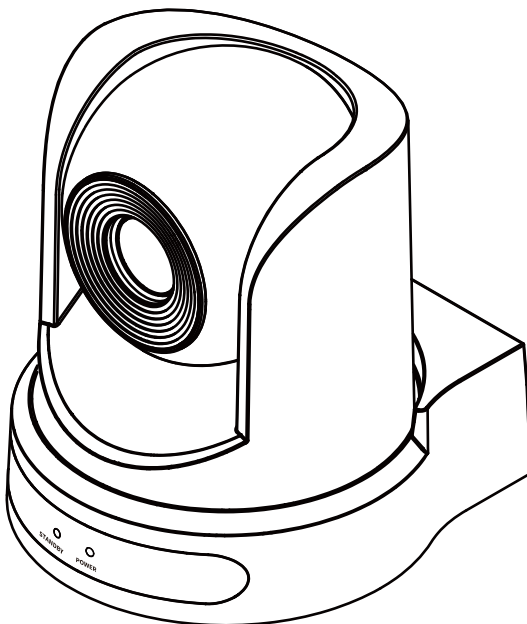# USB HD Video Camera

User Manual

English (V2.0)

Copyright

All contents of this manual, whose copyright belongs to our corporation cannot be cloned, copied or translated without the permission of our corporation.

Notice

Product specifications and information which were referred to in this document are for reference only. We may change, delete, or update any content at any time and without prior notice.

FCC NOTICE (Class A)

This device complies with Part 15 of the FCC Rules. The operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Class A ITE

Class A ITE is a category of all other ITE which satisfies the class A ITE limits but not the class B ITE limits. Such equipment should not be restricted in its sale but the following warning shall be included in the instructions for use:

Warning

Operating this equipment in a residential environment may cause radio interference.

European Community Compliance Statement (Class A)

This product is herewith confirmed to comply with the requirements set out in the Council Directives on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive 2014/30/EU.

1   Safety Precautions

- During the installation and operation, all electrical safety regulations of the country and region of use must be strictly observed.
- Please use the power adapter that comes standard with this product.
- Do not connect multiple devices to the same power adapter (exceeding capacity of the adapter may generate excessive heat or cause fire).
- Do not rotate the camera by hand, otherwise it may cause mechanical failure.
- When installing this product on a wall or ceiling, make sure the device securely and there are no obstacles within the rotation range; Do not power on until all installations are completed.
- To avoid heat build-up, please keep smooth ventilation around the device.

- If the device smokes, smells, or makes noises, please turn off the power and unplug the power cord immediately, then contact the dealer in time.
- This device is not waterproof, please keep the device dry.
- This product has no user serviceable parts, damage caused by disassembly by the user is not covered by the warranty.
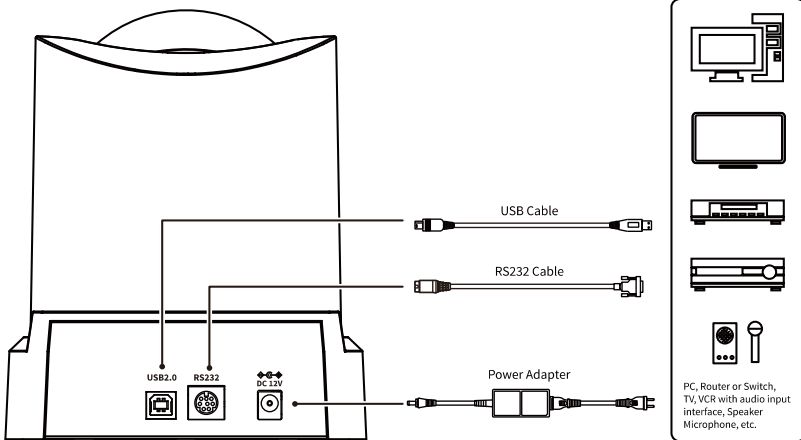
⚠ **Notice**

Electromagnetic field at specific frequencies may affect the image quality.

