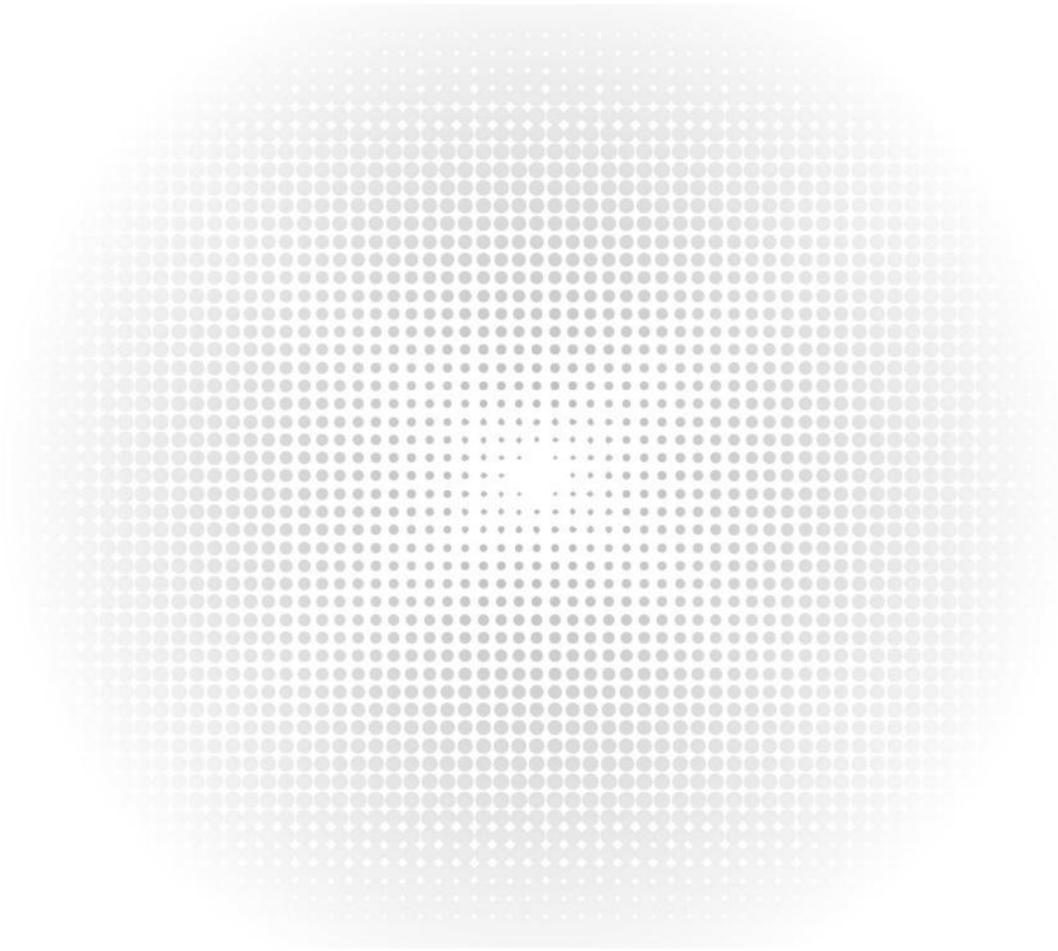
FC731-4K User Manual

Model : FC731-4K



User Manual

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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

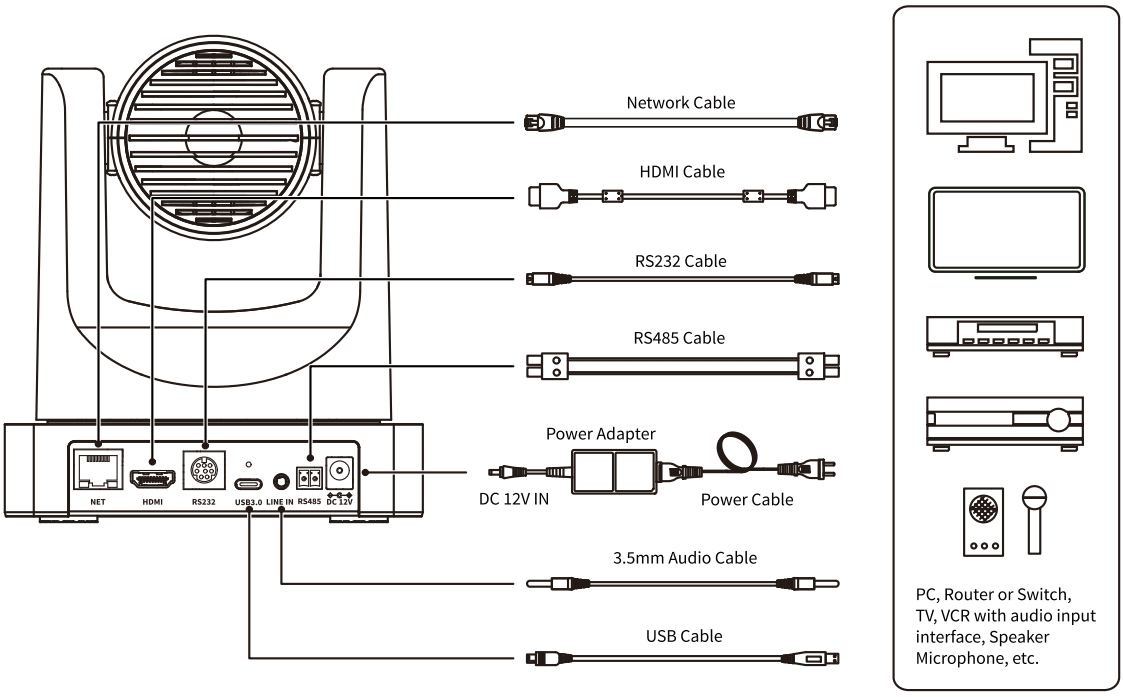
Electromagnetic field at specific frequencies may affect the image quality.

