BZBGEAR®

Amplify Your World™

BG-8K-KVM22A

8K60 Dual Monitor 2x1 HDMI KVM Switch with USB 3.0 & Hotkey Control

User Manual

TABLE OF CONTENTS

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-KVM22A is a high-performance 2×1 HDMI KVM switch designed to seamlessly share two monitors, USB peripherals, and other devices between two computers. Supporting resolutions up to 8K@60Hz and 4K@120/144Hz, as well as HDMI 2.1 and HDCP 2.3 compliance, it delivers stunning visuals with zero latency. Its dual-monitor support, hotkey switching, and virtual interaction feature allow users to control multiple PCs efficiently, even waking a PC from standby to reduce switching time.

With versatile control options including front-panel buttons, IR remote, and keyboard/mouse hotkeys, the BG-8K-KVM22A ensures smooth operation across Windows, Mac, and Linux systems with no drivers required. Integrated USB 3.0 ports enable high-speed sharing of peripherals such as printers, webcams, and storage devices, making this compact and robust KVM switch ideal for professional workstations, creative studios, and high-resolution gaming setups.

Features

- **HDMI 2.1 & HDCP 2.3 Compliance:** Supports the latest HDMI standards for high-resolution video and secure content.
- **Ultra-High Resolution:** Handles up to 8K@60Hz, 4K@120/144Hz, and 1080P@240Hz for crystal-clear visuals.
- **Advanced HDMI Protocols:** Supports VRR, ALLM, QMS, QFT, and SBTM for smooth gaming and video playback.
- **HDR & Dolby Support:** Pass-through for HDR, HDR10, HDR10+, Dolby Vision, and HLG content.
- **Dual Monitor KVM:** Control two computers using just one set of keyboard, mouse, and monitors.
- **Fast & Seamless Switching:** Quick video and peripheral switching via hotkeys, front panel, or IR remote.
- **EDID Emulation:** Each input port provides correct EDID information for reliable display performance.
- **Hot-Plug Support:** Connect or disconnect devices at any time without rebooting.
- **Auto Switching:** Automatically switches between active computers for convenience.
- **Zero Latency Design:** Advanced hardware and software ensure no delay in video or USB transmission.
- **USB 3.0 Peripheral Sharing:** Share printers, webcams, storage, and other USB devices at 5Gbps.
- **Compact & Flexible:** Sleek design for easy installation in professional or home setups.

Packing List

- 1 × BG-8K-KVM22A 8K60 2×1 Dual Monitor HDMI KVM Switcher
- 1 × IR Remote
- 1 × 3-pin 3.81mm Phoenix Connector (male)
- 1 × Fixed Frequency 38KHz IR Receiver Cable (1.5 m)
- 2 × USB 3.0 Cables (Type A to Type B, 1.8 m)
- 4 × HDMI Cables (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

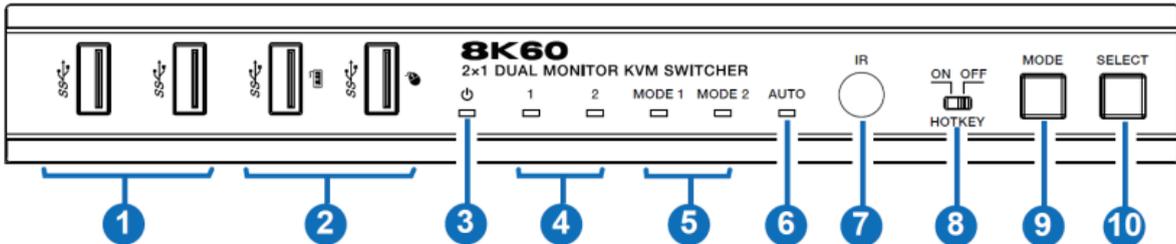| Technical Specifications	
HDMI Compliance	HDMI 2.1
HDCP Compliance	HDCP 2.3
Video Bandwidth	40 Gbps
Audio Latency	No Latency
Video Latency	No Latency
Video Resolution	Up to 8K@60Hz, 4K@120Hz/144Hz, 1080P@240Hz
IR Level	5 Vp-p
IR Frequency	Fixed frequency 38 kHz
Color Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
Color Depth	8/10/12bit
HDR	HDR, HDR10, HDR10+, Dolby Vision, HLG
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	
Standard	IEC 61000-4-2: ±8 kV (Air-gap discharge) & ±4 kV (Contact discharge)
Connection Specifications	
Input Ports	4 × HDMI input [Type A, 19-pin female]
Output Ports	2 × HDMI output [Type A, 19-pin female], 1 × L/R audio output [3.5 mm Stereo Mini-jack]
Control Ports	1 × RS-232 [3-pin 3.81 mm Phoenix connector], 1 × IR EXT [3.5 mm Stereo Mini-jack], 1 × USB HOST [USB Type B], 4 × USB DEVICES [USB Type A]
Mechanical Specifications	
Housing	Metal Enclosure

