

# CV-503ZKM

## HDMI 2.0 & 12G SDI to 12G/6G/3G/HD/SDI Converter with Audio Embedder

### User Manual



rev: 160726  
Made in Taiwan



## **Safety and Notice**

The CV-503ZKM HDMI 2.0 & 12G SDI to 12G/6G/3G/HD/SD-SDI Converter with Audio Embedder has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipment, the CV-503ZKM should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on this unit.
- Do not attempt to service this unit yourself, except where explained in this manual.
- Provide proper ventilation and air circulation and do not use near water.
- Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.
- Use only the power adapter and power cords and connection cables designed for this unit.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.



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# INTRODUCTION

The **CV-503ZKM HDMI 2.0 & 12G SDI to 12G/6G/3G/HD/SD-SDI Converter with Audio Embedder** provides a professional way to convert HDMI 2.0 or 12G SDI to 12G/6G/3G/HD/SD-SDI in real time. The conversion between SDI and HDMI is pure digital and guarantees no loss transformation for both audio and video. Plus, with up to 8 channels audio support, 7.1 channel or 5.1 channel audio becomes available. The CV-503ZKM provides one low jitter SDI output up to 12G and three other SDI outputs up to 3G simultaneously to either support 12G UHD output and 4 3G FHD outputs. This converter is also equipped with high quality analog stereo embedder to fit into more realistic applications. With versatile features controlled by the built-in switch, CV-503ZKM makes the most popular SDI applications handy and possible.

## FEATURES

- Supported high-definition (HD) formats:  
NTSC 525@59.94, PAL 625@50, 720p@50, 720p@59.94, 720p@60, 1080i@50, 1080i@59.94, 1080i@60, 1080p@23.97, 1080p@24, 1080p@25, 1080p@29.97, 1080p@30, 1080p@50, 1080p@59.94, 1080p@60, 4K2K\*@23.97, 4K2K\*@24, 4K2K\*@25, 4K2K\*@30, 4K2K\*@50, 4K2K\*@59.94, 4K2K\*@60,  
Bit Rate: 11.88 Gbps, 11.88/1.001 Gbps, 5.94 Gbps, 5.94/1.001 Gbps, 2.97 Gbps, 2.97/1.001 Gbps, 1.485 Gbps, 1.485/1.001 Gbps, 270 Mbps
- Auto 12G/6G/3G/HD/SD-SDI input detection
- Supports HDMI 2.0 & below
- Supports analog stereo embedder
- Supports one 12G SDI & 3 G SDI outputs
- The 4 3G SDI outputs support only 2-sample interleave division mapping\*\*
- USB firmware upgradable for expanding compatibility
- Wall-mount housing design for easy installation
- Small form factor & fan less design



\* The 4K2K supports 3840x2160 and 4096x2160

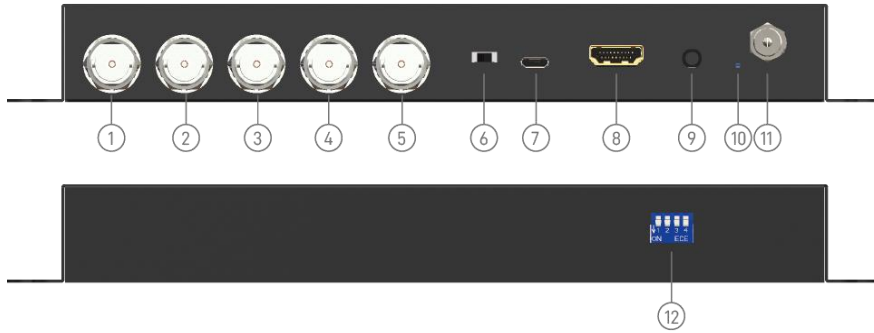
\*\* NOT supporting square division mapping

