




## BenQ DVY22 4K AI Camera User Manual

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### DVY22 4K AI Camera User Manual

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## Important notices

This manual introduces functions, installation, and operations for the camera in detail. Please read this manual thoroughly before installation and use.

### How to use

To prevent damage to this product or any product connected to it, this product can only be used within the specified range:

1. Do not expose the camera to rain or moisture.
2. To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians.
3. Do not use the product beyond the specified temperature, humidity or power supply specifications.
4. Wipe it with a soft, dry cloth when cleaning the camera lens. Wipe it gently with a mild detergent if needed. Do not use strong or corrosive detergents to avoid scratching the lens and affecting the image.

### Electric safety

Installation and use of this product must strictly comply with local electrical safety standards.

### Handle with care

Avoid damage to the product caused by heavy pressure, strong vibration, or immersion during transportation, storage, and installation.

## Install with caution

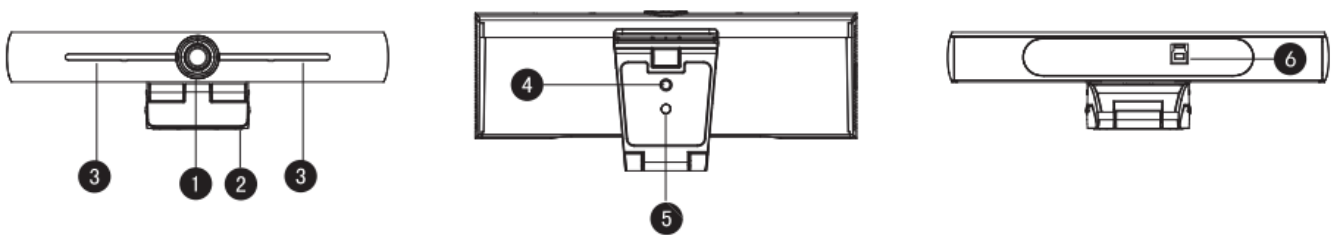
1. Do not rotate the camera head violently, otherwise, it may cause mechanical failure.
2. This product should be placed on a stable desktop or another horizontal surface. Do not install the product obliquely, otherwise, it may display inclined images.
3. If the camera is installed on a display, the base can be fixed by four double-sided adhesive trays.
4. The housing of this product is made of organic materials. Do not expose it to any liquid, gas or solids which may corrode the shell.
5. Ensure there are no obstacles within the rotation range of the holder.
6. Do not power on before complete installation.

## Do not disassemble the product without permission

This product contains no parts which can be maintained by users themselves. Any damage caused by dismantling the product by the user without permission is not covered by warranty.

## Installation instructions

### Product interface



No.	Name
1	Camera lens
2	Bracket
3	Built-in MIC
4	Tripod fixing hole
5	Positioning hole
6	USB 3.0 output interface

### Camera operation

1. Product installation: Fix the device on top of the display; directly put it on a desk or on tripod mounting and wall mount.
2. Connect the camera via USB cable to the display, video conference terminal, or other USB input device, log in to the video conference software and select a video device to have image output.

