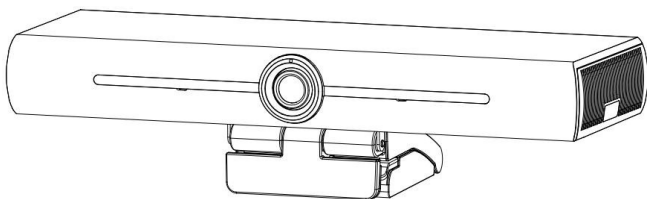


AI 4K UHD Video Conference Camera



HV-45 User Manual



ATTENTION

This manual introduces functions, installation and operations for the camera in details. 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.

Do not expose the product to rain or moisture.

To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians.

Do not use the product beyond the specified temperature, humidity or power supply specifications.

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;

Electrical Safety

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

Handle with Care

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

Install with Caution

Do not rotate the camera head violently, otherwise it may cause mechanical failure;

This product should be placed on a stable desktop or other horizontal surface. Do not install the product obliquely, otherwise it may display inclined image;

If the camera is installed on TV or computer, the base can be fixed by four double-sided adhesive trays.

Housing of this product is made of organic materials. Do not expose it to any liquid, gas or solids which may corrode the shell.

Ensure there are no obstacles within rotation range of the holder. 6). Do not power on before completely 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 user without permission is not covered by warranty.

Magnetic Interference

Electromagnetic fields at specific frequencies may affect the image. This product is Class A. It may cause radio interference in household application. Appropriate measure is required.



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1. Fast Installation

1.1 Camera Interfaces

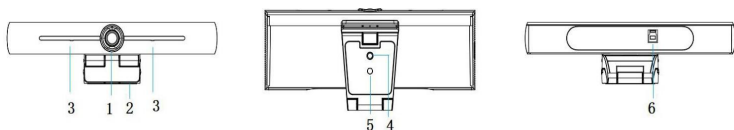


Figure 1.1 Product Interfaces

1. Camera lens
2. Bracket

3. Built-in MIC
4. Tripod fixing hole

5. Positioning hole
6. USB 3.0 interface

1.2 Camera Operation

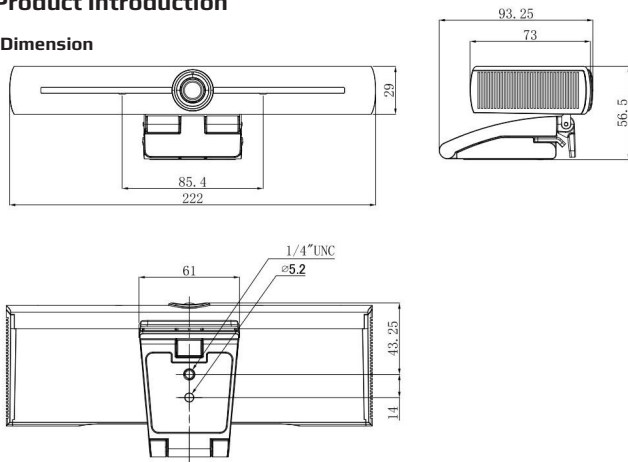
- 1) Product Installation: Fix the device on LCD screen, top of computer; directly put it on desk or on tripod mounting.
- 2) Connect camera via USB cable to computer, video conference terminal or other USB input device, log in the video conference software and select a video device to have image output.



2. Product Overview

2.1 Product Introduction

2.1.1 Dimension



2.1.2 Accessories

Figure 2.2 Camera Dimensions

Check and confirm all accessories are provided as listed in sheet 2.1.

Accessories	User manual 1
	Wireless remote controller 1 piece
	USB 3.0 cable 1 piece
	Warranty card 1 piece
	Packing list

