SDM-HBT1-RX

HDBaseT1 Receiver SDM Module

OPERATION MANUAL

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SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.
- Please completely disconnect the power when the unit is not in use to avoid wasting electricity.

VERSION HISTORY

REV.	DATE	SUMMARY OF CHANGE
Ver 1.00	2024/01/05	Initial Release
Ver 1.01	2024/03/25	1. Modified UHD to 4K60 2. Re-arranged the sequence of features 3. Added details of LINK LED on the front panel
Ver 1.02	2024/04/09	1. Modified the product description 2. Modified the cable specifications
Ver 1.03	2024/05/21	Add 6.4 WebGUI Control

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1. INTRODUCTION

The SDM-HBT1-RX is an HDBaseT1, SDM Module Card that is able to receive signals from compatible HDBaseT transmitters via Cat6 cabling.

It supports resolutions up to 4K@60 4:2:0 or 4K30 4:4:4 and simply has a RJ45 HDBaseT output connection with Power and Link LEDs.

The SDM-HBT1-RX module card is compatible with CYP's core SDM products like the OR-32SDMI. It can be combined with CYP's selection of different HDBaseT TX's allowing for great installation flexibility.

2. APPLICATIONS

- Household entertainment sharing and control
- Lecture room display and control
- Showroom display and control
- Meeting room presentation and control
- Classroom display and control

3. PACKAGE CONTENTS

- 1× HDBaseT Module Receiver
- 1× Mounting Screws (Set of 2)
- 1× Operation Manual

4. SYSTEM REQUIREMENTS

- Must be installed into a product with an available compatible CYP Module Slot

  Note: Despite appearances, this card is NOT designed for installation into a PC's PCIe card slot and should only be installed in officially compatible products.

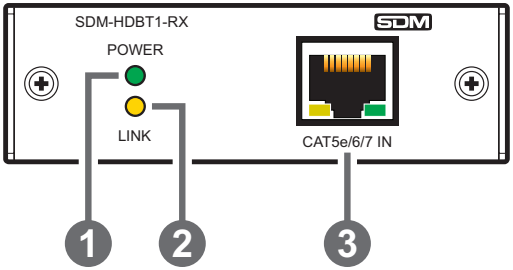
- A compatible HDBaseT Transmitter with self-power support is required.
- Industry standard CAT. 5e/6/7 Ethernet cable is required.

5. FEATURES

- Supports distance up to 70m/230ft at 1080p and 40m/131ft at 4K
- Supports output resolutions up to 4K@60Hz (4:2:0, 8-bit)
- Supports HDCP repeater and CEC bypass
- Supports Deep Colour input and output up to 12-bit
- Supports pass-through of many audio formats including LPCM (up to 8 channels), Bitstream, and HD Bitstream
- HDMI 2.0 and DVI 1.0 compatible
- HDCP 2.2 and HDCP 1.x compliant

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



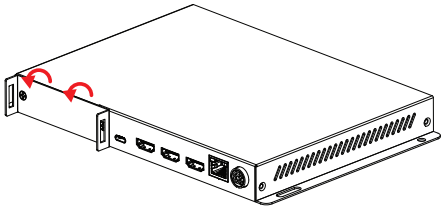
1. **POWER LED:** This LED will illuminate to indicate the unit is on and receiving power.
2. **LINK LED:** This LED will illuminate solidly when a live connection with a compatible transmitter is active.
3. **CAT. 5e/6/7 IN Port:** Connect to a compatible HDBaseT Transmitter with a single CAT.5e/6/6A/7 cable for transmission of all data signals.

6.2 Module Card Installation

To install this module card into your unit, it must have at least one available CYP Module Slot.

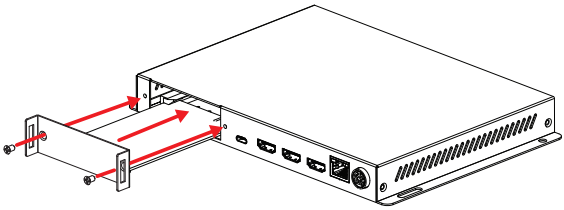
Ensure that the anti-static procedure is completed before handling the module card.

(1) Prior to installation, power the unit completely off.

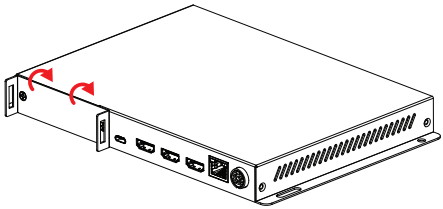


(2) Remove the dummy faceplate that is covering the card module slot by unscrewing both screws.

Note: Be sure to store the dummy faceplate, and its screws, somewhere safe, in case you need to use them again later.



