

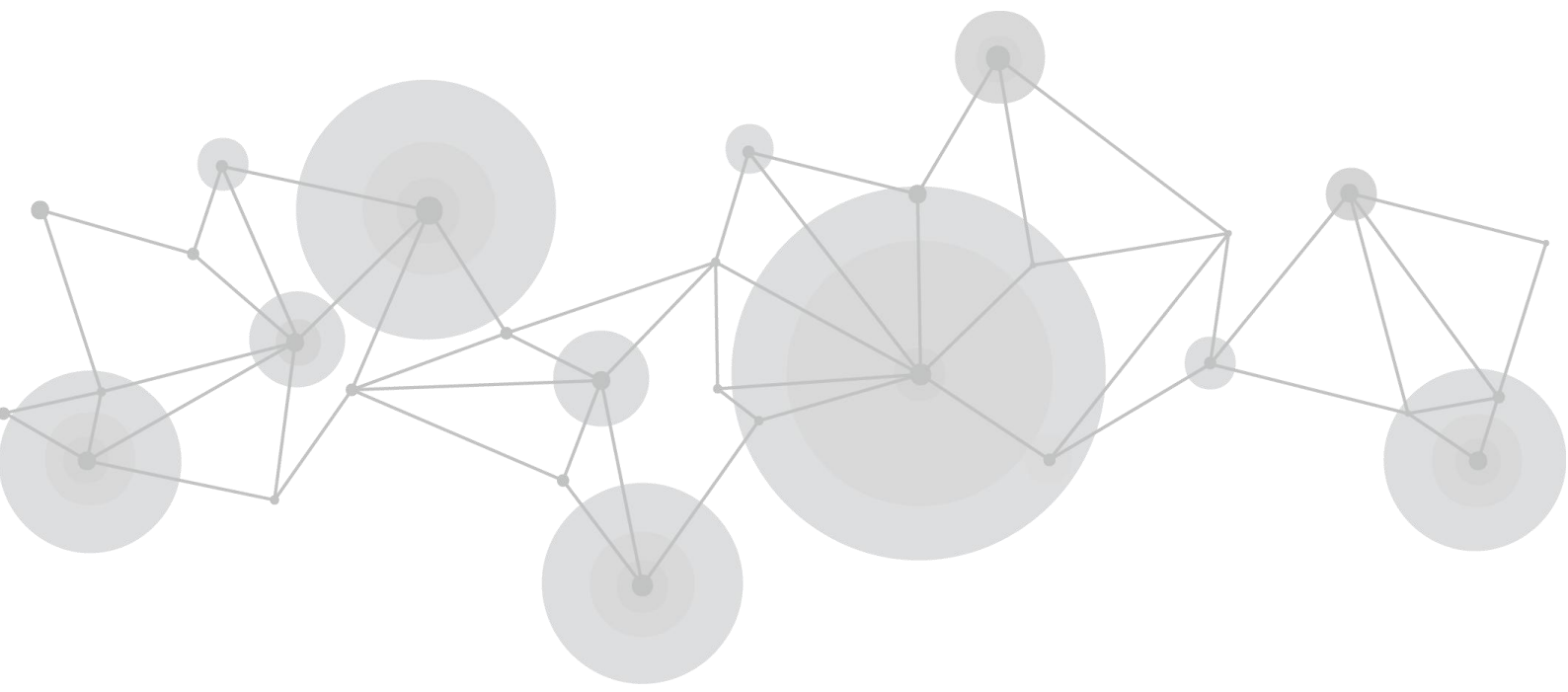
PRELIMINARY

RGBlink 4K vue PTZ camera



User Manual

RGBlink[®]



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Thank you for choosing our product!

This User Manual is designed to show you how to use this PTZ quickly and make use of all the features. Please read all directions and instructions carefully before using this product.

Declarations

FCC/Warranty

Federal Communications Commission (FCC) Statement

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 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 may cause harmful interference, in which case the user will be responsible for correcting any interference.

Guarantee and Compensation

RGBlink provides a guarantee relating to perfect manufacturing as part of the legally stipulated terms of guarantee. On receipt, the purchaser must immediately inspect all delivered goods for damage incurred during transport, as well as for material and manufacturing faults. RGBlink must be informed immediately in writing of any complains.

The period of guarantee begins on the date of transfer of risks, in the case of special systems and software on the date of commissioning, at latest 30 days after the transfer of risks. In the event of justified notice of compliant, RGBlink can repair the fault or provide a replacement at its own discretion within an appropriate period. If this measure proves to be impossible or unsuccessful, the purchaser can demand a reduction in the purchase price or cancellation of the contract. All other claims, in particular those relating to compensation for direct or indirect damage, and also damage attributed to the operation of software as well as to other service provided by RGBlink, being a component of the system or independent service, will be deemed invalid provided the damage is not proven to be attributed to the absence of properties guaranteed in writing or due to the intent or gross negligence or part of RGBlink.

If the purchaser or a third party carries out modifications or repairs on goods delivered by RGBlink, or if the goods are handled incorrectly, in particular if the systems are commissioned operated incorrectly or if, after the transfer of risks, the goods are subject to influences not agreed upon in the contract, all guarantee claims of the purchaser will be rendered invalid. Not included in the guarantee coverage are system failures which are attributed to programs or special electronic circuitry provided by the purchaser, e.g. interfaces. Normal wear as well as normal maintenance are not subject to the guarantee provided by RGBlink either.

The environmental conditions as well as the servicing and maintenance regulations specified in this manual must be complied with by the customer.

Operators Safety Summary

The general safety information in this summary is for operating personnel.

Do Not Remove Covers or Panels

There are no user-serviceable parts within the unit. Removal of the top cover will expose dangerous voltages. To avoid personal injury, do not remove the top cover. Do not operate the unit without the cover installed.

Power Source

This product is intended to operate from a power source that will not apply more than 230 volts rms between the supply conductors or between both supply conductor and ground. A protective ground connection by way of grounding conductor in the power cord is essential for safe operation.

Grounding the Product

This product is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting to the product input or output terminals. A protective-ground connection by way of the grounding conductor in the power cord is essential for safe operation.

Use the Proper Power Cord

Use only the power cord and connector specified for your product. Use only a power cord that is in good condition. Refer cord and connector changes to qualified service personnel.

Use the Proper Fuse

To avoid fire hazard, use only the fuse having identical type, voltage rating, and current rating characteristics. Refer fuse replacement to qualified service personnel.

Do Not Operate in Explosive Atmospheres

To avoid explosion, do not operate this product in an explosive atmosphere.

Installation Safety Summary

Safety Precautions

For all PTZ installation procedures, please observe the following important safety and handling rules to avoid damage to yourself and the equipment.

To protect users from electric shock, ensure that the chassis connects to earth via the ground wire provided in the AC power Cord.

The AC Socket-outlet should be installed near the equipment and be easily accessible.

Unpacking and Inspection

Before opening PTZ shipping box, inspect it for damage. If you find any damage, notify the shipping carrier immediately for all claims adjustments. As you open the box, compare its contents against the packing slip. If you

find any shortages, contact your sales representative.

Once you have removed all the components from their packaging and checked that all the listed components are present, visually inspect the system to ensure there was no damage during shipping. If there is damage, notify the shipping carrier immediately for all claims adjustments.

Site Preparation

The environment in which you install your PTZ should be clean, properly lit, free from static, and have adequate power, ventilation, and space for all components.

Electric Safety

Installation and operation must accord with electric safety standard

Polarity of power supply

The power supply of the product is $\pm 12V$, the max electrical current is 2A .Polarity of the power supply drawing.

Careful of installation

Never move the camera by seizing the camera head. Don't rotate camera head by hand; otherwise, mechanical trouble will occur.

This series item must be put on the smooth desk or platform, and it can not be installed slant ways;

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

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

To make sure no obstacle in rotation range.

Never power on before installation is completed.

Don't disassemble discretionarily.

We are not responsible for any unauthorized modification or dismantling.