2. Packing List

Name	Quantity
Camera	1
Power Adapter	1
Power Cable	1
USB Cable	1
Remote Control	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 the 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 Featured USB Interface

Full featured USB interface, compatible with USB3.0 and USB2.0, support UVC 1.1 and UAC 1.0 protocol, support video raw image and encoding output.

●4K UHD

The new high-quality 1/2.5-inch UHD CMOS sensor with 8.51 million effective pixels for ultra-high resolution high-quality images up to 4K (3840x2160) and downward compatible with 1080P, 720P and other resolutions.

●71° Wide-angle Lens

The exclusively customized 71° high-quality 4K ultra-wide-angle lens with a real ultra-high resolution of 8 megapixels, support 12x optical zoom.

●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.

●PoE

The wired network supports PoE power supply, the control, power supply, video and audio can be completed with a network cable.

●Remote Control

The camera can be controlled remotely through the RS232, RS485, network and USB port.

●H.264 Slice

The H.264 stream supports Slice encoding modes and suitable for high-end USB conference video applications.

●Multiple & Complete Interfaces

Support 4K video output via HDMI, USB 3.0 and network interface simultaneously.

●Three Power Supply Modes

Simultaneously support USB 5V, DC 12V power adapter and PoE power supply.

4.2 Product Specifications

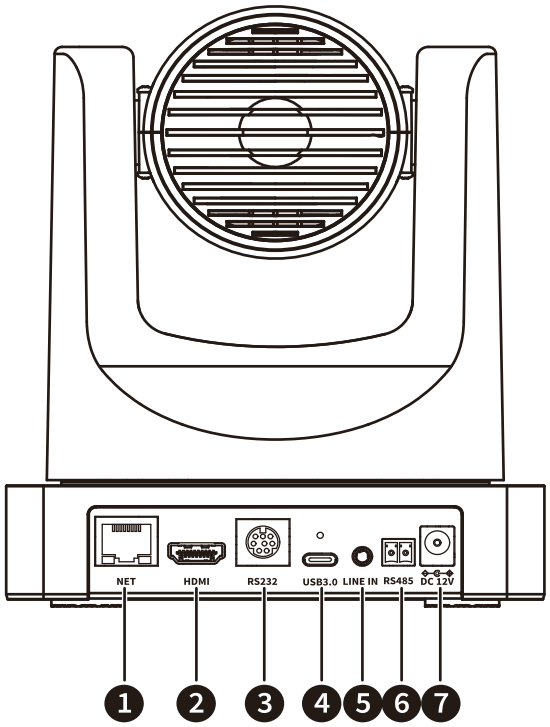
Camera	
Video System	4K30, 4K25, 1080P30, 1080P25,
Sensor	1/2.5-inch, CMOS, Effective Pixel: 8.51M
Scanning Mode	Progressive
Lens	12x, f=4.4mm ~ 52.8mm, F1.8 ~ F2.6
Minimum Illumination	0.5 Lux @ (F1.8, AGC ON)
Shutter	1/30s ~ 1/10000s
White Balance	Auto, Indoor, Outdoor, One Push, Manual, VAR
Backlight Compensation	Support
Digital Noise Reduction	2D&3D Digital Noise Reduction
SNR	≥55dB
Horizontal FOV	71° ~ 8.2°
Vertical FOV	42.7° ~ 4.5°
Pan Angle	±170°
Tilt Angle	-30° ~ +90°
Pan Speed	2.7° ~ 35.7°/s
Tilt Speed	2.7° ~ 31.5°/s
Image Flip	Support
Image Freeze	Support
Preset Position	255
Preset Accuracy	0.1°
USB Features	

Operate System	Windows 7, Windows 8, Windows 10, Mac OS X, Linux, Android
Color System/Compression	YUY2/MJPEG/H.264
Video Format	YUY2: 1440P@30fps (max.) MJPEG: 2160P@30fps (max.) H.264 AVC: 2160P@30fps (max.)
USB Audio	Support
USB Video Communication Protocol	UVC 1.1
UVC PTZ	Support
Network Features	
Encode Protocol	H.265/ H.264/MJPEG
Video Stream	First Stream, Second Stream
First Stream Resolution	3840x2160, 1920x1080, 1280x720, 1024x576, 960x540, 640x480, 640x360
Second Stream Resolution	640x360, 480x272, 320x240, 320x180
Video Bit Rate for First Stream	32Kbps ~ 20480Kbps
Video Bit Rate for Second Stream	32Kbps ~ 6144Kbps
Bit Rate Control	CBR, VBR
Frame Rate	50Hz: 1fps ~ 25fps, 60Hz: 1fps ~ 30fps
Audio Type	AAC
Audio Bit Rate	96K, 128K, 256K