(3) Align the card with the guiderails to each side of the module slot, and gently slide the module card into the slot until its faceplate is flush with the back of the unit.

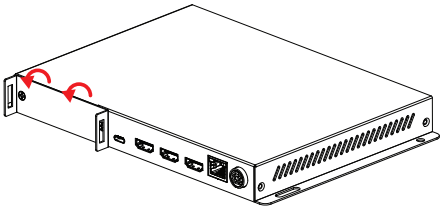


(4) Secure the module to the unit by using the supplied screws.

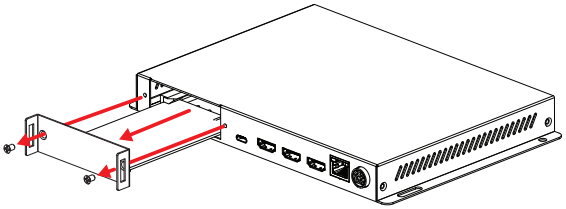
(5) The unit may now be powered back on. The card's power LED will light up to indicate it is receiving power. In most cases, the card will be automatically detected by the unit and be available for use.

6.3 Module Card Removal

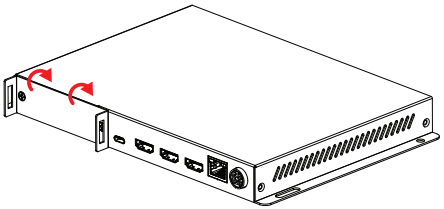
(1) Prior to removal, power the unit completely off.



(2) Completely unscrew both screws.



(3) Gently pull the card straight out of the module slot using the provided handles.



(4) Cover the module slot with a dummy faceplate and tighten both screws.

(5) The unit may now be powered back on.

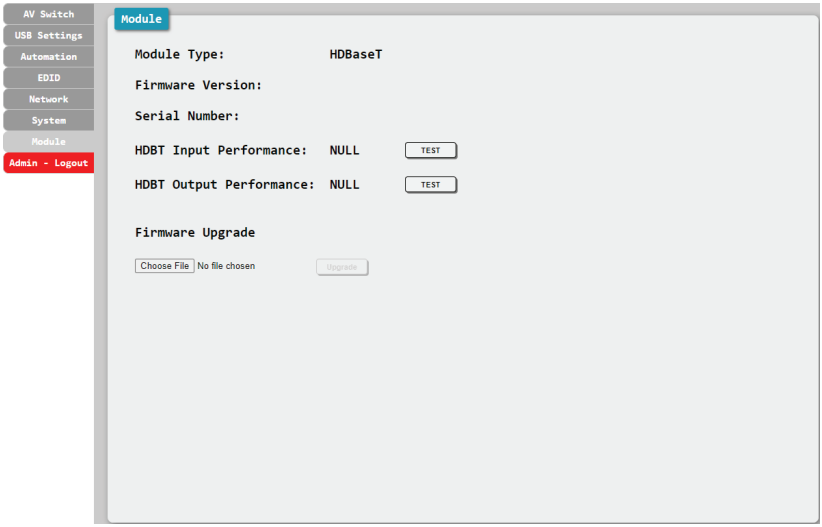
6.4 WebGUI Control

6.4.1 CYP Module Platform

The SDM branded module card(s) can be installed in the compatible module platform. It provides a user-friendly access of some additional functions for the module card within its own WebGUI, improving unit integration.

6.4.2 Module Tab

This tab displays the module's module type, current firmware version and serial number, as well as provides a way to update firmware.

