LIGHTWARE VINX-110-HDMI-DEC Over IP Scaling Multimedia Decoder with USB KVM User Guide

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visual engineering
LIGHTWARE

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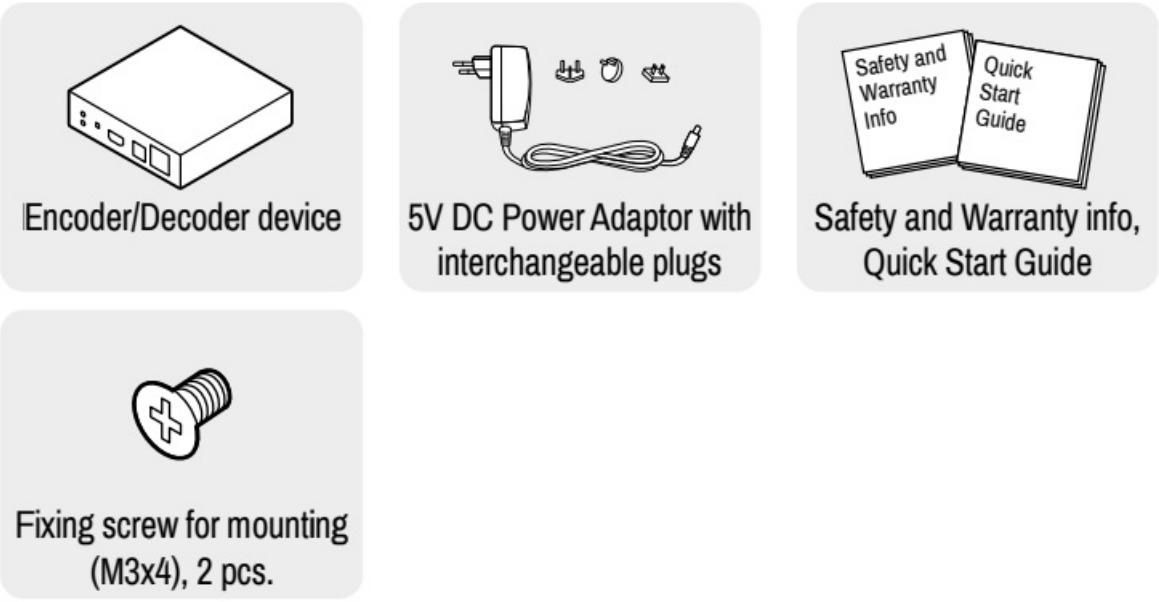
Box Contents



Introduction

VINX-120-HDMI-ENC and VINX-110-HDMI-DEC encoder/decoder multimedia extenders to extend HDMI video from a local source to a remote sink. The devices can be connected either via a direct CATx cable connection or through a Gigabit Ethernet Switch (L3-switch is necessary) in between. The maximum delivery distance can reach up to 100 m with minimal latency and employ a quality, proprietary wavelet transform based image compression. The maximum supported resolution is 3840 x 2160 @ 30Hz with 7.1 audio and scaling is available on the receiver side with optional image cropping. Optionally, bidirectional RS-232 signal transmission, USB Mass storage and Human Interface Device (HID*) signal transmission is also available. * HID: USB mouse, keyboard, presenter, etc.

Important Safety Instructions
Please read and keep the information in the attached safety instructions supplied with the product before you start using the device.

