



BG-USM-44

**4x4 USB 3.2 Gen 1 Matrix Switcher with USB 3.2 Type-A/B/C and
TCP/IP Web GUI/IR/RS-232 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-USM-44 is a professional USB switching system designed to enable flexible sharing of up to four USB 3.2 Gen 1 devices across four host computers.

Supporting data transfer rates up to 5Gbps with backward compatibility to USB 2.0 and USB 1.1, it is suitable for high-bandwidth peripherals such as docking stations, cameras, and storage devices. Its 4×4 matrix architecture allows each device to be independently routed to any host, providing efficient multi-system resource sharing in professional environments.

The unit offers multiple control methods, including front-panel buttons, IR remote control, RS-232 serial commands, and TCP/IP Web GUI management, making it easy to integrate into both standalone and networked systems. It supports plug-and-play operation across Windows, macOS, and Linux without additional drivers, and includes LED indicators for active routing status along with preset memory functions for quick configuration recall. Built with a metal enclosure and featuring USB-A and USB-C device ports with integrated power delivery and protection features, it delivers reliable performance for demanding AV, IT, and control applications.

Features

- **4x4 USB Matrix Switching:** Enables routing of 4 USB devices across 4 host computers in a flexible matrix configuration.
- **USB 3.2 Gen 1 Performance:** Supports data transfer rates up to 5Gbps with full backward compatibility to USB 2.0 and USB 1.1.
- **Multi-Host Support:** Allows simultaneous connection of up to four host computers via USB-B and USB-C interfaces.
- **USB-A & USB-C Device Ports:** Provides mixed USB device connectivity with two USB-A and two USB-C output ports.
- **Integrated Device Power Delivery:** Supplies 5V/1.5A on USB-A ports and 5V/3A on USB-C ports for connected peripherals.
- **Multiple Control Interfaces:** Supports front-panel buttons, IR remote, RS-232 serial, and TCP/IP Web GUI control.
- **Preset Memory Function:** Stores and recalls up to 8 routing presets for fast system configuration changes.
- **Plug and Play Operation:** No drivers required, compatible with Windows, macOS, and Linux systems.
- **LED Status Indicators:** Provides real-time visual feedback of active host routing per device.
- **Over-Current Protection:** Protects connected USB devices from electrical damage and instability.
- **Network Control Interface:** Includes RJ45 Ethernet port for remote configuration and control via Web GUI or TCP/IP.



- **Compact Metal Enclosure:** Durable rack-friendly design suitable for professional AV and IT installations.
- **IR Remote Control Support:** Enables wireless switching and system control via included IR remote and receiver.
- **RS-232 Control Integration:** Allows integration into professional automation and control systems.

Packing List

- 1 × 4x4 USB 3.2 Gen 1 Matrix Unit
- 1 × 24V/2.7A Locking Power Supply (Multinational)
- 1 × IR Remote Control
- 1 × IR Wideband Receiver Cable (1.5m)
- 2 × USB 3.0 Type-A to Type-B Cable (1.8m)
- 1 × 3-pin 3.81mm Phoenix Connector
- 4 × KM3×4 Machine Screws
- 2 × Mounting Ears (Rack/Surface Installation)
- 1 × User Manual