Protocol	TCP/IP, HTTP, RTSP, RTMP(S), ONVIF, DHCP, SRT (MJPEG format is not supported), Multicast, etc.
Interfaces	
Network Interface	1 x NET: 10M/100M Adaptive Ethernet Ports
USB Interface	1 x USB 3.0: Type-C
Video Interface	1 x HDMI 1.4b
Audio Interface	1 x LINE IN: 3.5mm Audio Interface
Communication Interface	1 x RS232 IN: 8pin Min DIN, Max. Distance: 30m, Protocol: VISCA/Pelco-D/ Pelco-P
	1 x RS485: 2pin phoenix port; Max. Distance: 1200m; Protocol: VISCA/ Pelco-D/Pelco-P
Power Interface	JEITA type (DC 12V)/ USB Type-C (USB 5V)/ PoE
General Specifications	
Input Voltage	DC 12V /DC 5V/ PoE (802.3af)
Input Current	12V 1.0A (max.)/ 5V 1.5A (max.)
Operating Temperature	0°C ~ 40°C
Storage Temperature	-40°C ~ 60°C
Power Consumption	18W (max.)
Dimension (mm)	144 x 144 x 173.4
Net Weight	About 1.4Kg

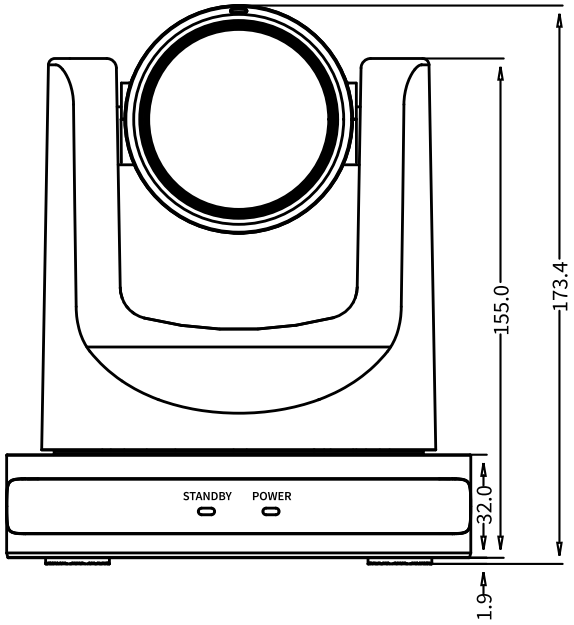
Note Product features and specifications are subject to change without notice.

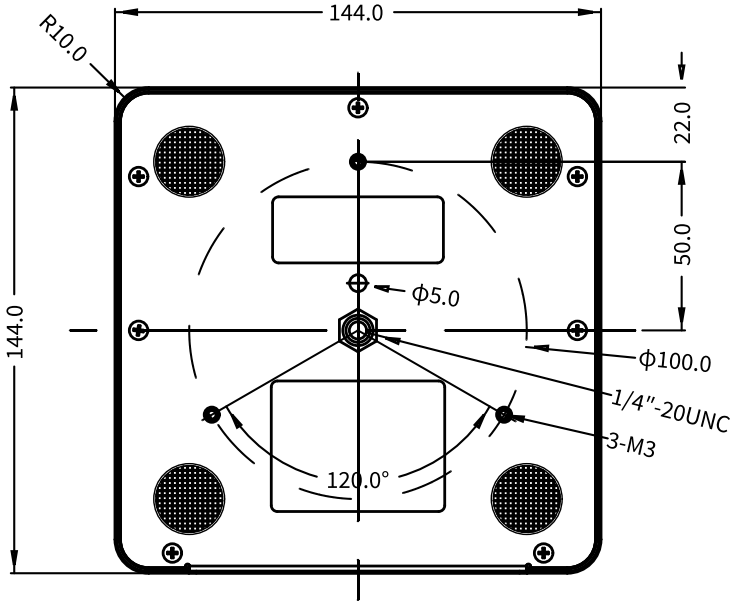
4.3 Interfaces and Buttons

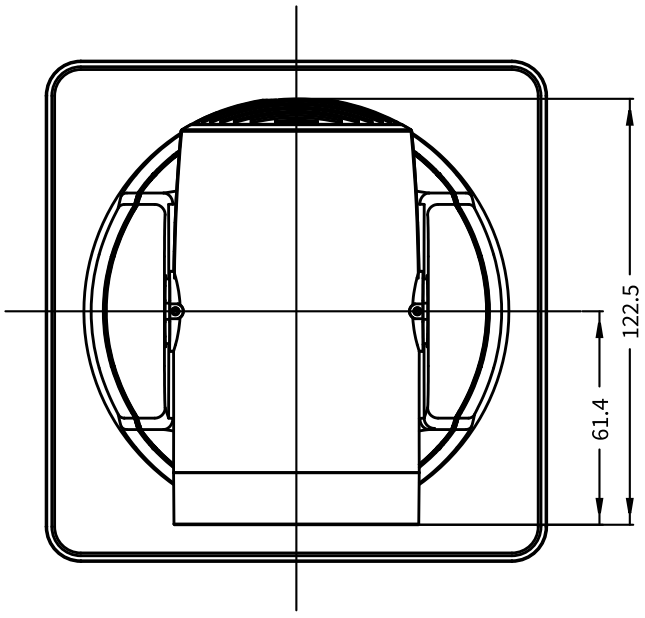


No.	Interface
1	NET Interface
2	HDMI Interface
3	RS232 Interface
4	USB3.0 Interface
5	LINE IN Interface
6	RS485 Interface
7	DC 12V Interface