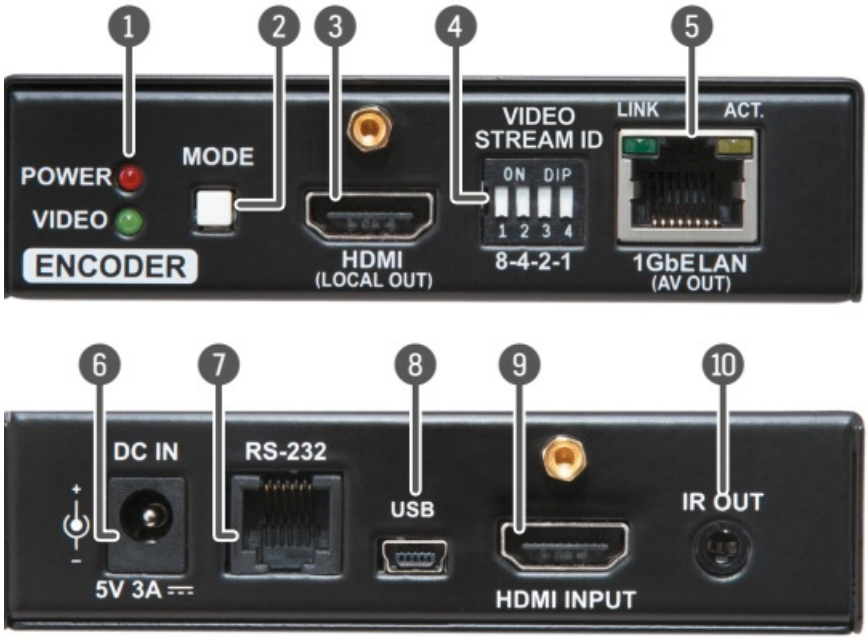
Compatible Devices The signal transmission works only between these Encoder and Decoder devices including the VINX-AP series, but other Lightware devices cannot be connected to the 1GbE LAN (AV input/output) ports.

Front View and Rear View

Encoder – Front View and Rear View

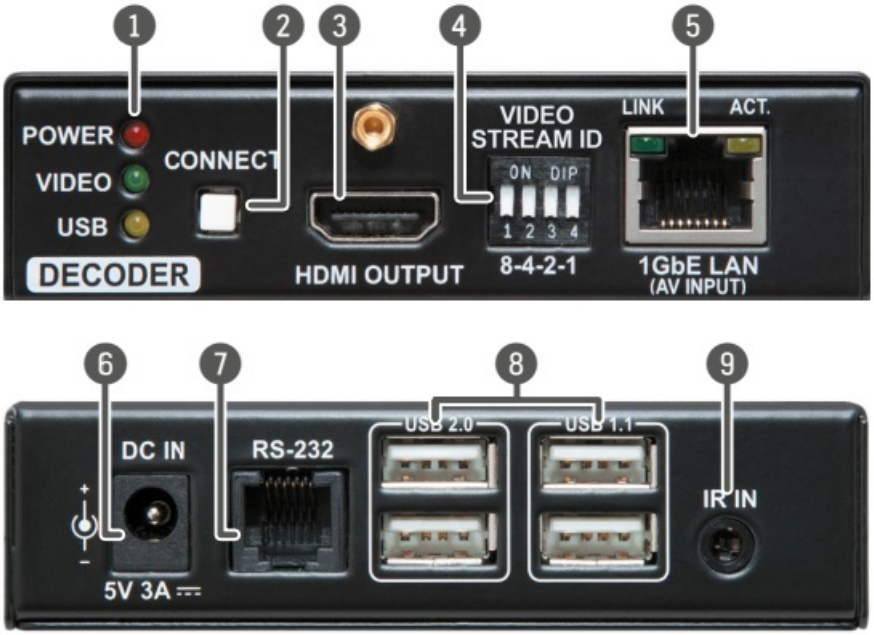
- Status LEDs See the attached list.
- Mode Button Short press (less, than 3 sec): switching between the Video and Graphic modes.
- Long press (more, than 3 sec): reset to factory default settings.**
- HDMI Output
- Port Forwarding the same Audio / Video content as the AV
- Output Port.
- DIP Switch Linking Encoder and Decoder devices (HW setting).
- AV Output Port RJ45 connector for outgoing A/V signal to the Decoder device(s) or Network switch.
- DC 5V Input 5V DC input for local power supply.
- RS-232 Port RJ12 connector for transparent serial communication(point-to-point or point-to-multi point).
- USB Port Mini B-type connector for USB pass-through application.

- HDMI Input Port Video port for DVI or HDMI signal. q IR Output Port IR signal output connector (for 3.5 mm Jack, 3-pole, TRS plug).

