



BG-8K-KVM41A

8K60 HDMI 2.1 4x1 KVM Switch with USB 3.0, Hotkey Switching & IR Control

User Manual







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Statement

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

Safety Precaution

- 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

The BG-8K-KVM41A is a high-performance 4x1 KVM switch designed for seamless control of multiple computers using a single keyboard, mouse, and monitor. Supporting resolutions up to 8K@60Hz, 4K@120/144Hz, and 1080P@240Hz, it delivers ultra-clear visuals with zero video or audio latency. With full HDMI 2.1 and HDCP 2.3 compliance, HDR formats including Dolby Vision, HDR10+, and HLG pass-through, it ensures uncompromised image quality for professional, gaming, or creative setups.

Equipped with USB 3.0 connectivity, hotkey switching, IR remote, and front-panel controls, the BG-8K-KVM41A makes switching between devices fast and effortless. Its virtual interaction feature can automatically wake connected PCs from standby, while EDID emulators on each input ensure consistent compatibility with any system. Compact, plug-and-play, and compatible with Windows, macOS, and Linux, this KVM switch is ideal for users seeking maximum efficiency, flexibility, and reliability in multi-computer workflows.

Features

- **HDCP 2.3 Compliant:** Ensures full compatibility with the latest HDCP-protected content.
- **Ultra-High Resolution:** Supports up to 8K@60Hz, 4K@120/144Hz, and 1080P@240Hz for crystal-clear visuals.
- **HDMI 2.1 Advanced Features:** Includes VRR, ALLM, QMS, QFT, and SBTM for smooth gaming and video performance.
- **HDR & Dolby Vision Support:** Passes through HDR, HDR10, HDR10+, Dolby Vision, and HLG for vibrant colors.
- **Single Control for Multiple PCs:** Manage up to 4 computers with one keyboard, mouse, and monitor.
- **Fast & Seamless Switching:** Switch video and keyboard/mouse instantly via hotkeys, IR remote, or front panel.
- **EDID Emulators:** Each input provides correct display info to ensure stable output and compatibility.
- **Hot-Plug Support:** Connect or disconnect devices at any time without interrupting operation.
- **Auto-Switching Function:** Automatically cycles to active input when needed for efficiency.
- **Zero Latency Design:** Advanced hardware and software guarantee no video or audio delay.
- **USB 3.0 Sharing:** Share peripherals like printers, scanners, webcams, and storage with 5Gbps speed.
- **Compact & Flexible:** Space-saving design allows easy installation in any setup.



Packing List

- 1 × BG-8K-KVM41A 8K60 4×1 KVM Switcher
- 1 × IR Remote Control
- 1 × 3-pin 3.81mm Phoenix Connector (male)
- 1 × Fixed Frequency 38KHz IR Receiver Cable (1.5 m)
- 4 × USB 3.0 Cable (Type A to Type B, 1.8 m)
- 4 × HDMI Cable (male to male, 1.5 m)
- 2 × Mounting Ears
- 4 × Machine Screws (KM3×4)
- 1 × 12V/1A Multinational Locking Power Supply
- 1 × User Manual



Specifications

Technical Specifications	
HDMI Compliance	HDMI 2.1
HDCP Compliance	HDCP 2.3
Video Bandwidth	40 Gbps
Audio Latency	No Latency
Video Latency	No Latency
Video Resolution	Up to 8K@60Hz, 4K@120Hz/144Hz, 1080P@240Hz
IR Level	5Vp-p
IR Frequency	Fixed frequency 38KHz
Color Space	RGB 4:4:4, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
Color Depth	8/10/12bit
HDR	HDR, HDR10, HDR10+, Dolby Vision, HLG
CEC	Support
Audio Formats	
HDMI IN/OUT	LPCM, Dolby Digital/Plus/EX, Dolby True HD, Dolby Atmos, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DTS:X, DSD
L/R OUT	PCM 2.0CH
ESD Protection	IEC 61000-4-2: ±8kV (Air-gap), ±4kV (Contact)
Connection Specifications	
Input Ports	4 × HDMI Input (Type A, 19-pin female)
Output Ports	1 × HDMI Output (Type A, 19-pin female), 1 × L/R Audio Output (3.5mm Stereo Mini-jack)
Control Ports	1 × RS-232 (3-pin 3.81mm Phoenix), 1 × IR EXT (3.5mm Mini-jack), 4 × USB HOST (Type B), 4 × USB DEVICES (Type A)
Mechanical Specifications	
Housing	Metal Enclosure
Color	Black

