LIGHTWARE WP-VINX-110P-HDMI-ENC AV-Over-IP System for Gigabit Ethernet Networks User Guide

Contents

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Important Safety Instructions

Please read the supplied safety instruction document before using the product, and keep it available for future reference.

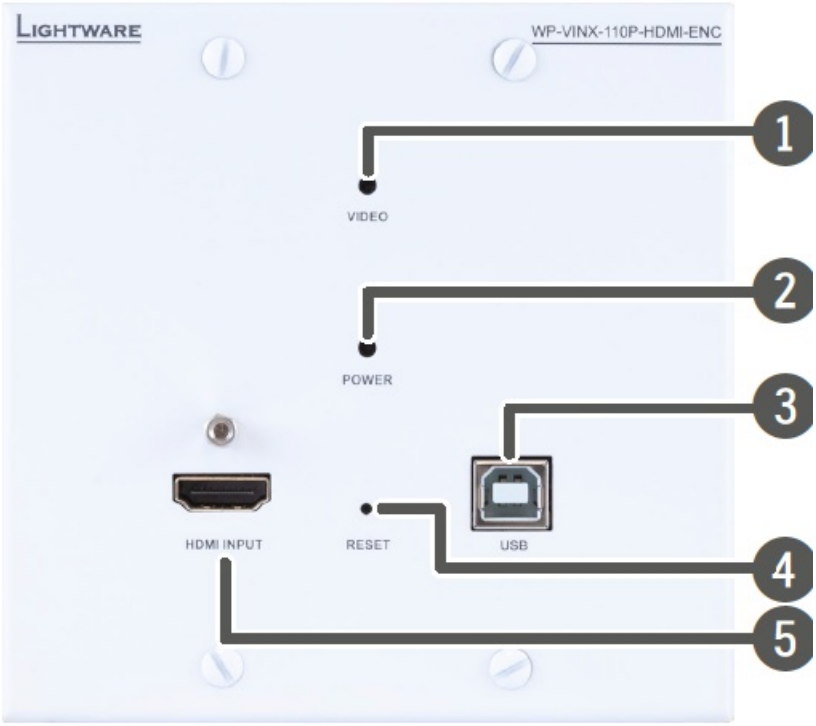
Introduction

WP-VINX-110P-HDMI-ENC encoder is a multimedia extender 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 device can also be powered over Ethernet (PoE). As a wall plate, it saves space and blends in more, while still enabling easy signal transmission. Optionally, USB signal transmission is also available.

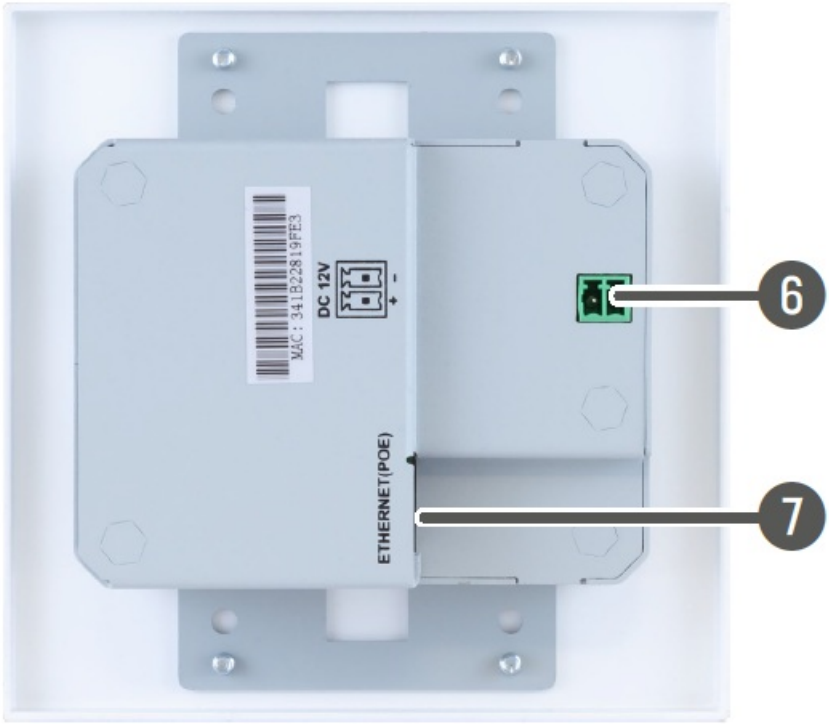
Compatible Devices

The WP-VINX-110P-HDMI-ENC is compatible with all previous VINX devices (VINX-120-HDMI-ENC and VINX-110-HDMI-DEC (basic VINX) devices and the VINX AP-series).