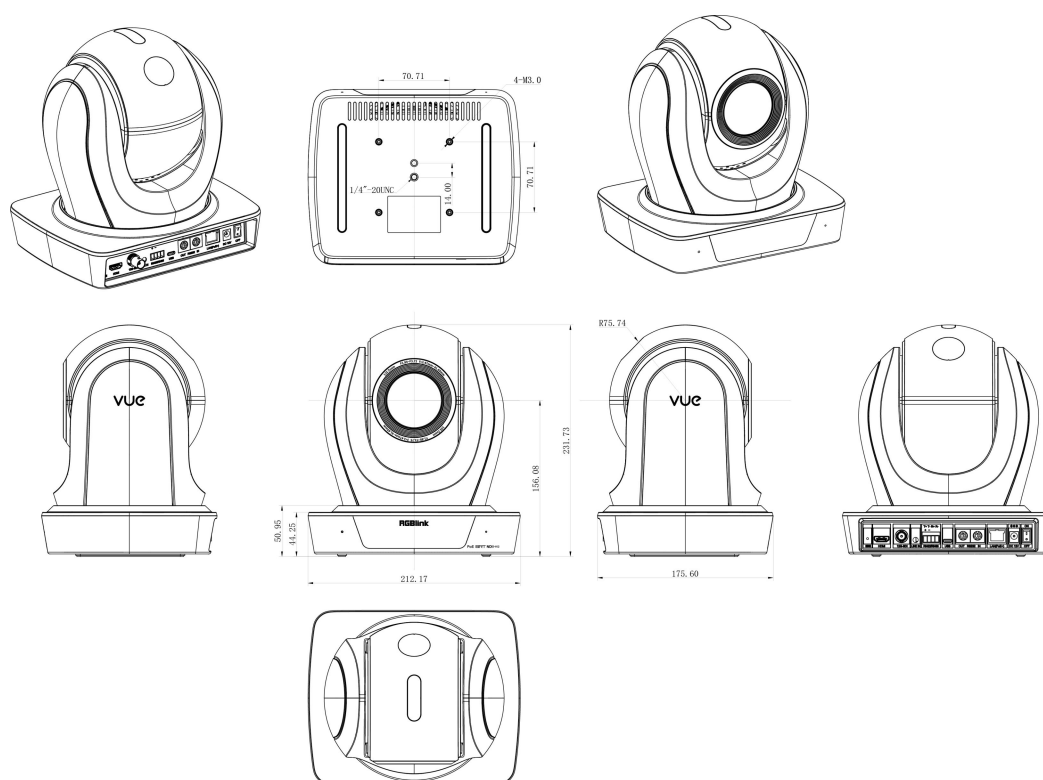
Chapter 1 Your Product

1.1 In the Box

Name	Qty.
Camera	1
International Power Adapter (cable included)	1
RS232 Cable	1
Remote Control	1
User Manual	1

1.2 Product Overview

1.2.1 Dimension



1.2.2 Main Features

- **AI Tracking:** With the help of the AI computing power of the chip, the camera is equipped with advanced AI algorithms to realize humanoid tracking, which can realize automatic tracking of scenes such as education, conferences and live broadcasts.

- **NDI|HX2 (Optional):** NDI|HX2 has the characteristics of low delay and plug and play, which is convenient for project implementation and deployment. It has good ecology and supports the simultaneous transmission of audio, video and control commands. It is a new generation of network video transmission mode.
- **4K UHD:** 12X adapts 1/2.5-inch high-quality UHD CMOS sensor with a maximum of 8.51 million effective pixels, 20X adapts 1/1.8-inch high-quality UHD CMOS sensor with a maximum of 8.42 million effective pixels can realize 4K (3840x2160) ultra-high-resolution high-quality images. And downward compatible with 1080p, 720p and other resolutions.
- **16X Optical Zoom:** It adopts 4K ultra long focal lens with high quality and 8.5 million ultra-high resolution, 16x optical zoom, and the maximum field angle is 81°.
- **HDMI 2.0:** Support HDMI 2.0 interface, which can directly output 4KP60 uncompressed digital video.
- **Low Light:** The application of 3D noise reduction algorithm greatly reduces image noise. Even under the condition of ultra-low illumination, it still keep the picture clean and clear, and the SNR of image is as high as 55dB.
- **Multiple Interfaces:** Support HDMI and 12G-SDI interface. HDMI or 12G-SDI, USB, LAN can output three HD digital signals at the same time.
- **Remote Control:** Through the RS232 and RS485 serial ports, the camera can be controlled remotely.
- **Gravity Sensor:** It supports automatic image flipping function, which is convenient for engineering installation and use.

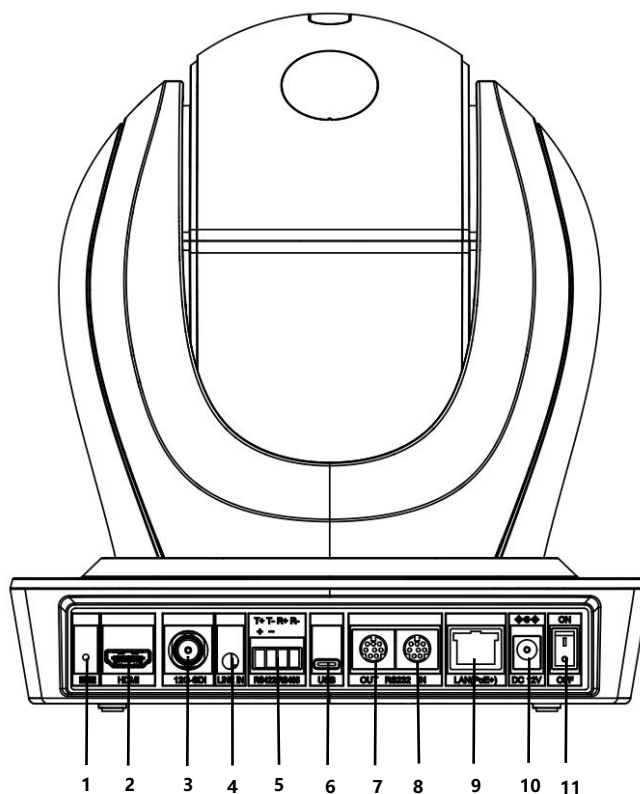
1.2.3 Technical Specification

Model	12X	20X
Camera Parameters		
Sensor	1/2.5 inch, CMOS	1/1.8 inch, CMOS
Effective Pixels	8.51M	8.42M
Focal Length	f=3.47mm~41.65mm	f=6.25mm ~ 125mm
Output Resolutions	HDMI & SDI 3840x2160p60/59.94/50/30/29.97/25 1080p60/59.94/50/30/29.97/25 1080i60/59.94/50 720p60/59.94/50	
	Network (H.265 / H.264 / MJPEG) 3840x2160, 1920x1080, 1280x720 etc. (First Stream: 32kbps~51200kbps Second Stream: 32kbps~20480kbps)	
Aperture	F1.84~F3.72	F1.58 ~ F3.95
Horizontal View Angle	81° ~ 7.5°	60° ~ 3.5°
Vertical View Angle	50° ~ 4.3°	36° ~ 2.0°
Horizontal Rotation Range	±170°	
Vertical Rotation Range	-90° ~ +210°	
Pan Speed Range	1.8°/s ~ 100°/s	
Tilt Speed Range	1.5°/s ~ 60°/s	
Scanning Mode	Progressive	
Lens	12x, f = 3.4mm ~ 41.6mm, F1.8 ~ F3.7	
Digital Zoom	16x	
Scanning Method	Progressive	
Minimum Illumination	0.5 Lux @ (F1.8, AGC ON)	
Digital Noise Reduction	3D Digital Noise Reduction	
White Balance	Auto / Manual/ One Push/ Indoors/ Outdoors/VAR	
Focus	Auto / Manual	
Iris	Auto / Manual	
Shutter	Auto / Manual	
Backlight Compensation	ON/OFF	