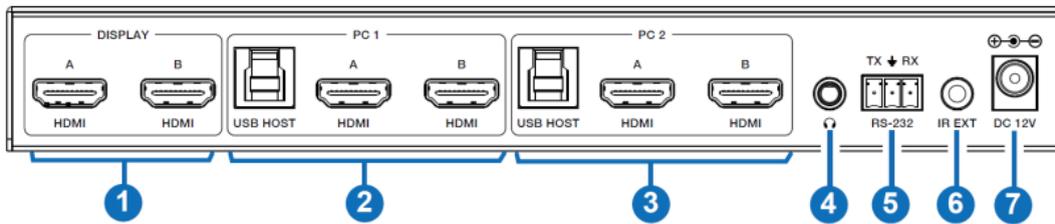| Color	Black
Dimensions (W×D×H)	8.7 in × 3.9 in × 1.2 in / 220 mm× 100 mm × 30 mm
Weight	1.4 lbs / 626 g
Power Supply Specifications	
Input	AC 100–240 V, 50/60 Hz
Output	DC 12 V/1 A (US/EU standard, CE/FCC/UL certified)
Power Consumption	Typical: 7.2 W, Standby: 0.72 W
Operating Conditions	
Operating 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, 4K60, 1080P
HDMI Cable Type	Ultra HDMI 2.1 cable (8K), standard HDMI cable for 4K/1080P
HDMI Cable Length	3 m/10 ft (8K), 5 m/16 ft (4K60), 10 m/33 ft (1080P)
Note	Use of "Premium High Speed HDMI" cable is highly recommended

Operation Controls and Functions

Front Panel

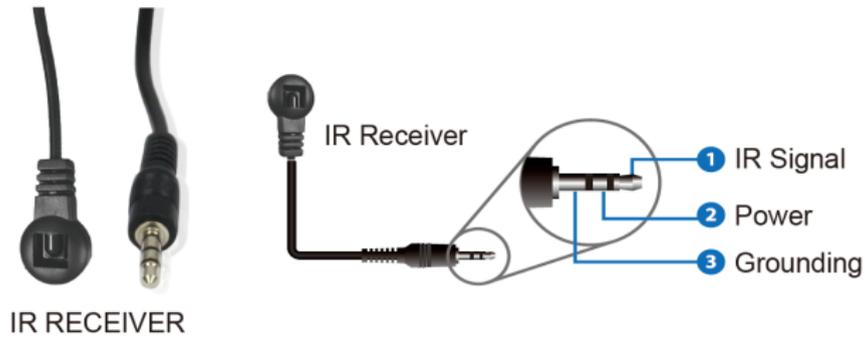| No.	Name	Function Description
1	USB 3.0 Ports	USB 3.2 Gen 1 device ports for connecting peripherals such as USB flash drives, cameras, printers, and other USB devices.
2	USB 3.0 Ports (Hotkey Mode)	When the Hotkey switch is set to OFF, these ports support USB 3.2 Gen 1 devices. When the Hotkey switch is set to ON, these ports support USB 1.1 keyboard and mouse only for hotkey switching.
3	Power LED	Lights green when the unit is operating normally and red when the unit is in standby mode.
4	Input Channel LED 1 / 2	The corresponding LED lights green when HDMI input port 1 or 2 is selected as the active input source.
5	MODE 1 / 2 LED	Lights when MODE 1 or MODE 2 is selected via the front panel MODE button or the M1/M2 button on the IR remote. Refer to Dual-Mode Function section for details.
6	AUTO LED	Lights green when auto-switching is enabled. The input channel automatically switches when an input source is connected or disconnected.
7	IR Window	Receives IR control signals from the included IR remote control.
8	HOTKEY Switch	Enables or disables hotkey switching mode. ON: Connected keyboard and mouse support hotkey switching. OFF: Hotkey switching is disabled.
9	MODE Button	Press to toggle between MODE 1 and MODE 2.
10	SELECT Button	Press to manually switch between HDMI input channels.