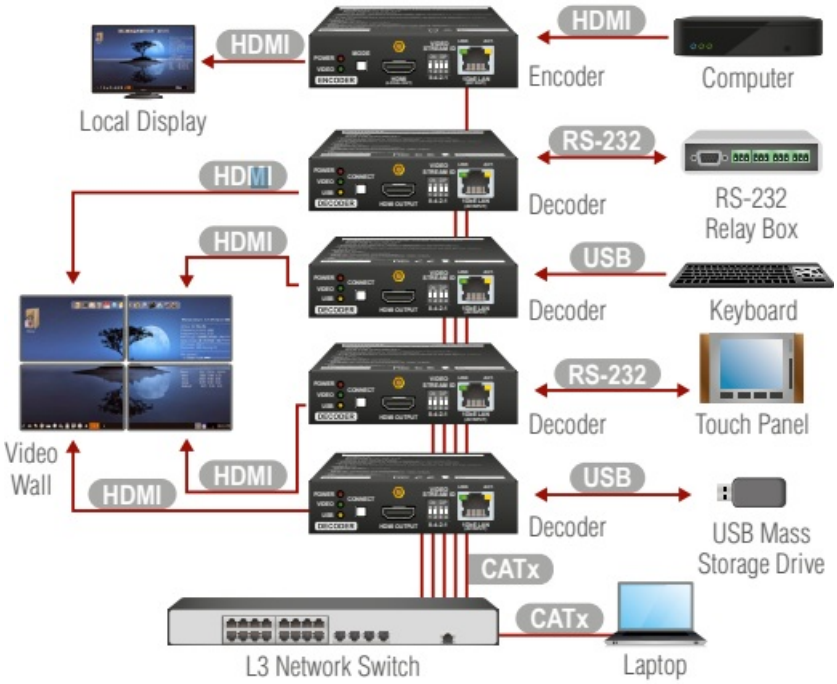


Decoder – Front View and Rear View

- Status LEDs See the attached list.
- Connect Button Short press (less, than 3 sec): acquire USB connection (only in Multicast mode).
- Long press (more, than 3 sec): reset to factory default settings.**
- HDMI Output
- Port
- HDMI output to a sink device.
- DIP Switch Linking Encoder and Decoder devices (HW setting).
- AV Input Port RJ45 connector for incoming A/V signal from the Encoder device or Network switch.
- DC 5V Input 5V DC input for local power supply.
- RS-232 Port RJ12 connector for transparent serial communication (point-to-point or point-to-multi point).
- USB Ports USB 1.1 and 2.0 compatible A-type ports for transmitting USB HID devices in Unicast mode.
- IR Input Port IR signal input connector (for 3.5 mm Jack, 3-pole, TRS plug).



Connecting Steps (Multicast Mode)



Status LEDs

Power LED

- OFF: no power source is connected to the device.
- BLINKING: the device is booting.
- ON: the device is powered.

Video LED

- OFF: the device is not connected to a network.
- BLINKING: the unit is connected to a network but no video streaming is in progress.

- ON: the unit is connected to a network and video streaming is in progress.

Power and Video LEDs

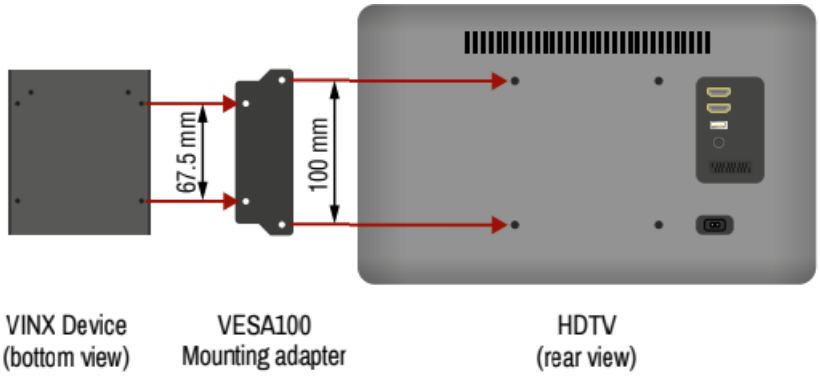
- BLINKING together: there is a Video Stream ID clash in the network.

