Camera Parameter Node Table

Most open properties of camera, including name, definition, data type, value range, and access mode of each node are described in the sheet below. And the actual supported nodes depend on the camera type.

Function	Name（_GetNode: key parameter）	Data Type	Numerical Value Definition	Access Mode R: Read W: Write (W): Write without Acquisition	Description
Device Control	DeviceType	IEnumeration	0:Transmitter 1:Receiver 2:Transceiver 3:Peripheral	R	Device type
	DeviceScanType	IEnumeration	0:Areascan 1:Linescan	R	Device sensor scanning type, showing whether it is line scan camera or area scan camera
	DeviceVendorName	IString	Any Null-terminated String	R	Device manufacturer name
	DeviceModelName	IString	Any Null-terminated String	R	Device type
	DeviceManufacturerInfo	IString	Any Null-terminated String	R	Device manufacturer information
	DeviceVersion	IString	Any Null-terminated String	R	Device version
	DeviceFirmwareVersion	IString	Any Null-terminated String	R	Firmware version
	DeviceSerialNumber	IString	Any Null-terminated String	R	Device serial number
	DeviceID	IString	Any Null-terminated String	R	Device ID
	DeviceUserID	IString	Any Null-terminated String	R/W	User-defined name
	DeviceUptime	Iinteger	≥ 0	R	Device running time
	BoardDeviceType	Iinteger	≥ 0	R	Device type
	DeviceConnectionSelector	Iinteger	≥ 0	R/(W)	Device connection selector
	DeviceConnectionSpeed	Iinteger	≥0, Unit: Mbps	R	Device connection speed
	DeviceLinkSelector	IInteger	≥ 0	R/(W)	Device link selector

	DeviceLinkSpeed	IInteger	≥ 0	R	Device link speed
	DeviceLinkConnectionCount	IInteger	≥ 0	R	Number of connected devices
	DeviceLinkHeartbeatMode	IEnumeration	0:On 1:Off	R/W	Whether heartbeat is needed
	DeviceStreamChannelCount	Iinteger	≥ 0	R	Number of stream channels
	DeviceStreamChannelSelector	Iinteger	≥ 0	R/(W)	Stream channel selector
	DeviceStreamChannelType	Ienumeration	0:Transmitter 1:Receiver	R	Stream channel type
	DeviceStreamChannelLink	Iinteger	≥ 0	R	Number of connected stream channels
	DeviceStreamChannelEndianness	Ienumeration	0: Little 1: Big	R	Image data endianness
	DeviceStreamChannelPacketSize	IInteger	Related to camera. Generally ranges in 220-220, step: 8	R/(W)	Packet size of the received stream data
	DeviceEventChannelCount	IInteger	≥ 0	R	Device supported
	DeviceCharacterSet	IEnumeration	1:UTF-8 2: ASCII	R	Character set used in the device register
	DeviceReset	ICommand	-	W	Reset the device
	DeviceMaxThroughput	Iinteger	≥ 0	R	Device max. throughput (bandwidth)
Image Format Control	WidthMax	IInteger	＞ 0	R	Max. image width, the data after binning
	HeightMax	IInteger	＞ 0	R	Max. image height, the data after binning
	RegionSelector	IEnumeration	0: Region0 1: Region1 2: Region2 8: All	R/(W)	ROI selector
	RegionDestination	IEnumeration	0:Stream0 1:Stream1 2:Stream2	R/(W)	Stream that the ROI corresponds to
	Width	IInteger	＞ 0	R/(W)	ROI width
	Height	IInteger	＞ 0	R/(W)	ROI height