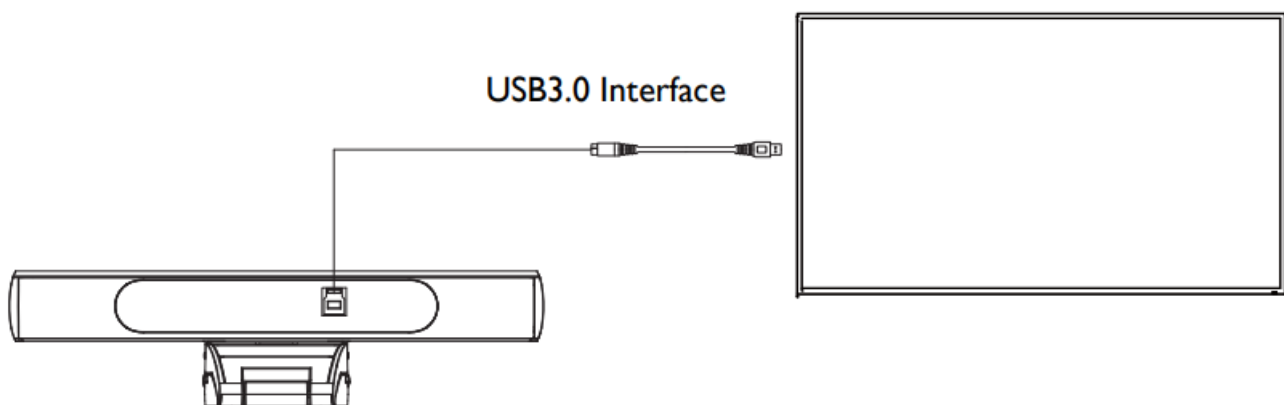
### Features

This product is a new 4K ePTZ video conference camera. It is built with AI functions, which can automatically frame all people in the meeting and make them at the middle of the scene. It also has perfect functions and superior performance, which adopts advanced ISP processing algorithms so as to provide vivid images with evenly clear brightness, strong color layering, high resolution, and fantastic color rendition. Easy and convenient to install and maintain, stable and reliable.

- 4K: It employs a 1/2.5 inch, 8 million pixels high-quality CMOS sensor; supports 4K; provides 4K@ 30fps MJPG video resolution at most, and provides clear video and vivid expressions and movements. At the same time, it is compatible with 1080p and 720p resolutions.
- EPTZ: EPTZ and 4X digital Zoom
- Built-in omnidirectional microphone: Includes 2 built-in omnidirectional microphones, (all-around omnidirectional microphones). An antique noise suppression algorithm ensures your voice will be perfect. The effective omnidirectional microphone distance is up to 5 meters.
- Dual-stream output: The USB 3.0 port supports mainstream and sub-stream output at the same time.
- Auto framing: With an excellent facial detection algorithm, automatically adjust the zoom according to the number of people in the meeting. It can frame all the meeting people and make them shown in the scene.
- Wide view angle without distortion: 120° super wide view angle lens for options
- Low noise and high SNR: Low Noise CMOS effectively ensures high SNR of video. The image is still clear even under low light conditions.
- Multiple installations: Standard equipped with mold clamp. Easy to install on any device.
- Easy to use: No need to download driver; USB plug and play.
- Wide applications: Personal video conferencing, enterprise video conferencing, unified collaboration and etc.

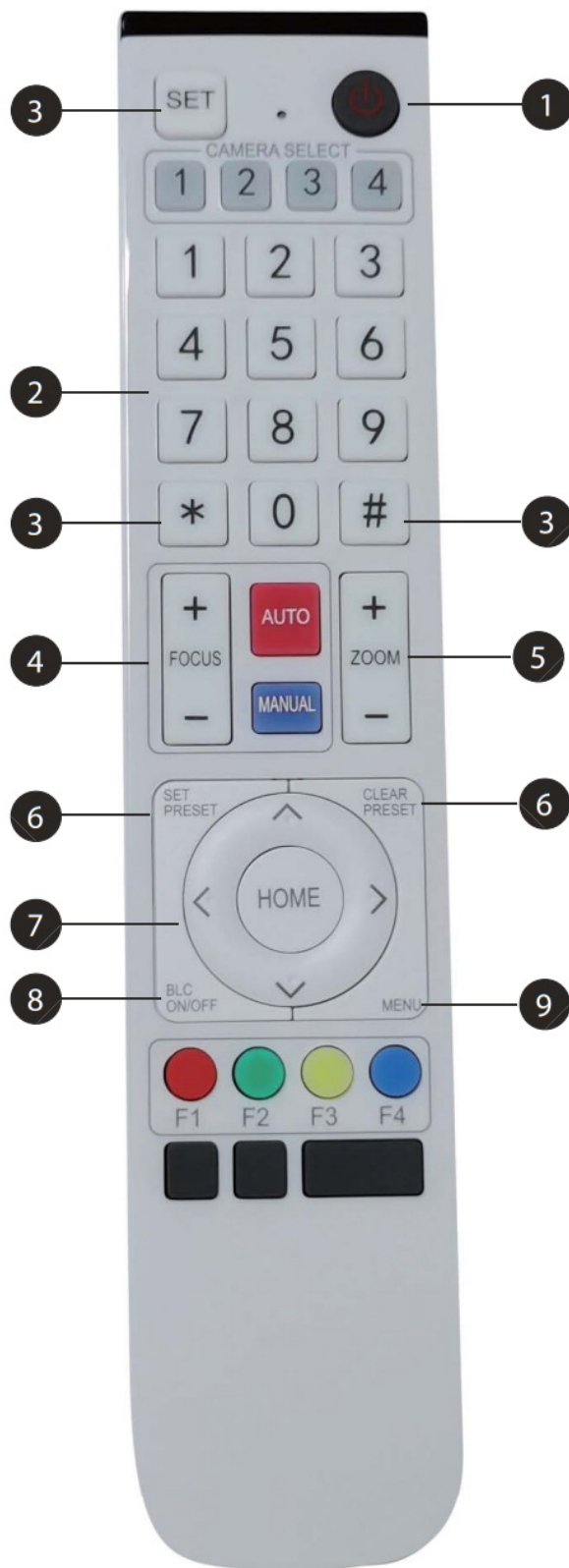
### Interface instruction

The interface illustration is shown below.



