



DIPD-5101 HDMI 2.0 A/V over IP Decoder

User Manual

Version: V1.0.0



Important Safety Instructions











- | | | | |
|--|--|--|---|
|  | <p>1. Do not expose this apparatus to rain, moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.</p> |  | <p>6. Clean this apparatus only with dry cloth.</p> |
|  | <p>2. Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure the unit is well ventilated.</p> |  | <p>7. Unplug this apparatus during lightning storms or when unused for long periods of time.</p> |
|  | <p>3. To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.</p> |  | <p>8. Protect the power cord from being walked on or pinched particularly at plugs.</p> |
|  | <p>4. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.</p> |  | <p>9. Only use attachments / accessories specified by the manufacturer.</p> |
|  | <p>5. Do not place sources of naked flames, such as lighted candles, on the unit.</p> |  | <p>10. Refer all servicing to qualified service personnel.</p> |

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Introduction

Overview

The DIPD-5101 series decoders are designed to work with DIPE-5100 series encoders for UHD media up to 3840 x 2160@60Hz 4:4:4 to be switched and distributed over standard Gigabit Ethernet networks, providing complete end-to-end streaming systems, where audio, video together with USB, RS232 and IR signals can be routed separately or as a whole. Equipped with Dante technology, they realize perfect interconnectivity and interoperability with Dante audio systems.

Triple Ethernet ports are equipped. HDCP 2.2/2.3 specifications are employed. A local area network is covered with a range up to 330ft (100m) over a single Cat 5e cable or above. Standard features like HDMI eARC audio return, bidirectional serial, bidirectional IR and independent analog audio output are included. USB extension or roaming are supported to control the remote computer through a keyboard and a mouse. Control methods of telnet API, IP controller are available. The IPD5102 series decoders are ideal for any low latency and signal routing applications, such as homes, classrooms, conference rooms, sport bars, auditoriums, etc.

Features

- Built-in triple Ethernet ports, any one of which can be used for transmission of A/V streams, control data and Dante audio streams.
- Supports input and output resolutions up to 3840 x 2160@60Hz 4:4:4.
- Features video wall up to the size of 16 x 16.
- Supports HDR10 and Dolby Vision.
- Supports CEC one-touch-play and standby commands to power on and off the display as well as CEC Frame.
- Supports multi-channel audio up to PCM 7.1, Dolby Atmos, DTS HD Master

and DTS:X.

- HDMI eARC audio return.
- Analog de-embedding.
- HDCP 2.2/2.3 compliant.
- Flexible routing policies, allowing audio, video, USB, RS232 and IR signals to be routed separately or as a whole throughout the matrix system.
- Delivers audio, video, USB, RS232, IR and power signals up to 328ft/100m over a single Cat 5e cable or above.
- 1 frame latency.
- Supports bidirectional serial communication.
- Supports bidirectional IR pass-through for control of remote source and display devices between encoders and decoders.
- Supports IR generation: IR codes can be sent through API.
- Dual USB engine for high performance USB 2.0 over IP with improved support for cameras as well as KM over IP seamless switching and roaming.
- Supports point-to-point, point-to-multipoint, multipoint-to-point, multipoint-to-multipoint applications.
- Supports PoE+ to be remotely powered by compatible power source equipment such as a PoE-enabled Ethernet switch, eliminating the need for a nearby power outlet.
- Provides fit in or stretch out mode for video wall processing as well as video rotation management: decoded video can fill a video wall, maintain aspect ratio therein, and rotate 180° and 270° clockwise, presenting imagery that meets customers' expectations.
- Supports DHCP by default, and will fall back to AutoIP if there's no DHCP server in the system.
- Controlled by Telnet API and IP controller.
- Supports communications protocols of Telnet, SSH, HTTP, HTTPS.
- Supports 2 x 2 Dante audio transmission if Dante licensed (default setting is Dante unlicensed).

Package Contents

- 1 x Decoder
- 1 x 3.5mm 3-Pin Phoenix Male Connector
- 1 x IR Emitter (3.94ft/1.2m)
- 1 x Broadband IR Receiver (3.28ft/1.0m, 30-50kHz)
- 4 x Mounting Brackets
- 4 x Screws (M3*L5)

