

Getting Started with iCentral



Ver 2.2.0 Mar. 2022

— Vision System ——

Perfect

Purpose of This Guide

This guide describes the function of the iCentral and how to use it and gives a detailed description of each tools. Please read this guide before use.

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Throughout this manual, trademarked names might be used. We state herein that we are using the names to the benefit of the trademark owner, with no intention of infringement.

Disclaimer

The information and specifications described in this guide are subject to change without notice.

Latest Version

For the latest version of this guide, see the Download Center on our web site at: www.contrastech.com

Technical Support

For technical support, e-mail: support@contrastech.com

Do not remove the camera's serial number label

If the label is removed and the serial number can't be read from the camera's registers, the warranty is void.

Do not open the camera housing

Do not open the housing. Touching internal components may damage them.

Prevent ingress or insertion of foreign substances into the camera housing

Prevent liquid, flammable, or metallic substances from entering the camera housing. If operated with any foreign substances inside, the camera may fail or cause a fire.

Avoid electromagnetic fields

Do not operate the camera in the vicinity of strong electromagnetic fields. Avoid electrostatic charging.

Clean with care Avoid cleaning the sensor if possible.

Handle this camera with care.

Do not abuse the camera. Avoid striking, shaking, etc. The camera could be damaged by improper handling.

Read the manual

Read the manual carefully before using the camera.

Installation

System Requirements

The iCentral for windows requires that one of the following operating systems is installed on your computer:

- Windows XP (32 bit)
- Windows 7 (32 bit or 64 bit)
- Windows 10 (32 bit or 64 bit)
- Linux 32-bit/64-bit: Ubuntu 14.04 (32/64), Ubuntu 16.04 (32/64), x86 platform (32/64),
 - a. glibc 2.12 version and above
 - b. Linux kernel version number from 2.6.32 (inclusive) to5.11.0 (inclusive)

ARM: NVIDIA TX1/TX2, 64-bit ARM development board, Jetson_Xavier Arm development board (L4T version [32.2], kernel version [4.9.140])

Installation Steps

- 1. Download the iCentral (Ver.2.x.xxxx.rar) from the ContrasTech website: http://www.contrastech.com/en/service/005001.html
- 2. Launch the downloaded installer.
- 3. Follow the instructions on the screen. The installer will guide you through the installation process.

During installation, you can choose whether to install USB3 Vision Driver or GigE Vision Driver for use with a GigE camera or a USB 3.0 camera.





After the installation process completed, Users could find the SDK (API for C/.Net and samples) in a file folder named iCentral under the Start Menu.



Installation Steps

4. Run iCentral app.

To begin, launch the software by simply double clicking the desktop icon, or clicking the icon in the iCentral folder in the Start Menu. Once the software is open, it will automatically detect all the device that is connected.

As shown below. Users can aslo click refresh button to scan all the connected devices.



- 5. Change IP. (For camera with Gigabit Ethernet interface)
 - Click 🗹 to change the IP address. Please make sure the camera IP address is in the same subnet as the network adapter.



- 6. Device Connection
 - Click 🖬 button to connect the device.

Main Interface

The main interface of iCentral is showed as following. Each section of the software will be explained briefly in the following pages.



	4				
Interface Info Description	符合 USB xHCI的				
	0x8086	DeviceSFNCVersionMinor	1		
		DeviceSFNCVersionSu	0		
		DeviceLinkThroughput			
			C		
Device Info		()		
	Mars5000S-75uc			🖲 Continuous 🗸 🛅 🖻 🖸 🕄 🕄 🕄 🕄	
				(-,-) Gray:- RGB: (-,-) 2448 x 2048 Zoom: 30.1%	
		TReset settings Save Fea	tures Visibility 🔓uru 👻		

1. Menu Bar



• Open: Opens a new *.mvcfg format file.

- Open Recent: List 10 latest opened files in iCentral.
- Save: Save the changes to the current file.
- Save as: Save the current file to another location.



Event

• Event Monitor: Including GenIcam paramters updates, messaging channel events and PvStream buffers.