2   Packing List

Name	Quantity
Camera	1
Power Adapter	1
Remote Control	1
USB Cable	1
User Manual	1

3   Quick Start

1) Please check connections are correct before starting.

2) Connect the power adapter to the power connector on the rear panel of camera. The power indicator on the front panel of the camera turns on.

3) After the camera is powered on, it starts to initialize, right up to the limit position, and then both horizontal and vertical go to the middle position. When the motor stops running, it indicates the initialization is completed.

4 About Product

4.1 Features

● **Full Function USB Interface**

Full function USB interface, support video encoding and raw image output, support UVC 1.1 protocol.

● **Excellent Compatibility**

Support mainstream video conferencing software on the market.

● **1080P Full HD**

The new 1/2.8-inch high-quality HD CMOS sensor with 2.07 million effective pixels enables high-quality images up to 1920x1080.

● **Low Illumination**

The new CMOS image sensor with ultra-high SNR can effectively reduce the image noise under low illumination. The application of 2D and 3D noise reduction algorithm greatly reduces the image noise even under the condition of ultra-low illumination, it keeps the picture clean and clear, and the SNR of image is as high as 55dB.

● **Remote Control**

The camera can be controlled remotely through the RS232 and USB port.

4.2 Product Specifications

Camera	
Sensor	1/2.8-inch, CMOS, Effective Pixel: 2.07M
Scanning Mode	Progressive

| Lens	10x, f=4.7mm ~ 46.3mm, F2.8
Digital Zoom	16x
Minimum Illumination	0.5 Lux @ (F2.3, AGC ON)
Shutter	1/30s~1/10000s
White Balance	Auto, Indoor, Outdoor, One Push, Manual, VAR
Backlight Compensation	Support
Digital Noise Reduction	2D&3D Digital Noise Reduction
SNR	≥55dB
Horizontal FOV	58.5°~6.5°
Vertical FOV	35.1°~3.6°
Pan Angle	±170°
Tilt Angle	-30°~+90°
Pan Speed	2.7°~47°/s
Tilt Speed	2.7°~30°/s
Image Flip	Support
Preset Position	255
Preset Accuracy	0.1°
USB Features	
Operate System	Windows 7/8/10, Mac OS X, Linux, Android
Color System/ Compression	MJPG/YUY2/H.264
Video Format	● H.264 AVC: 1080P30 (max.) ● MJPEG: 1080P30 (max.) ● YUV2: 1080P5 (max.)
USB Protocol	UVC 1.1
UVC PTZ	Support
Interfaces	
USB Interface	1 x USB2.0: Type-B
Communication Interface	1 x RS232: 8pin Min DIN; Max. Distance: 30m; Protocol: VISCA/Pelco-D/ Pelco-P
Power Interface	JEITA type (DC 12V)

General Specifications	
Input Voltage	DC 12V
Input Current	1.0A (max.)
Operating Temperature	0℃ ~ 40℃
Storage Temperature	-40℃ ~ 60℃
Power Consumption	12W (max.)
Dimension (mm)	141.5 x 151.1 x 170.2
Net Weight	About 1.2Kg

Note

Product specifications are subject to change without notice.

4.3 Interfaces and Buttons
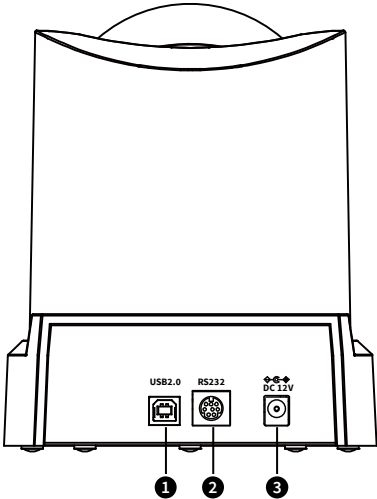
No.	Name
1	USB2.0 Interface
2	RS232 Interface
3	DC 12V Interface

4.4 RS232 Interface
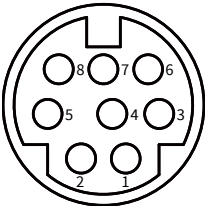
No.	Function	No.	Function
1	DTR	5	RXD
2	DSR	6	GND
3	TXD	7	IR OUT
4	GND	8	NC