## PACKAGE CONTENTS

- 1x CV-503ZKM
- 1x 12V/2A power supply unit
- 1x User Manual

# SPECIFICATIONS

Model Name	CV-503ZKM
<b>Technical</b>	
SDI standards	12G/6G/3G/HD/SD-SDI
Auto 12G/6G/3G/HD/SD-SDI detection	Yes
Input video bandwidth	18Gbps [HDMI] 12Gbps[SDI]
Output video bandwidth	12Gbps
Video input support	up to 4K2K@60 (4:4:4 8bits)
Video output support	[12G] 4K2K* @50/59.94/60Hz (4:2:2) [6G] 4K2K* @23.97/24, 25, 30Hz (4:2:2) [3G] 1080p @50/59.94/60Hz (4:2:2) [HD] – 720p @50/59.94/60Hz, 1080i @50/59.94/60Hz, 1080p @23.98/24/25/29.97/30Hz (4:2:2) [SD] – NTSC @59.94Hz, PAL @50Hz (4:2:2)  *The 4K2K supports 3840x2160 and 4096x2160
Output signal	SDI
Output impedance	75Ω
Synchronization mode	Internal synchronization or external synchronization
Eye pattern characteristics	Extra low alignment jitter(1KHz) 0.47UI at 3G/ 0.73UI at 6G/ 1.79UI at 12G
Cable equalization	[12G-SDI] up to 60m (200ft) [6G-SDI] up to 75m (250) [3G-SDI] up to 90m (300ft) [HD-SDI] up to 150m (500ft) [SD-SDI] up to 300m (1000ft)
Audio support	PCM 7.1 (48KHz Fs sample rate)
PCB stack-up	8-layer board [impedance control — differential 100Ω; single 50Ω]
Input	1x HDMI + 1 x 12G-SDI + 1x 3.5mm
Output	1x 12G-SDI + 3x 3G-SDI
BNC connector	75Ω inter-locked socket
HDMI connector	Type A [19-pin female]
<b>Mechanical</b>	
Housing	Metal enclosure
Fixedness	Inter-locked power supply
Power supply	12V 2A DC
Power consumption	10 Watts [max]
Operation temperature	0~40°C [32~104°F]
Storage temperature	-20~60°C [-4~140°F]
Relative humidity	20~90% RH [no condensation]

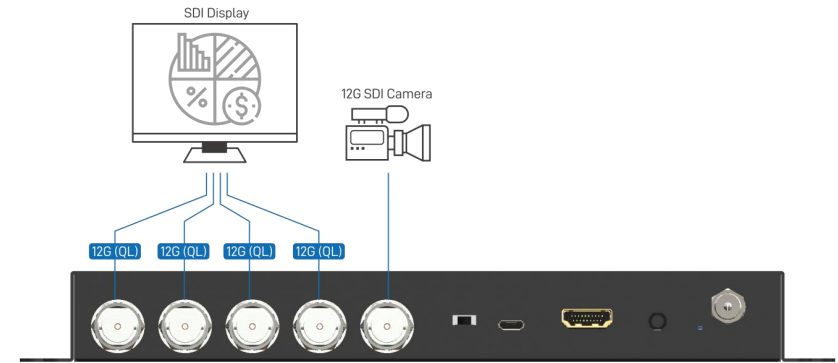


1. **SDI OUT1:** 12G(QL)/6G(QL)/3G/HD/SD-SDI output
2. **SDI OUT2:** 12G(QL)/6G(QL)/3G/HD/SD-SDI output
3. **SDI OUT3:** 12G(QL)/6G(QL)/3G/HD/SD-SDI output
4. **SDI OUT4:** 12G/6G/12G(QL)/6G(QL)/3G/HD/SD-SDI output
5. **SDI IN:** 12G/6G/3G/HD/SD-SDI input
6. **Slide Switch:** Select HDMI or SDI input  
 [Left] Select SDI input  
 [Middle] Auto mode  
 - The device input will select HDMI input when HDMI input connects to source  
 - The device input will select SDI input when HDMI input does NOT connect to source  
 [Right] Select HDMI input
7. **Micro USB:** Micro-USB port for F/W update
8. **HDMI IN:** Connects to a HDMI source with a HDMI male-male cable
9. **Stereo Audio Input**
10. **LED INDICATOR:** Power indicator LED
11. **+12V DC:** Interlocking power jack for 12V DC power supply unit
12. **4-Pin Dip Switch** (Please refer to "Notes")

