# SDM-XT-C

## 4K30 USB-C Video Capture 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** | 2023/06/07 | Preliminary release |
| **RDV2** | 2023/08/22 | Adding card installation warnings<br>Adjusting the page number of contents |

# CONTENTS


**1. Introduction ..... 1**

**2. Applications ..... 1**

**3. Package Contents ..... 1**

**4. System Requirements ..... 1**

**5. Features ..... 2**

**6. Operation Controls and Functions ..... 3**

6.1 Front Panel ..... 3

6.2 Card Installation ..... 3

6.3 Card Removal ..... 5

**7. Connection Diagram ..... 6**

**8. Specifications ..... 7**

8.1 Technical Specifications ..... 7

8.2 Video Specifications ..... 8

8.3 Audio Specifications ..... 10

8.3.1 Digital Audio ..... 10

8.4 Cable Specifications ..... 11

**9. Acronyms ..... 12**

## 1. INTRODUCTION

This 4K30 USB-C Video Capture Module Card allows the product it has been installed in to connect to a PC or laptop via the USB-C interface to capture or record video signals up to 4K@30Hz.

The module's design is compatible with a variety of products that have a standard CYP Module Slot, offering increased flexibility to customers. This module card's output supports video capture on Windows, macOS, and Linux systems.

## 2. APPLICATIONS

- PC video capturing for live streaming on Facebook, YouTube or Twitch channels via OBS
- Video capturing for communication software
- A useful capture tool for meeting room and classroom applications

## 3. PACKAGE CONTENTS

- 1× 4K30 USB-C Video Capture Module Card
- 2× Mounting Screws
- 1× Operation Manual

## 4. SYSTEM REQUIREMENTS

- Must be installed into a product with an available compatible CYP Module Slot
- Personal computer (Windows or macOS) with a USB-C port and plenty of available hard drive space.

## 5. FEATURES

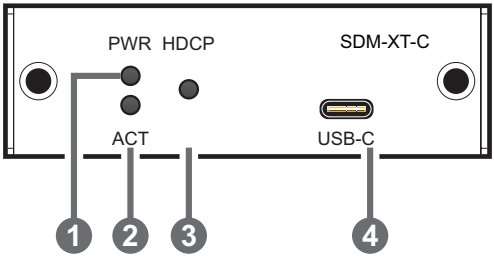
- Supports video resolutions up to 4K@60Hz from the product it is installed into
- USB-C output allows uncompressed video and audio data capture (up to 4K@30Hz, LPCM 2.0) via the connected PC

  *Note: 4K sources with framerates higher than 30Hz are automatically converted to lower framerates which depends on the setting of your PC software.*
- Complies with the UAC (USB Audio Class) and UVC (USB Video Class) standards, allowing the unit to support the most common capture and video streaming software

  *Note: Access to many of the software controllable features of the unit, beyond simple video capture, requires the use of the USB Video Capture Control software which is optionally available for Windows 10 or later PCs.*
- Supports video timing stabilization to help ensure a reliable and stable USB capture stream
- Capturing over a USB 2.0 connection (rather than USB 3.0) requires the application of minimal MJPEG compression to the video data (output up to 720p@30Hz, LPCM 2.0 is supported)
- Supports the Free OBS (Open Broadcaster Software) streaming software which is available for Windows 10 (or later), macOS, and Linux

# 6. OPERATION CONTROLS AND FUNCTIONS

## 6.1 Front Panel



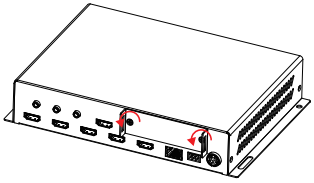

1. **PWR LED:** This LED will illuminate red to indicate the card is receiving power. The colour of the LED will change to green when a valid video source has been detected.
2. **ACT LED:** When software on the connected PC is actively receiving video from the unit via USB, this LED will illuminate green.
3. **HDCP LED:** This LED will illuminate when the source contains HDCP encrypted content (green for HDCP 1.x, blue for HDCP 2.2).

   *Note: Video capture of HDCP encrypted content is not supported and the output will be blacked out.*
4. **USB-C Out Port:** Connect to a PC or laptop for video capture.

## 6.2 Card Installation

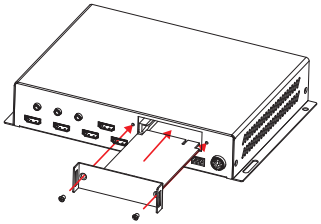
- To install this module card into your unit, it must have at least one available CYP Module Slot.
- Make sure the antistatic procedure is processed before touching the module card.
- Please hold the dummy faceplate for installation and do not touch the components or the edge connector in case causing damage to the module card.

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

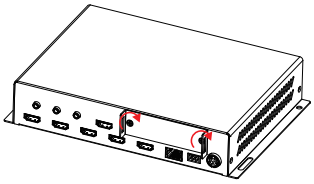


(2) Remove the dummy faceplate that is covering the card module slot by unscrewing both screws.

*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.