OffsetX	IInteger	≥ 0	R/W	ROI horizontal offset
OffsetY	IInteger	≥ 0	R/W	ROI vertical offset
ReverseScanDirection	Iboolean	≥ 0	R/(W)	Reverse scan direction
PixelFormat	IEnumeration	0x01080001:Mono8 0x01100003:Mono10 0x010C0004:Mono10Packed 0x01100005:Mono12 0x010C0006:Mono12Packed 0x01100007:Mono16 0x02180014:RGB8Packed 0x02100032:YUV422_8 0x0210001F:YUV422_8_UYVY 0x01080008:BayerGR8 0x01080009:BayerRG8 0x0108000A:BayerGB8 0x0108000B:BayerBG8 0x0110000e:BayerGB10 0x01100012:BayerGB12 0x010C002C:BayerGB12Packed	R/(W)	Image pixel format. Different types of cameras support different pixel formats, which are subject to actual conditions.
PixelSize	IEnumeration	8:Bpp8 10:Bpp10 12:Bpp12 16:Bpp16 24:Bpp24 32:Bpp32	R/(W)	Number of bits contained in a pixel
ImageCompressionMode	IEnumeration	0:Off 1:JPEG	R/(W)	Image compression mode
ImageCompressionQuality	Iinteger	≥ 50	R/(W)	Image compression quality
TestPatternGeneratorSelector	IEnumeration	8:Sensor 0:Region0 1:Region1 2:Region2	R/(W)	Test pattern generator selector
TestPattern	IEnumeration	0 :Off 1:Black 2:White 3:GreyHorizontalRamp 4:GreyVerticalRamp 5:GreyHorizontalRampMoving 6:GreyVerticalRampMoving 7:HorizontalLineMoving 8:VerticalLineMoving 9:ColorBar 10:FrameCounter 11:MonoBar 12:TestImage12 13:TestImage13 14:ObliqueMonoBar 15:ObliqueColorBar 16:GradualMonoBar	R/(W)	Test image selector

	FrameSpecInfoSelector	IEnumeration	0 :Timestamp 1:Gain 2:Exposure 3:BrightnessInfo 4:WhiteBalance 5:Framecounter 6:ExtTriggerCount 7:LineInputOutput 8:ROIPosition	R/(W)	Watermark information selector
	FrameSpecInfo	IBoolean	True False	R/W	Whether to enable watermark information
Acquisition Control	AcquisitionMode	IEnumeration	0:SingleFrame 1:MultiFrame 2:Continuous	R/(W)	Acquisition mode: single frame / multi-frame / continuous
	AcquisitionStart	ICommand	-	W	Start acquisition
	AcquisitionStop	ICommand	-	W	End acquisition
	AcquisitionBurstFrameCount	IInteger	≥ 0	R/W	Number of frames acquired in one trigger
	AcquisitionLineRate	IInteger	≥ 1	R/W	Set line rate
	AcquisitionLineRateEnable	IBoolean	True False	R/W	Enable line rate control
	ResultingLineRate	IInteger	≥ 0, unit: hz	R	Actual line rate
	ResultingFrameRate	IFloat	≥ 0.0, unit: fps	R	Actual acquisition frame rate of the camera
	TriggerSelector	IEnumeration	0:AcquisitionStart 1:AcquisitionEnd 2:AcquisitionActive 3:FrameStart 4:FrameEnd 5:FrameActive 6:FrameBurstStart 7:FrameBurstEnd 8:FrameBurstActive 9:LineStart 10:ExposureStart 11:ExposureEnd 12:ExposureActive	R/W	Trigger event selector
	TriggerMode	IEnumeration	0:Off 1:On	R/W	Trigger mode
	TriggerSource	IEnumeration	0:Line0 1:Line1 2:Line2 3.Line3 4:Counter0 7:Software 8:FrequencyConverter	R/W	Trigger source

	TriggerActivation	IEnumeration	0:RisingEdge 1:FallingEdge 2:LevelHigh 3:LevelLow	R/W	Trigger activation: rising edge, falling edge, high level, low level
	TriggerDelay	IFloat	≥0.0, unit: us	R/W	Trigger delay
	ExposureMode	IEnumeration	0:Timed 1:TriggerWidth	R/W	Exposure mode
	ExposureTime	IFloat	≥0.0, unit: us	R/W	Exposure time
	ExposureAuto	IEnumeration	0:Off 1:Once 2:Continuous	R/W	Auto exposure
	AutoExposureTimeLowerLimit	IInteger	≥0.0, unit: us	R/(W)	Auto exposure time lower limit
	AutoExposureTimeupperLimit	IInteger	≥0.0, unit: us	R/(W)	Auto exposure time upper limit
	FrameTimeoutEnable	IBoolean	0:Off 1:On	R/W	Enable frame timeout
	FrameTimeoutTime	Iinteger	≥87, unit: ms	R/W	Frame timeout period
Analog Control	Gain	IFloat	≥0.0, unit: dB	R/W	Gain value
	GainAuto	IEnumeration	0:Off 1:Once 2:Continuous	R/W	Auto gain
	AutoGainLowerLimit	IFloat	≥ 0.0, unit: dB	R/W	Auto gain lower limit
	AutoGainupperLimit	IFloat	≥ 0.0, unit: dB	R/W	Auto gain upper limit
	ADCGainEnable	IBoolean	0:Off 1:On	R/W	Enable ADC gain
	DigitalShift	IFloat	≥ 0.0	R	Digit shift adjustment
	DigitalShiftEnable	IBoolean	0:Off 1:On	R/W	Enable digit shift
	Brightness	Iinteger	≥ 0	R/W	Brightness
	BlackLevel	IFloat	≥ 0.0	R/W	Black level adjustment
	BlackLevelEnable	IBoolean	0:Off 1:On	R/W	Enable black level adjustment
	BalanceWhiteAuto	IEnumeration	0:Off 1:Continuous 2:Once	R/W	Auto white balance
	BalanceRatioSelector	Ienumeration	0:Red 1:Green 2:Blue	R	White balance ratio selector
	BalanceRatio	Iinteger	≥ 0	R	White balance

