



# *Blue Line* **B2-210 and B2-220**

## USER GUIDE

VERSION: B-1



**BLUE LINE PTZ CAMERA B2-210 & B2-220**

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# Important Information

Thank you for purchasing your Bolin PTZ camera. If you have any questions regarding the camera, please contact your authorized dealer.

Our website also offers a support page and user stories to inspire you to get the most out of your Bolin camera.

## Copyright

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## Legal Notice

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### Attention:

To ensure account security, please change the password after your first login. We recommend setting a strong password (no less than eight characters). Password login does not apply to certain models.

The contents of this document are subject to change without prior notice. Updates will be added to new versions of this manual. We will readily improve or update the products or procedures described in the manual.

We have made our best effort to verify the integrity and correctness of the contents in this document, but no statement, information, or recommendation in this manual shall constitute formal guarantee of any kind, expressed or implied. We shall not be held responsible for any technical or typographical errors in this manual.

The product appearance shown in this manual is for reference only and may be different from the actual appearance of your device.




This manual is a guide for multiple product models and so it is not intended for any specific product.

In this manual, the illustrations of displayed interface, parameters displayed, drawings and value ranges may vary with models. Please see the actual product for details.

Due to uncertainties such as physical environment, discrepancy may exist between the actual values and reference values provided in this manual.

Use of this document and the subsequent results shall be entirely on the user's own responsibility.

## Symbols

Symbol	Description
 <b>WARNING!</b>	Contains important safety instructions and indicates situations that may cause bodily injury.
 <b>CAUTION!</b>	User must be careful and improper operations may cause damage or malfunction of product.
 <b>NOTE!</b>	Indicates useful or supplemental information about the use of product.

## Safety Information



### WARNING!

Installation and removal of the unit and its accessories must be carried out by qualified personnel. You must read all the Safety Instructions supplied with your equipment before installation and operation.

## **Warnings:**

- If the product does not work properly, please contact your dealer. Never attempt to disassemble the camera yourself. (We will not assume any responsibility for problems caused by unauthorized repair or maintenance.)
- This installation should be made by a qualified service person and should conform to all the local codes.
- When shipping, the camera should be packed in its original packaging.
- Make sure the power supply voltage is correct before using the camera.
- Do not drop the camera or subject it to physical shock.
- Do not touch sensor modules with fingers. If cleaning is necessary, use a clean cloth with a bit of ethanol and wipe it gently. If the camera will not be used for an extended period of time, put on the lens cap to protect the sensor from dirt.
- Do not aim the camera lens at the strong light such as sun or incandescent lamp. The strong light can cause fatal damage to the camera.

## **Maintenance Precautions:**

- If there is dust on the front glass surface, remove the dust gently using an oil-free brush or a rubber dust blowing ball.
- If there is grease or a dust stain on the front glass surface, clean the glass surface gently from the center outward using anti-static gloves or an oil-free cloth. If the grease or the stain still cannot be removed, use anti-static gloves or an oil-free cloth dipped with detergent and clean the glass surface gently until it is removed.
- Do not use organic solvents, such as benzene or ethanol when cleaning the front glass surface.

## **Regulatory Compliance**

### **FCC Part 15**

This equipment has been tested and found to comply with the limits for digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.



### **LVD/EMC Directive**

This product complies with the European Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC.



### **WEEE Directive–2002/96/EC**

The product this manual refers to is covered by the Waste Electrical & Electronic Equipment (WEEE) Directive and must be disposed of in a responsible manner.

### **Disclaimer**

The contents of this document are subject to change without prior notice.

Any updates and content changes will be added to the subsequent new manual version.

If there are any concerns, please contact Bolin Support Team at:

[www.bolintechnology.com](http://www.bolintechnology.com)

### **Website Reference and other information**

For related product information please visit Bolin Technology website

<https://bolintechnology.com/>

## What's in the Box?



Camera X 1



IR Remote Controller X 1  
(2 X AA Batteries Required )



Camera Power Adaptor X 1



Camera Power Cord X 3 (Type: US, EU, UK)



HDMI Cable Secure Mount X 1



Bag of Mounting Screws X 1



RJ45 to RS232 Extension Cable X 1



RJ45 to RS422 Extension Cable X 1



Welcome Card X 1

### Accessories (Optional)



Wall Mount (BL-WM-01)



Ceiling Mount (BL-CM-01)



# Camera Features & Software

This user guide is suitable for the following Bolin Blue Line cameras:

## **B2-210 and B2-220**

### **Camera features**

- Sony 1/2.8 Inch CMOS sensor, Effective pixel number: 2.13 Megapixels.
- Resolution: Up to 1920x1080p60/50/30/25fps.
- Color Space supports YUV(YCbCr) and RGB.
- IP Resolution: Up to 1080P60.
- The B2-210 has a 10X optical and 16X digital zoom and the B2-220 a 20X optical and 16X digital zoom.
- 3G-SDI video output: B2-220 only.
- HDMI1.4 -Type A and USB 2.0 - Type C.
- On screen display (OSD), WDR On/Off, Day/Night mode On/Off, Contrast, Color Hue, Gamma (0 to 4) and High Sensitivity.
- Auto and Manual Exposure, Shutter / Day/Night / Brightness priority.
- Focus Zone: Face Priority, All Area, Upper Area, Central Area and Lower Area
- AI Face Detection Focus and Exposure.
- 2D and 3D Noise Reduction (1-255).
- Four PTZ Trace Memory supported via IP interface, Noise Reduction and Tally Light.
- Video Output: HDMI 1.4 and IP stream simultaneously.
- $\pm 175$  degrees continuous pan,  $+90$  degrees to  $-30$  degrees continuous tilt.
- 255 presets, Speed up to  $150^\circ/\text{S}$ , accuracy:  $0.05^\circ$  with 6 presets on remote control.
- Standard mounting and ceiling mounting with E-Flip function.
- Control via RS-422(RJ45 x1) IP controls (RJ45 x1) and IR Remote Control.
- Image parameter setting restore with presets and quick access operation.
- MIC/LINE audio input (D2-210H only) and USB port to 3.5mm audio jack (D2-220H).
- Power: DC 12V, PoE+ (IEEE802.3at).
- Firmware upgrade via USB2.0 or web interface.

## B2-210 Camera Overview



**Note:** The B2-210 can be powered using the included power supply adapter, an Ethernet Switch with PoE+ support or PoE+ device.

## B2-220 Camera Overview



**Note:** The B2-220 can be powered using the included power supply adapter, an Ethernet Switch with PoE+ support or PoE+ device. The B2-220 does not have a 3.5mm audio input connection. Please use the USB port to 3.5mm audio jack to input audio.

# IR Remote Control

**1 Menu** - On Screen Display (OSD) ON/OFF

**13. AI** only active when AI button is activated.

- Press the **AI** button to turn it on (highlighted when activated) and use the # 2 (I) and 3 (III) to adjust the fan speed of the camera.

**14 Power:** Press and hold for 3 seconds to turn the camera ON /OFF.

- Power OFF the camera is on standby mode.
- When the camera is ON, the lens is turned to the front.
- When the camera is OFF, the lens is turned to the back (standby mode).
- Powering the camera ON/OFF will restart the camera.

**2. IR ID Selector** up to 3 cameras can be controlled

**15 Fn** button: Press and hold and press any of the function buttons in brown below (**STD**, **REV**, **Scan**, etc.)

**4** Use number 1 through 9 to save and recall a Preset or Reset saved parameters.

**6 Preset:** Make parameter adjustments. Press and hold the Preset button and select a # (1 through 9) to store the selected parameters.

**7 Slow Zoom** control and **8 Auto Framing** (not activated)

**16 Reset:** Press and hold the Reset button and press the preset # (1 through 9) you wish to cancel.

**17 Fast Zoom** control. **18 One Push AF:** Press once to activate (Auto-Focus).

**9 Direction Control:** Pan and Tilt and OSD navigation

**HOME** button confirm / Enter selection.

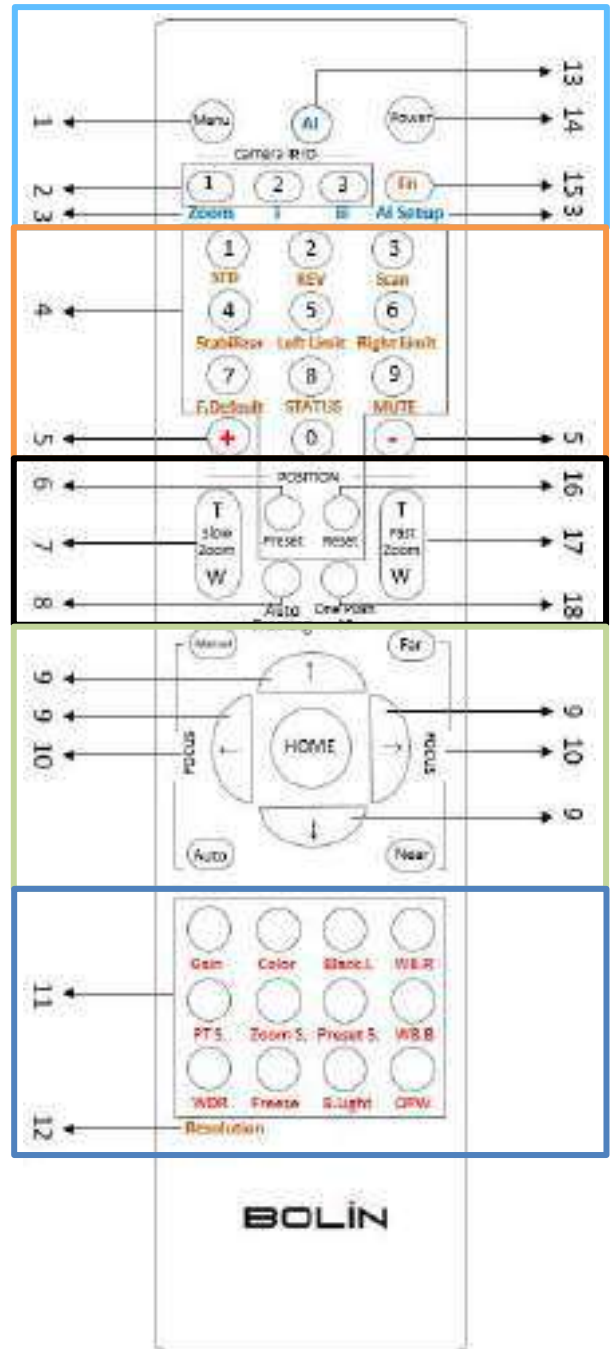
**10 Focus:** Manual Focus: Use the **Far** and **Near** buttons.

**Auto:** Auto-Focus

**11** Select a function in red (highlighted when selected) and use the **+** and **-** buttons (**5**) to adjust the selected function.

- **Gain:** Image gain settings
- **Color:** Image color saturation settings
- **Black.L:** Image Black Level settings
- **WB.R:** Image White Balance Red settings
- **PT.S:** Pan/Tilt Speed settings
- **Zoom S:** Zoom Speed settings.
- **Preset S:** Preset Speed settings.
- **WB.B:** Image White Balance Blue settings
- **WDR:** Wide Dynamic Range settings
- **Freeze:** To get a frozen image.
- **B Light:** Back Light compensation
- **OPW:** One Push White Balance

**12 Resolution** (Video Format Switching): Press and hold the **Fn** button (#15) until format change. The camera will restart after the video format is changed and the screen will turn black for a few seconds.



**Note:** AAA Batteries are not included with the remote control.

# Camera Installation

## **This device is designed for indoor use only.**

It is not designed to be used outdoors. Do not operate the device in environments where it may meet constant heavy water. Please avoid installing the unit in a location commonly exposed to sunlight for extended periods of time. Do not install the unit near temperature adjustment devices, such as a heating or cooling unit.

Failure to comply may cause abnormal behavior during operation or physical damage to the device.

## **Do not install the device in the following type of locations:**

- In locations where the temperature is below -10 Celsius (32F) or above 40 Celsius (104F)
- On walls without proper mounting method and brackets
- In locations where humidity is 81% or higher
- In locations where it may be exposed to harmful chemicals
- Near the sea or ocean where device can be exposed to corrosion
- In locations where the device will be exposed to strong radiation
- In locations where the device will be exposed to strong radio waves
- In locations where the device will be exposed to strong magnetic fields
- For other potentially questionable locations email Bolin Support for any questions or concerns

## **Safety Matters**

For your safety, please disconnect all power to the device when installing and removing the device. Always use supplied accessories and do not modify the supplied power adaptor.

