BZB2GEAR®

BG-Commander
PTZ Camera Controller

User Manual

Thank You!

Thank you for purchasing the BG-Commander IP/Serial PTZ joystick controller. This manual will help you familiarize yourself with the capabilities and functions of this device. Before setting this device up it is recommended that you read this manual in its entirety to ensure optimal performance. This product has been designed for years of trouble-free use. To keep this product functioning optimally please follow these recommended guidelines for care and maintenance.

Precautions

- Never expose the controller to moisture.
- Do not drop the controller.
- Clean only with a soft dry microfiber cloth.
- Connect controller with only PoE or the included power supply.
- Do not disassemble the unit in any way to avoid risk of electrical shock or damage. There are no user serviceable parts, and this will void your product warranty.
- Only use within the recommended temperature and humidity parameters
  - Operating temperature range: 14° - 122°F (-10° - 50°C)
  - Operating humidity range: 10 – 90%

1. Product Description

1.1 Overview

The BG-Commander is designed to provide precise control of BZBGEAR's complete line of cameras with support for both IP and serial control protocols. It supports VISCA over IP and ONVIF protocols as well as VISCA, Pelco-D, and Pelco-P via RS-232/422/485. The web interface makes it easy to quickly add IP cameras.

1.2 Product Features

- Supports IP and analog control modes
- Supports VISCA over IP, ONVIF, Pelco-P/D, and VISCA protocols
- Variable speeds for all control axes
- Zoom can be controlled by twisting the control handle or the dedicated zoom knob
- Integrated browser interface for quick setup
- Supports PoE

1.3 Interface Description

RS422

RS232   LAN
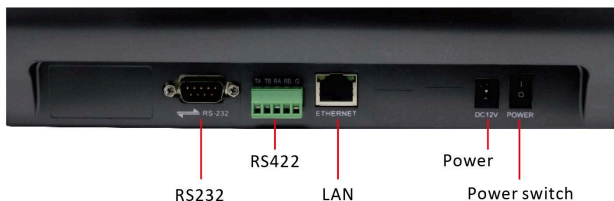
Power

Power switch

Number	Name	Function
1	Power switch	Power on/off
2	Power	Standard 5.5/2.1 power port, DC 12V2A±10%
3	LAN	Network Connection
4	RS232	Supports Visca, Pelco-P/D
5	RS422	Supports Visca, Pelco-P/D

1.4 System connection diagram

(1) Network connection

Camera and keyboard need to be connected to the same LAN.
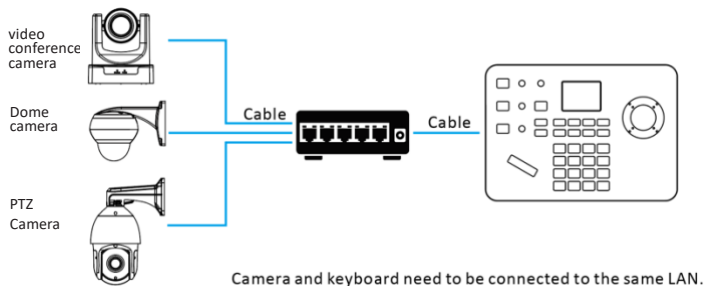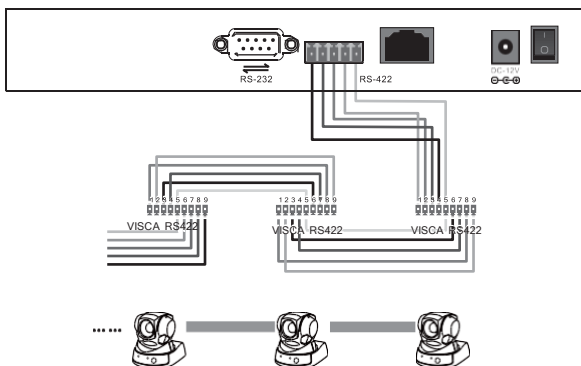
(2) RS485 connection diagram.
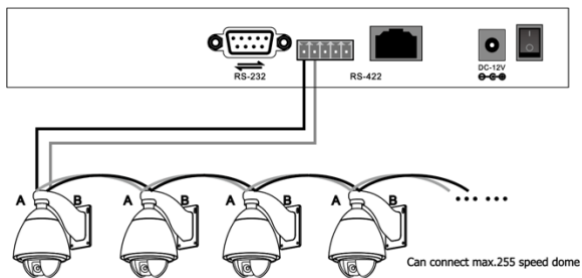
Control output:
The RS485+ of the camera is connected to Ta of the controller, and the RS485- of the camera is connected to the Tb of the controller.

