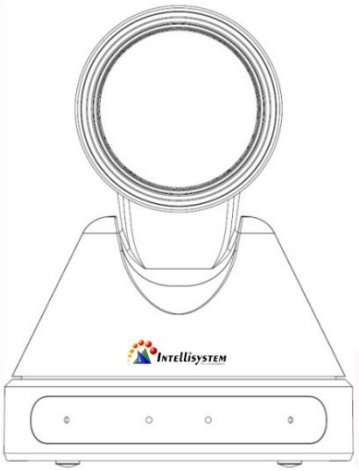
IT-VCHD710-UDI

USB3.0 HD Video Conferencing Camera



User Manual

V1.3

(English)

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Preface

Thanks for using thisUSB3.0 HD Video Conferencing Camera.

This manual introduces the function, installation and operation of the HD camera. Prior to installation and usage, please read the manual thoroughly.

Precautions

This product can only be used in the specified conditions in order to avoid any damage to the camera:

- Don't subject the camera to rain or moisture.
- Don't remove the cover. Otherwise, you may get an electric shock. In case of abnormal operation, contact the authorized engineer.
- Never operating under unspecified temperature, humidity and power supply.
- Please use the soft dry cloth to clean the camera. If the camera is very dirty, clean it with diluted neuter detergent; do not use any type of solvents, which may damages the surface.

Note

This is class A production. Electromagnetic radiation at the specific frequency may affect the image quality of TV in home environment

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Note

- **Electric Safety**

  Installation and operation must accord with electric safety standard.

- **Caution to transport**

  Avoid stress, vibration and soakage in transport, storage and installation.

- **Polarity of power supply**

The power supply of the product is +12V, the max electrical current is 2A .Polarity of the power supply plug drawing as follows.

- **Careful of installation**

Do not grasp the camera head when carrying the camera. Don't turn camera head by hand. Doing so may result in mechanical damage.

Don't apply in corrosive liquid, gas or solid environment to avoid damaging the cover which is made up of plastic material.

To make sure no obstacle in rotation range.

Never power on before installation is not completed.

- **Don't dismantle the camera**

We are not responsible for any unauthorized modification or dismantling.

CAUTION!

The specific frequency of electromagnetic field may affect the image of the camera!

Supplied Accessories

When you unpack, check that all the supplied accessories are included:

Camera 1PCS

AC power adaptor..... 1PCS

Power cord..... 1PCS

RS232 cable..... 1PCS

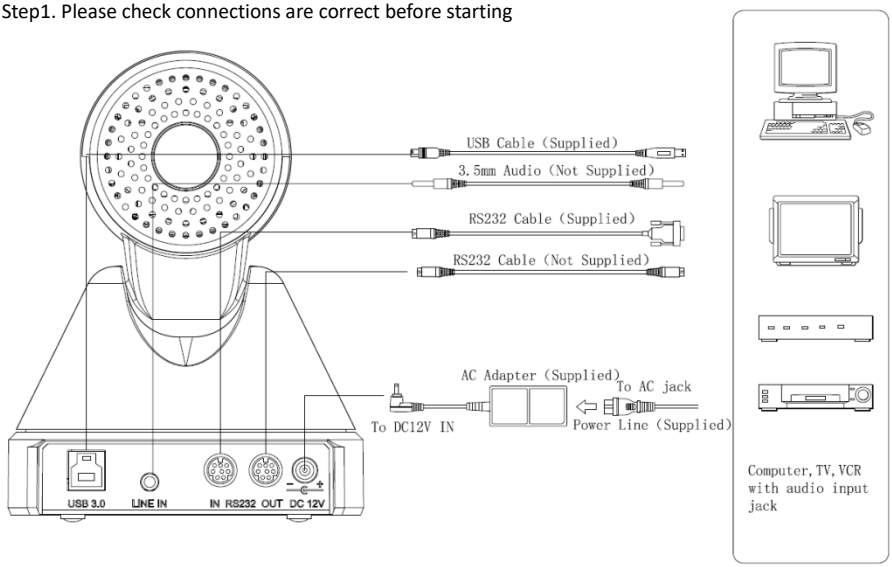
Remote controller..... 1PCS

User manual 1PCS

USB3.0 ..... 1PCS

Quick Start

Step1. Please check connections are correct before starting



Step2. Power connected to the Camera, the front panel power lamp light.

Step3. Pan-Tilt will rotate to the maximum position of top right after the camera started, then it return to the center, the process of initialization is finished. (Note: If the position preset 0 has been stored, the position preset 0 will be called up after initialization)

Features

- **Completely New Look**

  Designed with worm gear drive, completely new look, mini size, two colors for choosing from.

- **Full Function USB Interface**

  Full function USB interface, compatibility USB3.0 and USB2.0, support audio, support compressed video output, support UVC, UAC protocol.