Only qualified personnel should install and remove this device. Please make sure the installation environment is safe and follows best practices prior, during, and after the installation process. Bolin does not accept any responsibility or liability for any accident or damages resulting from malpractice or improper installations.

The following chapters will introduce the installation methods of the PTZ camera.

Before mounting your camera, please make sure you have purchased the optional accessories needed for the installation.

- Disconnect the power from the camera before camera installation.
- Accessories such as the Wall mount and Ceiling mount are necessary for the installation.
- Verify the bearing capacity of the mounted position.
- Tighten all the screws to hold the camera securely.

## **HDMI Cable Secure Mount Installation**

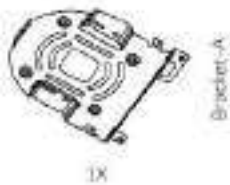
HDMI Cable Secure Mount is included with the purchase, it is used to fix the HDMI cable to prevent the cable from loosening and falling off.

# Ceiling Mount Installation

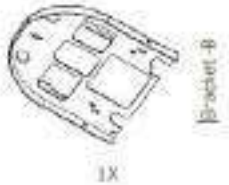
Ceiling mount is sold separately. Please follow the diagrams below to install the camera ceiling mount.

Required accessories and components: Ceiling Mount brackets and M4\*6PW/M3\*6PW screws.

Bracket A



Bracket B



Safety Rope



M4\*6PW



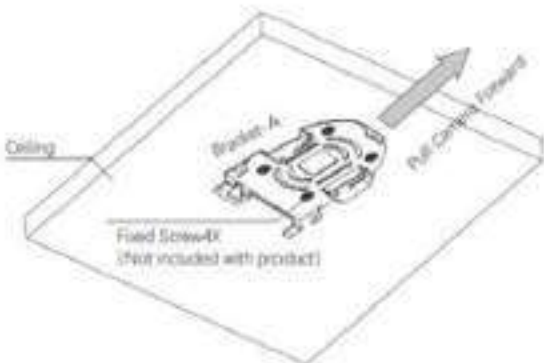
M3\*6PW



## Ceiling Mount Installation:

1

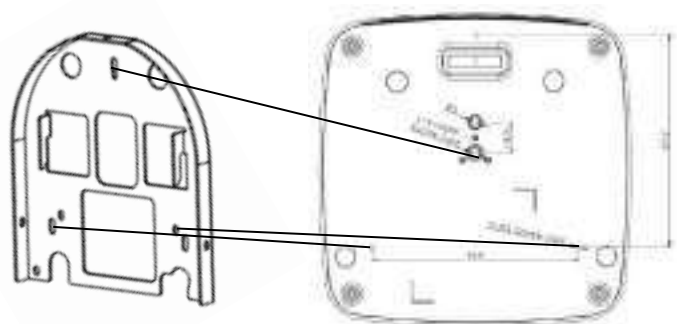
Install Bracket A at the desired position on the ceiling. All necessary cables (HDMI, SDI, power, Cat5e/6 cables etc.) should be available at the bracket A location.



Bracket A

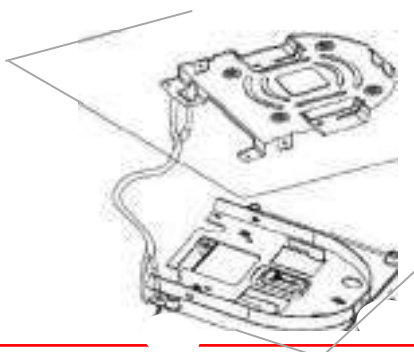
2

Attach Bracket B to the bottom of the camera using the M4\*6PW screws.



3

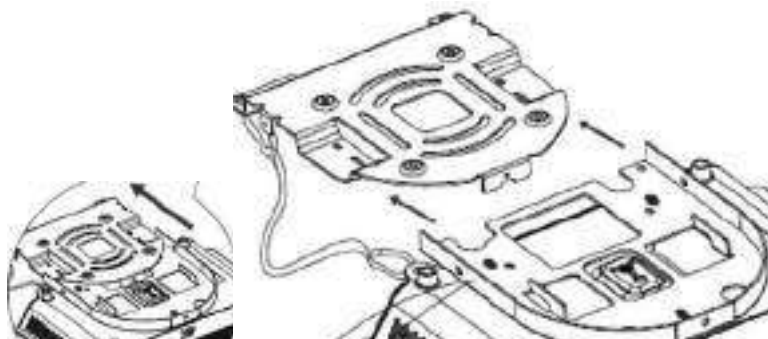
Attach the safety rope to Bracket A and B





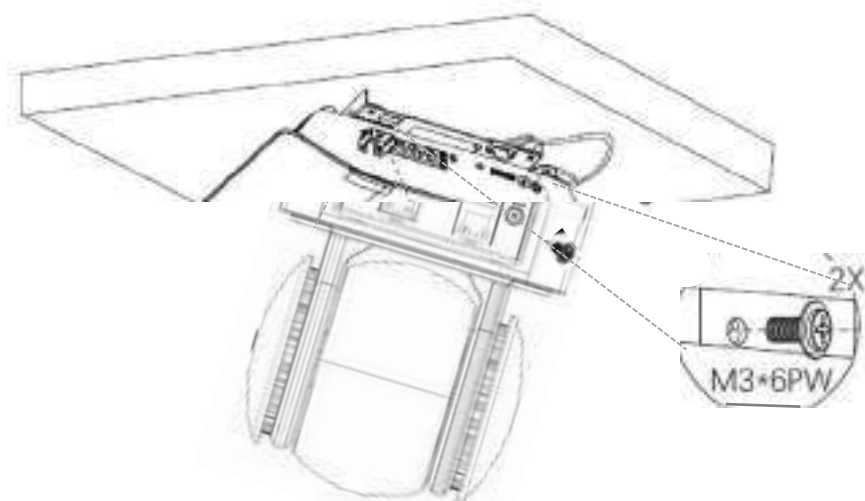
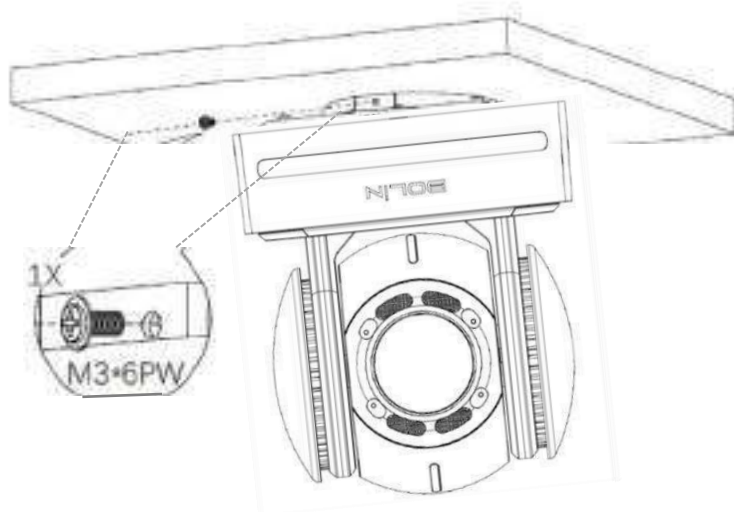
4

Slide Bracket B with Camera into Bracket A



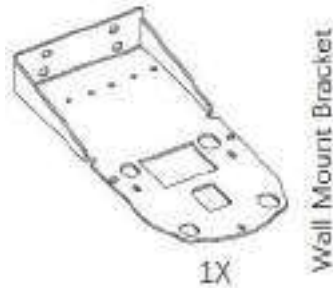
5

Insert M3\*6PW screw in the front bracket and M3\*6PW in the back of the bracket.

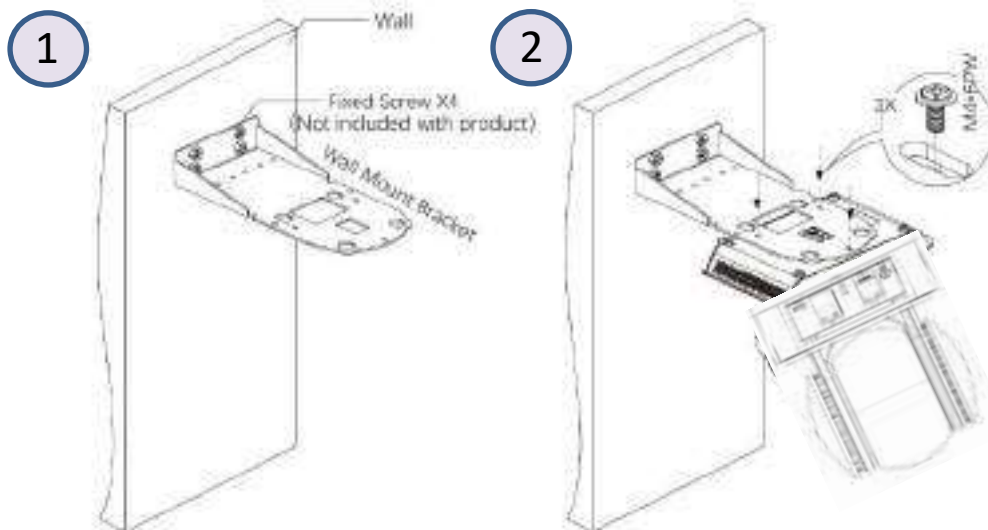


# Wall Mount Installation

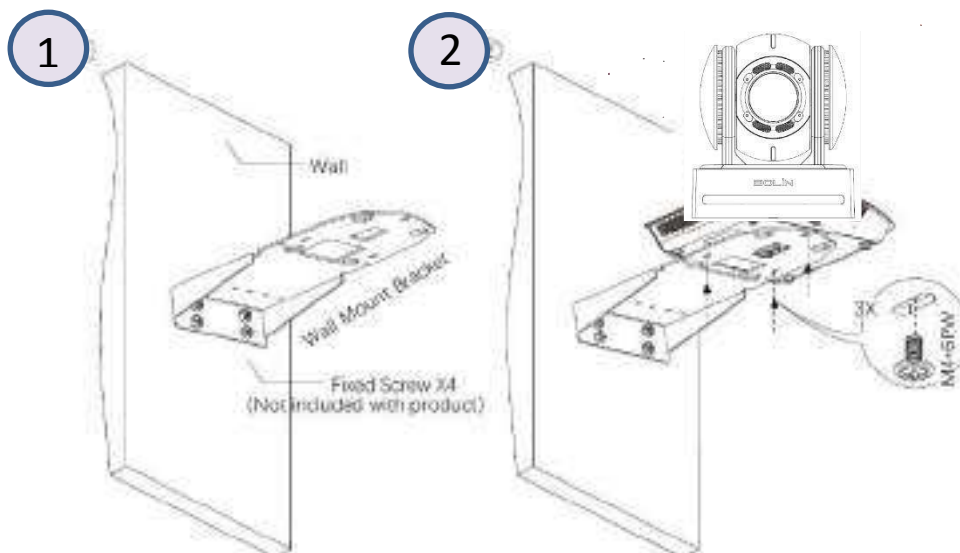
Wall Mount is sold separately. Please follow the diagrams below to install the wall mount.  
Required accessories and components: Wall Mount bracket and M4\*6PW screws.



- Wall mount pendant installation:



- Wall mount standard installation





# Camera Power & HDMI Output Setup

1

## Camera Power

- Use only the DC power adaptor (JEITA type4) supplied with the unit.
- Do not use any other DC power adaptor.
- POE+ (IEEE802.3at) is supported to power the camera.