Dynamic Range	OFF/ Dynamic Level Adjustment
Video Adjustment	Brightness/Hue/Saturation/Contrast/Sharpness/B/W Mode/Gamma Curve
Signal Noise Ratio	≥55dB
Image Flip	Auto / Manual
Image Freeze	Support
PoE+	Support
Number of Preset	255
Preset Accuracy	0.1°
USB Features	
Operate System	Windows 7/8/10, Mac OS X, Linux, Android
Color System/ Compression	●3.0 (Optional): YUY2/H.264/H.265/MJPEG ●USB Type-C: H.264/H.265/MJPEG
Video Format	●YUY2: (USB 3.0 support)max to 1080P@30fps, USB 3.0/Type-C support ●H.264 AVC: max to 2160P@30fps ●H.265 HEVC: max to 2160P@30fps ●MJPEG: max to 2160P@30fps
USB Audio	Support
USB Video Protocol	UVC 1.1 ~ 1.5
UVC PTZ	Support
Network Features	
Video Compression	H.264/H.265/MJPEG
Video Stream	First Stream, Second Stream
First Stream Resolution	3840x2160, 1920x1080, 1280x720, 1024x576, 720x480, 720x408, 640x480, 640x360
Second Stream Resolution	720x480, 720x408, 640x480, 640x360, 480x320, 320x240
Bit Rate Control	CBR, VBR
Frame Rate	50Hz: 1fps ~ 50fps 60Hz: 1fps ~ 60fps
Audio Compression	AAC G.711A
Audio Bit Rate	96Kbps, 128Kbps
Protocols	NDI® HX2 (*NDI model supported only), RTSP, RTMP, ONVIF, Pelco-D, Pelco-P, VISCA, FreeD
Input/Output Interface	
HDMI Interface	1 x HDMI: Version 2.0
12G-SDI Interface	1 x 12G-SDI: BNC type, 800mVp-p, 75Ω. Along to ST2082-1 ST2081-1 ST424 ST292-1 standard
LINE IN Interface	1 x LINE IN: 3.5mm Audio Interface
Communication Interface	1 x RS485/RS422: 4pin phoenix port (RS485-2PIN RS422-4PIN), Max Distance: 1200m, Protocol: VISCA/Pelco-D/Pelco-P
	1 x RS232 IN: 8-pin Min DIN, Max Distance: 30m, Protocol: VISCA/Pelco-D/Pelco-P
	1 x RS232 OUT: 8-pin Min DIN, Max Distance: 30m, Protocol: VISCA network use
USB Interface	1 x USB: Type-C
LAN(PoE+) Interface	1 x LAN: 1000M Adaptive Ethernet Port, support PoE+
Power Jack	JEITA type (DC IN 12V)
Physical Parameter	
Tally Indicator	1
Power Indicator	1
Status Indicator	1
Restore Key	1
Power Switch	1
Input Voltage	DC 12V/PoE+(802.3at)
Input Current	Max. 2A
Operating Temperature	0°C ~ 40°C
Storage Temperature	-40°C ~ 60°C
Power Consumption	Max. 18W
Dimension	212mm x 176mm x 232mm
Net Weight	12X: 2.27 Kg
	20X: 2.14 Kg
Gross Weight	12X: 3.40 Kg
	20X: 3.25 Kg

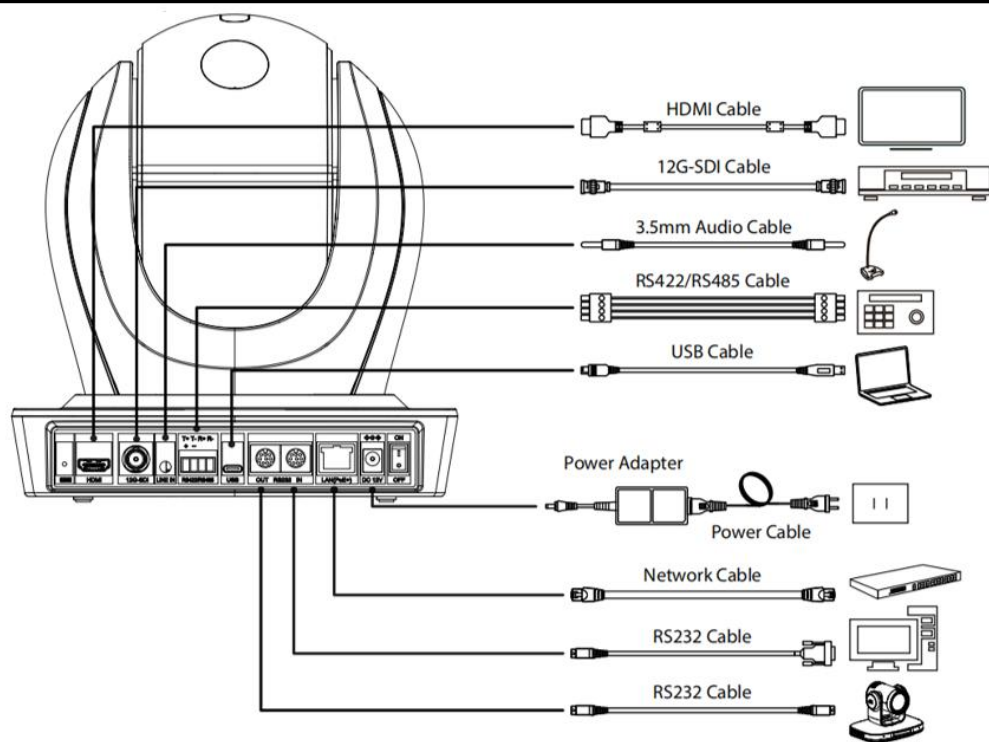
Chapter 2 Install Your Product

2.1 Interface



Item	Name
1	RESTORE Key
2	HDMI Interface
3	12G-SDI Interface
4	LINE IN Interface
5	RS422/485 Interface
6	USB Interface
7	RS232 OUT Interface
8	RS232 IN Interface
9	LAN(PoE+) Interface
10	DC 12V Interface
11	Power Switch