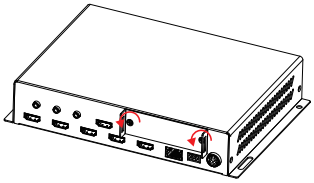


(4) Secure the module to the unit by using the supplied screws.

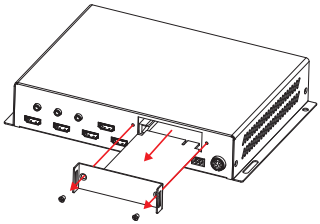
(5) The unit may now be powered back on. The card's power LED will light up to indicate it is receiving power. In most cases, the card will be automatically detected by the unit and be available for use.

## 6.3 Card Removal

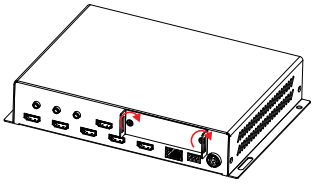
(1) Prior to removal, power the unit completely off.



(2) Completely unscrew both screws.



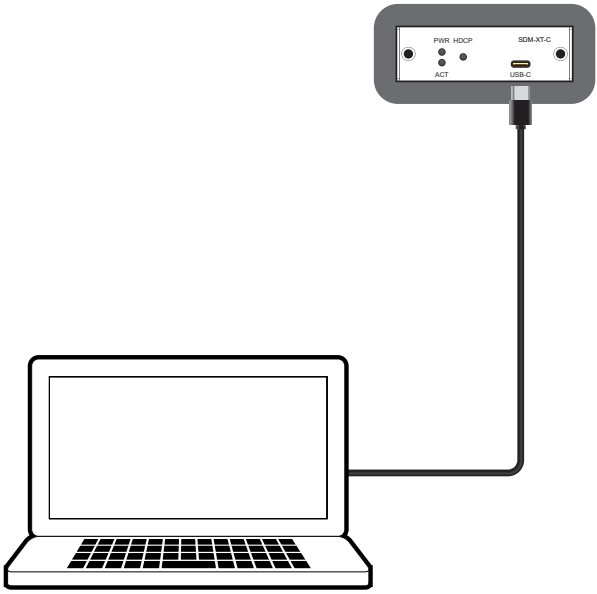
(3) Gently pull the card straight out of the module slot using the handles on each side.



(4) Cover the module slot with a dummy faceplate and tighten it in place using appropriate screws.

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

# 7. CONNECTION DIAGRAM




**PC/Laptop**

# 8. SPECIFICATIONS

## 8.1 Technical Specifications

| | |
|---|---|
| **USB-C Bandwidth** | 5Gbps |
| **Card Slot Format** | 1×CYP Module (Edge Connector) |
| **Output Ports** | 1×USB 3.2 (Type-C) |
| **Power Supply** | Provided via Module Slot Connection |
| **ESD Protection (HBM)** | ±8kV (Air Discharge)<br>±4kV (Contact Discharge) |
| **Dimensions (W×H×D)** | 82mm×25mm×111mm [Case Only]<br>82mm×25mm×122mm [All Inclusive] |
| **Weight** | 55g |
| **Chassis Material (Face)** | 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) |
| **Power Consumption** | 7.854W |

## 8.2 Video Specifications

| Supported Resolutions (Hz) | Input | Output |
|---|---|---|
| | Card Slot | USB-C |
| **720×400p@70/85** | ✓ | × |
| **640×480p@60/72/75/85** | ✓ | 60 |
| **720×480i@60** | ✓ | × |
| **720×480p@60** | ✓ | ✓ |
| **720×576i@50** | ✓ | × |
| **720×576p@50** | ✓ | ✓ |
| **800×600p@56/60/72/75/85** | ✓ | 60 |
| **848×480p@60** | ✓ | ✓ |
| **1024×768p@60/70/75/85** | ✓ | 60 |
| **1152×864p@75** | ✓ | × |
| **1280×720p@50/60** | ✓ | ✓ |
| **1280×768p@60/75/85** | 60/75 | × |
| **1280×800p@60/75/85** | 60 | × |
| **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 |
|---|---|---|
| | Card Slot | USB-C |
| 1920×1080p@24/25/30 | ✓ | 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 | ✓ | 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 / USB-C 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 |
|---|---|---|---|---|---|
| **USB-C Cable** | | | | | |
| **USB-C Output** | 2m | | | × | |

**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)

## 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 |
| **kHz** | Kilohertz |
| **LED** | Light-Emitting Diode |
| **LPCM** | Linear Pulse-Code Modulation |
| **MHz** | Megahertz |
| **SNR** | Signal-to-Noise Ratio |
| **THD+N** | Total Harmonic Distortion plus Noise |
| **TMDS** | Transition-Minimized Differential Signaling |
| **UAC** | USB Audio Class |
| **USB** | Universal Serial Bus |
| **UVC** | USB Video Class |
| **VGA** | Video Graphics Array |
| **WUXGA (RB)** | Widescreen Ultra Extended Graphics Array (Reduced Blanking) |
| **XGA** | Extended Graphics Array |
| **Ω** | Ohm |

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