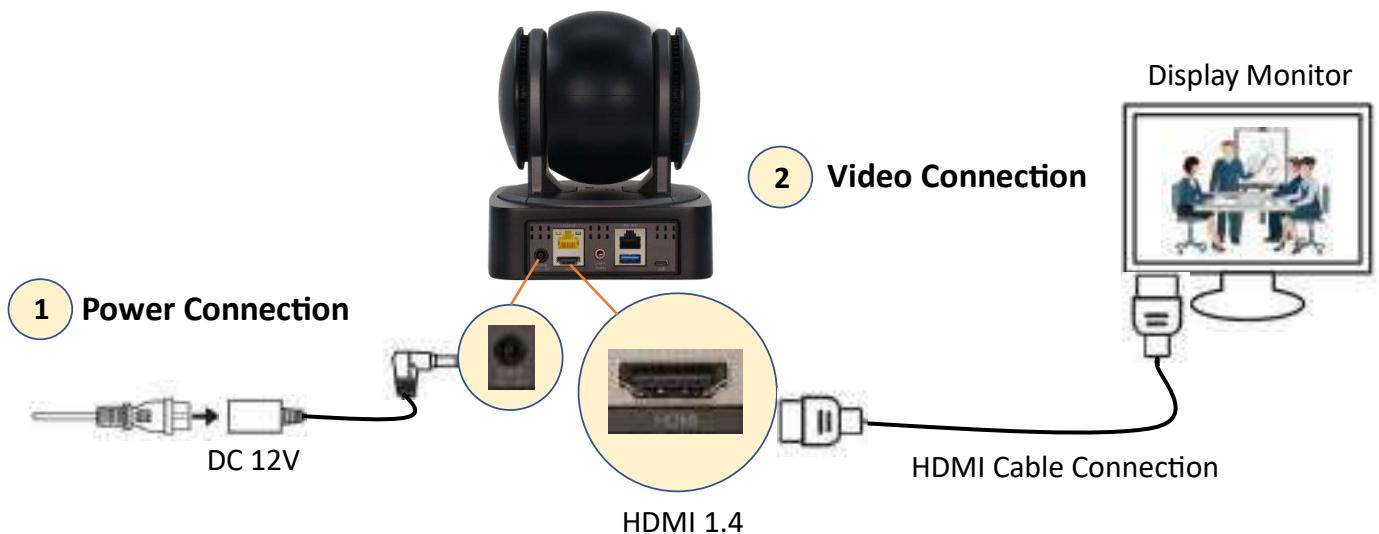
**Note:** Verify that the POE+ power source has sufficient power to power the camera, or some features may not function properly. After connecting the DC power, the camera will automatically turn, tilt, and scan its range.

2

## Camera Connection via HDMI /3G-SDI

**Note:** A HDMI 1.4 (or higher) cable, 3G-SDI cable (B2-220 camera), are required in this configuration setup. To obtain these third-party components or accessories, consult the reseller.

- Connect the HDMI/SDI cable(s) from the camera to the monitor(s). Information about the camera's initial setting status will display on the monitor(s) for about 5 seconds.



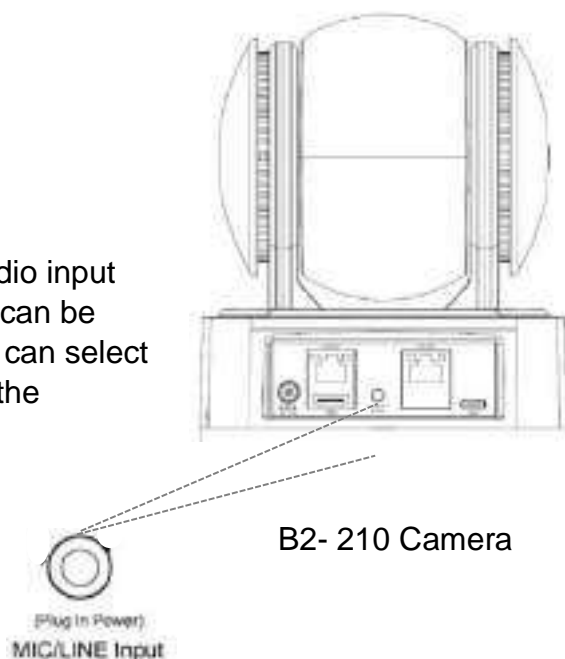
## Display Monitor Recommendations

- Any regular TV monitor with HDMI video output can be used for video display.
- For the Bolin B2-220 camera, a high-quality Monitor with a 3G-SDI connection is recommended.

**Note:** The camera can simultaneously output HDMI/3G-SDI and IP video. Also, the SDI and IP port can output two different video formats.

## Audio IN

The B2-210 is equipped with a 3.5 mm MIC/LINE audio input jack on the rear panel. A microphone or audio source can be directly connected to feed audio into the camera. You can select Audio ON/OFF and the input type (MIC / LINE) using the IR remote control Menu (OSD) under SYSTEM.



**Note:** With the B2-220, you can use a USB to 3.5 mm audio jack adapter (not included), to bring audio into the camera. If the MIC audio input type is selected, you can also set Plugin Power to ON, so that the camera can supply power to the connected microphone. The power supply voltage is 2.5V. The audio input is embedded with the camera HDI/SDI and IP video signal.

## Camera Initial OSD Information

Information about the camera's initial setting status will display for 5 seconds upon power.

1. Camera PELCO ID for RS-485 control
2. Camera ID for IR Remote Control
3. Display Info (On/Off)
4. Audio On/Off
5. Preset Settings
6. Factory Reset
7. Tally Mode On/Off
8. Reload Preset 1 On/Off
9. Video Format Setting
10. SV Number

Camera Status Info Display

PELCO ID	001
IR-RECEIVE	ON
DISPLAY INFO	ON
AUDIO	ON
PRESET SETTINGS	
FACTORY RESET	
TALLY MODE	OFF
RELOAD PRESET 1	ON
VIDEO FMT	1080p60
SV:	VOA170B44040ADIT5

# Camera Control Options & Configurations

## Camera Control Options and System Examples

There are multiple ways to control the camera using included accessory and /or third-party equipment. This section describes different controlling system examples.

- Use the Infrared Remote Control (included)
- Use RS-232 (VISCA), VISCA Over IP
- Use RS-422/485 (VISCA/PELCO P/D)

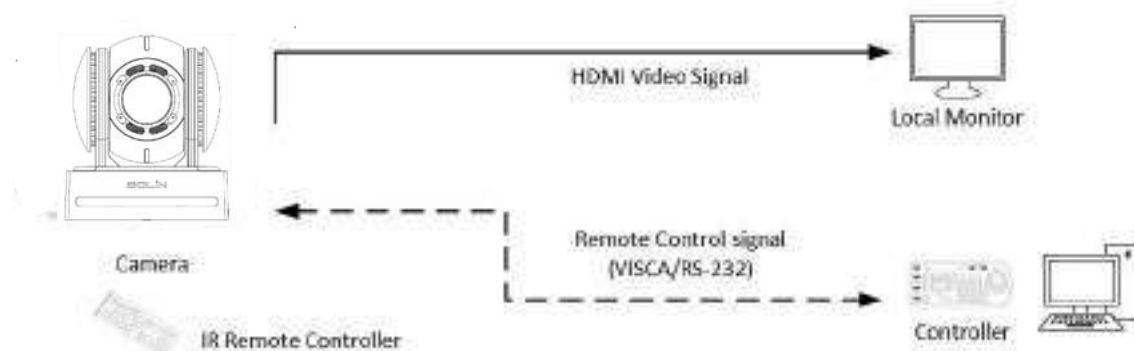
### Use the Infrared Remote Control

Recommended control distance to be within 10 meters. Control up to three Bolin cameras (ID # 1,2,3)



### Use RS-232 (VISCA)

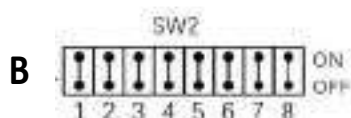
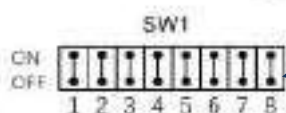
You can use RS-232 port to connect optional controllers, such as joystick controller or PC control station, to operate the camera. To perform pan/tilt and zoom operations, use the joystick of the keyboard controller. Preset operation can be done using the control buttons on the keyboard as well. An application software that supports this camera is needed if using a PC station.



## VISCA Over IP, Color, Video Format, and IR ID Dip Switch Settings

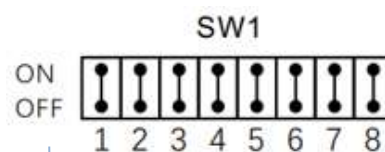
**Note:** Any DIP Switch changes should be done with the camera turned off.

### B2-210 / 220 camera bottom view



B1	B2	B3	B4	Video Format
OFF	OFF	OFF	OFF	1080i59.94
OFF	OFF	OFF	ON	<b>1080p29.97</b>
OFF	OFF	ON	OFF	720p59.94
OFF	OFF	ON	ON	1080p59.94
OFF	ON	OFF	OFF	Empty
OFF	ON	OFF	ON	1080i60
OFF	ON	ON	OFF	1080p30
OFF	ON	ON	ON	1080p60
ON	OFF	OFF	OFF	1080i50
ON	OFF	OFF	ON	1080p25
ON	OFF	ON	OFF	720p50
ON	OFF	ON	ON	1080p50
ON	ON	OFF	OFF	720p25
ON	ON	OFF	ON	720p30
ON	ON	ON	OFF	720p60

B7	B8	IR ID
OFF	OFF	1
ON	OFF	2
OFF	ON	3



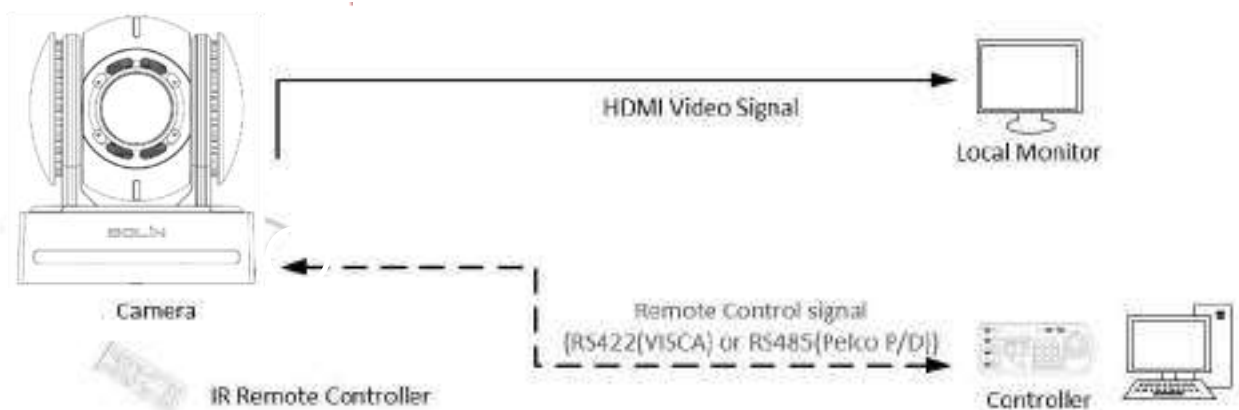
1-3	VISCA Over IP ON - ON	
4	RGB	ON
	YUV	OFF
5	Reserved	
6	RS-232	OFF
	RS-422	ON
7-8	2400Bps	OFF - OFF
	4800Bps	ON - OFF
	<b>9600Bps</b>	OFF - ON
	38400Bps	ON - ON

**Re: SW1:** 1-3 are OFF, the address is assigned automatically (up to 7 devices).  
**4:** Represents the video color space output.  
**6:** RS-232 – RS-422 selection.  
**7-8:** Represents the RS-232/RS-422 baud rate setting.

**Re: SW2:** B2 though B4 set the video format of the camera, and B7 and 8 the IR remote ID selection. The video format and IR ID # can also be changed using the OSD menu (last setting will prevail).

## Using RS-422(VISCA)

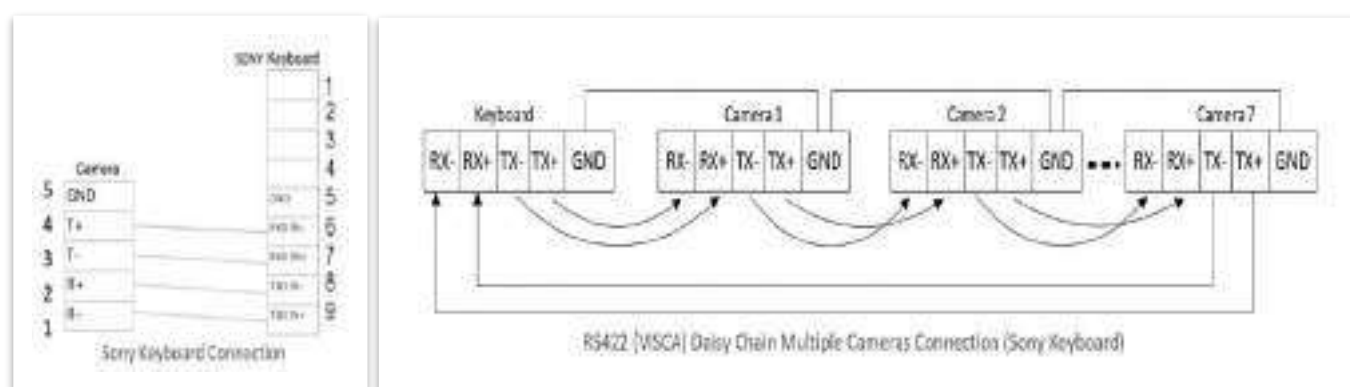
You can use RS-422/485 port to connect optional controllers, such as joystick keyboard controller or PC control station, to operate the camera. To perform pan/tilt and zoom operations, use the joystick of the keyboard controller. Preset operation can be done using the control buttons on the keyboard as well. An application software that supports this camera is needed if using a PC station.



