



H1 Series 10 Gigabit Optical Port
Industrial Area Scan Camera Manual

V1.0.0

Foreword

The purpose of this section is to ensure that users can correctly use the product through this manual, thereby avoiding operational hazards or property damage. Loss. Before using this product, please carefully read the product manual and keep it safe for future reference.

Overview

This manual applies to CH1 series industrial area scan cameras with 10 Gigabit optical port interface.

Symbol Conventions

The following symbols may appear in this document, and their meanings are as follows:

symbol	illustrate
 说明	Explanatory text supplements and explains the main text.
 注意	Note-related text indicates that the user is reminded of important operations or to guard against potential dangers of injury and property loss.
 警告	Warning text indicates a potential risk that, if not avoided, could result in injury, equipment damage, or business disruption. Interruption.
 危险	Dangerous text indicates a high potential risk that, if not avoided, could result in serious injury or death.

Safety Instructions

To prevent accidents and loss of life and property, the following are the correct operating instructions for this product. Please read this instruction manual carefully before using the equipment and strictly follow it during use. Please keep the instruction manual safe after reading.



警告

- During the installation and use of the product, all national and regional electrical safety regulations must be strictly observed.
- Please use a power adapter provided by a reputable manufacturer. For specific requirements regarding the power adapter, please refer to the product specification sheet.
- To reduce the risk of fire or electric shock, do not expose the product to rain or moisture.
- When installing in the usage environment, ensure that the product is securely fixed.
- If the product malfunctions, please contact the nearest service center. Do not disassemble or modify the product in any way.

(Our company assumes no responsibility for any problems caused by unauthorized modifications or repairs.)



注意

- Avoid installing the product in environments with vibration or shock, and keep it away from locations with electromagnetic interference. (Ignoring this may damage the product.)
- Do not touch the heat dissipation components of the product directly to avoid burns.
- Do not install indoor products in environments where they may come into contact with water or other liquids.
- Do not use the product in extremely hot, extremely cold, dusty, corrosive, or high humidity environments. Please refer to the product's parameter table for specific temperature and

humidity requirements.

- Avoid pointing the lens at strong light (such as artificial lighting, sunlight, or laser beams), as this may damage the image sensor.
- Do not touch the image sensor directly. If cleaning is necessary, gently wipe away dust and dirt with a soft, clean cloth slightly dampened with alcohol. When the product is not in use, please put on the dust cover to protect the image sensor.

- Please keep all original packaging materials for the camera. In case of any problems, you can use these materials to properly pack the camera and send it to the authorized dealer or return it to the manufacturer. Our company is not responsible for any accidental damage during transportation caused by materials not in the original packaging.



Requirements for the qualifications of installation and maintenance personnel:

- Possess a qualification certificate or experience in the installation and maintenance of low-voltage systems, and have the experience and qualifications to perform related work. In addition, you must have the following knowledge and operational skills.
- Possess basic knowledge and operational skills in low-voltage wiring and low-voltage electronic circuit connection.
- Have the ability to understand the contents of this manual.

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Chapter 1 Product Overview

1.1 Product Introduction

The 10 Gigabit Ethernet area scan industrial camera is a highly reliable and cost-effective area scan industrial camera. It employs a high-performance image sensor and transmits uncompressed image data in real time via 10 Gigabit Ethernet, making it compatible with any compliant...Application development tools based on the GigE Vision and GenICam standards, with a maximum transmission rate of 10Gb/s, can meet the transmission rate requirements of most industrial applications and can work stably in various harsh environments.

1.2 Features

- The maximum transmission distance of a 10 Gigabit fiber optic Ethernet interface can reach... 300m.
- It supports multiple modes such as software triggering, hardware triggering, hybrid software and hardware triggering, and free operation.
- Supports gamma correction, lookup table, black level correction, brightness, contrast, etc. ISP functionality.
- The color camera supports interpolation, white balance, color conversion matrix, chroma, saturation, etc.
- Supports multiple image data output formats, including ROI, Binning, and mirroring.
- conform to GigE Vision V2.0 protocol and GenICam standard.
- support DC 12V~24V wide voltage power supply.
- conform to EMC and RoHS certified.



说明

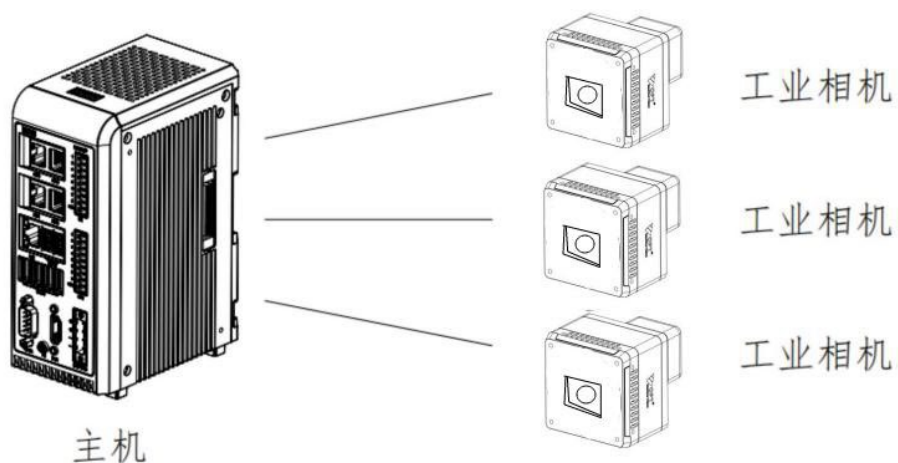
- Some functions may vary depending on the specific model; please refer to the actual functions.
- For technical parameters of the equipment, please refer to the technical specifications of the specific model.

1.3 Typical network topology

The most typical networking method for industrial cameras is point-to-point connection, which means that no other network medium is needed between the host and the industrial

camera; only fiber optic cables are required.

A single host computer can also connect to multiple industrial cameras through multiple network ports or a switch, as shown in the figure below:

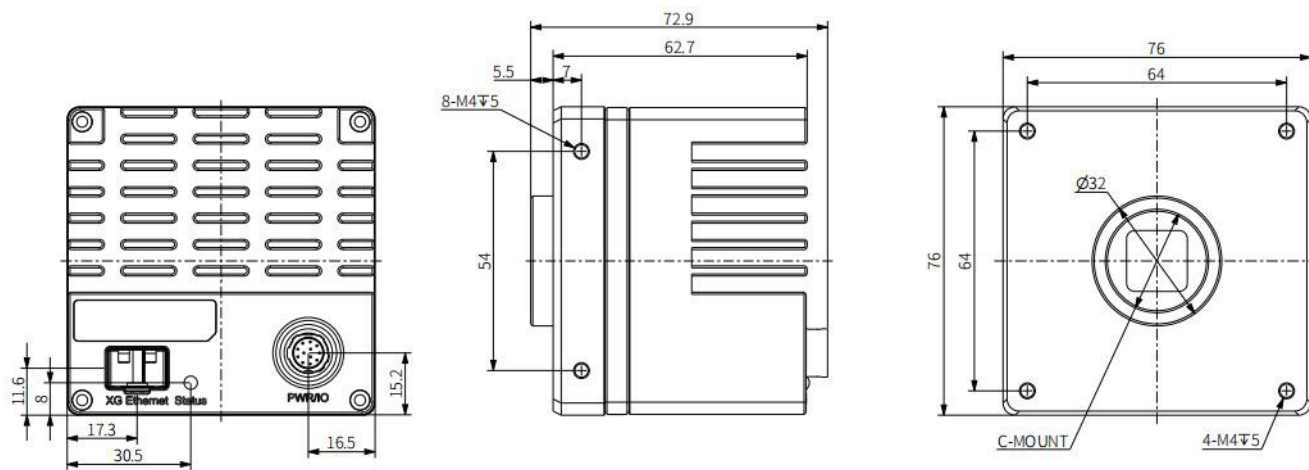


picture1-1 Typical Network Topology

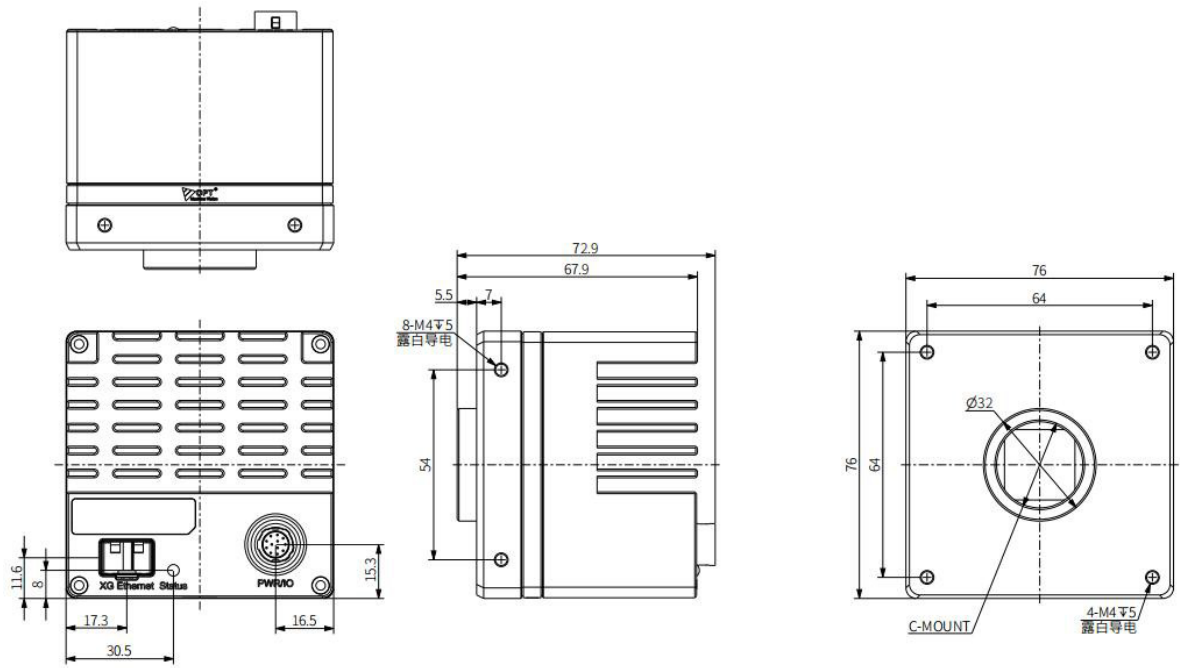
1.4 Product Structure

1.4.1 Product Dimensions

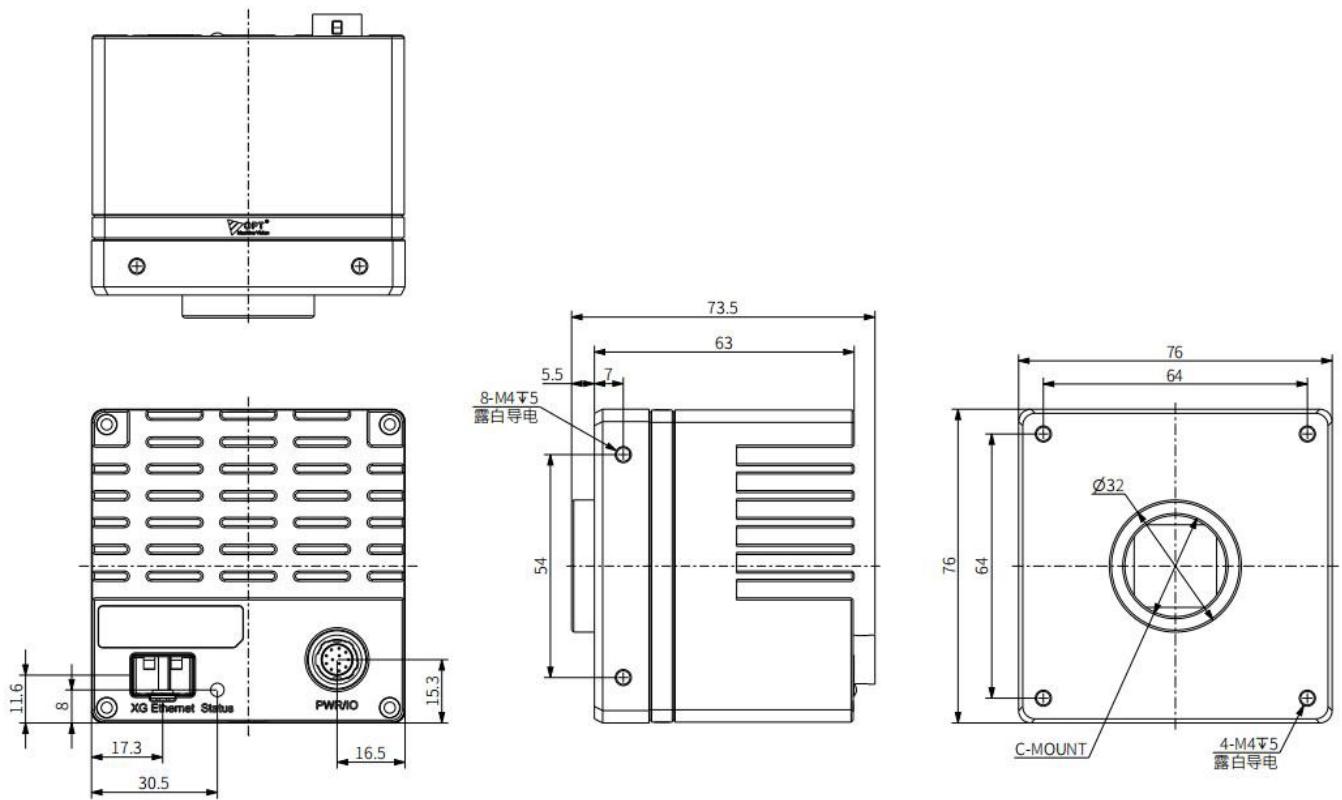
The product's structural dimensions are shown below:



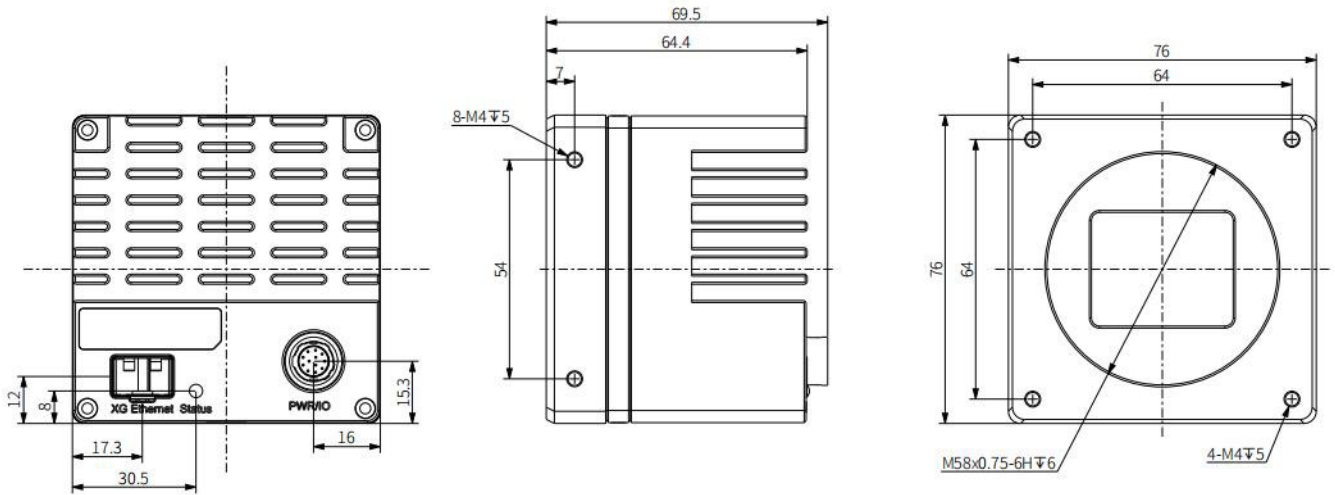
picture1-1 OPT-CH1-M050-XGG3-02 (Dimensional diagram)



picture1-2 OPT-CH1-M120-XGG3-02 (Dimensional diagram)



picture1-3 OPT-CH1-M250-XGG3-02 (Dimensional diagram)

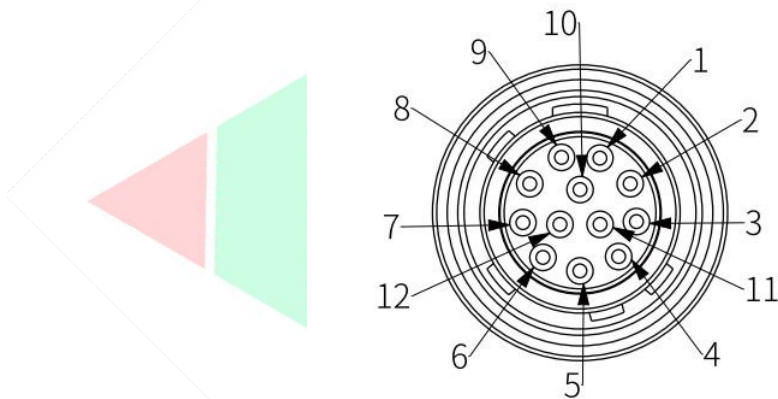


picture1-4 OPT-CH1-M650-XGG3-02 (Dimensional diagram)

1.5 Power supply and I/O interface definitions

1.5.1 Interface Description

The device has two interfaces on the back: a fiber optic interface and a...The 12-pin power and



I/O interface is shown in the following figure:

picture2-1 Camera External Interface Diagram

The pin signal definitions for the I/O interface are shown in Table 2-1 (12-pin power supply interface):

surface2-1 Pin Signal Definitions

管脚	信号	说明
1	GND	power ground

2	Power	DC 12V~24V camera power supply
3	NC	reserve

4	NC	reserve
5	NC	reserve
6	NC	reserve
7	OUT_GND	Optical isolation output ground
8	LineOut1	Optocoupler isolated output 2
9	LineOut2	Optocoupler isolated output 1
10	IN_GND	Optical isolation input ground
11	Line 2	Optically isolated input 2
12	Line 1	Optical isolation input 1

1.5.2 Network interface

The network interface is a 10 Gigabit fiber optic interface, Ethernet.A 10Gbps transmission interface is used for camera control and data transmission.

1.6 Status indicator lights

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

surface2-2 Indicator Light Description

状态	指示灯状态		说明
Normal state	red	Red light flashing	The device is starting up.
		Red light flashing slowly	IP address has been assigned, but the application API is not connected to any device or the application API is not started.
	green	Green light always on	The camera is connected but has not yet started capturing images; it is in continuous mode.Acquisition mode or single-frame acquisition mode.
		Green light flashing	The camera is connected and is acquiring images, either in continuous acquisition mode or single-frame acquisition mode.
		Green light flashing slowly	The device is in trigger mode (including triggered and non-triggered).
Abnormal state	Red and	The traffic light flashes alternately.	No bitrate, firmware upgrade failure, or other fatal errors.

	green		
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Chapter 2 I/O Electrical Characteristics and Wiring

2.1 I/O electrical characteristics

2.1.1 Optical isolation input

In the camera's I/O signals, Line 1 and Line 2 are optocoupler-isolated inputs with a maximum input current of 25mA.

