VERTIV™

Avocent® LongView™ 5500/5520

Installer/User Guide

High Performance KVM Extender System

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Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit https://www.vertiv.com/en-us/support/ for additional assistance.

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1 Product Overview

The Avocent LongView 5500/5520 extender system is a DisplayPort KVM extender that enables you to locate your critical computing hardware in a secure and temperature controlled environment, away from the user workstation, while maintaining the same desktop experience. Using either one or two CATx cable links, you can achieve separation distances of up to 150 meters/492 feet between the transmitters and receivers. At such distances, the units can transfer high resolution DisplayPort video, USB 2.0 (low/full and hi-speed), digital and analog audio plus RS-232 serial.

This document primarily focuses on the basic operations of the extender system. To initially install the system, please refer to the Vertiv™ Avocent® LongView™ 5500/5520 High Performance KVM Extender System Quick Installation Guide located on the product page at www.vertiv.com.

1.1 Features and Benefits

1.1.1 Video support

The Avocent LongView 5500/5520 extender system provides the highest possible video bandwidth between the transmitters and receivers. To allow for the differing grades of CATx links, the extender system periodically checks the quality of the link and can accurately determine which of the two video transfer modes can be supported. The extender system supports low rate mode and high rate mode.

Low rate mode allows the transmitter and receiver extender units may be placed up to 492 feet (150 m) apart.

High rate mode provides a second video port and more than twice the video bandwidth capability as low rate mode. In high rate mode, there is enough video bandwidth to support a single high resolution 2560 x 1600 display or two 1920 x 1200 displays (at 60 Hz refresh) or even 4K video, 4096 x 2160 (at 30 Hz refresh, single display). For more information about these modes, refer to Operating Modes on page 6 .

The following table displays the video bandwidth capabilities for each system model.

Table 1.1   Video Bandwidth Capabilities

Item	Fiber	CATx
Avocent LV5500	Single head at 4K maximum	Single head at 4K maximum
Avocent LV5520	Dual head at 4K maximum	Single head at 4K maximum Dual head at 2K maximum
Distances	Up to 4 km	Up to 100 m

1.1.2 Extended Display Identification Data (EDID) management

The extender system intelligently manages the EDID information that each video display provides before reporting to the host computer.

The Avocent LongView 5500/5520 extender system supports, but is not limited to, the following video resolutions. All resolutions are displayed at 60 fps.

- 1920 x 1080 (HD)
- 1920 x 1200 (WUXGA)
- 2048 x 1080 (2K)
- 2048 x 2160
- 2560 x 1080

- 2560 x 1440 (WQHD)
- 2560 x 1600 (2.5K)
- 2560 x 1600 (WQXGA)
- 2560 x 2048 (QSXGA)
- 3840 x 2160 (UHD)
- 4096 x 2160 (4K)

1.1.3 USB support

A wide range of USB devices are supported on the receiver via the four ports on the front of the unit. The Avocent LongView 5500 extender system has four low/full speed (version 2.0) USB ports for keyboards and mice and other HIDs (Human Interface Devices). The Avocent LongView 5520 extender system has three low/full speed (version 2.0) USB ports for keyboards and mice and other HIDs and one hi-speed (version 2.0) transparent USB port with transfer rates up to 80 Mbits/sec and supports mass storage and isochronous devices.

1.1.4 Audio support

The Avocent LongView 5500/5520 extender system can transfer analog and digital audio signals across the CATx cable link. Standard analog audio is supported through 3.5 mm jacks on the transmitters and receivers.

1.1.5 Serial support

The transmitters and receivers each have serial Options ports, which are used for firmware upgrades. The ports can also be used for transferring high speed serial data across the CATx link. For more information, refer to Operating Modes on page 6 .

1.2 Appearance and Components

Figure 1.1 below and Figure 1.2 on the next page show the connectors on the transmitters and receivers.