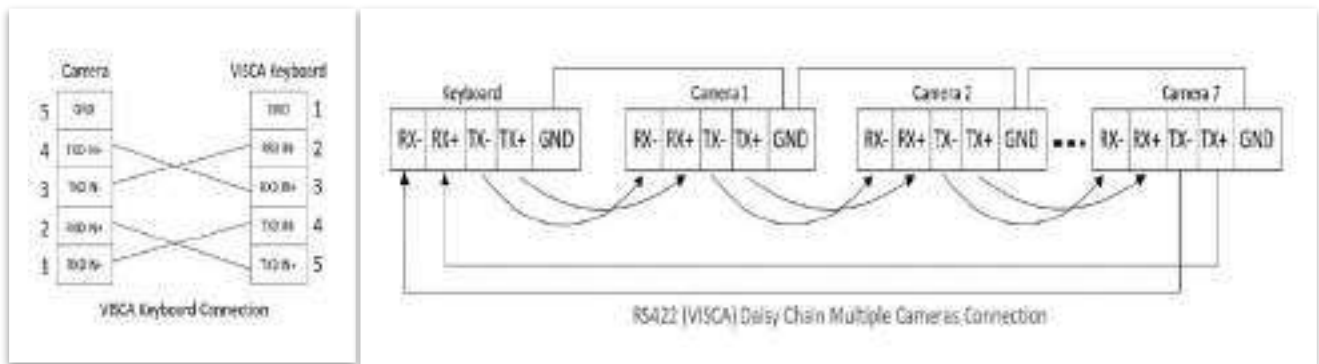
## RS422 (VISCA) connection

- Make sure Dip Switch SW1 # 6 is ON (RS422 control).
- Set the Baud Rate (Bottom Dip Switch 7-8) to the same settings as the Baud Rate setting of the controller you are using.
- Reboot the camera after the Bottom Dip Switch has been set up correctly.
- Use the RJ45 to RS422 control cable. The controller must be VISCA compatible.
- Camera supports Daisy Chain connection up to 7 cameras.
- The connection of SONY keyboard is different than other VISCA (Non-Sony) controller.
- How to make RS422 connection and RS422 Daisy Chain connection with SONY controller is shown below

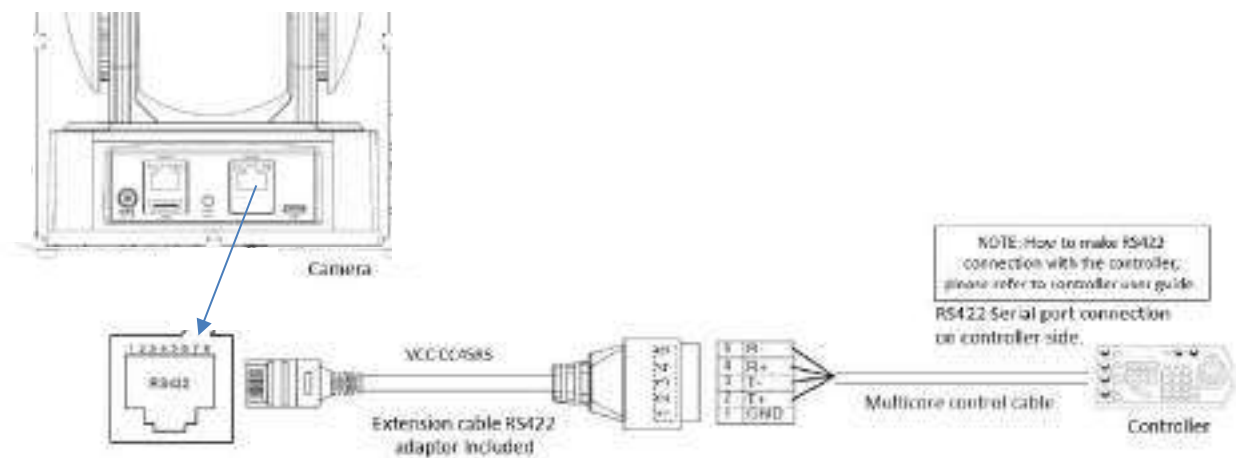
## SONY Keyboard RS422 Connection



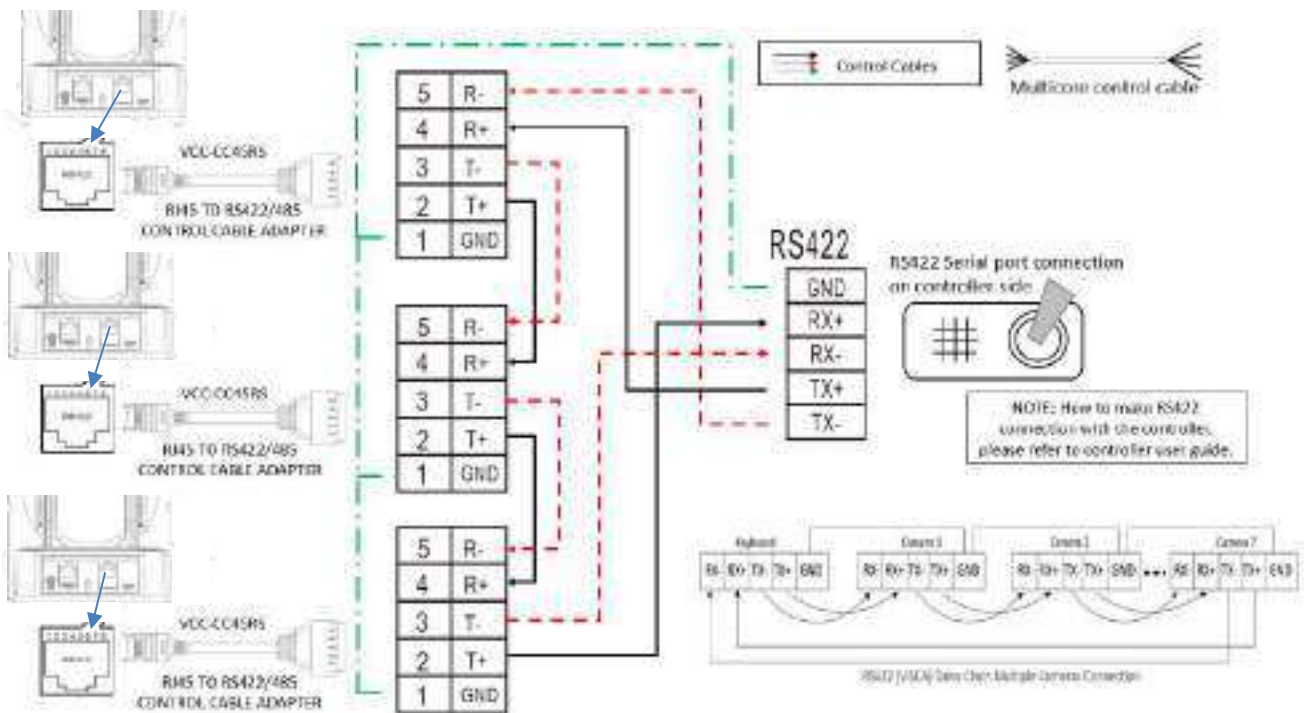
## VISCA (Non-Sony) Keyboard RS422 Connection



- o Use included RJ45 to RS422 Phoenix connector adaptor to make RS422 connection for your control device.



- o How to make RS422 Daisy Chain multiple camera connection with RS422 standard serial port controller:



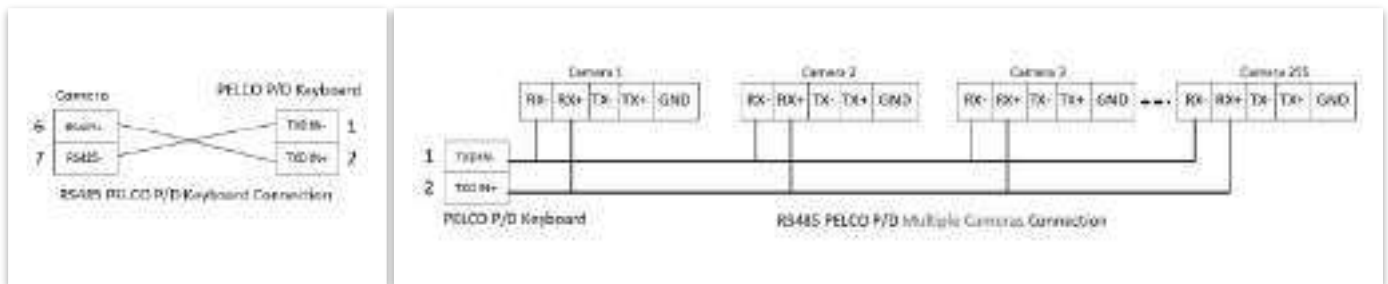


## PELCO P/D Controller RS485 Connection

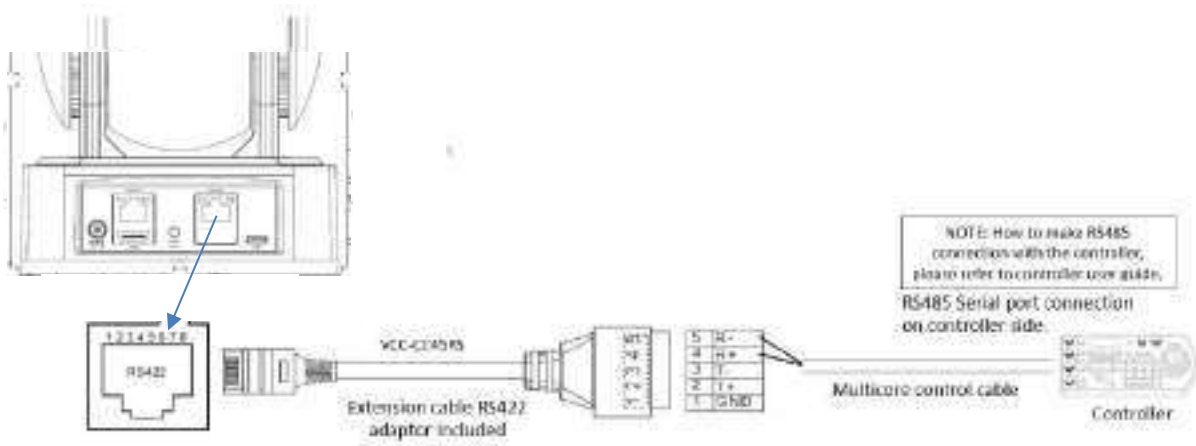
**Note:** Use RS422 for RS485 connection. Only use TX+ and TX- for RS485 connection.

- Set the Dip Switch SW1 pin #6 to ON (RS422 control)
- Set the Dip Switch SW1 pin # 7-8 to the same Baud Rate as the controller.
- Set the camera ID on OSD menu via remote control or Dip Switch (SW2 B7 -B8).
- Reboot the camera after the Bottom Dip Switch has been set up correctly.
- Use PELCO P/D compatible controller.
- Use preset 95 on the controller to bring up/exit camera OSD menu.
- Use joystick and Button "OPEN" or "CLOSE" to navigate OSD menu.
- For the controller operation, please refer to the user manual of the controller that you are using.

