

Vertiv™ Avocent® HMX High Performance KVM Extender System GUIDE SPECIFICATIONS

1.0 GENERAL

1.1 Summary

This specification shall define the Vertiv™ Avocent® HMX high performance KVM extender system that includes features such as fiber, VNC, 4K resolutions, USB, switching, and other features required by today's market. The product line is to include a series of transmitters and receivers to be managed and controlled by the Vertiv™ Avocent® HMX Advanced Manager software.

1.2 Standards

The Avocent HMX high performance KVM extender system shall be designed in accordance with applicable sections of the current revision of the following documents. Where a conflict arises between these documents and statements made herein, the statements in this specification shall govern.

- UL
- FCC
- CE
- TAA

1.3 System Description

1.3.1 Modes of operation

The UPS shall be designed to operate as a true on-line double-conversion system in the following modes:

1. **View Only** - In this mode of operation, it allows users only access to view/hear the video and audio output, and the USB channel is denied.
2. **Shared** - This mode ensures that users can access audio, video, and USB while in conjunction with other users.
3. **Exclusive** - This mode grants exclusive control to one user while all others can simultaneously view and hear, but not control the output.
4. **Private** - This mode will allow a user to gain private access to a system while locking out all others until the channel or connection is terminated.
5. **On-Board Web Interface** - This is a user interface that is provided with the Avocent® HMX Advanced Manager software as a central location for the administrator to view and create user accounts, groups and configure transmitters and receivers, perform database backups along with upgrading the firmware of any linked unit.

1.3.2 Design requirements

1. **Power supply:** Power supply is provided for the Transmitter, Receiver, or Manager.
2. **Network ports:** The Avocent HMX high performance KVM extender system shall provide up to 2 network ports/options which include:
 - 1 Gb copper/ethernet port. (Based off IP Network Standards)
 - SFP Cages - This includes the option for redundant network connectivity. Users can choose between a copper/ethernet SFP or Fiber SFP (Multimode or Single Mode). These will support up to 10 Gb depending on the model. (Based off IP Network Standards)
3. **Video resolution:** Resolution is dependent on the specific model of transmitter and receiver. The maximum resolution the system will support is 4K @ 60 Hz, 3840x2160.
4. **Video interface types** - The Avocent HMX high performance KVM extender system supports a variety of different interface types. Supported interfaces include:
 - DVID
 - VGA
 - DisplayPort
 - DisplayPort++
 - HDMI
5. **USB** - The Avocent HMX high performance KVM extender system supports the following devices:
 - HID devices
 - Keyboard
 - Mouse

The Avocent HMX high performance KVM extender system also supports isochronous communication/devices in certain models or in conjunction with the USB 6000. These devices include:

 - Speakers
 - Microphones
 - Cameras
 - 3rd party devices
6. **Operating systems and software compatibility** - Windows, Linux, macOS, Sun OS.

1.3.3 Power specifications

1. **Type:** External
 - **Input:** 100 VAC-240 VAC
 - **Output:** 12 V 1.5 A-5 A (model dependent)
 - **Consumption:** 7 W-20 W (model dependent)

2. MTBF

- Avocent HMX High Performance KVM extender system transmitters:
 - HMX5150T, HMX5160T, HMX6150T: 2,000,000 hours
 - HMX5200T, HMX6200T, HMX6210T, HMX5100T, HMX8000T: 600,000 hours
- Avocent HMX High Performance KVM extender system receivers:
 - HMX5100R, HMX6500R, HMX8000R: 600,000 hours
 - HMX5200R, HMX6200R: 500,000 hours
- Vertiv™ Avocent® HMX Advanced Manager G2: 600,000 hours

1.3.4 Ambient atmospheric condition ratings

1. Temperature:

- **Operating:** 32°F to 104°F (0°C to 40°C)
- **Non-operating:** 32°F to 104°F (0°C to 40°C)

2. Humidity:

- **Operating and Non-operating:** 20% to 80% relative humidity (non-condensing).

1.4 User Documentation:

The Avocent HMX high performance KVM extender system shall be supplied with Safety Instruction and Warning Sheet, and printed copy of quick install guide. The user manual shall be downloaded from the web and includes, a functional description of the equipment, safety precautions, illustrations, step-by-step operating procedures, and general maintenance guidelines.

1.5 Warranty

The Avocent® HMX Advanced Manager manufacturer shall warrant the Management Platform against defects in materials and workmanship for two years. The no-hassle replacement warranty shall include shipping costs to the customer site for the new replacement unit and shipping costs from the customer site for the return of the failed unit. Optional one-, two-, and four-year uplifted maintenance shall be available from the manufacture.

1.6 Quality Assurance

1.6.1 Factory testing

Before shipment, the manufacturer shall fully and completely test the system to ensure compliance with the specification.

1.7 Security

1.7.1 Secure boot

The system shall provide signed firmware. This signature shall be validated at the time of boot to ensure the firmware is valid.

1.7.2 Encryption

The system shall use TLS1.1 with AES-256bit encryption and shall only use encrypted communication between the end user device or between the manufacturer provide devices.

2.0 MANAGEMENT FEATURES

2.1 Authentication

The system shall provide AD/LDAP as well as local authentication options.

2.2 Authorization

The system shall provide a means to restrict user access to devices and what operations they can perform. These permissions shall be enforced in the system.

2.3 Discovery

The system shall provide a way to discover any physically connected devices.

2.4 Supported Devices

The system shall support IP KVM devices from the manufacturer, virtual machines from the manufacturer.

2.5 Remote Sessions

The system shall provide means to launch remote sessions such as KVM using VNC or RDP based UIs.

2.6 Shared Sessions

The system shall provide the means for multiple users to share sessions on the same device.

2.7 Administration

The system shall provide the means to define users, authentication, authorization.

2.8 Audit Trail and Logs

The system shall generate events for any user activity and provide access to logs.

2.9 System settings

The system shall provide the ability to configure the system settings such as time, events, sessions, and timeouts.

2.10 RESTful APIs

The system shall provide RESTful APIs to integrate with the product.

2.11 Firmware Updates

The system shall provide the means to update the firmware on the managed devices such as transmitters or receivers provided by the manufacturer.

2.12 Ecosystem Management

The system shall provide means to manage the full lifecycle of any manufacturer provided devices which are part of the same family.