Figure 1.1 Avocent LongView 5520 Transmitter
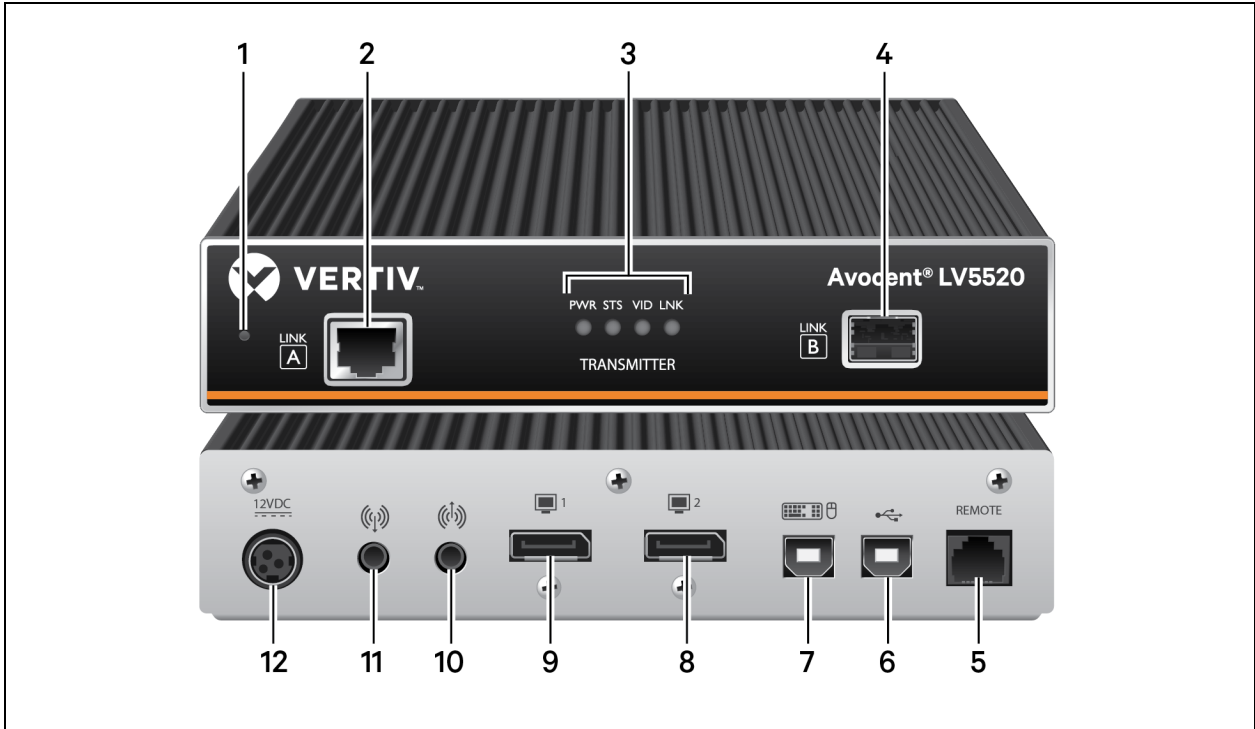
Number	Description
1	Recessed reset button
2	CATx port for alternative link
3	Front panel indicators
4	SFP port for fiber optic link
5	Remote port for RS232 serial devices
6	USB port
7	USB port for keyboard and mouse
8	Secondary DisplayPort video input
9	Primary DisplayPort video input
10	Audio line-out
11	Audio line-in
12	Power input

Figure 1.2   Avocent LongView 5520 Receiver
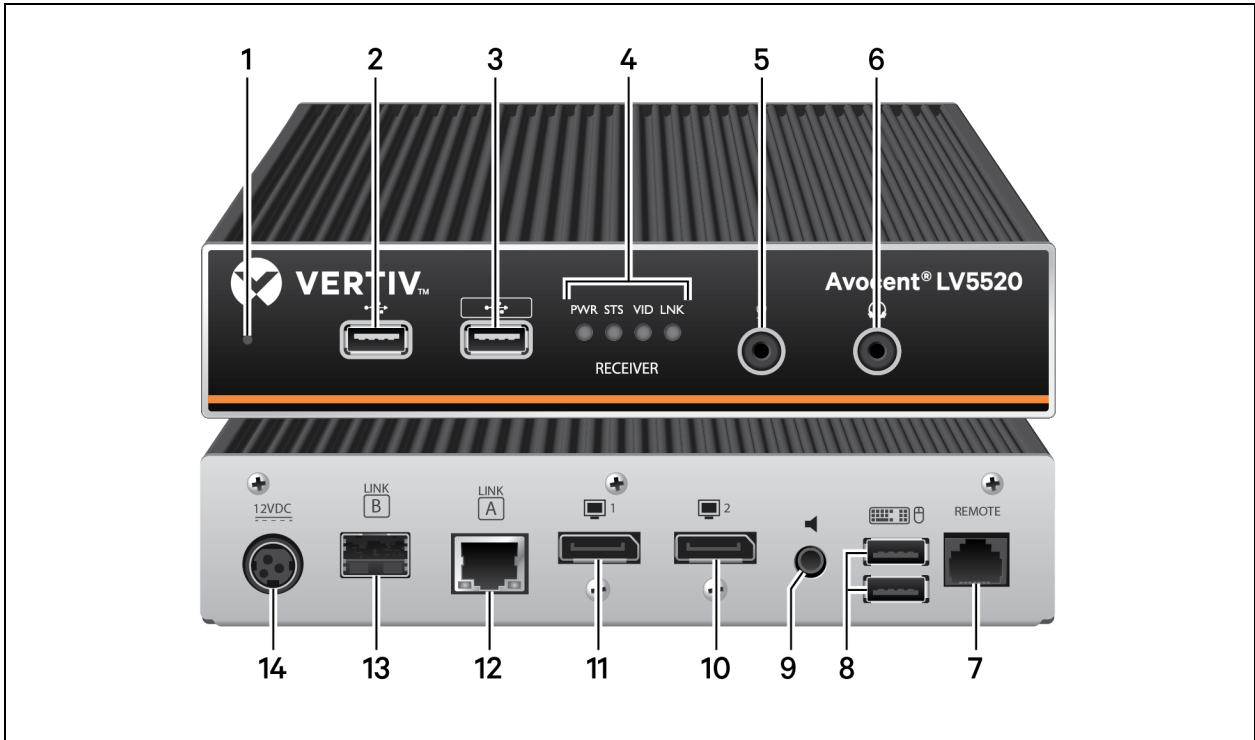
Number	Description
1	Recessed reset button
2	USB port for HID devices
3	USB port for transparent USB
4	Front panel indicators
5	Microphone input
6	Headphone output
7	Remote port for RS232 serial devices
8	USB ports for keyboard and mouse
9	Speaker port
10	Secondary DisplayPort video output
11	Primary DisplayPort video output
12	CATx port for alternative link
13	SFP port for fiber optic link
14	Power input