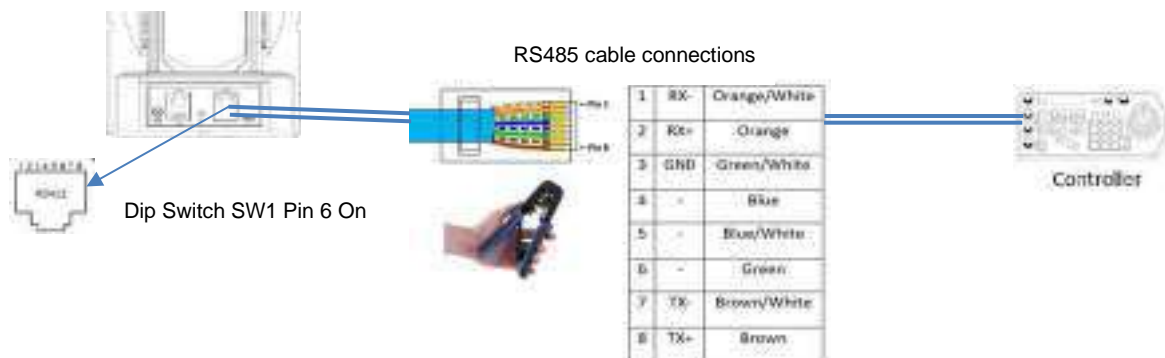
### PELCO RS485 Connection



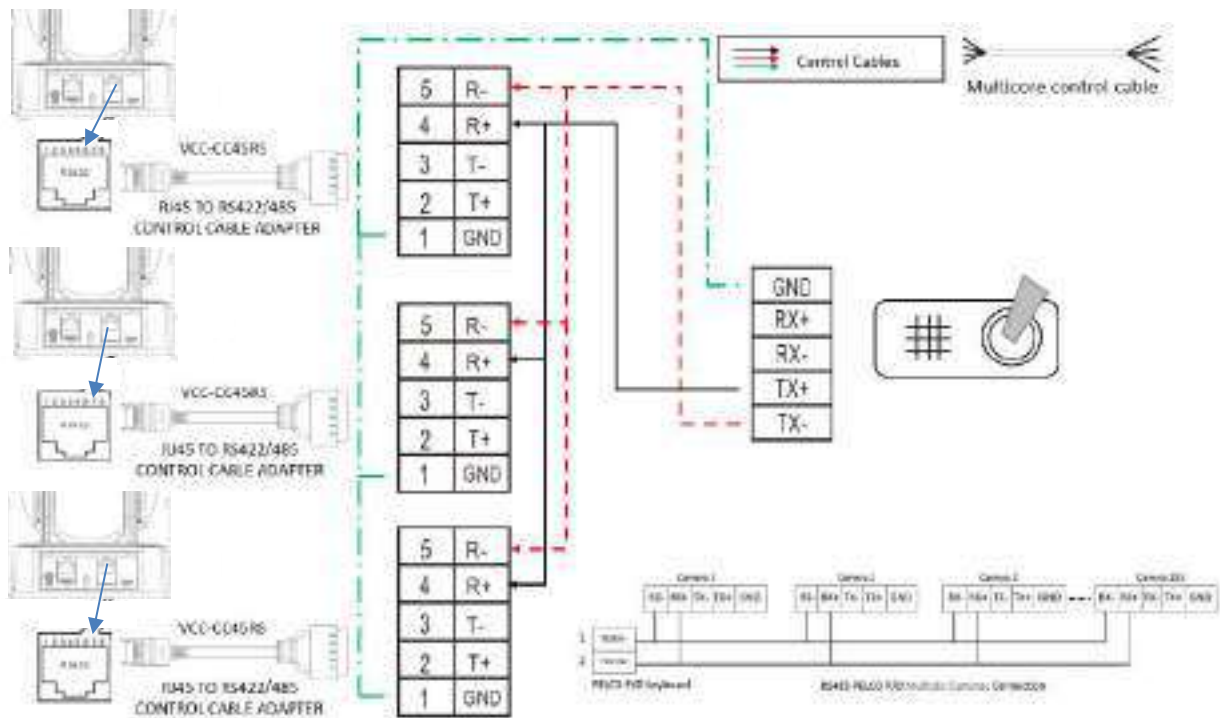
- Use included RJ45 to RS422 Phoenix adaptor to make RS485 connection for your control device.



- You can also use a CAT5/6 T-568B Standard Ethernet cable direct connect between the camera and the controller to make RS485 connection by following the pin definition below:



- RS485 multiple cameras connection using a RS485 standard serial port controller:



**Note:** RS-232 VISCA control, this unit supports daisy chain connection for using multiple cameras. For control details, refer to the Operating manual of the control controller.

- Make sure the communication speed (Baud Rate) matches between the camera and the joystick controller.
- You cannot use the RS-232 connections while you are using the RS422/485 connection.

### Operating Multiple Cameras Using RS-232,422/485

- Using RS-232 (VISCA), you can connect to 7 cameras.
- Using RS-422 (VISCA), you can connect to 7 cameras.
- Using RS-485 (PELCO), you can connect to 255 cameras.
- Using RS-485 (PELCO), all camera addresses must be set up before the connection. You can set the camera address using the OSD menu (under System > PELCO ID) and set the Dip Switch SW1 pin 6 On.

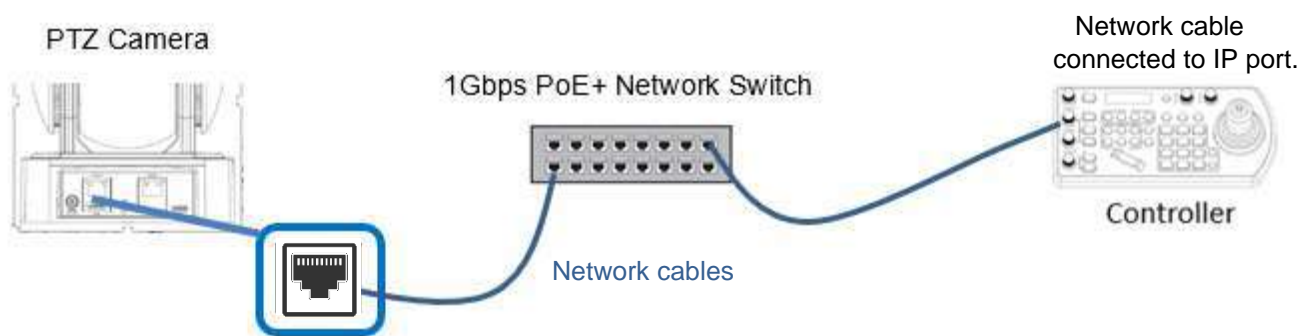
### VISCA Over IP Control

- Set the Dip Switch SW1 pin 1-3 of the camera to On.
- Use a Visca Over IP compatible controller (like the Bolin controller for example)
- Connect both camera and controller to a non-green 1Gb switch or manageable switch.
- To power both camera and a PoE + compatible controller, use a PoE+1Gb switch, or PoE+ injectors.
- The controller should be set to Visca Over IP mode (see controller manual for details)



## Communication Specifications of VISCA Over IP:

- Interface: RJ-45 100/1000M
- Interface protocol: IPv4
- Transport protocol: UDP
- IP address: 192.168.0.13 by default (Settings specify by camera maker)
- Port: 52381 by default (Specify by camera/controller maker, refer to camera/controller user guide)



## VISCA over IP Network Configuration

### Default IP Configuration of the Camera:

- Default IP Address: 192.168.0.13
- Default Username: admin | Default Password: admin
- Self-assigned addresses will be on the primary interface 169.254.\*.\* range.
- VISCA over IP control port: 52381.

### Network Switch Recommendations:

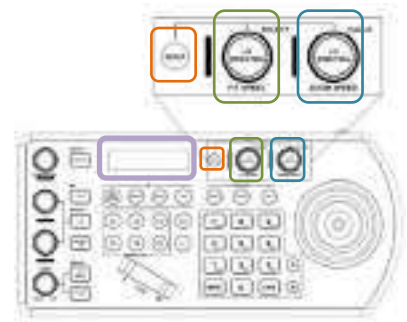
- 1Gb non-green (EEE) network switch for basic network installations
- Manageable switch that supports DiffServ (DHCP), Quality of Service (QoS) and IGMP snooping.
- Network switches that support fiber optic modules such as SFPs and GBICs for long distance connections between switches.
- If PoE + is required, the switch should support POE+ (IEEE802.3at).
- Cat5e, Cat6 or higher Ethernet cables should be used.

### VISCA Over IP Setup Information Using the Bolin PTZ Controller (model #: KBD-1010-RNV)

- Connect and set the controller to VISCA over IP within the same network
- The IP port on your controller must be set to 52381 to communicate with the camera.
- The controller should be able to recognize the PTZ camera(s) automatically.

## Bolin Controller VISCA Over IP Setup Overview

- Push the **SETUP** button and enter the password (default 0000)
- Rotate the **P/T SPEED** knob to move the cursor and select a function.
- Push the **P/T SPEED** to make a selection / enter.
- Rotate the **ZOOM SPEED** to change /save the setting(s) of a selected function.
- Select EXIT on the **controller display** to go back or exit the display menu selection.

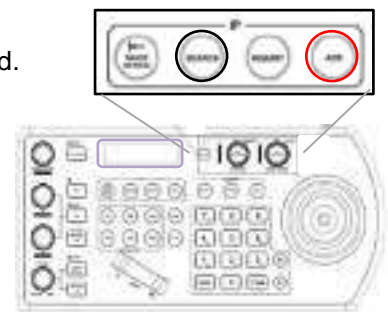


On the **controller display** under: KEYBOARD SETTING > IP CONFIGURATION > TYPE: DHCP or STATIC IP can be selected, and an IP address, subnet mask, and gateway number dialed in.

**Note:** The controller IP address must be within the same subnet as the PTZ camera(s).

### Scanning the Network for Available VISCA Over IP Camera(s)

- Under CAMERA SETTINGS > PROTOCOL > VISCA IP should be selected.
- Under KEYBOARD SETTING > VISCA IP SETTINGS > PORT 52381 should be selected.

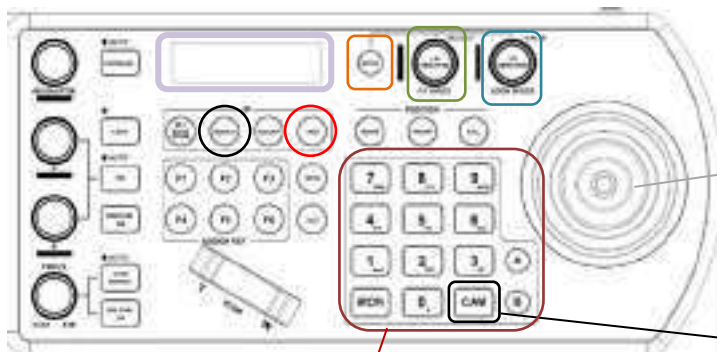


**Note:** Camera and controller should be set for Visca Over IP

- Push the **SEARCH** button to bring up the Auto Search menu.
- Move the cursor to VISCA-IP with the **P/T SPEED** knob
- Select Yes and push the **P/T SPEED** knob to start the search
- A list of discovered cameras will appear on the **controller display**
- Scroll through the discovered cameras using the **ZOOM SPEED** dial.
- To add a camera to the Bolin controller (KBD-1010-RNV), press the **ADD** button.
- Assign each discovered camera a CAM ID # using the **ZOOM SPEED** Knob.
- Move the cursor to Title with the **P/T SPEED** knob, and use the alphanumeric keypad to give the selected camera a title.
- Select EXIT to leave selection.

### Controlling your Camera(s) via VISCA Over IP

- Once the controller and the camera(s) are set and ready (Visca-IP – OK), you can start using the Bolin controller functions to control the camera(s).
- To switch and control each camera independently, push the camera ID# on the alphanumeric keypad, followed by the CAM button to select. The **controller display** section will then show the selected CAM (ID #).



**Note:** For more detail information about the Bolin controller go to: [Bolin KBD -1010-RNV User Guide](#)

Joystick Controls

CAM Button

Alphanumeric Pad

# On Screen Display Settings & Options

## On Screen Display (OSD) Settings & Options

### About the On-Screen-Display (OSD) Menus

Various settings and options for the camera, like shooting conditions and system setup, can be changed using the OSD menu of a connected visual output device or software.

**Note:** You cannot perform pan/tilt operations while the menu is displayed

### MAIN MENU

- To display the main menu, press the MENU button on the supplied infrared remote control, or use Bolin PTZ controller Joystick.



#### Navigation:

Use the up and down arrows “↑, ↓” of the IR remote control to select a function, and the HOME button to enter your selection.

You can also use Bolin 's controller joystick:

- Push the MENU button.
- Move the joystick up and down to select a function.
- Move the joystick left and right to change the setting of a selected function.

