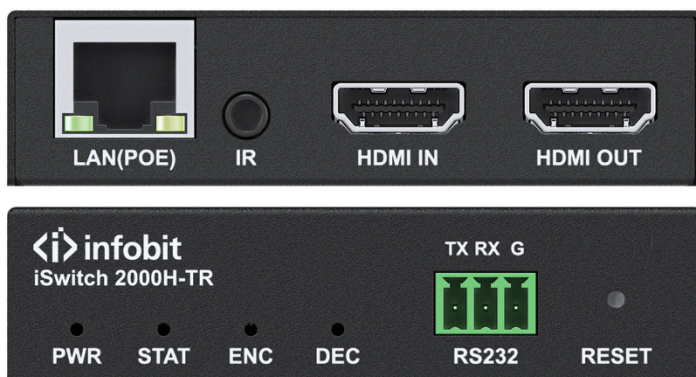


iSwitch 2000H-TR

4K HDMI AV over IP Transceiver

Hardware User Manual V1.0



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IMPORTANT SAFETY INSTRUCTIONS



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.



6. Clean this apparatus only with dry cloth.



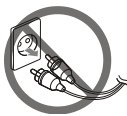
2. Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure the unit is well ventilated.



7. Unplug this apparatus during lightning storms or when unused for long periods of time.



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.



8. Protect the power cord from being walked on or pinched particularly at plugs.



4. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.



9. Only use attachments / accessories specified by the manufacturer.



5. Do not place sources of naked flames, such as lighted candles, on the unit.



10. Refer all servicing to qualified service personnel.

1. INTRODUCTION

1.1 OVERVIEW

The **iSwitch 2000H-TR** is a compact AV over IP **transceiver** configurable as either an encoder or decoder for flexible deployment. It supports transmission and routing of AV, RS-232, and IR signals over standard Gigabit Ethernet networks, enabling matrix switching and video wall applications.

With support for **Dante AV-A and AES67** audio, it integrates seamlessly into IP-based audio and video environments.

Designed for reliability and ease of integration, it offers low-latency performance, PoE support, and centralized management through the IP controller for professional AV systems.

***Note:** Dante AV-A and AES67 is not activated by default, contact our sales for additional license purchasing and activation.*

1.2 FEATURES

- **Transceiver** configurable as an encoder (TX) or decoder (RX).
- Supports HDMI input and output resolutions up to **3840 x 2160@60Hz 4:4:4** with HDCP 2.3 compliance.
- Supports HDR10, HDR10+, and Dolby Vision.
- Supports multi-channel audio, including PCM 7.1, Dolby Atmos, DTS-HD Master audio, and DTS:X.
- Supports **Dante AV-A** via firmware (not activated by default).
- Supports AES67 audio:
 - AES67 standalone
 - AES67 with integrated Dante (Dante activation required)
- Flexible routing of AV, RS-232 and IR signals independently or together within the matrix system.
- Supports **1-frame latency**, with **Ultra Low Latency** (ULL) mode as low as 4ms.
- Transmits or receives signals over a single Cat 5e (or higher) cable up to 328ft (100m).
- Supports **bidirectional RS-232** communication for device control or signal passthrough.
- Provides a **configurable IR port** for input and output, supporting IR control and passthrough.
- Interoperable with the **iSwitch 2000U/ 2000HC** series family for matrix routing and video walls.
- Supports **PoE (802.3af)** for power supply via a remote PoE-capable switch.
- Supports **IEEE 802.1X authentication**.
- Compatible with the IP controller (**iSwitch 2000-CTL**) for centralized device management.
- Supports fail-safe firmware upgrade to prevent device corruption during updates.