Event Moni	tor			×
				🖬 Clear Log
				t
	-75uc [5C02AE8PAK72	Param update	UserSetDefault:UserS	
	3-75uc [5C02AE8PAK72	Param update	UserSetSelector:User	
			UserSetSave:	
	-75uc [5C02AE8PAK72	Param update	ChunkModeActive:Fal	
		Param update	ChunkSelector:Gain	
				Stream (all)

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Main Interface

1. Menu Bar Image Statistics Statistics Image Stream information Setting General Settings Modify the Visibility Set the refresh device list method: Automatic/Manual Client settings restore default parameters Image Save Paleterel cettings for some finance for any fi

• Related settings for saving image files

Record Video

• Relevant settings for saving video files

Buffer Options

• Set the number of buffers for the data stream

Communication Control

• Save the related settings of timeout packet loss

As shown below:

Setting					>
	Image Save		Buffer Options		
				6	
	rmat Prefix_Da	steTime_No.			

Setting						
		ave Record Vide	eo Buffer			
		C:/Users/VT-Support/iC	entral/videos		6	
		AVI				
			•			
		Prefix_DateTime_No.				







Main Interface

1. Menu Bar	
Ē <u>T</u> ools	Tools
CamTools	CamTools: commonly used for firmware upgrade, dead pixel correction and sensor correction
Driver Tool	 Driver Tool: Check the driver installation status, you can directly click the specific driver to install/ uninstall
NIC Tool	• NIC Tool: view/set network card configuration
⊡ <u>H</u> elp	 Help About: Display the current version
⊤ <u>L</u> ang	Language ● English/Chineses(simplified.)

Interface Description

No.				
1	Menu Bar			
2	Device list Refresh to see all the connected devices. Indicates that the device can be connected. The iCentral can connect with or operate one camera once. Indicates that the device can not be connected. 			
3	Device info.: Includes the interface info that the device is connected and the camera info.			
4	Status bar: Includes stream, frame rate, bandwidth, display frame rate, errors, image resolution and so on.			
5	 Tool bar for display panel: Acquisition button. There are three mode of acquiring images: Continous, Single frame, multiple frames. Stop acquiring images. Save the last frame of the stream data as an image file. Zoom in the diplayed image. Zoom out the displayed image. Diplay the image in 100%. Diplay the image according to the display panel size. Vertical mirror image. Horizontal mirror image. 			
6	Visibility: Beginner, Expert, Guru. Each state can see different parameters in the property panels.			
7	Property panels allows viewing or changing all acquisition parameters supported by the acquisition device. Parameters in gray are read only, either always or due to another feature being disabled. Parameters in black are user set in iCentral or programmable via an imaging application.			
8	Annotation: shows the description of selected parameter.			
9	Settings: frame rate, exposure, white balance, RGB gain and other settings ImageFormat: Image format, resolution, ROI and other settings			

Image Acquisition and Settings

1.Connect the camera

If it is needed to acquire video stream Select 'Continue' in the drop-down box and click 'play'.

OiCentral	🔓 <u>F</u> ile	⊉ <u>E</u> vent	<u>llıl</u> Sta	tįstics		Ē <u>⊺</u> ools	⊡ <u>H</u> elp	⊤ <u>L</u> ang	
Device List		Features							
GigE USB									
📑 Mars5000S		DeviceControl							
PCle		DeviceSca	nType Ar	reascan					
								\wedge	
Device Info					35			8 ** //E+(//) ·	
		DeviceUse	rID						
Description	符合 USB xHCI 的								
Vendor ID	0x8086								
Device ID									
Subsystem ID	0x64091565	DeviceLink	Throughput Of	ff					
Revision	0 Super								
Device Info	ouper								
Vendor									
Model	Mars5000S-75uc					Continuous		14 ⊕ ⊝ 1:1 ⊡ ⊕	
Version						Start Acquisition			
Manufacture Serial Number	5C02AE8PAK72E35	^t ⊐ <u>Reset settin</u>	gs Save Featur	res Visibility	Guru 👻				

2.Video stream displays in display zone. Frame rate, bit rate and other data displays in status bar.

- 3.If it is required to acquire single frame
- Select 'SingleFrame' in the drop-down box and click 'play'.