					value
	Gamma	IFloat	＞ 0.0	R/W	Gamma
	GammaSelector	Ienumeration	1:User 2:sRGB	R/W	Gamma selector
	GammaEnable	IBoolean	0:Off 1:On	R/W	Enable Gamma
	Hue	Iinteger	≥ 0	R	Hue adjustment
	HueEnable	Iboolean	0:Off 1:On	R/W	Enable Hue
	Saturation	Iinteger	≥ 0	R	Saturation adjustment
	SaturationEnable	Iboolean	0:Off 1:On	R/W	Enable saturation
	AutoFunctionAOISelector	Ienumeration	0:AOI1 1:AOI2	R/W	Auto AOI selector
	AutoFunctionAOIWidth	Iinteger	≥ 0	R/W	Auto AOI width
	AutoFunctionAOIHeight	Iinteger	≥ 0	R/W	Auto AOI height
	AutoFunctionAOIOffsetX	Iinteger	≥ 0	R	Auto AOI horizontal offset
	AutoFunctionAOIUsageIntensity	Iboolean	0:Off 1:On	R/W	Auto exposure according to AOI
	AutoFunctionAOIUsageWhiteBalance	Iboolean	0:Off 1:On	R	Auto white balance according to AOI
LUT Control	LUTSelector	IEnumeration	0:Luminance 1:Red 2:Green 3:Blue	R/W	Brightness: R\G\B
	LUTEnable	IBoolean	True False	R/W	Enable LUT
	LUTIndex	IInteger	≥ 0	R/W	LUT index
	LUTValue	IInteger	Device-specific	R/W	LUT value
Encoder Control	EncoderSelector	IEnumeration	0:Encoder0 1:Encoder1 2:Encoder2	R/W	Encoder selector
	EncoderSourceA	IEnumeration	0:Line0 1:Line1 2:Line2 3:Line3	R/W	Encoder source A selector
	EncoderSourceB	IEnumeration	0:Line0 1:Line1 2:Line2 3:Line3	R/W	Encoder source B selector
	EncoderTriggerMode	IEnumeration	0:AnyDirection 1:ForwardOnly	R/W	Encoder trigger mode
	EncoderCounterMode	IEnumeration	0:IgnoreDirection 1:FollowDirection	R/W	Encoder counting

					mode
	EncoderCounter	IInteger	≥ 0	R	Encoder counter
	EncoderCounterMax	IInteger	≥ 1	R/W	Max. value of encoder counter
	EncoderCounterReset	ICommand	-	R/W	Reset encoder counter
	EncoderMaxReverseCounter	IInteger	≥ 1	R/W	Max. value of encoder reverse counter
	EncoderReverseCounterReset	ICommand	-	R/W	Reset encoder reverse counter
Frequency Converter Control	InputSource	IEnumeration	0:Line0 1:Line1 2:Line2 3:Line3	R/W	Frequency divider input source
	SignalAlignment	IEnumeration	0:RisingEdge 1:FallingEdge	R/W	Frequency divider signal direction
	PreDivider	IInteger	≥ 1	R/W	Pre-divider adjustment
	Multiplier	IInteger	≥ 1	R/W	Multiplier adjustment
	PostDivider	IInteger	≥ 1	R/W	PostDivider adjustment
Shading Correction	ShadingSelector	IEnumeration	0:FPNCCorrection 1:PRNUCCorrection	R/W	Shading selector
	ActivateShading	ICommand	-	R/(W)	Activate shading
	NUCEnable	IBoolean	0:Off 1:ON	R/W	Enable NUC
	PRNUCEnable	IBoolean	0:Off 1:ON	R/W	Enable PRNUC status
Digital IO Control	LineSelector	IEnumeration	0:Line0 1:Line1 2:Line2 3:Line3 4:Line4	R/W	I/O selector
	LineMode	IEnumeration	0:Input 1:Output 2:Trigger 8:Strobe	R/(W)	I/O mode
	LineStatus	IBoolean	-	R/(W)	I/O status
	LineStatusAll	IInteger	≥ 0	R	All I/O status
	LineDebouncerTime	IInteger	-	R/W	I/O debouncer time
Transport Layer	PayloadSize	IInteger	≥ 0	R	The size of a frame of data