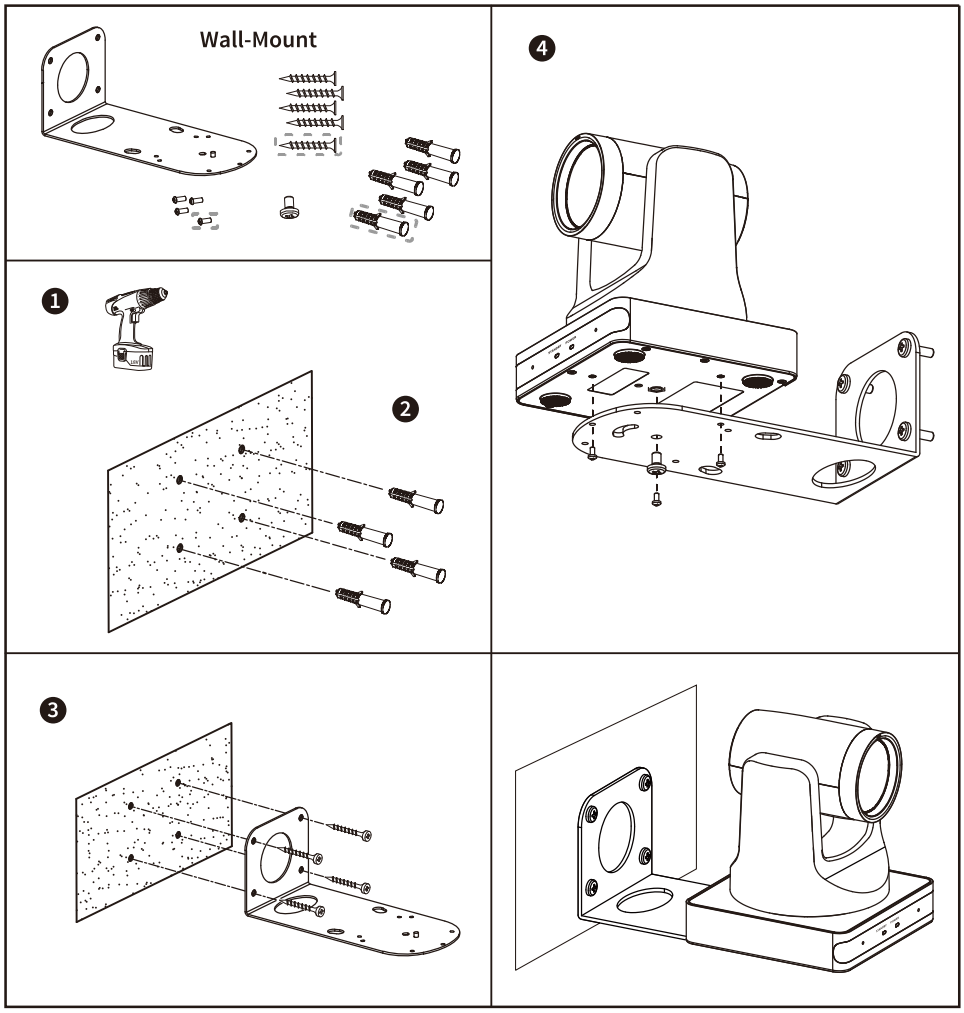
4.4 Dimension

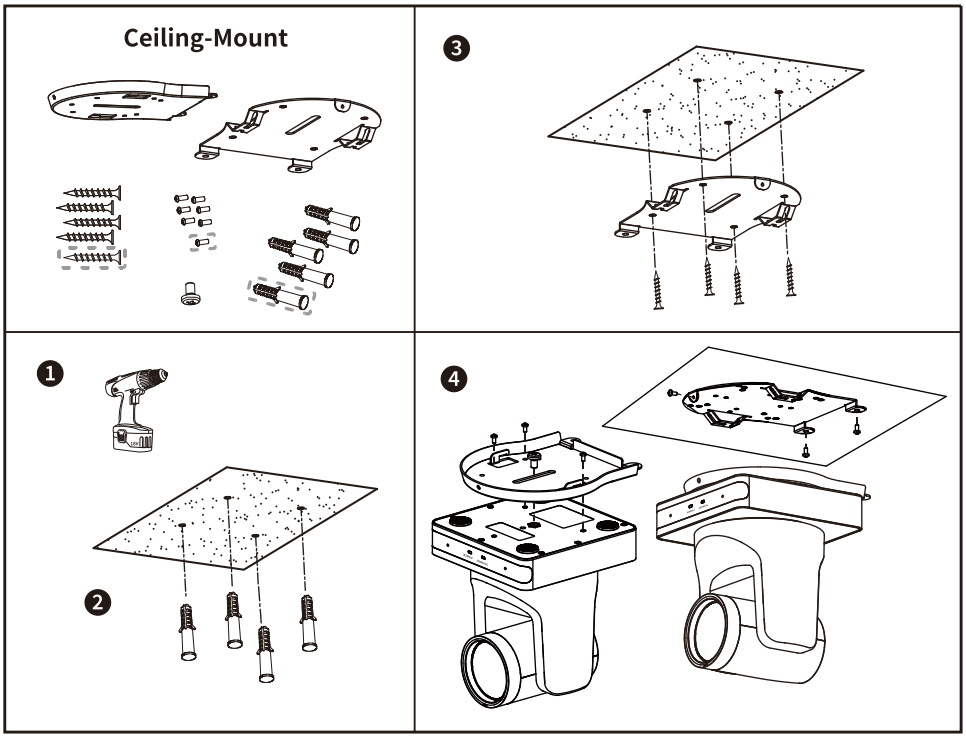






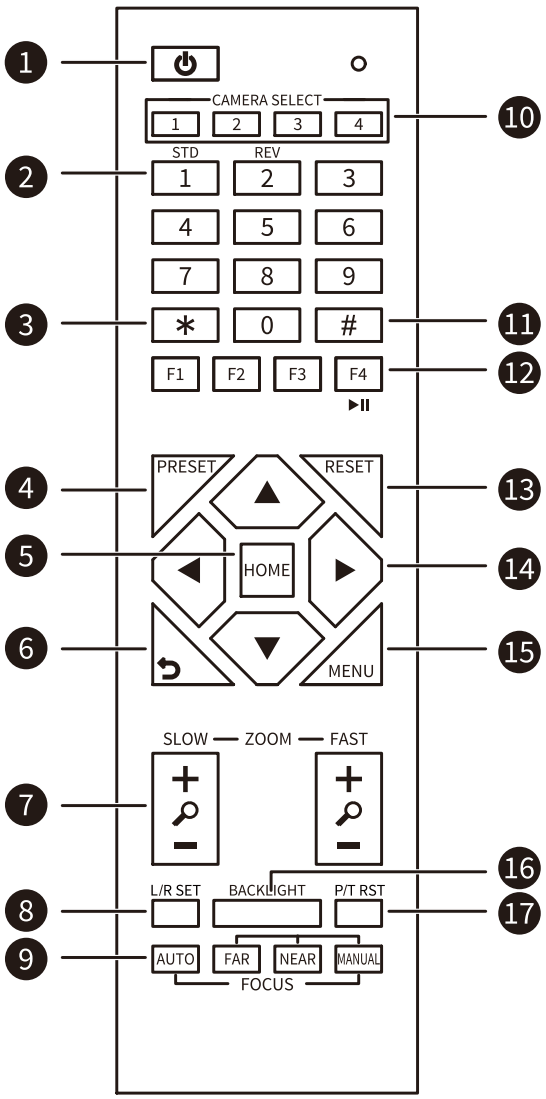
4.5 Installation





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

4.6 Remote Control



Key Description
1. ⏻ (Standby) Key
Press to enter standby mode
2. Number Keys
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 Keys

●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 Keys

Auto/Manual/Far-end/Near-end focus

10. CAMERA SELECT Keys

Press to select and control the camera

11. # Key

Use with other keys

12. IR Remote Control Keys

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

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

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

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

13. RESET Key

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

14. PTZ Control Keys

PTZ moved according to the arrow indicates

15. MENU Key

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

Press to preset Pan/Tilt self-test

Shortcut Set

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

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

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

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

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

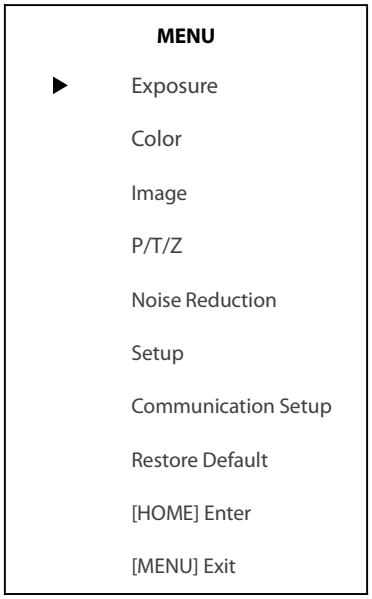
[*] + [#] + [9]: Quickly set up inversion

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

5. GUI Settings