Specifications

| Video | |
|----------------------------|--|
| Input Video Port | 2 x RJ-45; 1 x Optical |
| Input Video Type | IP Stream |
| Input Resolutions | 3840 x 2160p@24/25/30/50/60Hz 4:4:4, 1920 x 1200@50/60Hz, 2400x1350p@60Hz, 1920 x 1080p@24/25/30/50/60/100/120Hz, 1920 x 1080i@50/60Hz, 1680 x 1050@60Hz, 1600 x 1200@60Hz, 1600 x 900@60Hz, 1400 x 1050@60Hz, 1440 x 900@60Hz, 1366 x 768@60Hz, 1360 x 768@60Hz, 1280 x 1024@60Hz, 1280 x 960@60Hz, 1280 x 800@60Hz, 1280 x 768@60Hz, 1280 x 720p@60/100/120Hz, 1024 x 768@60Hz, 800 x 600@60Hz, 720 x 576p@50Hz, 720 x 480p@60Hz, 640 x 480p@60Hz |
| Output Video Port | 1 x HDMI Type A (19 Pins) |
| Output Video Type | HDMI 2.0, HDCP 2.2/2.3 |
| Output Resolutions | Up to 3840 x 2160p@60Hz 4:4:4 |
| Input/ Output Video Signal | 0.5~1.2 V p-p |
| Input/ Output DDC Signal | 5V p-p (TTL) |
| Video Impedence | 100Ω |
| End-to-End Latency | For 4K@60Hz: <ul style="list-style-type: none"> • Normal mode: 19ms • Ultra Low Latency mode: 4ms |
| Maximum Data Rate | 18Gbps (6Gbps per color) |
| Maximum Pixel Clock | 600MHz |
| Audio | |
| Input Audio Port | 2 x RJ-45; 1 x Optical; 1 x S/PDIF IN |
| Input Audio Signal | <ul style="list-style-type: none"> • LAN: Fully supports audio formats in HDMI 2.0 specification, including PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X |

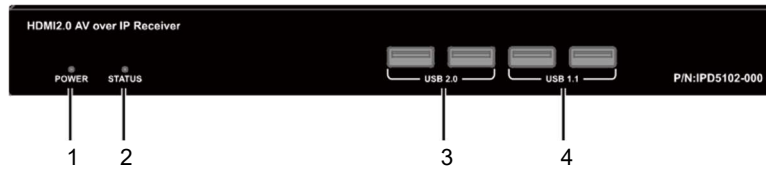
| Audio | |
|---------------------|--|
| | <ul style="list-style-type: none"> S/PDIF IN: Digital audio |
| Output Audio Port | 1 x HDMI; 1 x 3.5mm stereo jack |
| Output Audio Signal | <ul style="list-style-type: none"> HDMI: Fully supports audio formats in HDMI 2.0 specification, including PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X AUDIO OUT: Analog |
| Dante Audio Type | LPCM 2.0, 44.1/48/88.2/96KHz |

| Control | |
|----------------|---------------------------|
| Control Method | Telnet API; IP Controller |

| General | |
|------------------------------------|--|
| Operating Temperature/ Humidity | 32°F ~ 113°F (0°C ~ 45°C), 10% ~ 90%, non-condensing |
| Storage Temperature/ Humidity | -4°F ~ 158°F (-20°C ~ 70°C), 10% ~ 90%, non-condensing |
| Power | 12V DC 3A; PoE+ |
| Power Consumption | 21W (Max) |
| ESD Protection | Human body model: ±8kV (air-gap discharge)/±4kV (contact discharge) |
| Dimensions (W x H x D) | 8.46" x 0.98" x 6.30" (215mm x 25mm x 160mm) |
| Net Weight | 2lbs (0.91kg) |

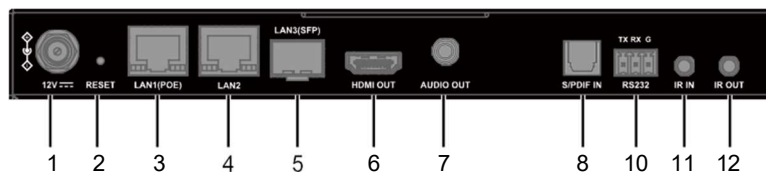
Panel Description

Front Panel



| # | Name | Description |
|---|------------|---|
| 1 | POWER LED | <ul style="list-style-type: none"> On: The device is powered on. Blinking: The device is booting. Off: The device is powered off. |
| 2 | STATUS LED | <ul style="list-style-type: none"> On: The device is working properly. Blinking: The device is connected to the network but doesn't detect valid signal input. / The device is connected to the network but doesn't route to any encoder. Blinking slowly: The device is being upgraded. Blinking quickly: Find me function is activated through telnet API for positioning the desired device. For more information refer to the separate API document. Off: Network is down. |
| 3 | USB 2.0 | 2 x USB-A ports. Connect to a USB device for transmitting USB 2.0 data, such as USB extension or roaming. Two ports' power output totals 1.5A. |
| 4 | USB 1.1 | 2 x USB-A ports. Connect to a USB device for transmitting USB 1.1 data, such as USB extension or roaming. Two ports' power output totals 1A. |

Rear Panel



| # | Name | Description |
|---|-------|---|
| 1 | 12V | DC 12V power connector. Connect to the DC 12V 2A power adapter for power input. |
| 2 | RESET | When the device is powered on, use a pointed stylus to |