The correspondence between RS232 and DB-9:

RS232	DB-9
1.DTR	1.CD
2.DSR	2.RXD
3.TXD	3.TXD
4.GND	4.DTR
5.RXD	5.GND
6.GND	6.DSR
7.IR OUT	7.RTS
8.NC	8.CTS
	9.RI

The correspondence between RS232 and Mini DIN:

RS232	Mini DIN
1.DTR	1.DTR
2.DSR	2.DSR
3.TXD	3.TXD
4.GND	4.GND
5.RXD	5.RXD
6.GND	6.GND
7.IR OUT	7.NC
8.NC	8.NC

4.5 Dimension

Unit: mm

4.6 Installation

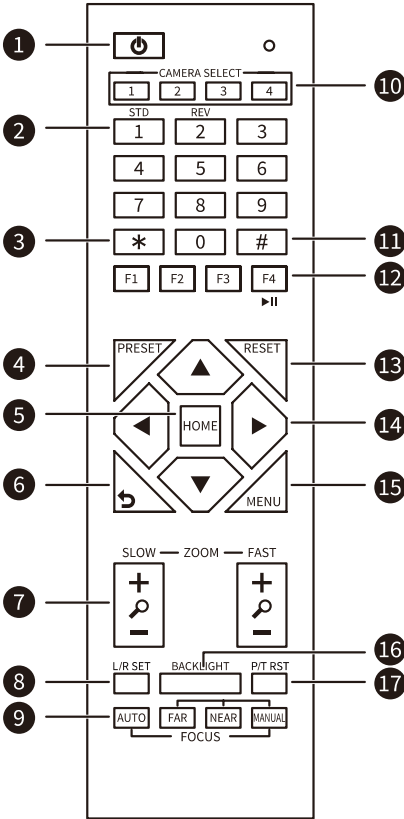| Install Bracket | Wall-mount Effect |

| Install Bracket | Ceiling-mount Effect |
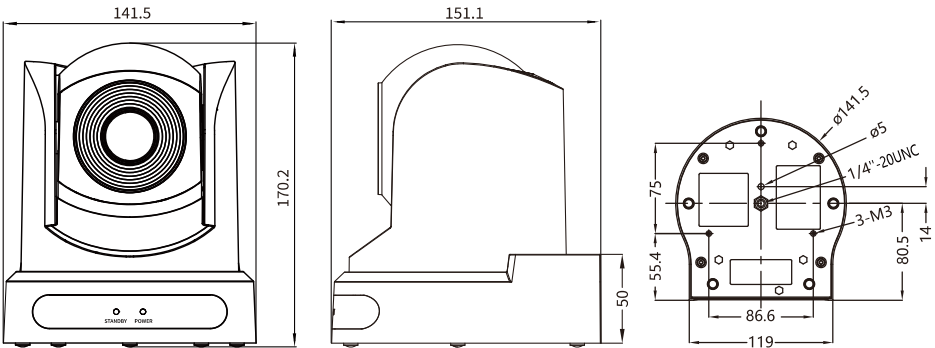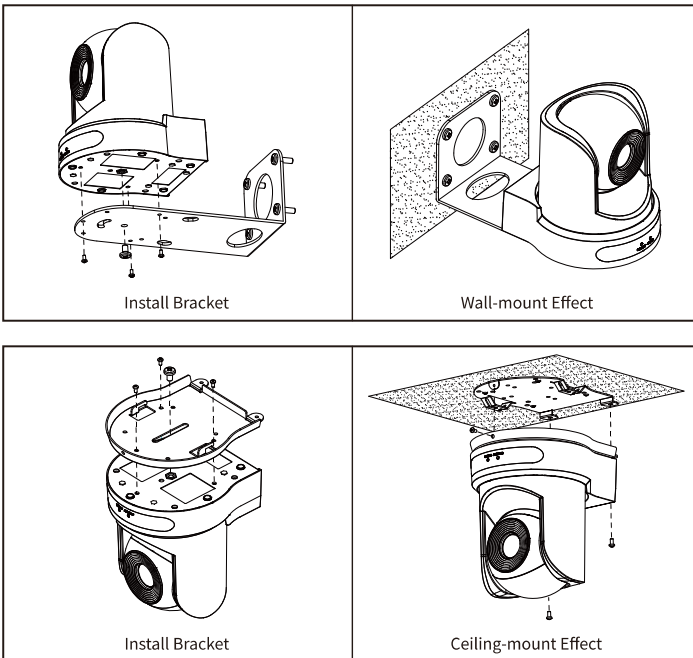
Note

