SDM-XT-4K

H.264/265 Live Video Streaming and Recording Module Card

OPERATION MANUAL

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Version 1.1

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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
RDV1	2023/07/18	Preliminary release

CONTENTS

1. INTRODUCTION

This H.264/265 Live Video Streaming and Recording Module Card is a reliable, high-performance, module card that makes online broadcasting of live video, with a locally stored archive, an easy and simple process. Video content up to 4K UHD^{+} is supported and is automatically scaled to a resolution that is more appropriate for efficient streaming to popular online services (such as YouTube, Facebook, Twitch, etc.) using the standard RTSP/TCP/UDP/RTMP protocols.

All video content is encoded and streamed with minimal latency and high quality, making it ideal for live streaming events to a variety of popular online streaming services or within the local network. The video may also be recorded locally (via USB thumb drive) or to a local network drive while it is being streamed.

The module's design is compatible with a variety of products that have a standard CYP (UK) Module Slot, offering increased flexibility to customers.

2. APPLICATIONS

- Webcasting
- Social Media Broadcasting
- Live Event Streaming
- Video on Demand Streaming
- Live Recording and Storage

3. PACKAGE CONTENTS

- 1× H.264/265 Live Video Streaming and Recording Module Card
- 1× Operation Manual

4. SYSTEM REQUIREMENTS

- Must be installed into a product with an available compatible CYP (UK) 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.

- Available streaming server destination such as YouTube or Facebook or a recording storage target such as a NAS or USB thumb drive.
- To view RTSP streams directly on the local network, RTSP stream compatible video player software (such as VLC Media Player or PotPlayer) must be used.

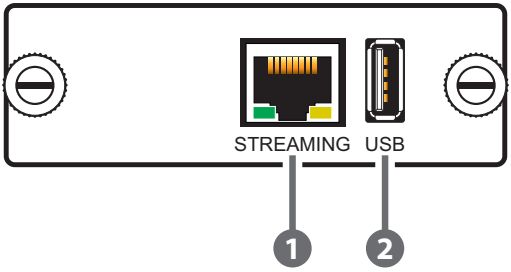
  Note: For security reasons it is strongly advised to maintain a firewall between this unit and the internet.

5. FEATURES

- Supports video resolutions up to 4K@60Hz
- Generates streams using H.265 (Primary stream) and H.264 (3 Service targeted streams)
- Supports live streaming to Facebook, YouTube, Twitch channels, and more!
- Supports independent recording to a user-determined destination
- Recorded video can be stored on locally connected USB storage (FAT or exFAT format) or to a designated network drive supporting NFS or CIFS

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



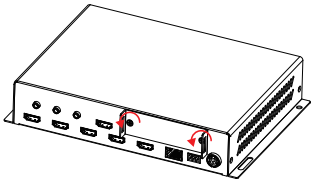
1. **STREAMING Port:** Connect to a network switch, or router for transmission of streamed video.
2. **USB Port:** Attach a standard USB thumb drive for storage of recorded video.

   *Note: Storage media must be formatted as FAT32 or exFAT. Video files are stored in *.mp4 format. Up to 1A is available to power an external USB device.*

6.2 Card Installation

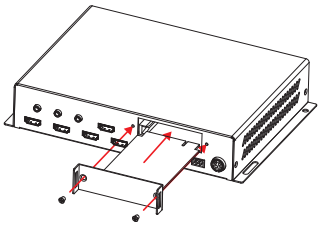
To install this module card into your unit, it must have at least one available CYP (UK) Module Slot.

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

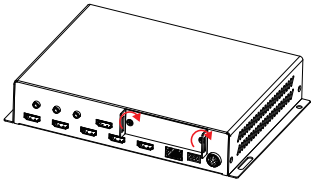


(2) Remove the dummy faceplate that is covering the card module slot by unscrewing both screws.

Note: Be sure to store the dummy faceplate somewhere safe, in case you need to use it 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.

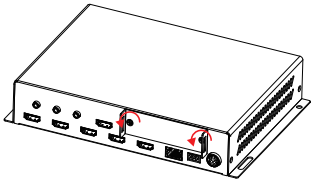


(4) Secure the module to the unit by using the supplied screws.

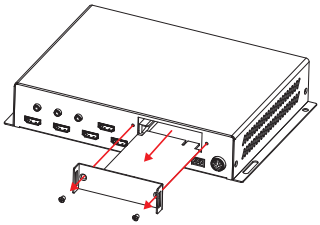
(5) The unit may now be powered back on. The card's power LED will light up to indicate it is receiving power. In most cases, the card will be automatically detected by the unit and be available for use.

6.3 Card Removal

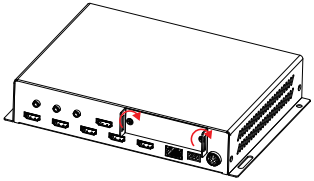
(1) Prior to removal, power the unit completely off.