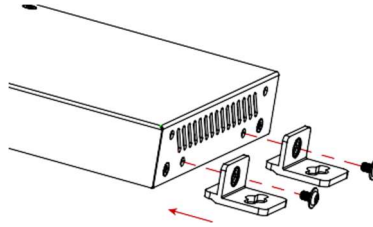
| # | Name | Description |
|----|-----------|---|
| | | hold down the RESET button for five or more seconds, and then release it, it will reboot and restore to its factory defaults. Note: When the settings are restored, your custom data is lost. Therefore, exercise caution when using the RESET button. |
| 3 | LAN1(POE) | By default, any one of LAN1 (POE), LAN 2 and LAN3 (SFP) ports can be connected to an Ethernet switch for transmission of A/V streams, Dante audio streams and control data. For LAN1 (POE): <ul style="list-style-type: none"> Supports PoE+. For LAN2: <ul style="list-style-type: none"> When LAN2 is configured as an <u>independent Dante port</u>**, it is for transmission of Dante audio streams, and LAN1 (POE) / LAN3 (SFP) is for transmission of A/V streams and control data. Tip: **This configuration can be implemented through the SC010 controller. For more information, refer to the controller's Web UI configuration guide. For LAN3 (SFP): <ul style="list-style-type: none"> Connect this optical port to a Gigabit Ethernet switch using a single-mode or multi-mode SFP module. SFP module is not included in the package. The signal transmission distance may vary by specifications of the SFP module you use. <p>IMPORTANT:</p> <ul style="list-style-type: none"> Make sure that you connect only one Ethernet port of LAN1 (POE), LAN2 and LAN3 (SFP) ports to the Ethernet switch, or device exceptions may occur. |
| 4 | LAN2 | |
| 5 | LAN3(SFP) | |
| 6 | HDMI OUT | 19-Pin HDMI Type-A connector. Connect to an HDMI display. |
| 7 | AUDIO OUT | Connect this 3.5 mm stereo tip-ring-sleeve port to an audio receiver for unbalanced stereo audio output. |
| 8 | S/PDIF IN | Optical S/PDIF connector for digital audio input (for S/PDIF audio return from decoder to encoder). |
| 9 | RS232 | RS232 serial port for bidirectional serial communication. |
| 10 | IR IN | Connect this port to an IR receiver for IR communication with an IR emitter at the encoder side on the network. |
| 11 | IR OUT | Connect this port to an IR emitter for IR communication with an IR receiver at the encoder side on the network. |

Bracket Installation

Note: Before installation, ensure the device is disconnected from the power source.

Steps to install the device on a suitable location:

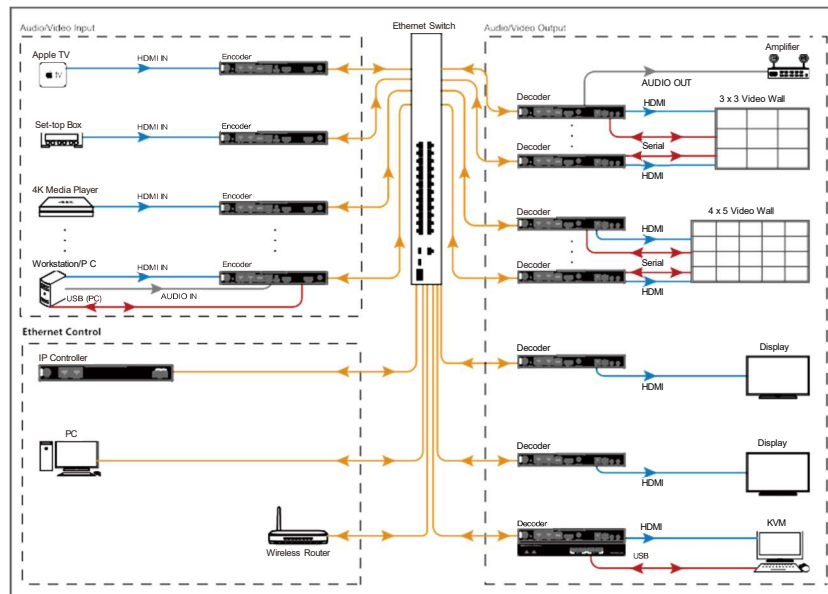
1. Attach the mounting brackets to the panels of both sides using the screws (two on each side) provided in the package.