1.2.1 Status indicators

The transmitter and receiver contain various indicators that provide status updates. Each extender has four multi-color indicators on their front panels.

Table 1.2   Status Indicators Descriptions

Indicator	Function	Color	Status Description
PWR	Displays the power status of the extender system	Solid Red	Initial boot
		Green	Ready for use
		Flashing Red	An issue has been encountered. Power cycle to see if the issue persists
STS	Displays the link type	Alternating Red/Blue	Upgrade mode
		Alternating Red/Green	Upgrade in progress
		Solid Blue	Fiber 10G link in use
		Solid Green	CATx 5G link in use
		Solid Amber	Warning. See the dashboard for details
		Solid Red	Error. See the dashboard for details
VID	Displays the status of the video connection	Off	No displays connected
		Solid Red	No video on connected displays
		Solid Amber	Video only on one connected display
		Solid Green	Video on both connected displays
LNK	Displays the link status between the transmitter and receiver	Off	No link
		Red	0-25% quality
		Amber	25-50% quality
		Yellow	50-75% quality
		Green	75-100% quality

1.2.2 CATx indicators

The indicators on the CATx port connector of each transmitter and receiver provides information when a CATx link is in use.

Table 1.3   CATx Indicator Descriptions

Indicator	Function	Color	Status Descripion
LINK	Displays the CATx link status between the transmitter and receiver	Green	Illuminates green when there is a CATx link between the transmitter and receiver
SPEED	Displays whether the speed is sufficient	Solid Amber	Speed is below the necessary 5 GB/sec. Check the CATx cable link for issues
		Solid Green	Link speed is good

1.3 Operating Modes

The Avocent LongView 5500/5520 extender system maximizes the data transferred between the extenders. The achievable throughput depends on the length and quality of the cable links joining the units.

Video signals are most sensitive to link quality and for this reason the extenders have two modes of operation: low rate mode and high rate mode. The extenders periodically check the link quality and determine which video transfer mode can be successfully used. The difference between the two modes is considerable as high rate mode can deliver over twice the video bandwidth. You can also choose the operating mode by using the Hotkey functions. For more information, see Using Hotkeys on page 8 .

When the link mode changes, on-screen icons are displayed, while the indicators on the front panels of both units show which mode is currently being used. If a rate change occurs, the entire data link is reset causing a momentary loss of the video, audio and USB services.

1.3.1 Transmission distances using fiber

Depending on the type of fiber you use, you can dramatically increase the operation distance. For example, with multi-mode fiber and an accompanying SFP module, you can achieve distances up to 400 meters. By comparison, with single-mode fiber, the maximum distance is 4 km.

Table 1.4   Transmission Distances

| Distance	Fiber Type	Fiber Color Code	HMX Module
70 m	OM1	Orange	HMX-MM-10G-SFP
150 m	OM2	Orange	HMX-MM-10G-SFP
380 m	OM3	Aqua	HMX-MM-10G-SFP
400 m	OM4	Aqua	HMX-MM-10G-SFP
4 km	OS1	Yellow	HMX-SM-10G-SFP
	OS2		

2 Operation

The Avocent LongView 5500/5520 extender system is designed to be transparent in operation. All peripherals should respond as they would when connected to your host computer.