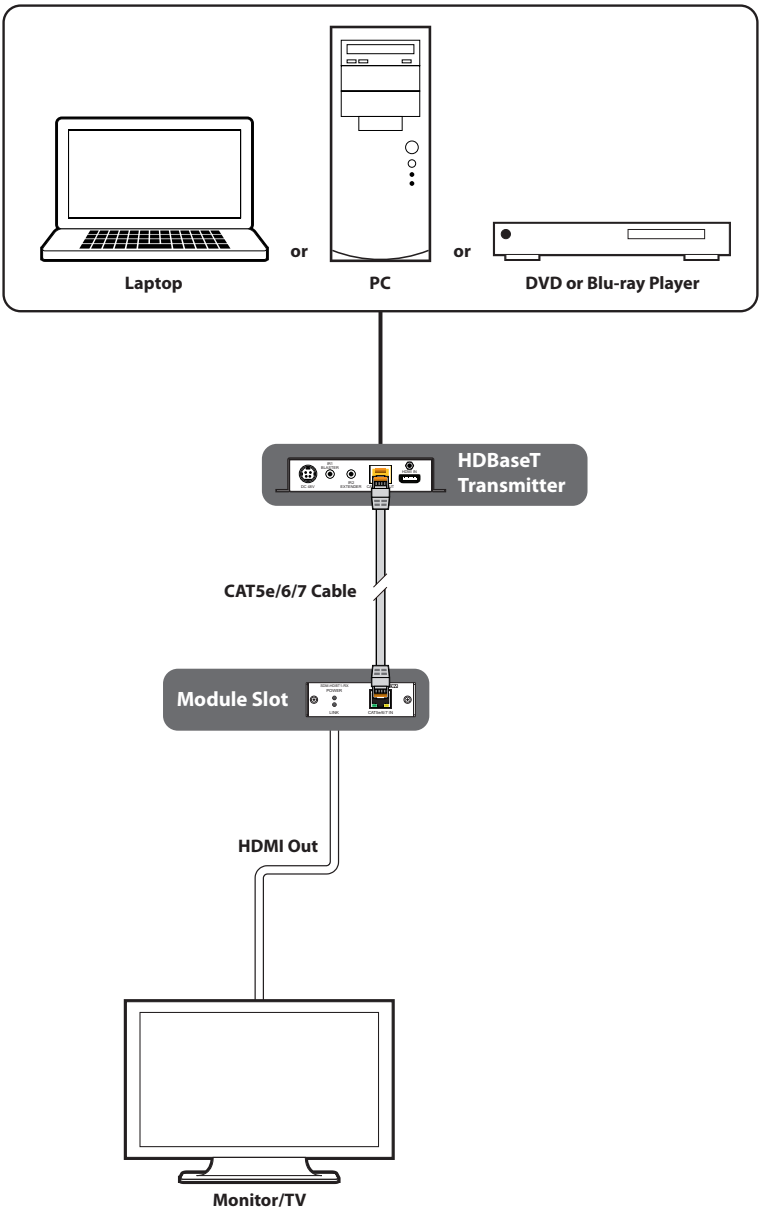


Note: The WebGUI design might be vary from the compatible platform.

1) **Module Type:** Displays the module's module type.
2) **Firmware Version:** Displays the module's firmware version.
3) **Serial Number:** Displays the module's serial number.
4) **HDBT Input/Output Performance:** Provides a simple diagnostic for HDBaseT input and output performances.
5) **Firmware Upgrade:** To update the module's firmware, click the "Choose File" button to open the file selection window and then select

the firmware update file (*.bin format) located on your local PC. After selecting the file, click the “Upgrade” button to begin the firmware update process. After the upgrade is complete, the unit will reboot automatically.

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

8.1 Technical Specifications

HDBaseT Bandwidth	10.2Gbps
Card Slot Format	1×CYP Module (Edge Connector)
Input Ports	1×HDBaseT (RJ-45)
ESD Protection (HBM)	±8kV (Air Discharge) ±4kV (Contact Discharge)
Dimensions (W×H×D)	122.2mm×25mm×82mm [Case Only] 122.2mm×25mm×82mm [All Inclusive]
Weight	60g
Chassis Material	Metal (Steel)
Chassis Colour	Black
Operating Temperature	0˚C – 40˚C/32˚F – 104˚F
Storage Temperature	-20˚C – 60˚C/-4˚F – 140˚F
Relative Humidity	20 – 90% RH (Non-condensing)

8.2 Video Specifications

Supported Resolutions (Hz)	Input	Output
	HDBaseT	Card Slot
720×400p@70/85	✓	✓
640×480p@60/72/75/85	✓	✓
720×480i@60	✓	✓
720×480p@60	✓	✓
720×576i@50	✓	✓
720×576p@50	✓	✓
800×600p@56/60/72/75/85	✓	✓
848×480p@60	✓	✓
1024×768p@60/70/75/85	✓	✓
1152×864p@75	✓	✓
1280×720p@50/60	✓	✓
1280×768p@60/75/85	60/75	60/75
1280×800p@60/75/85	60/60(RB)	60/60(RB)
1280×960p@60/85	✓	✓
1280×1024p@60/75/85	✓	✓
1360×768p@60	✓	✓
1366×768p@60	✓	✓
1400×1050p@60	✓	✓
1440×900p@60/75	✓	✓
1600×900p@60RB	✓	✓
1600×1200p@60	✓	✓
1680×1050p@60	✓	✓
1920×1080i@50/60	✓	✓

Supported Resolutions (Hz)	Input	Output
	HDBaseT	Card Slot
1920×1080p@24/25/30	✓	✓
1920×1080p@50/60	✓	✓
1920×1200p@60RB	✓	✓
2560×1440p@60RB	×	×
2560×1600p@60RB	✓	✓
2048×1080p@24/25/30	✓	✓
2048×1080p@50/60	✓	✓
3840×2160p@24/25/30	✓	✓
3840×2160p@50/60 (4:2:0)	✓	✓
3840×2160p@24, HDR10	×	×
3840×2160p@50/60 (4:2:0),HDR10	×	×
3840×2160p@50/60	×	×
4096×2160p@24/25/30	✓	✓
4096×2160p@50/60 (4:2:0)	✓	✓
4096×2160p@24, HDR10	×	×
4096×2160p@50/60 (4:2:0),HDR10	×	×
4096×2160p@50/60	×	×