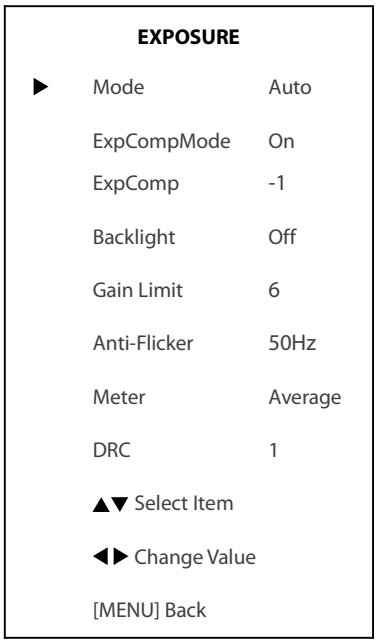
5.1 MENU

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



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 shown as below.



Mode: Auto, Manual, SAE, AAE, Bright.
ExpCompMode (Exposure Compensation Mode): On, Off (Effective in Auto mode).
ExpComp (Exposure Compensation Value): -7 ~ +7 (Effective in ExpCompMode On).
Backlight: On, Off (Effective in Auto mode).
Bright: 0~17 (Effective in Bright mode).
Gain Limit: 0 ~ 15 (Effective in Auto, SAE, AAE, Bright mode).
Anti-Flicker: Off, 50Hz, 60Hz (Effective in Auto, AAE, Bright mode).
Meter: Average, Center, Smart, Top (Effective in Auto, SAE, AAE, Bright mode).
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 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 in Manual, SAE mode).
Gain: 0 ~ 7 (Effective in Manual 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 shown as below.

COLOR		
▶	WB Mode	Auto
	RG Tuning	+1
	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 Tuning (Red Gain Tuning): -10 ~ +10 (Effective in Auto, One Push, VAR mode).
BG Tuning (Blue Gain Tuning): -10 ~ +10 (Effective in Auto, One Push, VAR mode).
Saturation: 60% ~ 200%.
Hue: 0 ~ 14.
AWB Sens (The White Balance Sensitivity): Low, Middle, High (Effective in Auto, One Push mode).
RG (Red Gain): 0~255 (Effective in Manual mode).
BG (Blue Gain): 0~255 (Effective in Manual mode).
Color Temp: 2500K ~ 8000K (Effective in VAR 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 shown as below.

