SDM-SDI12G-RX

2G SDI Input Module Card, 4K@60 12G SDI with SDI Loop Out

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
v1.00	02/08/2024	Initial Release
v1.01	25/02/2025	1. Added 6 supported timings in 8.2 Video Specifications 2. Modified the supported audio sampling rate in 8.3.1 Digital Audio

CONTENTS

1. INTRODUCTION

The SDM-SDI12G-RX is a 12G SDI receiver module card from CYP's SDM range.

It is able to convert 12G, 6G, 3G, HD or SD SDI signals into the core module product, like medical equipment, SDI cameras and more to integrate into the core SDM products like the OR-32SDMI.

This module offers customers great flexibility in different scenarios. Also, this module card can be used with other SDI product from CYP and can extend the distance of SDI signals up to 70 metres via an appropriate SDI cable (12G SDI signal source with a Belden 1694A SDI cable). The SDM-SDI12G-RX also has an looped SDI output.

2. APPLICATIONS

- Display 12G-SDI video signals on standard 4K HDMI displays
- Broadcast SDI to consumer HDMI video signal conversion
- 12G-SDI signal extension via re-clocked loop output

3. PACKAGE CONTENTS

- 1× 4K60 12G-SDI to HDMI Receiver Module
- 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

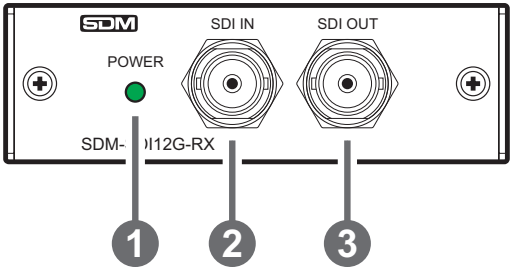
  Note: Despite appearances, this card is NOT designed for installation into a PC's PCIe card slot and should only be installed in officially compatible products.
- SDI source equipment such as editing/recording decks, professional cameras, or video broadcast equipment.
- HDMI receiving equipment such as HDTVs, monitors, or audio amplifiers.

5. FEATURES

- Signal conversion from SDI signals to HDMI signals when integration with one of CYP's core SDM products
- Module has one SDI input port and one SDI loop out port
- Supports 12G, 6G, 3G, HD and SD SDI video formats
- Supports output resolution up to 4K@60 4:2:2
- Extension of SDI signals up to 70m (12G SDI), 100m (6G SDI), 200m (3G SDI) or 260m (HD SDI)

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. **SDI IN Port:** Connect to SDI source equipment such as editing/recording decks, medical equipment, professional cameras, or video broadcast equipment. SDI signals up to 12G-SDI are supported.
3. **SDI OUT Port:** Connect to SDI receiving equipment such as editing/recording decks, professional studio monitors, medical equipment or video broadcast equipment.

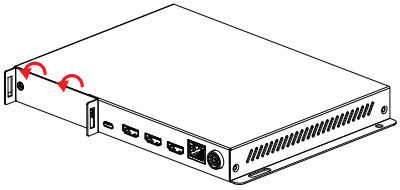
   Note: This output is re-clocked to support sequential daisy chain cable extensions, without signal loss, if desired.

6.2 Card Installation

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

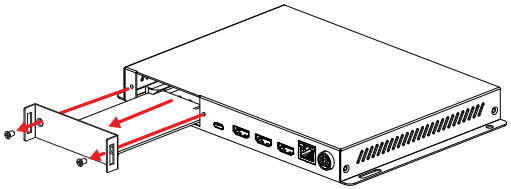
Ensure that the anti-static procedure is completed before handling the module card.

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

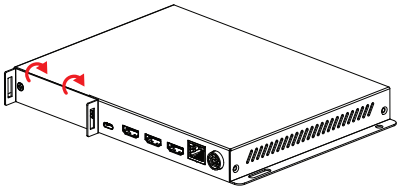


(2) Remove the dummy faceplate that is covering the card module slot by unscrewing both screws.

Note: Be sure to store the dummy faceplate and its screws in 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, gently slide the module card into the slot until its faceplate is flush with the back of the unit.



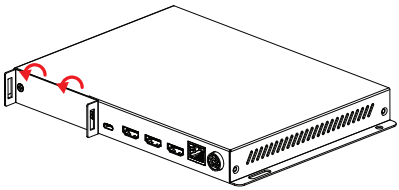
(4) Secure the module card to the unit by using the supplied screws.

(5) The unit may now be powered on. The card's power LED will light up

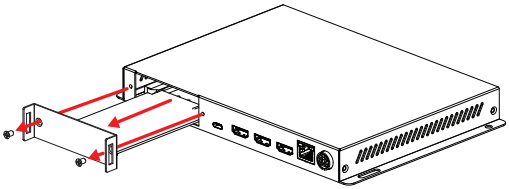
to indicate while it's receiving power. In most cases, the card will be automatically detected by the unit and be available to use.

6.3 Card Removal

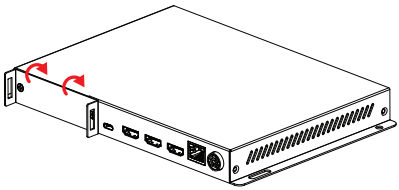
(1) Prior to removal, power off the unit completely.