Central	Ēī <u>E</u> ile	₫ <u>E</u> vent	<u>III</u> Stat <u>i</u> stics	Settings	Ē <u>⊺</u> ools	⊡ <u>H</u> elp	⊤ <u>L</u> ang		×
		Features							
GigE									
Mars5000S									
PCIE		DeviceScanType	Areascan						
							\sim		
						,			
						Ś.	 ()))		
		DeviceUserID				ć			
Interface Info		DeviceSFNCVers							
Description Vendor ID	符合 USB xHCI 的 0x8086	DeviceSFNCVers							
		DeviceSFNCVers							
		DeviceLinkThrou	ghput Off						
Revision									
Device Info									
					-				
					Continuous		⊕ ⊝ 1:1 ⊑ ⊕		
Version Manufacture	V1.000.00.0.R(201 Vision Datum				SingleFrame				
Serial Number	5C02AE8PAK72E35	☐ <u>Reset settings</u>	Save Features V	isibility Guru 👻	MultiFrame			===	гл 23

4.If it is required to acquire multiple frame

• In 'Params', set the value of 'AcquisitionFrameCount' under 'AcquisitionControl' and define the number of frame you prefer in each play.

• Select 'MultiFrame' in the drop-down box and click 'play'.



5.If it is required to acquire stream using trigger mode

• Switch visibility permission to "Guru"

Device Control Category for device information and control.							
Name Space: Standar Visibility: Beginner Streamable: False	d		Beginner				
			Expert				
🔄 <u>Reset settings</u>	Save Features	Visibility	Guru				

In 'Params', select 'FrameStart' in 'TriggerSelector ' under 'AcquisitionControl' and select 'ON' in 'TriggerMode'.

• It is advised to configure the value of "TriggerDelay" in order to define the latency of trigger signal and the unit is 'us';

• 'TriggerMultiplier' is used to set the pulse width of trigger signal.'TriggerSource' is used to set software trigger or line trigger then click 'play'.

🖃 Ac	quisitionControl	
	AcquisitionMode	Continuous
		{NotAvailable}
	AcquisitionStop	{NotAvailable}
	AcquisitionFrameCount	1
	AcquisitionFrameRate	75.00000 Hz
	AcquisitionFrameRate	False
	AcquisitionStatusSelector	FrameTriggerWait
	AcquisitionStatus	True
	TriggerSelector	FrameStart
	TriggerMode	On

TriggerSelector	FrameStart	
TriggerMode	On	4
TriggerSoftware	{Command}	
TriggerSource	Software	
TriggerActivation	{Not Available}	
TriggerDelay	0.00000 us	
TriggerMultiplier	100	

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Image Acquisition and Settings

• Trigger status is indicated according to the specific output line of the 6-pin port;

Meanwhile, in 'Params', select 'Lion0' in 'LineSeletor' under 'DigitallOControl'.

There are multiple choices in 'LineSource' and one of them called 'ExposureActive' indicates that LineO output high level during sensor exposures.

DigitallOControl	
LineSelector	Line0
LineMode	Output
LineInverter	False
LineStatus	
LineStatusAll	4
LineSource	ExposureActive
LineFormat	FrameTriggerWait
UserOutputSelector	Timer0≜ctive
UserOutputValue	TimeroActive
UserOutputValueAll	UserOutput0
LineDebouncerTimeAbs	AcquisitionTriggerWait
UserExpTime	LightTrigger
AnalogControl	UserExpTime



6.If it is not needed to acquire video stream

Select 'Stop' in the drop-down box and click 'play'.

* When the video stream acquisition mode is "single frame" and "multi-frame", after acquiring the corresponding number of frames, it will automatically stop acquiring the video stream,



7. If it is needed to save the video stream data as a picture

iCentral supports saving video stream data as picture files in raw and bmp formats.

- Save pictures continuously.
 - _Click the "Save" / "Single Save" button



_Displayed on the picture save setting interface. Check "Specify location by...", set the image saving path, saving format and throttling options, and click the "OK" button.

Setting						×
Gene	ral Settings	Image Save		Buffer Options		ation Control
		C:/User	s/VT-Support/iCentra	l/pictures lect dialog when snaj	pshot.	6
		ity Best	• —	_	-•	▼ 100
		mat Prefix_C)ateTime_No.		Pic	
		otions O Throttl O Save o O Save a O No thr				

_Click the "Play" button. After the camera video stream data is obtained, the video stream data will be saved as a picture file.