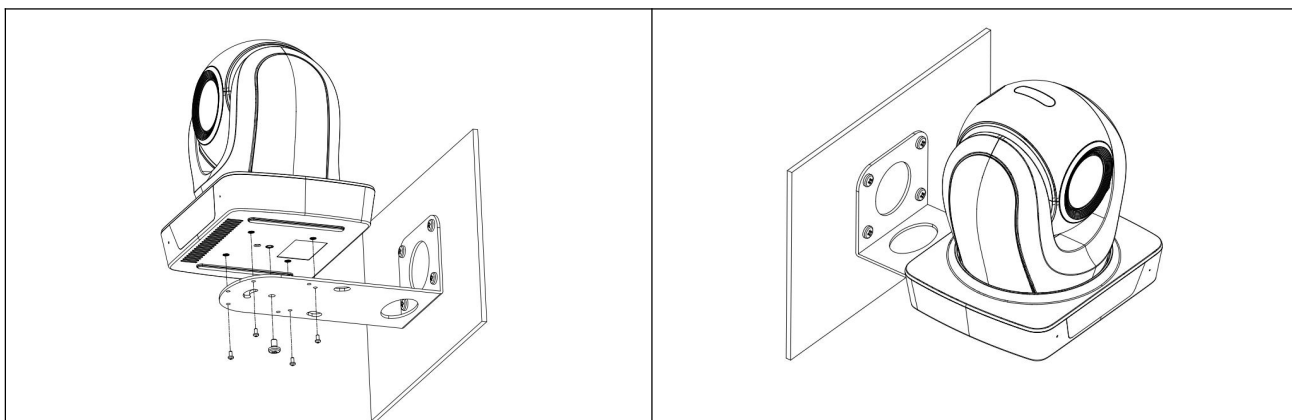
2.2 Quick Start



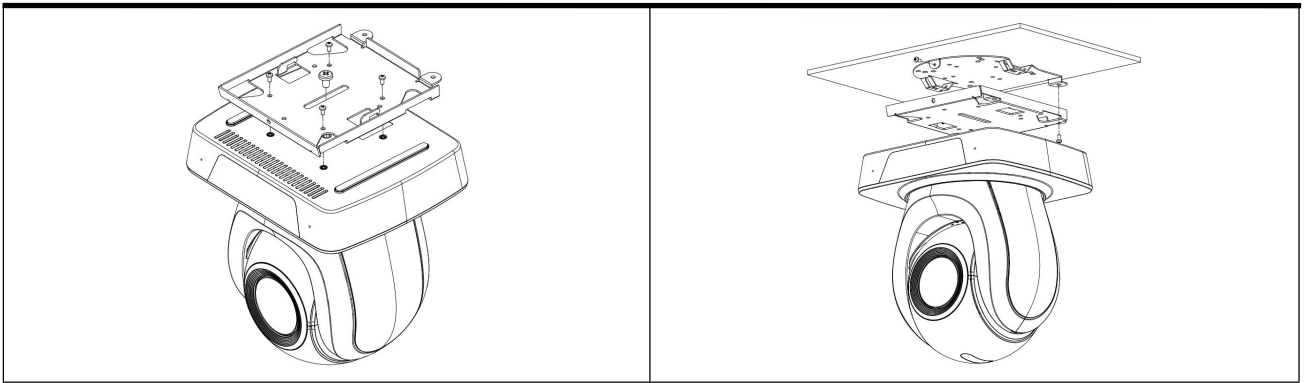
- 1) Please check connections are correct before starting.
- 2) Connect the power adapter to the power connector on the rear panel of the camera. The power indicator on the front panel of the camera is on.
- 3) After the camera is powered on, it starts to initialize, right up to the limit position, and then both horizontal and vertical go to the middle position, the motor stops running, and the initialization is completed.
(Note: If preset 0 is saved, PTZ will be move to preset 0)

2.3 Installation

2.3.1 Wall Mount



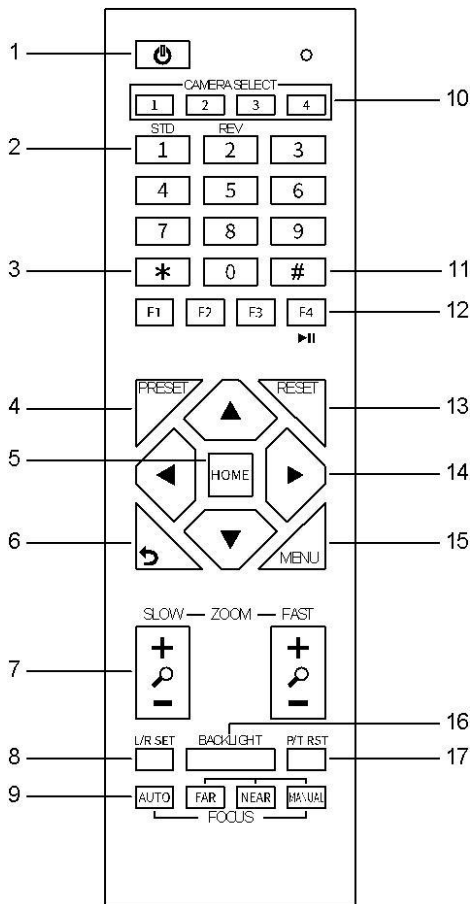
2.3.2 Ceiling Mount



Note: The installation diagram is for reference only. The brackets and screws are not standard. For packing accessories, please refer to the actual product.

Chapter 3 Use Your Product

3.1 Remote Controller



1. Standby Key

Press to enter standby mode

2. Number Key

Press to set preset or call preset.

3. *Key

Use with other keys

4. PRESET Key

Set preset: [PRESET] + Number key (0-9)

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
- Press Key: Right

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

[*]+[#]+[F1]: Address 1

[*]+[#]+[F2]: Address 2

[*]+[#]+[F3]: Address 3

[*]+[#]+[F4]: Address 4

13. RESET Key

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

14. PTZ Control Key

PTZ moved according to the arrow indicates

15. MENU Key

Press to enter or exit OSD Menu

16. BACKLIGHT Key

Backlight ON/OFF: Press repeatedly to enable or disable the backlight compensation.

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

PTZ starts to self-test after pressed it

18. Shortcut Key

[*]+[#]+[1]: OSD menu default English

[*]+[#]+[3]: OSD menu default Chinese

[*]+[#]+[4]: Display current IP address

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

[*]+[#]+[8]: View the camera version

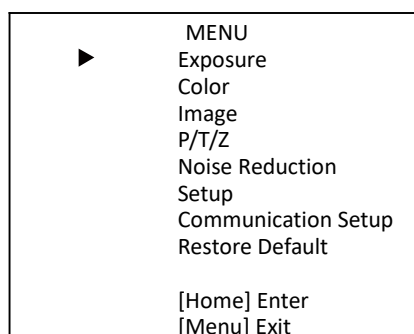
[*]+[#]+[9]: Quickly set up inversion

[*]+[#]+[MANUAL]: Restore default IP address

3.2 GUI Settings

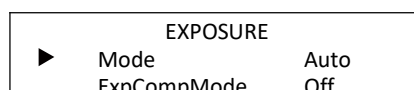
3.2.1 MENU

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



3.2.2 EXPOSURE

Move the main menu cursor to [Exposure], and press [HOME] key enter the exposure page, as shown in the following figure.



EXPOSURE	
Backlight	Off
Gain Limit	10
Anti-Flicker	50Hz
Meter	Average
DRC	1
▲▼Select Item	
◀▶Change Value	
[Menu] Back	

Mode: Auto, Manual, SAE, AAE, Bright.

ExpCompMode: On, Off (Effective only in Auto mode).

ExpComp: -7 ~ 7 (Effective only in ExpCompMode item to On).

Backlight: On, Off (Effective only in Auto mode).

Bright: 0 ~ 17 (Effective only in Bright mode).

Gain Limit: 0 ~ 15 (Effective only in Auto, SAE, AAE, Bright mode).

Anti-Flicker: Off, 50Hz, 60Hz (Effective only in Auto, AAE, Bright mode).

Meter: Average, Center, Smart, Top.

Iris: 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).

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 only in Manual, SAE mode).

Gain: 0 ~ 7 (Effective only in Manual mode).

DRC: 0 ~ 8.

3.2.3 COLOR

Move the main menu cursor to [Color], and press [HOME] key enter the color page, as shown in the following figure.

COLOR	
▶ WB Mode	Auto
RG Tuning	0
BG Tuning	0
Saturation	100%
Hue	7
▲▼Select Item	
◀▶Change Value	
[Menu] Back	

WB Mode: Auto, Indoor, Outdoor, One Push, Manual, VAR.

RG: 0 ~ 255 (Effective only in Manual mode).

BG: 0 ~ 255 (Effective only in Manual mode).

RG Tuning: -10 ~ +10 (Effective only in Auto, One Push, VAR Mode).

BG Tuning: -10 ~ +10 (Effective only in Auto, One Push, VAR Mode).

Saturation: 60% ~ 200%.

Hue: 0 ~ 14.

Color Temp: 2500K ~ 8000K (Effective only in VAR mode).

3.2.4 IMAGE

Move the main menu cursor to [Image], and press [HOME] key enter the image page, as shown in the following figure.

IMAGE	
▶ Luminance	6
Contrast	9
Sharpness	3
Flip-H	Off
Flip-V	Off
B&W-Mode	Off
Style	Default

IMAGE
 ▲▼Select Item
 ◀▶Change Value
 [Menu] Back

Luminance: 0 ~ 14.
Contrast: 0 ~ 14.
Sharpness: 0 ~ 15, auto.
Flip-H: On, Off.
Flip-V: On, Off.
B&W-Mode: On, Off.
Style: Default, Norm, Bright, PC.

3.2.5 P/T/Z

Move the main menu cursor to [P/T/Z], and press [HOME] key enter the P/T/Z page, as shown in the following figure

P/T/Z
 ▶ SpeedByZoom On
 AF-Zone Front
 AF-Sense High
 L/R Set STD
 Display Info On
 Image Freeze Off
 Digital Zoom Off
 Call Preset Speed 24
 Pre Zoom Speed 5
 ▲▼Select Item
 ◀▶Change Value
 [Menu] Back

SpeedByZoom: On, Off.
AF-Zone: Front, Top, Center, Bottom.
AF-Sense: Low, Normal, High.
L/R Set: STD, REV.
Display Info: On, Off.
Image Freeze: On, Off.
Digital Zoom: Off, 2x, 4x, 8x, 16x.
Call Preset Speed: 1 ~ 24.
Pre Zoom Speed: 0 ~ 7.

