



**CC1 Series GigE Industrial Area Scan Camera
Specifications**

V2.1.0

Preface

The purpose of this section is to ensure that the user will be able to use the product correctly through this manual in order to avoid danger in operation or property damage. Before using this product, please read the product manual carefully and keep it for future reference.

Overview

This manual applies to the CC1 Series GigE Interface Industrial Area Scan Camera.

Symbol Conventions

The following symbols may appear in this document and represent the following meanings:

Makings	Instructions
 Instructions	Instructions text, which indicates the supplement and explanation of the main text.
 Notes	Notes text, indicating a reminder to the user of important operations or to guard against potential hazards of injury and property damage.
 Warning	Warning text indicates a potential risk that, if not avoided, could result in injury, equipment damage, or business interruption.
 Danger	Dangerous text indicates a high potential risk that, if not avoided, could result in a significant risk of injury or death.

Safety instructions for use

In order to prevent the occurrence of danger, prevent the loss of personnel and property, the following is the correct use of this product, before using the equipment, please read this manual carefully and strictly comply with the use of the equipment, after reading it, please keep the manual properly.



Warning

- During the installation and use of the product, all electrical safety regulations of the country and the area of use must be strictly observed.
- Please use the power adapter provided by the regular manufacturer, the specific requirements of the power adapter, please refer to the product parameters table.
- To reduce the risk of fire or electric shock, do not allow the product to be exposed to rain or moisture.
- When installing in the use environment, please make sure the product is fixed firmly.
- If the product is not working properly, contact the nearest service centre and do not disassemble or modify the product in any way.

(We are not responsible for problems caused by unapproved modifications or repairs).



Notes

- Avoid installing the product in a vibrating or shocking environment and keep the product away from locations with electromagnetic interference. (Neglecting this may damage the product).
- Do not touch the heat dissipating parts of the product directly to avoid burns.
- Do not install the indoor product in an environment where it may be drenched with water or other liquids.
- Do not use the product in extremely hot, cold, dusty, corrosive or high humidity environments, see the product's data sheet for specific temperature and humidity requirements.
- Avoid pointing the lens at strong light (e.g., light illumination, sunlight, or laser beams, etc.), as this may damage the image sensor.
- Do not touch the image sensor directly. If cleaning is necessary, moisten a soft, clean cloth slightly with alcohol and gently wipe off the dust; when the product is not in use, add the dust cover to protect the image sensor.
- Please keep all the original packaging materials of the camera in order to use the packaging materials to pack the camera and send it to the agent or return it to the manufacturer for processing in case of

problems. We are not responsible for accidental damage in transit caused by non-original packing materials.



Instructions

Quality requirements for installation and maintenance personnel: :

- have qualifications or experience in the installation and maintenance of weak power systems, and have experience and qualifications in related work, in addition to the following knowledge and operating skills.
- Basic knowledge and operational skills in low voltage wiring and low voltage electronic circuit wiring.
- Ability to read and understand the contents of this manual.

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Chapter 1 Product Overview

1.1 Product Description

Gigabit Ethernet Industrial Area Scan Camera is a highly reliable and cost-effective Industrial Area Scan Camera. It adopts a high-performance sensor chip, transmits uncompressed image data in real time via Gigabit Ethernet, and is compatible with any application development tools compliant with GigE Vision and GenICam standards. The maximum transmission rate of 1Gb/s can meet the requirements of most industrial applications, and it can work stably in a variety of harsh environments.

1.2 Functional Features

- Gigabit Ethernet interface has a maximum transmission distance of 100m.
- Supports various modes such as software trigger/hardware trigger/mixed soft and hard trigger/free running.
- Supports gamma correction, lookup table, black level correction, brightness, contrast and other ISP functions.
- Colour camera supports interpolation, white balance, colour conversion matrix, hue, saturation and so on.
- Supports multiple image data format output, ROI, Binning, Mirroring and so on.
- Is compliant with GigE Vision V2.0 protocol and GenICam standard.
- Supports POE power supply, DC 12V~24V wide voltage supply.
- Is EMC and RoHS compliant.



Instructions

- Part of the functions depend on the specific model, please refer to the actual function.
- For the technical parameters of the device, please check the technical specification of the specific model.

1.3 Typical Networking

The most typical networking method for industrial cameras is point-to-point connection, i.e., no other network medium is needed between the host computer and the industrial camera, which can be connected via a network cable.

A host can also connect multiple industrial cameras through multiple network ports or switches, as shown in the figure below:

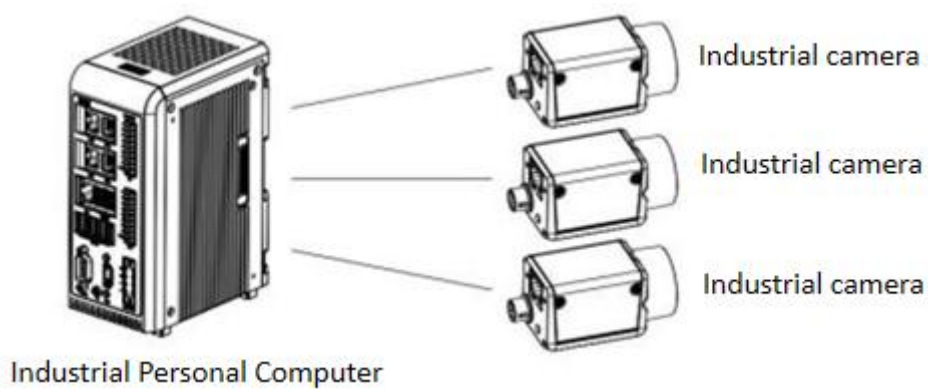
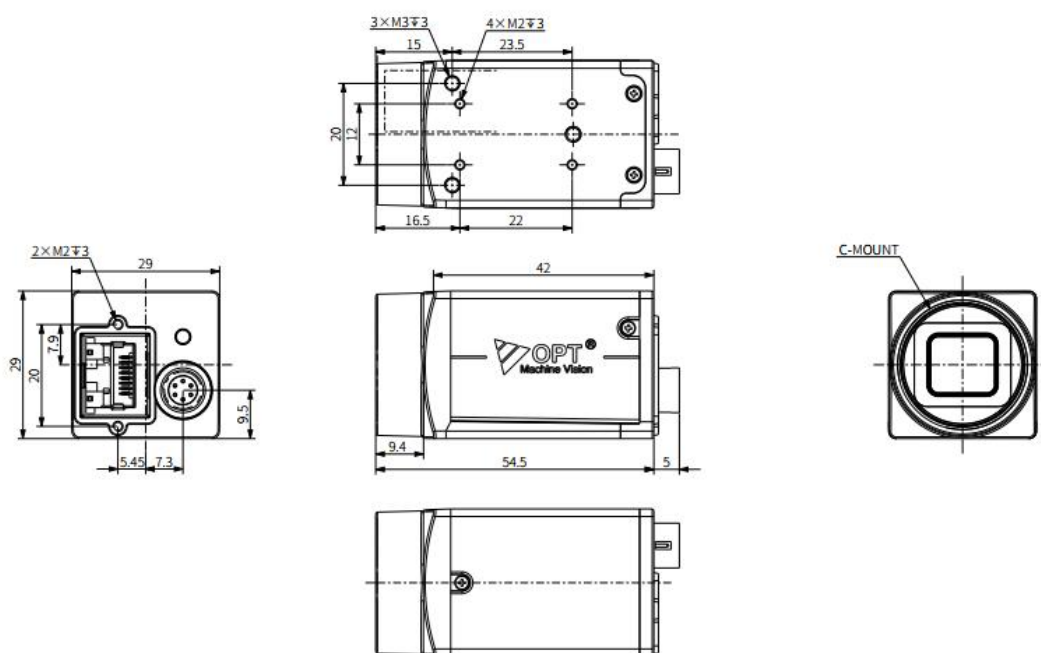


Figure 1-1 Typical Networking Mode

1.4 Product Structure

1.4.1 Product Size

The structural dimensions of the product are as follows:

Figure 1 129mm $\times$ 29mm $\times$ 42mm (Dimensional Drawing)

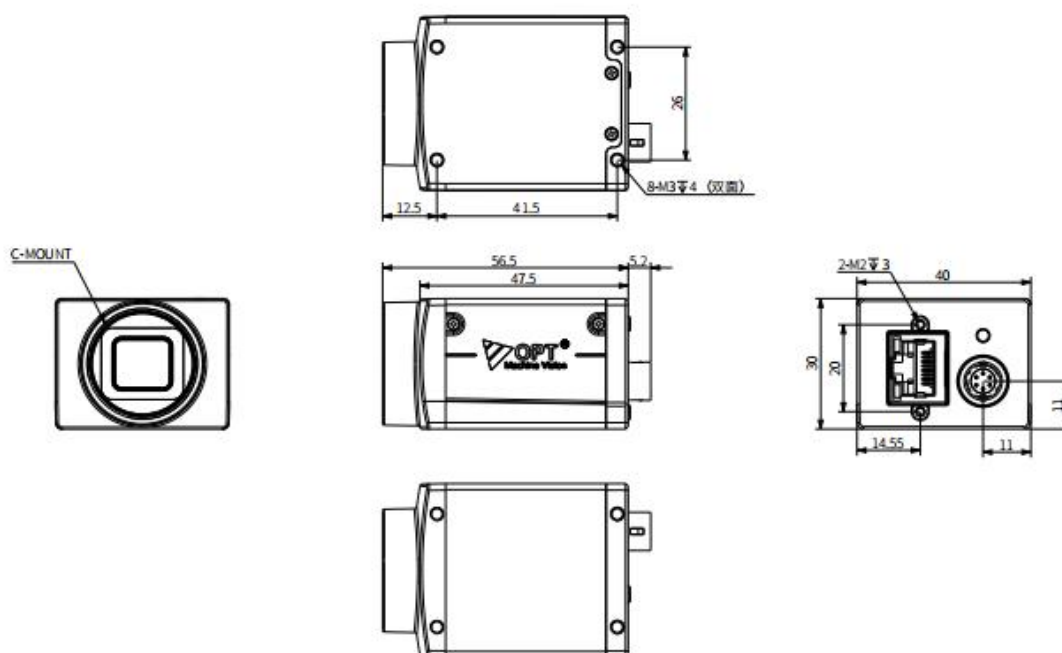


Fig. 1-2 30mm × 40mm × 47.5mm (Dimensional drawing)

1.5 Power and I/O Interface Definitions

1.5.1 Interface Description

There are two interfaces on the back of the device, network interface, 6pin power supply and I/O interface, as shown in the following figure:

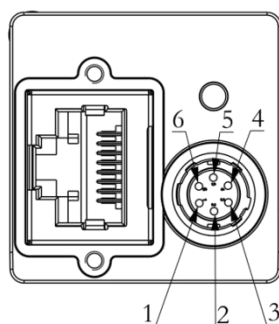


Figure 2-1 Camera Appearance Interface

The definition of I/O interface pin signals is shown in Table 2-1 (power 6-core interface):

Table 2-1 Pin Signal Definition

Pin	Signal	Description
1	Power	DC 12V ~ 24V camera power supply
2	Line1	Optocoupler isolation input
3	Line3	GPIO (non-isolated software configurable input/output I/O)
4	Line2	Optocoupler isolated output
5	ISO_GND	Optocoupler isolation signal ground

6	GND	Camera power ground and GPIO signal ground
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1.5.2 Network Interface

Network interface, namely RJ45 network port, Ethernet 1000Mbps transmission interface, used for camera control, data transmission and power supply (POE function).