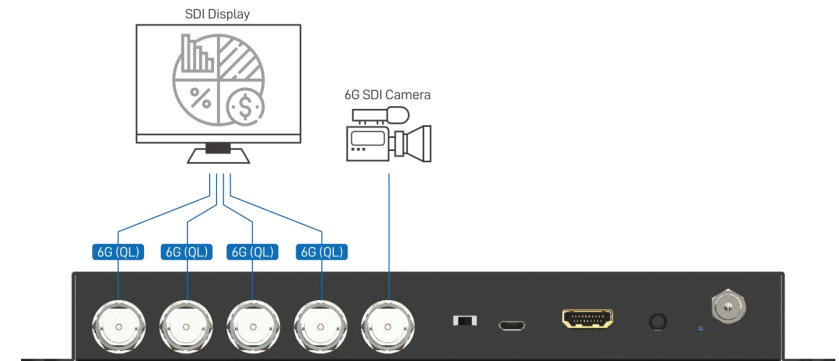
**\*Notes: DIP Switch Position**

DIP Switch Position	Description	
2-Pin		
PIN#1	ON [↓]	3G Level B
	OFF [↑]	3G Level A
PIN#2	ON [↓]	Stereo Audio Embedder Function(2ch)
	OFF [↑]	HDMI Audio Bypass(up to 7.1ch)
PIN#3	ON [↓]	Select 4 12G(QL) SDI as output when input is 12G SDI Select 4 6G(QL) SDI as output when input is 6G SDI
	OFF [↑]	Select 12G SDI as output when input is 12G SDI Select 6G SDI as output when input is 6G SDI
PIN#4	ON [↓]	Reserved
	OFF [↑]	Reserved

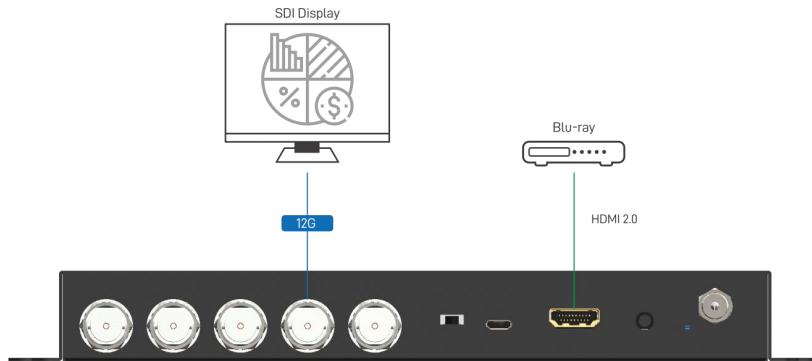
## 1. 12G SDI to 4 12G(QL)



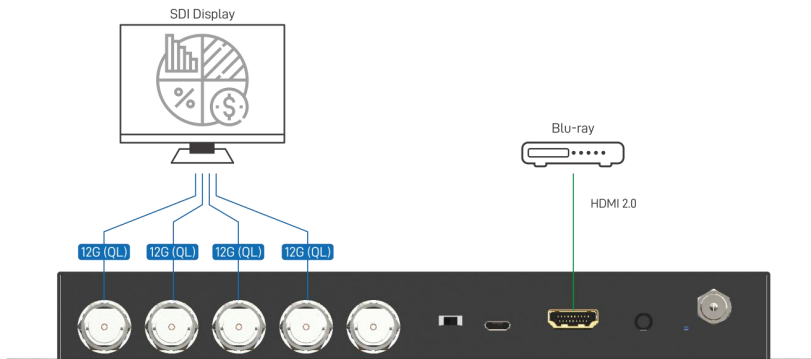
## 2. 6G SDI to 4 6G(QL) SDI



### 3. HDMI 2.0 to 12G SDI



### 4. HDMI 2.0 to 4 12G(QL) SDI



## SUPPORTED SDI RESOLUTIONS

12G-SDI Output	
4K2K* @ 50/59.94/60Hz	SMPTE ST-2082
6G-SDI Output	
4K2K* @ 23.97/24, 25, 30Hz	SMPTE ST-2081
3G-SDI Output	
1080p @ 50/ 59.94 / 60Hz	SMPTE 424M, SMPTE 425M
HD-SDI Output	
720p @ 50Hz	SMPTE 296M -3
720p @ 60 / 59.94Hz	SMPTE 296M -1, -2
1080i @ 50Hz	SMPTE 274M -6
1080i @ 60 / 59.94Hz	SMPTE 274M -4, -5
1080p @ 24 / 23.98Hz	SMPTE 274M -10, -11
1080p @ 25Hz	SMPTE 274M -9
1080p @ 30 / 29.97Hz	SMPTE 274M -7, -8
SD-SDI Output	
NTSC	
PAL B,D,G,H,I	



\* The 4K2K supports 3840x2160 and 4096x2160

The SELLER warrants the **CV-503ZKM HDMI2.0 & 12G SDI to 12G/6G/3G/HD/SD-SDI Converter with Audio Embedder** to be free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surges.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables are limited to a 30 day warranty and cable must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. **Also, the technical information contained herein regarding the CV-503ZKM features and specifications is subject to change without further notice.**



Single Link