Sheet 2.1 Product accessories

2.2 Main Features

This product is a new 4K UHD 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 UHD:** It employs 1/2.8 inch, 8 million pixels high quality CMOS sensor; supports 4K UHD; provides 3840X2160@30fps video resolution at most; and provides clear UHD video and vivid expressions and movements. At the same time, it is compatible with 1080p and 720p resolution.
- **ePTZ:** ePTZ and 10X digital Zoom;
- **Built-in pickup:** Includes 2 built-in pickups, all-round pickup. Antique noise suppression algorithm ensures your voice be perfect. The effective pickup distance is up to 6 meters.
- **Auto Framing:** With excellent human recognition 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 middle of the scene.
- **Wide view angle without distortion:** 83°/ 100°/120° super wide view angle lens for options
- **Low Noise and High SNR:** Low Noise CMOS effectively ensures high SNR of video. Image is still clear even under low light condition.
- **Multiple Audio/Video Compression Standard:** Supports H.264, MJPG, YUY2, NV12 video compression, to made video play smoothly.
- **Low Noise and High SNR:** Super high SNR image is achieved with low noise CMOS. Even in the case of ultra-low illumination, the picture remains clean and clear.
- **Multiple Installations:** Standard equipped with mold clamp. Easy to install on any devices, such as LCD screen, PC, table and tripod.
- **Easy to Use:** No need to download driver; USB Plug and play.
- **Wide Applications:** Personal video conferencing, enterprise video conferencing unified collaboration and etc.

Video output interface: video output interface USB 3.0;

Multiple audio and video compression standards: support YUY2, NV12, MJPG, H264 video compression



2.3 Technical Parameters

Model	HV-45-SG-1		HV-45-SG-2	HV-45-SG-3
Camera Parameters				
Image Sensor	1/2.8 inch High Quality 4K CMOS Sensor			
Effective Pixels	8.28MP 16:9			
Video output port	1* USB3.0, Type B, support audio output over USB3.0			
Audio input	2*Built-in MIC pickup			
View Angle	95° D /83°(H)/46°(V)	115° D /100°(H)/56°(V)	138° D /120°(H)/68°(V)	
Video Format	MJPG 3840*2160/2560*1440/1920*1080/1600*896 /1280*720 /1024*576 /960*540 /800*600 /800*448 /720*576/720*480 /640*480 /640*360 /480*270 /352*288 /320*240@30/25/20/15/10/5fps; H264 3840*2160 /2560*1440 /1920*1080 /1600*896 /1280*720 /1024*576 /960*540 /800*600 /800*448 /720*576/720*480 /640*480 /640*360 /480*270 /352*288 /320*240@30/25/20/15/10/5fp; YUY2 1920*1080 /1280*720 /1024*576 /800*600 /800*448 /640*480 /640*360 /480*270 /320*180@30/25/20/15/10/5fp; NV12 1920*1080 /1280*720 /1024*576 /800*600 /800*448 /640*480 /640*360 /480*270 /320*180@30/25/20/15/10/5fp;			
Minimum Illumination	0.1Lux (F1.8, AGC ON)			
Lens	f=3.24mm	f=2.26mm	f=1.89mm	
Aperture	F2.1	F1.8±5%	F2.0±5%	
Digital Zoom	10X			
Min Illumination	0.1Lux(F1.8, AGC ON)			
White Balance	Auto / Manual/ One push/ Specific Temperature			



Focus	Fixed
Exposure	Auto / Manual/SAE/Bright
Auto framing	On/Off/Sensitivity
Backlight compensation	On/Off
Dual Stream	On/Off
SNR	≥50dB
USB Feature	
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 NV12 MJPG H264
Audio over USB 3.0	Support
USB Communication Protocol	UVC, 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 (4K is required for USB3.0)
Other Parameters	
Input Voltage	5V
Input Current	1A(max)
Power Consumption	5W(max)
Stored Temperature	-10 C° ~ +60 C°
Stored Humidity	20% ~ 90%
Working Temperature	-10 C° ~ +50 C°
Working Humidity	20% ~ 80%



Dimension	222mm×93.25mm×56.5mm
Weight	Around 0.53kg
Application	Indoor
Accessory	User Manual; Warranty card, remote controller, USB3.0 cable, packing list

2.4 Interfaces Instruction

2.4.1 External Interface

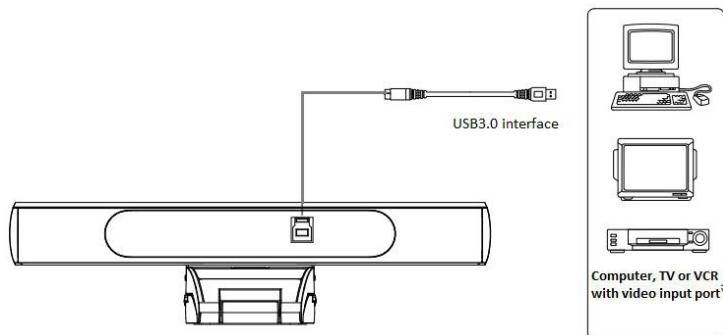


Figure 2.4 Wiring Diagram

3. Application Instruction

3.1 Remote Controller



3.1.1 Keys Instruction

1. Indicator light

2. Standby Key

Press button once to enter the standby mode, and press it again to restart the output video.