Control	GevVersionMajor	IInteger	GEV main version number	R	GEV main version number
	GevVersionMinor	IInteger	GEV Deputy Version Number	R	GEV deputy version number
	GevDeviceModeIsBigEndian	IBoolean	0:not BigEndian 1:Is BigEndian	R	Big end
	GevDeviceModeCharacterSet	IEnumeration	1:UTF8	R	Character set
	GevInterfaceSelector	IInteger	>=0	R/(W)	Gev interface selector
	GevMACAddress	IInteger	Mac address	R	MAC address
	GevCurrentIPConfigurationLLA	IBoolean	0:Off 1:On	R	Whether IP is LLA
	GevCurrentIPConfigurationDHCP	IBoolean	0:Off 1:On	R/W	Whether IP is DHCP
	GevCurrentIPConfigurationPersistentIP	IBoolean	0:Off 1:On	R/W	Whether IP is static IP
	GevCurrentIPAddress	Iinteger	IP address	R	IP address
	GevCurrentSubnetMask	Iinteger	Subnet mask	R	Subnet mask
	GevCurrentDefaultGateway	Iinteger	Default gateway	R	Default gateway
	GevFirstURL	IString	-	R	XML first URL
	GevSecondURL	IString	-	R	XML second URL
	GevNumberOfInterfaces	Iinteger	≥ 0	R	Number of GEV interfaces
	GevPersistentIPAddress	Iinteger	≥ 0	R/W	Static IP address
	GevPersistentSubnetMask	Iinteger	≥ 0	R/W	Static subnet mask
	GevPersistentDefaultGateway	Iinteger	≥ 0	R/W	Static default gateway
	GevLinkSpeed	IInteger	≥ 0	R	Network speed
	GevMessageChannelCount	Iinteger	≥ 0	R	Numebr of message channels
	GevStreamChannelCount	Iinteger	≥ 0	R	Stream channel
	GevHeartbeatTimeout	Iinteger	≥ 0	R/W	Heartbeat timeout
	GevGVCPHeartbeatDisable	IBoolean	0:Off 1:On	R/W	Disable heartbeat
	GevTimestampTickFrequency	Iinteger	≥ 0, unit: hz	R	Timestamp frequency
	GevTimestampControlLatch	ICommand	-	W	Get timestamp
	GevTimestampControlReset	ICommand	-	W	Reset timestamp

	GevTimestampControlLatchReset	ICommand	-	W	Reset timestamp and get timestamp
	GevTimestampValue	Iinteger	-	R	Timestamp value
	GevCCP	IEnumeration	0:OpenAcess 1:ExclusiveAccess 2:ControlAccess	R/W	App terminal control authority
	GevStreamChannelSelector	Iinteger	>=0	R/W	Stream channel selector
	GevSCPInterfaceIndex	Iinteger	>=0	R	GEV interface index
	GevSCPHostPort	Iinteger	>=0	R/(W)	Host port
	GevSCPDirection	Iinteger	>=0	R	Stream channel direction
	GevSCPSFireTestPacket	IBoolean	0:Off 1:On	R/(W)	Enable fire test packet
	GevSCPSDoNotFragment	IBoolean	0:Off 1:On	R/W	Enable fire test packet
	GevSCPSBigEndian	IBoolean	0:Off 1:On	R	Data big/small end
	GevSCPSPacketSize	IInteger	＞0, related to camera. Generally ranges in 220-220, step 8	R/W	Network packet size
	GevSCPD	IInteger	≥ 0	R/W	Sending packet delay
	GevSCDA	IInteger	IP address	R	Destination address for stream data
	GevSCSP	IInteger	Port No.	R	Source port for stream data
User Set Control	UserSetCurrent	Iinteger	>=0	R	Current user parameters
	UserSetSelector	IEnumeration	0:Default 1:UserSet1 2:UserSet2 3:UserSet3	R/W	Set loaded parameters
	UserSetLoad	ICommand	-	W	Load
	UserSetSave	ICommand	-	W	Save
	UserSetDefault	IEnumeration	0:Default 1:UserSet1 2:UserSet2 3:UserSet3	R/W	Default status