3.2.6 NOISE REDUCTION

Move the main menu cursor to [Noise Reduction], and press [HOME] key enter the noise reduction page, as shown in the following figure.

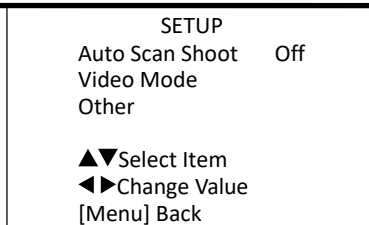
NOISE REDUCTION
 ▶ NR3D-Level 6
 ▲▼Select Item
 ◀▶Change Value
 [Menu] Back

NR3D Level: Off, 1 ~ 9.

3.2.7 SETUP

Move the main menu cursor to [Setup], and press [HOME] key enter the setup page, as shown in the following figure.

SETUP
 ▶ Language EN
 DVI Mode HDMI
 Video Format 1080P30



Language: EN, Chinese, Russian.

DVI Mode: HDMI, DVI.

Video Format: 4KP25, 4KP29.97, 4KP30, 4KP50, 4KP59.94, 4KP60, 1080P30, 1080P25, 1080P50, 1080P60, 1080P59.94, 1080P29.97, 1080I50, 1080I60, 1080I59.94, 720P60, 720P59.94, 720P50.

Auto Scan Shoot: On, Off.

Video Mode: SDI-12G Mode, Video Output.

SDI-12G Mode: LEVEL-A, LEVEL-B.

Video Output: HDMI, SDI.

Other: Auto Inversion, Tally Mode, USB Type-C Audio.

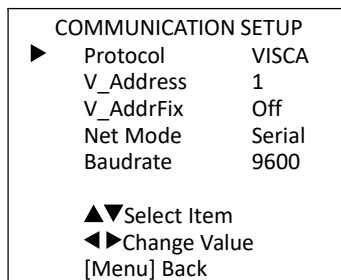
Auto Inversion: On, Off.

Tally Mode: On, Off.

USB Type-C Audio: On, Off (Only for USB Type-C).

3.2.8 COMMUNICATION SETUP

Move the main menu cursor to [Communication Setup], and press [HOME] key enter the communication setup page, as shown in the following figure.



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

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

V_AddrFix: On, Off (When set to On, useless in 88 30 01 FF Command).

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

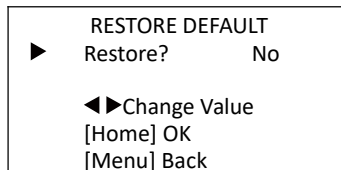
P_P_Address: 0 ~ 31 (Effective only in Auto, PELCO-P protocol).

Net Mode: Serial, Paral.

Baudrate: 2400, 4800, 9600, 38400.

3.2.9 RESTORE DEFAULT

Move the main menu cursor to [Restore Default], press [HOME] key enter restore default page, as shown in the following figure.



Restore: Yes, No.

Note: GUI menu and parameters are subject to change without notice.

3.3 WEB Settings

3.3.1 Access Camera

Access <http://192.168.100.88> to pop up the login window, then input username (default: admin) and password (default: admin). After login, it will show as below:



3.3.2 Control Camera

All pages include two menu bars:

Real time monitoring: displaying video image
Parameter setup: with function buttons.

A. Video Viewing Window

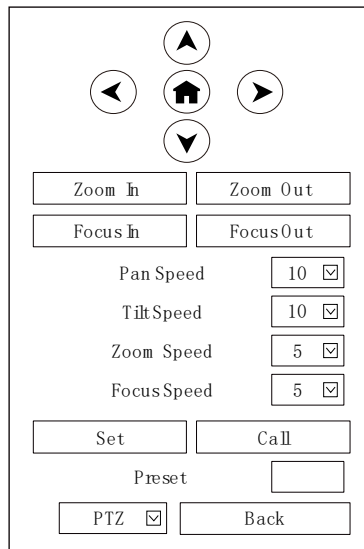
Video viewing window must be same as video resolution, the bigger the resolution is, the bigger the playing area is. Double click viewing window, will show full-screen, double click again, will return to initialized size.

Status bar in viewing window shown as below:



- 1) Video playback pause button: control real-time video pause, stop the last picture, click recoverable video again.
- 2) Audio control buttons: can adjust the volume or set silent mode.
- 3) Full screen switch button.

B. PTZ Setup



1) Pan and Tilt Control

Up, Down, Left and Right arrows and the home button allow you to manually drive the camera to the desired position.

2) Zoom

Zoom In and Zoom Out buttons allow for wide or narrow view of the space.

3) Focus

Focus In and Focus Out buttons allow for fine manual focus adjustment if the camera has any problems auto focusing on the difficult object.

4) PTZ Speeds

Pan speed can be set at any rate between 1 ~ 24, Tilt speed can be set at any rate between 1 ~ 20. Zoom and Focus speeds can be set at any rate between 1 ~ 7.

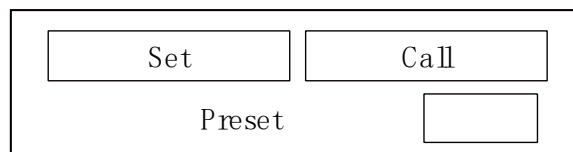
5) PTZ Presets

After manually setting up a shot that you would like to return to later, you can save presets for quick recall of these positions. Type a number between 0 and 254 into the Preset box.

Click the "Set" button to save the current location with that preset number. Click the "Call" button to cause the camera to return to that position. This enables smooth, quick and convenient control without the need to manually drive the camera.

You can set up preset that user want as below.

Method: Type preset number into the Preset box.

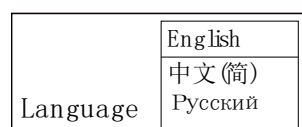


Preset: Optional items: 0 ~ 254.

6) PTZ/OSD Dropdown

From the dropdown menu, clicking the OSD option will open the on-screen display menu of the camera giving you control from within the IP interface.

C. Language Selection



Click either "Chinese", "English" or "Russian" to change the language of the webpage.

3.3.3 Video Settings

Video Settings

HDMI/SDI Output

Video Format

Encode Level

First stream

Encode Protocol

Resolution

Bit Rate

Frame Rate fps

Key Frame Interval

Bit Rate Control

Second stream

Encode Protocol

Resolution

Bit Rate

Frame Rate fps

Key Frame Interval

Bit Rate Control

1) HDMI/SDI Output

Support HDMI and SDI Output.

2) Video Format

HDMI output support 3840x2160/60p, 3840x2160/59.94p, 3840x2160/50p, 3840x2160/30p, 3840x2160/29.97p, 3840x2160/25p. Both HDMI and SDI output support 1920x1080/60p, 1920x1080/59.94p, 1920x1080/50p, 1920x1080/60i, 1920x1080/59.94i, 1920x1080/50i, 1920x1080/30p, 1920x1080/29.97p, 1920x1080/25p, 1280x720/60p, 1280x720/59.94p, 1280x720/50p.

3) Encode Level

Support mainprofile and highprofile two levels.

4) Encode Protocol

Support H.264, H.265 and MJPEG protocols.

5) Resolution

First stream support 3840x2160, 1920x1080, 1280x720, 1024x576, 720x480, 720x408, 640x480, 640x360. Second stream support 720x480, 720x408, 640x480, 640x360, 480x320, 320x240; The bigger resolution is, the clearer the image will be, more network bandwidth will be taken.

6) Bit Rate

The user can specify the bit rate. Generally speaking, the larger of the bit rate, the clearer of the image. However, the configuration of the bit rate needs to be combined with the network bandwidth. When the network bandwidth is narrow and the bit rate is configured larger, the video stream cannot be transmitted normally, and the visual effect is worse.

7) Frame Rate

User can specify the size of the frame rate, generally, the frame rate greater, the image more smooth; Frame rate is smaller, the more sense of beating.