Specifications

Technical Specifications	
USB Protocol	USB 3.2 Gen 1
Data Transfer Rate	Up to 5Gbps
IR Frequency	38KHz fixed
IR Level	5Vp-p
Transmission Distance	Up to 3m (USB 3.2 Gen 1 over passive cable at 5Gbps)
ESD Protection	IEC 61000-4-2 ±8kV (Air), ±4kV (Contact)
USB Architecture	
Matrix Type	4×4 USB routing (4 host × 4 device independent switching)
Operating Systems	Windows / macOS / Linux
Driver Requirement	Plug and Play (no driver required)
Input Ports (Host)	
USB-B Ports	2 × USB 3.2 Gen 1 Type-B (9-pin female)
USB-C Ports	2 × USB 3.2 Gen 1 Type-C (24-pin female)
Output Ports (Device)	
USB-A Ports	2 × USB 3.2 Gen 1 Type-A (5V/1.5A output)
USB-C Ports	2 × USB 3.2 Gen 1 Type-C (5V/3A output)
Video Support Note	USB ports do not support DP Alt Mode or Power Delivery
Control Interfaces	
Network Control	1 × RJ45 TCP/IP (100M Ethernet)
Serial Control	1 × RS-232 (3-pin 3.81mm Phoenix connector)
IR Control	1 × IR EXT (3.5mm stereo mini jack)
Local Control	Front panel buttons + IR remote control
Power	
Power Input	AC 100–240V 50/60Hz
Power Output	DC 24V / 2.7A locking adapter

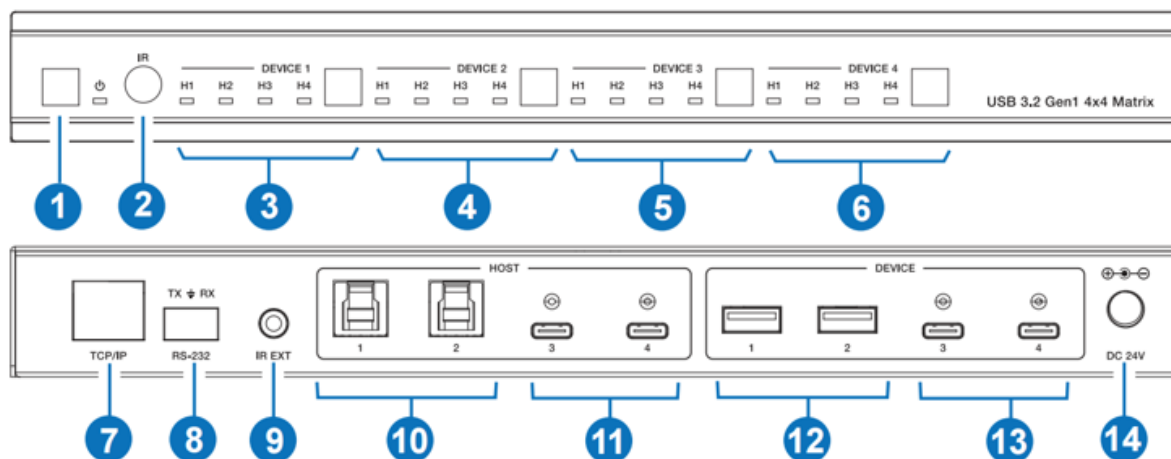


Power Consumption	Max 13.2W
Mechanical	
Housing	Metal enclosure
Color	Black
Dimensions (W × D × H)	11 × 6.5 × 1.2 in [270 × 166 × 30 mm]
Weight	2.6 lbs [1.16 kg]
Environmental	
Operating Temperature	32°F to 104°F / 0°C to 40°C
Storage Temperature	-4°F to 140°F / -20°C to 60°C
Operating Humidity	20%–80% RH non-condensing
Storage Humidity	10%–90% RH non-condensing



Operation Controls and Functions

Front and Rear Panel



Front Panel

No.	Name	Function Description
1	Power Button & LED Indicator	Short press to power on the unit (LED turns green). Long press for 3 seconds to enter standby mode (LED turns red).
2	IR Receiver Window	Receives IR signals from the included remote control.
3	DEVICE 1 Button & H1-H4 LEDs	Cycles through Host 1–Host 4 for USB Device 1. Corresponding LED indicates active host selection.
4	DEVICE 2 Button & H1-H4 LEDs	Cycles through Host 1–Host 4 for USB Device 2. Corresponding LED indicates active host selection.
5	DEVICE 3 Button & H1-H4 LEDs	Cycles through Host 1–Host 4 for USB Device 3. Corresponding LED indicates active host selection.
6	DEVICE 4 Button & H1-H4 LEDs	Cycles through Host 1–Host 4 for USB Device 4. Corresponding LED indicates active host selection.

