

# BG-4KHS

**4K UHD HDMI 2.0 to 12G-SDI Converter with HDMI Loop-Out  
and Audio Embedder**

## User Manual







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## Statement

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Please read these instructions carefully before connecting, operating, or configuring this product. Please save this manual for future reference.

## Safety Precaution

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- To prevent damaging this product, avoid heavy pressure, strong vibration, or immersion during transportation, storage, and installation.
- The housing of this product is made of organic materials. Do not expose to any liquid, gas, or solids which may corrode the shell.
- Do not expose the product to rain or moisture.
- To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians.
- Do not use the product beyond the specified temperature, humidity, or power supply specifications.
- This product does not contain parts that can be maintained or repaired by users. Damage caused by dismantling the product without authorization from BZBGear is not covered under the warranty policy.
- Installation and use of this product must strictly comply with local electrical safety standards.



## Introduction

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The BZBGear BG-4KHS is an HDMI 2.0 to 12G/6G/3G/HD-SDI converter with an HDMI loop-out and audio embedder. The HDMI signal is digitally converted into SDI, guaranteeing lossless conversion for both audio and video. Featuring up to 8 channels of audio, the BG-4KHS is compatible with 7.1 or 5.1 surround sound systems. The high-quality analog stereo embedder, HDMI input, two SDI outputs, and an HDMI loop-out provides users convenient flexibility. With these robust features, the BG-4KHS can take HDMI signals from popular consumer-grade video interfaces and effortlessly convert it to SDI without compression for use of professional or commercial AV equipment.

## Features

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- **Supported high-definition (HD) formats:**

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, 3840x2160@23.98, 3840x2160@24, 3840x2160@25, 3840x2160@29.97, 3840x2160@30, 3840x2160@50, 3840x2160@59.94, 3840x2160@60, 4096x2160@23.98, 4096x2160@24, 4096x2160@25, 4096x2160@29.97, 4096x2160@30, 4096x2160@50, 4096x2160@59.94, 4096x2160@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

- **Supports HDMI 2.0 and below**
- **Analog stereo embedding**
- **Two SDI outputs, one HDMI loop-out, and one HDMI input**

## Packing List

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- 1 x BG-4KHS
- 1 x Rack-mounting ears set
- 1 x 5V power adapter
- 1 x User Manual

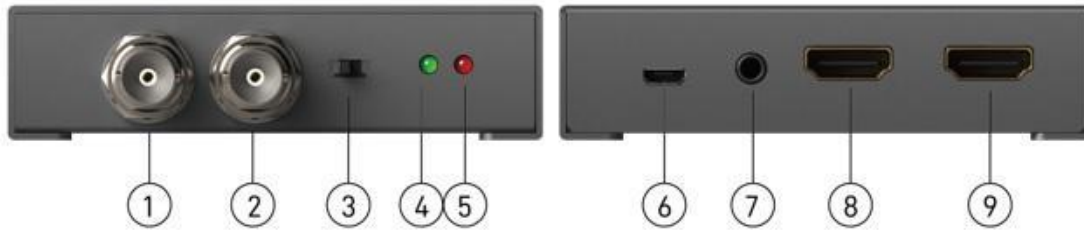


## Specifications

Technical		
SDI standards	12G/6G/3G/HD-SDI	
HDMI standards	HDMI 2.0	
Auto 3G/HD/SD-SDI detection	Yes	
Video support	[SDI] [11.88 Gbps, 11.88/1.001 Gbps]	
	[HDMI] [up to 18Gbps]	
Video bandwidth	[12G] 4K @50/59.94/60Hz	
	[6G] 4K2K @23.98/24, 25, 29.97, 30Hz	
	[3G] 1080p50/59.94/60	
	[HD] – 720p @50/59.94/60Hz, 1080i @50/59.94/60Hz,	
	1080p @23.98/24/25/29.97/30Hz	
Input signal	1x HDMI + 1x 3.5mm(Audio)	
Output signal	2x SDI + 1x HDMI	
Output impedance (SDI)	75Ω	
Cable equalization	[12G-SDI] up to 70m (230ft)	
	[6G-SDI] up to 100m (328ft)	
	[3G-SDI] up to 190m (623ft)	
	[HD-SDI] up to 290m (951ft)	
Audio support	[Analog] Supports 2ch stereo	
	[HDMI] Surround sound (up to 7.1ch)	
PCB stack-up	6-layer board [impedance control – differential 100Ω; single 50Ω]	
Input	1x HDMI + 1x 3.5mm Stereo Mini	
Output	2x BNC [SDI] + 1x HDMI	
BNC connector	75Ω interlocked socket	
HDMI connector	Type A [19-pin female]	
Mechanical		
Housing	Metal enclosure	
Dimensions [L x W x H]	Model	140 x 106 x 24mm[5.5" x 4.1" x 0.9" ]
	Package	198 x 137 x 74mm [7.8" x 5.4" x 2.9"]
	Carton	420 x 400 x 300mm [1'4"x 1'3" x 11.8"]
Weight	Model	220g [7.7 oz]
	Package	420g [0.9 lbs]
Power supply	5V DC	
Power consumption	7 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]	