- **Built-in Micphone (Optional)**

  Built-in micphone for optional, pickup distance up to 5 meters, high sensitivity and low base noise.

- **1080P Full HD**

  Apply Panasonic's 1/2.7 inch, 2.07 million effective pixels high quality HD CMOS sensor, can reach maximum 1920 x 1080 high resolution and achieve quality image.

- **Ultra-high Frame Rate**

  The output frame rate up to 60fps in 1080P.

- **72.5° Wide-angle Lens + 32x Digital Zoom**

  Use 72.5° wide-angle high quality lens, support 12x optical zoom, and 32x digital zoom (optional).

- **Low-light**

  High SNR of CMOS sensor combined with 2D and 3D noise reduction algorithm, effectively reduce the noise, even under low illumination conditions, picture can still keep clean and clear.

- **Remote Control**

  Using RS232/RS485and USB interface, all the parameters of the camera can be remote controlled.

Product Specification

Model	IT-VCHD710-UDI
Name	USB3.0 HD Video Conference Camera
Camera	
Video System	1080p/60, 1080p/50, 1080p/30, 1080p/25, 720p/60,720p/50,720p/30,720/20
Sensor	1/2.7'', CMOS, Effective Pixel: 2.07M
Scanning Mode	Progressive
Lens	12x, f3.5mm ~ 42.3mm, F1.8 ~ F2.8
Digital Zoom	32x (optional)
Minimal Illumination	0.5 Lux @ (F1.8, AGC ON)
Shutter	1/30s ~ 1/10000s
White Balance	Auto, Indoor, Outdoor, One Push, Manual
Backlight Compensation	Support
Digital Noise Reduction	2D&3D Digital Noise Reduction
Video S/N	≥55dB
Horizontal Angle of View	72.5° ~ 6.9°
Vertical Angle of View	44.8° ~ 3.9°
Horizontal Rotation Range	±170°
Vertical Rotation Range	-30° ~ +30°
Pan Speed Range	1.7° ~ 100°/s
Tilt Speed Range	1.7° ~ 69.9°/s
H & V Flip	Support
Image Freeze	Support
Number of Preset	255
Preset Accuracy	0.1°
USB Featured	
Operate System	Windows XP, Windows Vista, Windows 7, Windows 8, Mac OS X, Linux
Color System/Compression	YUV 4:2:2 / H.264 / MJPEG
Video Format	USB3.0: 1080p/60, 1080p/50, 1080p/30, 1080p/25, 720p/60, 720p/50, 720p/30, 720p/25USB2.0: 1080p/30, 1080p/25, 1080p/15, 1080p/10, 720p/30, 720p/25, 960x540p/30, 960x540p/25, 640x360p/60, 640x360p/50
Audio on USB	Support
USB Video Communication	UVC 1.0 ~ UVC 1.5
UVC PTZ	Support
Input/Output Interface	
USB Interface	1xUSB3.0: Type B female jack
Audio Interface	1-ch: 3.5mm Audio Interface, Line In
Communication Interface	1xRS232 In: 8pin Min DIN, Max Distance: 30m, Protocol: VISCA/Pelco-D/Pelco-P
	1xRS232 Out: 8pin Min DIN, Max Distance: 30m, Protocol: VISCA network use only
	1xRS485: Share with RS232 Out, Max Distance: 1200m, Protocol: VISCA/Pelco-D/Pelco-P