Rear Panel

No.	Name	Function Description
7	TCP/IP (RJ45)	100Mbps Ethernet port for Web GUI control and TCP/IP commands via network connection.

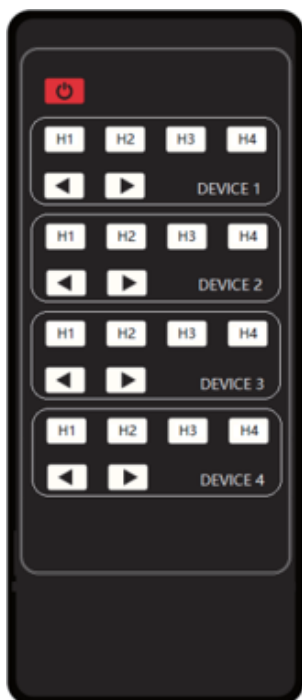


8	RS-232 (Phoenix 3-pin)	Serial control port for integration with third-party control systems.
9	IR EXT (3.5mm Jack)	External IR receiver input for extended IR control when front panel is obstructed or hidden.
10	HOST 1–2 (USB-B)	USB 3.2 Gen 1 Type-B host inputs for connecting PC or host systems.
11	HOST 3–4 (USB-C)	USB 3.2 Gen 1 Type-C host inputs for connecting PC or host systems.
12	DEVICE 1–2 (USB-A)	USB device ports with 5V/1.5A power output for peripherals such as keyboards, mice, or USB drives.
13	DEVICE 3–4 (USB-C)	USB device ports with 5V/3A power output for high-power USB peripherals.
14	DC 24V Power Input	Locking DC power input connector for 24V/2.7A power adapter.



IR Remote

The IR remote control provides convenient wireless operation of the USB matrix, allowing users to switch USB routing and control system power without using the front panel or Web GUI. It operates via a 38KHz infrared signal and works with either the built-in IR receiver or the external IR EXT receiver for installations where the front panel is not easily accessible.



Power Control

- **Power Button:** Turns the unit ON or places it into standby mode, matching the front panel power function.

Device-to-Host Routing Control

The remote provides independent control for each USB device:

- **DEVICE 1 Section:** Assigns USB Device 1 to Host 1–Host 4 using H1 / H2 / H3 / H4 buttons
- **DEVICE 2 Section:** Assigns USB Device 2 to Host 1–Host 4 using H1 / H2 / H3 / H4 buttons
- **DEVICE 3 Section:** Assigns USB Device 3 to Host 1–Host 4 using H1 / H2 / H3 / H4 buttons
- **DEVICE 4 Section:** Assigns USB Device 4 to Host 1–Host 4 using H1 / H2 / H3 / H4 buttons

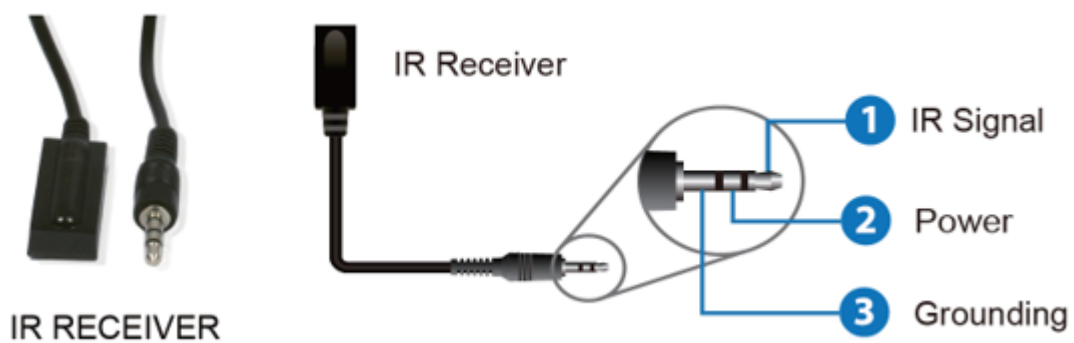
Each selection instantly updates routing, allowing any device to be independently assigned to any connected host computer.