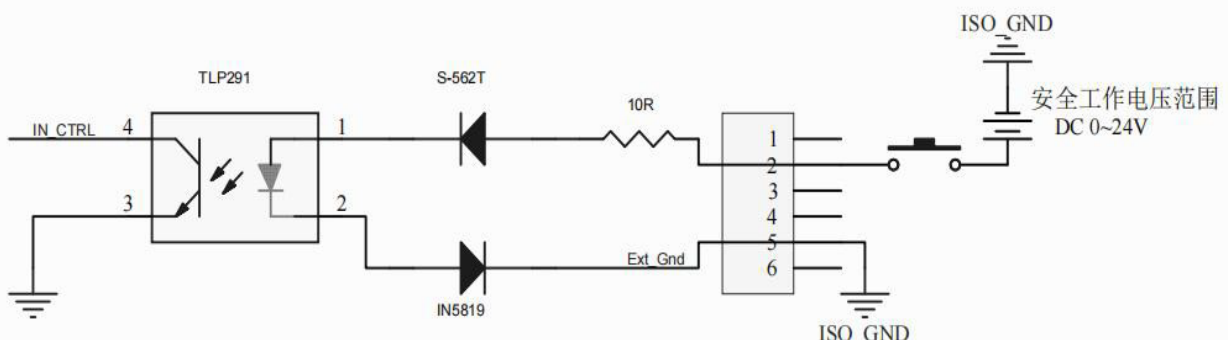
Table 2-3 Optically isolated input

输入电压	描述
30V	The input voltage must not exceed this limit; otherwise, it will cause the device to malfunction. Prepare for damage
DC 0 ~ 24V	I/O Input Safe Operating Voltage Range
DC 0 ~ 1.4V	Represents logic "0"
DC >1.4V ~ 2.2V	The input state is toggled here; the logic state is indeterminate within this voltage range.
DC >2.2V	Represents logical "1"



注意

isolationThe I/O input port can be filled with a current of 5mA to 15mA.



picture2-2 Optocoupler Isolated Input Circuit Diagram

2.1.2 Optocoupler isolated output

Out1 and Out2 in the camera's I/O signals are optocoupler-isolated outputs.

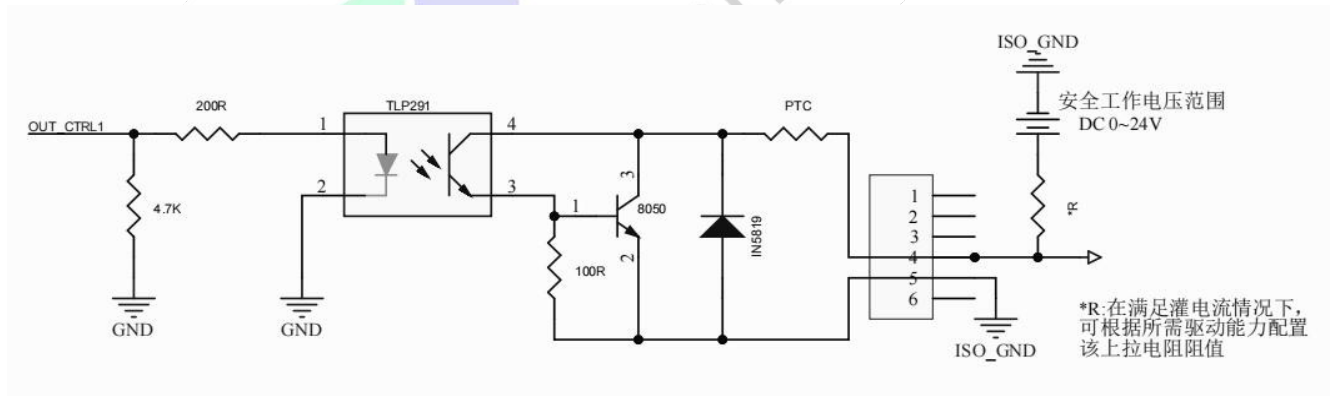
Table 2-4 Optocoupler isolated output

电压	描述
DC 30V	The input voltage must not exceed this limit, otherwise it will cause... Equipment damage
DC < 3.3V	I/O output may be incorrect.
	I/O output safe operating range



注意

isolationThe I/O output port can continuously carry a maximum current of 50mA.



picture2-3 Optocoupler Isolation 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 any obvious damage and confirm that it matches the list of accessories.

3.1.1 Accessories

The parts list is as follows:3-1.

surface3-1 Parts List

Serial Number	Part Name	quantity
1	10 Gigabit fiber optic array industrial camera	1
2	M2×6 screws	4
3	M3×8 screws	3

3.1.2 Camera installation

1. Fix the camera in the mounting position and select a suitable lens to mount on the camera.
2. Use fiber optic cables to connect the camera to a 10 Gigabit switch or a 10 Gigabit network card.
3. Powering the camera: Use a 12-pin power I/O cable and connect it to the appropriate power adapter using the correct wiring method. For I/O interface definitions, please refer to section 1.5, Power and I/O Interface Definitions.

3.2 Application installation

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



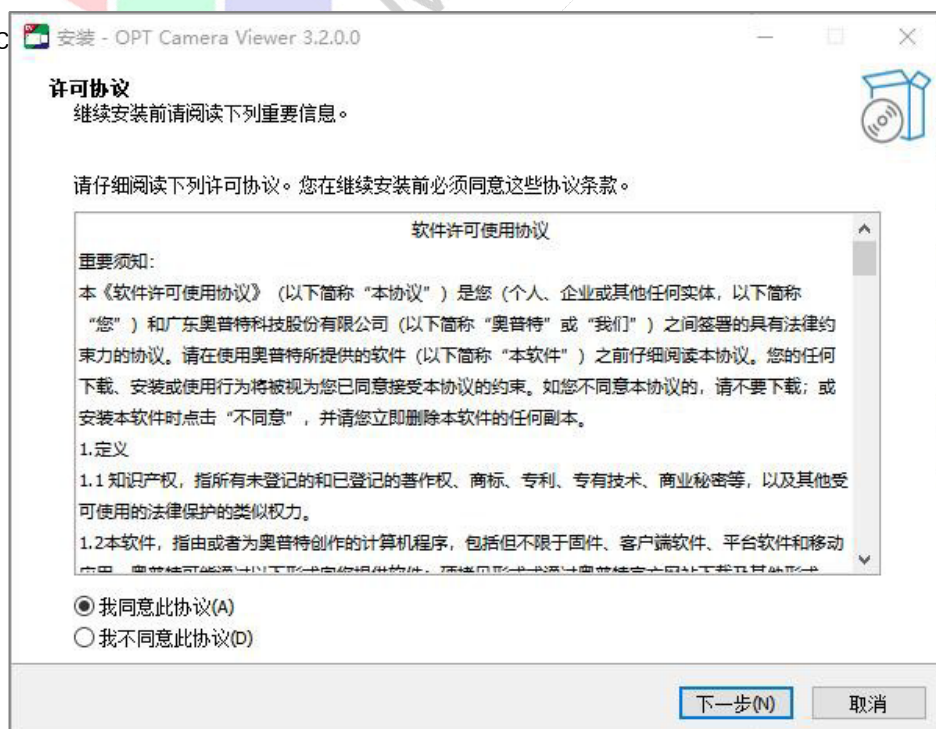
Please contact the relevant technical support personnel to obtain the application installation package.

1. Open the software and double-click the desktop shortcut.  Open the application installation package.
2. Double-click the installation package to enter the installation interface. A "Select Installation Language" prompt will appear. Select your language and click "OK".



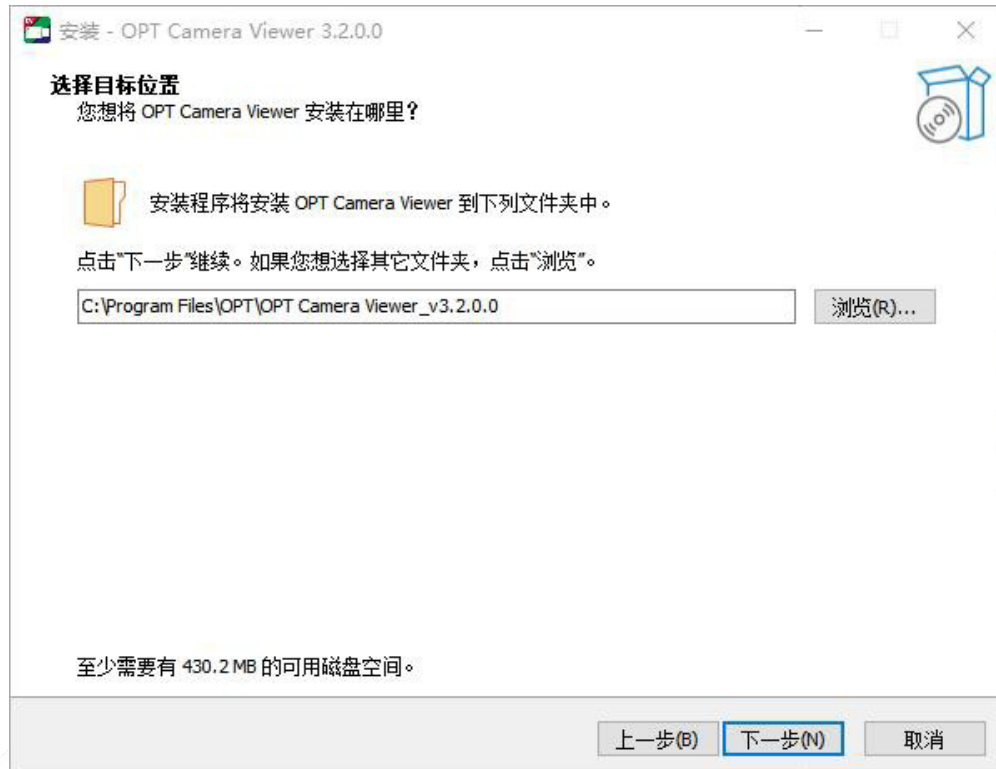
picture3-1 Preparing for Installation Window

3. Waiting as shown in the picture3-2 A window will pop up. Click the Next button. After carefully reading the license agreement, confirm that you agree to the license terms, and then click



picture3-2 License Agreement Window

4. Enter the installation folder window, as shown in the image. As shown in 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.



