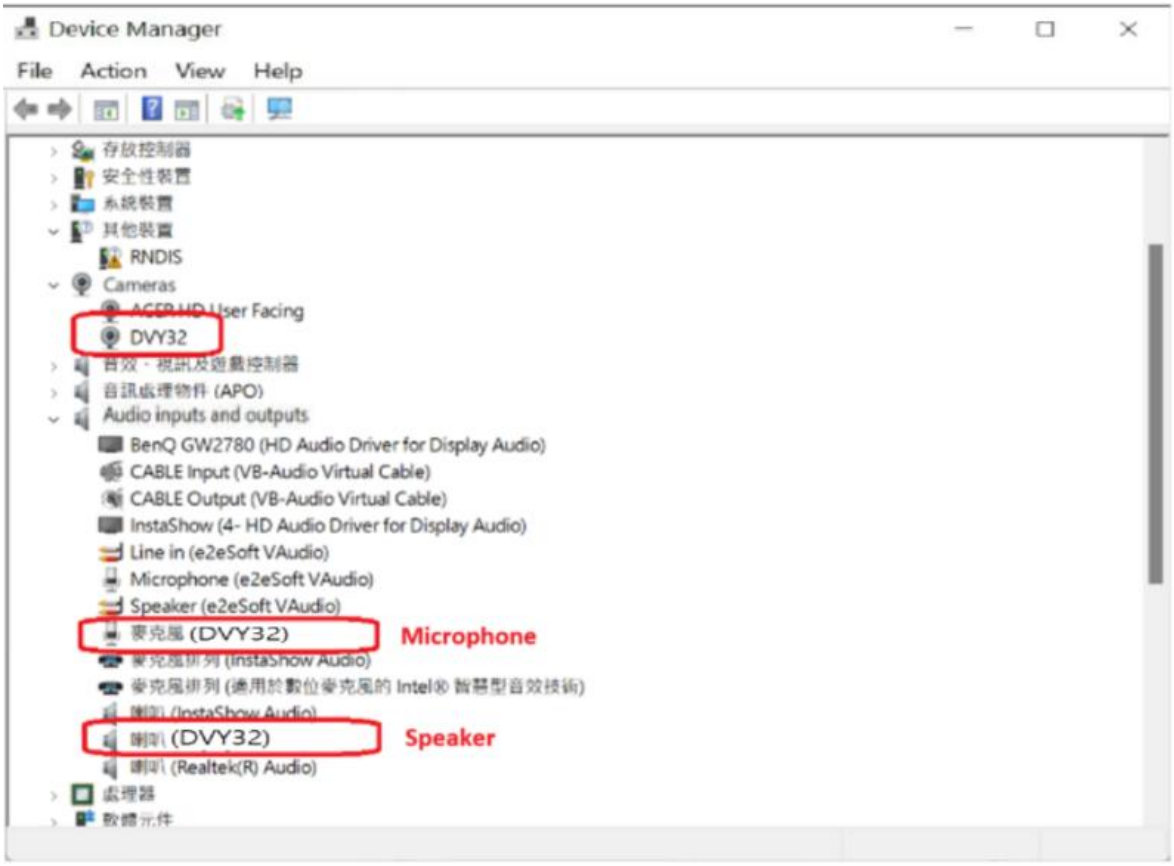
- Q12: Why my camera stalled and keeps at first frame when using VS25?

  A: We found some cameras their video stream frame format does not match typical USB UVC format. Please feedback to us for this Camera model.

- Q13: Why I have wrong USB Device Name especially combined a webcam and a speakerphone with below setting in Windows Device Manager? However, I got a correct device name showing on OSD screen as below?

VS25	USB-C Port	USB-A Port
USB Device	BENQ DVY32(with Microphone)	POLY SYNC-20M(Speakerphone)





A: This problem is similar to previous question. The VS25 misunderstands the device name when you have same features exists among 2 USB devices. Please connect as below to avoid WRONG function name in Windows Device Manager. It will be fixed by future released new firmware (Est. FW updated by Q1 2026).

VS25	USB-C Port	USB-A Port
USB Device	POLY SYNC 20-M	BENQ DVY32

Conclusion

The core design principles of the InstaShow™ VS25 are: a purely hardware-based solution, plug-and-play functionality, eliminating the need for software installation, and intuitive operation requiring no additional learning. The InstaShow™ VS25 seamlessly integrates with BYOM (Bring Your Own Meeting) and BYOD (Bring Your Own Device) environments, providing users with a flexible and collaborative meeting experience. The InstaShow™ VS25 provides comprehensive protection of transmitted data, ensuring a secure wireless conferencing environment. Furthermore, its patented Multimedia Hub technology allows for greater freedom in the placement of video bars, cameras, and speakers, optimizing the meeting space. BenQ remains steadfast in its commitment to environmental responsibility and delivering a user-friendly product experience. Furthermore, BenQ pledges to never implement or conceal system backdoors, nor collect user data, guaranteeing a secure and trustworthy experience. With the InstaShow™ VS25, users can confidently enjoy intuitive, secure wireless conferencing and effectively conduct meetings with peace of mind.