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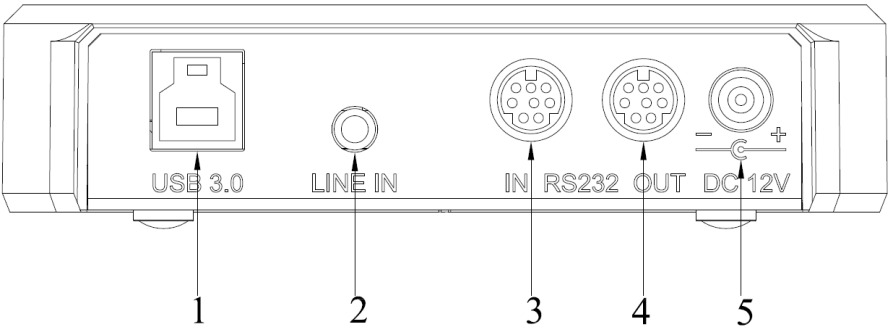
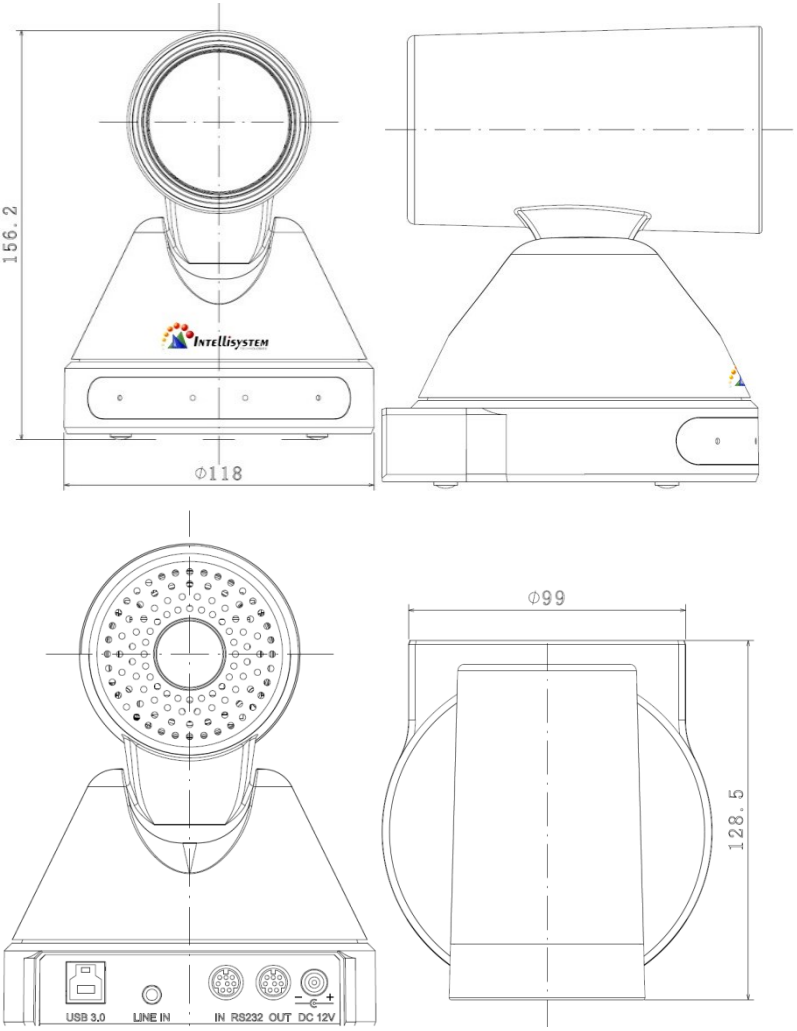
Generic Specification	
Input Voltage	DC 12V
Current Consumption	1.0A (Max)
Operating Temperature	-10°C ~ 40°C (14°F ~ 104°F)
Storage Temperature	-40°C ~ 60°C (-40°F ~ 140°F)
Power Consumption	12W (Max)
MTBF	>30000h
Size	128x118x158mm
Net Weight	0.91K g

Main Unit

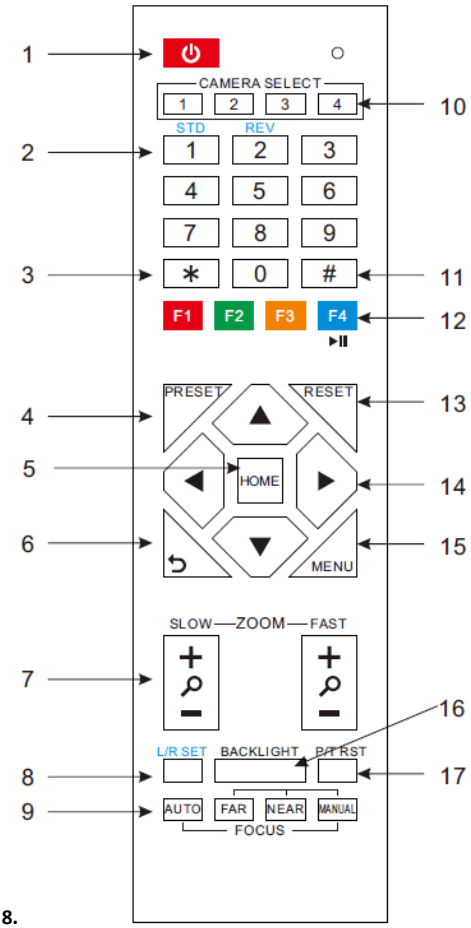


1. USB3.0
2. Line in Interface
3. RS232 IN Interface
4. RS232 out Interface
5. DC IN 12V jack

Size



IR Remote Controller Explanation



1. Standby Button

Press this button to enter standby mode. Press it again to enter normal mode. (Note: Power consumption in standby mode is approximately half of the normal mode)

2. Position Buttons

To set preset or call preset

3. *Button

Used with other buttons

4. Set/Preset Buttons

Set preset: Store a preset position

[SET PRESET] + Numeric button (0-9): Setting a corresponding numeric key preset position

5. Pan-Tilt control Buttons

Pressing the Pan-Tilt back to the middle position

6. MENU

MENU: enter or exit OSD MENU

7. Zoom Buttons

Slow Zoom: Zoom In [+] or Zoom Out [-] slowly

Fast Zoom: Zoom In [+] or Zoom Out [-] fast

8.