(3) RS 422 connection diagram

*7 cameras max

When using RS422 bus connection mode, the third pin (**Ra**) of the controller is connected to the **TXD IN-** of the camera, the fourth pin (**Rb**) of the controller is connected to the **TXD IN+** of the camera, the first pin (**Ta**) of the controller is connected to the **RXD IN-** of the camera, and the second pin (**Tb**) of the controller is connected to the **RXD IN+**
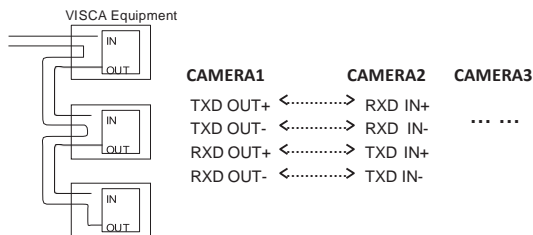
Controller	Camera
Ra	TXD IN-
Rb	TXD IN+
Ta	RXD IN-
Tb	RXD IN+

Using RS232 connection mode, the first pin (**RXD**) of the controller (10Pin terminal) is connected to the camera input interface **TXD**, the second pin (**TXD**) of the controller is connected to the camera RXD, and the third pin of the controller is connected to the camera GND (you can also use the standard RS232 DB9 interface of the controller to connect the camera.

| Controller	Camera
RXD	TXD
TXD	RXD
GND	GND

(4) Connection between cameras

Using RS422 bus cascade connection mode, the output of camera 1 is connected to the input of camera 2, the output of camera 2 is connected to the input of camera 3, and so on. As below:
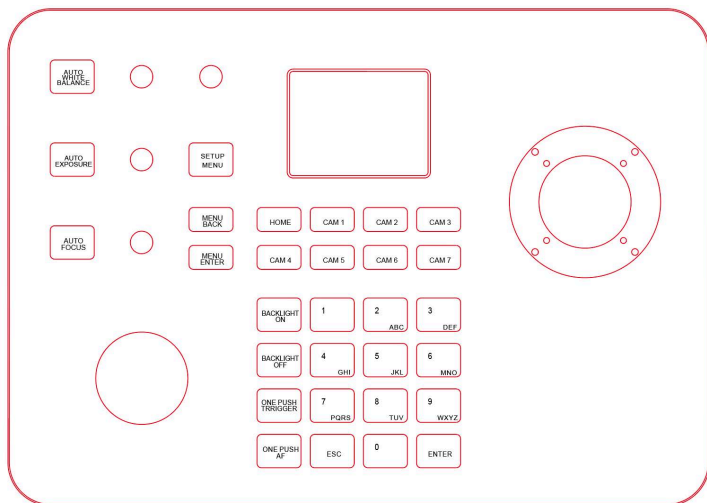

CAMERA1   **CAMERA2**   **CAMERA3**

TXD OUT+ <············> RXD IN+
TXD OUT- <············> RXD IN-   ··· ···
RXD OUT+ <············> TXD IN+
RXD OUT- <············> TXD IN-

RS232 cascade connection

The output of camera 1 is connected to the input of camera 2, the output of camera 2 is connected to the input of camera 3, and so on.

