APPLICATION BRIEF

OMNI

USB-C in OMNI AV-over-IP Products





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USB-C IN OMNI AV-OVER-IP PRODUCTS

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USB-C AND AV SYSTEMS

Getting connected is often the first challenge in a meeting space, from finding the right cable and adapter to making the room display, camera, microphone, speakers, and AV system work together.

USB-C can simplify that experience by giving users a familiar, single-cable connection for video, USB peripherals, audio, and power.

BSS OMNI AV-over-IP solutions extend that convenience across the network, enabling USB-C workflows for BYOM conferencing, content sharing, room audio integration, recording, and device connectivity through the appropriate OMNI encoder, decoder, or USB endpoint.

WHAT CAN USB-C TRANSPORT?

VIDEO - DisplayPort Alt Mode can deliver high-resolution video from a laptop or other source.

USB DATA - Connect peripherals, hubs, cameras, speakerphones, and other USB devices.

AUDIO & VIDEO - UAC and UVC allow computers to access USB audio and video devices.

HIGH-SPEED DATA - Support applications such as external storage and recording.

POWER - USB Power Delivery can provide charging to compatible devices.

Same Connector. Different Capabilities.

USB-C is a connector standard, not a guarantee that every USB-C port supports the same functions. Some devices, particularly laptops, can support several of these capabilities through a single USB-C port. Other devices use USB-C for only one specific function. These principles apply to pro AV products as well. The connector looks the same, but the supported feature set can be very different.



USB-C IN OMNI AV-OVER-IP PRODUCTS

Not every USB-C port is designed to do the same job, so choosing the right OMNI product starts with understanding the role each USB-C interface plays.



OMNI 600 Series, OMNI-VE-660 and OMNI-VE-630-WP

Use OMNI 600 when the room experience starts with a laptop and the goal is to make connectivity as simple, familiar, and efficient as plugging in one USB-C cable.

Go To Page 6
OMNI 600 Series -
Bring Your Own Meeting



OMNI 200 Series

Use OMNI 200 when USB devices need to be placed where they best support the room experience, while giving the host computer reliable access over the network.

Go To Page 8
OMNI 200 Series -
USB Extension & Distribution



OMNI 300 Series

Use OMNI 300 for a classroom, training room, or meeting space, when there is a need to capture or record presentations, or there is a desire to stream video and audio to a host PC.

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OMNI 300 Series -
Recording, Streaming & Conversion

OMNI 600 SERIES

BRING YOUR OWN MEETING

Bring Your Own Meeting Simplified

OMNI 600 Series, OMNI-VE-660 and OMNI-VE-630-WP
Use OMNI 600 when the room experience starts with a laptop and the goal is to make connectivity as simple, familiar, and efficient as plugging in one USB-C cable.

One Connection for the Room Experience

The OMNI-VE-660 and OMNI-VE-630-WP are AV encoders that provide USB-C video input alongside HDMI, with automatic input switching. Their USB-C interfaces support the following capabilities:

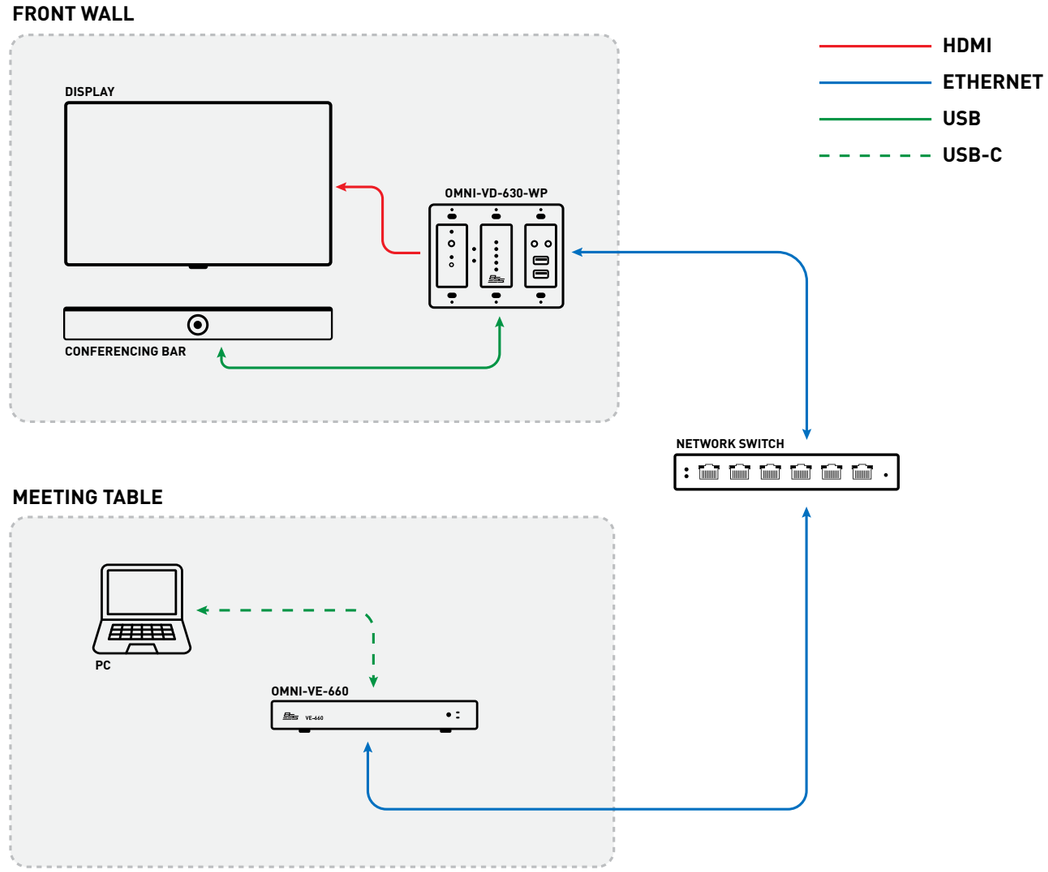
- Video input up to 4K60 4:4:4 through DisplayPort Alt Mode. The USB-C and HDMI inputs share the same video specifications, including resolutions and refresh rates.
- USB 2.0 extension and routing over IP with Virtual Network USB Hub technology. A host PC can communicate with USB devices connected through up to four compatible OMNI AV decoder or USB endpoint locations, supporting USB 2.0 data rates up to 480 Mbps.
- Two-channel Dante audio input and output with UAC conversion (bridging), allowing a host PC to play back or receive audio with Dante-equipped devices.
- Laptop charging on the OMNI-VE-660 only. This requires a standard USB Power Delivery (USB PD) power supply up to 100 watts, connected to the designated secondary USB-C power-input port.



EXAMPLE APPLICATION

BRING YOUR OWN MEETING

In a BYOM meeting room, the goal is simple: connect a laptop and make the room's display, camera, microphone, and speakers available immediately for a Microsoft Teams or Zoom session.



IN THIS SCENARIO:

An OMNI-VE-660 at the meeting table provides the laptop-facing USB-C connection. At the display, an OMNI-VD-630-WP decoder wallplate provides HDMI output and a USB connection to the conferencing bar.

A single USB-C cable from the laptop enables content sharing to the display and provides access to the conferencing bar's camera, microphone, and speakers. When the required USB PD supply is connected to the OMNI-VE-660, the same setup can also charge the laptop.

OMNI 200 SERIES

USB EXTENSION & DISTRIBUTION

Place USB Devices Where You Need Them

OMNI 200 Series
Use OMNI 200 when USB devices need to be placed where they best support the room experience, while giving the host computer reliable access over the network.

Extend USB Across the Network

The OMNI 200 Series is designed for USB 2.0 extension and distribution over IP and is interoperable with OMNI 600 Series endpoints. The OMNI-UE-210 is a USB host endpoint with USB-C and USB Type-B ports for host PCs. The OMNI-UD-210 and OMNI-UD-210-WP are USB device endpoints with USB-C and USB Type-A ports for USB devices. The USB-C interfaces on OMNI 200 Series products support the following capabilities:

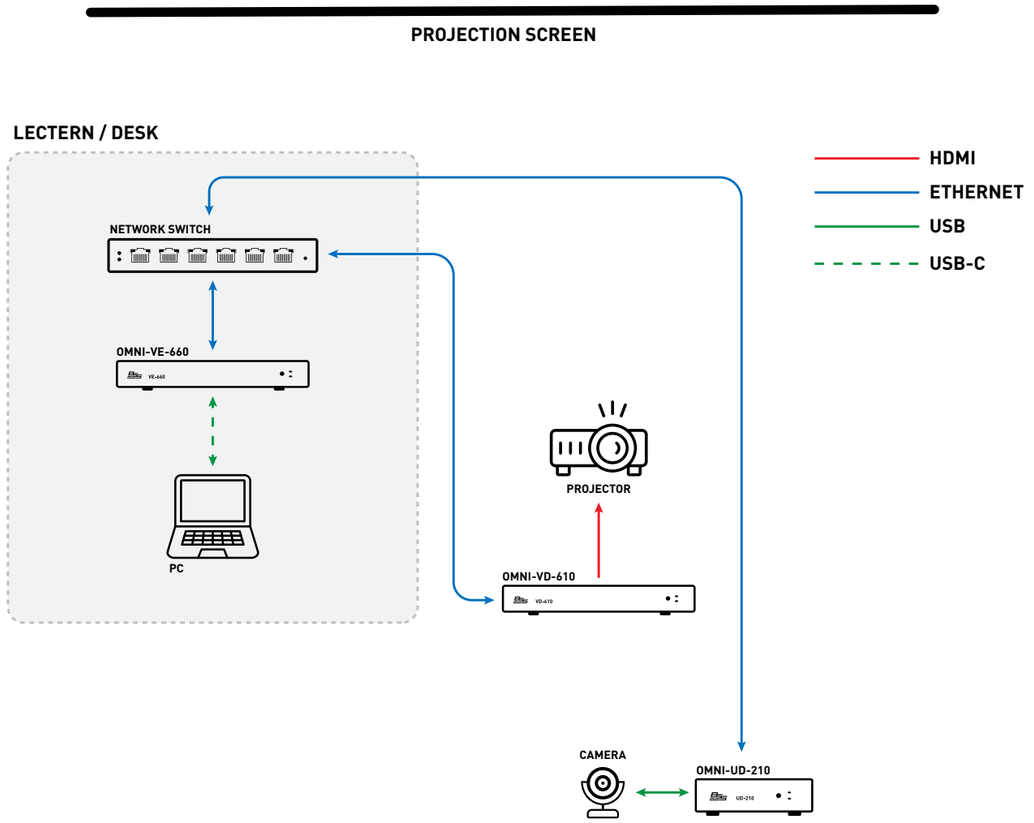
- USB 2.0 extension and routing over IP with Virtual Network USB Hub technology. OMNI 200 Series models support routing between a USB host and devices at up to four remote endpoint connections.
- Two-channel Dante audio input and output with UAC conversion on the OMNI-UE-210, allowing a host PC to play back or receive audio with Dante-equipped devices.
- 5 watts (5 volts, 1 amp) of power on each USB device interface of the OMNI-UD-210 and OMNI-UD-210-WP for USB conferencing devices such as speakerphones, which may require more than the 2.5-watt baseline available from standard USB 2.0 ports.



EXAMPLE APPLICATION

A FLEXIBLE HYBRID CLASSROOM

In a classroom equipped for hybrid (or distance) learning, the instructor may need a laptop connection at the lectern, while a camera is necessary for capturing the instructor.



IN THIS SCENARIO:

A USB-C camera at the back of the room can be integrated into the AV-over-IP system with an OMNI-UD-210. This camera is made available to the instructor's laptop via the OMNI-VE-660 at the lectern. A ceiling-mounted projector receives video from the instructor's laptop through an OMNI-VD-610 AV decoder.

With one USB-C connection from the laptop, the instructor can share content to the projector and access the room camera for a hybrid learning session.

OMNI 300 SERIES

RECORDING, STREAMING & CONVERSION

Bring Networked AV into USB Workflows

OMNI 300 Series
Use OMNI 300 for a classroom, training room, or meeting space, when there is a need to capture or record presentations, or there is a desire to stream video and audio to a host PC.

USB-C Dual-Role Capability

The OMNI 300 Series helps bring networked AV sources into recording, conferencing, and livestreaming applications. The OMNI-VE-330 encoder and OMNI-VD-330 decoder support 4K60 4:4:4 H.264 or H.265 video streaming along with audio and control. Both models include a USB-C interface with capabilities that are different from the OMNI 600 Series:

- High-speed USB 3.2 Gen 1 data transfer up to 5 Gbps, for recording an AV stream to external USB media up to 2 TB. Recordings on USB media can be scheduled for transfer to a network storage location.

- Alternatively, the USB-C port can support Dante-to-UAC (USB Audio Class) conversion and independent H.26x stream decoding to UVC (USB Video Class), enabling a host PC to access network AV streams directly for recording, conferencing, or livestreaming applications.