• How to save a single picture

_On the picture save setting interface, remove the check box of "Enable Specify location by..." and click the "OK" button. *At this time, after obtaining the video stream data, it will not be automatically saved as a picture. However, the settings of the image save path and save format are still valid.

8. How to set image flip

- Open iCentral, find the camera in the device list, and connect it.
- After the device is connected, in "Property", select "Guru" for the "Visibility".
- Configure the following properties of ImageFormatControl: _ReverseX: After set to True, the image is reversed horizontally

_ReverseY: When set to True, the image is reversed vertically

🗆 Ir	nageFormatControl	
		2,448
		2,048
		2,448
		2,048
		2,448
		2,048
		0
	OffsetY	0
	ReverseX	False
	ReverseY	False
		BayerRG8
		Bpp8
		BayerRG



- 9. How to set the exposure time
 - Open iCentral, find the camera in the device list, and connect it.
 - After the device is connected, jump to the "Property" page.
 - Set the following properties of AcquisitionControl: _ExposureTime: Exposure time. The unit is microseconds.
- 10. How to set the gain
 - Open iCentral, find the camera in the device list, and connect it.
 - After the device is connected, in "Property".
 - Set the following properties of AnalogControl: _GainRaw: gain value

	LightTriggerDelay	0.00000 us
	ExposureTargetBrightn	50
	ExposureAuto	Off
	ExposureTime	10,000.00000 us
_	ResultingFrameRateAbs	75.52090 Hz
🖭 Di	igitallOControl	
🗆 Ar	nalogControl	
	GainSelector	All
	GainRaw	1.00000
	BlackLevelAuto	Continuous
	BlackLevelSelector	All
	BalanceWhiteAuto	Off

- 11. How to save the configuration
 - Open iCentral, find the camera in the device list, and connect it.
 - After the device is connected, jump to the "Property" page.
 - In UserSetSelector of UserSetControl, select the location to save the configuration. _The camera supports 3 storage locations: Default, UserSet1, UserSet2

UserSetControl				
UserSetSelector	Default			
UserSetLoad	UserSet1			
UserSetSave	LloorCot0			
UserSetDefault				
UserSetLoadLastUser	UserSet1			
UserSetLoadStatus	Success			

• Click the User Set Save button to save the current camera configuration to the selected save location.

= Us	UserSetControl				
	UserSetSelector	UserSet1			
	UserSetLoad	{Command}			
	UserSetSave	{Command}			
	UserSetDefault	UserSet1			
	UserSetDefault UserSetLoadLastUser	UserSet1 UserSet1			

12. How to load the configuration

- Open iCentral, find the camera in the device list, and connect it.
- After the device is connected, jump to the "Property" page.
- In UserSetSelector of UserSetControl, select the configuration to be loaded. The camera supports 3 storage locations: Default, UserSet1, UserSet2
- Click the User Set Load button to load the selected configuration.

1. The parameter pane allows to view or change all the acquisition parameters supported by the acquisition device.

The grayed-out parameters are always read-only, or are read-only because other functions are disabled. The black parameter is set by the user in iCentral or programmed through the imaging application.

2. DeviceControl//No need to change any data in this section.

DeviceControl				
DeviceScanType	Areascan			
DeviceVendorName	Vision Datum			
DeviceModelName	Mars5000S-75uc			
DeviceFamilyName	A7000			
DeviceManufacturerInfo	Vision Datum			
DeviceVersion	V1.000.00.0.R(20180920,63540)			
DeviceFirmwareVersion	V1.000.00.0.R(20180920,6354			
DeviceSerialNumber	5C02AE8PAK72E35			
DeviceUserID				
DeviceSFNCVersionMajor	2			
DeviceSFNCVersionMinor	1			
DeviceSFNCVersionSu	0			
DeviceLinkThroughput	Off			
DeviceLinkThroughput	400,000,000			
DeviceReset	{Command}			
DeviceTemperatureSel	Sensor			
DeviceTemperature	55.56250 C			
DeviceUSBMode	USB 3.0-Only			
DeviceUSBError	INVALID			
DeviceChipVersion	Aug 3 2018			

3. Image Format Control

ImageFormatControl			
SensorWidth	2,448		
SensorHeight	2,048		
WidthMax	2,448		
HeightMax	2,048		
Width	2,448	PixelFormat	BayerRG8
Height	2,048	PixelSize	Врр8
OffsetX	0		
OffsetY	0	PixelDynamicRangeMin	
ReverseX	False	PixelDynamicRangeMax	
ReverseY	False	TestimageSelector	Off