**Note:** The selected function is highlighted in red.

### EXPOSURE



#### Mode options:

**FULL AUTO:** Iris, Gain and Shutter Speed are set automatically.

**MANUAL:** Adjust the GAIN, electronic shutter speed (SPEED), and IRIS manually.

**GAIN:** Select a gain value between 0 and 255.

**SPEED** (electronic shutter speed): Set the SPEED value from 1/60 to 1/100K.

**IRIS:** Adjust from CLOSE to F9.6. The gain and shutter speed are set automatically according to the brightness of the subject. The exposure is adjusted automatically using the values manually set for the IRIS.

### WHITE BALANCE



**AUTO:** This mode computes the white balance value output using color information from the entire screen (initial setting).

**MANUAL MODES:** INDOOR: 3200K Base, OUTDOOR: 5800K Base.

**OPW (One Push White Balance):** Fixed white balance that can be automatically readjusted by the user (One Push Trigger). The white color reference object should occupy more than 50% of the camera image to work correctly.

#### OPW (One Push White Balance) operating steps:

1. Place a white image subject (For example: A piece of white paper) in the center of the screen.
2. Press the HOME button on the infrared remote control to activate the one-push white balance adjustments.

**Note:** White Balance data is lost when the power is turned off.

**ATW (Auto Tracking White Balance):** Auto Tracking White balance, adjust the tone of the camera according to the temperature (2000K to 10000K) of the light source illuminating the subject.

**WB MODE: SVL** (Sodium Vapor Lamp): This is a fixed white balance mode specifically for sodium vapor lamps illumination.

**WB MODE - USER: R GAIN and B GAIN:** This mode allows you to manually set the red and blue gain from 0 to up 100 steps.



**SHARPNESS:** Adjust the clarity of the image from 0 to 100

**EFFECT:** Switch between OFF and Black and White (B&W)

**2D NR:** A method of reducing the noise of an image by comparing frame-to-frame and removing the variations that do not appear in each frame.

**3D NR:** A method of reducing image noise by comparing variances within the same frame, as well as frame-to-frame. This process will reduce noise without leaving trails behind a moving object.

**FLIP: Image E-Flipper:** Used with ceiling mount or upright mount. Set to OFF with an upright mount, and ON with a ceiling mount.

**MIRROR:** See the image as seen in a mirror, with the right side shown as the left side..

**BLC:** Black Light Compensation On/Off.

**DE-FLICKER:** OFF, 50Hz and 60Hz settings



## PICTURE 2

**GAMMA:** Can be set to Default, 0.63, 0.55, 0.50 and 0.45.

**WDR (Wide Dynamic Range):** ON /OFF.

The camera detects light and dark sections within the same scene, and automatically adjust the brightness for dark areas, and controls the blown-out highlights.

**SATURATION:** Adjust the saturation level from 0 to 100.

**CONTRAST:** Adjust the contrast level from 0 to 100

**HUE:** Adjust the color phase from 0 to 100

**BRIGHT:** Adjust the brightness level from 0 to 100

**IMG STYLE:** Based on the selected image style, automatically adjust all parameters above (Picture 2) to match the selected style. Available style options: DEFAULT, SOFT, CLEAR and BRIGHT.

## PAN TILT ZOOM



**DIGITAL ZOOM:** Turn the digital zoom of the camera ON/OFF.

**ZOOM RATIO OSD:** Turn the zoom ratio OSD On/Off on the display monitor.

**VIDEO PARAMETERS:** On/Off on-screen-display of the parameter value when using the “+” or “-” functions of the IR remote control (see IR remote control section 11 and 12).

**ADAPTIVE PT:** ON/OFF. On, Pan Tilt speed is adaptive to the zoom range.

**P/T SPEED:** Set the Pan/Tilt Speed value from 0 to 5.

**PRESET SPEED:** Set the preset speed value from 0 to 5.

**PAN DIR:** NORMAL: IR remote left and right arrows pan right and left.

INVERT: Left and right arrows pan left and right.

**TILT DIR:** NORMAL: IR remote control up and down arrows tilt up and down.

INVERT: Up and down arrows tilt down and up.

**Note:** The IR remote control and controller joystick cannot be used simultaneously.

## SYSTEM



**PELCO ID:** RS485 (PELCO P/D). Set the camera ID to the address that you want to control from 1 to 255.

**IR-RECEIVE:** Turn IR remote control OSD ON/OFF\*

**DISPLAY INFO:** ON/ OFF

**AUDIO :** ON/OFF

**PRESET SETTINGS:** PRESET MEMORY ON/OFF: Allows you to save the image parameter of the PRESET memory such as picture, white balance, exposure, focus mode and zoom positions. Set to OFF, presets only include pan/tilt/zoom actions.

**MOTIONLESS PRESET ON/OFF:** When motionless preset is ON, the video image will not be shown during the transition to the designated preset location. Set to OFF Motionless preset are back to normal running preset action.

**FACTORY RESET:** Use the HOME button of the IR remote control to delete all data of the camera.

**TALLY MODE:** Turn the tally light ON/OFF.

**RELOAD PRESET 1:** ON/OFF. ON, preset 1 is set to the HOME position. The camera moves to the HOME position when it is powered on or reset.

**VIDEO FMT:** Adjust the video format of the camera to: 1080P25:60/30/59.94, 720P:60/59.94/30/25/50.

**SV:** Software Version Number that is currently running on the camera. You may need this information for technical support.

**\*Note:** You cannot set the IR-RECEIVE to OFF if you only operate the menu using the infrared remote control. To set it to OFF, use a VISCA controller.

## STATUS



The Status menu will display the basic information of this camera (page 1), as well as the video parameters (page 2). Toggle between pages 1 and 2 with the HOME button, for a quick overview of the camera settings.



## Firmware Upgrade

Make sure your Bolin PTZ camera has the latest firmware installed. Our latest updates are available here: [Learning & Download Center - Bolin Technology](#)

**Note:** The firmware upgrade process is intended to be performed under the supervision of a BOLIN-Authorized repair technician, dealer, installer, or integrator. BOLIN Technology Technical Support can also be reached for assistance.



# Web User Interface Overview

## Web user interface connection requirements

- The PTZ camera is powered on (via the DC power adapter or PoE+) and connected to the network switch.
- The camera's IP address is located within the same subnet as the PC.
- The PC is connected to the network switch. If the switch has multiple VLANs, make sure the PC is connected to the same VLAN as the PTZ camera.
- The PC's IP address is located within the same subnet as the PTZ camera.

## Supported Web Browsers:

- Microsoft Edge | Internet Explorer (IE11 recommended)
- Google Chrome
- Mozilla Firefox
- Apple Safari

## Web Interface Login:

1. Open a supported browser on your PC and type the IP address of the PTZ camera you'd like to connect to on the address bar section of the browser. The PTZ camera IP address is listed on the OSD Menu under Status. The default IP address of the camera is 192.168.0.13 and subnet mask 255.255.255.0.
2. Enter the Username and Password and click on Login button. The default Username and Password is admin (first login).

**Note:** To ensure account security, please change the password after your first login. We recommend that you set a strong password (no less than eight characters). The camera protects itself from unauthorized access by limiting the number of failed login attempts. If login fails six times consecutively, the camera locks automatically for ten minutes. Also, if your PC has VLC media player installed, you can watch live preview directly after login in. VLC Media Player is free of charge and available here: [VLC Media Player](#).

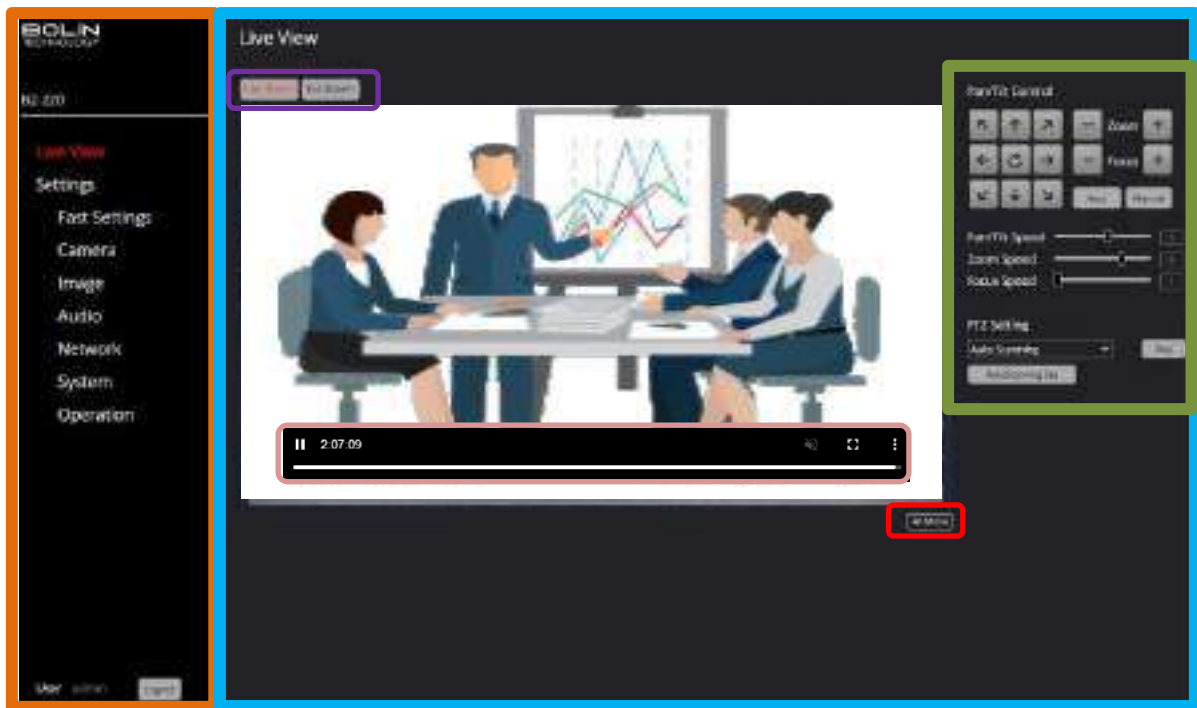


RTSP streaming via VLC Media Player



**IP Streaming note:** You can copy the RTSP address of the PTZ camera under Network > RTSP and paste it in the VLC Media Player under Media > Open Network Stream to watch the Live View.

## Bolin Web Interface Overview



### Info and Menu Section | Display Section

**Live View Menu:** Display the video image, options, controls, settings, and OSD menu of the PTZ camera.

#### Live View Display Section:

- Toggle between the Main Stream and Sub Stream video image.
- Play/Pause, Mute, Full Screen, and Picture in Picture function.
- Display the OSD Menu of the PTZ camera on the screen. Use the Pan/Tilt Control section to navigate the OSD Menu.
- Pan/Tilt and Zoom Controls, including PTZ Settings:

**Auto Scanning:** PTZ Camera pan continuously from left to right and right to left until the stop button is activated.

**Preset:** Create, name, save, recall, play, and delete presets.

1. Click on the Create button, select a number (255 available) and name the preset.
2. Create a preset (Pan/Tilt / Zoom etc.) and click on the Save button.
3. Select a preset to recall and use the Go / Stop buttons.

**Tracking:** Create and name a series of presets to recall in a given order. The PTZ camera will record and apply each preset in the selected order (up to 4).

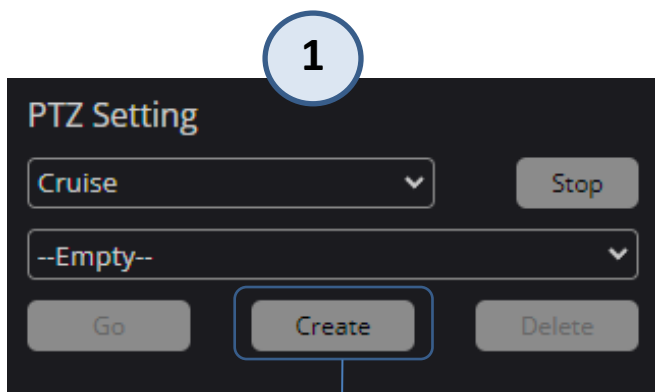
1. Click on the Create button, select a number, and name the trace.
2. Click on the Start button to start recording.
3. Select a trace to recall and use the Go button to activate.

**Scanning:** Left limit and right limit can be programmed. Set the left limit to right limit using the "Create", Left Limit and Right Limit buttons. Up to 4 Scans can be saved and recalled.

**Power On Action:** Activate a Preset, Trace, Scanning or "Cruze" when the camera is powered on.

**Cruise:** Create a list of presets to recall with a specific retention time in seconds.

1. Click on the Create button to open the Set Cruise window.
2. Select an ID number (up to 12 available) and name it.
3. Click on the “Start to add preset points” option.