### Application instructions

#### Remote control



### 1. Standby Key

- After a long press for three seconds, the camera will be in standby mode.
- Long press for three seconds again, and the camera will self-test again and back to the HOME position.

Note: If preset 0 is set and there is no operation within 12 seconds, the camera head will automatically point to the specified preset 0 positions.

### 2. Number Key

Set or call 0-9 presets.

### 3. \*, # Key

Key combination use

- Long press “SET” + “\*” at the same time for five seconds. When the light of the wireless remote control is on, release your hands. Power on the camera again, then it will successfully pair with the wireless remote control.
- Long Press “SET” + “#” at the same time for five seconds. When the light of the wireless remote control is on, release your hands. Power on the camera again, then it will cancel the pairing with the wireless remote control.

#### 4. **Focus Control Key**

Auto Focus: Enter into autofocus mode.

Manual Focus: The camera focus mode is manual.

Switch the camera focus mode to manual focus by pressing [focus +] or [focus -] to adjust.

#### 5. **Zoom Control Key**

Zoom+: Lens near

Zoom-: Lens far

#### 6. **Set or Clear Preset key**

Set Preset: Set preset key + 0-9 number key Clear Preset key: Clear preset key + 0-9 number key.

#### 7. **Electronic Pan/Tilt Control Key**

Press Key: 

Press Key: 

Press Key: 

Press Key: 

“HOME” Key: Return to the middle position or enter into the sub-menu.

#### 8. **BLC Control Key**

Back Light ON/OFF: Turn on or off the backlight

#### 9. **Menu Setting**

Open or close the OSD menu

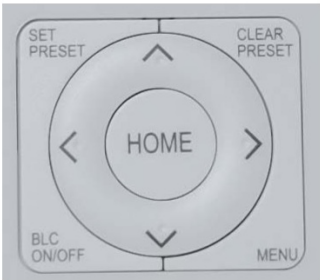
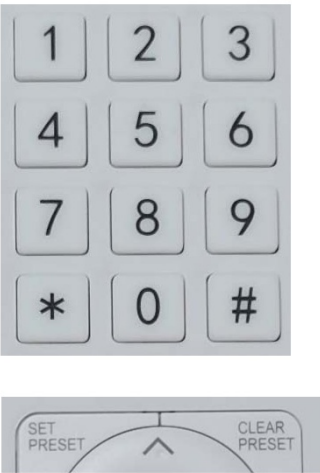
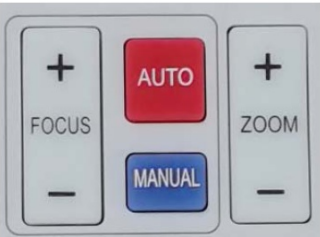
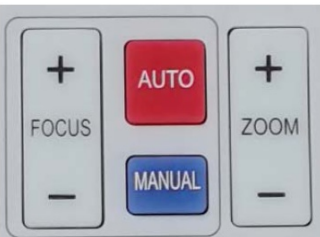
Enter/exit the OSD menu or return to the previous menu

### **Applications**

Power on the camera, then press the “SET” and “\*” keys at the same time for five seconds. The indicator light will be on. Then release the button and power on the camera again when the light is flashing. The pairing process will be done when the indicator light stops flashing. Users can control the pan/tilt/zoom, and set and call preset positions via the wireless remote control.