1.3 PACKAGE CONTENTS



- 1 x iSwitch 2000H-TR Transceiver Unit
- 1 x 3.5mm 3-pin Phoenix Male Connector
- 1 x Broadband IR Receiver (30–50 kHz, 1m)
- 1 x IR Emitter (1.2m)
- 2 x Wall-Mount Brackets
- 2 x Screws

1.4 SPECIFICATIONS

Technical	
Input Video Port	• 1 x HDMI Type-A • 1 x LAN RJ-45 Female Connector (RX mode)
Input Video Type	• HDMI 2.0, HDCP 2.2/2.3 • 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 • 1 x LAN RJ-45 Female Connector (TX mode)
Output Video Type	• HDMI 2.0, HDCP 2.2/2.3 • IP Stream (TX mode)
Output Resolutions	Same as the input resolutions
Input Audio Port	• 1 x HDMI Type-A • 1 x LAN RJ-45 Female Connector (RX mode)
Output Audio Port	• 1 x HDMI Type-A • 1 x LAN RJ-45 Female Connector (TX mode)
Audio Format	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
Dante Audio Type	LPCM 2.0, 44.1/48/88.2/96 kHz
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: • Normal mode: 19ms • Ultra Low Latency mode: 4ms
Maximum Data Rate	18Gbps (6Gbps per color)
Maximum Pixel Clock	600MHz
Control	
Control Method	Telnet API; IP Controller (iSwitch 2000-CTL)
General	
Operating Temperature/ Humidity	32–113°F (0–45°C), 10%–90% RH, non-condensing
Storage Temperature/ Humidity	–4–158°F (-20–70°C), 10%–90% RH, non-condensing
ESD Protection	Human body model: ±8kV (air-gap discharge) / ±4kV (contact discharge)
Power	PoE

General	
Power Consumption (Max)	- No load: 4.4W - Max.: 7.8W (full load)
Dimensions (W x H x D)	3.15" x 0.80" x 5.59" (80mm x 20.2mm x 142mm)
Net Weight	0.62lb (0.28kg)

2. PANEL OVERVIEW

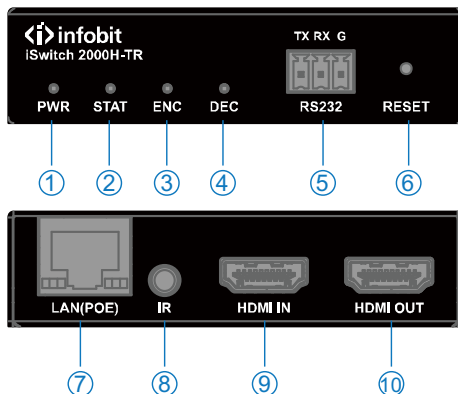


Figure 1: Front and Rear Panels

#	Name	Description
1	PWR	On: The device is powered on. Blinking: The device is booting. Off: The device is powered off.
2	STAT	On: The device is connected to the network and streaming. Blinking rapidly: The Find me function is activated through the control API to help locate a specific device. For more information, refer to the API documentation. Blinking: The device is connected to the network but not streaming. Blinking slowly: Firmware is being upgraded. Off: The device is not connected to the network.
3	ENC	On: Device is operating in TX (Encoder) mode (default setting). Off: Device is not in TX mode.
4	DEC	On: Device is operating in RX (Decoder) mode. Off: Device is not in RX mode.
5	RS232	3-pin Phoenix connector for bidirectional RS-232 communication, supporting device control and signal extension. For advanced configuration, refer to the API documentation.
6	RESET	Press and hold the recessed button for at least five seconds, then release it to restore the device to factory default settings. Note: Restoring factory default settings erases all configurations and custom data. Back up any important settings before proceeding.
7	LAN(POE)	Connect to a Gigabit Ethernet switch for streaming, device management (via Telnet API) and PoE power supply.
8	IR	3.5mm TRS connector configurable as IR input or output (via Telnet API) for bidirectional IR signal extension. ⇒ IR output voltage: 3.3V ⇒ Default direction: IR Output
9	HDMI IN	Connect to an HDMI source.
10	HDMI OUT	Connect to an HDMI display.

3. INSTALLATION

Note:

- Ensure the device is disconnected from the power supply before installation.
- The recommended installation height is within 6.5ft (2m) above the ground.