In order to ensure the transmission quality, it is better to use the network cable with shielded super category 5 twisted pair to prevent excessive data retransmission and data packet loss.

1.6 Status Indicators

The status indicator of the equipment is shown in Table 2-2:

Table 2-2 Description of Indicator Lights

Status	Indicator Status		Description
Normal state	Red	Red light flash	The device is starting up.
		Red light flashing slowly	IP assigned, application software API no device connected or application software API not started.
	Green	The green light is always on	The camera is connected, does not start to acquire images, and is in continuous acquisition mode or single frame acquisition mode.
		Green light blitz	The camera is connected and is in continuous acquisition mode or single frame acquisition mode during image acquisition.
		Green light flashing slowly	The device is in triggered mode (both triggered and untriggered).
Abnormal state	Red and green	Traffic lights flashing alternately	No codestream, firmware upgrade failure, or other fatal error.

Chapter 2 I/O Electrical Characteristics and Wiring

2.1 I/O Electrical Characteristics

2.1.1 Optocoupler isolation input

In the I/O signal of the camera, Line1 is an optocoupler isolation input, and the maximum input current of Line1 is 25mA.

Table 2-3 Optocoupler Isolation Input

Input voltage	Description
30V	Limit voltage, the input can not exceed this limit value, otherwise it will cause damage to the equipment
DC 0~24V	I/O input safe operating voltage range
DC 0~1.4V	Represents logical "0"
DC >1.4V~2.2V	The input state is flipped here, and the logic state is uncertain within this voltage range.
DC >2.2V	Indicates logical "1"



Notes

Isolated I/O input port pouring current 5mA ~ 15mA.

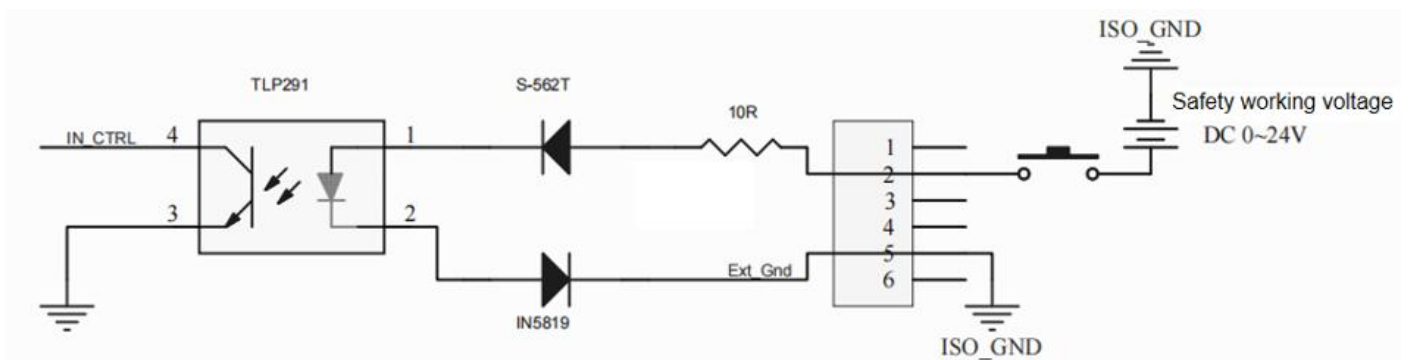


Figure 2-2 Optocoupler isolated input circuit diagram

2.1.2 Optocoupler isolated output

Table 2-4 Optocoupler Isolation Output

Voltage	Description
DC 30V	Limit voltage, the input can not exceed this limit value, otherwise it will cause damage to the equipment
DC<3.3V	I/O output may be wrong
DC 3.3V~+24V	I/O Output Safe Operating Range



Notes

The isolated I/O output port continuously passes a maximum of 50mA current.

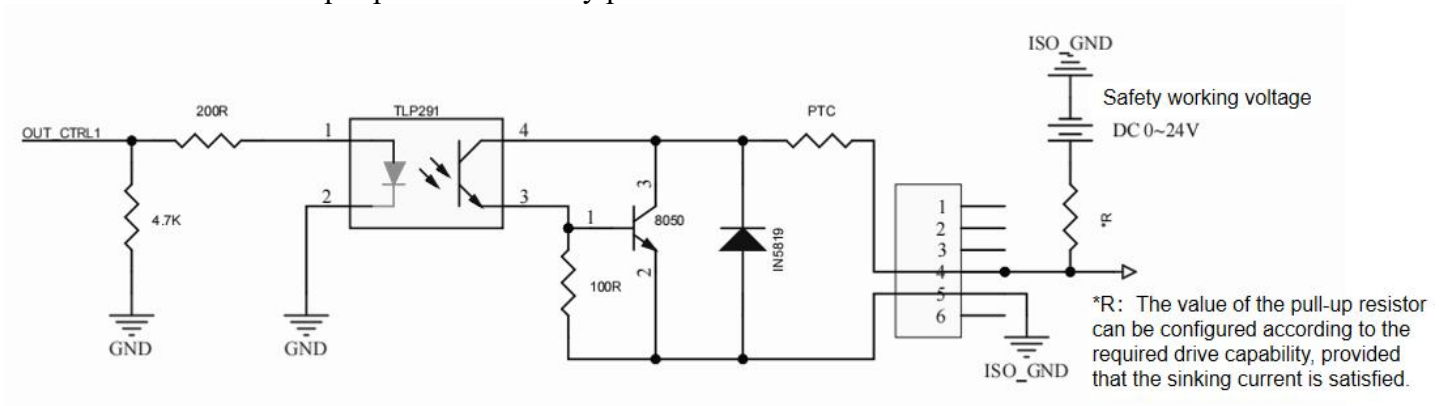


Figure 2-3 Optocoupler isolated output circuit diagram

2.1.3 GPIO input

Table 2-5 GPIO Input

Voltage	Description
DC 30.0V	Limit voltage, the input can not exceed this limit value, otherwise it will cause damage to the equipment
DC 0~5.0V	Safe operating voltage range at input (minimum voltage DC 3.3V at external pull-up)
DC 0~0.8V	Represents logical "0"
DC>0.8V~2.0V	The input state is flipped here, and the logic state is uncertain within this voltage range.
DC>2V	Indicates logical "1"



Notes

When the user externally inputs logic 0, the maximum filling current is 2mA, and when the user inputs logic 0, the maximum filling current of the interface is 100uA.

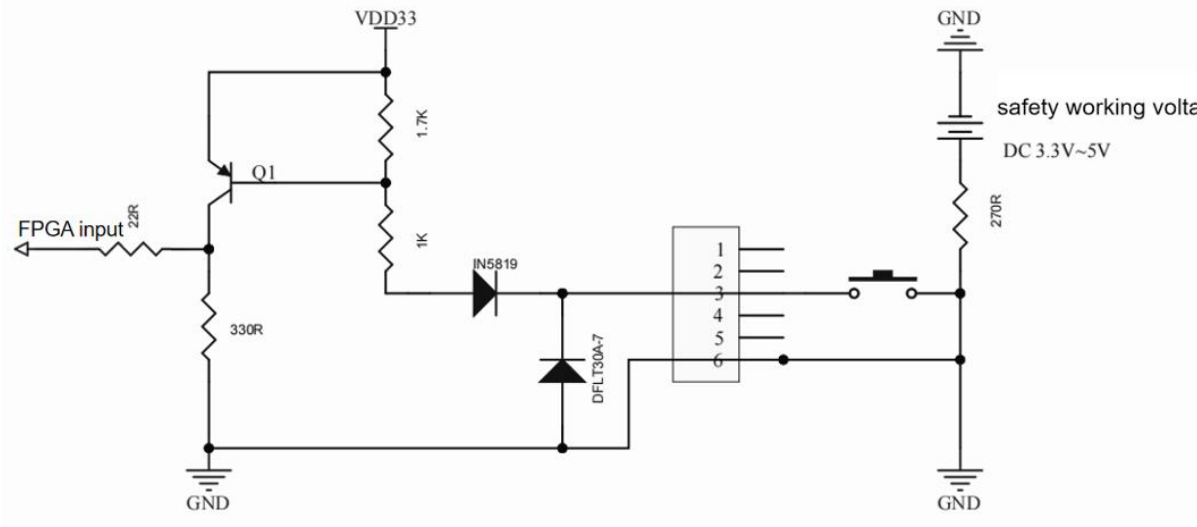


Figure 2-4 GPIO input circuit diagram

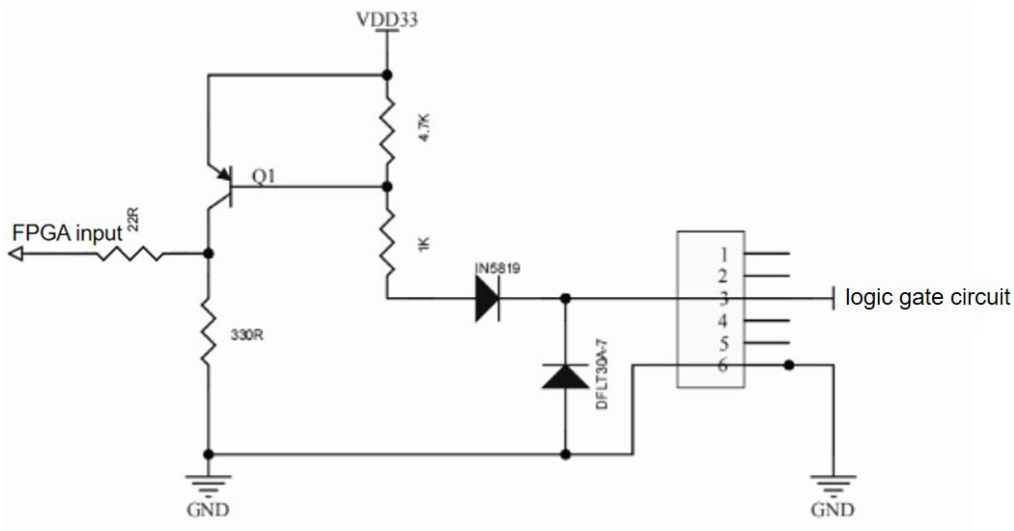


Figure 2-5 Circuit diagram using 5V TTL logic level input

2.1.4 GPIO output

Table 2-6 GPIO Output

Voltage	Description
---------	-------------

DC 30V	Limit voltage, the output can not exceed this limit value, otherwise it will cause damage to the equipment
DC +3.3V~+24V	Safe operating voltage range at output
DC <3.3V	I/O output may be wrong



Notes

When used as output, IO port can input 50mA current at most.