### **Key instructions**

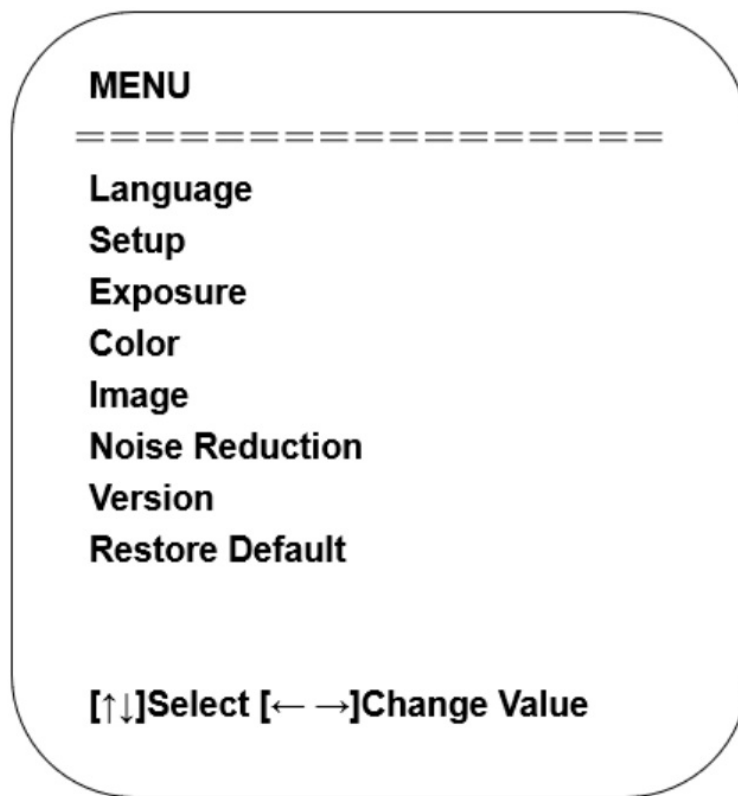
1. In this instruction, “press the key” means a click rather than a long-press, and a special note will be given if a long-press for more than one second is required.
2. When a key combination is required, do it in sequence. For example, “\* + # + F1” means press “\*” first and then press “#” and last press “F1”.

Items	Instruction
<p>1. Pan/Tilt Control</p>  <ul style="list-style-type: none"> <li>• Press ▲ / ▼ / ◀ / ▶</li> <li>• Press “HOME” to go back to the middle position</li> <li>• Press and hold the ▲ / ▼ / ◀ / ▶ key, and the pan/tilt will keep running, from slow to fast, until it runs to the endpoint; the pan/tilt running stops as soon as the key is released.</li> </ul>	
<p>2. Presets</p>  <ul style="list-style-type: none"> <li>• Preset setting: To set a preset position, the users should press the “SET PRESET” key first and then press the number key 0-9 to set a relative preset. Note: 10 preset positions in total are available by the remote control.</li> <li>• Preset calling: Press a number key 0-9 directly to call a relative preset. Note: Action in vain if a relative preset position does not exist.</li> <li>• Preset clearing: To clear a preset position, the user can press the “CLEAR PRESET” key first and then press the number key 0-9 to clear the relative preset. Note: Press the “#” key three times continually to cancel all the presets.</li> </ul>	
<p>3. Zoom Control</p>  <p>ZOOM IN: Press the “ZOOM +” key ZOOM OUT: Press the “ZOOM -” key Press and hold the key, the camera will keep zooming in or out and stops as soon as the key is released.</p>	
<p>4. Focus Control</p>  <p>Focus (near): Press the “focus +” key (Valid only in manual focus mode) Focus (far): Press the “focus -” key (Valid only in manual focus mode) Auto Focus/Manual Focus: Yes Press and hold the key, then the action of focus will continue and stops as soon as the key is released.</p>	

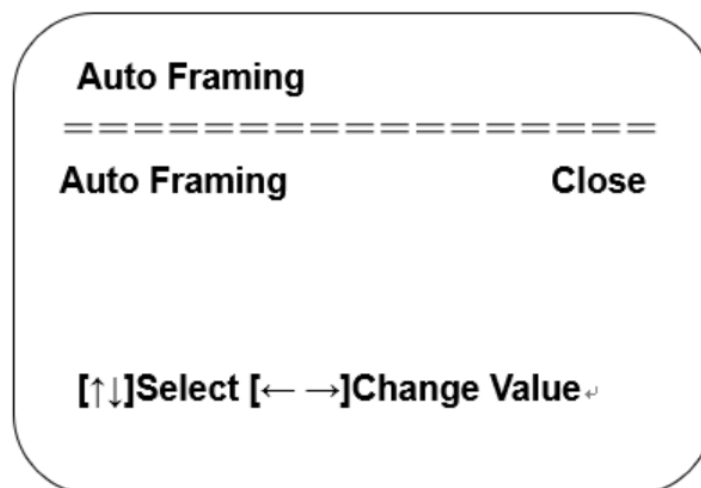
## Menu settings

### Main Menu

To use MJPG/H.264/H.265 compression, press the MENU key to display the menu and use the scroll arrow to point at or highlight the selected items.