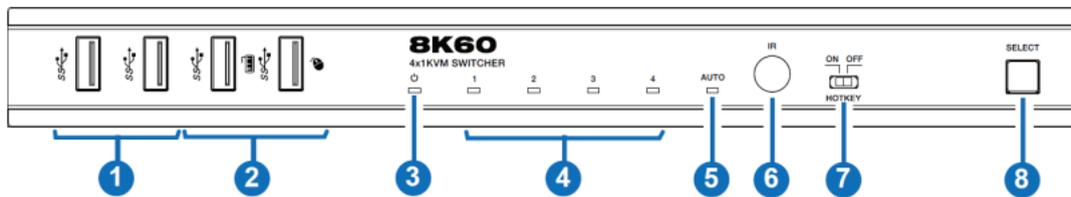


Dimensions (WxDxH)	11 x 3.9 x 1.2 in / 270 x 100 x 30 mm
Weight	1.7 lbs / 756 g
Power Supply Specifications	
Input	AC 100–240V 50/60Hz
Output	DC 12V/1A (US/EU Standard, CE/FCC/UL Certified)
Power Consumption	Typical: 6.26 W, Standby: 0.6 W
Operating Conditions	
Operating Temperature	32–104°F / 0–40°C
Storage Temperature	-4–140°F / -20–60°C
Relative Humidity	20–90% RH (non-condensing)
Recommended HDMI Cable	
Video Resolution	8K60/8K30/4K120: Ultra HDMI 2.1 cable 4K60/1080P: HDMI cable
HDMI Cable Length (IN/OUT)	8K60/8K30/4K120: 2 m / 6.6 ft 4K60: 5 m / 16 ft 1080P: 10 m / 33 ft
Note	Use “Premium High Speed HDMI” cables for optimal performance



Operation Controls and Functions

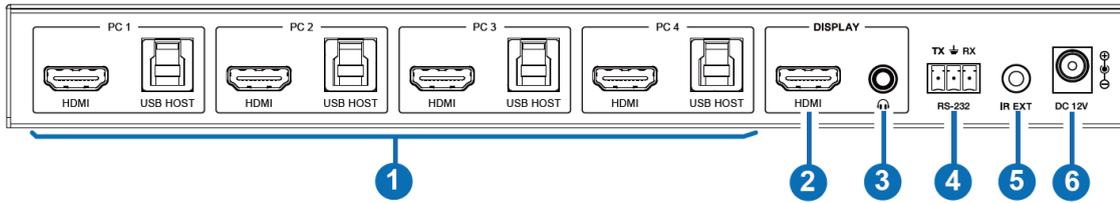
Front Panel



No.	Name	Function Description
1	USB 3.0 Ports	USB 3.2 Gen 1 device ports, connect to USB flash drives, cameras, printers, etc.
2	USB 3.0 Ports (with Hotkey Mode)	When Hotkey switch is OFF, these ports support USB 3.2 Gen 1 devices. When Hotkey switch is ON, they support USB 1.1 keyboard and mouse only.
3	Power LED	Lights green when the product is working, red when on standby.
4	Input Channel LED 1/2/3/4	Corresponding LED lights green when HDMI input port 1/2/3/4 is selected.
5	AUTO LED	Lights green when auto-switching function is enabled; off when disabled.
6	IR Window	Receives IR signals from the remote control.
7	HOTKEY Switch	Enable or disable hotkey switching mode. ON: keyboard/mouse support hotkey mode. OFF: hotkey mode disabled.
8	SELECT Button	Press to manually switch the input channel.