8.3 Audio Specifications

8.3.1 Digital Audio

HDBaseT Input / Card Slot Output	
LPCM	
Max Channels	8 Channels
Sampling Rate (kHz)	32, 44.1, 48, 88.2, 96, 176.4, 192
Bitstream	
Supported Formats	Standard & High-Definition

8.4 Cable Specifications

Cable Length	HD	FHD	4K UHD	4K UHD+	8K UHD
Ethernet Cable					
Cat.5e/6	60m		35m	×	
Cat.6A/7	70m		40m	×	

Bandwidth Category Examples:

- **HD Video**
  - 720p@60Hz
  - HDMI transmission rates lower than 3Gbps
  - HD-SDI (SMPTE 292M, 1.485Gbps)
- **FHD Video**
  - 1080p@60Hz
  - HDMI transmission rates between 3Gbps and 5.3Gbps
  - 3G-SDI (SMPTE 424M, 2.970Gbps)
- **4K UHD Video**
  - 4K@24/25/30Hz (8-bit colour) & 4K@50/60Hz (4:2:0, 8-bit colour)
  - HDMI transmission rates between 5.3Gbps and 10.2Gbps
  - 6G-SDI (SMPTE ST 2081, 6Gbps)
- **4K UHD^{+} Video**
  - 1080p@120Hz (10/12-bit HDR)
  - 4K@50/60Hz (4:4:4, 8-bit) & 4K@50/60Hz (4:2:0, 10/12-bit HDR)
  - HDMI transmission rates between 10.2Gbps and 18Gbps
  - 12G-SDI (SMPTE ST 2082, 12Gbps)
- **8K UHD Video**
  - 4K@120Hz (10/12-bit HDR)
  - 8K@24/25/30Hz (10/12-bit HDR) & 8K@50/60Hz (4:2:0, 8-bit colour)
  - HDMI transmission rates between 18Gbps and 48Gbps
  - 24G-SDI (SMPTE ST 2083, 24Gbps)

8.5 HDBaseT Features

HDBaseT Feature Set	Receiver
Video & Audio Extension	Supported
LAN Extension	Unsupported
Send power to Transmitter	Unsupported
Accept power from Transmitter	Unsupported
IR Extension	Unsupported
RS-232 Extension	Unsupported
USB 2.0 Extension	Unsupported

9. ACRONYMS

ACRONYM	COMPLETE TERM
4K UHD	4K Ultra-High-Definition (10.2Gbps max)
ADC	Analogue-to-Digital Converter
ARC	Audio Return Channel
ASCII	American Standard Code for Information Interchange
AV	Audio/Video
AVR	Audio/Video Receiver or Recorder
Cat.5e	Enhanced Category 5 cable
Cat.6	Category 6 cable
Cat.6A	Augmented Category 6 cable
Cat.7	Category 7 cable
CEC	Consumer Electronics Control
CLI	Command-Line Interface
COM	Communication
DHCP	Dynamic Host Configuration Protocol
eARC	Enhanced Audio Return Channel
EDID	Extended Display Identification Data
GbE	Gigabit Ethernet
Gbps	Gigabits per second
GUI	Graphical User Interface
HD	High-Definition
HDBT	HDBaseT
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDR	High Dynamic Range

ACRONYM	COMPLETE TERM
HDTV	High-Definition Television
HPD	Hot Plug Detection
IP	Internet Protocol
IR	Infrared
kHz	Kilohertz
LAN	Local Area Network
LED	Light-Emitting Diode
LPCM	Linear Pulse-Code Modulation
MAC	Media Access Control
MHz	Megahertz
OAR	Optical Audio Return
OSD	On-Screen Display
PD	Powered Device
PoC	Power over Cable
PoH	Power over HDBaseT
PoE	Power over Ethernet
PSE	Power Sourcing Equipment
SDTV	Standard-Definition Television
SDVoE	Software Defined Video over Ethernet
SNR	Signal-to-Noise Ratio
TCP	Transmission Control Protocol
THD+N	Total Harmonic Distortion plus Noise
TMDS	Transition-Minimised Differential Signaling
UHDTV	Ultra-High-Definition Television
USB	Universal Serial Bus

ACRONYM	COMPLETE TERM
WUXGA (RB)	Widescreen Ultra Extended Graphics Array (Reduced Blanking)
XGA	Extended Graphics Array
Ω	Ohm

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