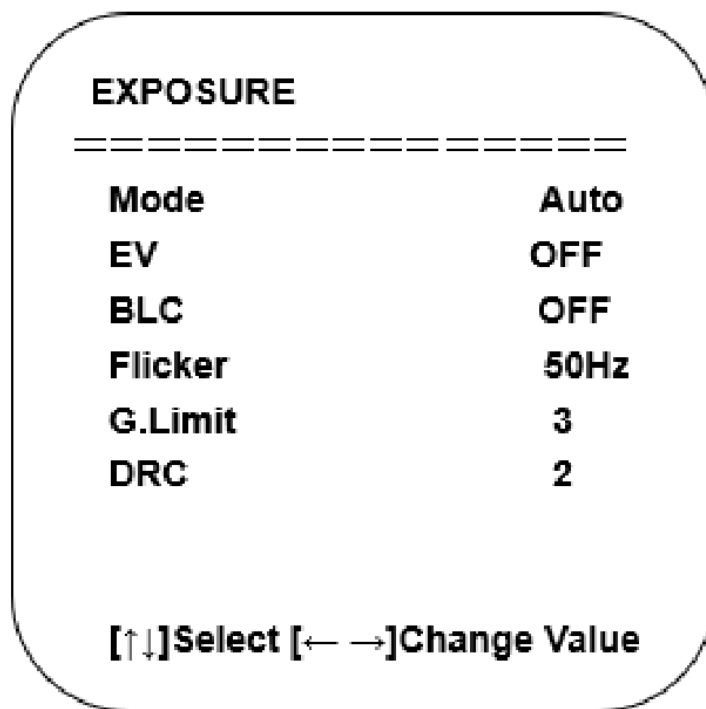


1. Language Setting: Press ◀/▶ key to select a language.
2. Setup
  - Image style: Options are Default, Meeting, Clarity, Bright, Soft. Press ◀/▶ key to select a style.
  - Dual Stream: Move the pointer to Dual Stream in the Menu, click ◀/▶ keys to set ON/OFF.
  - Auto Framing: Move the pointer to Auto Framing in the Menu, click ◀/▶ keys to set Open 1~7 or Close.



3. Exposure Setting: Move the pointer to EXPOSURE in the Main Menu, click “HOME” and enter the (EXPOSURE SET) as follows:





No.	Name	Descriptions
1	<b>Mode</b>	Auto, Manual, Shutter priority, Iris priority and Brightness priority.
2	<b>EV</b>	On/Off (only available in auto mode)
3	<b>Compensation Level</b>	-7~7 (only available in auto mode when EV is ON)
4	<b>BLC</b>	ON/OFF for options (only available in auto mode) Dynamic range: adjustable items 1~ 8, close
5	<b>Anti-Flicker</b>	OFF/50Hz/60Hz for options (only available in Auto/ Iris priority/Brightness priority modes)
6	<b>Gain Limit</b>	0~15 (only available in Auto/Iris priority/Brightness priority mode)
7	<b>DRC</b>	Close, 1~8

4. Color Setting: Move the pointer to COLOR in the Main Menu, click “HOME” and enter the (COLOR SET) as follows:

**COLOR**

=====

<b>WB Mode</b>	<b>Auto</b>
<b>RG Tuning</b>	<b>0</b>
<b>BG Tuning</b>	<b>0</b>
<b>Saturation</b>	<b>100%</b>
<b>Hue</b>	<b>7</b>
<b>AWB Sensitivity</b>	<b>High</b>

[↑↓]Select   [← →]Change Value

No.	Name	Descriptions
1	WB Mode	Auto, Manual, One Push, 3, VAR
2	RG Tuning	-10~10
3	BG Tuning	-10~10
4	Red Gain	0~255 (only available in Manual mode)
5	Blue Gain	0~255 (only available in Manual mode)
6	Color Temp	2400K to 7100K, with adjustable pitch every 100K
7	Saturation	60%, 70%, 80%, 90%, 100%, 110%, 120%,130%, 140%,150 %, 160%, 170%, 180%, 190%, 200%
8	Hue	0~14
9	AWB Sensitivity	High/Middle/Low (only available in Manual mode)