USB LED

- OFF: there is no USB connection between the Encoder and the Decoder devices.
- ON: there is a USB connection between the Encoder and the Decoder devices.

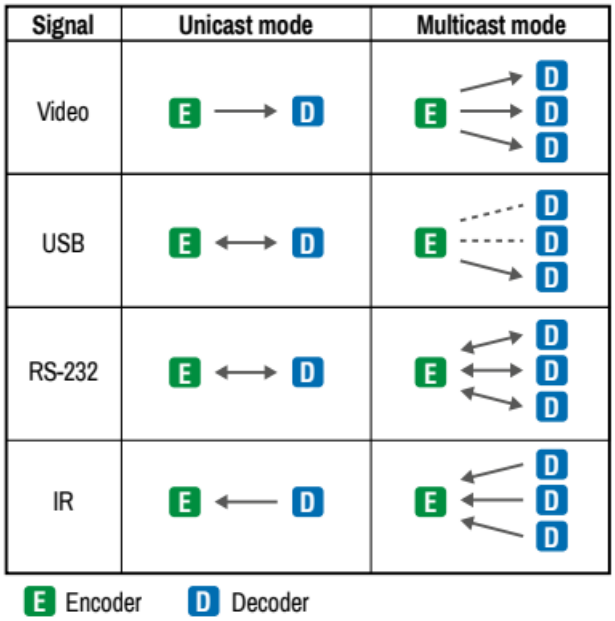
To mount the device Lightware supplies optional accessories for different usage:

- VESA100 Mounting adapter for extenders
- Under-desk mounting kit or Under-desk double mounting kit
- 1U high rack shelf



To order mounting accessory kits please contact sales@lightware.com. Mounting by Using the VESA100 Mounting adapter for extenders

Device Concept



Preparing the Network
The Requirements of the Switch The recommended type of network device: 1GbE network with Layer 3 switch,

Gigabit Ethernet. In TCP/IP terminology Layer 2 is the data link layer that is responsible for splitting up the information coming from higher layers in the TCP/IP stack into Ethernet frames. An Ethernet frame contains labeling information with source and destination physical addresses (called source and destination MAC address). These physical addresses uniquely identify the source and destination physical devices (e.g. a VINX encoder and a VINX decoder). Ethernet frames provide error resilience by incorporating a redundancy check field through which transmission errors can easily be detected. The device that does use only the physical address information found in the Ethernet frame to root the packet from one of its input ports to one or more of it output ports is an unmanaged switch. A managed switch, on the other hand, can handle the traffic and forward input packets to output packets by utilizing information from higher layers. This gives the managed switch more flexibility and also allows for more sophisticated functions like multicast forwarding. Since even a simple VINX network where one VINX encoder supplies more VINX decoders relies on multicasting, a multicast capable switch (i.e. a managed one) is a must. The managed switch shall offer the following capabilities:

- IGMPv2
- IGMP snooping, IGMP fast leave, IGMP querier
- Multicast filtering
- Jumbo frames

Arranging the Extenders to Groups
Encoder and Decoder devices have to be assigned to each other in order to transfer the desired video and control signals – by any of the following ways:

- HW setting: use the DIP switch at the front panel to set the Video stream ID: set the DIP switch states to the same value at the desired devices. If you set a DIP switch at a device, the other devices can be configured via the web page. Please note that the value of DIP switch assigned Video Stream ID can range from 1 to 15 inclusive.
- SW setting: set the Video stream ID via the built-in web page. Connect to the device as described in the Software Control section. The Video Stream ID shall be between 1 and 9999 inclusive. In this case make sure that the DIP switches of the affected devices are set to ‘0000’.