Rear Panel

No.	Name	Function Description
1	DISPLAY HDMI A/B Ports	HDMI output ports for connecting HDMI display devices such as TVs or monitors using HDMI cables.
2	PC 1 Ports	**USB HOST:** USB host port for connection to PC 1; also supports MCU firmware upgrades. **HDMI A/B:** HDMI input ports for connecting PC 1 or other HDMI source devices.
3	PC 2 Ports	**USB HOST:** USB host port for connection to PC 2. **HDMI A/B:** HDMI input ports for connecting PC 2 or other HDMI source devices.
4	L/R Audio Port	3.5 mm analog stereo audio output port.
5	RS-232 Port	3-pin Phoenix connector for connection to a PC or control system for serial control and firmware upgrades.
6	IR EXT Port	External IR input port for connecting the included 38 kHz IR receiver cable. Use this port when the front IR window is blocked or the unit is installed out of IR line-of-sight.
7	DC 12V	DC 12 V / 1 A power input port.

IR Pin Definition

The pin assignment for the IR receiver is shown below:

IR Remote Control

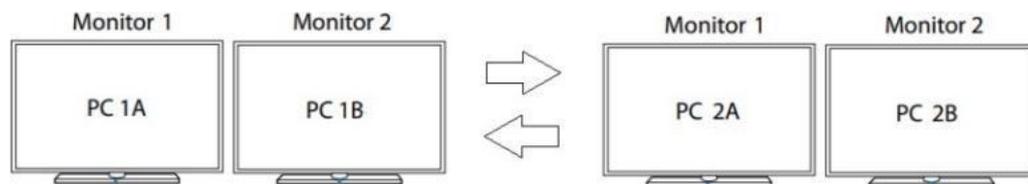|	No.	Button	Function Description
	1	Power	Powers on the switcher or places it into standby mode.
	2	AUTO	Enables or disables the auto-switching function.
	3	1 / 2	Selects HDMI input port 1 or 2 as the active input channel. The corresponding channel LED on the front panel will light green.
	4	↻ (Cycle)	Cycles through the available HDMI input channels sequentially.
	5	M1 / M2	Selects MODE 1 or MODE 2 operation.

Dual-Mode Function

The BG-8K-KVM22A supports two operating modes to accommodate different dual-monitor workflows: **MODE 1 (Single PC Mode)** and **MODE 2 (Dual PC Mode)**.

MODE 1: Single PC Mode

In this mode, both HDMI outputs (**A** and **B**) display video from the same selected computer—either **PC 1** or **PC 2**. Outputs A and B are routed to the corresponding HDMI inputs (PC 1 A/B or PC 2 A/B), and all connected USB devices automatically follow the selected PC host. Users can switch between PC 1 and PC 2 using the **SELECT** button on the front panel, the **1/2** button on the IR remote, or supported keyboard/mouse hotkeys.
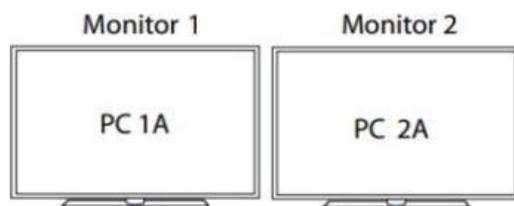
EDID management is handled independently for each display: the EDID from the monitor connected to **Output A** is copied to **Input 1A or 2A**, and the EDID from the monitor connected to **Output B** is copied to **Input 1B or 2B**, ensuring proper resolution and compatibility for both displays.