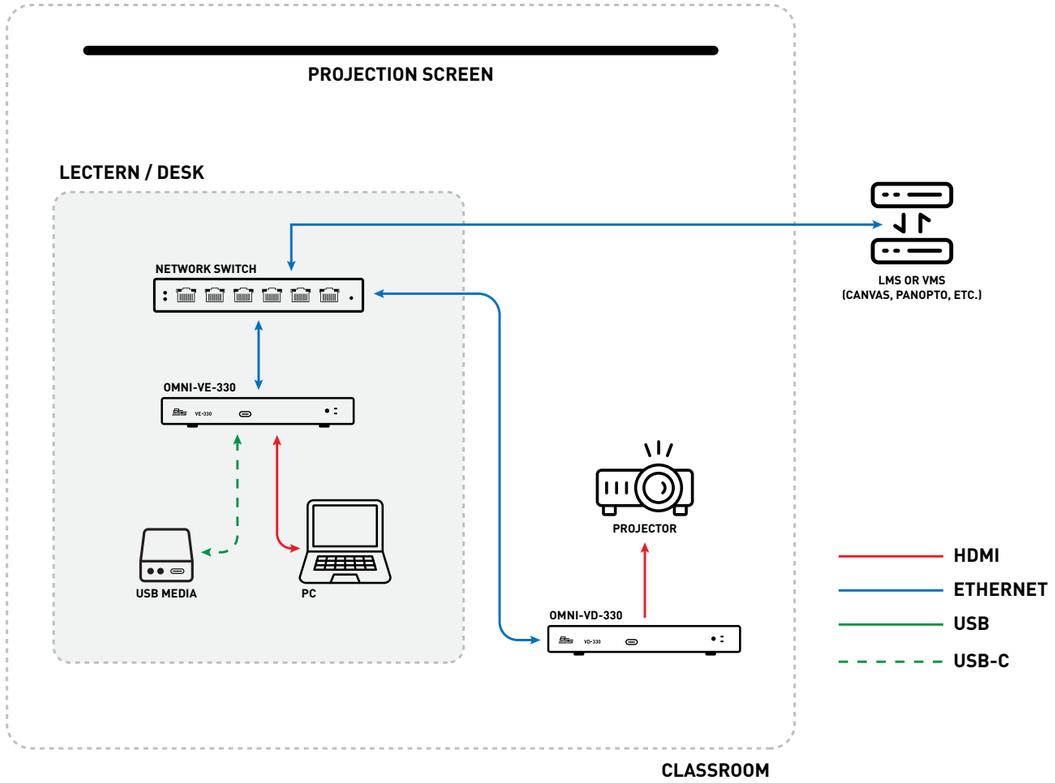
Important note: The OMNI 300 Series USB-C interface can be configured for AV stream recording or for UAC/UVC operation, but not both simultaneously.



EXAMPLE APPLICATION

LECTURE CAPTURE

For classrooms or training spaces that need lecture capture or session recording, OMNI 300 can record AV streams directly to local or portable USB media.



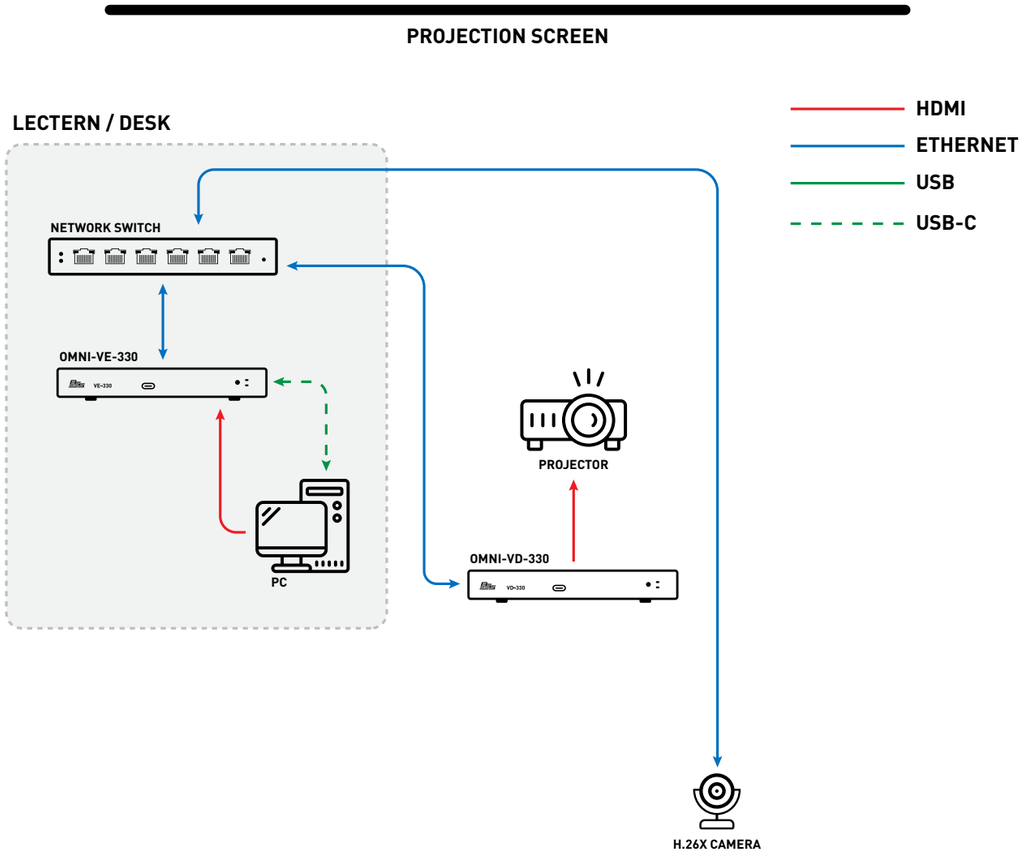
IN THIS SCENARIO:

The OMNI-VE-330 delivers content from a room PC to the projector and records instructional sessions to USB storage. USB media can be provided by the instructor or remain installed in the lectern, with recordings scheduled for transfer to the institution's learning management system (LMS) or video management system (VMS).

EXAMPLE APPLICATION

VIDEO AND AUDIO TO USB CONVERSION FOR REMOTE LEARNING

For hybrid or distance learning, the USB-C port can instead be configured for UAC and UVC operation. With a USB-C connection from the host PC, UVC can allow camera video input, while UAC can be used for microphone input and audio output.



IN THIS SCENARIO:

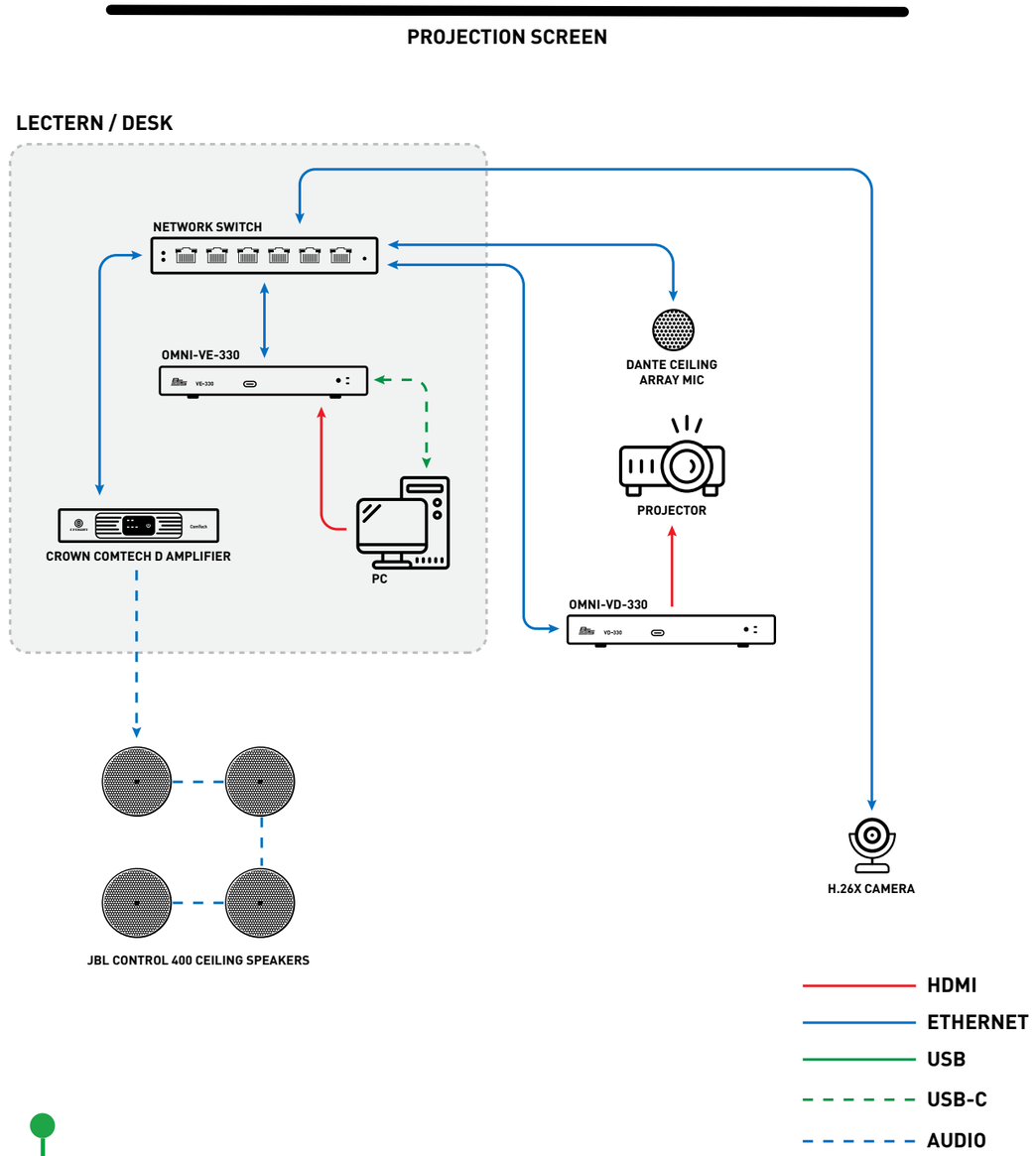
A network-connected camera can deliver an H.26x stream to the OMNI-VE-330, which decodes the stream and presents it to the room PC as a USB video class (UVC) source.