8) I Key Frame Interval

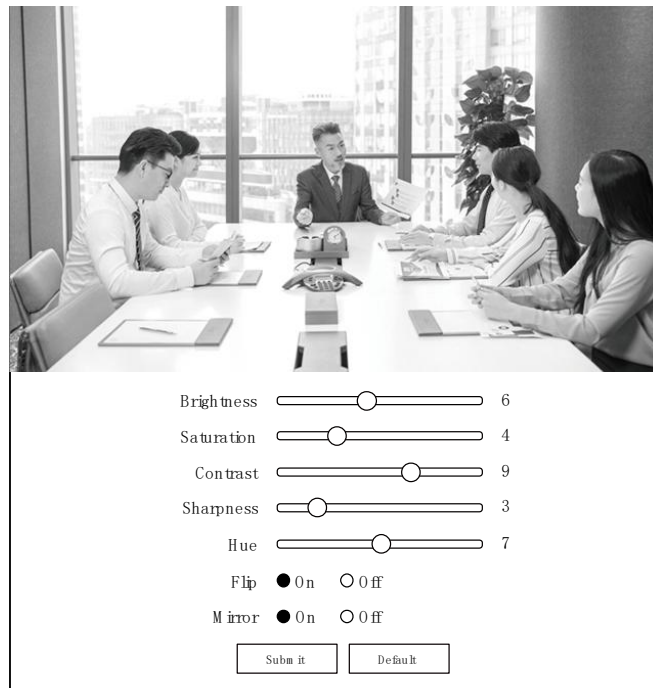
Set interval between 2 I frame, the bigger interval is the response will be lower from view window.
Bit Rate Control.

9) Code stream control way:

CBR (Constant Bit Rate): Video coder will be coding according to preset speed.

VBR (Variable Bit Rate): Video coder will adjust the speed based on preset speed to gain the best image quality.

3.3.4 Image Settings



1) Brightness

Brightness of image: 0~14 (Default value is 6).

2) Saturation

Saturation of image: 0~14 (Default value is 4).

3) Contrast

Contrast of image: 0~14 (Default value is 9).

4) Sharpness

Sharpness of image: 0~16 (Default value is 3).

5) Hue

Hue of image: 0~14 (Default value is 7).

6) Flip

Turn On/Off the Flip function.

7) Mirror

Turn On/Off the Mirror function.

3.3.5 Audio Settings

Audio Settings

Audio Switch

Audio Type

Sample Rate

Bit Rate

Input Type

Input Vol dB

ADTS Options

1) Audio Switch

Enable or disable audio switch.

2) Audio Type

Optional items: AAC.

3) Sample Rate

Optional items: 44.1K, 48K.

4) Bit Rate

Optional items: 96K, 128K.

5) Input Type

Optional items: LINE IN, MIC.

6) Input Vol

The volume of the channel.

7) ADTS Options

Optional items: On, Off.

3.3.6 System Settings

Initialize

Reboot

User

UserName

Password

Guest

Password

1) Reboot

Click the “Reboot” button, system restart.

2) Username and Password

The user can modify the password (letters and Numbers only).

3.3.7 Network Settings

Lan Settings

IP Configuration Type Fixed IP Address

IP Address

Subnet Mask

Gateway

DNS Address

MAC Address

Port Settings

HTTP Port

RTSP Port

TCP Port

UDP Port

Sony Visca

RTSP Settings

First Stream On Off Video Audio

MRL

Second Stream On Off Video Audio

MRL

SRT Settings

SRT On Off

SRT Port

SRT Encryption None

SRT Password

RTSP Settings

RTSP Auth On Off

ONVIF Settings

ONVIF On Off

ONVIF Auth On Off

Multicast Settings

Multicast On Off

Address

Port

NTP Settings

NTP time sync On Off

Time Zone

Server address

Time interval (min)

Main time show On Off

Position

Sub time show On Off

Position

1) Lan Settings

Default the IP address is 192.168.100.88, the MAC address cannot be modified.

2) Port Settings

A. HTTP Port

IP address identifies the network device, the device can run multiple web applications, each network program

using network port to transmit data, so data transmission to be carried out between the port and port. Port setting is to set up web server program using which port to transmit. When port mapping, need to be consistent with the port number (default port: 80).

B. RTSP Port

The 4K PTZ camera support RTSP protocol, use the VLC tools broadcast, default port: 554.

C. TCP Port

Support TCP connection then control camera, default port: 5678.

D. UDP Port

Support UDP protocol, default port: 1259.

E. Sony Visca

Support Sony Visca, default value: 52381.

3) RTMP(S) Settings

Setting the MRL of RTMP, select enable or disable video and audio. You can select control code stream of "On", "Off", "Video", "Audio" between in the two streams.

4) SRT Settings

Turn On/Off SRT, Setting the SRT Port, SRT Encry and SRT Password.

5) RTSP Settings

Turn On/Off RTSP Auth.

6) ONVIF Settings

Turn On/Off ONVIF and ONVIF Auth.

7) Multicast Settings

Turn On/Off multicast. Setting the multicast address (default value is 224.1.2.3) and port (default value is 6688, then 6688 is the multicast port of the first stream; 6690 is the multicast port of the second stream).

8) NTP Settings

Turn On/Off NTP time sync, main time show and sub time show. Setting NTP server address, time interval, main stream position and sub stream position.

3.3.8 System Settings

Information	
Device ID	UHD Camera
Device Type	G68.RG
Software Version	SOC V2.0.01 - ARM 6.1.42SRG
Webware Version	v1.5.6
<input type="button" value="Submit"/> <input type="button" value="Cancel"/>	

3.3.9 Download Upgrade Program

If you need the camera upgrade program, please contact the manufacturer.

Note: WEB interface and parameters are subject to change without notice.

Chapter 4 Ordering Codes

4.1 Product Code

User can refer to the following chart for ordering.

Product Code	Model
981-0011-66-0	RGB12X-UPAI-OL
981-0011-67-0	RGB12X-UNAI-OL
981-0011-78-0	RGB20X-UPAI-OL
981-0011-79-0	RGB20X-UNAI-OL

Chapter 5 Support

5.1 Contact Us

www.rgblink.com



Inquiries

+86-592-577-1197
info@rgblink.com
rgblink.com/contact-us

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support@rgblink.com
rgblink.com/support-me



@RGLINK



/rgblink



+rgblink



/rgblink



rgblink



rgblink

RGblink Headquarters

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Banshang community,
Building 3, Xinke Plaza, Torch
Hi-Tech Industrial
Development Zone, Xiamen,
China

+86-592-577-1197

China Regional Sales & Support

Shenzhen, China

705, 7th Floor, South District,
Building 2B, Skyworth
Innovation Valley, No. 1
Tangtou Road, Shiyuan Street,
Baoan District, Shenzhen City,
Guangdong Province

+86-755 2153 5149

Beijing Region Office

Beijing, China

Building 8, 25 Qixiao Road
Shahe Town Changping

+010- 8577 7286

Europe Regional Sales & Support

Eindhoven, Holland

Flight Forum Eindhoven
5657 DW

+31 (040) 202 71 83

5.2 Troubleshooting

Image

- The monitor shows no image

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

- The video image displayed by the camera lens is jittery

- 1) Check whether the camera installed position be stabled.
- 2) Check whether have vibrating machinery or object near the camera.

- There is no video image in Browser

IE browser does not support H5, you need to use VLC plug-in to view videos. Please access VLC website (<http://www.videolan.org/vlc>) download and install the 32-bit VLC media player, after it installed, access 4K PTZ camera will have normal image display. Other mainstream browsers already support H5 and do not need to install the VLC plug-in.

- Unable to access 4K PTZ camera through Browser

- 1) Using PC to access the network to test whether the network access can work properly, first of all, the network fault caused by the PC virus can be eliminated, until the PC and 4K PTZ camera can communicate with each other Ping.
- 2) Disconnect the network, connect 4K PTZ camera and PC separately, and reset the IP address of PC.
- 3) Check IP address, subnet mask, and gateway settings for 4K PTZ camera.
- 4) Check whether the MAC address is conflicts.
- 5) Check whether the web port is modified.
- 6) The default web port is 80.

- Forget the IP address or login password

Please remember (The default IP address: 192.168.100.88; default user name: admin; default password: admin).

Control

- Remote control cannot control

- 1) Check and replace the new battery for the remote controller.
- 2) Check whether the camera working mode is correct.
- 3) Check whether the address of remote control can match the camera.