MODE 2: Dual PC Mode

In this mode, each HDMI output is assigned to a dedicated computer. **Output A** is fixed to **PC 1 (Input A)**, and **Output B** is fixed to **PC 2 (Input A)**, allowing two computers to be displayed simultaneously on separate monitors. While video routing remains fixed, users can switch control of the connected USB devices between PC 1 and PC 2 using the **SELECT** button, the **1/2** button on the IR remote, or keyboard/mouse hotkeys.

EDID is automatically managed per output: the EDID from the monitor connected to **Output A** is copied to **PC 1 Input A**, and the EDID from the monitor connected to **Output B** is copied to **PC 2 Input A**, ensuring stable and correct video output for both systems.

Hotkey Switch Function

The **HOTKEY** switch on the front panel enables or disables keyboard and mouse hotkey control.

- **HOTKEY OFF:**
   Hotkey switching is disabled. The two USB ports labeled *USB 3.0 (Hotkey Mode)* operate as standard **USB 3.2 Gen 1** device ports and support peripherals such as storage devices and cameras.
- **HOTKEY ON:**
   Hotkey switching is enabled. The two USB ports labeled *USB 3.0 (Hotkey Mode)* support **USB 1.1 keyboard and mouse only**, allowing hotkey commands to control input and USB switching.

Keyboard & Mouse Hotkey Function

When hotkey mode is enabled, the switcher can be controlled using the following keyboard and mouse hotkey commands.

Keyboard Hotkeys

Function	Hotkey Combination
Switch to Input 1	Ctrl + Ctrl + 1 or Scroll Lock + Scroll Lock + 1
Switch to Input 2	Ctrl + Ctrl + 2 or Scroll Lock + Scroll Lock + 2
Switch to Next Input	Ctrl + Ctrl + Page Up or Scroll Lock + Scroll Lock + Page Up
Switch to Previous Input	Ctrl + Ctrl + Page Down or Scroll Lock + Scroll Lock + Page Down
Enable / Disable Buzzer	Ctrl + Ctrl + F12 or Scroll Lock + Scroll Lock + F12

Mouse Hotkeys

- **Double-click mouse scroll wheel, then click Right Button:** Switch to next input
- **Double-click mouse scroll wheel, then click Left Button:** Switch to previous input

ASCII Commands

The product supports control via **ASCII commands** through the RS-232 interface. To use this function, connect the RS-232 port of the unit to a PC using a **3-pin Phoenix connector cable** and an **RS-232–to–USB adapter**.

After completing the connection, open a serial command tool on the PC (such as a terminal or serial control utility) and send ASCII commands to control the switcher.