Video Stream ID Rules

The following rules are defined to avoid Video Stream ID conflicts:

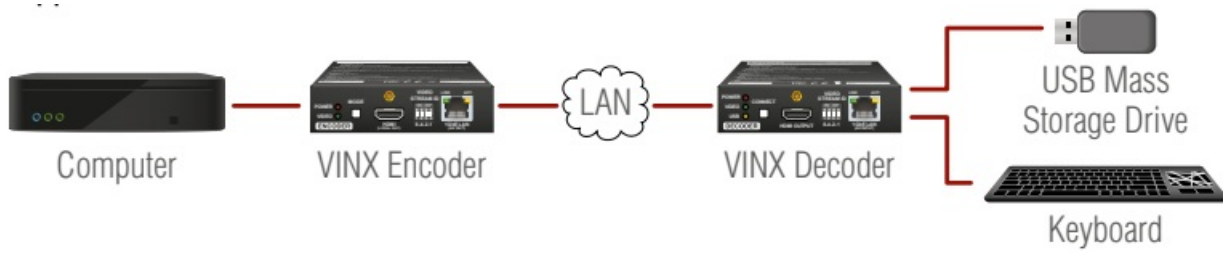
- When the DIP switch is in ‘0000’ position the SW setting will be valid.
- When the DIP switch is not in ‘0000’ position the HW setting will be valid.
- When the DIP switch is set back to ‘0000’ the SW setting will inherit the ID (the previous DIP switch value).
- SW setting and HW setting can be combined within the group but in this case the DIP switch value will determine the common Video Stream ID.

Factory Default Settings

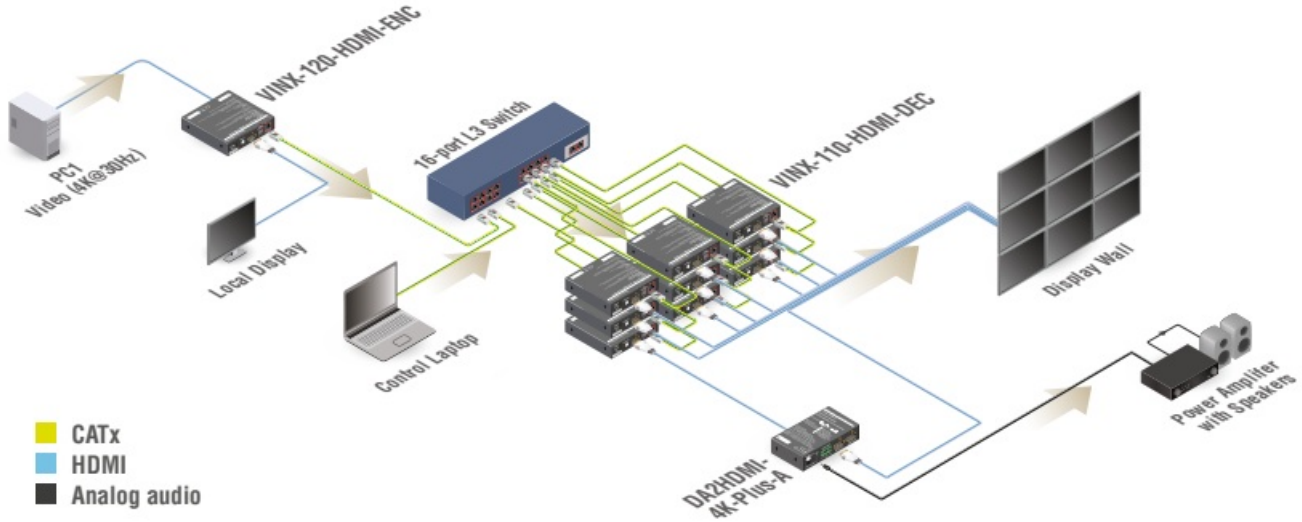
IP address	Dynamic (AutoIP with DHCP fallback)
RS-232 port setting	115200 BAUD, 8, N, 1
DIP Switch state	0000
Video stream ID	1
Connecting method	Multicast mode
Emulated EDID	F47 (Universal HDMI EDID) *
User EDID memory	Empty (cleared)
Output video mode (Encoder)	Video mode
Output scaling (Decoder)	Pass-through, no rotation
Defined video walls	Empty (cleared)

USB Transmission

The USB data transmission works as shown in the figure below. The USB devices are connected to the Decoder, the host device (computer) is connected to the Encoder by the supplied USB cable.