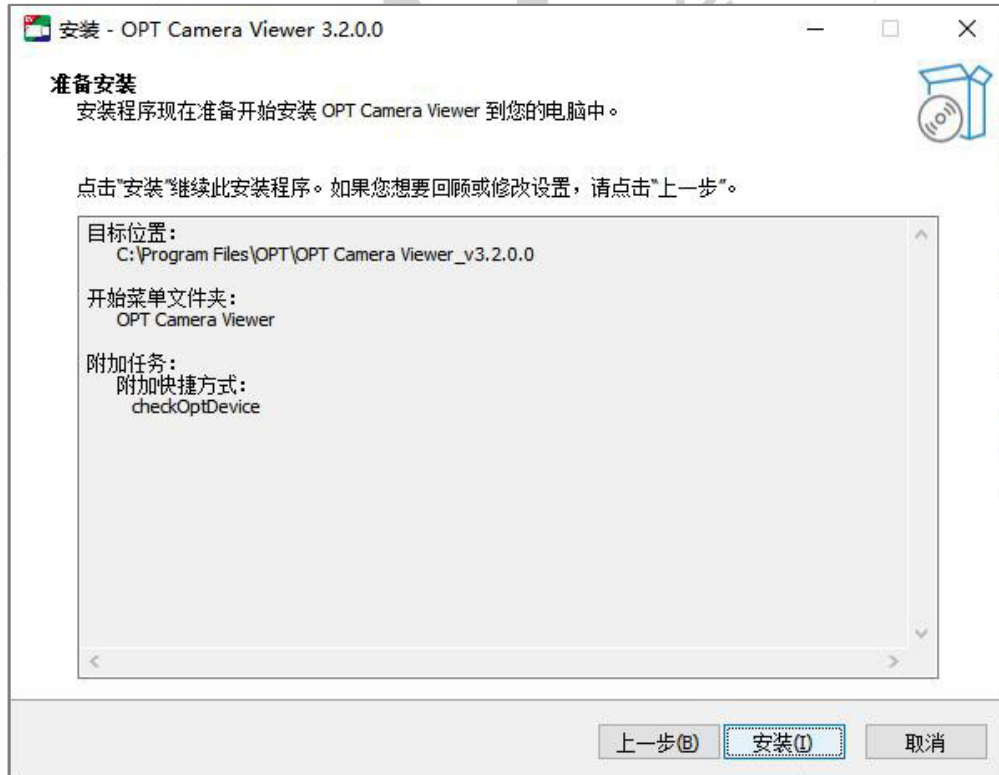
picture3-3 Installation Folder Window

5. After clicking Next, as shown in the image. As shown in 3-4, you will enter the interface for selecting the type of driver to install (all drivers are installed by default). Here you can also customize the selection of drivers to install.



Figure 3-4. Driver type installation option window

6. The installation preparation window appears as shown in the image. As shown in 3-5, click Next



to continue the installation process.

Figure 3-5. Preparing the installation window

7. Waiting for the program to install, as shown in the image. As shown in 3-6

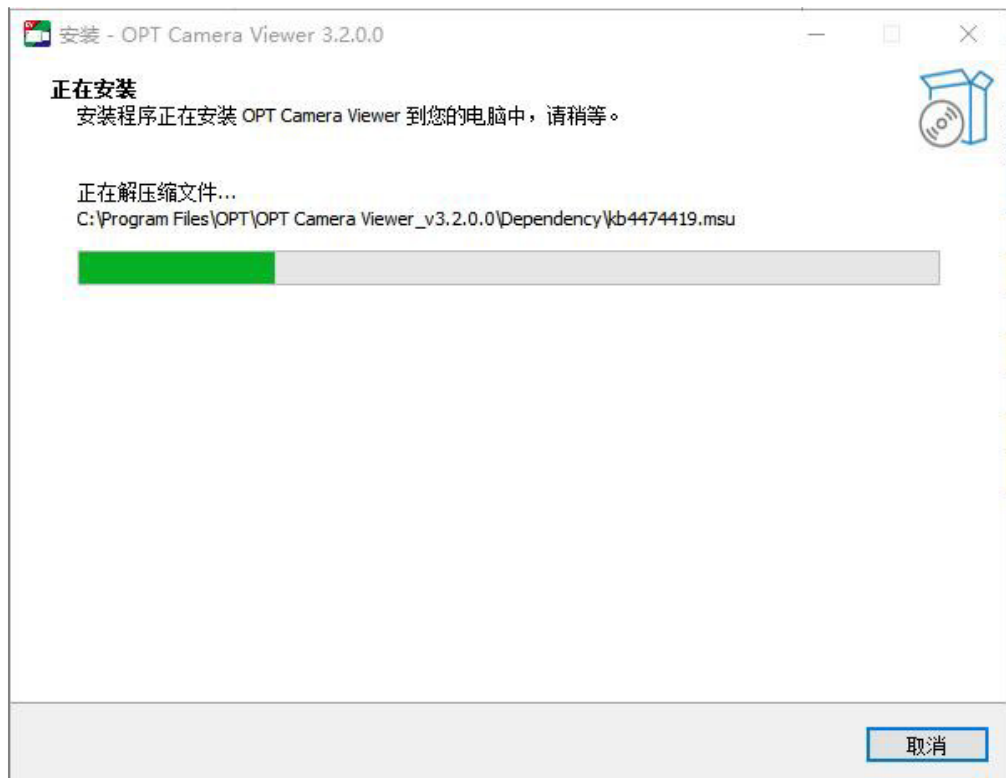


Figure 3-6. Program installation progress window

8. The program installation is complete. Restart your computer, as shown in Figure 3-7.



picture3-7 Program installation successful window

Chapter 4 Network Settings

**注意**

- Please ensure that the 10 Gigabit fiber Ethernet area array industrial camera is correctly connected to the PC.
- existFor detailed instructions on installing applications on a PC, please refer to "3.2 Application Installation".

After the 10 Gigabit fiber Ethernet area array industrial camera is connected by cable, the application installed on the host computer can detect the online camera and ensure that the camera If the IP address (P) and the local computer's IP address are on the same network segment, the camera can operate normally.

The specific steps for setting up the network are as follows:

1. Open the software.

Double-click the desktop shortcut  Open the application software. The software will automatically detect all online devices, and the interface will look like this. As shown in Figure 4-1.



picture4-1 Software Window

2. cameraIP settings.

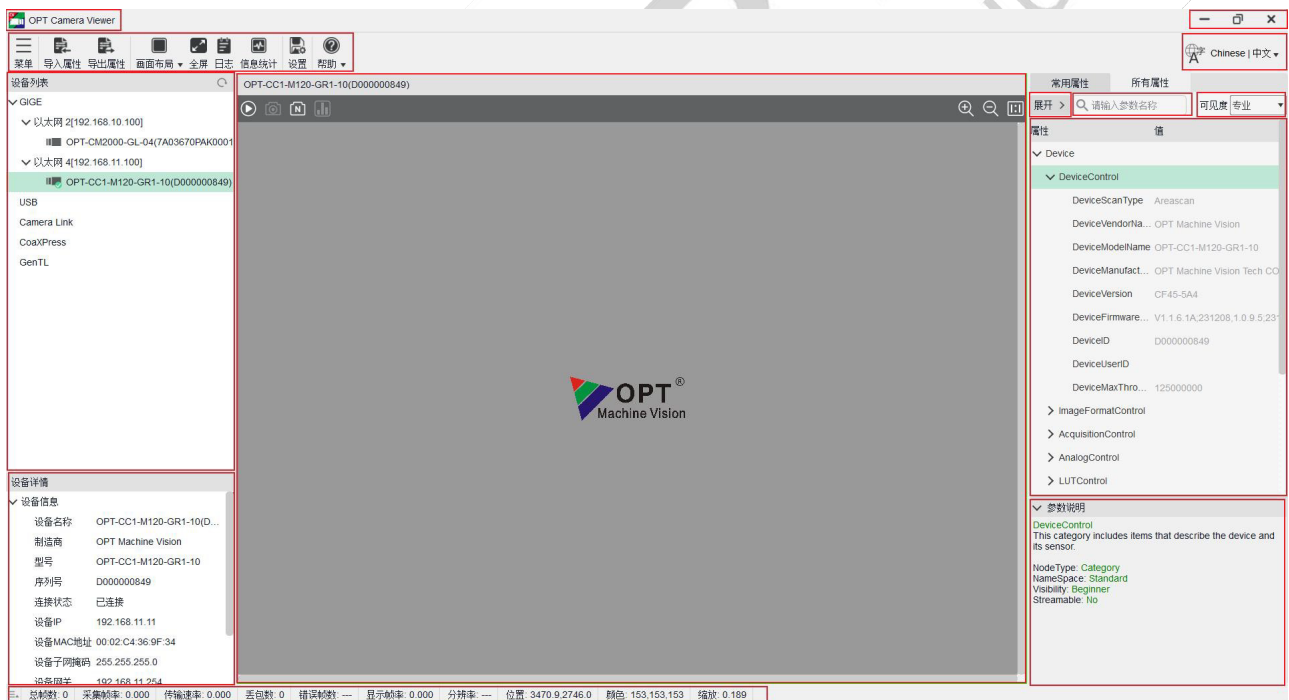
Click to select the device information, then right-click to configure the IP, as shown in Figure 4-2.