Navigation Controls

- **◀ / ▶ Buttons:** Cycle through available host selections sequentially for quick switching without directly selecting H1–H4.



IR Cable Pin Assignment





Web GUI User Guide

Web GUI User Guide

The Web GUI provides a browser-based interface for configuring, monitoring, and controlling the USB matrix over a network connection. It allows users to manage routing, network settings, system configuration, and firmware updates without requiring direct physical access to the unit.

Step 1: Obtain the Device IP Address

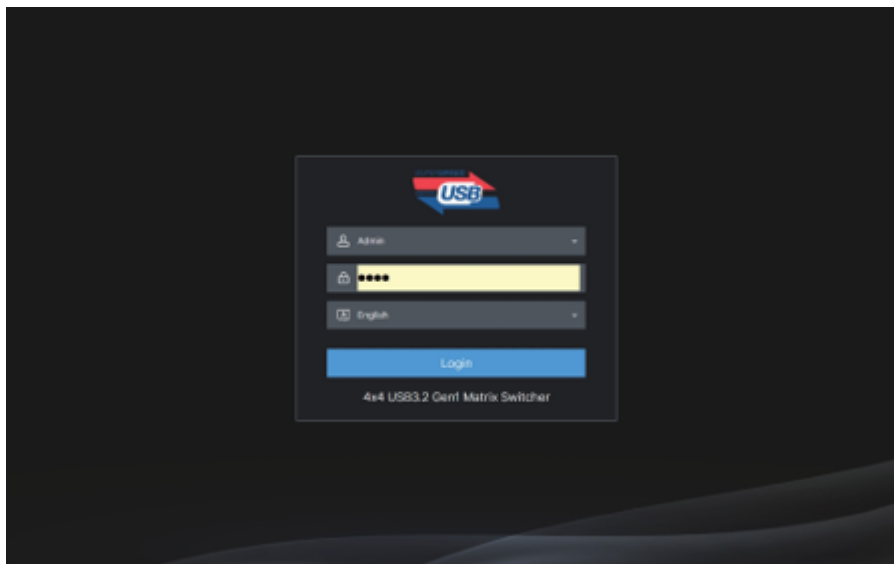
The default IP address is **192.168.0.100**. To confirm the current IP configuration, send the API command: `get ip addr`

The system will return network information including IP mode, IP address, subnet mask, gateway, and port settings. This ensures the correct address is used for Web GUI access.

Step 2: Network Connection Setup

Connect the matrix TCP/IP port (RJ45) to a network switch or router using an Ethernet cable. Ensure the control PC is configured in the same IP subnet as the device. For example, if the matrix IP is **192.168.0.100**, the PC should be set to **192.168.0.xxx**.

Step 3: Login to Web Interface



Open a web browser and enter the device IP address (e.g., <http://192.168.0.100>). The login page will appear.