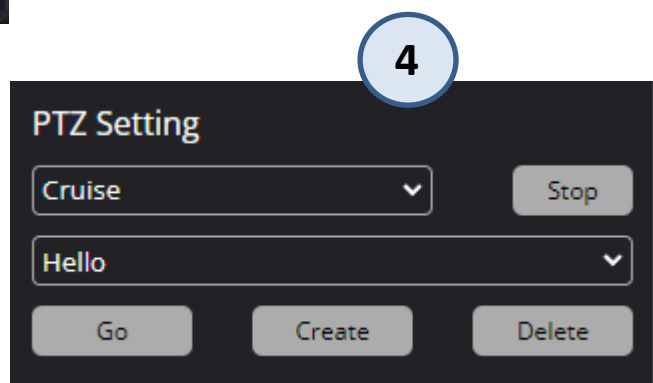
4. Select the presets you'd like to schedule including the retention time in seconds.

+ Add a preset line.

x Delete a preset line.

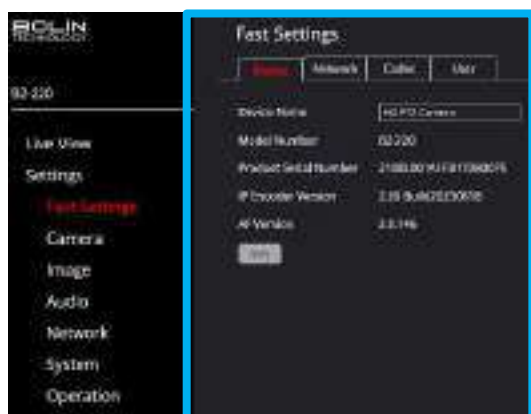
Click Enter to save.

6. Click on the Go button to activate





## Settings Menu > Fast Settings



### Device Tab

The **Device tab** displays the PTZ camera information and let you name the camera. Click Apply to save.

The **Network tab** displays the PTZ camera network information, and the option to enter and apply custom network settings when set to Static mode.



### Network Tab



### Codec Tab

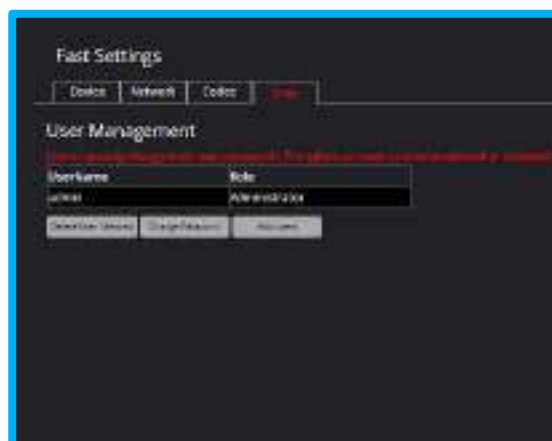
The **Codec tab** lets you set the Video Compression (H264 or H265), Video Resolution, Frame rate (adjustable), Bitrate Type: CBR or VBR (Constant or Variable Bit Rate), Bit Rate (adjustable kbps) and I Frame Interval for the Main and Sub Streams.

**Note:** Sub Stream offers a second video stream with lower video resolution options and can be easily turned **on and off**. Click the Apply button to save.

### User Tab

The **User tab** allows you to add users (operators), change passwords and delete users.

**Note:** Admin cannot be removed.



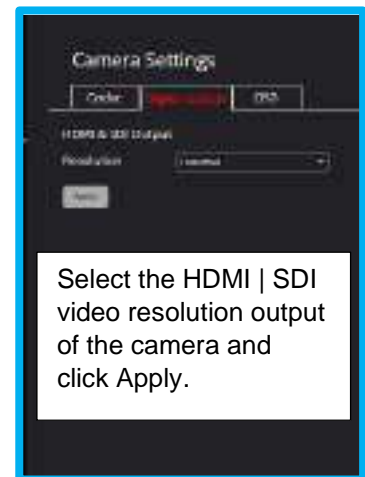
## Settings Menu > Camera Settings



### Codec Tab

### Digital Output Tab

Fast Settings > Codec (above).



### OSD Tab

Switch the video image from Main Screen to Sub Screen



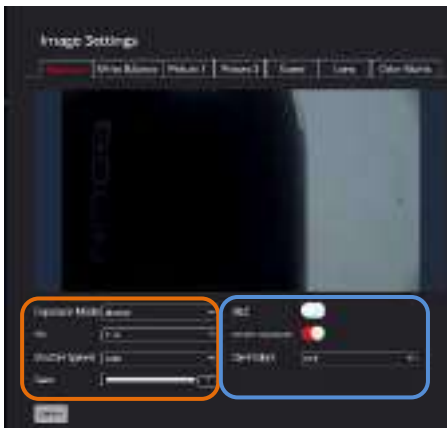
Create and position titles, date, logo, or PNG image (Browser) within the video image frame.

1. Enter a Title, Date, Logo or import a PNG image.
2. Click on the Adjust button and use the "position adjustment" set buttons to move the object to the top, center or bottom position and /or custom position (5), up, down, left, or right within the video image.
3. Show | Hide objects using a check mark ☒ or assign a color to an object ☐

**Note:** Click on the Default button to erase all objects.

## Settings Menu > Image Settings

### Exposure Tab



The **Exposure tab** let you set the **Exposure** to:

- Full Auto, Manual, Shutter Priority, or Iris Priority mode.

Note that the parameters below (**Iris**, **Shutter Speed** etc.), will adjust automatically based on the mode selection.

- On/Off **BLC** (Backlight Compensation), **Smart Exposure**, and **De-Flicker** (Off, 50 or 60Hz settings)

### White Balance Tab



The **White Balance tab** let you set the **WB Mode** to:

- User, Auto, ATW, One Push, Indoor, Outdoor, Sodium, and Manual Color Temperature. The **WB Sensitivity** can be set to Low, Middle, and High. **RGB Tuning**: Color level adjustments from 0 to 100.

### Picture 1 Tab



The **Picture 1 tab** let you adjust:

- **Sharpness, Hue, 2D and 3D Noise Reduction**, with On/Off options for **Flip, Mirror, Portrait, Backlight Compensation** and **De-Flicker** (Off, 50 and 60Hz settings).

**Note:** For more details about the parameters listed in Picture 1 and 2, please go to the: [On Screen Display Settings & Options](#) section of this user guide.

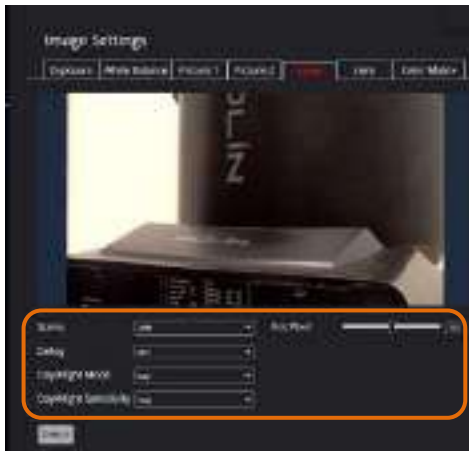
## Picture 2 Tab



The **Picture 2** tab let you adjust:

■ **Gamma** level, **Contrast**, **Saturation**, and **Brightness** with an On/Off option for Wide Dynamic Range (**WDR**), and level adjustment.

## Scene Tab



The **Scene** tab offers:

■ **Scene** presets (Default, Brightness, Clear and Soft settings). **Defog** options: Off, Auto, Manual and Low settings. Day/Night Mode: **Day**, **Night** and **Auto** settings with adjustable **sensitivity** settings to **Low**, **Middle** and **High**.

## Lens Tab

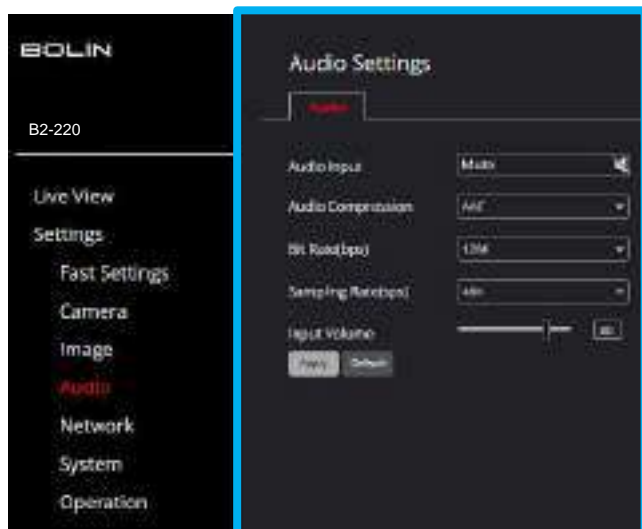


The **Lens** tab offers:

■ Different **Mode** for Auto, Manual and One Push White Balance, **Zone** settings for: All, Top, Center and Bottom of the video image, **Near Limit** adjustments (distance of 1cm, 30 cm or 1 meter) and **Sensitivity** settings to Low, Middle and High.

**Note:** The Default button resets all the settings of the camera to factory settings.  
The Pan/Tilt/Zoom/ Focus controls are available on all the Image Settings tabs.

## Settings Menu > Audio Settings



The **Audio** Settings page allows for:

**Audio Input:** Mute On/Off

**Audio Compression** setting: AAC, G711a or G711u

**Bit Rate** selection: 30K, 40K, 48K, 64K, 96K, 128K

**Sample Rate** setting: 16K, 32K, 44.1K, and 48K

**Input Volume** control: slider from 0 to 100.

**Apply** settings or reset to **Default** settings.

**Note:** When the audio compression is set to G711a or G711u, the Bit Rate is locked to 64K and Sample Rate to 8K.

## Settings Menu > Network Settings

### Network Tab

The **Network** tab allows you to set:

**Pattern:** DHCP: An IP address is dynamically assigned to the camera from the DHCP server, or Static: Manually enter an IP address.

**IP Address:** Assigned IP address or enter static IP address.

**Subnet Mask:** Based on the IP address class range.

**Default Gateway:** Gateway IP address in the network.

**Preferred DNS** (Domain Name System): DNS server IP address.

**Alternate DNS:** Alternate DNS server IP address.



## Port Tab



The **Port** tab allows you to adjust:

**TCP Port:** From 1 to 65535

**UDP Port:** From 1 to 65535

**RTSP Port:** Set to 554 by default.

RTSP is the protocol used to play video in real time over the network, like the VLC Media Player or other network video-compatible software. Changing the RTSP port number will change the way the RTSP video is viewed. Most RTSP streaming software uses port 554, therefore it is not recommended to change the port number.

**VISCA Port:** Set to 52381 by default to match Bolin's controller.

**Telnet Port:** Enable / Disable the telnet port.

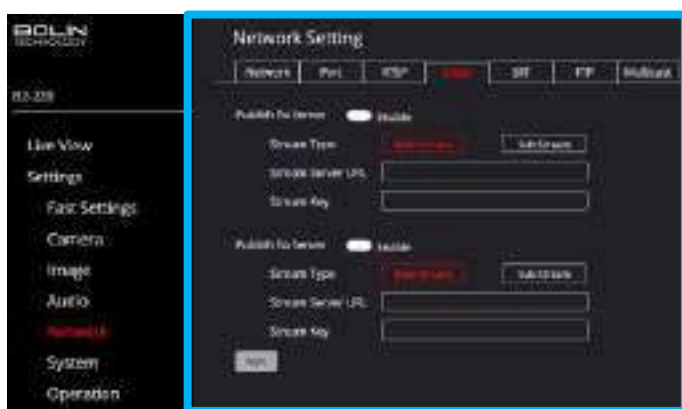
## RTSP Tab



Use the **RTSP** tab to Copy the URL streaming address of the Main or Sub Streams.

Paste the RTSP URL address in the Network Stream section of the VLC Media Player (or other video streaming software) to play video in real-time.

## RTMP Tab



Use the **RTMP** tab to stream / publish a video into a CDN (Content Delivery Network) or cloud platform.

Copy the URL stream and key # from an online platform like YouTube or Twitch, typically under Stream Settings (YouTube Studio).

**Stream Type:** Select the Main or Sub Stream.

**Server URL:** Paste the URL from the online platform.

**Push-Flow Code:** Paste the auto-generated Key, or ID from the online platform.

Two "Publish To Server" with Main and Sub Stream options are available.