Figure 4-2 IP Settings Interface

3. Device connection.

Select the target camera, click  Connect the device. After successful connection, click...  The Device tab and Properties tab are shown in Figure 4-2.



picture4-2 Device connection successful (Device tab)



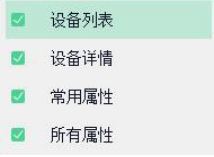
You can click  Disconnect the device.

surface4-1 OPT Camera Viewer Parameter Description

Serial Number	parameter	Parameter Description
1	Menu bar	Provides functionality for files, views, settings, tools, and help. Please refer to Table 4-2 for details.
2	Control Tools Area	Provides quick and convenient operations on camera images, as shown below:  导入属性 Clicking this icon allows you to quickly import configuration parameter properties. (This icon is grayed out when the camera is in streaming mode.)  导出属性 Clicking this icon allows you to quickly export configuration parameter properties. (This icon is grayed out when the camera is in streaming mode.)  画面布局 The screen layout is the display setting for the preview multi-window layout.  全屏 Clicking this icon will expand the image preview globally; pressing ESC will return you to the previous screen. (Double-clicking within the image preview window will also provide a global preview.)  日志 Quickly use the log information preview function; the information type can be customized and the output can be saved as a text file for viewing.  信息统计 Click this icon for a quick preview of the statistics.  设置 Clicking this icon will take you to the settings window for image saving and caching options.  帮助 Click this icon to quickly view the software version information, etc.  Chinese 中文 Clicking this icon allows you to select the display language of the software system.
3	Equipment List	Displays a list of devices that are detected online. This includes devices with various common protocol interfaces such as GigE, USB, and CameraLink.  :Refresh: Click this icon to manually refresh the online device information.  :Click this icon to manually configure the camera IP.  :This indicates that the device is in a connectable state.  :This indicates that the device is connected.

4	Equipment Details	Detailed camera information and interface connection information will be displayed here.
5	Image Preview Window	Displays real-time image data from the camera and provides statistics and displays real-time camera information.
6	Functional parameter area	The camera's parameters under different (operational level) roles. 可见度 大师 Parameter visibility. You can click as needed.▼ In the drop-down menu, select the beginner, professional, or master role. The parameters for each role are slightly different.
7	Parameter explanation area	Clicking on a parameter property will display an explanation of that parameter.
8	Window operation menu	 Maximize window.  Restore window size downwards.  Minimum window size.  Close the application.
9	Data Stream Area	The frame rate, total number of frames, transmission rate, number of error frames, and display frame rate captured by the camera will be displayed here.

surface4-2 Menu Bar—Parameter Explanation

Menu bar		illustrate
document	Import Attributes	Import configuration parameter attribute information as a file.
	Export Attributes	Export configuration parameter attribute information as a file.
	Save Ganicam XML	Save the output XML file information.
view	Equipment List	 You can choose to open or hide the above four windows.
	Equipment Details	
	Common properties	
	All attributes	
set up	Image saving	Set the image save path, image format, etc.
	caching options	Configure the cache parameters for the data stream.
tool	Driver Management	The relevant basic drivers for OPT Camera Viewer can be loaded or enabled independently.
	Bandwidth management	Monitor network bandwidth and data transmission.
	Network adapter settings	You can switch and configure the computer's network card parameters.
	log	Log information preview (including device parameter updates, event message channels, streaming cache and other event notifications), information types can be customized and output can be saved as text for viewing.
	Information Statistics	It can statistically analyze the set frame rate, bandwidth, number of received images, frame drop rate, and number of erroneous images.
help	Firmware upgrade	The camera firmware can be upgraded.
	about	View the current software version information (software version number, software owner, and official website).
	Help documentation	The path to the relevant operation guide documents should be specified.

Chapter 5 Main Function Description

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



- The industrial camera supports three user levels: Beginner, Expert, and Guru. The parameters in the property window are slightly different for each level.
- Parameters displayed in black indicate that the parameter can be modified or set, while parameters displayed in gray indicate that the parameter cannot be modified or set in the current operating mode.

5.1 DeviceControl (Device Management)

In this attribute, you can view device information and modify the device name. For detailed parameter settings, please refer to Table 5-1.

The following table5-1 Explanation of equipment management parameters.

parameter	illustrate
DeviceScanType	The scanning type of the device sensor, such as area scan or linear scan.
DeviceVendorName	Equipment supplier
DeviceModeName	Equipment Model
DeviceManufacturerInfo	Equipment manufacturers
DeviceVersion	Device hardware version
DeviceTemperature	Equipment temperature
DeviceFirmwareVersion	Device firmware version
DeviceID	Device serial number
DeviceUserID	User-defined device name
DeviceMaxThroughput	Maximum data throughput of the device
DeviceReset	The device restart button can be used to call upAPI restarts camera

surface5-1 Equipment Management—Parameter Explanation

5.2 ImageFormatControl (Image Format Management)

This property allows you to modify the image size, image pixel format, region of interest, and test image mode currently captured by the device. For detailed parameter settings, please refer to the table.5-2.

The following table5-2 Explanation of image format management parameters.

parameter	illustrate
SensorWidth	Maximum image width (pixels) supported by the sensor
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 top left corner, is determined by the value of Width.
OffsetY	The image vertical offset starts from the top left corner and its range is determined by the Height value.
CenterX	Output image horizontally centered
CenterY	Vertical centering of output image
BinningHorizontal	Horizontal image compression (this feature is supported only on some models)
BinningVertical	Vertical image compression (this feature is supported only on some models)
ReverseX	Image horizontal flip
ReverseY	Image vertical flip
PixelFormat	Image output format varies depending on the model.
PixelSize	pixel width
PixelDynamicRangeMin	Minimum dynamic range of pixels
PixelDynamicRangeMax	Maximum dynamic range of pixels
TestImageSelector	Select a test image (the default setting is OFF, meaning no test image will be output).

surface5-2 Image Format Management—Parameter Explanation

5.3 AcquisitionControl (Acquisition Management)

This property allows you to set the camera's image acquisition mode, trigger mode, exposure time, etc. (Details...)Please refer to Table 5-3 for parameter settings.

The following tableSection 5-3 explains the parameters for data acquisition and management.

parameter	illustrate
AcquisitionMode	Image acquisition mode: - SingleFrame: This refers to capturing one frame at a time, and automatically stopping the streaming after capturing is complete. - Continuous: refers to continuous data acquisition until an Acquisition is issued. Stop. This command stops the streaming of data.
AcquisitionStart	SDK Start/Stop Pulling
AcquisitionStop	
AcquisitionBurstFrameCount	In trigger mode, the number of images captured by the camera after receiving a trigger signal.
AcquisitionFrameRateEnable	Frame rate limiting is enabled. The frame rate set by AcquisitionFrameRate is only effective when the value is true.
AcquisitionFrameRate	Limit frame rate value  说明 If the set frame rate exceeds the maximum frame rate that the camera can achieve under the current parameters.The actual frame rate output by the camera is the ResultingframeRate, not the actual frame rate. The frame rate value set by AcquisitionFrameRate
ResultingFrameRateAbs	The maximum frame rate that the camera can achieve under the current parameters
AcquisitionStatusSelector	To select and view the acquisition status, choose FrameTriggerWait in AcquisitionStatusSelector and view it in AcquisitionStatus. True indicates waiting for triggering, and False indicates that it has been triggered. trigger.
AcquisitionStatus	
TriggerSelector	Select trigger type and trigger mode existIn TriggerSelector, select the trigger type, and in TriggerMode, select to enable or disable the trigger mode.
TriggerMode	

TriggerSoftware	Soft trigger button. A soft trigger can be generated by clicking or calling the API.
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TriggerSource	Trigger source and trigger signal type.
TriggerActivation	TriggerSource supports SoftwareTrigger, lineN (hardware trigger), and Counter1 (counter trigger). ● When soft triggering is selected, the trigger signal is generated by executing TriggerSoftware or calling the API and output to the camera via fiber optic Ethernet. ● When selecting hardware triggering, In TriggerActivation, you can set RisingEdge (rising edge trigger), FallingEdge (falling edge trigger), LevelHigh (high level trigger), or LevelLow (low level trigger). Then, an external cable generates the corresponding trigger signal, which is output to the camera via the I/O interface. ● When the counter is selected for triggering, the trigger signal is generated internally by Counter within the camera. At this time, the trigger source for Counter1 should be set to Line1, and Counter1 is currently...When the count value equals the Counter Value, Counter1 outputs a single data collection trigger.
TriggerDelay	Trigger delay. This refers to the time from when the camera receives the trigger signal to when the trigger takes effect.  说明 It is only effective when TriggerMode is enabled, and it is effective for any trigger source.
TriggerCache	Trigger caching. When the trigger mode is enabled, if a new trigger signal is received during the triggering process, the signal can be retained and processed.
ExposureMode	Exposure mode and exposure time.
ExposureTime	Currently, only the Timed exposure mode is supported, where the exposure duration is determined by the specific time. ExposureTime sets the exposure time.

ExposureAuto	Set automatic exposure. ● "Off" indicates that automatic exposure is turned off. ● Once indicates that the camera can automatically adjust the exposure once based on the ambient brightness. After the adjustment, it will automatically return to Off mode, and the adjusted exposure value will be displayed in ExposureTime. ● Continuous means that the camera can continuously adjust the exposure time based on the ambient light. Exposure values are displayed in real time in ExposureTime.
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surface5-3 Data Acquisition Management—Parameter Explanation

5.4 AnalogControl

This property allows adjustment of the analog signal of the image captured by the camera, including gain, lookup table, etc. For detailed parameter settings such as Gamma correction, please refer to Table 5-4.