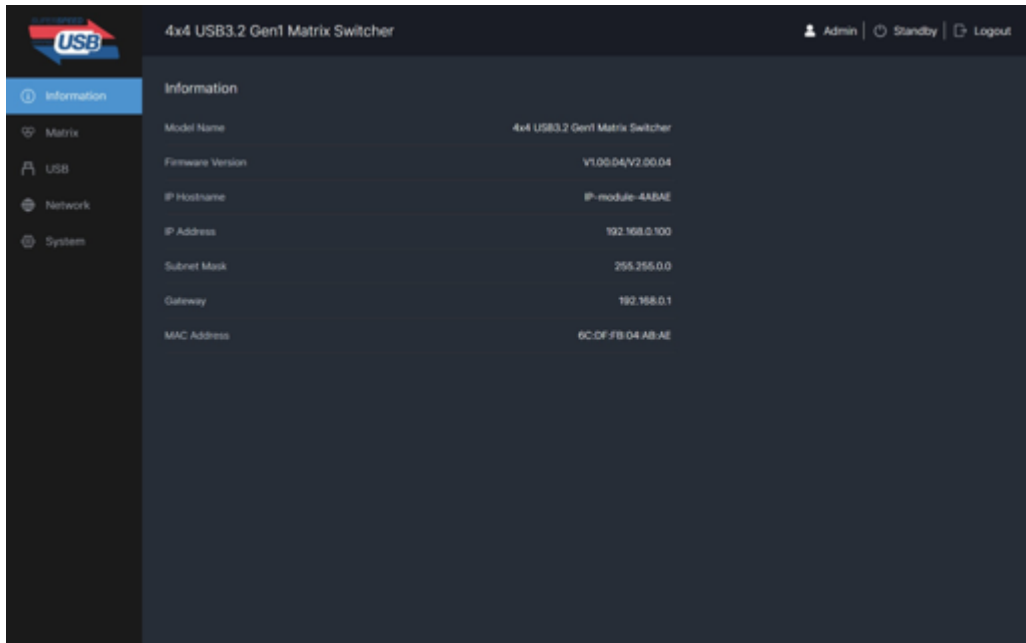
- **Username:** Admin
- **Password:** 1234
- **Language:** Select preferred language



- Click **Login** to access the system interface

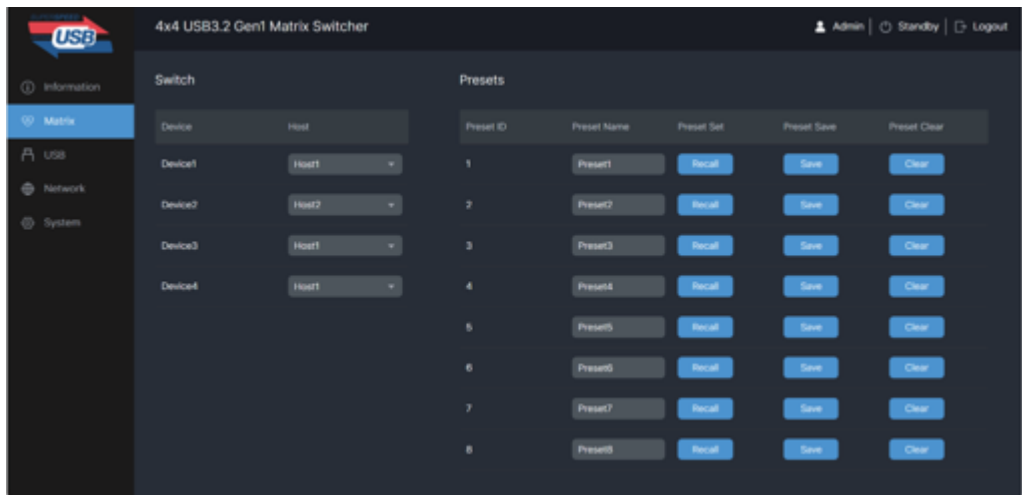
Web GUI Navigation Pages

Information Page



Displays device model, firmware version, and network status. Also includes quick controls for logout and standby mode.

Matrix Page

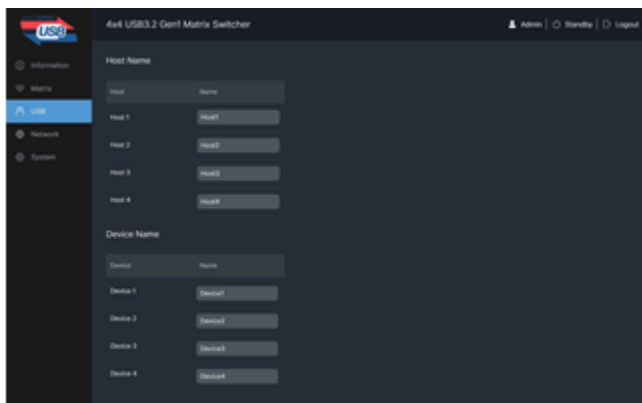


Used for USB routing control and preset management.