Installing Wall-Mount Brackets

1. Attach a wall-mount bracket to one side of the enclosure using the included screw.

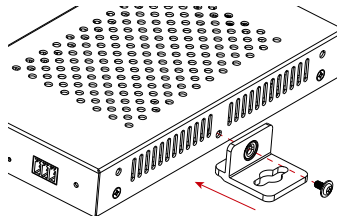


Figure 2: Wall-Mount Bracket Installation

2. Repeat the above step for the other side of the device.
3. Mount the brackets at the desired location using user-supplied screws (not included).

4. TYPICAL APPLICATIONS

4.1 POINT-TO-MULTIPOINT APPLICATION

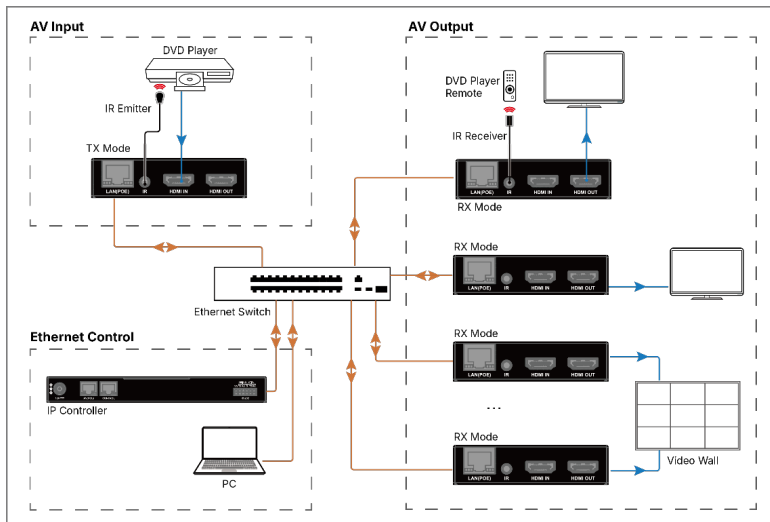


Figure 2: Point-to-Multipoint Application

4.2 AV OVER IP SYSTEM INTEGRATION

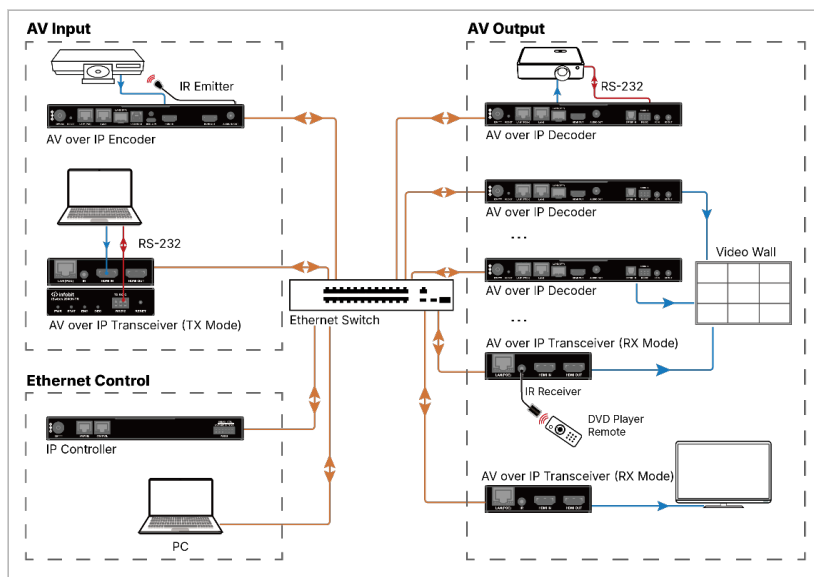


Figure 3: AV over IP System Integration

5. DEVICE CONTROL OVERVIEW

The device can be controlled and configured by the IP controller ([iSwitch 2000-CTL](#)). Supported functions include signal routing, video wall, firmware upgrades, and other device settings. For details, refer to the **iSwitch 2000-CTL** Web Configuration Guide.



Figure 5: Scan to visit iSwitch 2000-CTL website