Press with 1 buttons and 2 buttons setting the direction of the Pan-Tilt

L/R Set +1[STD]: set the Pan-Tilt turn the same direction as the L/R Set

L/R Set +2[REV]: set the Pan-Tilt turn the opposite direction as the L/R Set

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9. Focus Buttons

Used for focus adjustment.

Press [AUTO] adjust the focuses on the center of the object automatically. To adjust the focus manually.

Press [MANUAL] adjust the focus on the center of the object manual

MANUAL button, and adjust it with [Far] (Focus on far object) and [NEAR] (Focus on near object)

10. Camera Select Buttons

Press the button corresponding to the camera you want to operate with the remote controller.

11. # Button

Used with other buttons

12. Set Camera IR Address Buttons

[*]+[＃]+[F1]: Address1

[*]+[＃]+[F2]: Address2

[*]+[＃]+[F3]: Address3

[*]+[＃]+[F4]: Address4

13. Clear Preset Buttons

Clear preset: Erase a preset position

[CLEAR PRESET] + Numeric button (0-9)

Or: [*]+[#]+[CLEAR PRESET]: Erase all the preset individually

14. Pan/Tilt Control Buttons

Press arrow buttons to perform panning and tilting. Press [HOME] button to face the camera back to front

15. Back buttons

Press the OSD menu return to the superior.

16. BLC (Backlight Compensation) Button

BLC ON/OFF: Press this button to enable the backlight compensation. Press it again to disable the backlight compensation.(NOTE: Effective only in auto exposure mode)

Note: If a light behind the subject, the subject will become dark. In this case, press the backlight ON / OFF button. To cancel this function, press the backlight ON / OFF button.

17. Pan/Tilt reset

Preset Pan/Tilt self-test.

18. Image freezing function

Manually freeze: Open the freezing function after press the remote control [F4], display "Freeze" on the left upper corner character, after 5 seconds display disappear auto magically. If you want to cancel the freeze, press [F4] key and then can return to normal, display "Unfreeze" on the left upper corner, after 5 seconds display disappear automatically.

Recalling the Preset image, Freeze： By the OSD Menu Setting "Recalling the Preset image Freeze" function. After the function is opened, the screen will stay in before Recalling the Preset when Recalling the Preset, the screen can be switched to the present position screen until the camera points to the present position.

19. Shortcut Set

[*]+[＃]+[1]: OSD menu default English

[*]+[＃]+[3]: OSD menu default Chinese

[*]+[＃]+[4]: Default IP address

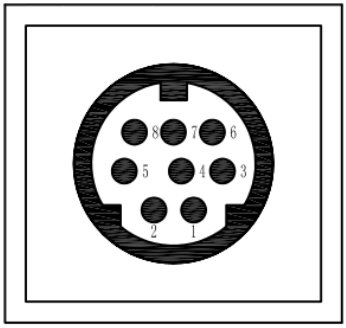
[*]+[＃]+[5]: Save OSD

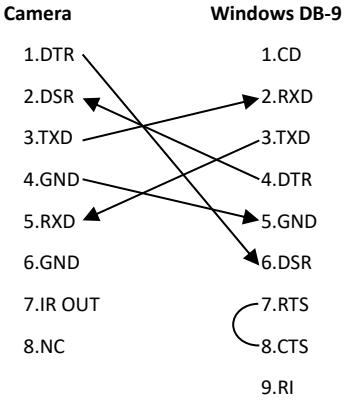
[*]+[＃]+[6]: Quickly recover the default