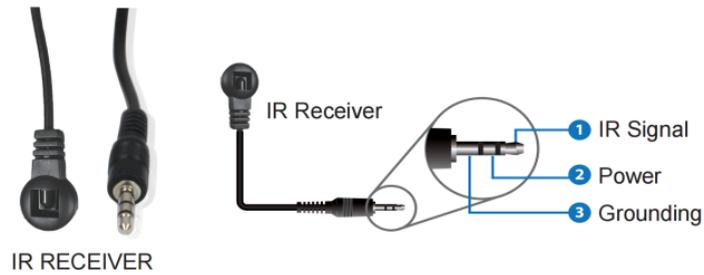
Rear Panel



No.	Name	Function Description
1	PC 1/2/3/4 Ports	HDMI: HDMI signal input port, connected to HDMI source devices such as PCs using an HDMI cable. USB HOST: USB Host port, connected to the same PC along with HDMI. (Note: PC 1 USB HOST port can be used for firmware upgrade.)
2	DISPLAY HDMI Port	HDMI signal output port, connected to HDMI display devices such as TV or monitor using an HDMI cable.
3	L/R Audio Port	3.5mm analog audio output port.
4	RS-232 Port	3-pin phoenix connector, connected to a PC or control system for serial port communication or firmware upgrade.
5	IR EXT Port	IR signal receiving port, connected with the 38KHz IR Receiver cable. Use if the IR window is blocked or unit is installed out of line of sight.
6	DC 12V	DC 12V/1A power input port.



IR Pin Definition



IR Remote Control Functions

	Button	Function Description
	Power On / Standby	Press to turn the KVM switcher on or put it in standby mode.
	Auto	Press to enable or disable the auto-switching function.
	1 / 2 / 3 / 4	Select the corresponding HDMI input port (1–4). The corresponding input channel LED on the front panel will light green.
		Press to cycle through all input channels sequentially.



Hotkey Switch Function

The **Hotkey switch** on the front panel allows you to enable or disable hotkey control:

- **OFF:** Hotkey function is disabled. The two USB 3.0 ports (with hotkey mode) function as standard USB 3.2 Gen 1 device ports.
- **ON:** Hotkey function is enabled. The two USB 3.0 ports (with hotkey mode) support only USB 1.1 keyboard and mouse for hotkey switching.

Keyboard Hotkey Functions

When **hotkey mode is enabled**, use the keyboard to switch inputs or control the device:

Hotkey	Function
Scroll Lock + Scroll Lock + 1 or Ctrl + Ctrl + 1	Switch to input 1
Scroll Lock + Scroll Lock + 2 or Ctrl + Ctrl + 2	Switch to input 2
Scroll Lock + Scroll Lock + 3 or Ctrl + Ctrl + 3	Switch to input 3
Scroll Lock + Scroll Lock + 4 or Ctrl + Ctrl + 4	Switch to input 4
Scroll Lock + Scroll Lock + Page Up or Ctrl + Ctrl + Page Up	Switch to next input
Scroll Lock + Scroll Lock + Page Down or Ctrl + Ctrl + Page Down	Switch to previous input
Scroll Lock + Scroll Lock + F12 or Ctrl + Ctrl + F12	Enable/Disable buzzer