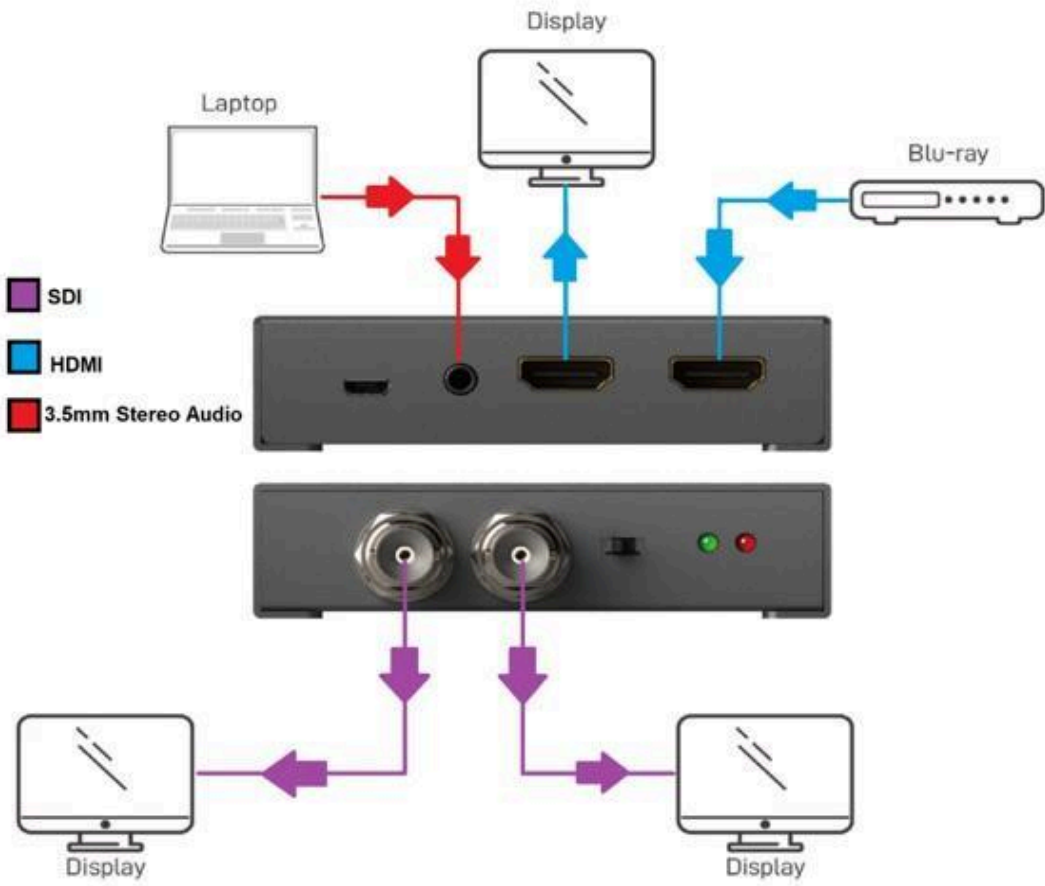
## Panel Descriptions



1. SDI OUT	12G/6G/3G/HD-SDI output
2. SDI OUT	12G/6G/3G/HD-SDI output
3. Slide Switch	[Left] Stereo Audio Embedding Function (2ch)
	[Middle] HDMI Audio Bypass (up to 7.1ch)
	[Right] F/W update
4. LED	Signal LED indicator
5. LED	Power LED indicator
6. Micro USB Port	5V DC power
7. Stereo Audio Input	3.5mm Stereo mini
8. HDMI loop-out	Connects to an HDMI display using an HDMI male-to-male cable
9. HDMI IN	Connects to an HDMI source using an HDMI male-to-male cable



# Connection Diagram





## Supported Resolutions

12G-SDI Output	
4K @50/59.94/60Hz	SMPTE ST-2082
6G-SDI Output	
4K2K @23.98/24, 25, 29.97, 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



## Tech Support

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Have technical questions? We may have answered them already!

Please visit BZBGear's support page ([bzbgear.com/support](https://bzbgear.com/support)) for helpful information and tips regarding our products. Here you will find our Knowledge Base ([bzbgear.com/knowledge-base](https://bzbgear.com/knowledge-base)) with detailed tutorials, quick start guides, and step-by-step troubleshooting instructions. Or explore our YouTube channel, BZB TV ([youtube.com/c/BZBTVchannel](https://youtube.com/c/BZBTVchannel)), for help setting up, configuring, and other helpful how-to videos about our gear.

Need more in-depth support? Connect with one of our technical specialists directly:

<b>Phone</b>	<b>Email</b>	<b>Live Chat</b>
1.888.499.9906	<a href="mailto:support@bzbgear.com">support@bzbgear.com</a>	<a href="https://bzbgear.com">bzbgear.com</a>

## Limited Product Warranty Terms

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Pro Line: 5-year warranty from the date of purchase for AV/Broadcasting products bought on or after August 1, 2024.

Essential Line: 3-year warranty from the date of purchase for AV/Broadcasting products bought on or after August 1, 2024.

Cables: Lifetime Limited Product Warranty.

For complete warranty information, please visit [bzbgear.com/warranty](https://bzbgear.com/warranty).

For questions, please call 1.888.499.9906 or email [support@bzbgear.com](mailto:support@bzbgear.com).

## Mission Statement

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BZBGear is a breakthrough manufacturer of high-quality, innovative audiovisual equipment ranging from AVoIP, professional broadcasting, conferencing, home theater, to live streaming solutions. We pride ourselves on unparalleled customer support and services. Our team offers system design consultation, and highly reviewed technical support for all the products in our catalog. BZBGear delivers quality products designed with users in mind.

## Copyright

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