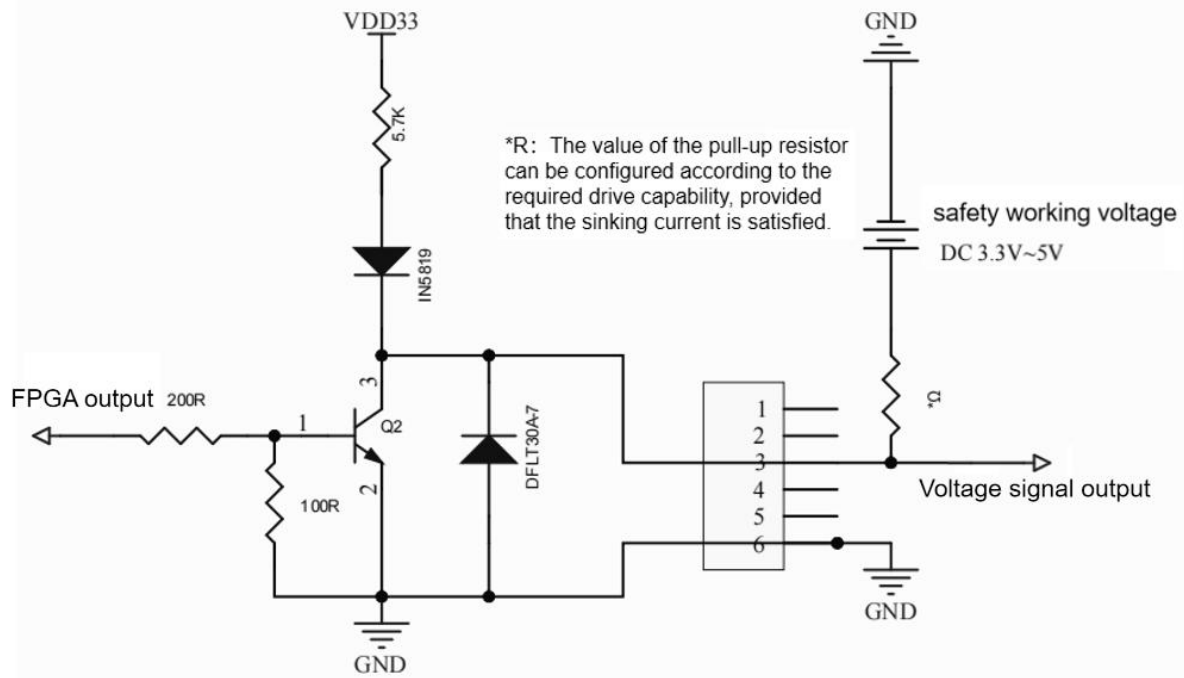


Figure 2-6 GPIO output circuit diagram

Chapter 3 Product Installation

Installation is mainly divided into hardware installation and application installation.

3.1 Hardware Installation

Before installation, please check the equipment for obvious damage and confirm whether it is consistent with the matching list.

3.1.1 Accessories

The list of accessories is shown in Table 3-1.

Table 3-1 List of Accessories

Serial Number	Accessory Name	Quantity
1	Industrial Area Scan Camera	1
2	M2 × 6 screw	4
3	M3 × 8 screw	Three

3.1.2 Camera Installation

1. Fix the camera to the installation position and select the appropriate lens to install on the camera.
2. Connect the camera and gigabit switch or gigabit network card with super category 5 or category 6 network cable.
3. Select any 1 of the following power supply methods.

Direct plug-in power supply: use 6-pin or 12-pin power I/O cable and connect it to the appropriate power adapter according to the correct wiring method. refer to the chapter on 1.5 power supply and I/O interface definition for I/O interface definition.

PoE power supply: For cameras that support PoE function, the camera can be connected to a switch or network card with PoE function with a network cable. Whether the camera supports PoE power supply, please check the corresponding technical specifications.

3.2 Application Installation

The steps for the host to install the application are as follows:



Instructions

Contact the relevant technical support personnel to obtain the application installation package.

1. Open the software, double-click the desktop shortcut  to open the application installation package.
2. Double-click the installation package to enter the installation interface, pop up "Select installation language", and click "OK" after selection ".

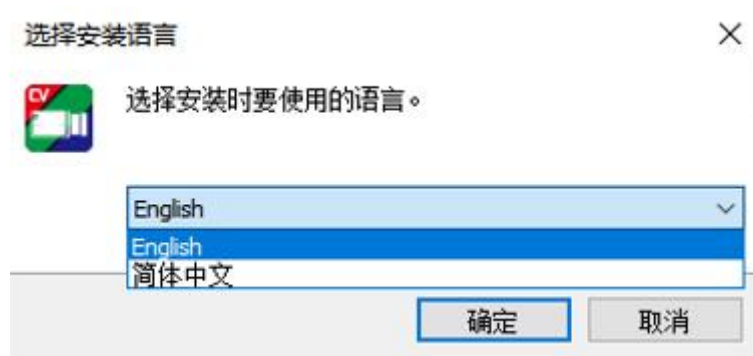


Figure 3-1 Ready to Install Window

3. Wait for the window shown in Figure 3-2 to pop up and click the Next button. After carefully reading the license agreement, confirm that you agree to the license terms, and then click the Next button to continue the installation process.

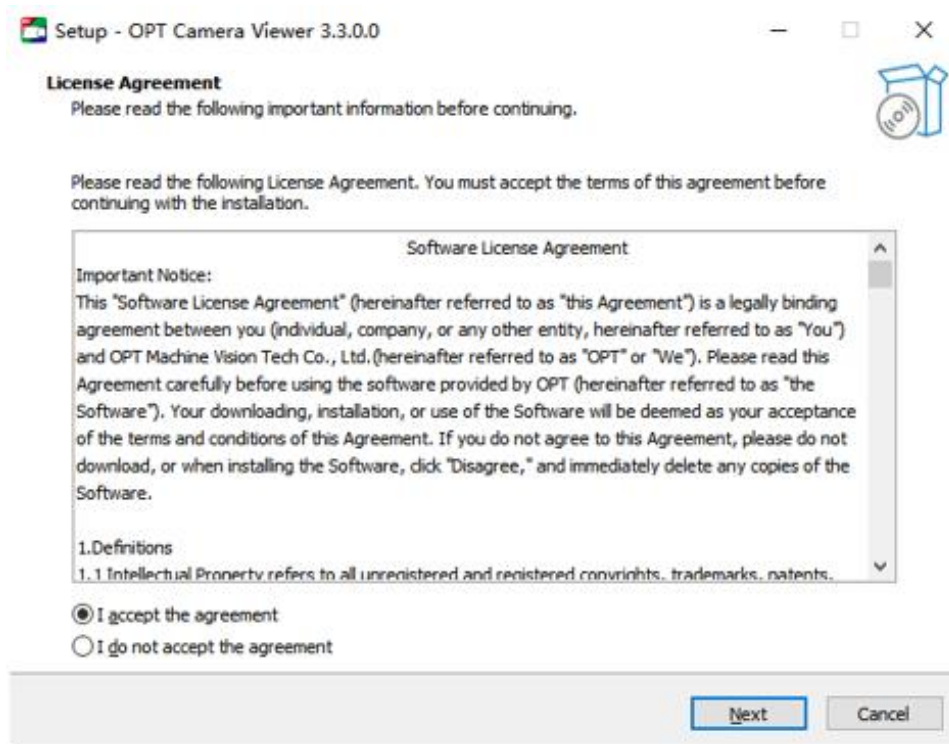


Figure 3-2 License Agreement Window

4. Enter the installation folder window, as shown in Figure 3-3, select the software installation path (the default path is: C:\Program Files\OPT\OPT Camera Viewer_v3.2.0.0) and click the Next button to continue the installation process.

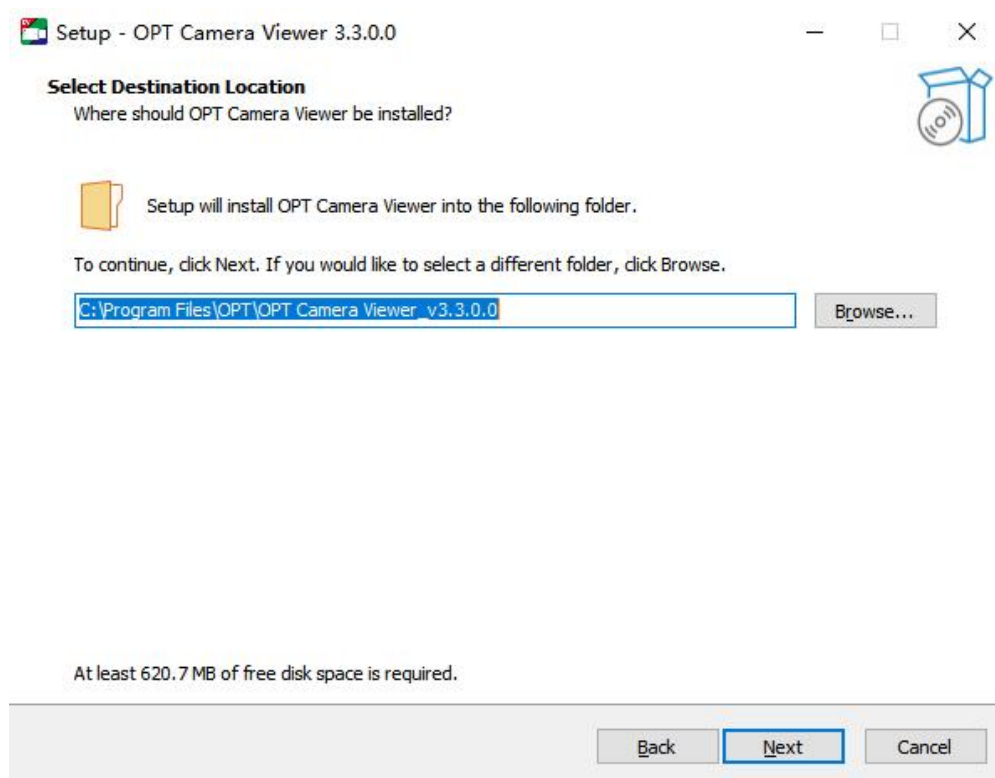


Figure 3-3 Installation folder window

5. Click Next again, as shown in Figure 3-4, and enter the interface of selecting the installed driver type (all installed by default). Here, you can also customize and check the drivers required for installation.

