



VINX FAQ

v.02



How to Set Up Network to Support VINX IP Video and USB?

All VINX encoders and decoders in a subnet can communicate with each other once the network is set up properly. Setting up the network is relatively easy for smaller systems, while for larger systems, with more switches and possibly routers, it can be a much more complex task. Nevertheless, it is not the VINX devices that make setting up a complex network difficult.

As VINX uses well founded and commonly used IT protocols and operation modes for video, audio, USB, serial and IR data transfer, the user manual of VINX and the accompanying application notes shall establish a firm basis for the network administrator. Setting up a simple system with a single L3 managed switch is even more straightforward and can be done without the help of a network administrator.

Once the network equipment is configured properly, VINX devices can be connected to the network and will discover each other quickly. Associating a decoder with an encoder is as simple as specifying the same Video Stream ID on the VINX decoder as was set on the VINX encoder, by using the front panel DIP switches or via the graphical user interface.

To utilize USB KVM connection, connect the VINX encoder to the computer via an USB cable, then connect the USB HID devices (mouse or keyboard) to a VINX decoder associated with the respective encoder. Please note that only one decoder can send USB data to an encoder at a given time. This is automatically arranged in a Unicast environment when an encoder transmits to a dedicated decoder in a point-to-point configuration. However, in a multicast environment, in which an encoder supplies multiple decoders, the appropriate decoder shall be selected as the USB source. This can be accomplished by the web user interface or by pressing the Connect button on the decoder front panel.

What Special Settings are Required on the Network Switch?

A general application note has been created to define the features a managed L3 switch must support in order to fully exploit the potential in a VINX based system. It is available at:



GIGABIT NETWORK SWITCH REQUIREMENTS FOR VINX ENCODER AND DECODER

Switch-specific application notes will also be available soon to explain how to set up different switches. Managed or Unmanaged Network Switch?

VINX can work both in Unicast mode, which is suitable for point-to point operation, and in Multicast mode, where one source can send video and audio to multiple destinations. Multicast mode is the preferred operation mode. As its name suggests, in multicast mode the video and audio streams, and a part of the control information travel in multicast packets. Multicast packets can be routed by multicast-capable L3 managed switches, without expectable issues.

On the other hand, an L2 switch usually converts multicast traffic to broadcast traffic. Thus, the aggregated video traffic from all the encoders in the system will be flooded to all interfaces of the switch. This will definitely have undesirable effects on video performance as the traffic from multiple encoders will be directed as broadcast packets to a decoder.

A normal L2 unmanaged switch will suffice for Unicast mode. However, in Unicast mode the extra benefits of a VINX system (one-to-many operation) are not available. Please note, that even Unicast mode uses multicast control packets. Hence, in a network where Multicast is disabled, the encoders and decoders will not find each other and transmission will not be possible.



How is Switching Controlled with VINX from an External Control System?

Lightware offers her proprietary, easy-to-use LW3 protocol for controlling different devices, including VINX encoders and decoders. For basic functions like switching, only the Video Stream ID parameter has to be modified on the VINX-110-HDMI-DEC. When the respective decoder is the part of a video wall, all decoders have to be modified. To check how to switch programmatically, use the Programmers' Terminal while switching on the graphical user interface: the switching command will be echoed in the terminal.

How to Configure and Manage All of the VINX Endpoints on a Network?

All VINX encoders and decoders can be controlled via their built-in web user interface. Even though the advanced features of the devices cannot be set up in bulk through the web interface, carefully selected factory values ensure that the default settings work flawlessly in most use cases.

To further ease basic tasks, source and destination switching can also be done through the web interface of an individual encoder or decoder device: the output of an encoder can be switched to all video destinations (individual decoders and video walls) from the encoder GUI, without the need to connect to each decoder. Similarly, if the input to a decoder is modified and the decoder is part of the video wall, the settings are propagated to all decoders in the video wall. Setting up a video wall is also a function available from the web user interface of any device operating in Multicast mode in the system.

VINX encoders and decoders can interpret Lightware's LW3 protocol and can be controlled by external control systems. The development of a dedicated Lightware control application for managing a VINX system is planned for the near future.

Is a Certification from Lightware or Other Networking Certification Required to Install VINX?

The user interface of VINX has been designed to be as user friendly and intuitive as possible, so no certification is required from Lightware. However, the installation of a switch or other network equipment might require certification.

What Expertise is Required to Deploy a VINX System?

A good understanding of networking and also video related information (e.g. EDID, video formats) will definitely speed up installation. Being aware of the limitations of the VINX system and its place in the Lightware portfolio will prevent misunderstandings. Bear in mind that VINX is a device that uses compression, so even though the compression is quite efficient, it might cause image degradation visible to trained eyes.

What Networking Knowledge is Required to Deploy a VINX System?

A good understanding of Layer 2 and Layer 3 is not a must, but can ease installation. The system itself is designed so that once all networking requirements are met, configuration itself should be fairly easy.

What Protocols Does VINX Use on the Network?

VINX encoders and decoders use TCP over IP and UDP over IP to distribute video, audio, USB, IR and serial data together with control information. To ease network discovery, mDNS is also used through which identification is made easy. No other session management and application layer protocols are used.



What Type of Network Security Does VINX Offer?

The security feature VINX offers is the encryption of the video stream in AES128 with a preset key.

Is There Any Other Relevant Data That Can be Provided to the Network Administrator?

The **application note** about the switch requirements is definitely a document that should be handed over to the network administrator. Moreover, the bandwidth requirement of the devices shall also be considered when designing the network. This information, and the information on the different data streams produced by the encoders and the decoders can also prove useful for a network administrator.

Can VINX Run on an Existing Corporate Network or Only on a Dedicated AV Network?

Technically, an existing corporate network can be used, as the encoder can be set up to adapt to the available bandwidth. However, it is recommended to use a completely separate network with managed switches that provide all the features required and outlined in the **application note**. Should there be an unmanaged, pure L2 switch in the signal path without VLANs being defined, the entire network can be flooded with multicast traffic turned to broadcast traffic by the switch. This has a negative effect on video performance, and it can also render other office applications unusable.

If Running VINX on a Corporate or Existing Network, is it Recommended to Put All VINX Equipment on its Own VLAN?

For the time being, VINX does not have the ability to VLAN tag packets, but port based VLAN tagging can be used. Port based VLAN tagging is also useful to prevent the network segments outside of the VLANS from being flooded in the very unlikely case of a misconfiguration.

Will VINX IP Traffic Interfere with Other Unrelated Network Traffic?

VINX IP traffic does not interfere with other traffic unless the very same multicast address is used by VINX and the other application generating unrelated traffic. In such a case VINX can be set to use a different multicast base address. Nevertheless, it is recommended to use a separate network with dedicated network equipment for VINX.