The following tableSection 5-4 explains the parameters for analog control.

parameter		illustrate
GainSelector		Choose which gain to control.
Gain		Simulated gain. The higher the gain value, the brighter the image; different models have different adjustable ranges.  说明 Prioritize enabling analog gain.
GainAuto		Set automatic gain. ● "Off" indicates that automatic gain is turned off. ● Once indicates that the camera can automatically adjust the gain once based on the ambient brightness. The adjusted gain value is displayed in gray in Gain. ● Continuous means that the camera can continuously adjust its gain according to changes in ambient brightness to adapt to environmental changes. Gain value atGain is displayed in gray in real time.
GammaEnable		Gamma correction function.
Gamma		A non-linear correction used to correct image data caused by the non-linear response of displays, etc.The smaller the Gamma value, the brighter the image.  说明 Setting the image gamma value is only effective when GammaEnable is set to True.
LUT	LUTSelector	This property allows you to highlight the grayscale range of interest. The highlighting operation can be a linear curve or a custom mapping curve. Select the grayscale value of the pixel to be replaced in LUTIndex. LUTValue sets the grayscale value after modification by the pixel specified by LUTIndex. whenThe settings for LUTIndex and LUTValue are only effective when LUTEnable is True.
	LUTEnable	
	LUTIndex	
	LUTValue	
BalanceWhiteAuto		The color camera supports white balance, which can correct colors according to different lighting conditions.
BalanceRatioSelector		

BalanceRatio	(When the color effect of the camera's image differs significantly from reality during use, this problem can be resolved by white balance calibration.) In this attribute, you can adjust the image...The R, G, and B components ensure that the white area remains white at different color temperatures. Ideally, the ratio of the R, G, and B components in the white area is 1:1:1. White balance has three modes. ● Off (Manual): Users can manually adjust the R/G/B components using the Balance Ratio Selector and the Balance Ratio parameter, which ranges from 0 to 7. ● Once: Based on the current scene, the automatic white balance will run for a period of time and then stop. ● Continue: Automatically adjusts the white balance continuously based on the current scene.  说明 Users are advised to save the parameters after calibration to avoid needing to recalibrate after a power outage and restart of the camera. White balance calibration will be required if the camera uses a different light source or if the color temperature changes.
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5.5 DigitalIOControl (IO digital input/output management)

This property allows you to manage different I/O input or output signals. For detailed parameter settings, please refer to Table 5-5.

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

parameter	illustrate
LineSelector	Select the external configuration you need.I/O line.
LineMode	Set the output mode of the currently selected I/O line: input or output.
LineInverter	Sets the signal inversion for the selected I/O line. True means the signal is inverted, and False means the signal is not inverted. Invert.
LineStatus	Displays the status of the IO lines selected by the LineSelector.
LineStatusAll	Displays the status of all available I/O lines.
LineSource	When an I/O line is set as an output, a trigger source can be selected. Currently supported trigger sources include the following: ● ExposureActive: Output of light source control signal ● FrameTriggerWait: Triggers and waits for the output to follow. ● Timer1Active: Outputs the pulse from Timer1. ● UserOutput: Outputs the user-defined value.
LineDebouncerTime	Debounce processing is triggered. When the IO line is set as an input, the length of the debouncing time can be set.  说明 Pulses smaller than the set value will not be considered a valid trigger input.
UserOutputValue	User-defined IO output values.

surface5-5 Digital Input/Output Management—Parameter Explanation

5.6 CounterAndTimerControl (Counter and Timer Management)

In this attribute, you can set a device-specific delay unit. For detailed parameter settings, please refer to Table 5-6.

The following table5-6 Explanation of parameters for counter and timer management.

parameter	illustrate
CounterSelector	Select the counter source; currently, only Counter1 is supported.
CounterEventSource	The signal source for setting the counter trigger can currently support the following trigger sources: ● FrameTrigger: Frame trigger signal

	● FrameStart: Image frame valid signal ● Line 1: Physical I/O line ● Line 2: Physical I/O line
CounterEventActivation	Select the trigger signal type for the trigger counter.
CounterValue	upper limit of the counter.
CounterCurrentValue	The current count value of the counter.
CounterResetSource	The signal source for setting the reset counter can only be reset via software.
CounterReset	Executes a resettable counter.
TimerSelector	Select the timer source; currently only Timer1 is supported.
TimerTriggerSource	Set the trigger source for the timer.
TimerTriggerActivation	Select the trigger signal type for the trigger timer.
TimerDelay	Adjust the delay (in μs) between the timer receiving the trigger and the output high-level signal. This is used to meet the need for delayed response from external devices.
TimerDuration	Adjust the holding time of the high level of the timer output signal.(Unit: us)

surface 5-6 Counter and Timer Management—Parameter Explanation

5.7 ISPControl (ISP Management)

This property allows you to adjust the image's brightness, contrast, and other parameters. For detailed parameter settings, please refer to Table 5-7.

The following table 5-7 Explanation of ISP Management Parameters.

parameter	illustrate
DigitalShift	Adjusting DigitalShift shifts the image data to the left by a certain number of bits, making the image brighter.
Brightness	Adjust the exposure target brightness value; the default value is 50. The higher the value, the brighter the image will be due to increased exposure.
Hue	The hue adjusts the overall tendency of colors in the image; the default value is 50.
Saturation	Saturation adjusts the vibrancy of colors in an image; the default value is 50.
Contrast	Contrast sets the contrast intensity; the higher the value, the more pronounced the contrast.
ContrastMode	Set the contrast adjustment mode.
ContrastThreshold	Contrast threshold.

BLCEnable	The black dot is enabled; it is on by default.
BLCLevelMode	Set the black dot flat mode, and choose to use the default adjustment or adjust manually.
BLCLevel	Adjust the overall black level offset in manual black level adjustment mode, and display the overall black level offset in default black level adjustment mode.

surface5-7 ISP Management—Parameter Explanation

5.8 EventControl (Event Notification Management)

In this property, you can select and enable the type of event notification. For detailed parameter settings, please refer to Table 5-8.

The following table5-8 Explanation of parameters for event notification management.

parameter	illustrate
EventSelector	Select the event type for the notification, including: ● ExposureEnd (Exposure End Event) ● FrameStart (frame received trigger event) ● AcquisitionStart (Image Acquisition Start Event) ● TriggerLose (triggers a drop event)
EventNotification	After selecting the above event types, you can choose whether to notify the upper-level software.ON indicates notification, OFF indicates no notification.

surface5-8 Event Notification Management—Parameter Explanation

5.9 AutoFunctions (Automatic Function Parameter Settings)

In this property, you can set the parameters for the automatic function. For detailed parameter settings, please refer to Table 5-9.

Table 5-9 below explains the parameters for the automatic function parameter settings.

parameter	illustrate
AutoTargetValue	Automatic target value. Target grayscale value; this grayscale value range is applicable to8-bit pixel format.
AutoGainLowerLimit	The lower limit of the automatic gain parameter.
AutoGainUpperLimit	The upper limit of the automatic gain parameter.
AutoExposureTimeLowerLimit	The lower limit of the automatic exposure time parameter.
AutoExposureTimeUpperLimit	The upper limit of the 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 functions. AOI area width used for automatic gain and automatic exposure calculations.

AutoFunctionAOIHeight	AOI height for automatic functions. AOI area height used for automatic gain and automatic exposure calculations.
AutoFunctionAOIOffsetX	AOI horizontal offset of automatic function. The horizontal offset of the AOI region used for automatic gain and automatic exposure calculations starts from the top left corner.
AutoFunctionAOIOffsetY	AOI vertical offset with automatic function.

The vertical offset of the image in the AOI region used for automatic gain and automatic exposure calculations starts from

surface 5-9 Automatic Function Parameter Settings—Parameter Explanation

5.10 ColorTransformationControl

Note: Only color cameras are supported.

In this property, you can set parameters for the color correction function, which is used to adjust the overall color of the image to make the overall color of the image more vibrant.

Table 5 below10. Explanation of parameters for color conversion control (i.e., color correction function) settings.

parameter	illustrate
Color Transformation Enable	Color conversion enabled. Enable color correction.
Color Transformation Value Selector	Color conversion value selector. This can be used to select the transformation matrix to access in the selected color transformation module. Gain or Offset.
Color Transformation Value	Color conversion parameter values. After selecting a set of coefficients in the Color Transformation Value Selector parameter, the Color Transformation Value will then display the default value, or you can... Modify according to actual needs.

Table 5-10 Explanation of Parameters for Color Conversion Control (i.e., Color Correction Function) Settings

Color correction function by adjusting the color of eachThis is achieved by multiplying the RGB components by a correction matrix. Currently, the supported color conversion module is RGBtoRGB, which can be set through the Color Transformation Control property. Ultimately, color correction is achieved by adjusting the values of various parameters in the Color Transformation Value Selector.

The specific operation steps are as follows:

1. After selecting a set of coefficients in the Color Transformation Value Selector parameter, the Color Transformation Value will then display the default value.

The value can also be modified according to actual needs.

- 2.Enable the Color Transformation parameter to enable the color correction function, as shown in

Figure 4-9:

▼ ColorTransformationControl	
ColorTransformationEnable	True
ColorTransformationValueSelector	Gain00
ColorTransformationValue	1.245

picture5-10Color correction settings

5.11 TransportLayerControl (Transport Layer Management)

In this property, you can set parameters related to the camera's transmission protocol. For detailed parameter settings, please refer to Table 5-11.

The following table 5-11 Explanation of parameters managed by the transport layer.

parameter	illustrate
PayloadSize	Payload size. The size of a data frame, i.e. the length of each message.
GevVersionMajor	GEV main version number. The main versions of the protocol specification.
GevVersionMinor	GEV sub-version number. A minor version of the protocol specification.
GevDeviceModelsBigEndian	GEV devices are big-endian. Byte order of 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; regarding the number of network ports on physical network devices, this...The value starts counting from 0, so the value is 0.
GevLinkSpeed	GEV link speed. The current transmission speed of the network interface.
GevMACAddress	GEV's MAC address. Network port.MAC address.
GevSupportedIPConfigurationLLA	GEV supports IP configuration LLA. The display device indicates whether it supports configuring IP in LLA mode; true indicates support.
GevSupportedIPConfigurationDHCP	GEV supports IP configuration via DHCP. The display device indicates whether it supports configuring IP in LLA mode; true indicates support.
GevSupportedIPConfigurationPersistentIP	GEV supports configuring static IP addresses. The display device indicates whether it supports configuring IP addresses using static IP addresses; true indicates that it does.