The installation diagram is for reference only. Please refer to the actual product for packing accessories.

4.7 Remote Control

Key Description

1. ⏻ (Standby) Key

Press to enter standby mode

2. Number Key

To set preset or call preset

3. * Key

Use with other keys

4. PRESET Key

Successively press [PRESET] + Number key (0-9) to set preset position

5. HOME Key

Confirm selection or press to turn PTZ back to the middle position

6. ↩ (Return) Key

Press to return to the previous menu

7. ZOOM Key

● SLOW: Zoom In [+] or Zoom Out [-] slowly
● FAST: Zoom In [+] or Zoom Out [-] fast

8. L/R SET Key

● Standard: Simultaneously press [L/R SET] + 1
● Reverse: Simultaneously press [L/R SET] + 2

9. FOCUS Key

Auto/Manual/Far/Near focus

10. CAMERA SELECT Key

Press to select and control the camera

11. # Key

Use with other keys

12. IR Remote Control Key

Successively press [*] + [#] + [F1]/[F2]/[F3]/[F4] to set the camera address 1/2/3/4

13. RESET Key

Clear the preset position: Successively press [RESET] + Number key (0-9)

14. PTZ Control Key

PTZ moved according to the arrow indicates

15. MENU Key

Enter or exit OSD menu

16. BACKLIGHT Key

Backlight On/Off
NOTE:
● Effective only in auto exposure mode
● If there is a light behind the subject, the subject will become dark, press the backlight key to enable the backlight compensation. Press again to disable this function

17. P/T RST (PTZ Reset) Key

Press to preset Pan/Tilt self-test

Shortcut Set

Successively press [*] + [#] + [1]:
OSD menu default English
Successively press [*] + [#] + [3]:
OSD menu default Chinese
Successively press [*] + [#] + [6]:
Quickly recover the default
Successively press [*] + [#] + [8]:
Check the camera version
Successively press [*] + [#] + [9]:
Quickly set up inversion

5 GUI Settings

5.1 MENU

Press [MENU] key to display the main menu on the screen. Use the arrow key to move the cursor to desired item and press the [HOME] key to confirm to enter the corresponding sub-menu.

```
                  MENU
    ▶    Exposure
         Color
         Image
         P/T/Z
         Noise Reduction
         Setup
         Communication Setup
         Restore Default

         [HOME] Enter
         [MENU] Exit
```

5.2 EXPOSURE

When in main menu page, move the cursor to [Exposure] and press [HOME] key to confirm to enter the Exposure page as below.

```
                EXPOSURE
    ▶    Mode            Auto
         ExpCompMode     Off
         Backlight       Off
         Gain Limit      5
         Anti-Flicker    50Hz
         Meter           Average
         DRC             1

         ▲▼  Select Item
         ◀ ▶  Change Value
         [MENU] Back
```

Mode: Auto, Manual, SAE, Bright.
ExpCompMode (Exposure Compensation Mode): On, Off (Effective only in Auto mode).
ExpComp (Exposure Compensation Value): -7~+7 (Effective only in ExpCompMode On).
Backlight: On, Off (Effective only in Auto mode).
Gain Limit: 0~15 (Effective in Auto, Bright mode).