Front View



Back View



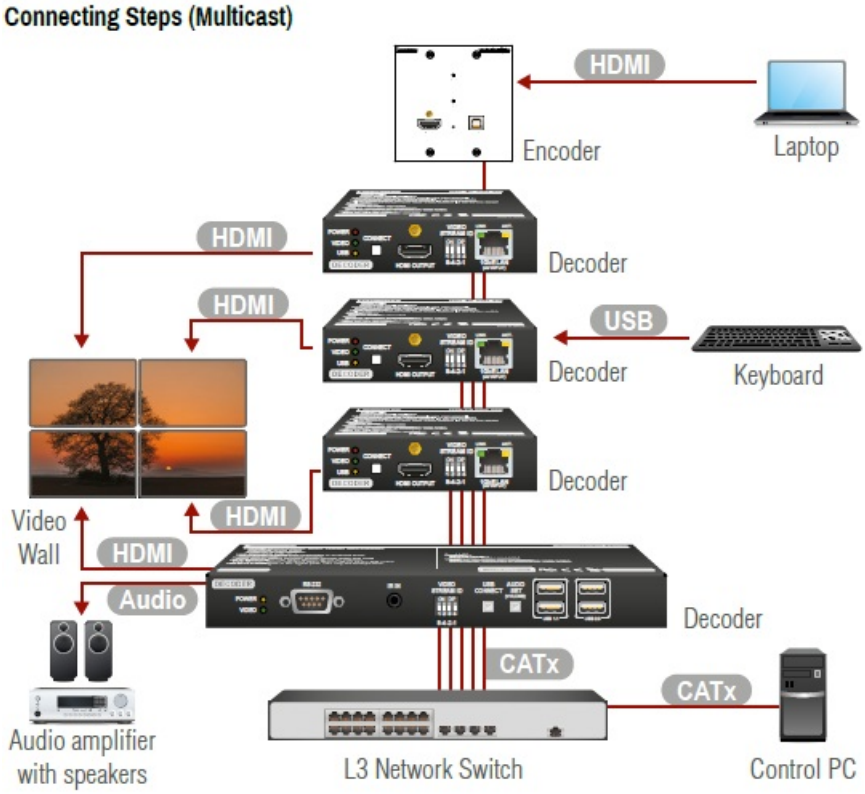
Side View

1. Video signal
2. Power status LED
3. USB port
4. Reset button
5. HDMI input port
6. DC input port
7. Ethernet port

- The LED gives immediate feedback about the current video signal status of the device.
- off There is no network connection.
- blinking (green) The device is connected to a network, but there is no video stream in progress.
- the device is connected to a network and there is video streaming in progress.
- The LED gives immediate feedback about the current power status of the device.
- off The device is not powered.
- blinking (red)The device is booting.
- on the device is powered
    - B-Type connector for USB pass-through application (e.g. for connecting the Encoder to a computer). Reboots the device.
    - Port for DVI or HDMI video signal.
    - 12V DC input connector for local powering

- .Locking RJ45 connector for Ethernet connection. Can also be used to power the device remotely over Ethernet (PoE).

Connecting Steps (Multicast)

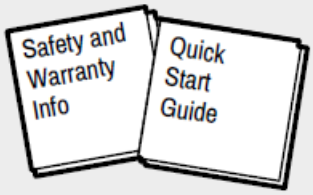


First of all, please set the parameters of the L3 Switch to meet the requirements; see the list in the 'Preparing the Network' section.

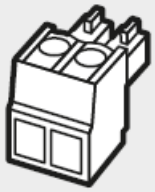
- **CATx:** Connect CATx cables between the Extender devices and the L3 Switch.
- **HDMI:** Connect an HDMI source device (e.g. a laptop) to the HDMI input port of the Encoder. Connect HDMI sink devices to the HDMI output port of the Decoder devices.
- **USB:** Optionally for USB extension: connect USB devices to the USB ports of the Decoders. Connect the desired host device (e.g. Computer) to the Encoder via the USB mini-B type port. Please pay attention to the indicated port types (USB 1.1 and USB 2.0 support).
- **Audio:** Optionally for Audio extension: connect an audio amplifier to the Analog audio output port of the Decoder.
- **Power:** Connect the power cord of the supplied adaptor to the DC input first, then to the AC power socket.
- **CATx:** Connect a control PC to the L3 switch for fine-tuning of the VINX devices.