CAMERA1   **CAMERA2**   **CAMERA3**

TXD <············> RXD   ··· ···

RXD <············> TXD

GND <············> GND
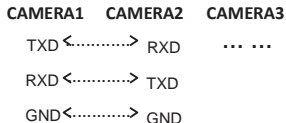
2. Buttons Description

2.1 Buttons Description

[AUTO EXPOSURE]: Click the button to enter the automatic adjustment screen exposure mode.

[AUTO WHITE BALANCE]: Click the button to select the white balance setting

[AUTO FOCUS]: Click the button to set the focus of the camera on the object

[CAM1 - 7]: Switch devices quickly

[SETUP/MENU]:   **1.** Press and release to enter the joystick setup menu.

                                  2. Press and hold to activate camera OSD menu.

Controller setting		Description
1.Add network device	Camera	The joystick ID of camera can be filled in 1-7; after adding camera all information press [ENTER] to save.
	Protocol	Optional: VISCA (UPD), SONY VISCA (UDP), VISCA (TCP), ONVIF, select the corresponding protocol of the camera
	IP address	Camera IP address
	Port	Input the camera port number
	Username & Password	Input the camera username and password
2.Add analog device	Camera	The joystick ID of camera can be filled in 1-7, after adding camera all information press [ENTER] to save
	Protocol	Select the protocol corresponding to the camera
	Address code	Select the address code corresponding to the camera
	Baud rate	Select the baud rate corresponding to the camera
3.Device list		Added camera list can be reviewed by moving the joystick up and down. Press the button on the top of the joystick or press [ENTER] to confirm
4.Network properties	Network properties	Switch through Joystick left and right, press [ENTER] to confirm
	Dynamic	Dynamic allocation based on switch settings
	Static	Manually enter IP address information
5. Device Language: EN/Chinese		Switch through Joystick left and right, press [ENTER] to confirm
6. Key tone		Switch through Joystick left and right, press [ENTER] to confirm
7. Reset		Double press [ENTER] to reset, press [ESC] to cancel
8. System information		Check the controller software, hardware, Web version, gateway and subnet mask

[MENU BACK]: While in the camera OSD press this button to go back one level
[MENU ENTER]: While in the camera OSD press to confirm/advance one level
[BACKLIGHT ON]: Press to enable Backlight Control (BLC)
[BACKLIGHT OFF]: Press to disable Backlight Control (BLC)
[ONE PUSH TRIGGER]: Press to trigger white balance
[ONE PUSH AF]: Press to trigger auto focus

[0-9]: Number key preset (Press and hold to set preset), (short press to recall preset)

Example:

- **Set No. 1 preset:** Move the camera to the position where you want to set preset- press and hold **[1]**
- **Recall No.1 preset:** short press **[1]**

[ESC]: Exit
[ENTER]: Confirm

2.2 Joystick rotations description

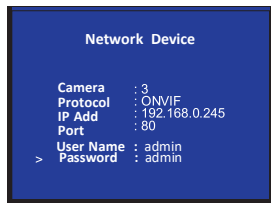| Operate	Output control	Operate	Output control	Operate	Output control
	Up		Down		Left
Operate	Output control	Operate	Output control	Operate	Output control
	Right		Zoom+		Zoom-

- **ZOOM SPEED/PT SPEED:** Zoom/PTZ speed adjustment
  Turn the knob right to increase speed, left to decrease speed. Press the knob to switch the adjustment type.

- **IRIS:** Adjust Exposure
  Turn the knob to the right to open iris, turn left to close iris.
  Press **[AUTO EXPOSURE]** to enable/disable manual iris control.

- **RGAIN/BGAIN:** Red/Blue gain
  Turn the knob right to increase gain, left to decrease gain.
  Press the knob to switch the gain type.
  Press **[AUTO WHITE BALANCE]** to enable/disable manual color correction.