3. Menu

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

4. ePTZ



keys control the electronic pan/tilt to move up and down, left and right, and the menu can be adjusted up and down, left and right.

(OK) : Press (OK) to return to the HOME position or enter the next menu.

5. Number Keys

Set or call 1-3 presets

Note: Short press 1 second to call out the presets

Press and hold 3 seconds to set the presets

Press and hold 5 seconds to clear the presets

6. Focus Control Key (this Camera not support)

Auto Focus: Enter into auto focus mode.

Manual Focus: The camera focus mode is manual

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

7. Auto Framing

Auto Framing Press  to turn on/off the Auto Framing Function



3.1.2 Applications

Pairing: When the remote control is powered on, press the “Zoom In” + “Zoom Out” button simultaneously within 30cm of the camera, release the button after the LED flashes for 3 seconds, enter the pairing mode, the pairing is successful, the LED lights up for 2 seconds and then goes out. At this time, preset position setting/calling, zooming, electronic PTZ control, Auto Framing on/off and other operations can be performed through the infrared remote control.

Key Instruction:

The button method mentioned in this manual refers to the two actions of pressing and releasing the buttons on the remote controller. For example, “pressing the [OK] key” refers to the action of pressing the [OK] key and then releasing it. If you need to press the key for a long time, it will be specially explained in the manual.

- | |
|--|
| 1. Red light keep on: Send command |
| 2. Light off: Not sending command |
| 3. Flashing light: slow: not pairing fast: pairing |

1. Indicator Light



2. Stand-by and menu setting

	Turn On/Off image
	Call OSD menu

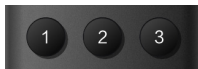


3. ePTZ

Move up ▲	Move down ▼
Move left ◀	Move right ▶
 : Back to home or confirm	
Long press the up, down, left, and right buttons, and it will continue to rotate from slow to fast until it reaches the end of the stroke; release it in the middle to stop the rotation.	



4. Set, call, clear, preset



Number keys: 1, 2, 3

1. Save the preset position: long press (within 3s-5s) one of the number keys 1 to 3 to preset a preset position corresponding to the number key.

2. Calling the preset position: directly press the number keys 1 to 3 to call the saved preset position.

3. Delete preset position: long press (5s) one of the number keys 1 to 3 to delete a preset position corresponding to the number key.

Note: If the number key is not preset, it is invalid

5, Zoom Control

 Zoom in

 Zoom Out

Long press keys to keep zoom in/out

Combined press  and  for 3 seconds and release button when LED flashing to enter pairing mode. When pairing is completed, the LED will be off after flashing 2 seconds



6, Auto Framing

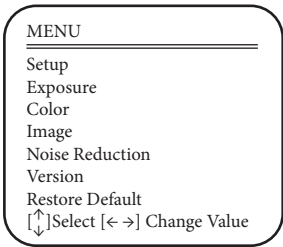
Turn on/off auto framing function



3.2 Menu Introduction

3.2.1 Main Menu

Press the [MENU] key, the menu content will be displayed on the screen, and use the scroll arrow to point to the selected item



```

MENU
-----
Setup
Exposure
Color
Image
Noise Reduction
Version
Restore Default
[↑↓]Select [←→] Change Value
  
```

3.2.2 Setting

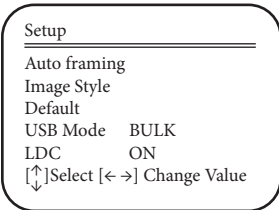
Move the pointer to (Settings) in the main menu, and press the [HOME] key to enter the exposure page, as shown in the figure below.

Style options: default/normal /clarity/bright/soft

Auto Framing: Auto Framing on/off

USB mode: BULK, ISOC

LDC: On/Off (This function only available in lens2)



```

Setup
-----
Auto framing
Image Style
Default
USB Mode    BULK
LDC         ON
[↑↓]Select [←→] Change Value
  
```

3.2.3 Exposure

In the main menu, move the pointer to (Exposure), and press the [HOME] key to enter the exposure page, as shown in the figure below.

Mode: Auto, Manual, SAE, Bright .