Anti-Flicker: Off, 50Hz, 60Hz (Effective in Auto, Bright mode).
Meter: Average, Center, Smart, Top (Effective in Auto, SAE, Bright mode).
Shutter: 1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000 (Effective in Manual, SAE mode).
Gain: 0~7 (Effective only in Manual mode).
Bright: 0~17 (Effective only in Bright mode).
DRC: 0~8.

5.3 COLOR

When in main menu page, move the cursor to [Color] and press [HOME] key to confirm to enter the Color page as below.

```
                 COLOR
    ▶    WB Mode         Auto
         RG Tuning       0
         BG Tuning       1
         Saturation      100%
         Hue             7
         AWB Sens        High

         ▲▼  Select Item
         ◀ ▶  Change Value
         [MENU] Back
```

WB-Mode (White Balance Mode): Auto, Indoor, Outdoor, One Push, Manual, VAR.
RG (Red Gain): 0~255 (Effective in Manual mode).
BG (Blue Gain): 0~255 (Effective in Manual mode).
RG Tuning (Red Gain Tuning): 0~10 (Effective in Auto, One Push, VAR mode).
BG Tuning (Blue Gain Tuning): 0~10 (Effective in Auto, One Push, VAR mode).
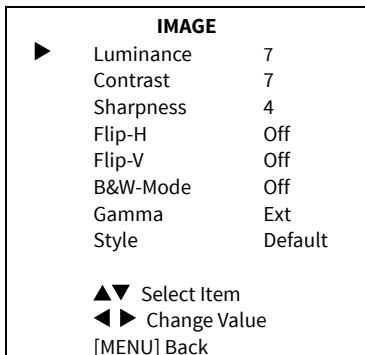**Saturation**: 60%~200%.
Hue: 0~14.
Color Temp: 2500K~8000K (Effective in VAR mode).
AWB Sens (The White Balance Sensitivity): Low, Middle, High (Effective in Auto, One Push mode).

5.4 IMAGE

When in main menu page, move the cursor to [Image] and press [HOME] key to confirm to enter the Image page as below.

```
                IMAGE
  ▶    Luminance        7
       Contrast         7
       Sharpness        4
       Flip-H           Off
       Flip-V           Off
       B&W-Mode         Off
       Gamma            Ext
       Style            Default

       ▲▼  Select Item
       ◀ ▶  Change Value
       [MENU] Back
```

Luminance: 0~14.
Contrast: 0~14.
Sharpness: Auto, 0~15.
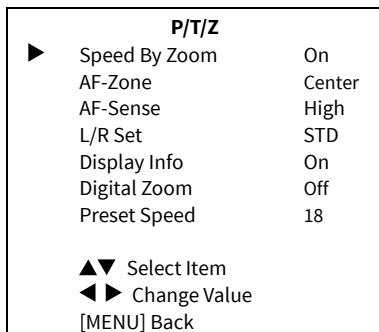**Flip-H**: On, Off.
Flip-V: On, Off.
B&W-Mode: On, Off.
Gamma: Ext, Default, 0.45, 0.5, 0.56, 0.63.
Style: Default, Norm, Clarity, Soft.

5.5 P/T/Z

When in main menu page, move the cursor to [P/T/Z] and press [HOME] key to confirm to enter the P/T/Z page as below.

```
                P/T/Z
  ▶    Speed By Zoom    On
       AF-Zone          Center
       AF-Sense         High
       L/R Set          STD
       Display Info     On
       Digital Zoom     Off
       Preset Speed     18

       ▲▼  Select Item
       ◀ ▶  Change Value
       [MENU] Back
```

Speed By Zoom (The Depth of Field Ratio): On, Off.
AF-Zone (Auto Focus Area): Center, Bottom, Top.

AF-Sense (Auto Focus Sensitivity): Low, Normal, High.
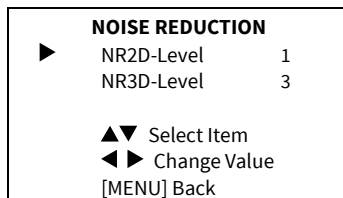**L/R Set**: STD, REV.
Display Info: On, Off.
Digital Zoom: Off, 2x, 4x, 8x, 16x.
Preset Speed: 1~24.