- **NEAR/FAR:** Turn the knob right to adjust focus toward distant objects, turn the know left to adjust focus toward near objects.
  Press **[AUTO FOCUS]** to enable/disable manual focus control.

- **Joystick Rotation:** Rotate joystick handle clockwise to zoom in, counterclockwise to zoom out.
- **Zoom Knob:** Rotate knob clockwise to zoom in (telephoto), rotate counterclockwise to zoom out (wide angle).

3. Add device

3.1 Add network device

Use the controller to add LAN devices as follows:
(1) Press **[SETUP/MENU]** to enter the main menu.

```
            Keyboard  Settings
>   1. Add Network Device
    2. Add Analog  Device
    3. Device  List
    4. Network  Attribute: Static
    5. Language:   English
    6. Button  Tone: Off
    7. Restore  Factory
    8. System Info
```

```
            Network  Device

    Camera       : 3
    Protocol     : ONVIF
    IP Add       : 192.168.0.245
    Port         : 80
    User Name : admin
>   Password   : admin
```

```
                 Device List
                    3/7
          Camera  :  3
          Protocol  : ONVIF
          IP Add    : 192.168.0.245
          Port      :  80
          Protocol  :  VISCA
          Address  :  3
          Baud rate  :  9600
```

(2) Setup Add Network Device, fill in the camera, protocol, IP address, port, correct username and password, and press [ENTER] to confirm
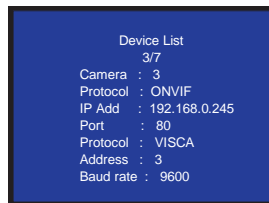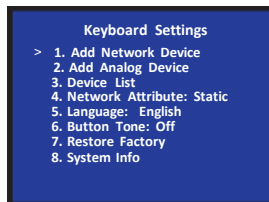
(3) Enter the device list, use the joystick up or down to select the device just added, press the middle button of the joystick or [ENTER] to control.

3.2 Add analog device

```
Native IP        192.168.0.185
Camera        :  1
Network I/F   :  ONVIF
Target IP     :  192.168.0.181
Analog interface:  8999
Target I/F    :  PELCO-D
baud rate     :  9600
Address       :  1
Active I/F    :  Analog
```

```
        Analog  Device

   Camera  :  1
   Protocol  :  PELCO-D
   Address  :  192.168.0.245
   Baudrate :  9600
```

(1) Long press the button on top of the joystick handle to switch the analog mode.
(2) Press **[SETUP/MENU]** button to enter the setting interface, select to add analog device.
(3) Enter the device adding interface, select the camera with 1-7 digital number, select the corresponding analog protocol, select the address code corresponding to the camera, select the baud rate, and press [ENTER] to confirm the addition.

4. Review & Control

(1) Press the **[SETUP/MENU]** button to enter the settings interface, move the joystick up and down to select the device list, press the **[ENTER]** button to view the added device.

```
        Keyboard  Settings
   1.Add Network Device
   2.Add Analog Device
 > 3.Device  List
   4.Network Attribute: Static
   5.Language: English
   6.Button Tone: Off
   7.Restore Factory
   8. System Info
```

(2) Review the saved devices by moving the joystick up and down, press the button on top of the joystick handle or the **[ENTER]** button to select the camera to be controlled.

(3) When the screen shows that the connection is successful, the controller has been connected to this IP device. At this time, you can begin controlling the camera.

```
        Device List
           1/7
             1
   Camera  :  ONVIF
   Protocol  :  192.168.0.181
   IP Add    :  8999
   Port       :  VISCA
   Protocol : 1
   Address : 9600
   Baudrate :
```