[*]+[＃]+[8]: Look the camera version

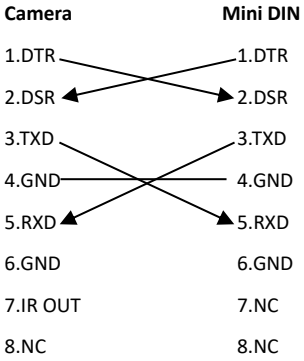
[*]+[＃]+[9]: Quickly set up inversion

RS-232 Interface

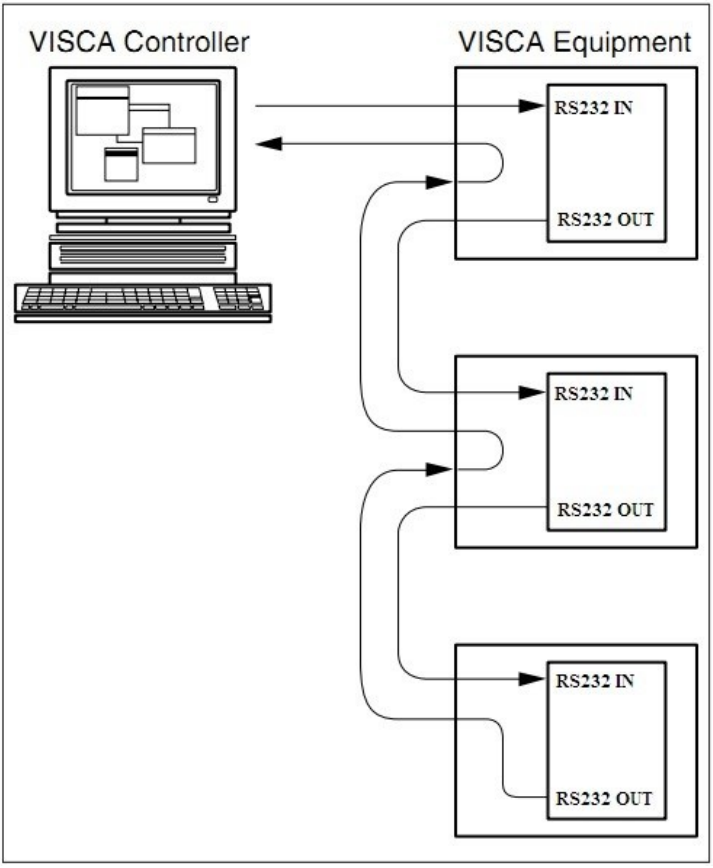




No.	Function
1	DTR
2	DSR
3	TXD
4	GND
5	RXD
6	GND
7	IR OUT
8	NC



VISCA Network Configuration



Serial Communication Control

In default working mode, the camera is able to connect to a VISCA controller with RS232C serial interface.

- **RS232 Communication Control:**

  The camera can be controlled via RS232, the parameters of RS232C are as follows:

  Baud rate: 2400/4800/9600 bit/s.

  Start bit: 1 bit.

  Data bit: 8 bits.

  Stop bit: 1bit.

  Parity bit: none.

- **RS485 Communication Control:**

  The camera can be controlled via RS485, Half-duplex mode:

  Baud rate: 2400/4800/9600 bit/s.

  Start bit: 1 bit.

  Data bit: 8 bits.

  Stop bit: 1bit.

  Parity bit: none.

Pan-Tilt will rotate to the maximum position of top right after the camera started, then it return to the center, the process of initialization is finished. (Note: If the position preset 0 has been stored, the position preset 0 will be called up after initialization) Then the users can control the camera with commands in the command list.

Command List

Ignore

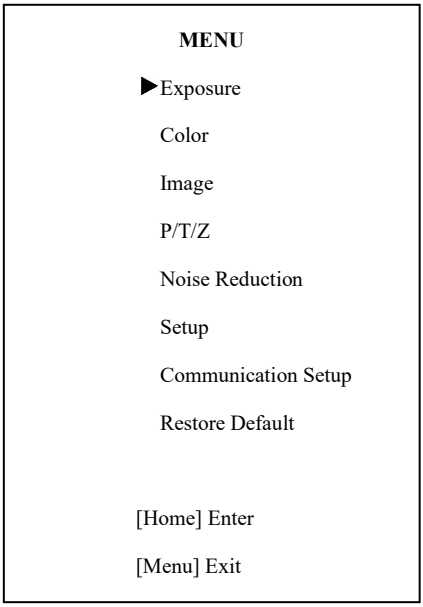
Note:

The camera serial standard VISCA/Pelco-D/Pelco-P, if the need for the secondary development, According to standard protocol to control the camera. If you need VISCA/Pelco - D/Pelco - P protocol command list in detail, please contact the manufacturer.

Menu Setting

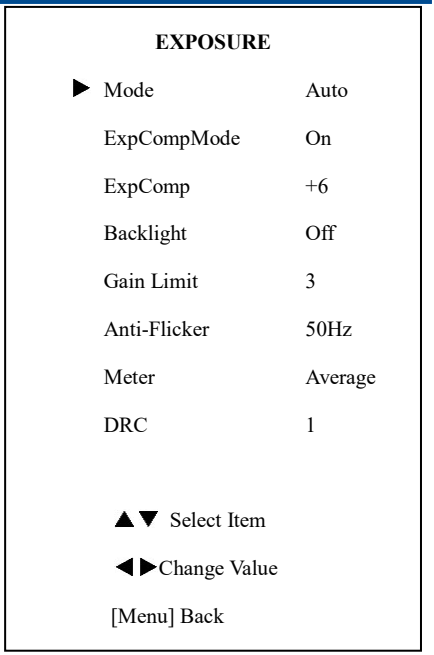
1. MENU

Press [MENU] button to display the main menu on the normal screen, using arrow button to move the cursor to the item to be set. Press the [HOME] button to enter the corresponding sub-menu.