5. Image Setting: Move the pointer to IMAGE in the Menu, click “HOME” and enter the (IMAGE) as follows:

### IMAGE

=====

Brightness	7
Contrast	7
Sharpness	4
Flip-H	OFF
Flip-V	OFF
B&W-Mode	Color
Gamma	Default
DCI	Close
Low-Light Mode	Close

[↑↓]Select [← →]Change Value

No.	Name	Descriptions
1	Brightness	0~14
2	Contrast	0~14
3	Sharpness	0~15
4	Flip-H	On/Off
5	Flip-V	On/Off
6	B&W Mode	Color, Black/White
7	Gamma	Default, 0.45, 0.50, 0.55, 0.63
8	DCI	Dynamic Contrast: Off, 1~8
9	Low-Light Mode	Close/Open

6. Noise Reduction Setting: Move the pointer to NOISE REDUCTION in the Menu, click “HOME” and enter the (NOISE REDUCTION) as follows:

### NOISE REDUCTION

=====

NR-2D	2
NR-3D	5
Dynamic Hot Pixel	OFF

[↑↓]Select [← →]Change Value

No.	Name	Descriptions
1	2D Noise Reduction	Auto, close, 1~7
2	3D Noise Reduction	Close, 1~8
3	Dynamic Hot Pixel	Close, 1~5

7. Version: Move the pointer to VERSION.

**VERSION**
  
=====
   
**Cam Version            1.0.0 2019-7-31**
  
  
**[↑↓]Select [← →]Change Value**

8. Restore Default: Move the pointer to RESTORE DEFAULT in the Main Menu, click “HOME” and enter RESTORE DEFAULT as below:

**RESTORE DEFAULT**
  
=====
   
**Restore    Default?            NO**
  
  
**[↑↓]Select    [← →]Change Value**

**Yes/No for options (the video format and color style won't be restored).**



If the address of the former remoter is not 1 but another one from 2,3,4, the corresponding camera address will restore to 1 when all parameters or system parameters are restored. Users should change the remoter address to be 1 (press No.1 according to the camera so to get normal operation).

## Product Information

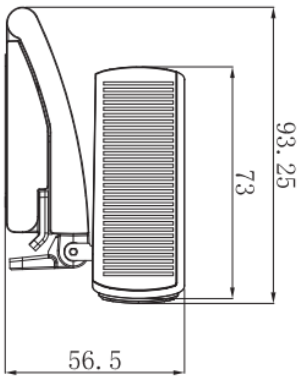
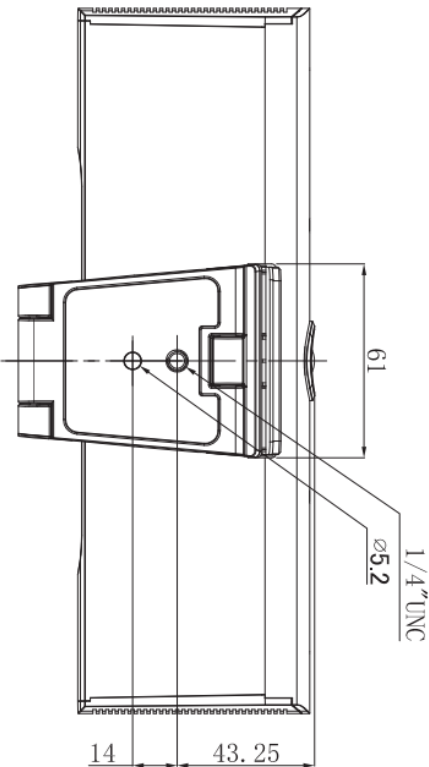
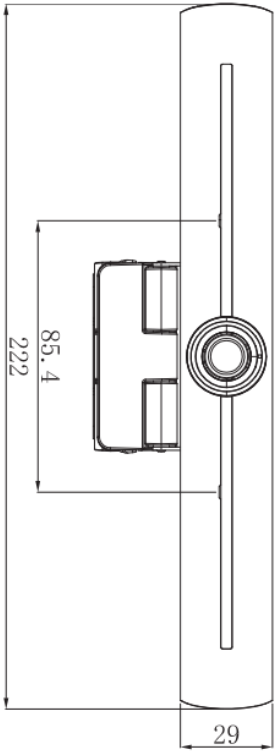
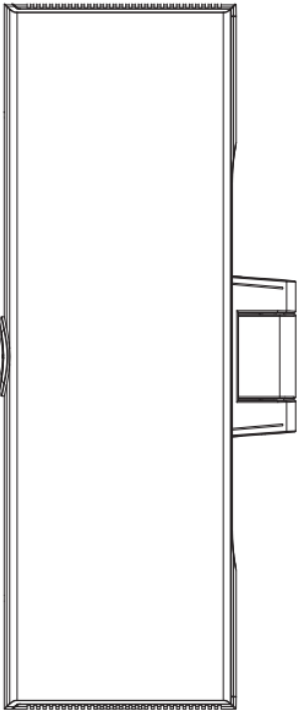
### Specifications