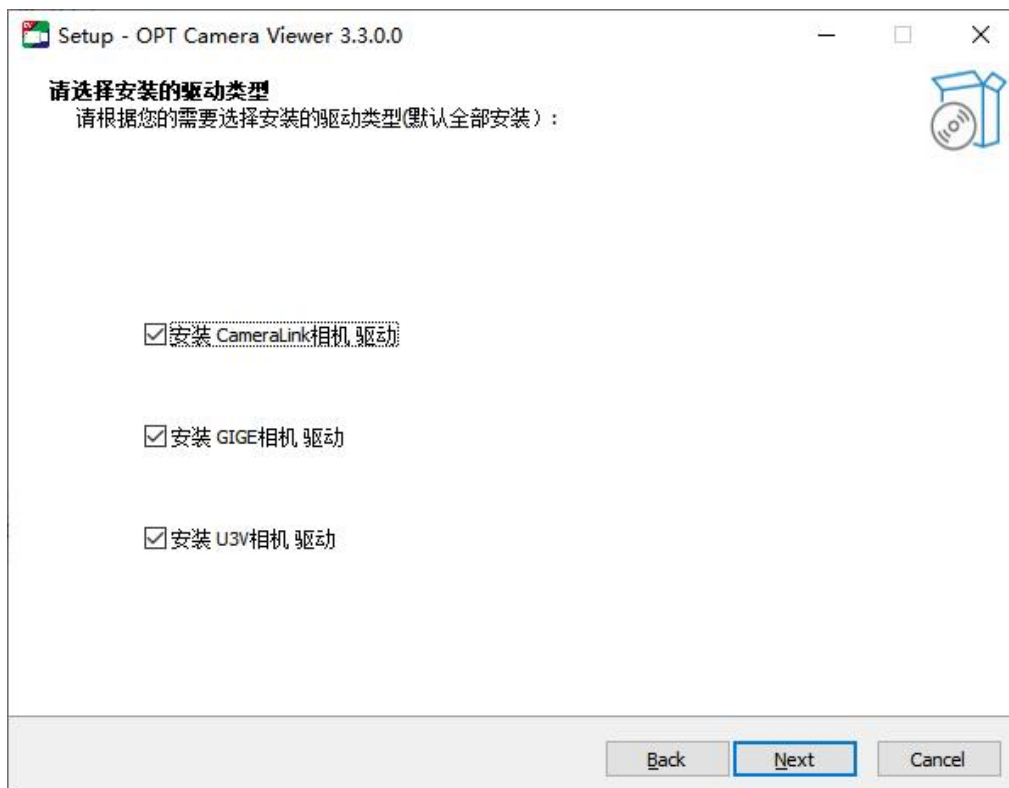


Figure 3-4 Driver Type Installation Options Window

6. Enter the Ready to Install window as shown in Figure 3-5, and click Next to continue the installation process.

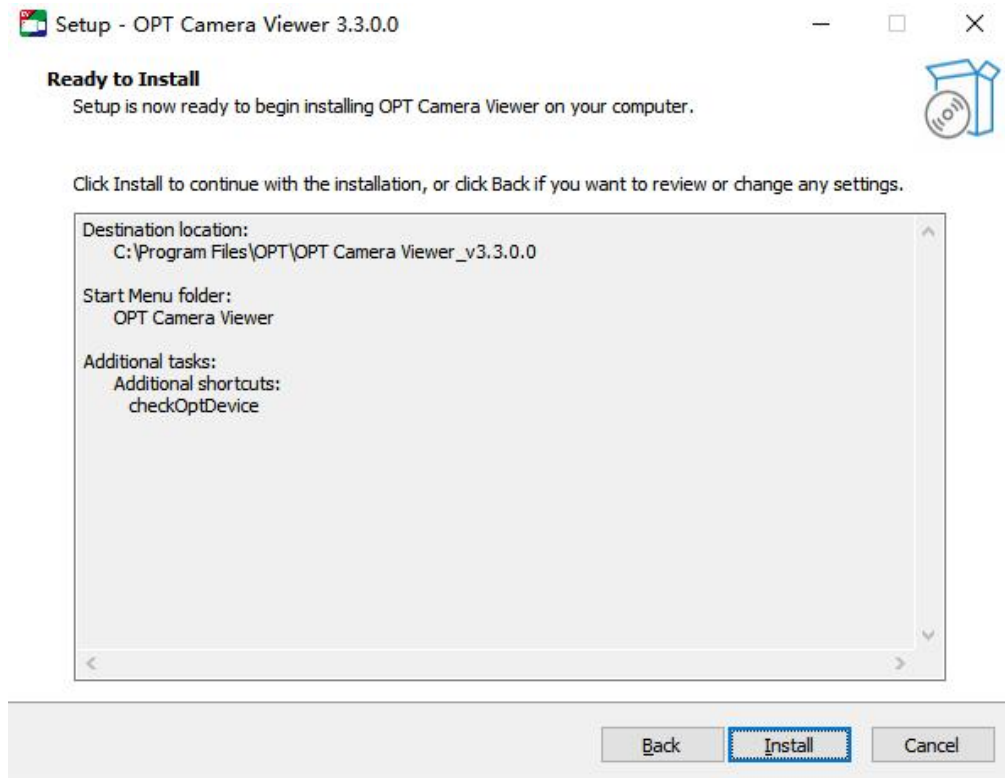


Figure 3-5 Ready to Install Window

7. Wait for the program installation progress, as shown in Figure 3-6.

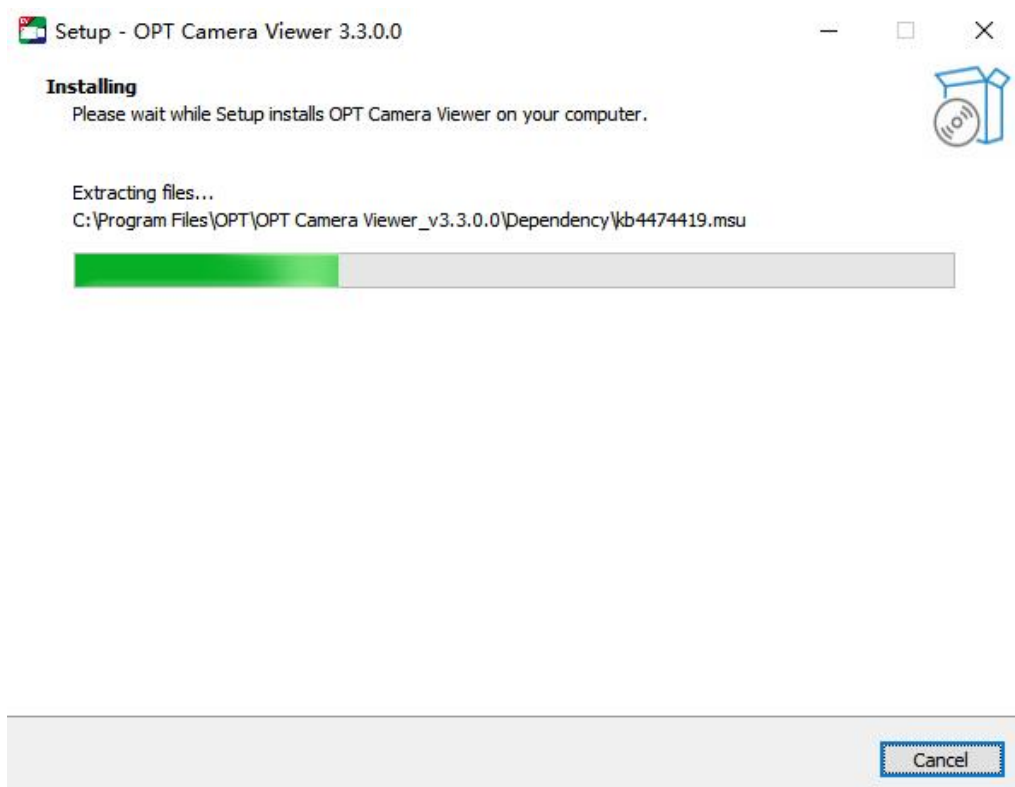


Figure 3-6 Program Installation Progress Window

8. After the program is installed, restart the computer, as shown in Figure 3-7.

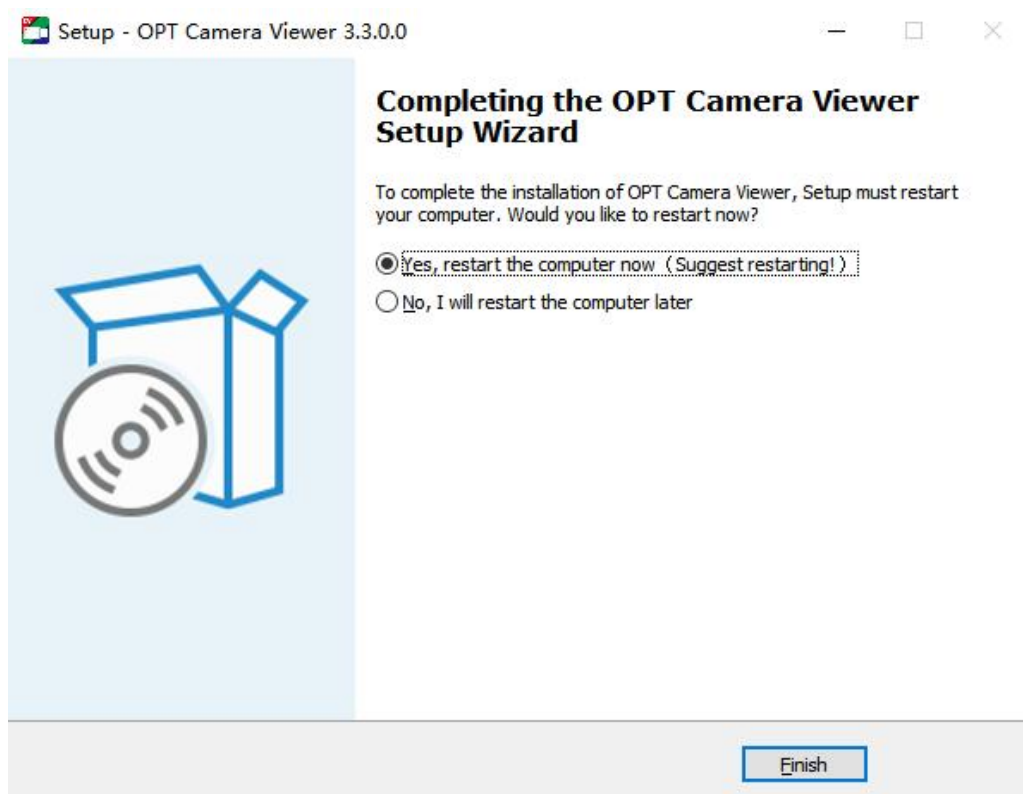


Figure 3-7 Program installation success window

Chapter 4 Network Settings



Notes

- Make sure that the Gigabit Ethernet industrial area scan camera is properly connected to the PC.
- Install the application on the PC. For details, please refer to "3.2 Application Installation".

After the gigabit Ethernet industrial area camera is connected with the cable, the application installed on the host can detect the online camera to ensure that the camera IP and the local computer IP are on the same network segment, and the camera can operate normally.

The specific operation steps of network setting are as follows:

1. Open the software.

Open the application software by double-clicking the desktop shortcut . The software will automatically detect all online devices. The interface is shown in Figure 4-1.

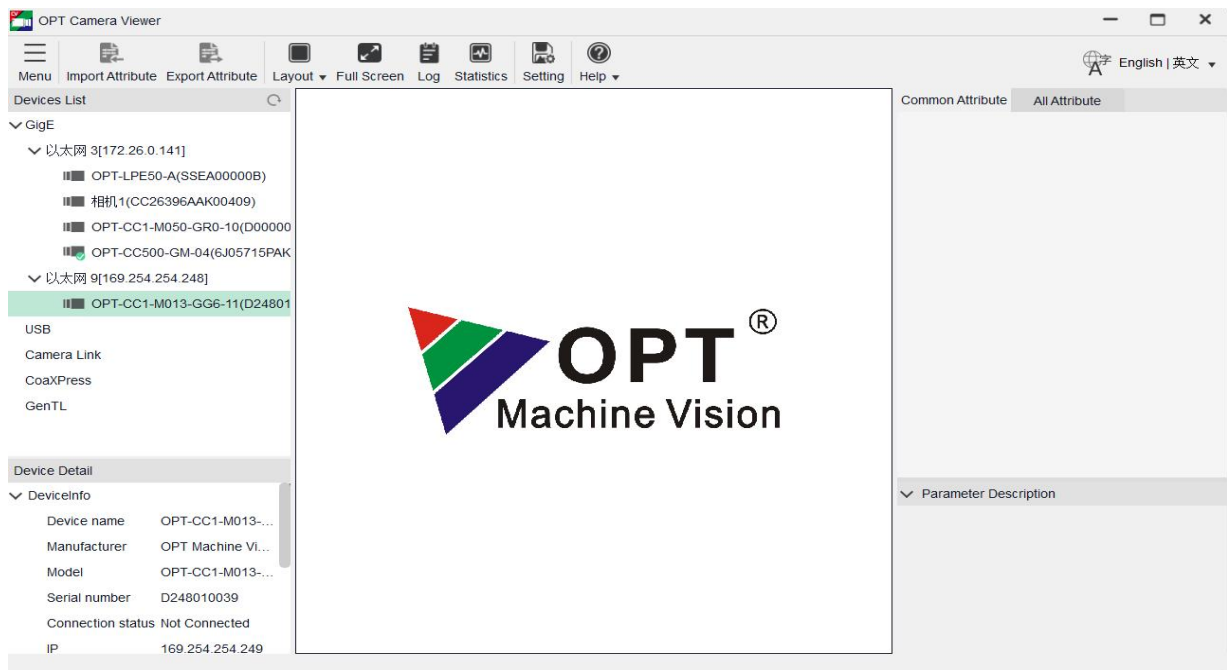


Figure 4-1 Software window

2. Set the imager IP address.

Click to select the device information, and then right-click to configure the IP, as shown in Figure 4-2.

