



BG-MVS4X4-4KL

Control4 Driver User Manual

4x4 4K HDMI Seamless Matrix / Video Wall Processor

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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

This guide covers the Control4 driver for the BZBGear BG-MVS4X4-4KL 4x4 4K HDMI seamless matrix / video-wall processor. The driver is built on the Control4 DriverWorks SDK using the AV Switch proxy and controls the matrix over TCP/IP or RS-232.

It exposes the matrix's 4 HDMI inputs and 4 HDMI outputs for seamless routing (audio follows video). Beyond routing, the driver adds per-output resolution (24 modes including Auto), color space, HDCP mode, horizontal and vertical mirror and stream on/off, a shared no-signal background pattern, per-input EDID (18 presets), and a full video wall engine: wall layout mode, horizontal/vertical bezel compensation, per-group source input and wall output resolution. Two-way feedback keeps routing, power, the video wall mode and input-signal status in sync.

Installation

Copy the driver (.c4z) into your Control4 driver folder, then in Composer Pro use Driver -> Add or Update Driver... and add it to your project. On the Connections page, bind the sources and displays as described under Connections (Bindings).

On firmware that supports SDDP the matrix is discovered automatically; add it from the discovered list and the IP Address fills in on its own. Otherwise configure it manually:

1. In System Design, add the "BZBGear BG-MVS4X4-4KL 4x4 Seamless Matrix / Video Wall" driver to your project (BZBGear manufacturer, AV Switch category).

2. On the driver Properties page, set Connection Type to Network (TCP) and enter the matrix IP in the IP Address property (factory default TCP Port is 8000). Confirm Connection Status shows Connected and Model reads back BG-MVS4X4-4KL.

3. On the Connections page, bind the HDMI inputs, the HDMI outputs and (optionally) the room selection bindings.

To control the matrix over RS-232 instead, set Connection Type to RS-232, bind the serial connection and use the serial settings below.

Connection reference:

Setting	Value
Connection Type	Network (TCP) or RS-232, selected on the Properties page.
IP Address	The IP address of the matrix (web GUI, or via 'r ipconfig!'). Auto-filled when discovered over SDDP.
TCP Port	8000 (factory default)

To use the RS-232 connection instead, bind the RS-232 connection and use the following serial settings:

- 115200 baud, 8 data bits, no parity, 1 stop bit

Properties

The driver exposes the following properties on the Composer Properties page. Read-only properties reflect live status reported by the device.

Property	Access	Description
Connection Type	Editable	How the driver talks to the matrix. Network uses the IP Address and TCP Port below; RS-232 uses the serial binding on the Connections page at 115200 8N1.
IP Address	Editable	IP address or hostname of the BG-MVS4X4-4KL. Populated automatically when the matrix is discovered over SDDP. Otherwise read it from the web GUI or send 'r ipconfig!'. When Yes, the driver follows the IP address reported by SDDP discovery, so the matrix keeps working after a DHCP lease change. Set to No to pin the IP Address field manually.
SDDP Auto-Configure IP	Editable	
Discovered By	Read-only	How the matrix was located: SDDP discovery or manual configuration.
TCP Port	Editable	TCP control port of the matrix. Factory default is 8000.
Connection Status	Read-only	Current state of the IP connection to the matrix.
Model	Read-only	Model reported by the matrix.
Firmware Version	Read-only	MCU firmware version reported by the matrix.
Power State	Read-only	Power state reported by the matrix.
Video Wall Mode	Read-only	Current video wall layout reported by the matrix (Matrix = normal switching).
Last Device Error	Read-only	Most recent error string returned by the matrix, e.g. a rejected command.
Poll Interval	Editable	Seconds between status polls, which keep Control4 in sync with front panel and web GUI changes. Set to 0 to disable polling.
Front Panel Lock	Editable	Lock or unlock the matrix front panel buttons.
Buzzer	Editable	Enable or disable the front panel buzzer.
Debug Mode	Editable	Diagnostic output. Automatically returns to Off after one hour.
Driver Version	Read-only	Driver version.

Actions

The following actions are available on the Composer Actions tab.

Action	Description
Reconnect	Tear down and re-establish the connection to the device.
Query Status	Refresh all state from the device.
Print Routing Table	Print the current routing to the Lua output window.
Reboot Device	Reboot the device.
Factory Reset Device (erases matrix configuration)	Reset the matrix to factory defaults (erases configuration, including network settings).

Programming Commands

The following device-specific commands are available in the Composer Programming tab. Parameters are chosen from drop-down lists unless noted.