Parameter	Description
SensorWidth	Effective width of the sensor in pixels.
SensorHeight	Effective width of the sensor in pixels.
WidthMax	Maximum width of the image (in pixels). The dimension is calculated after horizontal binning, decimation or any other function changing the horizontal dimension of the image.
HeightMax	Maximum height of the image (in pixels). This dimension is calculated after vertical binning, decimation or any other function changing the vertical dimension of the image HeightMax does not take into account the current Region of interest (Height or OffsetY). Its value must be greater than 0 and less than or equal to SensorHeight (unless an oversampling feature is present).
Width	Width of the image provided by the device (in pixels). //Like 4096 cameras, the width could only set from 32 to 4096.
Height	Height of the image provided by the device (in pixels).
OffSetX	Horizontal offset from the origin to the region of interest (in pixels).
OffSetY	Vertical offset from the origin to the region of interest (in pixels).
ReverseX	(False/True) Flip horizontally the image sent by the device. The Region of interest is applied after the flipping.
PixelFormat	(Mono8/Mono10/Mono10Packed/Mono12/Mono12Packed) Format of the pixels provided by the device. It represents all the information provided by PixelCoding,PixelSize, PixelColorFilter combined in a single feature.
PixelSize	Total size in bits of a pixel of the image.
PixelColorFilter	Type of color filter that is applied to the image. No filter applied on the sensor.
PixelDynamic Range Min	Minimum value that can be returned during the digitization process. This corresponds to the darkest value of the camera. For color camera, this returns the smallest value that each color component can take.
PixelDynamic Range Max	Minimum value that can be returned during the digitization process. This corresponds to the darkest value of the camera. For color camera, this returns the smallest value that each color component can take.
TestImageSelector	Selects the type of test pattern that is generated by the device as image source.

4. AcquisitionControl

AcquisitionControl				
AcquisitionMode	Continuous			
AcquisitionStart	{Not Available}		TriggerSource	Software
AcquisitionStop	{Not Available}		TriggerActivation	{Not Available}
AcquisitionFrameCount	1		TriggerDelay	0.00000 us
AcquisitionFrameRate	75.00000 Hz		TriggerMultiplier	100
AcquisitionFrameRate	False		LightTriggerDelay	0.00000 us
AcquisitionStatusSelector	FrameTriggerWait		ExposureMode	Timed
AcquisitionStatus	False		ExposureTargetBrightn	50
TriggerSelector	FrameStart		ExposureAuto	Off
TriggerMode	Off		ExposureTime	10,000.00000 us
TriggerSoftware	{Command}		ResultingFrameRateAbs	75.52090 Hz

Parameter	Description
AcquisitionMode	 Sets the acquisition mode of the device. It defines mainly the number of frames to capture during an acquisition and the way the acquisition stops. Continuous:Frames are captured continuously with AcquisitionStart until stopped with the AcquisitionStop command. Singleframe:One frame is captured for each AcquisitionStart Command. An AcquisitionStop occurs at the end of the Active Frame. MultiFrame:A sequence of frames is captured for each AcquisitionStart Command. The number of frames is specified by AcquisitionFrameCount feature. An AcquisitionStop occurs at the end of the Active Frame(s)
AcquisitionStart	Starts the Acquisition of the device. The number of frames captured is specified by AcquisitionMode.
AcquisitionStop	Stops the Acquisition of the device at the end of the current Frame. It is mainly used when AcquisitionMode is Continuous but can be used in any acquisition mode.
AcquisitionFrameCount	(Min: 1 Max: 255)MultiFrames acquisition mode. Sets the number of frames to acquire when a valid trigger is received.
AcquisitionFrame/LineRate	Controls the acquisition rate (in Hertz) at which the frames are captured.
AcquisitionFrame/LineRateEnable	(False/True)Enables setting the camera's acquisition frame rate to a specified value.
AcquisitionStatusSelector	Selects the internal acquisition signal to read using AcquisitionStatus. AcquisitionTriggerWait:Device is currently waiting for a trigger to capture one or more frames. FrameTriggerWait:Device is currently waiting for a frame trigger.
AcquisitionStatus	(False/True) Reads the state of the internal acquisition signal selected using AcquisitionStatusSelector.
TriggerSelector	(Acquisition Start/Frame Start/ Line Start)Selects which type of trigger to configure .
TriggerMode	(Off / On) Controls the enable state of the selected trigger.
TriggerSoftware	Generates an internal trigger. This feature is available when TriggerMode is set to ON and TriggerSource is set to Software.
TriggerSource	Specifies the internal signal or physical input line to use as the trigger source. The selected trigger must have its TriggerMode set to ON.
TriggerActivation	 Select the activation mode for the selected Input Line trigger source. RisingEdge:The trigger is considered valid on the rising edge of the line source signal FallingEdge: The trigger is considered valid on the falling edge
TriggerDelay	Specifies the delay in microseconds (us) to apply after the trigger reception before activating it.