2.1 Accessing the Dashboard

The Avocent LongView 5500/5520 extender system typically configures itself automatically, collecting EDID information from attached monitors and passing the details to the host computer. Unless an issue is encountered, the extender system works together as soon as they are connected. The front panel indicators are the primary source of status information. There is also a dashboard on-screen display (OSD), which provides a quick overview of link quality as well as confirmation of the status and firmware revisions of both the transmitter and receiver units.

Figure 2.1 On-Screen Dashboard
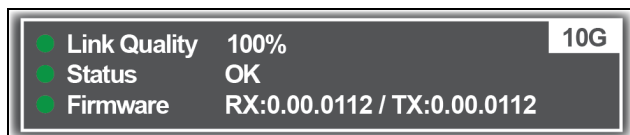
To access or exit the dashboard:

1. Press and release the **Ctrl** key three times in quick succession. The three keyboard indicators flash once per second.

2. Press the numeric key **1** located above the main section of the keyboard.

NOTE: The 1 on the numeric keypad will not work.

When the dashboard is enabled, repeat the steps above to exit it.

2.1.1 Dual-head mode (Avocent LV5520 models only)

When the CATx link is used to connect the transmitter and receiver modules, the available bandwidth is reduced. On Avocent LongView 5520 extender systems, if dual high-resolution video displays are used, you can determine how the available bandwidth is shared between them. Two modes are available:

- Balanced mode - Shares the available video bandwidth equally between the two video displays, regardless of the EDIDs being reported. For example, 1920 x 1200 each on video displays that would ordinarily request a native mode of 2560 x 1600.

- Priority mode - The primary video port takes priority, allowing it to display resolutions up to 4K, as reported by its EDID. The remaining bandwidth is assigned to the second video head.
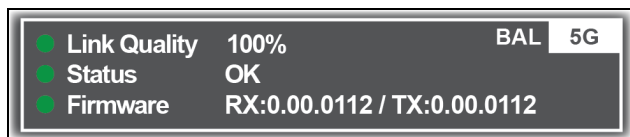
Figure 2.2 Balanced Mode Example

Figure 2.3   Priority Mode Example

To choose the dual-head mode:

1. Press and release the **Ctrl** key three times in quick succession. The three keyboard indicators flash once per second.

2. Above the main section of the keyboard, press **6** for Balanced mode.

   -or-

   Press **7** for Priority mode.

The dashboard displays either PRI for Priority mode or BAL for Balanced mode next to the link speed.

NOTE: If you don't press a key within five seconds, or if you press a key other than 1, 6 or 7, the keyboard reverts to normal operation.

2.2 Using Hotkeys

The Avocent LongView 5500/5520 extender system provides hotkey features, which allow you to check and adjust certain aspects of the operation as follows:

- Monitor link quality using the dashboard.
- Choose the preferred link rate mode.
- Choose between line-in and microphone modes at the receiver.

To use hotkeys:

1. Using a USB keyboard attached to one of the USB A ports on the receiver, press **CRTL** three times. The three keyboard indicators will all flash, once per second.

2. Use the numeric keys **1** to **7**, located above the main section of the keyboard, to select the required action.

Table 2.1   Hotkey Options

Item	Icon	Description
1	N/A	Displays the dashboard.
2		Line-in mode for the receiver analog audio input. The line-in icon is displayed for confirmation.
3		Microphone mode for the receiver analog audio input. The microphone icon is displayed for confirmation.
4		Low rate mode for the preferred link speed. The low rate icon is displayed for confirmation.

Table 2.1 Hotkey Options (continued)

Item	Icon	Description
5	HR	High rate mode for the preferred link speed. The high rate icon is displayed for confirmation.
6	1 2	Balanced mode (available in high rate mode only). Balanced mode allows you to share the available video bandwidth equally between the two video displays, regardless of the EDID being reported. The balanced mode icon is displayed for confirmation.
7	1 2	Priority mode (default mode). Video link 1 takes priority, allowing it to display resolutions greater than 1900 x 1200 (the limit for the video 2 link). The priority mode icon is displayed for confirmation.

NOTE: If you do not press any key within five seconds, or press any key other than the digits 1 to 7, the keyboard will revert to normal operation. To use another hotkey function, repeat the procedure.

2.3 Resetting a Transmitter or Receiver

On the left side of the front panel of each transmitter or receiver is a small reset hole used for special functions.