- Serial port cannot control

- 1) Check whether the camera protocol, address and baud rate such is the same.
- 2) Check whether the control line is connected well.

Chapter 6 Appendix

6.1 Terms & Definitions

● **RCA:** Connector used primarily in consumer AV equipment for both audio and video. The RCA connector was developed by the Radio Corporation of America.

● **BNC:** Stands for Bayonet Neill-Concelman. A cable connector used extensively in television (named for its inventors). A cylindrical bayonet connector that operates with a twist-locking motion.

● **CVBS:** CVBS or Composite video, is an analog video signal without audio. Most commonly CVBS is used for transmission of standard definition signals. In consumer applications the connector is typically RCA type, while in professional applications the connector is BNC type.

● **YPbPr:** Used to describe the colour space for progressive-scan. Otherwise known as component video.

● **VGA:** Video Graphics Array. VGA is an analog signal typically used on earlier computers. The signal is non-interlaced in modes 1, 2, and 3 and interlaced when using in mode.

● **DVI:** Digital Visual Interface. The digital video connectivity standard that was developed by DDWG (Digital Display Work Group). This connection standard offers two different connectors: one with 24 pins that handles digital video signals only, and one with 29 pins that handles both digital and analog video.

● **SDI:** Serial Digital Interface. Standard definition video is carried on this 270 Mbps data transfer rate. Video pixels are characterized with a 10-bit depth and 4:2:2 color quantization. Ancillary data is included on this interface and typically includes audio or other metadata. Up to sixteen audio channels can be transmitted. Audio is organised into blocks of 4 stereo pairs. Connector is BNC.

● **HD-SDI:** High-definition serial digital interface (HD-SDI), is standardized in SMPTE 292M this provides a nominal data rate of 1.485 Gbit/s.

● **12G-SDI:** Standardized in SMPTE 424M, consists of a single 2.970 Gbit/s serial link that allows replacing dual link HD-SDI.

● **6G-SDI:** Standardized in SMPTE ST-2081 released in 2015, 6Gbit/s bitrate and able to support 2160p@30.

● **12G-SDI:** Standardized in SMPTE ST-2082 released in 2015, 12Gbit/s bitrate and able to support 2160p@60.

● **U-SDI:** Technology for transmitting large-volume 8K signals over a single cable. a signal interface called the ultra high definition signal/data interface (U-SDI) for transmitting 4K and 8K signals using a single optical cable. The interface was standardized as the SMPTE ST 2036-4.

● **HDMI:** High Definition Multimedia Interface: An interface used for the transmission of uncompressed high definition video, up to 8 channels of audio, and control signals, over a single cable.

● **HDMI 1.3:** released on June 22 2006, and increased the maximum TMDS clock to 340 MHz (10.2 Gbit/s). Support resolution 1920 × 1080 at 120 Hz or 2560 × 1440 at 60 Hz). It added support for 10 bpc, 12 bpc, and 16 bpc color depth (30, 36, and 48 bit/px), called deep color.

● **HDMI 1.4 :** released on June 5, 2009, added support for 4096 × 2160 at 24 Hz, 3840 × 2160 at 24, 25, and 30 Hz, and 1920 × 1080 at 120 Hz. Compared to HDMI 1.3, 3 more features added which are HDMI Ethernet Channel (HEC) , audio return channel (ARC),3D Over HDMI, a new Micro HDMI Connector, an expanded set of color spaces.

● **HDMI 2.0:** Released on September 4, 2013 increases the maximum bandwidth to 18.0 Gbit/s. Other features of HDMI 2.0 include up to 32 audio channels, up to 1536 kHz audio sample frequency, the HE-AAC and DRA audio standards, improved 3D capability, and additional CEC functions.

● **HDMI 2.0a:** Was released on April 8, 2015, and added support for High Dynamic Range (HDR) video with static metadata.

● **HDMI 2.0b:** Was released March, 2016, support for HDR Video transport and extends the static metadata signaling to include Hybrid Log-Gamma (HLG).

● **HDMI 2.1:** Released on November 28, 2017. It adds support for higher resolutions and higher refresh rates, Dynamic HDR including 4K 120 Hz and 8K 120 Hz.

● **DisplayPort:** A VESA standard interface primarily for video, but also for audio, USB and other data. DisplayPort (orDP) is backwards compatible with HDMI, DVI and VGA.

● **DP 1.1:** Was ratified on 2 April 2007, and version 1.1a was ratified on 11 January 2008. DisplayPort 1.1 allow a maximum bandwidth of 10.8 Gbit/s (8.64 Gbit/s data rate) over a standard 4-lane main link, enough to support 1920x1080@60Hz.

● **DP 1.2:** Introduced on 7 January 2010, effective bandwidth to 17.28 Gbit/s support increased resolutions, higher refresh rates, and greater color depth, maximum resolution 3840 × 2160@60Hz.

● **DP 1.4:** Publish on 1 Mar, 2016. overall transmission bandwidth 32.4 Gbit/s ,DisplayPort 1.4 adds support for Display Stream Compression 1.2 (DSC), DSC is a "visually lossless" encoding technique with up to a 3:1 compression ratio. Using DSC with HBR3 transmission rates, DisplayPort 1.4 can support 8K UHD (7680 × 4320) at 60 Hz or 4K UHD (3840 × 2160) at 120 Hz with 30 bit/px RGB color and HDR. 4K at 60 Hz 30 bit/px RGB/HDR can be achieved without the need for DSC.

● **Multi-mode Fiber:** Fibers that support many propagation paths or transverse modes are called multi-mode fibers, generally have a wider core diameter and are used for short-distance communication links and for applications where high power must be transmitted.

● **Single-mode Fiber:** Fiber that support a single mode are called single-mode fibers. Single-mode fibers are used for most communication links longer than 1,000 meters (3,300 ft).

●**SFP**: Small form-factor pluggable, is a compact, hot-pluggable network interface module used for both telecommunication and data communications applications.

●**Optical Fiber Connector**: Terminates the end of an optical fiber, and enables quicker connection and disconnection than splicing. The connectors mechanically couple and align the cores of fibers so light can pass. 4 most common types of optical fiber connectors are SC, FC, LC,ST.

●**SC**: (Subscriber Connector), also known as the square connector was also created by the Japanese company – Nippon Telegraph and Telephone. SC is a push-pull coupling type of connector and has a 2.5mm diameter. Nowadays, it is used mostly in single mode fiber optic patch cords, analog, GBIC, and CATV. SC is one of the most popular options, as its simplicity in design comes along with great durability and affordable prices.

●**LC**: (Lucent Connector) is a small factor connector (uses only a 1.25mm ferrule diameter) that has a snap coupling mechanism. Because of its small dimensions, it is the perfect fit for high-density connections, XFP, SFP, and SFP+ transceivers.

●**FC**: (Ferrule Connector) is a screw type connector with a 2.5mm ferrule. FC is a round shaped threaded fiber optic connector,mostly used on Datacom, telecom, measurement equipment, single-mode laser.

●**ST**: (Straight Tip) was invented by AT&T and uses a bayonet mount along with a long spring-loaded ferrule to support the fiber.










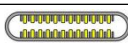
●**USB**: Universal Serial Bus is a standard that was developed in the mid-1990s that defines cables, connectors and communication protocols. This technology is designed to allow a connection, communication and power supply for peripheral devices and computers.

●**USB 1.1**: Full-Bandwidth USB, specification was the first release to be widely adopted by the consumer market. This specification allowed for a maximum bandwidth of 12Mbps.

●**USB 2.0**: Or Hi-Speed USB, specification made many improvements over USB 1.1. The main improvement was an increase in bandwidth to a maximum of 480Mbps.

●**USB 3.2**: Super Speed USB with 3 varieties of 3.2 Gen 1(original name USB 3.0), 3.2Gen 2(original name USB 3.1), 3.2 Gen 2x2 (original name USB 3.2) with speed up to 5Gbps,10Gbps,20Gbps respectively.

USB version and connectors figure:

	Type A	Type B	Mini A	Mini B	Micro-A	Micro-B	Type C
● NTSC: The colour video							
							
							

standard used in North America and some other parts of the world created by the National Television Standards Committee in the 1950s. NTSC utilizes an interlaced video signals.