Parameter	Description
TriggerMultiplier	Specifies a multiplication factor for the incoming trigger pulses.
LightTriggerDelay	Set the delay time (unit: us) from when the camera receives the trigger signal to when the Lightrigger signal starts to output.
ExposureMode	 Sets the operation mode for the camera's exposure. ● Timed:The exposure duration time is set using the ExposureTime feature. ● Trigger Width:Uses the width of the trigger signal pulse to control the exposure duration.
ExposureTargetBrightness	Sets the target brightness for the auto exposure function.
ExposureAuto	Set the auto exposure mode when ExposureMode is Timed.
ExposureTime	 Sets the Exposure time when ExposureMode is Timed and ExposureAuto is Off. This controls the duration where the photosensitive cells are exposed to light. AcquisitionTriggerWait:Device is currently waiting for a trigger to capture one or more frames. FrameTriggerWait:Device is currently waiting for a frame trigger.
ResultingLineRateAbs	 Indicates the 'absolute' value of the maximum allowed acquisition frame rate. The 'absolute' value is a float value that indicates the maximum allowed acquisition frame rate in frames per second given the current settings for the area of interest, exposure time, and bandwidth. For example, if the ExposureTime value is 120 (the default unit is us), then the theoretical display value of this item is 8333 (related to transmission delay). Frame trigger: Select TriggerSelector as Frame Start Select TriggerMode as ON TriggerSource is selected as the corresponding trigger input Line1/2/3. Refer to Trigger Source for signal connection mode. Click the preview button at this time, and the incoming external trigger source signal should be displayed normally. Line trigger: TriggerSource is selected as the corresponding trigger input Line1/2/3. Refer to TriggerSelector is selected as LineStart Select TriggerMode as ON TriggerSource is selected as the corresponding trigger input Line1/2/3. Line trigger: TriggerSource is selected as LineStart Select TriggerMode as ON TriggerSource is selected as the corresponding trigger input Line1/2/3.

5. DigitallOControl

DigitallOControl				
LineSelector	Line0			
LineMode	Output			
LineInverter	False			
LineStatus	False			
LineStatusAll	4			
LineSource	ExposureActive			
LineFormat	OptoCoupled			
UserOutputSelector	UserOutput0			
UserOutputValue	False			
UserOutputValueAll	0			
LineDebouncerTimeAbs	{Not Available}			
UserExpTime	0			

Parameter	Description
LineSelector	Selects the physical line (or pin) of the external device connector to configure.
LineMode	Selects the physical line (or pin) of the external device connector to configure.
LineInverter	(False/True) Controls the inversion of the signal of the selected input or output Line.
LineStatus	Returns the current status of the selected input or output Line.
LineStatus All	Returns the current status of all available Line signals at time of polling in a single bitfield.
LineSource	Selects which internal acquisition or I/O source signal to output on the selected Line.
LineFormat	(SingleEnded/RS422) Controls the current electrical format of the selected physical input or output Line.
UserOutput Selector	Selects which bit of the User Output register will be set by UserOutputValue.
UserOutputValue	(False/True) Sets the value of the bit selected by UserOutputSelector.
UserOutputValueAll	Sets the value of all the bits of the User Output register.
LineDebouncerTimeAbs	Set the deburring time of the selected line (in microseconds)
UserExpTime	User-defined exposure time