To reset a transmitter or receiver:

Using a thin tool, such as a straightened paper clip, press and release the button concealed in the reset hole. The power indicator displays red. After a few seconds, the power indicator changes from red to green to indicate the reset is complete.

2.4 Upgrading Firmware

Firmware upgrades can be found from the Vertiv™ Avocent® LongView™ 5000 Series product page at www.vertiv.com.

To upgrade the firmware:

1. Download the appropriate firmware from the product page.
2. Copy the firmware file to an empty FAT-32 formatted USB memory stick.
3. Ensure both the transmitter and receiver are linked and powered on. Also, ensure that no USB drives are inserted in any of the receiver USB ports.
4. Using a thin tool, such as a straightened paper clip, press and hold the reset button on the receiver until the STS indicator flashes red/blue. The receiver is now in upgrade mode.
5. Wait for the STS indicator link to turn green, indicating the link has been established.
6. Insert the USB memory stick with the firmware file into the left USB port on the front panel of the receiver. Each unit's STS indicators flash red/green to indicate the upgrade is in process. When the upgrade is complete, each until will automatically reboot and run the new firmware.

NOTE: If the upgrade is not successful, the STS indicator illuminates red. If necessary, reboot the transmitter and receiver to run the previous firmware.

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Appendices

Appendix A: Technical Support and Contacts

A.1 Technical Support/Service in the United States

Vertiv Group Corporation

24x7 dispatch of technicians for all products.

1-800-543-2378

Liebert® Thermal Management Products

1-800-543-2378

Liebert® Channel Products

1-800-222-5877

Liebert® AC and DC Power Products

1-800-543-2378

A.2 Locations

United States

Vertiv Headquarters

505 N Cleveland Ave

Westerville, OH 43082

Europe

Via Leonardo Da Vinci 8 Zona Industriale Tognana

35028 Piove Di Sacco (PD) Italy

Asia

7/F, Dah Sing Financial Centre

3108 Gloucester Road, Wanchai

Hong Kong

Appendix B: Technical Specifications

Category	LongView 5500	LongView 5520
Environmental		
Nominal Operating Power (W)	10W	10W
Peak Power (W)	12W	12W
External Power	12V DC, 1.5A	12V DC, 1.5A
Max operating Altitude (m)	2000 m (6500 ft)	2000 m (6500 ft)
Operating Temp range	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)
Operating Humidity range (%RH)	0-80%	0-80%
Storage Temp range (°C)	-10 to 50°C (14 to 122°F)	- 10 to 50°C (14 to 122°F)
Storage Humidity range (%RH)	0 to 80%	0 to 80%
Max Thermal Dissipation (BTU)	41.94	41.94
MTBF (Tx / Rx)	530k / 520k hours	510k / 490k hours
MTBF (Pair)	260k hours	250k hours
Local Unit - Transmitter (Tx)		
Tri-color status indicators	4	4
Video	DisplayPort in and local pass-through out	2 x DisplayPort in
USB 2.0 Type B	2	2
Audio	Line in and out analog	Line in and out analog
RJ12 serial port	1	1
RJ45 and SFP+ ports	1	1
Remote unit – Receiver (Rx)		
Tri-color status indicators	4	4
Video	2 x DisplayPort out (second port is a duplicate)	2 x DisplayPort out
USB 2.0 Type A	4	3 full-speed and 1 high-speed (transparent USB)
Audio	Mic in, headset and speaker out	Mic in, headset and speaker out
RJ12 serial port	1	1
RJ45 and SFP+ ports	1	1
Physical Design		
Construction	Robust metal	Robust metal
Transmitter and receiver dimensions	186mm/7.32" (w), 39mm/1.54" (h), 148mm/5.83" (d)	186mm/7.32" (w), 39mm/1.54" (h), 148mm/5.83" (d)
Transmitter weight	1.29kg / 2.84lbs	1.29kg / 2.84lbs
Receiver weight	1.24kg / 2.73lbs	1.24kg / 2.73lbs
Power supply		
-	100 to 240VAC, 47 to 63Hz	100 to 240VAC, 47 to 63Hz
-	12VDC 18W output from power supply unit.	12VDC 18W output from power supply unit.

Appendix C: Remote Port Pin-out

The REMOTE port uses a 6p6c socket. The pin-out is listed below.

NOTE: Pins 2 and 3 are inactive. However, they are still connected internally. No links should be made to these pins.

Table A.1   Remote Port Pin-out

Pin	Signal
1	Sense/5V
2	Not used (do not use)
3	Not used (do not use)
4	GND
5	RX
6	TX

NOTE: The transmitter detects the presence of an incoming power signal to determine whether 5V should be supplied at the receiver.

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