(2) Completely unscrew both screws.



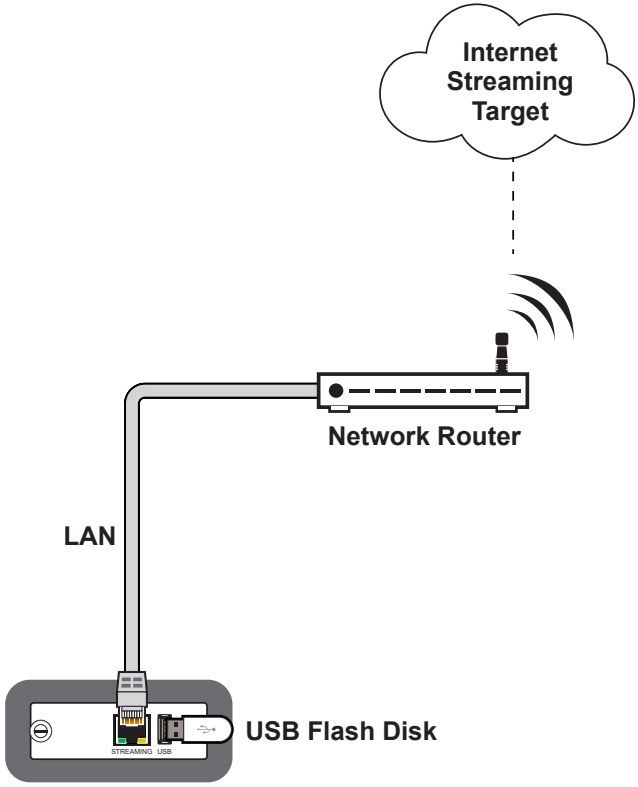
(3) Gently pull the card straight out of the module slot, using the provided handles.



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

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

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

8.1 Technical Specifications

Ethernet Bandwidth	1Gbps
Card Slot Format	1×CYP (UK) Module
Output Ports	1×LAN (RJ-45) 1×USB 2.0 (Type-A)
ESD Protection (HBM)	±8kV (Air Discharge) ±4kV (Contact Discharge)
Dimensions (W×H×D)	80mm×25mm×120mm [Case Only] 79mm×25mm×128mm [All Inclusive]
Weight	85g
Chassis Material (Face)	Metal (Steel)
Chassis Color	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)
Power Consumption	15W

8.2 Video Specifications

Supported Resolutions (Hz)	Input	Output
	Card Slot	Streaming
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	60	60
1152×864p@75	×	×
1280×720p@50/60	60	60
1280×768p@60/75/85	60	60
1280×800p@60/75/85	×	×
1280×960p@60/85	60	60
1280×1024p@60/75/85	60	60
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	×	×
1920×1080p@24/25/30	×	×

Supported Resolutions (Hz)	Input	Output
	Card Slot	Streaming
1920×1080p@50/60	60	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

Card Slot Input / Streaming Output	
LPCM	
Max Channels	2 Channels
Sampling Rate (kHz)	48
Bitstream	
Supported Formats	None

8.4 Cable Specifications

Cable Length	HD	FHD	4K UHD	4K UHD+	8K UHD
Ethernet Cable					
Cat.5e/6	100m				×
Cat.6A/7	100m				×

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 color) & 4K@50/60Hz (4:2:0, 8-bit color)
  - 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 color)
  - HDMI transmission rates between 18Gbps and 48Gbps
  - 24G-SDI (SMPTE ST 2083, 24Gbps)

9. ACRONYMS

ACRONYM	COMPLETE TERM
4K UHD	4K Ultra-High-Definition (10.2Gbps max)
4K UHD+	4K Ultra-High-Definition (18Gbps max)
8K UHD	8K Ultra-High-Definition (48Gbps max, without DSC)
8K UHD+	8K Ultra-High-Definition (48Gbps max, with DSC)
GbE	Gigabit Ethernet
Gbps	Gigabits per second
HDMI	High-Definition Multimedia Interface
HDR	High Dynamic Range
IP	Internet Protocol
kHz	Kilohertz
LED	Light-Emitting Diode
LPCM	Linear Pulse-Code Modulation
MHz	Megahertz
PCIe	Peripheral Component Interconnect Express
SNR	Signal-to-Noise Ratio
TCP	Transmission Control Protocol
THD+N	Total Harmonic Distortion plus Noise
TMDS	Transition-Minimized Differential Signaling
USB	Universal Serial Bus
VGA	Video Graphics Array
WUXGA (RB)	Widescreen Ultra Extended Graphics Array (Reduced Blanking)
XGA	Extended Graphics Array
Ω	Ohm

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