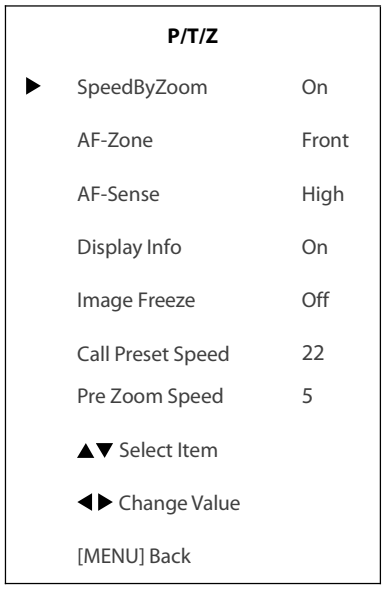
IMAGE		
▶	Luminance	7
	Contrast	7
	Sharpness	3
	Flip-H	Off
	Flip-V	Off
	B&W-Mode	Off
	Gamma	0.5
	Style	Default
	▲▼ Select Item	
	◀▶ Change Value	
	[MENU] Back	

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

Style: Default, Norm, Clarity, Bright, PC.

5.5 P/T/Z

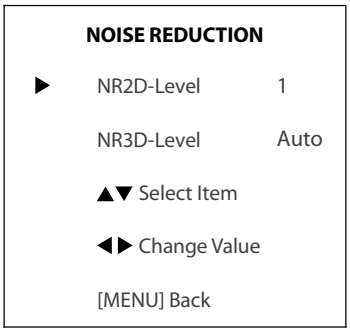
When in main menu page, move the cursor to [P/T/Z] and press [HOME] key to confirm to enter the P/T/Z page as shown as below.



SpeedByZoom (The Depth of Field Ratio): On, Off.
AF-Zone (Auto Focus Area): Front, Top, Center, Bottom.
AF-Sense (Auto Focus Sensitivity): Low, Normal, High.
Display Info: On, Off.
Image Freeze: On, Off.
Call Preset Speed: 1 ~ 24.
Pre Zoom Speed: 0 ~ 7.

5.6 NOISE REDUCTION

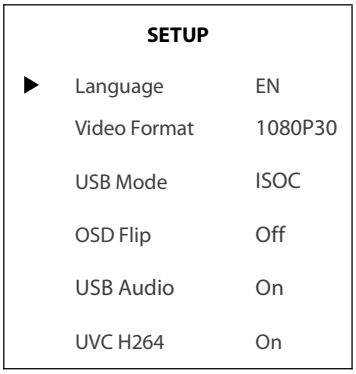
When in main menu page, move the cursor to [Noise Reduction] and press [HOME] key to confirm to enter the Noise Reduction page as shown as below.

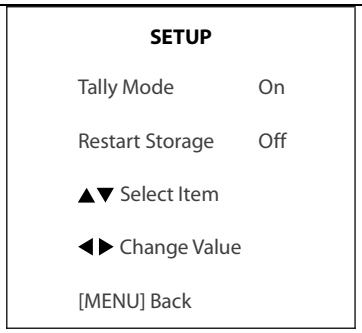


NR2D Level (2D Noise Reduction): Auto, Off,1 ~ 5.
NR3D Level: (3D Noise Reduction): Auto, Off, 1 ~ 8.

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 shown as below.



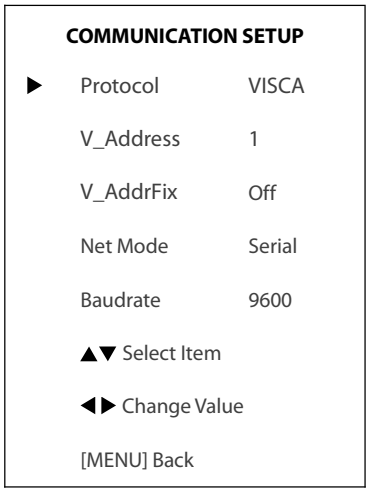


Language: EN, Chinese, Russian.
Video Format: 1080P30, 1080P25, 4K30, 4K25.
USB Mode: BULK, ISOC.
OSD Flip: On, Off.
USB Audio: On, Off.
UVC H264: On, Off.
Tally Mode: On, Off.
Restart Storage: On, Off.

5.8 COMMUNICATION SETUP

When in main menu page, move the cursor to

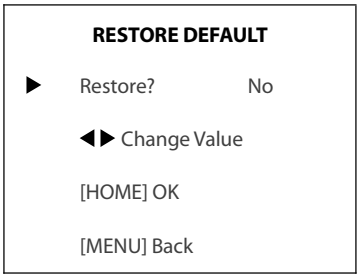
[Communication Setup] and press [HOME] key to confirm to enter the Communication setup page as shown as below.



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 and 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 (Set the Serial Port Network Control): 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 shown as below.



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 parameters are subject to change without notice.

6. WEB Settings

6.1 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:



6.2 Control Camera

All pages include two menu bars:

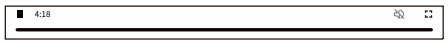
Real Time Monitoring: Video image displaying with function buttons.

Parameter Setup: Parameter configurating.

A. Video Viewing Window

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

Status bar in viewing window shown as below:

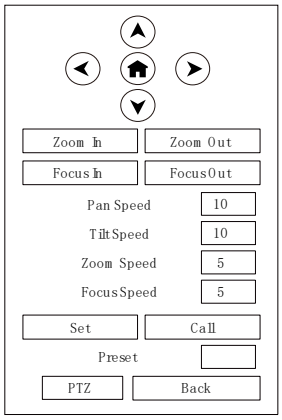


1) Video Pause: Click to pause the real-time video, click again to resume.