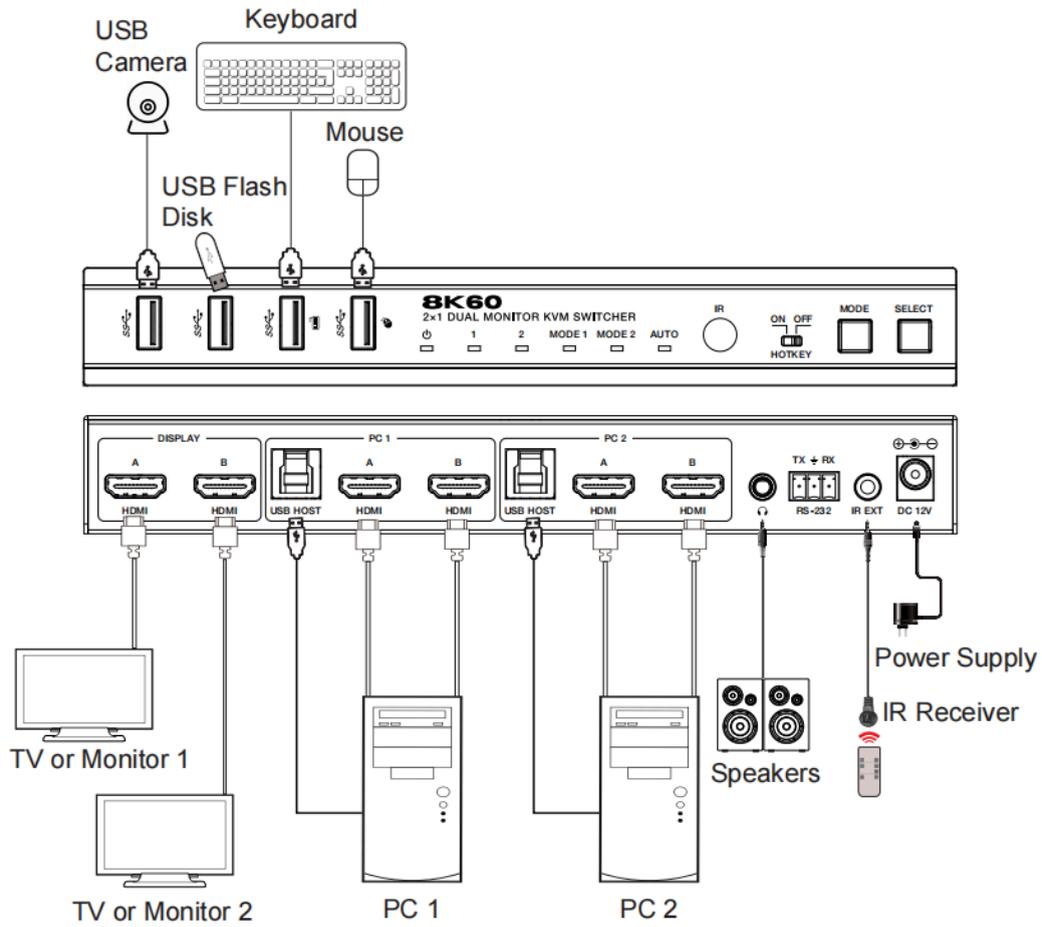The list of supported ASCII commands for this product is provided below.

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**
Parameter Definition	x = Parameter 1, z = Parameter 2, ! = Delimiter	—	—	—
help!	List all supported commands	help!	—	—
status!	Get current device status	status!	—	—
r type!	Get device model	r type!	2×1 dual monitor KVM HDMI 2.1 switcher	—
r fw version!	Get firmware version	r fw version!	mcu fw version: vx.xx.xx kvm fw version: vx.xx.xx	—

power z!	Power on/off device (z = 0~1) 0 = power off, 1 = power on	power 1!	power on	—
r power!	Get current power state	r power!	power on	—
reboot!	Reboot the device	reboot!	reboot…	—
reset!	Restore factory default settings	reset!	reset to factory defaults	—
s auto switch x!	Enable/disable auto switch (x = 0~1) 0 = disable, 1 = enable	s auto switch 1!	auto switch: enable	auto switch: enable
r auto switch!	Get auto switch status	r auto switch!	auto switch: enable	—
s beep z!	Enable/disable buzzer (z = 0~1) 0 = off, 1 = on	s beep 1!	beep on	beep off
r beep!	Get buzzer status	r beep!	beep on	—
s output mode z!	Set output mode (z = 1~2) 1 = MODE 1, 2 = MODE 2	s output mode 1!	output mode: 1	—
r output mode!	Get output mode	r output mode!	output mode: 1	—
s input/usb z!	Set input or USB host (z = 1~2) 1 = input 1, 2 = input 2	s input/usb 1!	input/usb: 1	input/usb: 1
r input/usb!	Get input or USB host status	r input/usb!	input/usb: 1	—
s output x stream z!	Enable/disable output stream x = 0 (all), 1 (output 1), 2 (output 2) z = 0 disable, 1 enable	s output 1 stream 1!	output 1 stream: enable	output 1 stream: enable output 2 stream: enable
r output x stream!	Get output stream status	r output x stream!	output 1 stream: enable	—

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.

Copyright