Box Contents

- Encoder/decoder device
- 12V DC Power Adaptor, interchangeable plugs
- Fixing screw for mounting (M4x4), 2 pcs.
- Safety and Warranty info
- Quick Start Guide

The VINX AP-series devices are compatible with the VINX-120-HDMI-ENC and 2-channel Dante® or AES67 source from the DNT model via the extra RJ45 connector. Embedding and transmission over SFP modules. The devices can also be powered over Ethernet.

The VINX 'AP-series' is the second generation of the VINX family. These products extend the features of the first generation with the following functions: VID input port, aliasing audio (de)-embedding and transmission over SFP modules. The devices can also be powered over Ethernet (PoE). The built-in audio de-embedding feature allows the HDMI audio to be transmitted as a 2-channel Dante® or AES67 source from the DNT model via the extra RJ45 connector.

Compatible Devices

The VINX AP-series devices are compatible with the VINX-120-HDMI-ENC and VINX-120-HDMI-DEC (basic VINX devices). Please note that certain features are not available when mixing VINX-AP and basic VINX devices:

- Basic series
- Audio Set button

Status LEDs

- See the attached list.
- RS-232 Port
- 0-DMBUS connector for transparent serial communication (point-to-point or point-to-multipoint).
- IR Output Port
- IR output signal connector (for 3.5 mm Jack, 2-pole, TS plug).
- Dip Switch
- Linking Encoder and Decoder devices (FW setting).
- Audio Select button
- Press the button to toggle between the following modes:
  - Auto ➔ HDMI ➔ Analog audio
- Auto: the Analog audio input port is selected when a plug is connected.
- Compression Mode button
- Long press (more than 10 seconds): reset to factory default settings.
- HDMI Output
- For a local sink device (mirrored from the AV output).
- AV Select Button
- Press the button to toggle between the following modes:
  - Auto ➔ HDMI ➔ Embedded audio ➔ VGA ➔ Analog audio
- Auto mode: the first connected source shall remain active as long as a signal is present on the respective input. If sync is lost for at least 3 seconds, it will be switched over to the other source. No automatic switch back to the original input takes place when the signal is restored.
- IR Input Port
- 3.5 mm Jack, 3-pole, TRS plug.
- USB Connect Button
- Short press: acquire USB connection (this is required only in Multicast mode).
- Long press (more than 10 seconds): reset to factory default settings.
- Audio Set button
- Short press: the analog audio output volume is increased by 10%.
- Long press (more than 5 seconds): the analog audio output volume is set to 0%.
- USB Ports
- USB 1.1 and 2.0 compatible A-type ports for transmitting USB HD and mass storage devices.
- VGA port
- VGA port for analog video signal on VINX-210AP-HDMI-ENC.
- HDMI output to a sink device on VINX-110AP-HDMI-DEC device.
- Microphone Input Port
- Mono input port for microphones including 20 dB gain in the signal path. The signal can be routed back to the Audio output port of the connected Encoder in Unicast mode.
- Dante® Audio Input Port
- RAUS connector and slot for an SFP module. One at a time is available for receiving an AV signal. The device can be powered over the RAUS connector (PE/unbalanced).
- Audio Input Port (Decoder)
- Presenting the audio signal coming from the connected Encoder (it can be enabled/disabled).
- Audio Input Port (Encoder)
- Presenting the microphone signal coming from the Mic input port of the connected Encoder. This feature is available only in Multicast mode and F4 Analog audio is selected to be embedded into the HDMI signal in the Encoder. 12V DC input for local power supply.
- VGA Input Port
- Video port for analog/VGA signal on VINX-210AP-HDMI-ENC.
- HDMI output to a sink device on VINX-110AP-HDMI-DEC device.
- IR signal input connector (for 3.5 mm Jack, 3-pole, TRS plug).
- Dante® Audio Output Port (Decoder)
- RAUS connector for de-embedding the HDMI audio, which can be transmitted as a 2-channel Dante® or AES67 source.
- Audio Output Port (Encoder)
- Presenting the audio signal coming from the connected Encoder (it can be enabled/disabled).
- VGA output to a sink device on VINX-110AP-HDMI-DEC device.
- HDMI output to a sink device on VINX-110AP-HDMI-DEC device.
- Microphone Input Port
- Mono input port for microphones including 20 dB gain in the signal path. The signal can be routed back to the Audio output port of the connected Encoder in Unicast mode.
- Dante® Audio Input Port
- RAUS connector and slot for an SFP module. One at a time is available for receiving an AV signal. The device can be powered over the RAUS connector (PE/unbalanced).
- Audio Input Port (Decoder)
- Presenting the microphone signal coming from the Mic input port of the connected Encoder. This feature is available only in Multicast mode and F4 Analog audio is selected to be embedded into the HDMI signal in the Encoder. 12V DC input for local power supply.
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Typical Application (Multicast Mode)