Command	Parameters	Description
Route Video	Output, Input	Route HDMI input PARAM2 to output PARAM1 (audio follows)
Set Output Resolution	Output, Resolution	Set output PARAM1 resolution to PARAM2
Set Output Color Space	Output, ColorSpace	Set output PARAM1 color space to PARAM2
Set Output HDCP	Output, Mode	Set output PARAM1 HDCP mode to PARAM2
Set Output H Mirror	Output, State	Set output PARAM1 horizontal mirror PARAM2
Set Output V Mirror	Output, State	Set output PARAM1 vertical mirror PARAM2
Set Output Stream	Output, State	Enable/disable the stream on output PARAM1
Set No-Signal Background	Pattern	Set the no-signal background pattern to PARAM1
Set Input EDID	Input, EDID	Set HDMI input PARAM1 EDID to PARAM2
Set Video Wall Mode	Mode	Set the video wall layout to PARAM1
Set Video Wall H Bezel	Bezel	Set the video wall horizontal bezel to PARAM1 (0-10)
Set Video Wall V Bezel	Bezel	Set the video wall vertical bezel to PARAM1 (0-10)
Set Video Wall Group Input	Group, Input	Set video wall group PARAM1 to display HDMI input PARAM2
Set Video Wall Resolution	Resolution	Set the video wall output resolution to PARAM1
Set Power	State	Turn the matrix PARAM1
Set Panel Lock	State	Set the front panel lock PARAM1
Set Buzzer	State	Set the buzzer PARAM1
Recall Preset	Preset	Recall matrix preset PARAM1 (saved from the web GUI)
Query Status	-	Refresh all state from the matrix
Reboot Device	-	Reboot the matrix
Send Raw Command	Command	Send the raw ASCII command PARAM1 to the matrix (the trailing ! is added if missing)

Events & Variables

Events (available as "when" triggers in Programming):

- Device Online

- Device Offline
- Video Route Changed
- Power State Changed
- Input Signal Changed
- Video Wall Mode Changed

Variables (available for programming and conditionals):

Variable	Type	Description
CONNECTED	Bool	True while the driver is connected to the matrix.
POWER_ON	Bool	True when the matrix is powered on.
MODEL	String	Model (BG-MVS4X4-4KL).
FIRMWARE	String	MCU firmware version.
WALL_MODE	String	Current video wall layout (Matrix = normal switching).
OUTPUT_01_INPUT ... OUTPUT_04_INPUT	Number	The input currently routed to each output.
INPUT_01_SIGNAL ... INPUT_04_SIGNAL	Bool	Whether a source signal is detected on each input.

Connections (Bindings)

On the Composer Connections page, bind the following. Unused bindings are hidden automatically on Control4 OS 3.3.0 and later.

Binding	Type	Description
Input 1 - 4	Video Input	Connect sources (players, PCs, cable boxes) to the matrix inputs.
Output 1 - 4	Video Output	Bind displays / video-wall panels to the matrix outputs.
Room Selection 1 - 4	Room Selection	Optional: let a room drive the matrix output directly.
RS-232 / Network	Serial / Network	Bind one to control the matrix over serial or IP.

ASCII Command Reference

The matrix is controlled with ASCII strings terminated by "!". Network: TCP port 8000 (also Telnet 23). Serial: 115200 8N1. Routing feedback is reported as "input X -> output Y". Presets are recall-only (saved from the web GUI). The following summarizes key commands; see the product command list for the full set.

Routing & per-output video

Command	Description
s in X av out Y!	Route input X to output Y (Y=0 for all) -> input X -> output Y
s output Y res csc hdcp X!	Output resolution (1-24, 24=Auto), color space (1-4), HDCP (1-4)
s output Y hmirror vmirror stream X!	H/V mirror and stream on(1)/off(0); s output bg X! sets the no-signal pattern

Video wall

Command	Description
s tw mode X!	Wall layout 1-10 (1 2x2 ... 10 Matrix = normal switching)
s tw h bezel v bezel X!	Bezel compensation 0-10 (only in a wall mode)

s tw group Y input X!	Group Y (1-4) source input X (1-4); s tw res X! sets wall resolution
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System

Command	Description
s power 1! / s power 0!	Power on / off
s beep Z! / s lock Z!	Buzzer / front-panel lock (Z=0/1)
s recall preset Z!	Recall a preset (1-8) saved from the web GUI
s edid in X from Z!	Input EDID (1-18)

Tech Support

For technical support, please contact BZBGear:

- Email: support@bzbgear.com
- Phone: +1(888)499-9906
- Address: 830 National Drive #140, Sacramento, CA 95834, USA

Warranty

BZBGear products are backed by a limited product warranty. For full warranty details, please visit www.bzbgear.com or contact BZBGear support.

Mission Statement

BZBGear is dedicated to providing high-quality, professional-grade AV equipment that delivers exceptional performance and reliability for both commercial and residential applications.

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