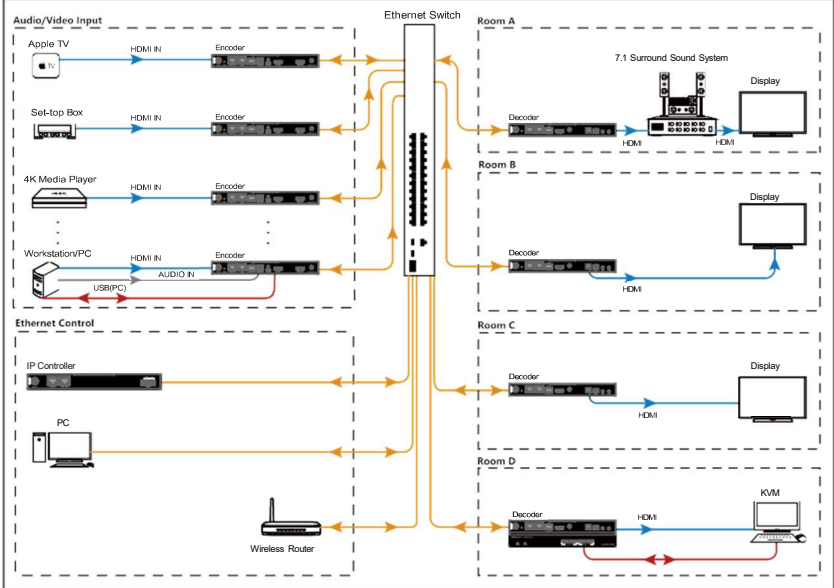
2. Install the brackets on the position as desired using the screws (not included).

Typical Applications

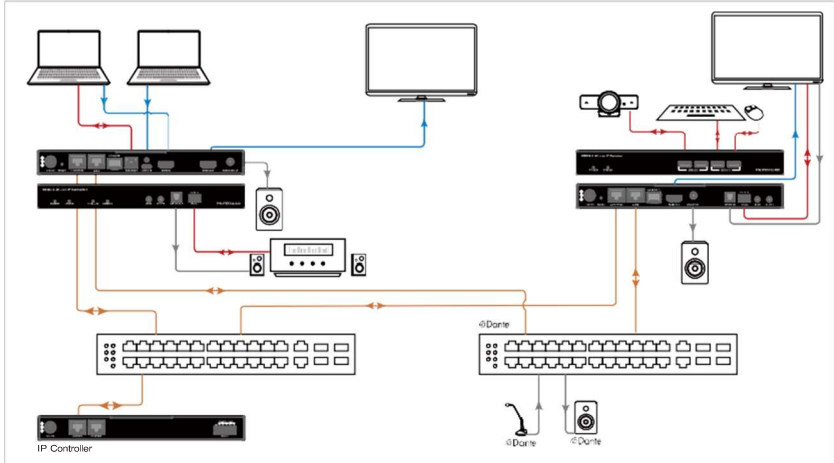
Application 1



Application 2

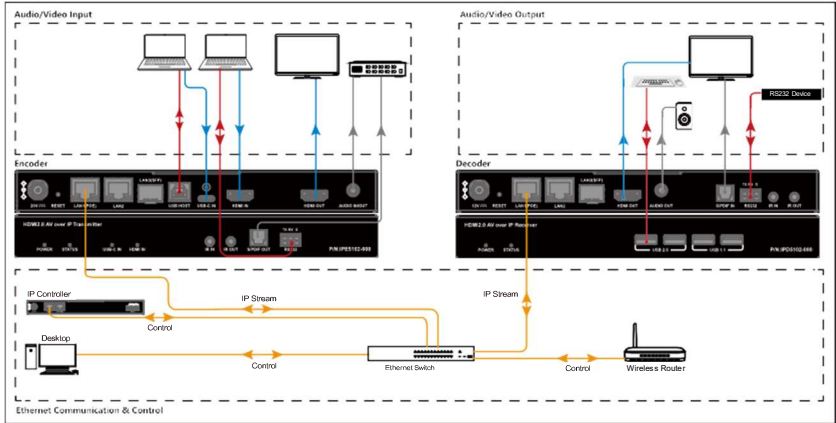


Application 3: Dual Ethernet Ports for Exclusive Dante Network



LAN1 (POE) / LAN3 port is for transmission of A/V streams and control data; LAN2 is for transmission of Dante audio streams which is routed to a standalone network. Two Ethernet ports are connected to different networks.

Hardware Installation



Note: If the Ethernet switch doesn't support PoE, connect encoders and decoders to their power adapters.

IP Address Identification

Default IP setting for the device is DHCP. Ensure there's a DHCP server in the network so that the device can obtain a valid IP address when you deploy the system. If DHCP server is not available, e.g. the device is connected to a laptop directly, the device gets a default IP address in the range of 169.254.X.Y. The allocated IP address can be identified through OSD or API Commands.

Control of Devices

Introduction to Different Control Tools

The device can be controlled and configured by the SC010 IP controller, including routing of audio, video, USB, RS232 and IR signals, configurations of audio/video parameters, Dante features, video wall, KM roaming and fast switching, firmware upgrade, etc. For more information, refer to the web UI configuration guide of the IP controller.