Typical Application



Supported Resolutions

Resolution	Refresh Rate (Hz)	Resolution	Refresh Rate (Hz)
640 x 480	50/59/60/72/75	1440 x 900	59/60/75
720 x 480 (480P)	50/59/60/75	1600 x 900	59/60
720 x 576 (576P)	50	1600 x 1024	59/60
800 x 600	50/59/60/72/75	1600 x 1200	50/59/60
1024 x 768	50/60/75	1680 x 1050	50/59/60
1152 x 864	60	1920 x 1080i	25
1280 x 720 (720p)	50/59/60/75	1920 x 1080 (1080P)	50/59/60
1280 x 768	50/59/60/75	1920 x 1200	50/60
1280 x 800	59/60/75	2560 x 1080	24/25/30/60
1280 x 960	50/59/60	2560 x 1200	30/60
1280 x 1024	50/59/60/75	2560 x 1600	60
1360 x 768	50/59/60/75	3840 x 2160	24/25/30
1366 x 768	59/60	4096 x 2160	24/25/30

Software Control – by Using the Built-in Webpage
When the device and a computer are connected to the same network, the VINX can be configured via a web browser (Google Chrome and Mozilla Firefox are recommended):

- Arrange the desired extenders with source/sink devices.
- Connect the extenders to the network switch and power them on.
- Connect a suitable control device (e.g. computer, mobile device) to the same network.
- Open the web browser and type the IP address of the desired device in the address line. If the address is not known try any of the followings:
    - The factory default IP address is Dynamic (DHCP). Check the list of the connected devices (DHCP client

list) on the DHCP server and note the IP address.

- In the case of a Decoder, type the following in the address line: **http://LWR-clientAABBCCDDEEFF.local**
- In the case of an Encoder, Type the following in the address line: **http://LWR-gatewayAABBCCDDEEFF.local**
- AABBCCDDEEFF is the MAC address of the device (without hyphens) – which can be seen on the housing of the extender.

Video Wall Layout Examples
The following examples show how the VINX devices can be arranged to video wall applications. See more details in the User's Manual available at **www.lightware.com.**

Multicast Mode with Video Wall
Features of the system:

- Displaying one of the two video signals on the video wall and on a sink.
- Displaying the other video signal on a sink.
- The other video signal can be displayed on the video wall by using software tools (built-in web or LW3 protocol commands).

Two Video Walls and Local Monitors with One Encoder

Features of the system:

- One Encoder is enough to supply the Decoders.
- Displaying one video signal on two different video walls (e.g. in different rooms).
- Displaying the video signal on 1-1 single sinks.

Further Information

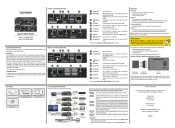
The User's manual of this appliance is available on **www.lightware.com.** See the Downloads section on the website of the product.

Contact Us

- **sales@lightware.com**
- +36 1 255 3800
- **support@lightware.com**
- +36 1 255 3810
- Lightware Visual Engineering LLC.
- Peterdy 15, Budapest H-1071, Hungary

- Doc. ver.: 1.4
- 19200236

Documents / Resources

	**LIGHTWARE VINX-110-HDMI-DEC Over IP Scaling Multimedia Decoder with USB KVM** [pdf] User Guide VINX-110-HDMI-DEC, VINX-120-HDMI-ENC, VINX-110-HDMI-DEC Over IP Scaling Multimedia Decoder with USB KVM, VINX-110-HDMI-DEC, Over IP Scaling Multimedia Decoder with USB KVM, Over IP Scaling Multimedia Decoder, Scaling Multimedia Decoder, Multimedia Decoder, Decoder

References

- **Lightware Visual Engineering**