With a Dante-enabled audio system in the room, the OMNI-VE-330 bridges Dante audio to UAC over the same USB-C connection, allowing the room PC to access microphone input and provide audio output.

EXAMPLE APPLICATION

VIDEO AND AUDIO TO USB CONVERSION FOR REMOTE LEARNING - WITH AMP AND SPEAKERS

This creates a single-cable USB-C workflow for camera, microphone, and audio integration in a hybrid or distance learning application.



CHOOSE YOUR OMNI SOLUTION

One Familiar Connector. The Right OMNI Solution.

BSS OMNI AV-over-IP solutions with USB-C make modern meeting spaces and classrooms simple and convenient for every user. By combining familiar USB-C connectivity with networked AV distribution, OMNI can reduce connection friction at the table or lectern while enabling video, USB device access, audio, recording, and conferencing capabilities.

Choose **OMNI 600** when users need a laptop-first connection for video input, USB extension, Dante audio I/O with UAC conversion, and, with the OMNI-VE-660, laptop charging. Specify **OMNI 200** when USB devices need to be distributed around the room or facility. Remember that OMNI 200 is compatible with the OMNI 600 Series. Finally, choose **OMNI 300** when the application requires USB recording to external media, or UAC/UVC conversion from networked audio and video devices.

For best results, match the OMNI product to the intended application and verify USB-C capabilities before final system design. With the right configuration, USB-C becomes more than a convenient connector. It becomes a practical way to deliver intuitive system operation, flexible AV integration, and a reliable experience for meeting participants, instructors, and presenters.



USB-C CAPABILITIES BY PRODUCT / SERIES

This table serves as a quick-reference tool for system designers.

PRODUCT / SERIES	PRIMARY USB-C ROLE	KEY SUPPORTED FUNCTIONS	IMPORTANT NOTES
OMNI-VE-660	USB 2.0 extension and video input	4K60 4:4:4 video via DisplayPort Alt Mode; USB 2.0 extension over IP; 2-channel Dante audio I/O with UAC conversion; laptop charging with external USB PD supply	Charging uses a designated secondary USB-C power-input port and supports up to 100W.
OMNI-VE-630-WP	USB 2.0 extension and video input	4K60 4:4:4 video via DisplayPort Alt Mode; USB 2.0 extension over IP; 2-channel Dante audio I/O with UAC conversion	Does not provide laptop charging.
OMNI 200 Series	USB 2.0 extension and endpoint connectivity	USB 2.0 extension and routing over IP for host and device endpoints; up to four remote endpoint connections; Dante-to-UAC bridging on OMNI-UE-210	OMNI-UD-210 and OMNI-UD-210-WP provide 5W on USB-C for USB devices such as speakerphones.
OMNI 300 Series	Recording or UAC/UVC conversion	USB recording to external USB media up to 2TB; Dante-to-UAC bridging; independent H.26x stream decoding to UVC	USB-C supports recording mode or UAC/UVC mode, not both simultaneously.



OMNI

USB-C in OMNI AV-over-IP Products

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