5. Network Configuration

5.1 Homepage connection and login

Connect the power cable of the controller and connect the network cable. After keyboard start-up is complete, the device IP: 192.168.x.xxx will be displayed on the display. Enter this IP address into the browser to access the configuration page. The initial login is:

username: admin

password: *none*

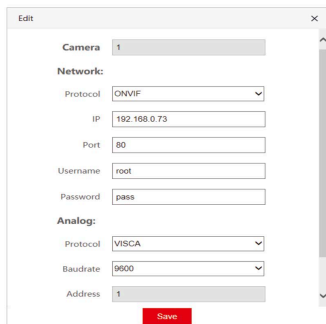(1) Connect the controller and computer in the same LAN, enter the controller IP address in the browser. The page displays as follows:
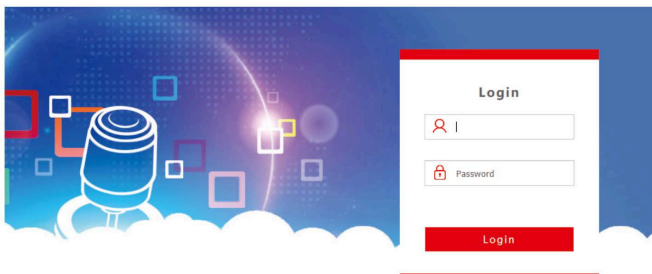
(2) default username= admin   password= empty (no password)

Camera	IP	Port	Protocol(network)	Baudrate	Address	Protocol(analog)	Operate
1	192.168.5.170	1259	VISCA(UDP)	9600	1	VISCA	✎
2	192.168.5.170	1259	VISCA(UDP)	9600	2	VISCA	✎
3	192.168.5.170	1259	VISCA(UDP)	9600	3	VISCA	✎
4	192.168.5.170	1259	VISCA(UDP)	9600	4	VISCA	✎
5	192.168.5.170	1259	VISCA(UDP)	9600	5	VISCA	✎

(3) Click ✎ button to add and modify device parameters in the local area network, the page displays as follows:

Input the device number, corresponding IP address, port number and username. Click Save.

5.2 Web network settings

LAN settings can modify the device's IP acquisition method and port parameters, as shown below:

Static address (STATIC): User defined IP address

Dynamic address (DHCP) (default): The controller will automatically request an IP address from the router, after the request is successful it will be displayed on the display as:

"Local IP: xxx.xxx.xxx.xxx"

5.3 System Upgrade

The upgrade function is used for performing firmware updates. Select the correct upgrade file from the Browse menu and click upgrade. After the upgrade is complete, the device will automatically restart.

Note: Do not perform any operation on the device during its upgrade, and do not power off or disconnect the network!

5.4 System reset

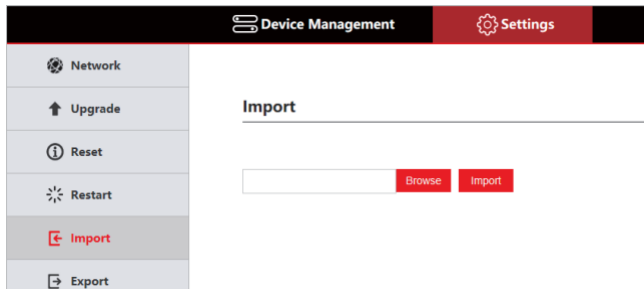Clear all data and perform a factory reset.

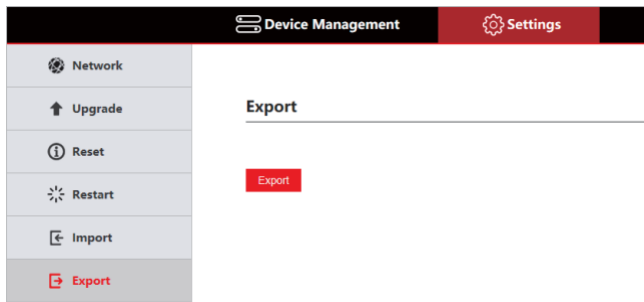## 5.5 Restart

Perform a reboot of the controller.
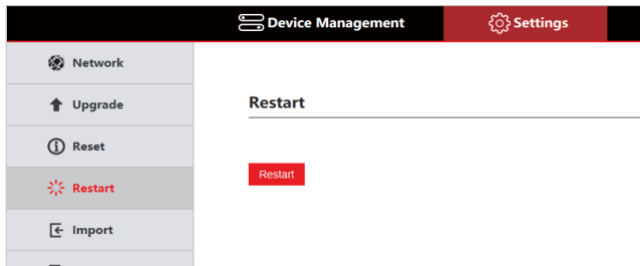
5.6 Import configuration

