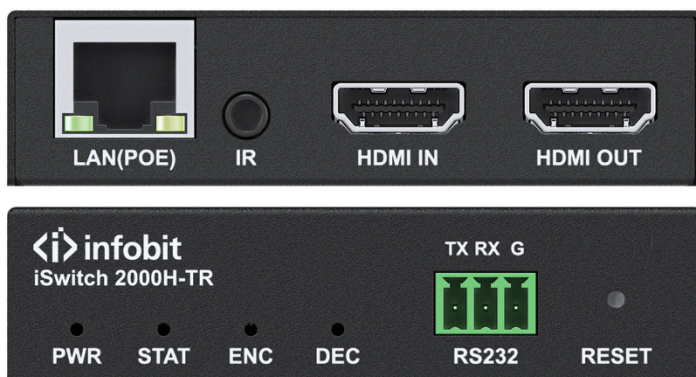


iSwitch 2000H-TR

4K HDMI AV over IP Transceiver

Datasheet V1.0



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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

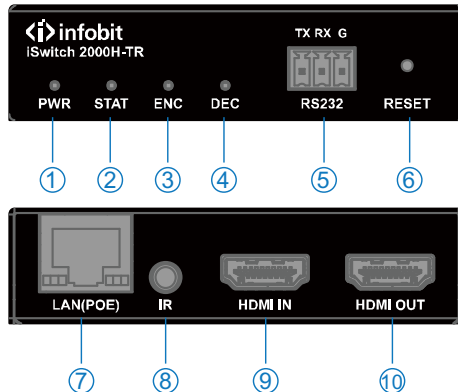


Figure 1: Front and Rear Panels

#	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. TYPICAL APPLICATIONS

3.1 POINT-TO-MULTIPOINT APPLICATION

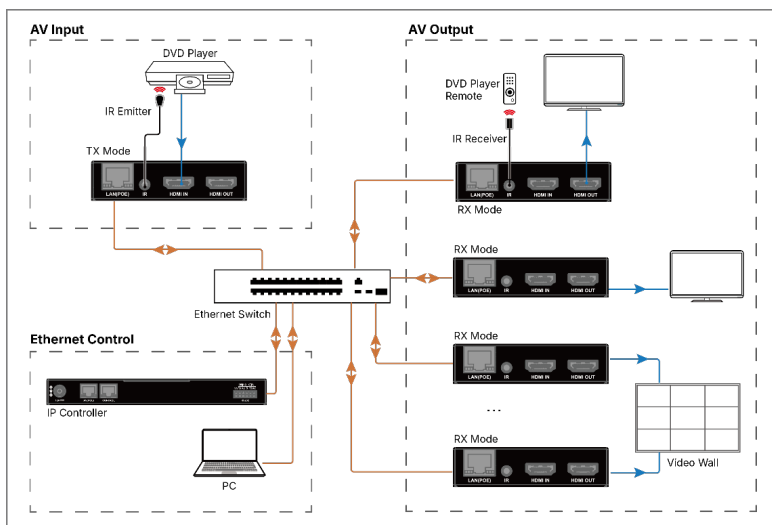


Figure 2: Point-to-Multipoint Application

3.2 AV OVER IP SYSTEM INTEGRATION

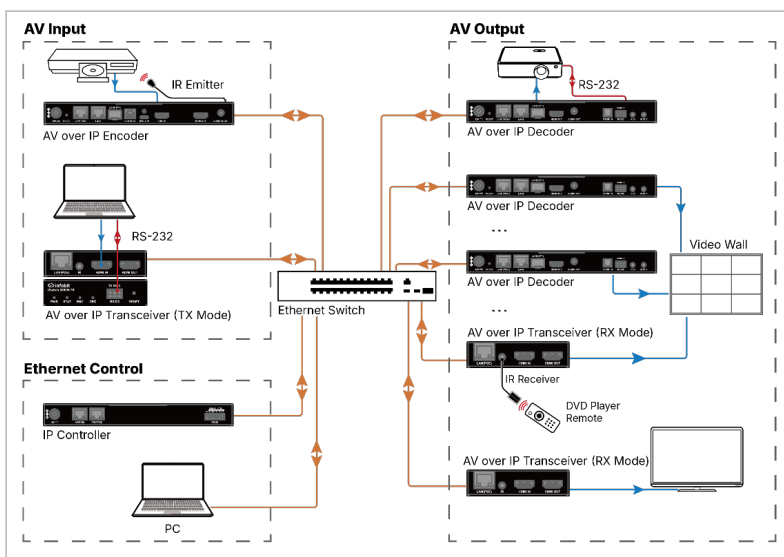


Figure 3: AV over IP System Integration