Mouse Hotkey Functions

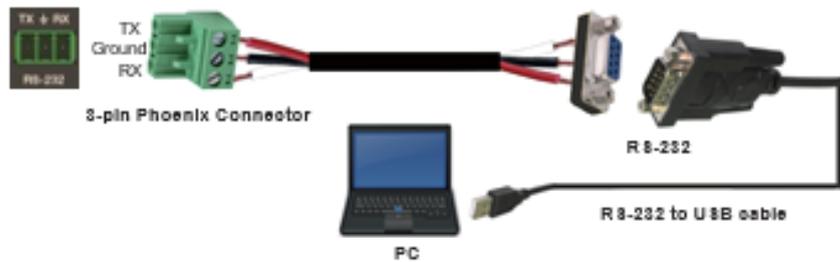
Action	Function
Double-Click Middle-Right (double-click the scroll wheel, then click the right button)	Switch to next input
Double-Click Middle-Left (double-click the scroll wheel, then click the left button)	Switch to previous input



ASCII Commands Control

The BG-8K-KVM41A supports control via **ASCII commands** through the RS-232 port. Follow these steps to connect and operate the device:

1. **Connect the RS-232 port to a PC** using:
 - A **3-pin Phoenix connector cable**
 - An **RS-232 to USB adapter cable**



2. **Launch a Serial Command Tool** on the PC. This software will allow you to send ASCII commands to the KVM switch.

Note: Make sure the RS-232 connection is secure, and the correct COM port is selected in your Serial Command Tool before sending commands.

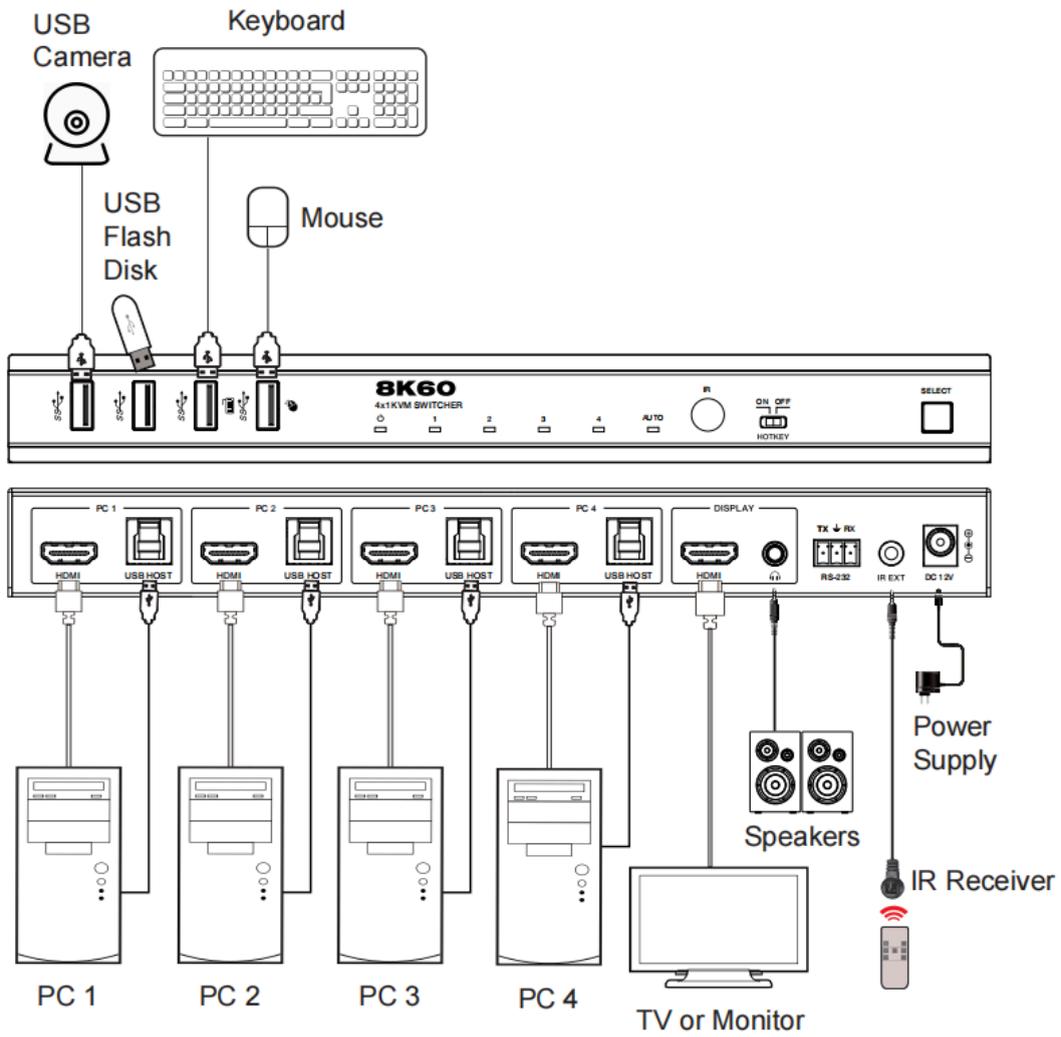
ASCII Commands				
Baud rate: 115200 (default), Data bits: 8, Stop bits: 1, Check bit: 0				
x = Parameter 1, z = Parameter 2, ! = Delimiter				
Command Code	Function Description	Example	Feedback	Default Setting
help!	List all commands	help!	–	–
status!	Get device current status	status!	–	–
r type!	Get device model	r type!	4x1 kvm hdmi2.1 switcher	–
r fw version!	Get firmware version	r fw version!	mcu fw version: vx.xx.xxxkvm fw version: vx.xx.xx	–
power z!	Power on/off the device (z=0~1)	power 1!	power on / power off	power on