5.6 NOISE REDUCTION

When in main menu page, move the cursor to [Noise Reduction] and press [HOME] key to confirm to enter the Noise Reduction page as below.
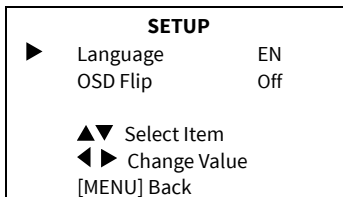
```
           NOISE REDUCTION
  ▶    NR2D-Level       1
       NR3D-Level       3

       ▲▼  Select Item
       ◀ ▶  Change Value
       [MENU] Back
```

NR2D-Level (2D Noise Reduction): Auto, Off, 1~5.
NR3D-Level: (3D Noise Reduction): Auto, Off, 1~8.

5.7 SETUP

When in main menu page, move the cursor to [Setup] and press [HOME] key to confirm to enter the Setup page as below.
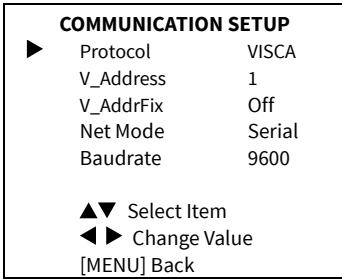
```
                SETUP
  ▶    Language         EN
       OSD Flip         Off

       ▲▼  Select Item
       ◀ ▶  Change Value
       [MENU] Back
```

Language: English, Chinese, Russian.
OSD Flip: On, Off.

5.8 COMMUNICATION SETUP

When in main menu page, move the cursor to [Communication Setup] and press [HOME] key to confirm to enter the Communication Setup page as below.

```
        COMMUNICATION SETUP
  ▶   Protocol           VISCA
        V_Address         1
        V_AddrFix          Off
        Net Mode          Serial
        Baudrate           9600

        ▲▼  Select Item
        ◀ ▶  Change Value
        [MENU] Back
```

Protocol: Auto, VISCA, PELCO-D, PELCO-P.

V_Address: 1~7 (Effective in Auto, VISCA protocol).

V_AddrFix: On, Off (When set to On, the 88 30 01 FF command does not work. Effective in Auto, VISCA protocol).

**P_D_Address**: 0~254 (Effective in Auto, PELCO-D protocol).

P_P_Address: 0~31 (Effective in Auto, PELCO-P protocol).

Net Mode: Serial, Paral (Effective in Auto, VISCA protocol).

Baudrate: 2400, 4800, 9600, 38400.

5.9 RESTORE DEFAULT

When in main menu page, move the cursor to [Restore Default] and press [HOME] key to confirm to enter the Restore Default page as below.

```
           RESTORE DEFAULT
  ▶   Restore?            No

        ◀ ▶  Change Value
        [HOME] OK
        [MENU] Back
```
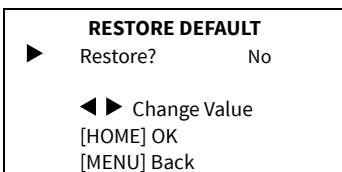
Restore: Yes, No.

⚠ **Notice**

When selected "Yes" and confirm with [HOME] key, all parameters will restore to default, include the IR Remote address and VISICA address.

▤ **Note**

GUI menu and device information are subject to change without notice.

6 Troubleshooting

Image

● The monitor shows no image

1) Ensure that the camera power supply is connected, the voltage is in normal, and the power indicator is always on.
2) Turn off the power switch to check that the camera is self-testing.
3) Ensure that the cable of video platform and TV in correct connection.

● Image jitters after the camera is properly connected

1) Ensure that the camera installation position is stable.
2) Check that any vibrating machinery or object near the camera.

Control

● Remote control does not work

1) Check and replace with new batteries.
2) Ensure that the camera working mode is correct.
3) Ensure that the address key of remote control can match the camera.

● Serial port cannot control

1) Ensure that the protocol, address and bit rate of the camera are consistent.
2) Ensure that the control cable is properly connected.