● **PAL:** Phase Alternate Line. A television standard in which the phase of the colour carrier is alternated from line to line. It takes four full images (8 fields) for the colour-to-horizontal images (8 fields) for the colour-to-horizontal phase relationship to return to the reference point. This alternation helps cancel out phase errors. For this reason, the hue control is not needed on a PAL TV set. PAL, is widely used in Western Europe, Australia, Africa, the Middle East, and Micronesia. PAL uses 625-line, 50-field (25 fps) composite colour transmission system.

● **SMPTE:** Society of Motion image and Television Engineers. A global organization, based in the United States, that sets standards for baseband visual communications. This includes film as well as video and television standards.

● **VESA:** Video Electronics Standards Association. An organization facilitating computer graphics through standards.

● **HDCP:** High-bandwidth Digital Content Protection (HDCP) was developed by Intel Corporation and is in wide use for protection of video during transmission between devices.

● **HDBaseT:** A video standard for the transmission of uncompressed video (HDMI signals) and related features using Cat 5e/Cat6 cabling infrastructure.

● **ST2110:** A SMPTE developed standard, ST2110 describes how to send digital video over and IP networks. Video is transmitted uncompressed with audio and other data in a separate streams. SMPTE2110 is intended principally for broadcast production and distribution facilities where quality and flexibility are more important.

● **SDVoE:** Software Defined Video over Ethernet (SDVoE) is a method for transmission, distribution and management AV signals using a TCP/IP Ethernet infrastructure for transport with low latency. SDVoE is commonly used in integration applications.

● **Dante AV:** The Dante protocol was developed for and widely adopted in audio systems for the transmission of uncompressed digital audio on IP based networks. The more recent Dante AV specification includes support for digital video.

● **NDI:** Network Device interface (NDI) is a software standard developed by NewTek to enable video-compatible products to communicate, deliver, and receive broadcast quality video in a high quality, low latency manner that is frame-accurate and suitable for switching in a live production environment over TCP (UDP) Ethernet based networks. NDI is commonly found in broadcast applications.

● **RTMP:** Real-Time Messaging Protocol (RTMP) was initially a proprietary protocol developed by Macromedia (now Adobe) for streaming audio, video and data over the Internet, between a Flash player and a server.

● **RTSP:** The Real Time Streaming Protocol (RTSP) is a network control protocol designed for use in entertainment and communications systems to control streaming media servers. The protocol is used for establishing and controlling media

sessions between end points.

● **MPEG:** Moving Picture Experts Group is a working group formed from ISO and IEC developing standards that allow audio/video digital compression and Transmission.

● **H.264:** Also known as AVC (Advanced Video Coding) or MPEG-4i is a common video compression standard. H.264 was standardized by the ITU-T Video Coding Experts Group (VCEG) together with the ISO/IEC JTC1 Moving Picture Experts Group (MPEG).

● **H.265:** Also known as **HEVC** (High Efficiency Video Coding) H.265 is the successor to the widely used H.264/AVC digital video coding standard. Developed under the auspices of ITU, resolutions up to 8192x4320 may be compressed.

● **API:** An Application Programming Interface (API) provides a predefined function which allows access capabilities and features or routines via a software or hardware, without accessing source code or understanding the details of inner working mechanism. An API call may execute a function and/or provide data feedback/report.

● **DMX512:** The communication standard developed by USITT for entertainment and digital lighting systems. The wide adoption of the Digital Multiplex (DMX) protocol has seen the protocol used for a wide range of other devices including video controllers. DMX512 is delivered over cable of 2 twisted pairs with 5pin XLR cables for connection.

● **ArtNet:** An ethernet protocol based on TCP/IP protocol stack, mainly used in entertainment/events applications. Built on the DMX512 data format, ArtNet enables multiple “universes” of DMX512 to be transmitted using ethernet networks for transport.

● **MIDI:** MIDI is the abbreviation of Musical Instrument Digital Interface. As the name indicates the protocol was developed for communication between electronic musical instruments and latterly computers. MIDI instructions are triggers or commands sent over twisted pair cables, typically using 5pin DIN connectors.

● **OSC:** The principle of Open Sound Control (OSC) protocol is for networking sound synthesizers, computers, and multimedia devices for musical performance or show control. As with XML and JSON, the OSC protocol allows sharing data. OSC is transported via UDP packets between devices connected on an Ethernet.

● **Brightness:** Usually refers to the amount or intensity of video light produced on a screen without regard to colour. Sometimes called black level.

● **Contrast Ratio:** The ratio of the high light output level divided by the low light output level. In theory, the contrast ratio of the television system should be at least 100:1, if not 300:1. In reality, there are several limitations. Well-controlled viewing conditions should yield a practical contrast ratio of 30:1 to 50:1.

● **Colour Temperature:** The colour quality, expressed in degrees Kelvin (K), of a light source. The higher the colour temperature, the bluer the light. The lower the temperature, the redder the light. Benchmark colour temperature for the A/V industry include 5000°K, 6500°K, and 9000°K.

● **Saturation:** Chroma, Chroma gain. The intensity of the colour, or the extent to which a given colour in any image is free from white. The less white in a colour, the truer the colour or the greater its saturation. Saturation is the amount of

pigment in a colour, and not the intensity.

● **Gamma:** The light output of a CRT is not linear with respect to the voltage input. The difference between what you should have and what is actually output is known as gamma.

● **Frame:** In interlaced video, a frame is one complete image. A video frame is made up of two fields, or two sets of interlaced lines. In a film, a frame is one still image of a series that makes up a motion image.

● **Genlock:** Allows synchronisation of otherwise video devices. A signal generator provides a signal pulses which connected devices can reference. Also see Black Burst and Color Burst.

● **Blackburst:** The video waveform without the video elements. It includes the vertical sync, horizontal sync, and the Chroma burst information. Blackburst is used to synchronize video equipment to align the video output.

● **Colour Burst:** In colour TV systems, a burst of subcarrier frequency located on the back part of the composite video signal. This serves as a colour synchronizing signal to establish a frequency and phase reference for the Chroma signal. Colour burst is 3.58 MHz for NTSC and 4.43 MHz for PAL.

● **Colour Bars:** A standard test pattern of several basic colours (white, yellow, cyan, green, magenta, red, blue, and black) as a reference for system alignment and testing. In NTSC video, the most commonly used colour bars are the SMPTE standard colour bars. In PAL video, the most commonly used colour bars are eight full field bars. On computer monitors the most commonly used colour bars are two rows of reversed colour bars

● **Seamless Switching:** A feature found on many video switchers. This feature causes the switcher to wait until the vertical interval to switch. This avoids a glitch (temporary scrambling) which often is seen when switching between sources.

● **Scaling:** A conversion of a video or computer graphic signal from a starting resolution to a new resolution. Scaling from one resolution to another is typically done to optimize the signal for input to an image processor, transmission path or to improve its quality when presented on a particular display.

● **PIP:** Picture-In-Picture. A small image within a larger image created by scaling down one of image to make it smaller. Other forms of PIP displays include Picture-By-Picture (PBP) and Picture- With-Picture (PWP), which are commonly used with 16:9 aspect display devices. PBP and PWP image formats require a separate scaler for each video window .

● **HDR:** is a high dynamic range (HDR) technique used in imaging and photography to reproduce a greater dynamic range of luminosity than what is possible with standard digital imaging or photographic techniques. The aim is to present a similar range of luminance to that experienced through the human visual system.

● **UHD:** Standing for Ultra High Definition and comprising 4K and 8K television standards with a 16:9 ratio, UHD follows the 2K HDTV standard. A UHD 4K display has a physical resolution of 3840x2160 which is four times the area and twice both the width and height of a HDTV/FullHD (1920x1080) video signal.

● **EDID:** Extended Display Identification Data. EDID is a data structure used to communicate video display information,

including native resolution and vertical interval refresh rate requirements, to a source device. The source device will then output the provided EDID data, ensuring proper video image quality.

6.2 Revision History

The table below lists the changes to the User Manual.

Version	Date	ECO#	Description	Editor
V1.0	2023-12-22	0000#	Release	Aster

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