GevCurrentIPConfigurationLLA	GEV's current IP configuration is LLA. Enabled by default, the camera can obtain its IP address through dynamic link address.
GevCurrentIPConfigurationDHCP	GEV's current IP is configured with DHCP. OpenThe DHCP function allows the device to automatically obtain an IP address after power-on via DHCP.
GevCurrentIPConfigurationPersistentIP	GEV's current IP configuration is a static IP. Enable staticIP function: The IP address is static after the device is powered on.  说明 Three typesThe IP configuration priority order is: Static IP > DHCP > LLA.
GevCurrentIPAddress	GEV's current IP address. The current display deviceIP address.
GevCurrentSubnetMask	GEV current subnet mask. Displays the current subnet mask of the device.
GevCurrentDefaultGateway	GEV's current default gateway. Displays the default gateway currently used by the device.
GevFirstURL	GEV's first URL. showThe preferred URL address for the XML device description file.
GevSecondURL	GEV's second URL. showThe secondary URL address for the XML device description file.
GevNumberOfInterfaces	Number of GEV interfaces. showThe preferred URL address for the XML device description file.
GevPersistentIPAddress	GEV static IP address. Configure the device's static settingsIP address.
GevPersistentSubnetMask	GEV static subnet mask. Configure the device's static settingsThe subnet mask of the IP address.
GevPersistentDefaultGateway	GEV static default gateway. Configure the device's static settingsThe default gateway for the IP address.
GevMessageChannelCount	GEV message channel count. This displays the number of message channels supported by this device.
GevStreamChannelCount	GEV stream channel count. This displays the number of stream channels supported by this device.

GevHeartbeatTimeout	GEV heart rate timeout. Set the heartbeat timeout.
GevTimestampTickFrequency	Timestamp frequency. Displays the number of times a timestamp is marked within 1 second.
GevCCP	Control permissions on the app side. Used to control application access permissions to the camera. ● ExclusiveAccess: Exclusive access to the application ● ControlAccess: Application-controlled access
GevStreamChannelSelector	GEV Stream Channel Selector. Select the stream channel number; if the camera supports multiple stream channels, select the stream 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. The host port number of the channel displays the port number used by the camera stream channel.
GevSCPSFireTestPacket	GEV SCPS Firewall Test Package. Send a test message; send a test packet for each execution.
GevSCPSDoNotFragment	GEV SCPS is not segmented. If the message is too long, should it be sent in fragments, and in...Add fragmentation location 1 to the IP header.
GevSCPSBigEndian	GEV SCPS big end. The byte order of a device stream channel can be used to set the end of the pixel data stream for that channel.
GevSCPSPacketSize	GEV SCPS data packet size. Set the packet length for the stream channel.
GevSCFTD	Frame transmission delay.
GevSCBWR	The display shows the percentage of bandwidth reserved for transmission by the device.
GevSCBWA	The basic bandwidth for display device transmission.
GevSCDMT	The display device shows the maximum number of bytes transferred per second under the current parameters.
GevSCDCT	Displays the actual transmission bandwidth of the device.

GevSCPD	GEV private room delay. Used to control the interval between messages; The transmission delay between data packets during streaming channel transmission.  说明 Modifying this value can reduce the requirements for the network card, but the maximum bandwidth will be affected to some extent, and the acquisition time of a single frame will be longer.
GevSCDA	Purpose of the flow channelIP address.
GevSCSP	Flow channel source port.

surface 5-11 Transport Layer Management—Parameter Explanation

5.12 UserSetControl (User Settings Management)

This property allows you to save or load user-adjusted parameter schemes and configure the client to open them. The default parameter configuration is as shown in Table 5-11. For detailed parameter settings, please refer to Table 5-11.

The following table 5-12 Explanation of parameters for user settings management.

parameter	illustrate
UserSetCurrent	Displays the currently used configuration; 0 indicates the default configuration, and the rest are user-configured settings.
UserSetSelector	UserSetSelector: Selects user settings groups. Currently supportedDefault, UserSet1, UserSet2, and UserSet3.
UserSetLoad	User settings loading. Restore the camera's configuration to the user-selected settings.
UserSetSave	User settings are saved. Save the current configuration to the selected group. Saving is not supported for the Default group.
UserSetDefault	The default user settings upon power-on. UserSet1, UserSet2, and UserSet3 need to be saved using UserSetSave before they can be displayed here.

surface 5-12 User Settings Management—Parameter Explanation

Chapter Six Frequently Asked Questions

Problem Description	Possible reasons	Solution
The client software cannot detect the camera.	Camera fails to start or network cable connection is faulty	Check if the camera power supply and network connection are normal. (Observe the LED indicator lights and the network port Link lamp)
The client can enumerate cameras, but the connection fails.	- The camera and the client are not on the same local area network. - The camera has been linked to other programs catch	- Modify IP address using IP configuration tool - Disconnect other programs from controlling the camera and then reconnect.
The preview screen is completely black.	- Lens aperture closed - Camera malfunction	- Open the lens aperture - Power off and restart the camera
The preview works normally but cannot be triggered.	- Trigger mode not enabled or trigger source selected incorrectly - Triggering a connection error	- Confirm that the camera's trigger mode is enabled, and that the selected trigger source and the I/O interface used are consistent. - Confirm the trigger signal input and wiring are correct. normal
External triggering cannot be enabled	- External trigger connection error - External trigger mode was not selected.	Choose the correct trigger mode and ensure that the external connections are correct.
When the client software viewed the image, it was found that the image was upside down.	The equipment was installed in the wrong orientation.	You can correct the image in the client software by going to "Properties > ImageFormatControl > ReverseX (horizontal flip) or ReverseY (vertical flip)".

Appendix A Camera Parameter Index

surfaceA-1 Camera Specifications and Functions Overview

Serial Number	property	parameter	Function Description
1	DeviceControl (Equipment Management))	<i>DeviceScanType</i>	The scanning type of the device sensor, such as area scan or linear scan.
		<i>DeviceVendorName</i>	Equipment manufacturer name
		<i>DeviceModelName</i>	Equipment Model
		<i>DeviceManufacturerInfo</i>	Equipment manufacturer information
		<i>DeviceVersion</i>	Device hardware version
		<i>DeviceTemperature</i>	Equipment temperature
		<i>DeviceFirmwareVersion</i>	Device firmware version
		<i>DeviceID</i>	Device ID (used to display the device serial number)
		<i>DeviceUserID</i>	User-defined device name
		<i>DeviceMaxThroughput</i>	Maximum data throughput of the device
		<i>DeviceReset</i>	Restart the device (the device restart button can call the API to restart the device). (Reboot the machine)
2	ImageFormatControl (Image format management)	<i>SensorWidth</i>	Maximum image width (pixels) supported by the sensor
		<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>	Image horizontal offset, starting from the top left corner, range Depend onThe value of Width determines
		<i>OffsetY</i>	Image vertical offset, starting from the top left corner, range Depend onThe value of Height determines
		<i>CenterX</i>	Output image horizontally centered
		<i>CenterY</i>	Vertical centering of output image
		<i>BinningHorizontal</i>	Horizontal image compression (this feature is supported only on some models))

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		<i>BinningVertical</i>	Vertical image compression (this feature is supported only on some models))
		<i>ReverseX</i>	Image horizontal flip
		<i>ReverseY</i>	Image vertical flip
		<i>PixelFormat</i>	Image output format varies depending on the model.
		<i>PixelSize</i>	pixel width
		<i>PixelDynamicRangeMin</i>	Minimum dynamic range of pixels

		<i>PixelDynamicRangeMax</i>	Maximum dynamic range of pixels
		<i>TestImageSelector</i>	Select the test image (OFF by default, meaning no). Output test image)
3	AcquisitionControl (Acquisition Management)	<i>AcquisitionMode</i>	Image acquisition modes, such as continuous and single-frame.
		<i>AcquisitionStart</i>	Start fetching
		<i>AcquisitionStop</i>	Stop fetching
		<i>AcquisitionBurstFrameCount</i>	In trigger mode, the camera receives a trigger signal once. Number of images acquired
		<i>AcquisitionFrameRateEnable</i>	Frame rate limiting is enabled when it is true. The frame rate set by AcquisitionFrameRate will be effective.
		<i>AcquisitionFrameRate</i>	Limit frame rate value
		<i>ResultingFrameRateAbs</i>	The maximum frame rate that the camera can achieve under the current parameters (actual) (Sampling frame rate)
		<i>AcquisitionStatusSelector</i>	Select acquisition status
		<i>AcquisitionStatus</i>	Check the collection status (True means waiting to be triggered, False) (Indicates that it has been triggered)
		<i>TriggerSelector</i>	Trigger type (Trigger event selection, select the trigger to configure) Hair type)
		<i>TriggerMode</i>	Trigger mode
		<i>TriggerSoftware</i>	Execute a soft trigger
		<i>TriggerSource</i>	Trigger source (specifies the internal signal or physical source used as the trigger source) Input line.
		<i>TriggerActivation</i>	Trigger polarity (trigger rising edge, falling edge, high level, (low level, etc.)
		<i>TriggerDelay</i>	Trigger delay (referring to the time from when the camera receives the trigger signal to when the trigger occurs) (Effective time)
		<i>TriggerCacheEnable</i>	Trigger caching (when trigger mode is enabled, if a new trigger signal is received during the triggering process, the signal can

			be retained and processed). deal with)
		<i>ExposureMode</i>	Exposure mode
		<i>ExposureTime</i>	Exposure time
4	AnalogControl (Analog Control)	<i>GainSelector</i>	Gain Selection
		<i>Gain</i>	Gain value (the higher the gain value, the brighter the image; different models...) (Different configurable ranges)
		<i>GainAuto</i>	Set automatic gain
		<i>GammaEnable</i>	Gamma correction enabled (when GammaEnable is True) Setting the image gamma value is only effective at this time.
		<i>Gamma</i>	Gamma adjustment (the smaller the gamma value, the brighter the image)
5	LUT Control (User lookup table control))	<i>LUTSelector</i>	Lookup table selection (select the lookup table to control the display of); A LUT is a user-defined grayscale mapping table.
		<i>LUTEnable</i>	Lookup table enabled (when LUTEnable is True) (Only LUTIndex and LUTValue settings are effective)
		<i>LUTIndex</i>	The index number of the lookup table (set via the LUT Index parameter) (Camera offset)
		<i>LUTValue</i>	Look up the value of the table (set the offset via the LUT Value parameter). (The value corresponding to the quantity)
6	DigitalIOControl (Digital I/O control)	<i>LineSelector</i>	Line selector (IO configuration selection, select the desired configuration) externalIO line)
		<i>LineMode</i>	Line mode (sets the input/output of the currently selected I/O line) model)
		<i>LineInverter</i>	Line Inversion (Sets the signal inversion of the selected IO line, True) False means the signal is inverted, False means the signal is not inverted.
		<i>LineStatus</i>	Line status (displays the status of the IO lines selected by LineSelector)