2) Audio Control: Click to adjust the volume or mute.

3) Full screen switch button.

B. PTZ Setup



1) Pan and Tilt Control

The direction arrows and HOME button allow you to manually drive the camera to 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 button allow for fine manual focus adjustment if the camera has any auto focusing problems on difficult object.

4) PTZ Speeds

Pan speed rate can be set to 1 ~ 24, Tilt speed rate can be set to 1 ~ 20. Zoom and Focus speed rate can be set to 1 ~ 7.

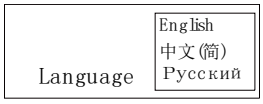
5) PTZ Presets

When the PTZ turns to the position that you would like to return to later, you can set presets for quick recall.
Type a number (0 ~ 254) into the preset box and click "Set" button to save.
When the PTZ turn to other position, input the preset number and click "Call" button to turn the PTZ back to the preset position.

6) PTZ/OSD

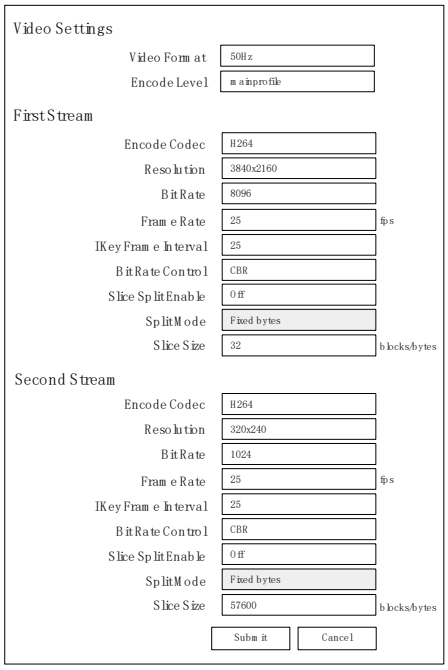
Move the cursor to dropdown menu, select and click "OSD" to open the on-screen menu and do menu settings on the interface.

C. Language Selection



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

6.3 Video Settings



1) Video Format

Support 50Hz (PAL) and 60Hz (NTSC) formats.

2) Encode Level

Support baseline, mainprofile and highprofile.

3) Encode Codec

Support H264, H265 and MJPEG.

4) Resolution

First stream support 3840x2160, 1920x1080, 1280x720, 1024x576, 960x540, 640x480, 640x360. Second stream support 640x360, 480x272, 320x240, 320x180; The bigger the resolution, the clearer the image, and the larger the code stream, the more network bandwidth will be taken.

5) Bit Rate

You can specify the bit rate, the larger of the bit rate, the clearer of the image. 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 will be worse.

6) Frame Rate

You can specify the size of the frame rate, the greater the frame rate, the smoother the image, the smaller the frame, the more sense of beating.

7) I Key Frame Interval

Set the interval between two I frames, the bigger the interval, the slower the response when opening the image for the first time.

8) Bit Rate Control

Two modes for bit rate control:
CBR (Constant Bit Rate): Video coder will be coding according to the preset speed.
VBR (Variable Bit Rate): Video coder will adjust the speed based on preset speed to gain the best image quality.

9) Slice Split Enable

Enable or disable the Slice Split function.

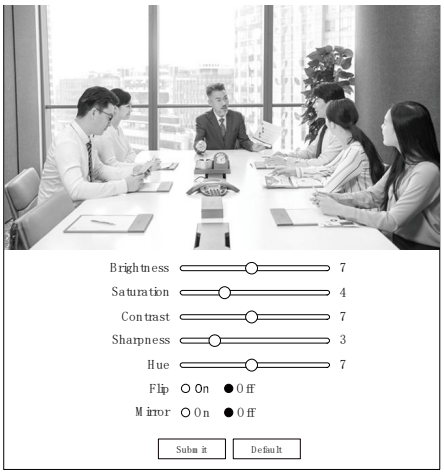
10) Split Mode

Split Mode Fixed bytes.

11) Slice Size

Size for slice.

6.4 Image Settings



1) Brightness

Image Bright: 0~14 (Default is 7).

2) Saturation

Image Saturation: 0~14 (Default is 4).

3) Contrast

Image Contrast: 0~14 (Default is 7).

4) Sharpness

Image sharpness: 0 ~ 16 (Default is 3).

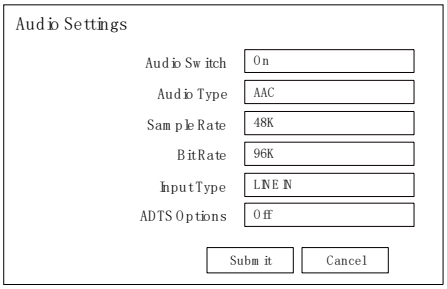
5) Hue

Image Hue: 0~14 (Default is 7).

6) Flip & Mirror

Flip: Turn On/Off the Flip function.
Mirror: Turn On/Off the Mirror function.

6.5 Audio Settings



1) Audio Switch

Enable or disable audio switch.

2) Audio Type

Audio type AAC.

3) Sample Rate

Sample rate 48K.

4) Bit Rate

Bit rate 96K, 128K and 256K selectable.

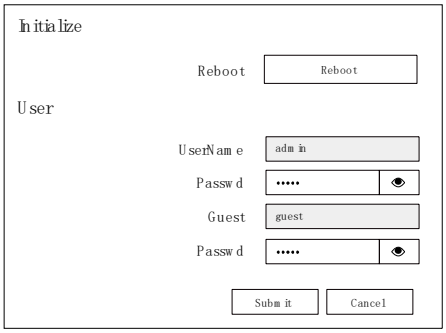
5) Input Type

Input type Line in.