Box Contents

Encoder device
(with cover plate)



Safety and Warranty Info,
Quick Start Guide

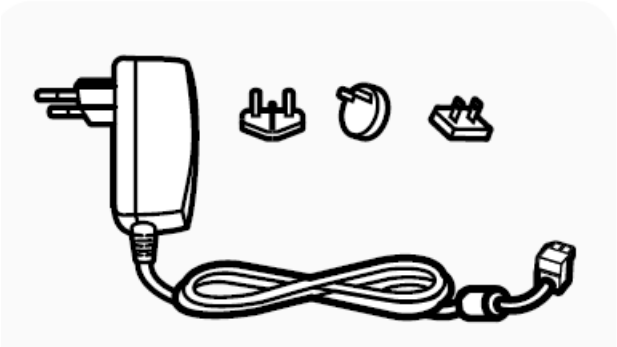


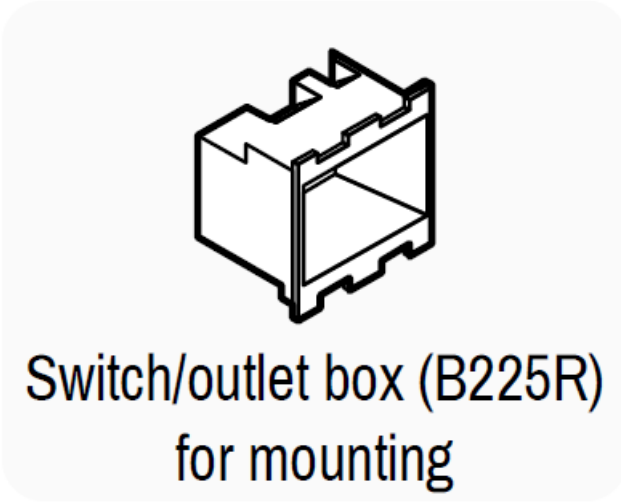
Phoenix Combicon 2-pole
Connector

Mounting screws (4 pcs.,
UNC6-32x20mm)

Fixing screws (4 pcs.,
UNC6-32x7mm[1])

The following accessories can be purchased separately sales@lightware.com

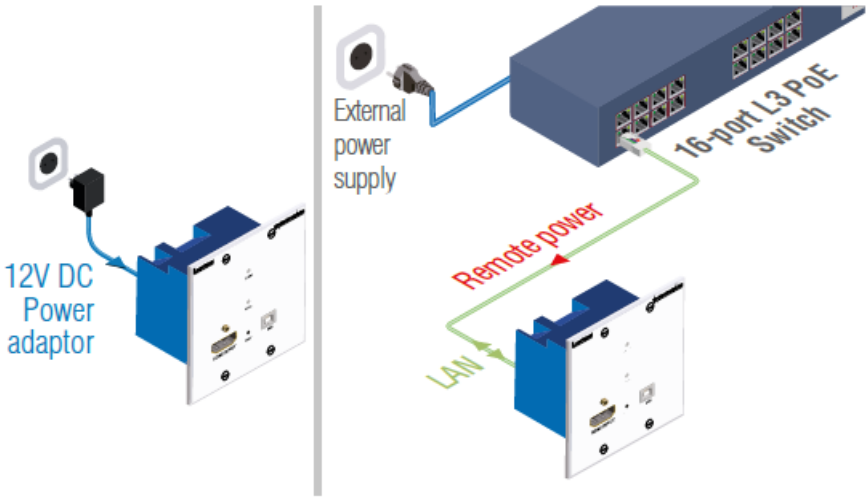




Fixing screws may be black or white according to the cover plate color.

Power Supply Options

- **The encoder can be powered in either one of the following ways:**



- Local adaptor
- PoE remote powering via Ethernet switch

Warranty void if damage occurs due to the usage of a different power source. Z Please note that the 12V power adaptor is an optional accessory that can be purchased separately.