Preparing the Network – The Requirements of the Switch

The recommended type of network device: 1GBE network with Layer 2 or 3 switch, Gigabit Ethernet. In TCP/IP terminology, Layer 2 is the data link layer that is responsible for splitting 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 VXN encoder and a VXN 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 route the packet from one of its input ports to one or more of its output ports in 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 VXN network, where one VXN encoder supplies many VXN decoders, relies on multicasting, a multicast capable switch (i.e. a managed one) is a must. The managed switch shall offer the following capabilities:

- **GIMP/2**
- **GIMP snooping, GIMP fast leave, GIMP counter**
- **Multicast Filtering**
- **Jumbo frames**

For more information about the requirements and technologies, please see the Application Note on our website.

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 – in any of the following ways:

1. **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 on the desired devices. If you set a DIP switch on 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.

2. **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 999 inclusive. In this case make sure that the DIP switches of the affected devices are set to '0001'.

Video Stream ID Rules

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

- When the DIP switch is in ‘0000’ position, the SW setting will be valid.
- When the DIP switch is 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.
- The DIP switch state can be ignored by an API/CLI command, see the User's Manual.

How to Connect to a VXN Device to Control?

When the VXN device and a control device (PC, laptop, mobile device) are connected to the same network, the VXN 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 VXN and the control devices meet

The following cases may occur in case of a factory default device:

- **a.** There is a DHCP server in the network: the VXN device gets an IP address from the DHCP server. Make sure the control PC is connected to the same network.
- **b.** There is no DHCP server in the network: the VXN device gets an IP address in the 160.254.x.x range (AutoIP). Set the IP address of the control PC to match with this range (with subnet mask 255.255.0.0).

Step 2 - Establish the connection

Connect to the VXN in any of the following ways:

- **a.** Connecting by the Lightware Device Controller Software.
- **b.** Download the software from www.lightware.com, install and launch it. The Device Discovery screen will appear and list all the available devices.
- **c.** Connecting via the Built-in Web Page.

If you do not Know the IP Address

- **When a monitor/projector is connected to a Decoder, the IP address will be displayed in the splash screen.**

Find the MAC address of the desired device (located on the top of the extender) and launch the web browser.

- **a.** In case of a Decoder, type the following into the address line:
  - http://VUW-deviceAABBCCDDEEFF.html

- **b.** In case of an Encoder, type the following into the address line:
  - http://VUW-encODER-AABBCCDDEEFF.html

**AABBCCDDEEFF** is the MAC address of the device (without hypen) – which can be seen on the housing of the extender.

Further Steps

When the connection is established to an Extender, all the Decoders – with the same stream ID – will be visible in the **Main Setting** page. Set and apply the desired network parameters in the above Settings page, then reboot the device.

- **LDC** and the Built-in web page shows the same content and features, the only difference is the firmware upgrade, which is not available in the LDC.

Factory Default Settings

**IP address**

- Dynamic (AutoIP with DHCP fallback)

**DIP switch state**

- 0000

**Connecting method**

- Multicast mode

**Selected video input**

- (VXN input)

**Selected audio input**

- Auto select analog

**Emulated EDID (VGA input)**

- **FIBJ (Universal Analog EDID)**

**User EDID memory**

- Empty (cleared)

**Output video mode (Encoder)**

- HDMI mode

**Output scaling (Decoder)**

- Auto select, no rotation

**Emulated EDID**

- Universal EDID: allows many common resolutions. The preferred timing for F47 is 1920x1080p with 256 LCPM audio support

**Universal analog EDID:** allows many common resolutions. The preferred timing for F47 is 1920x1080p at 59.94Hz.

Connecting Steps (Multicast Mode)

- **Connect CAT7 cables between the Extender devices and the L3 Switch.**
- **Connect an HDMI source device (e.g. a laptop) to the HDMI input port of the Extender.**
- **Connect HDMI sink devices to the HDMI output port of the Decoder devices.**
- **Connect a VGA source device (e.g. a computer) to the VGA input port of the Encoder.**
- **Connect the Power connection to the Decoder hardware.**
- **Connect the power cord of the supplied adapter to the DC input first, then to the AC socket.**

Installation Checkpoints

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

Network and Switch-related Settings

- **Check the IP 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 via local adaptors or by PoE:** the feature is enabled on the RJ45 ports by default.

Powering Options

- **Power the devices as the final step of the cabling:**
  1. Power on the L3 switch first. Wait a few minutes for the device to be ready.
  2. Power on the VXN 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 web page or by LDC and define the Video Wall.**
- **Select the desired Decoder for USB transmission (see the Device Concept section).**
- **Universal EDID**: allows the input ports that support many common resolutions. In case of an encoder, ask Lightware to encode a specific resolution by selecting a factory pre-programmed EDID.