Item		Specifications
		DVY22
Camera Parameter	Image sensor	1/2.5 Inch High Quality 4K CMOS Sensor
	Effective pixels	8.28MP 16:9
	Video output port	1 x USB 3.0, Type B, support audio output over USB 3.0
	Audio input	2 built-in omnidirectional microphones
	View angle	126°(D)/120°(H)/85°(V)
	Video format	Main stream: 3840×2160@30fps, 1920x1080P@30fps/25fps, 1280x720P@30fps/ 25fps, etc. Sub-stream: 1280x720P@30fps/25fps, 640x480P@30fps/25fps, 320x172P@30fps/ 25fps, etc.
	Min illumination	0.1Lux (F1.8, AGC ON)
	Lens	f=2.72mm
	Aperture	F2.5
	Digital zoom	4X
	DNR	2D & 3D DNR
	Ultra-low illumination	On/off
	White balance	Auto / Manual/ One Push/ 3000K/ 3500K/ 4000K/ 4500K/ 5000K/ 5500K/ 6000K/ 6500K/ 7000K
	Focus	Auto/Manual
	Exposure	Auto/Manual

	Auto framing	On/off/sensitivity
	Backlight compensation	On/off
	Dual-stream	On/off
	SNR	>55dB
<b>USB Feature</b>	Operation Systems	Windows 7 (1080p at the most), Windows 8.1, Windows 10; macOS" 10.10 or higher, Linux (Require to support UVC.)
	Video Compression format	YUY2, MJPG, H.264, H.265
	Audio over USB 3.0	Support
	USB communication	UVC, VC, UAC
	PTZ control	Support EPTZ
	Hardware requirement	2.4 GHz Intel@ Core 2 Duo processor or higher, 2GB RAM or more, USB 2.0 /USB3.0 port (USB 3.0 is needed for 4K)
<b>Other Parameters</b>	Input voltage	5V
	Input current	1A(Max.)
	Power consumption	5W(Max.)
	Store temperature	-10°C – 60°C
	Store humidity	20°C – 90°C
	Working temperature	-10°C – 50°C
	Working humidity	20°C – 80°C
	Dimensions (W*H*D)	222mm x 93.25mm x 56.5mm
	Weight	0.53kg
	Application	Indoor

<b>Accessories</b>	Wireless remote control	1 piece
	USB 3.0 cable	1 piece

Dimensions



## Maintenance and troubleshooting


### Maintenance

1. Please disconnect the camera if it is not used for a long time.
2. Use a soft cloth or tissue to clean the camera cover.
3. Wipe it with a soft, dry cloth when cleaning the camera lens. Wipe it gently with a mild detergent if needed. Do not use strong or corrosive detergents to avoid scratching the lens and affecting the image.

### Troubleshooting

1. No video output
  - Check whether the USB cable is well connected and the power indicator light is ON.
  - Check whether the machine could do a self-check after being restarted.
  - Restart the display.
  - Check whether the camera is well recognized by the display.
2. No image: Check the USB cable quality and whether it is well connected.
3. Image dithering when zoom-in or zoom-out
  - Check whether the camera installation position is solid.
  - Check whether there is a shaking machine or object around the camera.
4. The remote control cannot work
  - Pair the camera with the wireless remote control again.
  - Set the camera address to 1 (The camera address would be back to 1 after restoring to the default setting).
  - Check whether the battery is low or is properly installed on the remote control.
  - Check whether the camera working mode is the normal operating mode.
  - Exit the menu; the menu is only displayed under MJPG/H.264/H.265 compression format.

## Documents / Resources

	<p><a href="#">BenQ DVY22 4K AI Camera</a> [pdf] User Manual DVY22 4K AI Camera, 4K AI Camera, Camera</p>
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