Supported Resolutions

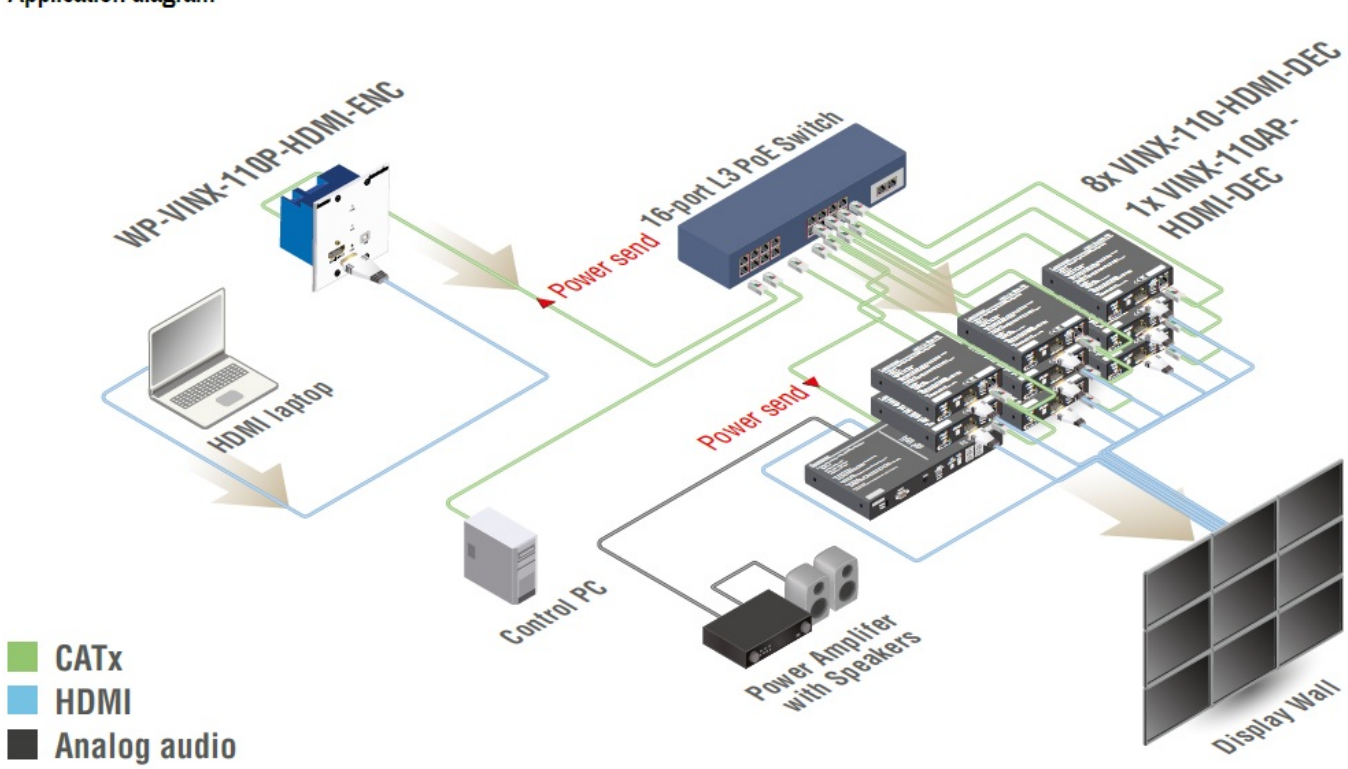
Resolution	Refresh rate (Hz)	Resolution	Refresh rate (Hz)
640x480	50/59.94/60/72/75	1440x1050	50/59.94/60
720x480	56/59.94/60/72/75	1440x900	50/59.94/60/70/75
720x576	50/60/70/72/75	1600x900	50/59.94/60
800x600	56/60/70/72/75	1600x1024	59.94/60
1024x768	60/70/72/75	1600x1200	50/60
1152x864	50/59.94/60/75	1680x1050	59.94/60
1280x600	50/59.94/60	1920x1080	25/29.97/30
1280x720	50/59.94/60/75	1920x1080	50/59.94/60
1280x768	50/59.94/60/75	1920x1200	50/60
1280x800	50/59.94/60/75	2560x1080	24/25/30/60
1280x960	50/59.94/60	2560x1200	30/60
1280x1024	50/59.94/60/75	2560x1600	60
1360x768	50/59.94/60/75	3840x2160*	24/25/30/60
1366x768	50/59.94/60/75	4096/2160*	24/25/30/60

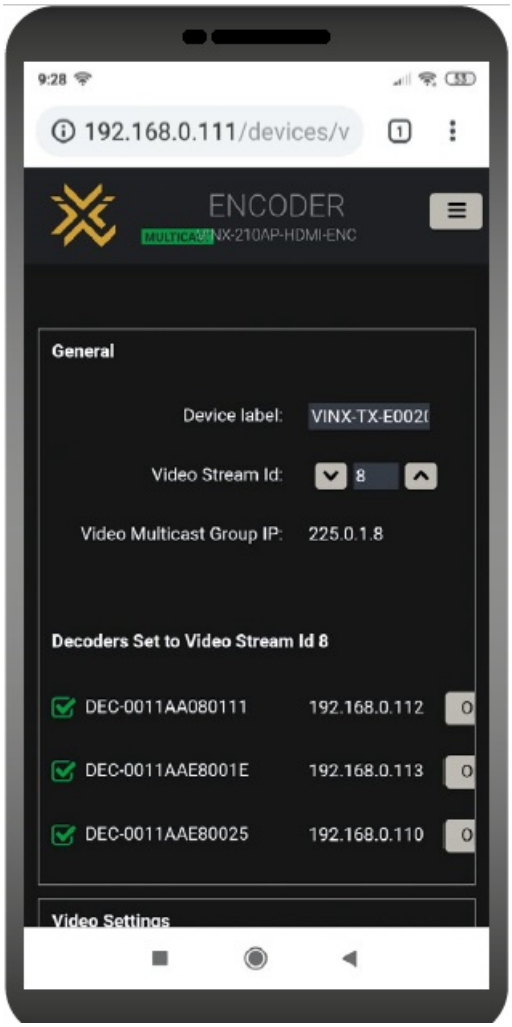
Only in 4:2:0 mode in case of 60 Hz refresh rate.