6. AnalogControl

AnalogControl			
GainSelector	All		
GainRaw	1.00000		
BlackLevelAuto	Continuous		
BlackLevelSelector	All		
BlackLevel	60		
BalanceWhiteAuto	Off		
BalanceRatioSelector	Red		
BalanceRatio	1.62094		
Gamma	1.00000		

Parameter	Description
GainSelector	Selects which Gain is controlled by the various Gain features.
GainRaw	(Min: 0 / Max: 6) Controls the selected gain as an absolute physical value. This is an amplification factor applied to the video signal.
BlackLevelAuto	Controls the mode of automatic black level adjustment.
BlackLevelSelector	Selects which tap is controlled by the Black Level feature.
BlackLevel	(Min: 0 / Max: 255) Controls the analog black level as an absolute physical value. This represents a DC offset applied to the video signal.
BalanceWhiteAuto	Controls the mode for automatic white balancing between the color channels. The white balancing ratios are automatically adjusted.
BalanceRatioSelector	Selects which Balance ratio to control.
BalanceRatio	Controls ratio of the selected color component to a reference color component. It is used for white balancing.
Gamma	(Min: 0 / Max: 3.99998) Controls the gamma correction of pixel intensity. This is typically used to compensate for non-linearity of the display system (such as CRT).

7. LUTControl

E LUTControl			
LUTSelector	Luminance		
LUTEnable	False		
LUTIndex	0		
LUTValue	0		
LUTValueAll	{Register}		

Parameter	Description
LUTSelector	(Luminance) Selects which LUT to control.
LUTEnable	(False/True) Activates the selected LUT.
LUTIndex	(Min: 0 / Max: 4095) Control the index (offset) of the coefficient to access in the selected LUT.
LUTValue	(Min: 0 / Max: 4095) Returns the Value at entry LUTIndex of the LUT selected by LUTSelector.
LUTValueAll	Accesses all the LUT coefficients in a single access without using individual LUTIndex.

8. TransportLayerControl

TransportLayerControl	
PayloadSize	5,013,504
GevTimestampTickFre	100,000,000
U3vCurrentSpeed	SuperSpeed
FrameTriggerCount	
FrameTriggerLostCount	0
FrameTriggerCountReset	{Not Available}
SensorTriggerCount	0
SensorFrameCount	351,539
SensorCountReset	{Command}

Parameter	Description
PayloadSize	Provides the number of bytes transferred for each image or chunk on the stream channel. This includes any end-of-line, end-of-frame statistics or other stamp data. This is the total size of data payload for a data block.
GEVTimestampTickFrequency	Indicates the number of timestamp ticks in 1 second (frequency in Hz). If IEEE 1588 is used, this feature must return 1,000,000,000 (1 GHz).
U3VCurrentSpeed	Reports the current speed of the device.
FrameTriggerCount	return frame trigger count which is user send to device
FrameTriggerLostCount	return frame trigger lost which is trigger is invalid
FrameTriggerCountReset	reset frame trigger count, and count number is reset to zero
SensorTriggerCount	return sensor trigger count which is sensor recive trigger number
SensorFrameCount	return Sensor Frame Count which is sensor send frame number
SensorCountReset	return Sensor Count Reset and sensor static number reset to zero

9. UserSetControl

UserSetControl			
UserSetSelector	UserSet1		
UserSetLoad	{Command}		
UserSetSave	{Command}		
UserSetDefault	UserSet1		
UserSetLoadLastUserS	et UserSet1		
UserSetLoadStatus	Success		

Parameter	Description
UserSetSelector	Selects the feature User Set to load, save or configure.
UserSetLoad	Loads the User Set specified by UserSetSelector to the device and makes it active.
UserSetSave	Save the User Set specified by UserSetSelector to the non-volatile memory of the device
UserSetDefault	Selects the feature User Set to load and make active by default when the device is reset.
UserSetLoadLastUserSet	Reports the last user set executed by the device from a user set load command, or as a result of a device reset.
UserSetLoadStatus	(InProgress / Failure / Success) Reports the last user set executed by the device from a user set load command, or as a result of a device reset.