2. EXPOSURE

Move the cursor to the Exposure item in the main menu and press [home] button, EXPOSURE menu appears, as shown in the following figure.



Mode: Exposure mode. Optional items: Auto, Manual, SAE, AAE, Bright

ExpCompMode: Exposure compensation mode, Optional items: On, Off (Effective only in Auto mode)

ExpComp: Exposure compensation value, Optional items:-7 ~ 7(Effective only in ExpCompMode item to on)

Gain Limit: Maximum gain limit. Optional **Items**: 0 ~ 15 (Effective only in Auto, AAE, Bright mode)

Backlight: Set the backlight compensation, Optional items: On, Off (Effective only in Auto mode)

DRC: DRC strength, Optional items: 0 ~ 8.

Bright: Intensity control, Optional items:

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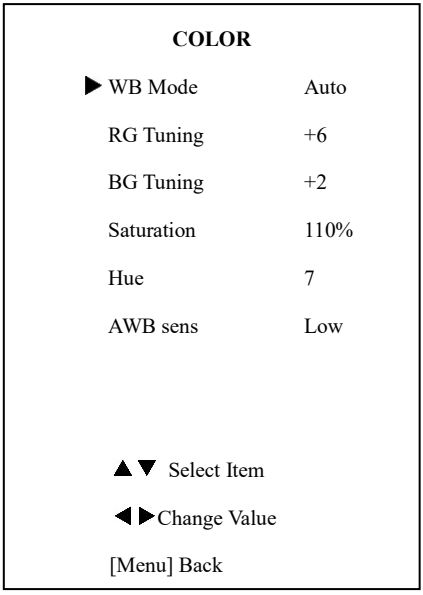
00~17. (Effective only in Bright mode)

Anti-Flicker Flicker: Anti-flicker. Optional **Items**: Off, 50Hz, 60Hz (Effective only in Auto, Bright mode)

Meter: Optional items: Average, Center, Bottom, Top

Iris: Aperture value. Optional items: F1.8, F2.0,F2.4,F2.8,F3.4,F4.0,F4.8,F5.6,F6.8,F8.0,F9.6,F11.0,Close（Effective only in Manual, AAE mode）

Shut: Shutter value. Optional items: 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 only in Manual, SAE mode)



3. COLOR

Move the cursor to the Color item in the main menu and press [home] button, COLOR menu appears, as shown in the following figure.

WB-Mode: White balance mode. Optional **Items**: Auto, Indoor, Outdoor, Onepush, Manual

RG: Red gain. Optional items: 0~255（Effective only in Manual mode）

BG: Blue gain. Optional items: 0~255 (Effective only in Manual mode）

RG Tuning: Red gain fine-tuning, Optional items: -10 ~ +10（Effective only in AWBsens is Low）

BG Tuning: Blue gain fine-tuning, Optional items: -10 ~ +10（Effective only in AWBsens is Low）

Sat.: Saturation. Optional items: 60% ~ 200%.

Hue: Chroma adjustment, Optional items:0 ~ 14

AWBsens: The white balance sensitivity,

Optional items: Normal, High, Low.

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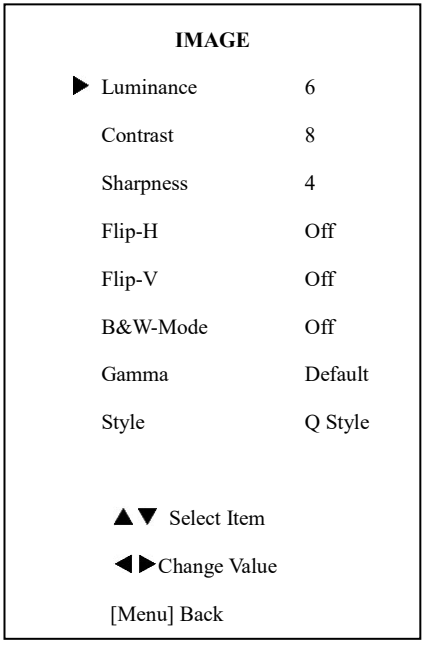
4. IMAGE

Move the cursor to the Image item in the main menu and press [home] button, IMAGE menu appears, as shown in the following figure.



Luminance: Brightness adjustment. Optional **Items**: 0 ~ 14

Contrast: Contrast adjustment. Optional **items**: 0 ~ 14

Sharpness: Sharpness adjustment. Optional **Items**: Auto, 0 ~ 15

Flip-H: Image flipped horizontally. Optional **Items**: On, Off.