r power!	Get current power state	r power!	power on	-
reboot!	Reboot the device	reboot!	reboot...	-
reset!	Reset to factory defaults	reset!	reset to factory defaults	-
s output 1 stream x!	Set output 1 stream enable/disable (x=0~1)	s output 1 stream 1!	output 1 stream: enable / disable	output 1 stream: enable
r output 1 stream!	Get output 1 stream status	r output 1 stream!	output 1 stream: enable / disable	-
s auto switch x!	Enable/disable auto switch (x=0~1)	s auto switch 1!	auto switch: enable / disable	auto switch: enable
r auto switch!	Get auto switch feature	r auto switch!	auto switch: enable / disable	-
s output 1 in source x!	Route input x to output 1 (x=1~4)1.input1 2.input2 3.input3 4.input4	s output 1 in source 1!	output1->input1	-
r output 1 in source x!	Get output 1 selected input source	r output 1 in source!	output1->input1	-
s beep z!	Enable/disable buzzer (z=0~1)	s beep 1!	beep on / off	beep off
r beep!	Get buzzer state	r beep!	beep on / off	-



Connection Diagram





Troubleshooting

Problems	Causes	Solutions
No Power / All LED off	Power supply not connected, connected fully, or wrong power supply.	Check if the power supply is connected correctly and the output voltage value is within recommended specifications.
No sound or sound issues	The HDMI connection is faulty, the audio format is not supported by the displays, or the source player is set to another port for audio output	Check if the HDMI cables are connected correctly. Check if the audio format is supported by the display and that a user has not changed the supported audio format on the player's audio output. Ensure output settings from the HDMI source device as set correctly.
No picture or picture flickers	The HDMI cable may be faulty or the category cable quality is faulty.	Check if the HDMI and category cable connections are correct and undamaged. Change to another good working HDMI cable or category cable (CAT6 or better cable is recommended).



Tech Support

Have technical questions? We may have answered them already!

Please visit BZBGear's support page (bzbgear.com/support) for helpful information and tips regarding our products. Here you will find our Knowledge Base (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), 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:

Phone	Email	Live Chat
1.888.499.9906	support@bzbgear.com	bzbgear.com

Limited Product Warranty Terms

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.

For questions, please call 1.888.499.9906 or email support@bzbgear.com.



Mission Statement

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.

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