10. ChunkDataControl

ChunkDataControl			
ChunkModeActive	False		
ChunkSelector	Gain		
ChunkEnable	False		
ChunkLineStatusAll	{Not Available}		
ChunkExposureTime	{NotAvailable}		
	{Not Available}		

Parameter	Description
ChunkModeActive	Activates the inclusion of Chunk data in the payload of the image.
ChunkSelector	Selects which Chunk to enable or control.
ChunkEnable	This boolean value enables the inclusion of the selected chunk in the payload data.
ChunkTimestamp	Returns the Time stamp of the image included in the payload at the time of the FrameStart internal event.
ChunkLineStatusAll	Returns the status of all the I/O lines at the time of the FrameStart internal event.
ChunkCounterValue	Returns the value of the selected Chunk counter at the time of the FrameStart internal event.
ChunkExposureTime	return the Exposure time (in microseconds) when ExposureMode is Timed.
ChunkGainValue	return chunk gain value.

11. CounterAndTimerControl

🗆 Co	unterAndTimerControl	
	CounterSelector	Counter0
	CounterResetSource	Off
		{Not Available}
	TimerSelector	Timer0
	TimerTriggerSource	ExposureStart
	TimerTriggerActivation	RisingEdge
	TimerDelay	1,024
	TimerDuration	4,096

Parameter	Description	
CounterSelector	rSelector Selects which Counter to configure.	
CounterResetSource	terResetSource Selects the signals that will be the source to reset the Counter.	
CounterEventSource Select the events that will be the source to increment the Counter.		
CounterReset	Does a software reset of the selected Counter and starts it.	
TimerSelector	Selects which Timer to configure.	
TimerTriggerSource	Selects the source of the trigger to start the Timer.	
TimerTriggerActivation	(RisingEdge/FallingEdge/AnyEdge) Selects the activation mode of the trigger to start the Timer.	
TimerDelay	(Min: 1/Max: 65535) It sets the duration in device-specific unit of the delay to apply after the reception of a trigger before to start the Timer.	
TimerDuration	It sets the duration in device-specific unit of the Timer pulse. high pluse = duration/32552(s)	

11. ISPControl

ISPControl				
	SharpnessEnabled	Off		
	DenoisingEnabled	Off		
	Denoising			
	DigitalShift	0		
	Brightness	50		

Parameter	Description
SharpnessEnabled	Sharpness enabled.
Sharpness	Sharpness setting.
DenoisingEnabled	Denoising enabled.
Denoising	Denoising setting.
DigitalShift	Set the value of the selected digital shift control //0-4.
Brightness	Brightness setting.
Contrast	Contrast setting.
ContrastMode	Set the operation mode of contrast threshold division.
ContrastThreshold	Set the threshold of contrast.

The camera device could not be discovered by the iCentral.

Possible Reasons:

- 1. Camera did not start normally.
- 2. USB cable or GigE cable did not connected with camera and PC correctly.
- 3. The camera is not in the same LAN with the application. (For GigE cameras)

Solutions:

- 1. Restart the camera, check the cable connection and the status of the LED indicator. Make sure that the USB cable do plug in the USB3.0 interface. (For USB3 Cameras)
- 2. Restart the camera, check the network connection and the status of the LED indicator. Make sure that the camera is in the same LAN with the application. (For GigE Cameras)

The camera device could be discovered, but can not be connected by the application. Possible Reasons:

- 1. Camera did not start normally.
- 2. The camera device is already connected with another application.
- 3. The camera is not in the same network segment with the application. (For GigE cameras)
- 4. USB3 driver did not install. (For USB3.0 cameras)

Solutions:

- 1. Restart the camera and reinstall the USB3.0 driver; disconnect the other connected application. (For USB3.0 cameras)
- 2. Restart the camera, change the IP in order to make the camera in the same network segment as the application; or disconnecting other connected application. (For GigE cameras)

The preview is black in the application.

Possible Reasons:

- 1. The aperture of the lens is not open.
- 2. Camera did not work normally.

Solutions:

Open the lens aperture; restart the camera device.

The external trigger could not be enable.

Possible Reasons:

- The external trigger connection is wrong.
- Did not set the TriggerMode in the iCentral as ON.

Solutions:

Select the correct trigger mode and ensure that the external connection is correct.

The image is reversed in the iCentral.

Possible Reasons:

When the device is installed, the direction is incorrect.

Solutions:

You can do the image correction in the iCentral: "Params> ImageFormatControl > ReverseX or ReverseY".

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