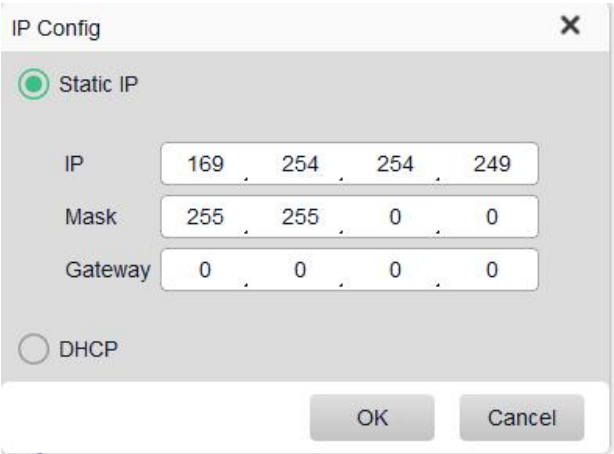


Fig. 4-2 IP setting interface

3. Device connection.

Select the target camera and click  to connect the device. After the connection is successful, click . The device tab and property tab are shown in Figure 4-2.

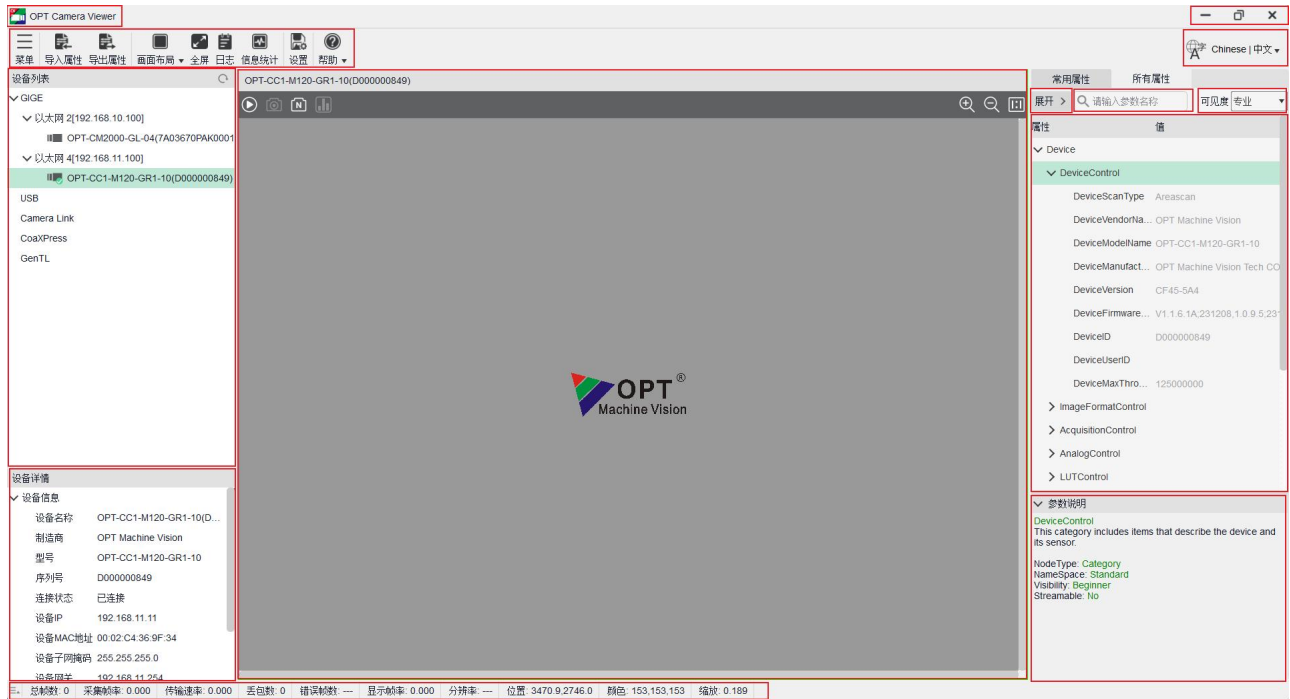


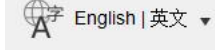
Figure 4-2 Successful device connection (Device tab)

 Instructions

You can click  to disconnect the device.

Table 4-1 OPT Camera Viewer parameters

Serial Number	Parameters	Parameter Description
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1	Menu Bar	Provides functions for files, views, settings, tools, and help. For more information, see Table 4-2.
2	Control Tool Area	Provides quick, easy manipulation of camera images as follows:  Import Attribute : Click the icon to quickly import the configuration parameter attribute information. (This icon appears gray when the camera is in stream fetching state.)  Export Attribute : Click the icon to quickly export the configuration parameter attribute information. (This icon appears gray when the camera is in stream fetching state.)  Layout ▾ : The screen layout is a display setting for the preview multi-window layout.  Full Screen : Click the icon to globally expand the image preview, press the keyboard ESC to return. (Global preview is also available by double-clicking under the Image Preview window)  Log : Quickly use the log information preview function, the information type can be customized selection and support the output to save as text view.  Statistics : Click this icon for a quick preview of the information statistics.  Setting : Click this icon to jump to the settings window for image saving and caching options.  Help ▾ : Click the icon to quickly view the software version information, etc.  English 英文 ▾ : Click this icon to select the software system display language.
3	Equipment List	Displays a list of devices that detect all online devices, Including GigE, USB, CameraLink and other common multi-protocol interface devices.  Refresh. Click the icon to manually refresh the online device information.  Click this icon to manually configure the camera IP.:  indicates that the device is in a connectable state.  indicates that the device is connected.

4	Equipment Details	The details of the camera and the connection information of the interface are displayed here.
5	Image Preview Window	Display camera real-time image data, and the camera real-time information statistics and display.
6	Functional Parameter Area	Parameter items for this camera in different (operation level) roles.  : parameter visibility. You can click ▼ to select an entry, professional, or master role from the drop-down menu as needed. The parameters for each role are slightly different.
7	Parameter Interpretation Area	Click a parameter property item to display the explanation of the parameter.
8	Window Action Menu	● : Maximize the window. ● : Restores the window size downward. ● : Minimum speech window. ● : Close the application.
9	Data Flow Area	The frame rate, total number of frames, transfer rate, number of error frames, and display frame rate in the camera capture are shown here.

Table 4-2 Menu Bar-Parameter Interpretation

Menu Bar		Description
File	Import Properties	Import configuration parameter property information as a file.
	Export Properties	Export configuration parameter attribute information as a file.
	Save Ganicam XML	Saves the output XML file information.
View	Equipment List	 You can choose to open or hide the above four windows.
	Equipment Details	
	Common Properties	
	All Properties	
Setup	Image Save	Set the image save path, image format, etc.
	Cache Options	Set the cache parameters for the data stream.
Tools	Driver Management	The relevant basic drivers of the OPT Camera Viewer can be loaded or enabled autonomously.
	Bandwidth Management	Monitor network bandwidth and data transmission.
	Network card property settings	Can switch and configure the computer network card parameters.
	Log	Log information preview (including device parameter update, event message channel, pull stream cache and other event notifications), information type can be customized selection and support output saved as text view.
	Information statistics	Statistics can be set to capture the frame rate, bandwidth, the number of images received, frame loss rate, the number of error images.
Help	Firmware Upgrade	The camera firmware can be upgraded.
	About	View the current software version information (software version number, software belonging and official website).
	Help documentation	Path location to place the relevant Operations Guide document.

Chapter 5 Main Functions

This chapter mainly explains the functional parameters related to industrial cameras.



Instructions

- The industrial camera supports the selection of three user levels: Beginner (Beginner), Professional (Expert), or Guru, with each level corresponding to slightly different parameter items in the properties window.
- A parameter item displayed in black indicates that the parameter can be modified or set, and a parameter item displayed in gray indicates that the parameter does not support modification or setting in the current operation mode.

5.1 DeviceControl

In this attribute, you can view the device information and modify the device name. For details about parameter settings, see Table 5-1.

Table 5-1 below explains the parameters for device management.

Parameters	Description
DeviceScanType	Scan type of the device Sensor, such as area array or line array.
DeviceVendorName	Equipment Supplier.
DeviceModeName	Equipment Model.
DeviceManufacturerInfo	Equipment Manufacturer.
DeviceVersion	Device Hardware Version.
DeviceFirmwareVersion	Device Firmware Version.
DeviceID	Device Serial Number.
DeviceUserID	User-defined device name.
DeviceMaxThroughput	Maximum Device Data Throughput.
DeviceReset	Device restart button, call the API to restart the camera.

Table 5-1 Device Management-Parameter Interpretation

5.2 ImageFormatControl

In this attribute, you can modify the size of the image captured by the current device, the image pixel format, the region of interest and the test image mode, etc., see Table 5-2 for detailed parameter settings.

Table 5-2 below explains the parameters for image format management.

Parameters	Description
SensorWidth	Maximum image width supported by the Sensor (in pixels).
SensorHeight	Maximum image height (in pixels) supported by the Sensor.
WidthMax	Maximum image width (pixels).
HeightMax	Maximum image height (pixels).
Width	Actual output image width (pixels).
Height	Actual output image height in pixels.
OffsetX	The horizontal offset of the image, starting from the upper left corner, is determined by the Width value.
OffsetY	The vertical offset of the image, starting from the upper left corner, is determined by the value of Height.
CenterX	Output image horizontally.

CenterY	Output image is vertically at the middle.
BinningHorizontal	Image horizontal compression. (only some models support this function)
BinningVertical	Image compression in vertical direction. (only some models support this function)
ReverseX	Image Flip Horizontal.
ReverseY	Image vertical flip.
PixelFormat	Image output format, different models support different formats.
PixelSize	pixel bit width.
PixelDynamicRangeMin	Pixel Dynamic Range Minimum.
PixelDynamicRangeMax	Pixel Dynamic Range Max.
TestImageSelector	Select the test image. (OFF by default, indicating that the test image is not output)

Table 5-2 Image Format Management-Parameter Interpretation

5.3 AcquisitionControl (Acquisition Management)

In this property, you can set the image capture mode, trigger mode, exposure time, etc. of the camera. For detailed parameter settings, see Table 5-3.

Table 5-3 below explains the parameters of acquisition management.

Parameters	Description
AcquisitionMode	Image acquisition mode: ● SingleFrame (single frame): refers to the collection of 1 frames at a time, and the pull stream is automatically stopped after collection. ● Continuous (continuous): refers to continuous acquisition until the Acquisition Stop is issued to stop the acquisition of pull flow.
AcquisitionStart	SDK Start/Stop Pull Stream.
AcquisitionStop	
AcquisitionBurstFrameCount	In trigger mode, the number of images captured by the camera after receiving a trigger signal.
AcquisitionFrameRateEnable	Frame rate limiting enabled. When the value is true, the frame rate set by the AcquisitionFrameRate is valid.
AcquisitionFrameRate	Limit Frame Rate Value  Instructions If the set frame rate exceeds the maximum frame rate that can be achieved by the camera under the current parameters, the actual output frame rate of the camera is ResultingFrameRate instead of the AcquisitionFrameRate set frame rate value.
ResultingFrameRateAbs	The maximum frame rate that the camera can achieve under the current parameters.
AcquisitionStatusSelector	Select and view the collection status Select the FrameTriggerWait (frame trigger waiting status) in the AcquisitionStatusSelector and view it in the AcquisitionStatus. True means waiting for triggering, and False means triggered.
AcquisitionStatus	
TriggerSelector	Select trigger type and trigger mode. Select the trigger type in the TriggerSelector, and select to turn the trigger mode on or off in the TriggerMode.
TriggerMode	
TriggerSoftware	Soft trigger button. Click or call the API to generate a soft trigger.