EV: On/Off (only available in auto mode)

Compensation Level: -7~7 (only available in auto mode when EV is ON)

BLC: ON/OFF for options (only available in auto mode)

Anti-Flicker: OFF/50Hz/60Hz for options (only available in Auto/ Bright modes)

Gain Limit: 0~15(only available in Auto /Bright mode)

DRC: Off,1~8

SAE: 1/30, 1/50, 1/60, 1/90, 1/100, 1/120, 1/180, 1/250, 1/350, 1/500, 1/1000, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000(only available in Bright mode)

Bright: 0~23 (only available in Bright mode)

EXPOSURE

Mode	Auto
EV	OFF
BLC	OFF
Flicker	50Hz
GLimit	6
DRC	3

[↑↓]Select [← →] Change Value

3.2.4. Color Setting

Move the pointer to COLOR in the Main Menu, click the **HOME** and enter the (COLOR SET) as follows:

WB Mode: automatic, manual, Onepush, VAR

Saturation: 0~50

RG Tuning: -10~10 (valid only in automatic mode)

BG Tuning: -10~10 (valid only in automatic mode)

Red gain: 0~255 (valid only in manual mode)

Blue gain: 0~255 (valid only in manual mode)

AWB Sensitivity: high, medium, low (valid only in auto mode)

Hue: settable items: 0~8

COLOR

WBModeAuto

RG Tuning0

BG Tuning0

Saturation30

Hue4

A WB sensitivity High[↑↓]

Select [← →] Change Value

3.2.5 Image Setting

Move the pointer to IMAGE in the Menu, click the **HOME** and enter the (IMAGE) as follows:

Brightness: 0~100

Contrast: 0~100

Sharpness: 0~15

Flip-H: On/Off

Flip-V: On/Off

B&W Mode: color, black/white

Gamma: default, 0.34 0.39 0.47 0.50

Low light mode: Close/Open

IMAGE

Brightness

Contrast

Sharpness

Flip-H

Flip-V

B&W Mode

Gamma

Low-Light Mode

A WB sensitivity High[]

Select [← →] Change Value

3.2.6 Noise Reduction

Move the pointer to FOCUS in the Menu, click the NOISE REDUCTION and enter the (NOISE REDUCTION) as follows:

2D noise reduction: auto, off, 1~7

3D noise reduction: off, 1~8

NOISE

NR-2D OFF

NR-3D 4

[↑↓]Select [←→] Change Value

3.2.7 Version

Move the pointer to VERSION

VERSION

Cam Version 1.0.3 2021-08-11

[↑↓]Select [←→] Change Value

3.2.8 Restore Default

Move the pointer to RESTORE DEFAULT in the Main Menu, click **HOME** and enter RESTORE DEFAULT as below:

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

Note: If the address of 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. User should change the remoter address to be 1 (press No.1 according to the camera so to get normal operation)

RESTORE DEFAULT

Restore Default? NO

[↑↓]Select [←→] Change Value



4. Maintenance and Troubleshooting

4.1 Camera Maintenance

- 1) Please disconnect the camera if it is not used for a long time.
- 2) Use 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;

4.2 Troubleshooting

1) No video output

- a. Check whether USB cable connected well and power indicator light is ON.
- b. Whether the machine could do self-check after restarted.
- c. Restart the computer to check whether it is normal
- d. Check whether the video output cable or video display is normal
- f. Check whether the camera is well recognized by PC

2) No image sometimes

- a. Check whether USB cable connected well and power indicator light is ON.
- b. Whether the machine could do self-check after restarted.
- c. Restart PC
- d. Check whether the camera is well recognized by PC

3) Image dithering when zoom-in or zoom-out

- a. Check whether the camera installation position is solid
- b. Whether there is shaking machine or objects around the camera

4) Remote Controller cannot work

- a. Re-match the camera and the wireless remote controller
- b. Set the camera address to 1
(The camera address would be back to 1 after restore default setting)
- c. Check whether the battery is installed on the remote controller or low .
- d. Check the camera working mode is the normal operating mode
(see Table 2.2 and Table 2.3)
- e. Exit the menu, the menu only displayed under MJPG/H.264/H.265 compression format.



5. Compliance statement

This device complies with the related CE standards.

6. Product disposal

Safety

For your own safety, this product should only be used with CE and RoHS approved equipment. Using this headset with non-approved equipment would void the warranty of this product.

Disposal of your product

Municipal waste stream. Old appliances must be collected separately in order to optimise the recovery and recycling of the materials to reduce the impact on human health and the environment. The crossed out “wheeled bin” symbol on the product reminds you of your obligation that when you dispose of the appliance, it must be separately collected. Consumers should contact their local authority or retailer for information concerning the correct disposal of their old appliance.