**Note:** Make sure the audio is enabled before setting up RTMP streaming.



## SRT Tab

The **SRT** (Secure Reliable Transport) tab offers:

**Stream Type:** Main and Sub Stream options

**SRT Streaming:** Enable: Caller, Listener and Rendezvous selection.

**Caller:** Set the source or destination device as the initiator of the SRT streaming session. Note, Caller mode only send to one receiver.

1. The Caller device must know the IP address and port number of the Listener device.
2. Enter the **Destination IP** and **Port #** accordingly. **Stream ID** set to 1 or default and the **Latency** (between Caller and Listener) can be adjusted from 20 to 5000ms.

**Listener:** Set the device to wait for request to start an SRT streaming session. The Listener device just needs to know that it should listen to the SRT streaming on a specific port. Enter the **Port #** accordingly.

**Stream ID** set to 1 or default and the **Latency** (between Caller and Listener)

can be adjusted from 20 to 5000ms.

**Rendezvous:** Allows two devices to use the same port to start an SRT session. Both source and destination must be in Rendezvous mode. Enter the **Destination IP** and **Port #** according.

**Note:** AES **Encryption** is available for all three modes (Caller, Listener and Rendezvous) and can be adjusted to: 128,192 or 256-bit encryption to ensure end to end security (no passphrase is required).

## Multicast Tab

Select a Multicast address within the listed range and port # for the Main Stream and Second Stream.

**Note:** About RTSP, RTMP and SRT streaming protocols:

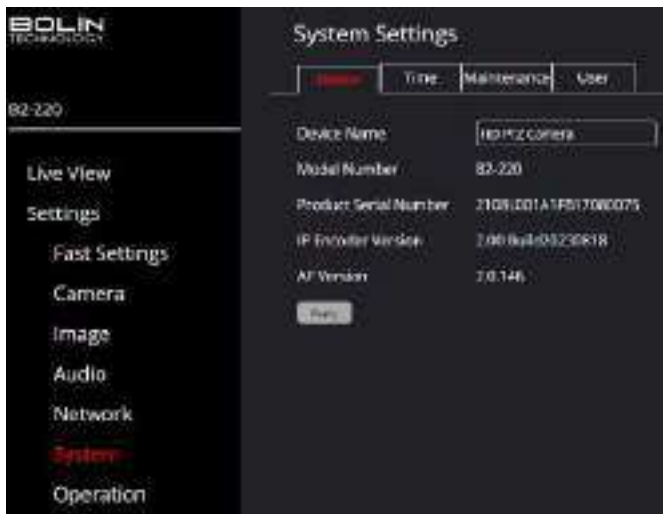
**RTSP** (Real Time Streaming Protocol): Low latency streaming of compressed audio and video with controls via VLC Media Player, or other RTSP/RTP compatible media players.

**RTMP** (Real Time Messaging Protocol): Developed by Macromedia (Flash player creator, now part of Adobe), RTMP offers reliable, low latency and flexible delivery of compressed audio, video, text, and graphic data in one package.

**SRT** (Secure Reliable Transport): Combines encryption, packet loss recovery and jitter prevention technologies to preserve video stream quality and integrity.

## Device Tab

## Settings Menu > System Settings

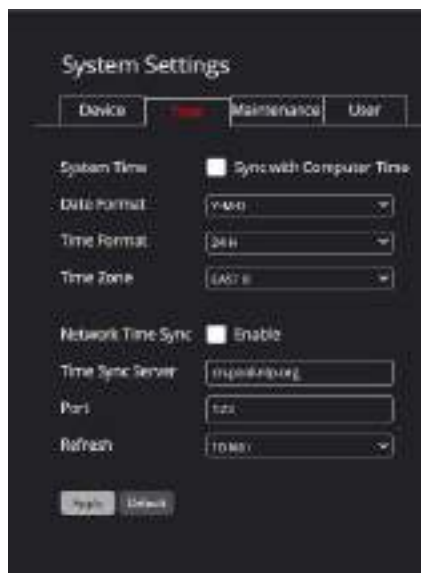


The **Device** tab displays basic information about the PTZ camera.

**Device Name:** Give the camera a custom name and click Apply.

You might be asked to provide the information from this tab to the Bolin technical team: Model #, Serial #, IP Encoder Version and AF Version.

## TimeTab



The **Time** tab allows you to set the Date and Time of the PTZ camera.

**System Time:** You can check the *Sync with Computer Time* box to sync the computer time with the PTZ camera.

**Date Format:** Y-M-D or D-M-Y

**Time Format:** 24H or 12H

**Time Zone:** 11 for West, one Middle and 8 for East time zones.

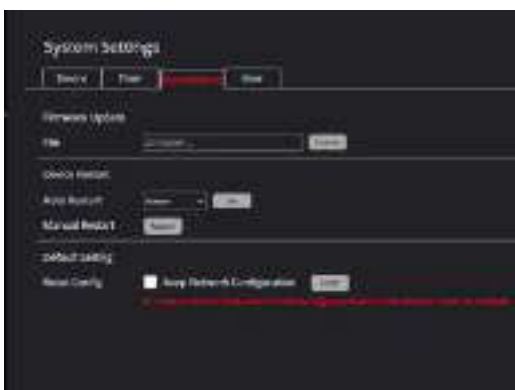
**Network Time Sync:** Check this box to input the time from a Sync Server.

**Time Sync Server:** Sync Server URL address.

**Port:** Enter a Port number.

**Refresh:** Select a refresh rate time: 10 Min, 30 Min, 1 Hour, 1 Day. Apply settings or click on Default to reset.

## Maintenance Tab



The **Maintenance** tab allows you to do the following:

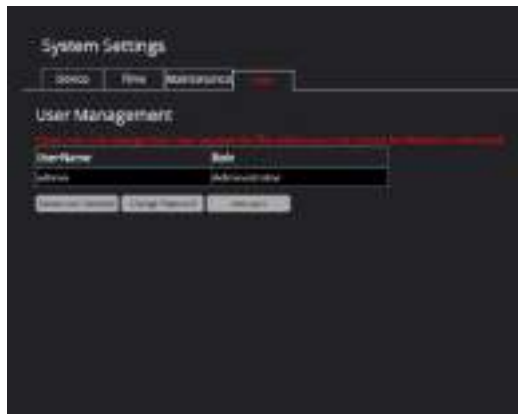
**Firmware Update:** Click on the **File Browser** section and select the Firmware file update. Click on the **Update** button to update the PTZ camera.

**Device Restart:** Schedule Auto Restart to: Never, Per day, Per week or Per month. Restart manually.

**Default Settings:** Check *Keep Network Configuration* and Reset everything else. Or, Reset all.



## User Tab



The **User** tab allows the administrator to add / delete users and change passwords.

Settings Menu > **Operation Settings**

## Log Tab



The **Log** tab let you search the action log of the PTZ camera (all actions of the camera are saved in the log).

**Start Time:** Define a starting date.

**End Time:** Define an end date.

**Event Type:** Define the event type to display:  
*All, System Operation, Settings Operation, Alarm.*

## FAQs & Support Contact Information

### Camera will not power on.

Use the supplied power adaptor or a proper rating PoE+ device. Verify wirings are properly connected and plugs are securely in place. If the camera is attached to an outlet with a power switch, please make sure the switch is on.

### Camera restarts by itself.

The camera may not be getting sufficient power. Verify that you're using the provided power supply with the camera. Verify that the camera and its power source are not set to restart at a specific time.

### Bolin IR Remote control not working.

Make sure the proper batteries are installed correctly. Verify that the correct IR ID# is selected on the IR remote. To change the IR ID #, use the SW2 Dip Switch located at the bottom of the B2-210 and B2-220 PTZ cameras. Please review this section of the user guide for details: [Dip Switch Settings Overview](#)

### Bolin controller not connecting with Bolin PTZ camera(s).

Make sure that the Bolin controller is getting sufficient power from the provided power supply or from the PoE device. If you're using VISCA Over IP, verify that the Dip Switch configuration of the camera is correct (set to VISCA Over IP). Please review: [Dip Switch Settings Overview](#)

If you are using another control protocol, verify that you're using the correct port of the PTZ camera and the right cable/adaptor with the proper pin out. Please review: [Control Protocols Cable/Adapter Overview](#)

### Having trouble connecting to the Web Interface of my Bolin PTZ camera

Make sure you're using a supported web Browser (Microsoft Edge, Safari etc.). Verify that the IP address entered on your Browser address bar doesn't have additional letters or characters. Verify that the IP address in your Browser address bar matches the PTZ camera IP address: The IP address of the PTZ camera is listed on the OSD Menu under Status > IP.

If you do not have access to the OSD Menu of your PTZ camera, download Bolin's IP Finder application from our website: [Bolin Camera IP Finder application](#). Open the IP Finder folder and click on IPCSearch (application). A list of all the connected PTZ camera(s) including the IP address will be listed in the IP Finder window.

### For any other issues

Please visit our website: [Bolin Technology - Support](#)

- Email: [support@bolintechnology.com](mailto:support@bolintechnology.com)

# Warranty

## How to submit product for warranty

Repair and Warranty services can be requested by contacting our support line. Please follow the instructions provided on our website along with any relevant information to <https://bolintechnology.com/support/>

## Warranty Disclaimer

Bolin Technology in no event shall be liable to any party or any person for cases including but not limited to the ones below, except for reasonable replacement or maintenance of Bolin products.

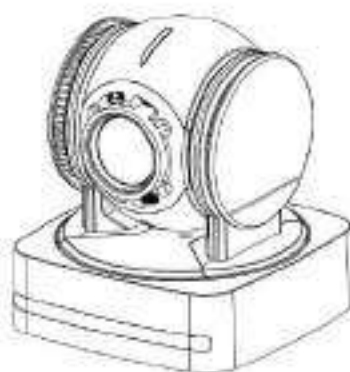
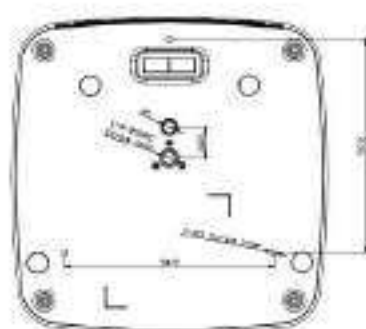
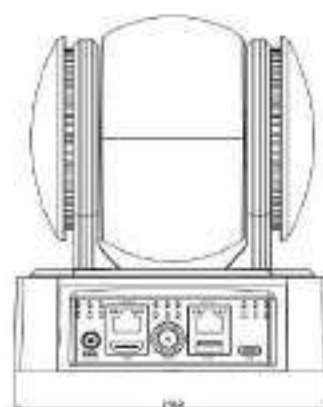
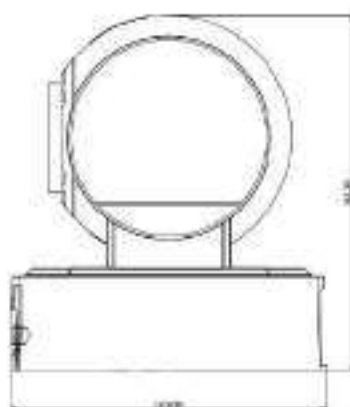
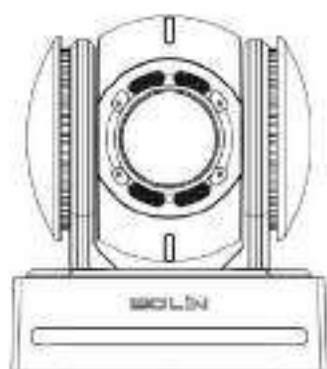
- Personal injury or any damage caused by inappropriate use or safety negligence of the user
- Unauthorized alteration, repair, disassembly, of Bolin products and accessories by the user
- Any inconvenience, loss, or damages that may arise from Bolin products when combined with third party devices
- Any damage and loss, including without limitation, direct or indirect, arising out of or relating to Bolin products
- Inconvenience or any loss arising when images are not displayed due to any reason or cause, including any failure or problem with the Bolin products
- Loss of registered information or data caused by any failure
- Any compensation, claims, demands etc. resulting from infringement of privacy by individuals or organizations whose images were shot by the user because these images (including recordings and live streams made) were made available by the user in the public domain for any reason or other or because the images ended up being used for purposes other than the one described above

## How to properly dispose electronic products

Please follow electronic equipment disposal guidelines and laws of the respectful country that the device(s) are in. It is recommended to ask a qualified contractor to dispose of the unit properly to protect the environment in accordance with national legislation.

# Dimensions

Unit: Millimeters





[www.bolintechnology.com](http://www.bolintechnology.com)

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dba

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