6) ADTS Options

Options: On/Off.

6.6 System Settings



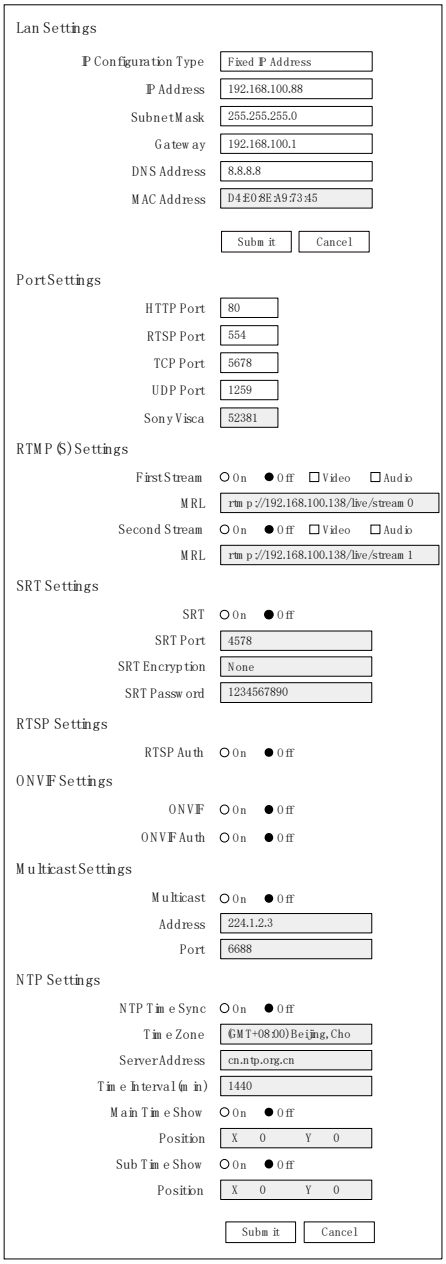
1) Reboot

Click "Reboot" to restart system.

2) Username and Password

Modify the password of username and guest (use letters and Numbers only).

6.7 Network Settings



1) Lan Settings

The default the IP address is 192.168.100.88, the MAC address cannot be modified.

2) Port Settings

A. HTTP Port

The IP address identifies a network device and multiple network programs can run on the device, each network program uses the network port for data transmission. The port setting on this page is to set up which port the WEB SERVER program uses to transmit. During port mapping, it needs to be consistent with the port number (default is 80).

B. RTSP Port

Set up the RTSP port, default is 554.

C. TCP Port

Set up the TCP port, default is 5678.

D. UDP Port

Set up the UDP port, default is 1259.

E. Sony Visca

Sony Visca 52381.

3) RTMP(S) Settings

Set the MRL of RTMP(S) and select "on", "off", "video" and "audio" functions to enable or disable video and audio in the two streams.

4) SRT Settings

Turn On/Off SRT and set up the SRT Port, Encryption and Password.

5) RTSP Settings

Turn On/Off the RTSP Auth.

6) ONVIF Settings

Turn On/Off the ONVIF and ONVIF Auth.

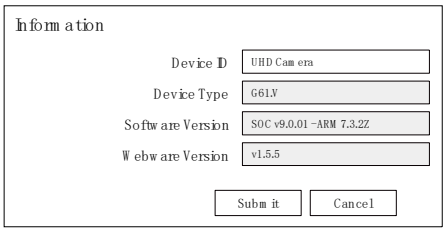
7) Multicast Settings

Turn On/Off Multicast, set up the Multicast Address (default is 224.1.2.3) and Port (default is 6688; 6688 is the multicast port of the first stream and 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; select the Time Zone; set up the Server address, Time interval and the Time Show Position of the two streams.

6.8 Device Information



Note

The above information is for reference only, please refer to the real product for the actual specification.

6.9 Download the Upgrade Program

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

Note

WEB interface and parameters are subject to change without notice.

7. Troubleshooting

Camera Restarts Automatically

●Camera restart continually while powered by USB separately

Connect the camera to the USB3.0 interface of the main device. If the fault persists, it needs to be powered with another power adapter.

●Camera restart automatically after operating PTZ or lens zooming while powered by USB separately

Connect the camera to the USB3.0 interface of the main device. If the fault persists, it needs to be powered with another power adapter.

Image

●The monitor shows no image

1) Ensure that the camera power supply is connected, the voltage is normal, and the power indicator is always on.

2) Turn off the power switch to check that the camera is self-testing.

3) Ensure the cable of video platform and TV that in correct connection.

●Image jitters after the camera is properly connected

1) Ensure that the camera installation is in stable position.

2) Check that any 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) to download and install the 32-bit VLC media player, after installation, the video image will be displayed normally when access the camera. Other mainstream browsers already support H5 and do not need to install the VLC plug-in.

●Unable to access through the browser

1) Using PC to access the network to test that the network access can work properly to eliminate the network fault caused by cable and PC virus until the PC and camera can ping each other.

2) Disconnect the network, connect camera with PC separately and reset the IP address of PC if necessary.

3) Ensure that the IP address, subnet mask and gateway settings is correct.

4) Check that the MAC address is conflicts.

5) Check that the web port is modified, the default setting is 80.

●Forget the IP address or login password

The default IP address is: 192.168.100.88; the default username and password are: admin.

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.