(2) Completely unscrew both screws.



(3) Hold the module card's handles on each side, gently pull it straight out of the module slot.



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

(5) The unit may now be powered on.

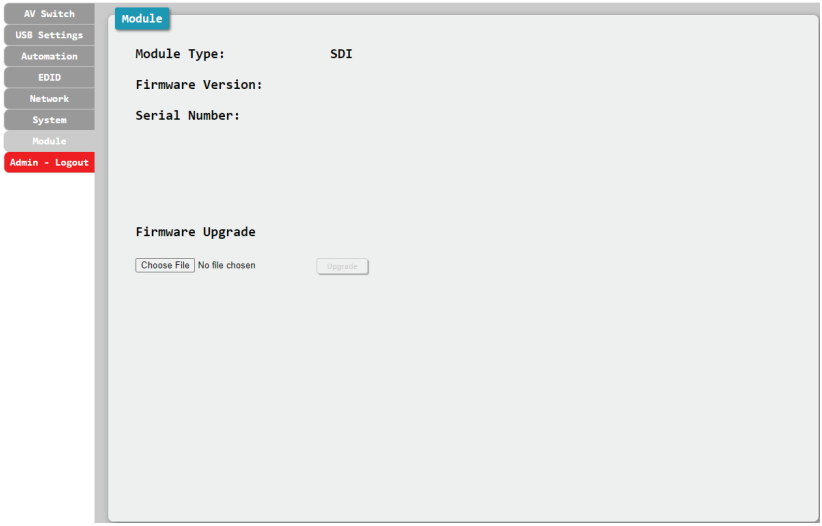
6.4 WebGUI Control

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

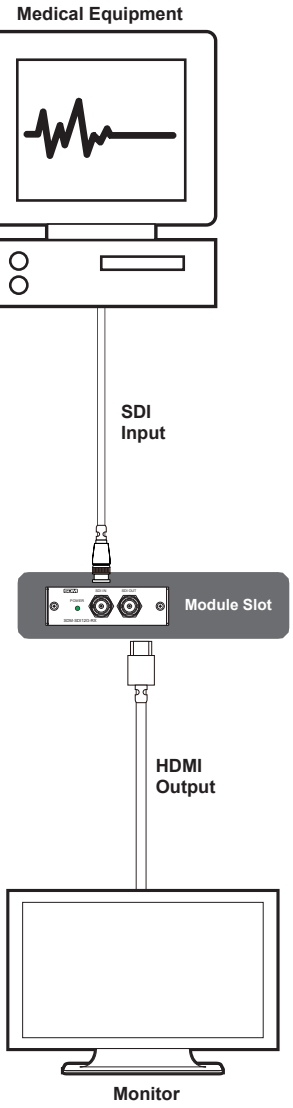
This tab displays the module's module type, current firmware version and serial number, as well as provides a way to update firmware.



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) **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

HDMI Bandwidth	18Gbps
SDI Bandwidth	12Gbps
SMPTE Standard Support	ST 292-1 Level A ST 425-1 ST 2081-10 ST 2082-10
Card Slot Format	1× CYP Module (Edge Connector)
Input Ports	1×12G-SDI (BNC)
Output Ports	1×12G-SDI (BNC)
ESD Protection (HBM)	±8kV (Air Discharge) ±4kV (Contact Discharge)
Dimensions (W×H×D)	128mm×25mm×75mm [Case Only] 128mm×25mm×75mm [All Inclusive]
Weight	91g
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	
	SDI	Card Slot	SDI
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	×	×	×
1280×800p@60/75/85	×	×	×
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	
	SDI	Card Slot	SDI
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

Card Slot Input / SDI Output	
LPCM	
Max Channels	8 Channels
Sampling Rate (kHz)	48, 96
Bitstream	
Supported Formats	Standard & High-Definition

8.4 Cable Specifications

Cable Length	HD	FHD	4K UHD	4K UHD+	8K UHD
Coaxial SDI Cable (Belden 1694A 6GHz Cable)					
SDI Input	260m	200m	100m	70m	×
SDI Output	260m	200m	100m	70m	×

Note: SDI cable distance measurements are based on Belden 1694A 6GHz cable. Operating distance may vary if different quality cables are used. Bandwidth category headings are representative examples only, and do not indicate this product's support for any specific resolution or colour bit depth.

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)
COAX	Coaxial
DHCP	Dynamic Host Configuration Protocol
EDID	Extended Display Identification Data
Gbps	Gigabits per second
GUI	Graphical User Interface
HD	High-Definition
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDR	High Dynamic Range
kHz	Kilohertz
LAN	Local Area Network
LED	Light-Emitting Diode
LPCM	Linear Pulse-Code Modulation
MAC	Media Access Control
MHz	Megahertz
SDI	Serial Digital Interface
TMDS	Transition-MinimÍd Differential Signaling
UHDTV	Ultra-High-Definition Television
VGA	Video Graphics Array
WUXGA (RB)	Widescreen Ultra Extended Graphics Array (Reduced Blanking)
XGA	Extended Graphics Array
Ω	Ohm

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