			)
		<i>LineStatusAI</i>	All line statuses (displays the status of all available I/O lines)
		<i>LineDebouncerTime</i>	Line debounce time (can be set when the IO line is set as an input). (Length of debounce time)
		<i>LineSource</i>	Line source (when setting the IO line as output, you can select the touch) Origin.
		<i>UserOutputValue</i>	User-defined output values (custom IO output values set by the user)
7	Counter and Timer Control (Counter and Timer Management)	<i>CounterSelector</i>	Counter Selection
		<i>CounterEventSource</i>	Counter event source (sets the signal source for triggering the counter)
		<i>CounterEventActivation</i>	Counter event activation polarity (selecting the trigger for counter counting) (Trigger signal type)
		<i>CounterValue</i>	upper limit of the counter
		<i>CounterCurrentValue</i>	Current count value of the counter
		<i>CounterResetSource</i>	Counter reset source (the signal source for setting and resetting the counter)
		<i>CounterReset</i>	Counter Reset
		<i>TimerSelector</i>	Timer selection
		<i>TimerTriggerSource</i>	Set the trigger source for the timer
		<i>TimerTriggerActivation</i>	Timer trigger activation polarity (select the trigger for the timer) (Signal type)
		<i>TimerDelay</i>	Timer delay (adjusting the timer's response time from trigger to high output) The delay between level signals, measured in microseconds (μs); used to meet the delayed response requirements of external devices.
		<i>TimerDuration</i>	Timer duration (adjusting the timer output signal high voltage)
			(The duration of holding the position, in microseconds.)
		<i>DigitalShift</i>	Digital gain (adjusting the number of bits to the left of the image data to make the image...) Brighter)

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8	ISPControl (ISP Management)	<i>Brightness</i>	Brightness (adjusts the target brightness value for exposure; the default value is 50). The higher the value, the brighter the image will be due to increased exposure.
		<i>Hue</i>	Tone adjustment controls the overall color tendency in the image; the default value is [value missing]. 50.
		<i>Saturation</i>	Saturation adjusts the vibrancy of colors in an image; the default value is... It is 50.
		<i>Contrast</i>	Contrast (used to set the contrast intensity; the higher the value, the higher the contrast). The more obvious the degree)
		<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 (choose to use default adjustment or manual adjustment adjust.)
		<i>BLCLevel</i>	Black level adjustment (adjust manually or display default black dot level) In section mode, the overall black dot offset.
9	EventControl (Event Notification Management))	<i>EventSelector</i>	Event selector (used to select the event type for the notification).
		<i>EventNotification</i>	Event notification (settings whether to notify after selecting the above event types)The upper-layer software needs to be notified; ON indicates notification, OFF indicates no notification. o.
	AutoFunction	<i>AutoTargetValue</i>	Automatic target value (target grayscale value, this grayscale value range is suitable) For8-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

10	(Automatic function parameter settings)	<i>AutoExposureTimeUpperLimit</i>	Upper limit of automatic exposure time parameter
		<i>AutoFunctionProfile</i>	Automatic function configuration (select to use minimum exposure or minimum increase) (This helps the image achieve the target grayscale value)
		<i>AutoFunctionAOIWidth</i>	AOI width for automatic functions (for automatic gain, automatic) (AOI area width for exposure calculation)
		<i>AutoFunctionAOIHeight</i>	AOI height for automatic functions (for automatic gain, automatic) (AOI area height calculated by exposure)
		<i>AutoFunctionAOIOffsetX</i>	Automatic AOI horizontal offset (for automatic gain control,
			Image horizontal offset of AOI region calculated by automatic exposure (Offset from the top left corner)
		<i>AutoFunctionAOIOffsetY</i>	AOI Vertical Offset (the vertical offset of the AOI area used for automatic gain and automatic exposure calculations) in automatic functions (Offset from the top left corner)
		<i>PayloadSize</i>	Payload size (size of one frame of data)
		<i>GevVersionMajor</i>	GEV major version number (major version of the protocol specification)
		<i>GevVersionMinor</i>	GEV sub-version number (minor version of the protocol specification)
		<i>GevDeviceModelsBigEndian</i>	GEV device mode is big-endian (the word in the GEV device register). (Section order)
		<i>GevDeviceClass</i>	GEV device type
		<i>GevDeviceModeCharacterSet</i>	GEV device mode character set (used in GEV device registers) (Character set used)
		<i>GevInterfaceSelector</i>	GEV Interface Selector (Physical Network Interface Selector)
		<i>GevLinkSpeed</i>	GEV link speed (current network interface transmission speed)
		<i>GevMACAddress</i>	GEV's MAC address (MAC address of the network port)

11	Transport Layer Control (Transport layer management)	<i>GevSupportedIPConfigurationLLA</i>	GEV supports IP configuration LLA (indicates whether the device supports IP configuration in LLA mode). true indicates support)
		<i>GevSupportedIPConfigurationDHCP</i>	GEV supports IP configuration via DHCP (indicates whether the device supports IP configuration in LLA mode). true indicates support)
		<i>GevSupportedIPConfigurationPersistentIP</i>	GEV supports configuring static IP addresses (displays whether the device supports this). Static IP configuration (true indicates support)
		<i>GevCurrentIPConfigurationLLA</i>	The GEV's current IP configuration includes LLA (enabled by default; camera can access this). (Obtaining IP address via dynamic link address)
		<i>GevCurrentIPConfigurationDHCP</i>	GEV's current IP configuration is DHCP (DHCP function enabled). After the equipment is powered onThe IP address is obtained automatically via DHCP.
		<i>GevCurrentIPConfigurationPersistentIP</i>	GEV's current IP configuration is a static IP (static IP function enabled). After the equipment is powered on(IP is static)
		<i>GevCurrentIPAddress</i>	GEV Current IP Address (Device's Current IP Address)
		<i>GevCurrentSubnetMask</i>	GEV current subnet mask (the current subnet mask of the device)
		<i>GevCurrentDefaultGateway</i>	GEV's current default gateway (the default network currently used by the device) close)
		<i>GevFirstURL</i>	GEV's first URL (preferred XML device description file) URL address)
		<i>GevSecondURL</i>	GEV Second URL (Secondary to XML Device Description File)
			URL address)
		<i>GevNumberOfInterfaces</i>	Number of GEV interfaces (preferred in XML device description file) URL address)
		<i>GevPersistentIPAddress</i>	GEV Static IP Address (Setting the device's static IP address)address)

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<i>GevPersistentSubnetMask</i>	GEV static subnet mask (sets the subnet mask of the device's static IP address) (Network mask)
<i>GevPersistentDefaultGateway</i>	GEV Static Default Gateway (Sets the default static IP address for the device) (Recognize gateway)
<i>GevMessageChannelCount</i>	GEV message channel count (displays the number of message channels supported by this device) number of channels)
<i>GevStreamChannelCount</i>	GEV Stream Channel Count (Displays the number of stream channels supported by this device))
<i>GevHeartbeatTimeout</i>	GEV heartbeat timeout (set heartbeat timeout period)
<i>GevTimestampTickFrequency</i>	Timestamp frequency (displays the number of times a timestamp is placed within 1 second))
<i>GevCCP</i>	App-side permission control (controlling application access to the camera) (permissions)
<i>GevStreamChannelSelector</i>	GEV Stream Channel Selector (Select Stream Channel Number)
<i>GevSCPInterfaceIndex</i>	GEV 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 Packet (sends each time it is executed) A test package)
<i>GevSCPSDoNotFragment</i>	GEV SCPS does not segment (whether to segment if the message is too long). (Send the film)
<i>GevSCPSBigEndian</i>	GEV SCPS Big Endian (Byte Order of Device Stream Channel)
<i>GevSCPSPacketSize</i>	GEV SCPS packet size (packet size for setting the streaming channel) length)
<i>GevSCFTD</i>	Frame transmission delay
<i>GevSCBWR</i>	Percentage of bandwidth reserved for device transmission

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<i>GevSCBWA</i>	Basic bandwidth for device transmission
<i>GevSCDMT</i>	The display device's maximum number of bytes per second under the current parameters.
<i>GevSCDCT</i>	Display device actual transmission bandwidth
<i>GevSCPD</i>	GEV inter-packet delay (during streaming channel transmission, the delay between data packets) Transmission delay
<i>GevSCDA</i>	Purpose of the flow channel IP address
<i>GevSCSP</i>	Flow channel source port

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