TriggerSource	Trigger source and trigger signal type.
TriggerActivation	TriggerSource support SoftwareTrigger (software triggered), lineN (hardware triggered) and Counter1 (counter triggered) ● When the soft trigger is selected, the trigger signal is generated by executing the TriggerSoftware or calling the API, and is output to the camera through the gigabit network. ● When the hardware trigger is selected, set the RisingEdge (rising edge trigger), FallingEdge (falling edge trigger) LevelHigh (high level trigger) or LevelLow (low level trigger) in the TriggerActivation, and then the corresponding type of trigger signal is generated by the external cable and output to the camera through the IO interface. ● When the selection counter is triggered, the trigger signal is generated by the Counter inside the camera. At this time, the trigger source of the Counter1 should be set to Line1,Counter1 when the current count value is equal to the Counter Value, the Counter1 outputs a collection trigger signal.
TriggerDelay	Trigger delay. Refers to the time when the camera receives the trigger signal and the trigger takes effect.  Instructions Valid only when the TriggerMode is on and valid for any trigger source.
TriggerCacheEnable	Trigger cache. When the trigger mode is enabled, if the trigger process receives a new trigger signal, the signal may be retained and processed.
ExposureMode	Exposure mode and exposure time. Currently, only the Timed exposure mode is supported, and the exposure duration is determined by the specific time. The time set by the ExposureTime is the exposure time.
ExposureTime	
ExposureAuto	
	Set automatic exposure. ● Off means to turn off automatic exposure. ● Once means that the camera can automatically modify the exposure once according to the ambient brightness, and automatically return to Off mode after modification, and the modified exposure value is displayed in the ExposureTime. ● Continuous means that the camera can continuously modify the exposure time according to the ambient brightness, and the exposure value is displayed in real time in the ExposureTime.

Table 5-3 Acquisition Management-Parameter Interpretation

5.4 AnalogControl

In this property, you can adjust the image analog signal captured by the camera, including gain, lookup table, gamma correction, etc., see Table 5-4 for detailed parameter settings.

Table 5-4 below is an explanation of the parameters of the simulation control.

Parameters	Description
GainSelector	Choose which gain to control.
Gain	Analog gain. The larger the gain value, the brighter the image; different models have different settable ranges.  Instructions Enable analog gain first.

CCP Series Single Lens Industrial Area Scan Camera Specifications

GainAuto		Set the automatic gain. ● Off indicates that the automatic gain is turned off. ● Once indicates that the camera can automatically modify the gain once according to the ambient brightness, and the modified gain value is displayed in gray in Gain. ● Continuous indicates that the camera can continuously modify the gain according to the ambient brightness to adapt to the change of the environment. The modified gain value is displayed in gray in Gain in real time.
GammaEnable		Gamma correction function.
Gamma		For correcting the 1 non-linearity of image data due to the non-linear response of a display or the like, the smaller the gamma value, the brighter the image.  Instructions Setting the image gamma value is only valid when the GammaEnable is True.
LUT	LUTSelector	In this attribute, you can highlight the gray range of interest, which can be a linear curve or a custom mapping curve. Select the gray value of the replaced pixel in the LUTIndex. The gray value after modification by the pixel specified by the LUTIndex is set in the LUTValue. The LUTIndex and LUTValue settings are only valid when the LUTEnable is True.
	LUTEnable	
	LUTIndex	
	LUTValue	
BalanceWhiteAuto		The color camera supports the white balance function, which can correct the color according to the lighting conditions of different light sources. (When the color effect of the camera is quite different from the actual picture during use, the problem can be solved by white balance calibration.) In this property, the white region can always be kept white at different color temperatures by adjusting the R, G, and B components in the image. Ideally, the ratio of the R, G, B components of the white region is 1:1:1. White balance is divided into three modes. ● Off Manual: Users can manually adjust the R/G/B components by Balance the Ratio Selector and Balance the Ratio parameter. The component range is 0~7. ● Once: according to the current scene, run for a period of time after the automatic white balance stop. ● Continue continuous: according to the current scene, continuous automatic white balance adjustment.  Instructions It is recommended that the user save the parameters after the calibration is completed to avoid the need to re-calibrate after the camera is powered off and restarted. When the camera uses the position light source and the color temperature changes, the white balance correction needs to be performed again.
BalanceRatioSelector		
BalanceRatio		

Table 5-4 Analog Control-Parameter Interpretation

5.5 DigitalIOControl

In this attribute, different I/O input or output signals can be managed. Please refer to Table 5-5 for detailed parameter settings.

Table 5-5 below explains the parameters for digital input/output management.

Parameters	Description
LineSelector	Select the external IO line to be configured.
LineMode	Sets the output mode of the currently selected IO line: input or output.
LineInverter	Set the signal inversion of the selected IO line, True means that the signal is inverted, and False means that the signal is not inverted.
LineStatus	Displays the status of LineSelector selected IO line.
LineStatusAll	Displays the status of all available IO lines.
LineSource	When the IO line is set to output, the trigger source can be selected. Currently, the following trigger sources are supported: ● Timer1Active: output timer 1 output pulse

	● UserOutput: Output values of user-defined settings ● ExposureActive: light source control signal output
LineDebouncerTime	Trigger anti-shake processing. When the IO line is set as input, the length of the debounce time can be set.  Instructions A pulse less than the set value is not considered a valid trigger input.
UserOutputValue	IO custom output values set by the user.

Table 5-5 Digital Input/Output Management-Parameter Interpretation

5.6 CounterAndTimer Control

In this attribute, you can set the device-specific delay unit, see Table 5-6 for detailed parameter settings.

Table 5-6 below explains the parameters of counter and timer management.

Parameters	Description
CounterSelector	Select the counter source. Currently, only Counter1 are supported.
CounterEventSource	Set the signal source triggered by the counter. Currently, the following trigger sources are supported: ● FrameTrigger: frame trigger signal ● FrameStart: image frame valid signal ● Line1: Physical IO Line Line1
CounterEventActivation	Select the type of trigger signal that triggers the counter count.
CounterValue	Upper counter value.
CounterCurrentValue	The current count value of the counter.
CounterResetSource	Set the signal source for resetting the counter, which can only be reset by Software.
CounterReset	Execute to reset the counter.
TimerSelector	Select the timer source. Currently, only Timer1 is supported.
TimerTriggerSource	Sets the trigger source for the timer.
TimerTriggerActivation	Select the type of trigger signal that triggers the timer.
TimerDelay	Adjust the time delay (in us) between the timer receiving the trigger and the output high level signal to meet the needs of external devices for delayed response.
TimerDuration	Adjust the hold time of the high level of the timer output signal. (in us)

Table 5-6 Counter and Timer Management-Parameter Interpretation

5.7 ISPControl

In this attribute, you can adjust the brightness and contrast of the image. For detailed parameter settings, see Table 5-7.

Table 5-7 below explains the parameters of ISP management.

Parameters	Description
DigitalShift	Adjust the DigitalShift, adjust the image data left shift bit, make the image brighter.
Brightness	Adjust the brightness value of the exposure target, the default value is 50; When the value is larger, the exposure will adjust the image brighter.
Hue	Tone Adjusting the overall tendency of colors in the image, with a default value of 50.
Saturation	Saturation adjusts how vivid the colors are in the image. The default value is 50.

Contrast	Contrast set the contrast intensity, the higher the value, the more obvious the contrast.
ContrastMode	Set contrast adjustment mode.
ContrastThreshold	contrast threshold.
BLCEnable	Black dot flat enable, default to on.
BLCLevelMode	Set the black dot flat mode, choose to use the default adjustment or manual adjustment.
BLCLevel	Adjust the overall black level offset in manual black level adjustment mode, Displays the overall black level offset in the default black level adjustment mode.

Table 5-7 ISP Management-Parameter Interpretation

5.8 EventControl

In this attribute, you can select and enable the type of event notification. For details about parameter settings, see Table 5-8.

The following table 5-8 explains the parameters for event notification management.

Parameters	Description
EventSelector	Select the event type for notification, including: ● ExposureEnd (exposure end event) ● FrameStart (Received Frame Trigger Event) ● AcquisitionStart (image acquisition start event) ● TriggerLose (trigger discard event)
EventNotification	Set whether the upper software needs to be notified after selecting the above event type; ON notification, OFF no notification.

Table 5-8 Event Notification Management-Parameter Interpretation

5.9 AutoFunctions

In this attribute, you can set the parameters of the automatic function. For details about parameter settings, see Table 5-9.

The following table 5-9 explains the parameters set by the automatic function parameter item.

Parameters	Description
AutoTargetValue	Automatic target value. The target grayscale value, which is in the 8-bit pixel format.
AutoGainLowerLimit	The lower limit of the automatic gain parameter.
AutoGainUpperLimit	The upper limit of the automatic gain parameter.
AutoExposureTimeLowerLimit	Lower limit of automatic exposure time parameter.
AutoExposureTimeUpperLimit	Upper limit of automatic exposure time parameter.
AutoFunctionProfile	Automatic function configuration. Choose to use minimum exposure or minimum gain to bring the image to the target grayscale value.
AutoFunctionAOIWidth	AOI width for automatic function. AOI area width for auto gain, auto exposure calculation.
AutoFunctionAOIHeight	Automatic function of AOI height. Height of AOI area used for auto gain, auto exposure calculation.
AutoFunctionAOIOffsetX	Automatic function of AOI horizontal offset. The image horizontal offset of the AOI area used for automatic gain and automatic exposure calculations, starting from the upper left

	corner.
AutoFunctionAOIOffsetY	Automatic function of AOI vertical offset. The image vertical offset of the AOI area used for auto gain and auto exposure calculations, starting from the upper left corner.

Table 5-9 Automatic Function Parameter Item Setting-Parameter Interpretation

5.10 ColorTransformationControl

In this attribute, a parameter item of the color correction function may be set to adjust the overall color of the image to make the overall color of the image more vivid.

Table 5-10 below explains the parameters set for the color conversion control (I. e., the color correction function).

Parameters	Description
Color Transformation Enable	Color conversion enabled. Enables the color correction function.
Color Transformation Value Selector	Color conversion value selector. Gain or Offset offset that can be used to select the transformation matrix to be accessed in the selected color transformation module.
Color Transformation Value	Color conversion parameter value. After the 1 group coefficient is selected at the Color Transformation Value Selector parameter, the Color Transformation Value will display the default value, which can also be modified according to actual needs.

Table 5-10 Explanation of Parameters Set for Color Conversion Control (I. e. Color Correction Function)

The color correction function is realized by multiplying each RGB component by a correction matrix. The currently supported color conversion module is RGBtoRGB, which can be set through the Color Transformation Control attribute. Finally, the color correction is realized by adjusting the value of each parameter in the Color Transformation Value Selector. The specific operation steps are as follows:

1. After selecting the 1 group coefficient at the Color Transformation Value Selector parameter, the Color Transformation Value will display the default value, which can also be modified according to actual needs.
2. Enable the parameter Color Transformation Enable to enable the color correction function, as shown in Figure 4-9:

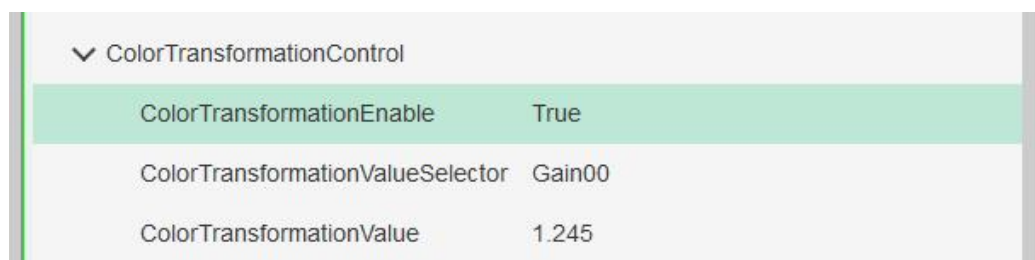


Figure 5-10 Color correction settings

5.11 TransportLayerControl

In this attribute, you can set the parameters related to the transmission protocol of the camera. For detailed parameter settings, see Table 5-11.