- Assign each USB device to Host 1–Host 4
- Save, recall, or clear up to 8 routing presets for fast configuration switching

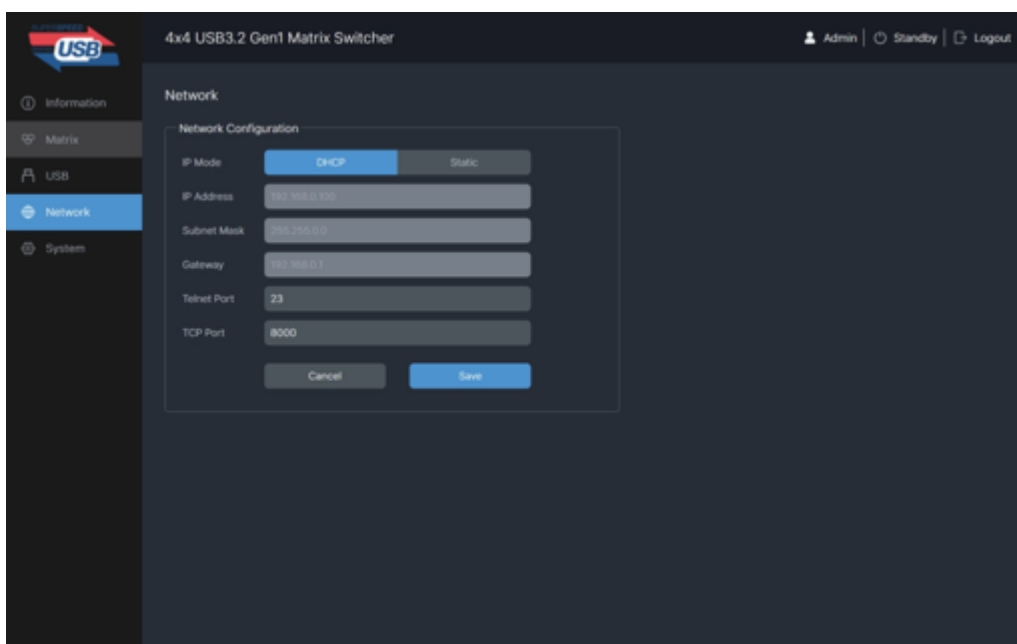


USB Page



Allows renaming of host and device labels for easier identification. Supports up to 16 characters per name.

Network Page



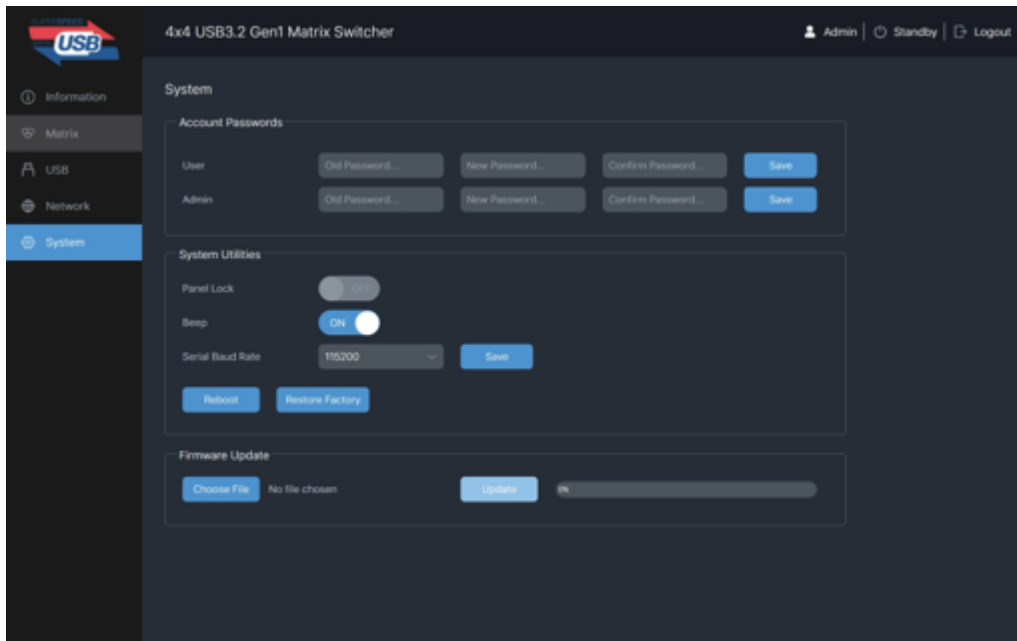
Configures IP settings including:

- IP Mode (Static or DHCP)
- IP Address
- Subnet Mask
- Gateway
- Telnet Port and Domain Name

Changes require saving and may require system or network reboot to take effect.



System Page



Provides system-level configuration and maintenance:

- Change admin password
- Enable/disable panel lock
- Enable/disable buzzer sound
- Set RS-232 baud rate
- Firmware update (MCU and Web GUI)
- Restore factory settings or reboot system



API Commands

API Commands (ASCII Control)

The system supports ASCII-based API control via RS-232 or TCP/IP connection. Commands can be sent using a serial terminal or control system to manage routing, system settings, and network configuration.

- Default serial settings are **115200 baud rate, 8 data bits, 1 stop bit, no parity**.

General Command Notes

- Parameters are case-sensitive and space-separated
- Return feedback is provided after each valid command
- Error codes:
 - **E00:** Unknown command
 - **E01:** Parameter out of range

System Control Commands

Command	Description	Example	Feedback
? / help	List all available commands	help	Command list
status	Get full device status	status	Power, routing, network status
get model	Get device model	get model	4x4 USB 3.2 Gen 1 Matrix
get version	Get firmware version	get version	MCU/Web version info
set power x	Power ON/OFF (1=ON, 0=OFF)	set power 1	Power on / initialization
get power	Get power status	get power	Power on/off
set beep x	Enable/disable buzzer (1/0)	set beep 0	beep on/off
get beep	Get buzzer status	get beep	beep on/off
set lock x	Lock/unlock front panel (1/0)	set lock 1	panel lock status
get lock	Get panel lock status	get lock	lock on/off
set baud rate x	Set RS-232 baud rate (1–6)	set baud rate 1	115200/57600/...
reboot	Reboot system	reboot	system restart message
reset	Factory reset	reset	restore default



USB Matrix Routing Commands

Command	Description	Example	Feedback
set device x in host y	Route device to host	set device 1 in host 2	device 1 → host 2
get device x in host	Get current routing	get device 1 in host	device 1 in host 3

Preset Management

Command	Description	Example	Feedback
set save preset x	Save current routing to preset (1–8)	set save preset 1	saved preset data
set recall preset x	Recall saved preset (1–8)	set recall preset 1	applied routing
set clear preset x	Clear stored preset	set clear preset 1	preset cleared
get preset x	View preset configuration	get preset 1	routing map