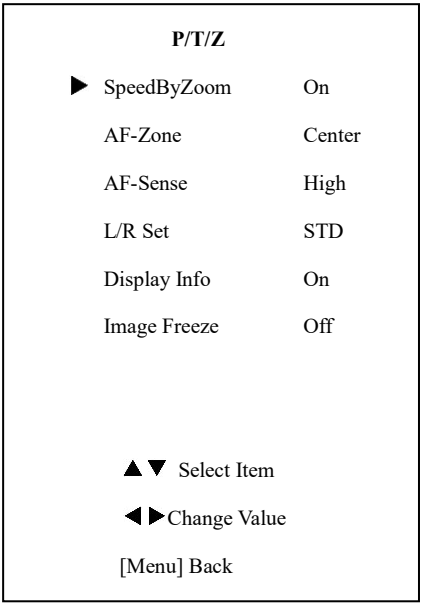
Flip-V: Image Flip Vertical. Optional items: On, Off

B&W-Mode: Image color. Optional items: On, Off

Gamma: Optional items: Default, 0.45, 0.5, 0.56, 0.63

Style: Optional items: Norm, Clarity, Bright, Soft, 5Q, Q Style.

5. P/T/Z



SpeedByZoom: The depth of field scale **switch, Optional items**: On, Off

AF-Zone: Interested in focusing area, **Optional items**: Top, Center, Bottom

AF-Sense: Automatic focusing sensitivity options, **Optional items**: Low, Normal, High

L/R Set: Optional items: STD, REV

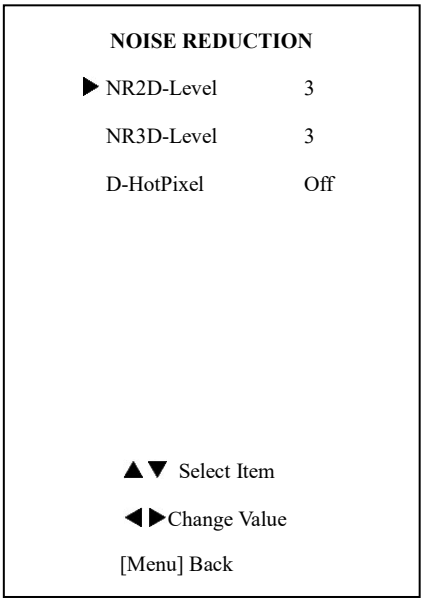
Display Info Optional items: On, Off

Image Freeze: Optional items: On, Off

6. NOISE REDUCTION

Move the cursor to the Noise Reduction item in the main menu and press [home] button, NOISE

REDUCTION menu appears, as shown in the following figure.



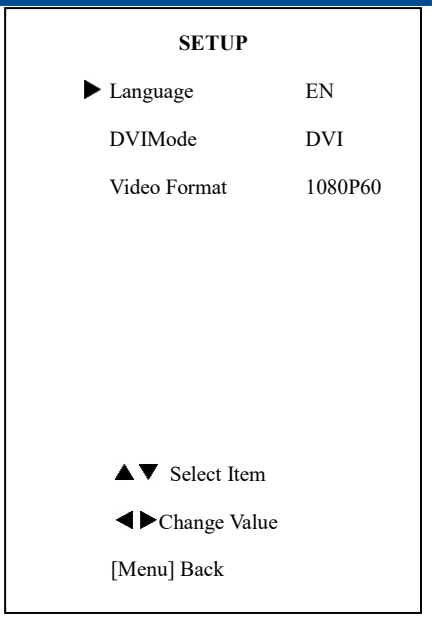
NR2D-Level: 2D noise reduction. Optional **Items**: Off, Auto, 1 ~ 5

NR3D-Level: 3D noise reduction. Optional **items**: Off, 1 ~ 8

D-HotPixel: Dynamic bad points, Optional **items**: Off, 1 ~ 5

7. SETUP

Move the cursor to the Setup item in the main menu and press [home] button, SETUP menu appears, as shown in the following figure.



Language: menu language, Optional items: EN, Chinese, and Russian

DVI Mode, Optional items: DVI, HDMI

Video Format: Optional items: 1080P60, 1080P50, 720P60, 720P50, 1080P30, 1080P25, 720P30, 720P25

8. COMMUNICATION SETUP

Move the cursor to the Setup item in the main menu and press [home] button, COMMUNICATION SETUP menu appears, as shown in the following figure.