The following table 5-11 explains the parameters of transport layer management.

Parameters	Description
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PayloadSize	The payload size. 1 the size of the frame data, that is, the length of each message.
GevVersionMajor	The GEV major version number. The major version of the protocol specification.
GevVersionMinor	The GEV subversion number. The minor version of the protocol specification.
GevDeviceModeIsBigEndian	The GEV equipment mode is Big Endian. The byte order of the GEV device registers.
GevDeviceClass	GEV device type.
GevDeviceModeCharacterSet	GEV device mode character set. The character set used in the GEV device register.
GevInterfaceSelector	GEV interface selector. Physical network interface selection; the number of network ports of the physical network device. This value starts from 0, so the value is 0.
GevLinkSpeed	GEV link speed. The transmission speed of the current network interface.
GevMACAddress	The MAC address of the GEV. The MAC address of the network port.
GevSupportedIPConfigurationLLA	GEV supports LLA for IP configuration. Displays whether the device supports configuring IP addresses in LLA mode. True indicates that the device supports LLA configuration.
GevSupportedIPConfigurationDHCP	GEV supports IP configuration DHCP. Displays whether the device supports configuring IP addresses in LLA mode. True indicates that the device supports LLA configuration.
GevSupportedIPConfigurationPersistentIP	GEV supports IP configuration static IP. Displays whether the device supports configuring IP addresses as static IP addresses. True indicates that the device supports static IP addresses.
GevCurrentIPConfigurationLLA	GEV current IP configuration LLA. By default, the camera can obtain the IP address through the dynamic link address.
GevCurrentIPConfigurationDHCP	The current GEV IP is configured with DHCP. The DHCP function is enabled. After the device is powered on, the IP address is DHCP, which can automatically obtain the device IP address.
GevCurrentIPConfigurationPersistentIP	The current GEV IP address is configured with a static IP address. Enable the static IP function. After the device is powered on, the IP is in the static mode.  Instructions The three IP configuration priority relationships are: Static IP>DHCP>LLA.
GevCurrentIPAddress	The current IP address of the GEV. Displays the current IP address of the device.
GevCurrentSubnetMask	The current subnet mask of the GEV. Displays the current subnet mask of the device.
GevCurrentDefaultGateway	The current default gateway of the GEV. Displays the default gateway currently used by the device.
GevFirstURL	GEV The first URL. Displays the preferred URL address for the XML device description file.

GevSecondURL	GEV second URL. Displays the secondary URL address of the XML device description file.
GevNumberOfInterfaces	Number of GEV interfaces. Displays the preferred URL address for the XML device description file.
GevPersistentIPAddress	GEV static IP address. Set the static IP address of the device.
GevPersistentSubnetMask	The GEV static subnet mask. Sets the subnet mask of the static IP address of the device.
GevPersistentDefaultGateway	GEV static default gateway. Set the default gateway for the static IP address of the device.
GevMessageChannelCount	Number of GEV message channels. Displays the number of message channels supported by this device.
GevStreamChannelCount	Number of GEV flow channels. Displays the number of flow channels supported by this device.
GevHeartbeatTimeout	GEV heartbeat timed out. Set the heartbeat timeout.
GevTimestampTickFrequency	The timestamp frequency. Displays the number of time stamp marks in 1 second.
GevCCP	Control permissions on the App side. Used to control the application's access to the camera. ● ExclusiveAccess: Application Exclusive Access ● ControlAccess: Application Controlled Access
GevStreamChannelSelector	GEV flow channel selector. Select the flow channel number; if the camera supports multiple flow channels, select the flow channel number.
GevSCPInterfaceIndex	GEV SCP interface index. The network interface uses an index to display the logical channel number corresponding to the device.
GevSCPHostPort	GEV SCP host port. Host port number of the channel, which displays the port number used by the camera's stream channel.
GevSCPSFireTestPacket	GEV SCPS Firewall Test Package. Send a test message; each time it is executed, send a test packet.
GevSCPSDoNotFragment	GEV SCPS is not segmented. If the packet is too long, whether to send it in fragments and add fragment position 1 to the IP header.
GevSCPSBigEndian	GEV SCPS big end. The byte order of the device stream channel, which can be used to set the end of the stream channel's pixel data stream.
GevSCPSPacketSize	GEV SCPS packet size. Sets the packet length of the stream channel.
GevSCFTD	Frame transmission delay.
GevSCBWR	Displays the percentage of bandwidth reserved for device transfers.
GevSCBWA	Displays the base bandwidth of the device transmission.
GevSCDMT	Displays the maximum number of bytes per second transmitted by the device under the current parameters.

GevSCDCT	Displays the actual transmission bandwidth of the device.
GevSCPD	Delay between GEV rooms. Used to control the interval between messages; The transmission delay between data packets during stream channel transmission.  Instructions Modifying this value can reduce the requirements for the network card, but the maximum bandwidth will be affected to a certain extent, and the acquisition time of a single frame will be longer.
GevSCDA	The destination IP address of the stream channel.
GevSCSP	Flow channel source port.

Table 5-11 Transport Layer Management-Parameter Interpretation

5.12 UserSetControl

In this attribute, you can save or load the user-adjusted parameter scheme, and set the default parameter configuration when the client is opened. For details, see Table 5-11.

The following table 5-12 explains the parameters of user settings management.

Parameters	Description
UserSetCurrent	Displays the configuration currently in use, 0 indicates the default configuration, the rest are user configurations.
UserSetSelector	UserSetSelector the user to set the group selection. Currently supports Default, UserSet1, UserSet2, and UserSet3.
UserSetLoad	User settings are loaded. The configuration of the camera is restored to the user-selected configuration.
UserSetSave	User settings are saved. Saves the current configuration to the selected group, Default saving is not supported for groups.
UserSetDefault	Power-on default user settings. UserSet1, UserSet2, and UserSet3 need to be UserSetSave before they can be displayed here.

Table 5-12 User Settings Management-Parameter Interpretation

Chapter 6 Frequently Asked Questions

Problem Description	Possible causes	Solution
Start the client software and cannot find the camera.	The camera does not start normally or the network cable is connected abnormally.	Check whether the camera power supply and network connection are normal. (observe the LED indicator and the network port Link light)
The startup client is able to enumerate to the camera, but the connection fails.	● Camera and client are not in the same LAN. ● The camera is connected by another program.	● Using the IP Configuration Tool to Modify an IP Address. ● After disconnecting the camera from other programs, reconnect it.
Preview screen all black.	● Lens aperture closed. ● The camera works abnormally.	● Open lens aperture. ● Power off and restart the camera.
Preview is normal but cannot be triggered.	● The trigger mode is not turned on or the trigger source is selected incorrectly. ● Trigger connection error.	● Confirm whether the trigger mode of the camera is on, and whether the selected trigger source is consistent with the IO interface used. ● Confirm whether the trigger signal input and wiring are normal.
Network usage environment changed from gigabit to 100 megabit.	Crystal head or network cable damage.	Confirm whether the crystal head and network cable are damaged and can be used normally.
Unable to enable external triggering.	● External trigger connection error. ● The trigger mode does not have an external trigger selected.	Select the correct trigger mode and ensure that the external wiring is correct.
When the client software viewed the image, it was found that the image was upside down.	● When installing the equipment, the installation direction is wrong.	You can correct the image in the client software by "Properties> ImageFormatControl>ReverseX (horizontal flip) or ReverseY (vertical flip).

APPENDIX A PARAMETER INDEX

Table A- 1 Camera parameters and functions List

Serial Number	Property	Parameters	Function Description
1	DeviceControl (Equipment Management)	<i>DeviceScanType</i>	Scan type of the device Sensor, such as area array or line array.
		<i>DeviceVendorName</i>	Manufacturer name of the device.
		<i>DeviceModelName</i>	Equipment Model.
		<i>DeviceManufacturerInfo</i>	Manufacturer information for the device.
		<i>DeviceVersion</i>	Device Hardware Version.
		<i>DeviceFirmwareVersion</i>	Device Firmware Version.
		<i>DeviceID</i>	Device ID. (to display device serial number)
		<i>DeviceUserID</i>	User-defined device name.
		<i>DeviceMaxThroughput</i>	Maximum Device Data Throughput.
2	ImageFormatControl (image format management)	<i>DeviceReset</i>	Restart the device.(device restart button, call the API to restart the camera)
		<i>SensorWidth</i>	Maximum image width supported by the Sensor. (in pixels)
		<i>SensorHeight</i>	Maximum image height (in pixels) supported by the Sensor.
		<i>WidthMax</i>	Maximum image width.(pixels)
		<i>HeightMax</i>	Maximum image height.(pixels)
		<i>Width</i>	Actual output image width. (pixels)
		<i>Height</i>	Actual output image height in pixels.
		<i>OffsetX</i>	The horizontal offset of the image, starting from the upper left corner, is determined by the Width value.
		<i>OffsetY</i>	The vertical offset of the image, starting from the upper left corner, is determined by the value of Height.
		<i>CenterX</i>	Output Image Horizontally Centered.
		<i>CenterY</i>	Output image is vertically at the middle.
		<i>BinningHorizontal</i>	Image horizontal compression. (only some models support this function)
		<i>BinningVertical</i>	Image compression in vertical direction. (only some models support this function)
		<i>ReverseX</i>	Image Flip Horizontal.
		<i>ReverseY</i>	Image vertical flip.
		<i>PixelFormat</i>	Image output format, different models support different formats.
		<i>PixelSize</i>	Pixel bit width.
		<i>PixelDynamicRangeMin</i>	Pixel Dynamic Range Minimum.
		<i>PixelDynamicRangeMax</i>	Pixel Dynamic Range Max.
		<i>TestImageSelector</i>	Select the test image. (OFF by default, indicating that the test image is not output)
3	AcquisitionControl (Acquisition Management)	<i>AcquisitionMode</i>	Image acquisition mode, continuous, single frame, etc.
		<i>AcquisitionStart</i>	Start fetching stream.
		<i>AcquisitionStop</i>	Stop fetching.
		<i>AcquisitionBurstFrameCount</i>	In trigger mode, the number of images captured by the camera after receiving a trigger signal.