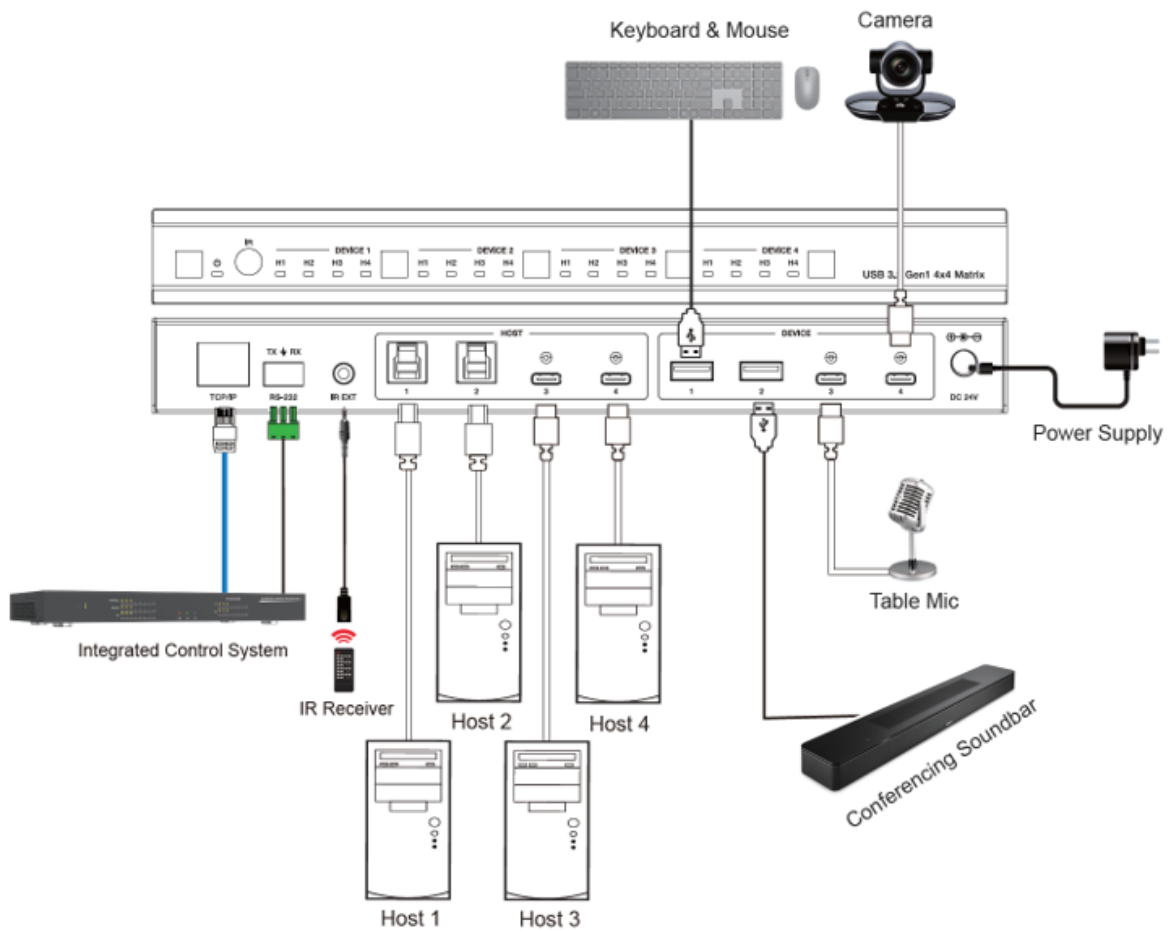
Network Commands

Command	Description	Example	Feedback
get ipconfig	Get full network configuration	get ipconfig	IP/subnet/gateway info
get mac addr	Get MAC address	get mac addr	MAC address
set ip mode x	Set IP mode (0=Static, 1=DHCP)	set ip mode 0	mode set
get ip mode	Get IP mode	get ip mode	static/dhcp
set ip addr x.x.x.x	Set IP address	set ip addr 192.168.0.100	IP set
get ip addr	Get IP address	get ip addr	current IP
set subnet x.x.x.x	Set subnet mask	set subnet 255.255.255.0	subnet set
get subnet	Get subnet mask	get subnet	current subnet



set gateway x.x.x.x	Set gateway	set gateway 192.168.0.1	gateway set
get gateway	Get gateway	get gateway	current gateway
set tcp/ip port x	Set TCP/IP port	set tcp/ip port 8000	port updated
get tcp/ip port	Get TCP/IP port	get tcp/ip port	current port
set telnet port x	Set telnet port	set telnet port 23	port updated
get telnet port	Get telnet port	get telnet port	current port
set net reboot	Restart network module	set net reboot	network restart

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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