



BG-VOP-CB

Control4 Driver User Manual

AV-over-IP Control Box - RESTful HTTP Control of Transmitters and Receivers

Table of Contents

Statement

Safety Precaution

Introduction

Installation

Properties

Actions

Programming Commands

Events & Variables

Connections (Bindings)

HTTP API Reference

Tech Support

Warranty

Mission Statement

Copyright

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 driver has been designed to provide control of a BZBGear BG-VOP-CB AV-over-IP system within a Control4 system over the control box's RESTful HTTP API.

The BG-VOP-CB control box manages transmitters (TX / encoders, connected to sources) and receivers (RX / decoders, connected to displays), distributing video over a standard IP network. Built on the Control4 DriverWorks SDK using the AV Switch proxy, this driver presents the transmitters as video inputs and the receivers as video outputs, so any source can be routed to any display as a matrix switch. Transmitters and receivers are discovered automatically from the control box and mapped to stable input/output bindings by MAC address, so there is no channel count to configure and bindings do not move when a device reboots. The driver also exposes per-device output scaling and rotation, input stream and bandwidth control, serial baud, rename, reboot, and mapping-preset save, with two-way routing feedback.

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).

To control the device over the network, set the following on the Properties page:

Setting	Value
Control Box IP Address	The IP address of the BG-VOP-CB control box (LAN/control port). Auto-filled when discovered over SDDP.

HTTP Port	80 (factory default)
-----------	----------------------

To use the RS-232 connection instead, set Connection Type to RS-232 and use the following serial settings:

- Not applicable - the control box is controlled over HTTP. (Device serial baud rates are set through the driver's Set Serial Baud command.)

If the device supports SDDP, it is discovered automatically and the IP Address is filled in for you.

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
Control Box IP Address	Editable	IP address or hostname of the BG-VOP-CB control box (the LAN/control port). Populated automatically when discovered over SDDP.
HTTP Port	Editable	TCP port of the control box HTTP API. Factory default is 80.
SDDP Auto-Configure IP	Editable	When Yes, the driver follows the IP address reported by SDDP discovery so the control box keeps working after a DHCP lease change.
Discovered By	Read-only	How the control box was located: SDDP discovery or manual configuration.
Connection Status	Read-only	Current state of the HTTP connection to the control box.
Control Box MAC	Read-only	MAC address reported by the control box (/api/get_mac).
Transmitters Found	Read-only	Number of TX (encoder) devices reported by the control box.
Receivers Found	Read-only	Number of RX (decoder) devices reported by the control box.
Include Offline Devices	Editable	When Yes, transmitters and receivers that the control box lists but that are currently offline still occupy an input/output binding, so their slot is stable. Set to No to map only devices that are currently online.
Last Device Error	Read-only	Most recent error string returned by the control box, e.g. a failed switch.
Poll Interval	Editable	Seconds between device-list polls, which keep Control4 in sync with routing and device changes. Set to 0 to disable polling.
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.
Refresh Devices	Re-read the transmitter/receiver list from the control box.
Print Device Map	Print the current encoder/decoder device map and routing to the Lua output window.

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	Decoder, Encoder	Route encoder PARAM2 to decoder PARAM1
Set Output Scaling	Decoder, Scaling	Set decoder PARAM1 output scaling to PARAM2
Set Output Rotation	Decoder, Rotation	Set decoder PARAM1 rotation to PARAM2
Set Input Stream	Encoder, State	Turn encoder PARAM1 video stream PARAM2
Set Encoder Profile	Encoder, Profile	Set encoder PARAM1 ethernet bandwidth profile to PARAM2
Set Serial Baud	Type, Number, Baud	Set device serial baud rate on PARAM1 PARAM2 to PARAM3
Blink Device LED	Type, Number	Blink the locator LED on PARAM1 PARAM2
Rename Device	Type, Number, Name	Rename PARAM1 PARAM2 to PARAM3
Reboot Device	Type, Number	Reboot PARAM1 PARAM2
Save Mapping Preset	Preset	Store the current routing to preset PARAM1
Refresh Devices	-	Re-read the transmitter/receiver list from the control box
Send Raw API	Endpoint, Body	POST a raw form body to a control-box API endpoint. PARAM1 e.g. /api/astswitch, PARAM2 e.g. ip=169.254.6.30&switch_id=1000&switch_type=z

Events & Variables

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

- Control Box Online
- Control Box Offline
- Route Changed
- Devices Changed

Variables (available for programming and conditionals):

Variable	Type	Description
CONNECTED	Bool	True while the driver is connected to the control box.
CONTROL_BOX_MAC	String	MAC address reported by the control box.
TX_COUNT	Number	Number of transmitters (encoders) reported by the control box.
RX_COUNT	Number	Number of receivers (decoders) reported by the control box.
OUTPUT_01_INPUT ... OUTPUT_16_INPUT	Number	The encoder (input slot) each decoder is currently following (0 = none).

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
Encoder 1 - 16 (In)	Video Input	Each transmitter (TX) is a source; bind players, PCs, cameras to these. Slots map to devices by MAC.
Decoder 1 - 16 (Out)	Video Output	Each receiver (RX) drives a display; bind displays to these.

HTTP API Reference

The control box is controlled over HTTP (port 80, no authentication). GET endpoints return JSON; POST endpoints take a form body (or JSON for save_preset). The following is a summary of the endpoints the driver uses; see the API command list for the full set.

Discovery / Status

Command	Description
GET /api/node_info	List all TX/RX with ip, mac, group id, type, name, alive
GET /api/get_mac	Get the control box MAC address
GET /api/node_list	List devices currently online on the AV LAN

Routing

Command	Description
POST /api/astswitch	ip=<RX ip>&switch_id=<TX group id>&switch_type=z
(feedback)	Each RX's group id in node_info = the TX it follows

Receiver (RX)

Command	Description
POST /api/astparam_s	param=v_output_timing_convert&value=<scaling hex>
POST /api/ast_sendcmd	value=echo {0/3/6} > .../display/vw_rotate (rotation)

Transmitter (TX)

Command	Description
POST /api/ast_sendcmd	value=echo {0/1} > .../CM_MUTEOUTPUTh (stream mute)
POST /api/astparam_s	param=profile&value=100M (bandwidth)

Device / Preset

Command	Description
POST /api/ast_sendcmd	value=reboot cat/echo .../N_Led (blink)
POST /api/set_hostname	mac=..&value=<new name> (rename)
POST /api/astparam_s	param=s0_baudrate&value=115200-8n1
POST /api/save_preset	JSON {"index": "N"} (store current mapping)

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.

Copyright

All rights reserved. No part of this document may be reproduced without the express written permission of BZBGear. BZBGear reserves the right to change specifications without notice. Control4 and Composer Pro are trademarks of Wirepath Home Systems, LLC (Snap One). HDMI is a trademark of HDMI Licensing LLC.