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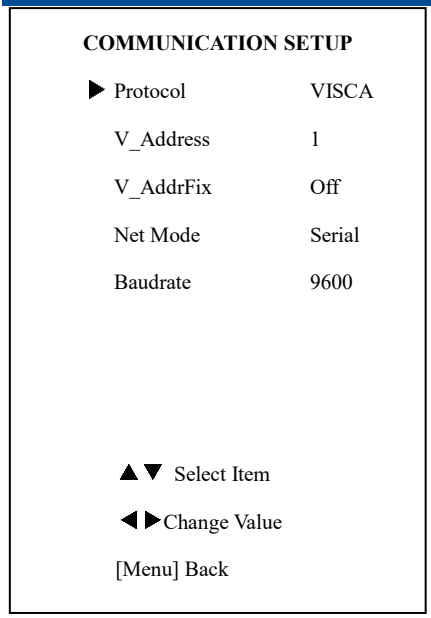


Protocol: Control protocol type. Optional items: AUTO, VISCA, PELCO-D, PELCO-P

V_Address: Protocol address, To be decided according to the agreement, AUTO, VISCA protocol Optional items: 1 ~ 7

P_D_Address: PELCO-D protocol Optional **Items**: 0 ~ 254

P_P_Address: PELCO-P protocol Optional **Items**: 0 ~ 31

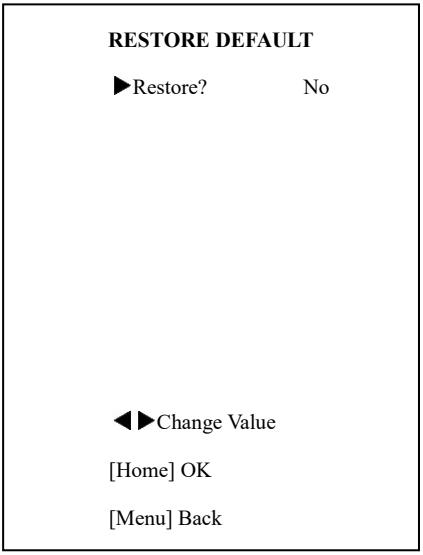
V_AddrFix: If I can change through the serial port of infrared switch, **Optional items**: On, Off (When set to on, useless in 88 30 01 FF Command）

Net Mode: Set the serial port control Networking, **Optional items**: Serial, Paral

Baudrate: Serial port baud rate. Optional items: 2400, 4800, 9600

9. RESTORE DEFAULT

Move the cursor to the Restore Default item in the main menu and press [home] button, RESTORE DEFAULT menu appears, as shown in the following figure.



Restore: Confirm restore factory settings.

Optional items: Yes, No

Note: Press [HOME] button to confirm, all Parameter restore default, Include IR Remote Address and VISICA Address

Save: Save Options. Optional items: Yes, No

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USB3.0

Camera support UVC protocol, compatible USB2.0 & USB3.0.

USB3.0 support 1920x1080p/60 max output.

USB2.0 support 960x540p/60 max output.

Support OS

Windows XP/2003/VISTA/7/8/10 and other system、Linux、Mac OS

General software

Windows: AMCAP, VLC, Debut Video Capture, etc.

Linux: V412 software driver and VLC media player, etc.

Mac OS: FaceTime. IChat, Photo Booth and Debut Video Capture, etc.

Notice:

Recommend making AMCAP version 8.0 in Windows, which software performance is more relatively stable. When using high version of AMCAP in low configuration system, it will make the stream rendering slow.

NOTE！

When camera first time accessed by USB cable, automatically install UVC related drivers.

Maintenance and Troubleshooting

Camera Maintains

- If camera will not be used for a long time, please turn off the power switch; disconnect AC power cord of AC adaptor to the outlet.
- Use soft cloth or tissue to clean the camera cover.
- Please use the soft dry cloth to clean the lens. If the camera is very dirty, clean it with diluted neuter detergent. Do not use any type of solvents, which may damages the surface.

Unqualified Application

- No shooting extreme bright object for a long period of time, such as sunlight, light sources, etc.
- No operating in unstable lighting conditions, otherwise image will be flickering.
- No operating close to powerful electromagnetic radiation, such as TV or radio transmitters, etc.

Troubleshooting

Image

- No image
  1. Check whether the power cord is connected, voltage is OK, POWER lamp is light.
  2. Check whether the camera can self-test after startup.
  3. Check the BOTTOM switch and make sure the two switches are both set OFF.
  4. Check video cable is connected correctly.
- Abnormal display of image

  Check video cable is connected correctly.
- Image dithering even at widest zoom position
  1. Check whether camera is fixed correctly.
  2. Make sure, if there are something like vibration machine or other things nearby.

Control

- IR remote controller cannot control the camera
  1. Change the battery
  2. Check the camera-working mode.
  3. Check IR address of the Remote Commander is set correctly.

- Serial communication cannot control the camera

  1. Check the camera-working mode.

  2. Check control cable is connected correctly.