Further Information

The document is valid with the following firmware version: 3.0.1 The User's manual for this appliance is available on www.lightware.com. See the Downloads section on the dedicated product page. 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.: 1.0 19200196

Application diagram





How to Connect to a VINX Device to Control

- When the VINX device and a control device (PC, laptop, mobile device) are connected to the same network,

the VINX can be configured via a web browser (Google Chrome and Mozilla Firefox are recommended) or by running Lightware Device Controller (LDC).

Step 1 – Make the VINX and the control devices meet

- The following cases may occur in the case of a factory default device:
  - There is a DHCP server in the network: the VINX device got an IP address from the DHCP server. Make sure the control PC is connected to the same network.
  - There is no DHCP server in the network: the VINX device generates an IP address in the 169.254.x.x range (AutoIP). Set the IP address of the control PC to match this range (with subnet mask 255.255.0.0).

Step 2 – Establish the connection

- Connect to the VINX via any of the following ways:
  - Connecting via the Lightware Device Controller Software
    Download the software from **www.lightware.com**, and install and launch it. The Device Discovery screen will appear and list all the available devices.
  - Connecting via the Built-in Web Page
    If you do not have the chance to install software or you would access the built-in webpage from a mobile device, type the IP address of the desired device to the address line of the browser.

Preparing the Network – The Requirements of the Switch

The recommended type of network device: 1GbE network with Layer 2.5 or 3 switches, 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 addresses). 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 only uses 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
  - For more information about the requirements and technologies, please see the Application Note on our website.

Factory Default Settings

IP address	Dynamic (DHCP is enabled)
Crosspoint setting	input 1 on all outputs
Video stream ID	1
HDCP mode	Auto
Output video mode	Graphics mode
Color space / color range	Auto / Auto
HDMI mode	Auto
Emulated EDID	F47 - (Universal HDMI EDID)
User EDID memory	Empty (cleared)
Connecting method	Multicast mode
Available video walls	Empty (cleared)
Audio source	embedded audio

Installation Checkpoints

The following help to have a successful install: check the settings listed below.

Network and Switch-related Settings

- Check the settings as described in the Preparing the Network section. Connecting the Devices
- Use CAT7 SFTP AWG23 cables; the maximum allowed cable length is 100m.
- Supply the devices by local adaptors or by PoE; the feature is enabled on the RJ45 ports by default.

Powering Options

- Power on the devices as the final step of the cabling:
  - Power on the L3 switch first.
- Wait a few minutes for the device to be ready. Power on the VINX devices.

Port Settings

- Check if the desired input port is selected to transmit.
- Make sure that each Encoder has a unique video stream ID. Set the same ID in the desired Decoders and Encoder.
- Pair the devices via the built-in website or via LDC and define the Video Wall.
- Select the desired Decoder for USB transmission (see the Device Concept section).

EDID

- Universal EDID is emulated on the input ports which supports many common resolutions. If necessary, emulate a specific resolution by selecting a factory pre-programmed EDID.

Video Wall Layout Examples

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

Multicast Mode with Video Wall

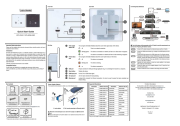
- Features of the system:
  - Displaying one of the two video signals on the video wall and on a sink.
  - Displaying the other video signal on a sink.
  - The other video signal can be displayed on the video wall by using software tools (built-in web or LW3 protocol commands).

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.

Documents / Resources

	LIGHTWARE WP-VINX-110P-HDMI-ENC AV-Over-IP System for Gigabit Ethernet Networks [pdf] User Guide WP-VINX-110P-HDMI-ENC, AV-Over-IP System for Gigabit Ethernet Networks

References

- Lightware Visual Engineering