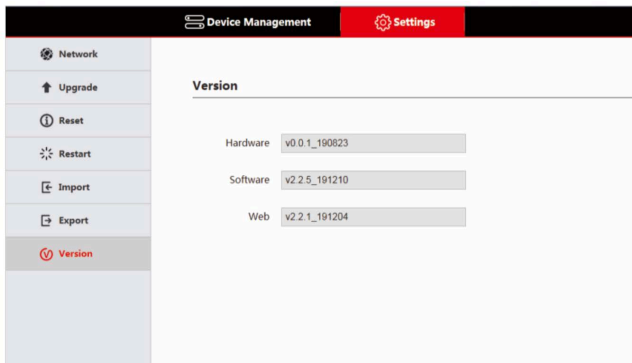Import a previous configuration.

5.7 Export configuration

Export the related information of the current controller added multiple devices, which can be exported to other controller devices.

5.8 Version information

Display the software and hardware information of the current controller.

☰ Device Management	⚙ Settings

⚙ Network	
⬆ Upgrade	**Version**
ⓘ Reset	
⟳ Restart	Hardware v0.0.1_190823
⤓ Import	Software v2.2.5_191210
⤒ Export	Web v2.2.1_191204
⦸ Version	

6. Troubleshooting

1. If the screen displays "Connection failed", check IP information is correct for the camera. Verify controller and camera are on the same subnet.

2. If the screen displays "Username and password are incorrect", please check whether the added device username and password are correct.

3. If the camera does not respond to the joystick while in VISCA UDP mode enter the controller setup menu and set option 9: VISCA RESPONSE to DISABLE.

7. Tech Support

Before contacting tech support, we may have answered your question already! Visit our BZBGEAR support page at bzbgear.com/support for valuable information on our products.

Here you will find our Knowledge Base (bzbgear.com/knowledge-base) consisting of tutorials, quick start guides, and step-by-step troubleshooting instructions. Also visit our YouTube channel BZB TV at youtube.com/c/BZBTVchannel for help setting up, connecting, and other how-to videos regarding our products.

If you still need answers, please call 1.888.499.9906, email support@bzbgear.com, or chat at bzbgear.com.

8. Warranty

BZBGEAR Pro AV products and Cameras come with a three-year warranty. An extended two-year warranty is available for our Cameras upon registration for a total of five years.

For an extended two-year warranty on our Cameras, follow these steps:

1. Register your Camera within 90 days of purchase by visiting bzbgear.com/warranty.

2. Complete the registration form. Provide all necessary proof of purchase details, including serial number and a copy of your sales receipt.

For complete warranty information, please visit bzbgear.com/warranty or scan the QR code below.

9. Mission Statement

BZBGEAR manifests from the competitive nature of the audiovisual and live streaming industry to innovate while keeping the customer in mind. AV solutions can cost a pretty penny, and new technology only adds to it. We believe everyone deserves to see, hear, and feel the advancements made in today's AV world without having to break the bank. BZBGEAR is your answer for applications requiring the latest pro AV and live streaming solutions.

You'll notice comparably lower prices with BZBGEAR while the performance and quality are on par with the top brands in the industry. Our team offers system design consultation and expert tech support seven days a week for all BZBGEAR products. Our unparalleled support is our way of showing we care for every one of our customers. Whether you're an integrator, home theater enthusiast, or a do-it-yourselfer, BZBGEAR offers solutions allowing you to focus on your project and not your budget.