		<i>AcquisitionFrameRateEnable</i>	Frame rate limit is enabled. When it is true, the frame rate set by the AcquisitionFrameRate is valid.
		<i>AcquisitionFrameRate</i>	Limit Frame Rate Value.
		<i>ResultingFrameRateAbs</i>	The maximum frame rate that the camera can achieve under the current parameters.(actual capture frame rate)
		<i>AcquisitionStatusSelector</i>	Select Acquisition Status.
		<i>AcquisitionStatus</i>	View collection status.(True means waiting for trigger, False means triggered)
		<i>TriggerSelector</i>	Trigger Type. (Trigger Event Selection, Select Trigger Type to Configure)
		<i>TriggerMode</i>	Trigger Mode.
		<i>TriggerSoftware</i>	Perform a soft trigger.
		<i>TriggerSource</i>	Trigger Source. (Specifies the internal signal or physical input line used as the trigger source.)
		<i>TriggerActivation</i>	Trigger polarity. (trigger rising edge, falling edge, high level, low level, etc.)
		<i>TriggerDelay</i>	Trigger delay. (the time from when the camera receives the trigger signal to when the trigger takes effect)
		<i>TriggerCacheEnable</i>	Trigger buffer.(when the trigger mode is on, if the trigger process receives a new trigger signal, the signal can be retained and processed)
		<i>ExposureMode</i>	Exposure mode.
		<i>ExposureTime</i>	Exposure time.
4	AnalogControl (Analog Control)	<i>GainSelector</i>	Gain Selection.
		<i>Gain</i>	The gain value.(the larger the gain value, the brighter the image, and the settable range of different models is different)
		<i>Gain Auto</i>	Set Auto Gain.
		<i>GammaEnable</i>	Gamma correction enable. (set image gamma value only valid when GammaEnable to True)
		<i>Gamma</i>	Gamma adjustment.(the smaller the gamma value, the brighter the image)
5	LUT Control (User Lookup Table Control)	<i>LUTSelector</i>	Look-up table selection. (select the display look-up table to be controlled; LUT is a gray scale mapping table that can be customized by the user)
		<i>LUTEnable</i>	Lookup table enable. (LUTIndex and LUTValue settings are only valid when LUTEnable is True)
		<i>LUTIndex</i>	The index number of the lookup table.(set the offset of the camera through the LUT Index parameter)
		<i>LUTValue</i>	The value of the lookup table. (set the value corresponding to the offset through the LUT Value parameter)
6	DigitalIOControl (Digital IO Control)	<i>LineSelector</i>	Line selector. (IO configuration selection, select the external IO line to be configured)
		<i>LineMode</i>	Line Mode (sets the input/output mode of the currently selected IO line)
		<i>LineInverter</i>	Line reversal. (set the signal reversal of the selected IO line, True means the signal is reversed, False means the signal is not reversed)
		<i>LineStatus</i>	Line Status. (displays the status of

			LineSelector selected IO line)
		<i>LineStatusAll</i>	Line Status All.(displays the status of all available IO lines)
		<i>LineDebouncerTime</i>	Line anti-shake time. (when the line is input, you can set the anti-shake time length)
		<i>LineSource</i>	Line Source.(When setting the IO line as the output, you can select the trigger source.)
		<i>UserOutputValue</i>	User output value.(the user-set IO custom output value)
7	Counter And Timer Control (counter and timer management)	<i>CounterSelector</i>	Counter Selection.
		<i>CounterEventSource</i>	Counter Event Source. (sets the source of the counter trigger)
		<i>CounterEventActivation</i>	Counter Event Activation Polarity .(Selects the type of trigger signal that triggers the counter count)
		<i>CounterValue</i>	Counter upper limit value.
		<i>CounterCurrentValue</i>	Current count value of the counter.
		<i>CounterResetSource</i>	Counter Reset Source. (Set the source of the reset counter)
		<i>CounterReset</i>	Counter Reset.
		<i>TimerSelector</i>	Timer selection.
		<i>TimerTriggerSource</i>	Set the trigger source of the timer.
		<i>TimerTriggerActivation</i>	Timer trigger activation polarity. (select the type of trigger signal that triggers the timer)
		<i>TimerDelay</i>	Timer delay.(adjust the delay between the timer receiving the trigger and the output high-level signal, in us; used to meet the needs of external devices that need to delay response.)
		<i>TimerDuration</i>	Timer duration. (Adjust the hold time of the high level of the timer output signal, in us.)
8	ISPControl (ISP Management)	<i>DigitalShift</i>	Digital Gain. (adjusts the left shift of image data to make the image brighter)
		<i>Brightness</i>	Brightness. (adjust the exposure target brightness value, the default value is 50, the larger the value, the exposure will adjust the image brighter)
		<i>Hue</i>	Tone Adjusting the overall tendency of colors in the image, with a default value of 50.
		<i>Saturation</i>	Saturation adjusts how vivid the colors are in the image. The default value is 50.
		<i>Contrast</i>	Contrast. (used to set the contrast intensity, the larger the value, the more obvious the contrast)
		<i>ContrastMode</i>	Contrast mode. (set contrast adjustment mode)
		<i>ContrastThreshold</i>	Contrast threshold.
		<i>BLCEnable</i>	Black level enable, default is on.
		<i>BLCLevelMode</i>	Black level adjustment mode. (Select to use the default adjustment or manual adjustment.)
		<i>BLCLevel</i>	Black level adjustment. (adjust the overall black point level offset manually or display the default black point level adjustment mode.)
9	EventControl (Event Notification Management)	<i>EventSelector</i>	Lets you select the notification's event type.
		<i>EventNotification</i>	Event notification. (set whether the upper software needs to be notified after the above

			event type is selected; ON notification, OFF does not notify.)
10	AutoFunction (Automatic function parameter item setting)	<i>AutoTargetValue</i>	Automatic target value .(target grayscale value, this grayscale value range applies to 8-bit pixel format)
		<i>AutoGainLowerLimit</i>	Lower limit of automatic gain parameter.
		<i>AutoGainUpperLimit</i>	Upper limit of automatic gain parameter.
		<i>AutoExposureTimeLowerLimit</i>	Lower limit of automatic exposure time parameter.
		<i>AutoExposureTimeUpperLimit</i>	Upper limit of automatic exposure time parameter.
		<i>AutoFunctionProfile</i>	Automatic function configuration. (the choice of using minimum exposure or minimum gain to make the image reach the target grayscale value)
		<i>AutoFunctionAOIWidth</i>	AOI width of auto function.(AOI area width for auto gain, auto exposure calculation)
		<i>AutoFunctionAOIHeight</i>	AOI height of automatic function (used for automatic gain, automatic exposure calculation of AOI area height)
		<i>AutoFunctionAOIOffsetX</i>	AOI horizontal function of automatic offset .(used for automatic gain, automatic exposure calculation of the AOI area of the image horizontal offset, from the upper left corner offset)
		<i>AutoFunctionAOIOffsetY</i>	Automatic function of the AOI vertical offset (used for automatic gain, automatic exposure calculation of the AOI area of the image vertical offset offset, from the upper left corner start offset)
11	Transport Layer Control (Transport Layer Management)	<i>PayloadSize</i>	Payload size.(1 frame data size)
		<i>GevVersionMajor</i>	GEV major version number .(major version of the protocol specification)
		<i>GevVersionMinor</i>	GEV sub- version number. (protocol specification minor version)
		<i>GevDeviceModeIsBigEndian</i>	GEV device mode is big endian.(GEV device register byte order)
		<i>GevDeviceClass</i>	GEV Equipment Type.
		<i>GevDeviceModeCharacterSet</i>	GEV device mode character set.(character set used in GEV device register)
		<i>GevInterfaceSelector</i>	GEV Interface Selector. (Selection of Physical Network Interface.)
		<i>GevLinkSpeed</i>	GEV link speed. (the current network interface's transmission speed.)
		<i>GevMACAddress</i>	MAC address (the network port MAC address.) of GEV
		<i>GevSupportedIPConfigurationLLA</i>	IP configuration LLA is supported by GEV. (shows whether the device supports LLA configuration of IP, true for support.)
		<i>GevSupportedIPConfigurationDHCP</i>	IP configuration DHCP supported by GEV. (shows whether the device supports LLA configuration of IP, true for support.)
		<i>GevSupportedIPConfigurationP</i>	IP configuration static IP supported by GEV.

	<i>ersistentIP</i>	(displays whether the device supports static IP configuration; true indicates support.)
	<i>GevCurrentIPConfigurationLLA</i>	GEV current IP configuration LLA. (enabled by default, the camera can obtain IP address through dynamic link address.)
	<i>GevCurrentIPConfigurationDHCP</i>	The current IP address of GEV is configured with DHCP. (DHCP function is enabled. After the device is powered on, the IP address is DHCP mode, and the device IP address can be automatically obtained.)
	<i>GevCurrentIPConfigurationPersistentIP</i>	Static IP is configured for GEV's current IP address. (enable the static IP function. After the device is powered on, the IP address is static.)
	<i>GevCurrentIPAddress</i>	GEV current IP address.(the current IP address of the device.)
	<i>GevCurrentSubnetMask</i>	Current GEV subnet mask. (current subnet mask of the device.)
	<i>GevCurrentDefaultGateway</i>	Current GEV default gateway. (the default gateway currently used by the device.)
	<i>GevFirstURL</i>	GEV First URL.(the preferred URL address of the XML device description file.)
	<i>GevSecondURL</i>	GEV 2 URL.(XML device description file's secondary URL address.)
	<i>GevNumberOfInterfaces</i>	Number of GEV interfaces. (preferred URL address for XML device description file.)
	<i>GevPersistentIPAddress</i>	GEV static IP address. (set the static IP address of the device.)
	<i>GevPersistentSubnetMask</i>	GEV Static Subnet Mask. (sets the subnet mask for the static IP of the device.)
	<i>GevPersistentDefaultGateway</i>	Static default gateway for GEV. (set the device's static IP to the default gateway.)
	<i>GevMessageChannelCount</i>	Number of GEV message channels showing the number of message channels supported by this device.
	<i>GevStreamChannelCount</i>	Number of GEV flow channels .(shows the number of flow channels supported by this device.)
	<i>GevHeartbeatTimeout</i>	GEV heartbeat timeout. (set heartbeat timeout.)
	<i>GevTimestampTickFrequency</i>	Time Stamp Frequency. (displays the number of time stamp marks in 1 second.)
	<i>GevCCP</i>	Control permissions on the App side. (control the permission of the application to access the camera.)
	<i>GevStreamChannelSelector</i>	GEV flow channel selector. (select flow channel number.)
	<i>GevSCPInterfaceIndex</i>	SCP Interface Index. (Network Interface Usage Index.)
	<i>GevSCPHostPort</i>	GEV SCP host port.(host port number of the channel.)
	<i>GevSCPSFireTestPacket</i>	GEV SCPS Firewall Test Package. (each execution, send a test package.)
	<i>GevSCPSDoNotFragment</i>	GEV SCPS does not segment. (if the message is too long, whether to segment it.)
	<i>GevSCPSBigEndian</i>	GEV SCPS Big Endian. (Device Flow Channel Byte Order.)

		<i>GevSCPSPacketSize</i>	Size of GEV SCPS packets. (sets the packet length of the stream channel.)
		<i>GevSCFTD</i>	Frame transmission delay.
		<i>GevSCBWR</i>	Percentage of bandwidth reserved for device transfers.
		<i>GevSCBWA</i>	Basic bandwidth transmitted by the device.
		<i>GevSCDMT</i>	Displays the maximum number of bytes transmitted per second by the device under the current parameters.
		<i>GevSCDCT</i>	Displays the actual transmission bandwidth of the device.
		<i>GevSCPD</i>	GEV inter-packet delay .(transmission delay between data packets during stream channel transmission.)
		<i>GevSCDA</i>	The destination IP address of the stream channel.
		<i>GevSCSP</i>	Flow channel source port.
12	UserSetControl(UserSetControl)	<i>UserSetCurrent</i>	Display the current configuration, 0 means the default configuration, the rest is the user configuration.
		<i>UserSetSelector</i>	UserSetSelector User Set Group Selection.
		<i>UserSetLoad</i>	User set load.
		<i>UserSetSave</i>	UserSetSave.
		<i>UserSetDefault</i>	Power-up default user settings.

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