

## List of supported camera features

This camera model supports the following GenICam standard features. More information on these features can be found in the GenICam™ Standard Features Naming Convention under <http://www.emva.org/standards-technology/genicam/genicam-downloads/>.

### AcquisitionControl

Name	Description	Values
Trigger Selector	Selects the type of trigger to configure.	Acquisition Start Acquisition End Exposure Start Exposure End
Trigger Mode	Controls if the selected trigger is active.	Off On
Trigger Source	Specifies the internal signal or physical input Line to use as the trigger source. The selected trigger must have its TriggerMode set to On.	Software Line 0 Line 1 Line 2 Line 3 User Output 0 User Output 1 User Output 2 User Output 3 Counter 0 Start Counter 0 End Counter 1 Start Counter 1 End Timer 0 Start Timer 0 End Timer 1 Start Timer 1 End PWM 0 Counter 0 Active Counter 1 Active Timer 0 Active Timer 1 Active
Trigger Activation	Specifies the activation mode of the trigger.	Rising Edge Falling Edge Any Edge Level High Level Low
Trigger Software	Generates an internal trigger. TriggerSource must be set to Software.	
Trigger Delay	Specifies the delay in microseconds (us) to apply after the trigger reception before activating it.	
Trigger Divider	Specifies a division factor for the incoming trigger pulses.	

Name	Description	Values
Acquisition Mode	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.	Single Frame Multi Frame Continuous
Acquisition Frame Count	Number of frames to acquire in MultiFrame Acquisition mode.	
Exposure Auto	Sets the automatic exposure mode when ExposureMode is Timed. The exact algorithm used to implement this control is device-specific.	Off Once Continuous
Sensor Shutter Mode	Returns the shutter mode of the device.	Global Rolling Global Reset
Acquisition Start	Starts the Acquisition of the device. The number of frames captured is specified by AcquisitionMode.	
Acquisition Stop	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.	
Exposure Mode	Sets the operation mode of the Exposure.	Timed Trigger Controlled
TriggerControlledExposureTimeMin	Minimum limit of ExposureTime when ExposureMode is TriggerControlled. When a Trigger on ExposureEnd is active but is received too early, the exposure of the frame is stopped after TriggerControlledExposureTimeMin. For Sensors with overlapping image acquisition, the overlap of the frames is limited by TriggerControlledExposureTimeMin.	
TriggerControlledExposureTimeMax	Maximum limit of ExposureTime when ExposureMode is TriggerControlled. When a Trigger on ExposureEnd is active but is not received in time, the exposure of the frame is stopped after TriggerControlledExposureTimeMax.	
Exposure Time	Sets the Exposure time when ExposureMode is Timed and ExposureAuto is Off. This controls the duration where the photosensitive cells are exposed to light.	
Acquisition Frame Rate	Controls the acquisition rate (in Hertz) at which the frames are captured.	

**DeviceControl**

Name	Description	Values
Device Reset	Resets the device to its power up state. After reset, the device must be rediscovered.	
Device Boot Status	Returns the current boot status.	OK Watchdog Reboot
Boot Options	BootOptions	Runtime Vision Service Vision
Device Vendor Name	Name of the manufacturer of the device.	
Device Model Name	Model of the device.	
Device Family Name	Identifier of the product family of the device.	
Device Manufacturer Info	Manufacturer information about the device.	
Device Firmware Version	Version of the firmware in the device.	
Device User ID	User-programmable device identifier.	
Device Stream Channel Endianness	Endianness of multi-byte pixel data for this stream.	Big Little
Device Stream Channel Packet Size	Specifies the stream packet size, in bytes, to send on the selected channel for a Transmitter or specifies the maximum packet size supported by a receiver.	
Device Link Heartbeat Mode	Activate or deactivate the Link's heartbeat.	On Off
Device Link Heartbeat Timeout	Controls the current heartbeat timeout of the specific Link.	
Device Link Command Timeout	Indicates the command timeout of the specified Link. This corresponds to the maximum response time of the device for a command sent on that link.	
Device Link Speed	Indicates the speed of transmission negotiated on the specified Link.	
Device SFNC Version Major	Major version of the Standard Features Naming Convention that was used to create the device's GenICam XML.	
Device SFNC Version Minor	Minor version of the Standard Features Naming Convention that was used to create the device's GenICam XML.	
Device SFNC Version Sub Minor	Sub minor version of Standard Features Naming Convention that was used to create the device's GenICam XML.	
Device Temperature Selector	Selects the location within the device, where the temperature will be measured.	Mainboard
Device Temperature	Device temperature in degrees Celsius (C). It is measured at the location selected by DeviceTemperatureSelector.	
Device Link Throughput Limit	Limits the maximum bandwidth of the data that will be streamed out by the device on the selected Link. If necessary, delays will be uniformly inserted between transport layer packets in order to control the peak bandwidth.	

Name	Description	Values
Device Link Calculated Throughput	Returns the calculated bandwidth of the data that would be streamed out by the device on the selected link with the current settings. The real bandwidth is limited by DeviceLinkThroughputLimit.	
Device Link Acquisition Frame Rate Limit	Returns the maximum AcquisitionFrameRate that can be reached with the bandwidth defined by DeviceLinkThroughputLimit.	
Device Optical Filter Type	Returns the optical filter type of the camera.	Unknown None HQ GL DL
Device Clock Selector	Selects the clock frequency to access from the device.	Sensor
Device Clock Frequency	Returns the frequency of the selected Clock.	

## AnalogControl

Name	Description	Values
Gamma	Controls the gamma correction of pixel intensity. Gamma correction is disabled when the LUTenable is True. Gamma > 1 increases image brightness. Gamma < 1 decreases image brightness.	
Gain Auto	Sets the automatic gain control (AGC) mode. The exact algorithm used to implement AGC is device-specific.	Off Once Continuous
Gain Selector	Selects which Gain is controlled by the various Gain features.	Analog All Digital All Digital Red Digital Green Digital Blue Analog All Source
Gain	Controls the selected gain as an absolute physical value. This is an amplification factor applied to the video signal.	

**LUTControl**

Name	Description	Values
LUT Selector	Selects which LUT to control.	Raw
LUT Enable	Activates the selected LUT. True: Activates the selected LUT. False: Deactivates the selected LUT. If a LUT is active, gamma correction is disabled. When disabling LUT, the previous gamma correction is restored.	
LUT Index	Selects an index to access the corresponding entry in the LUT selected by LUTSelector. The LUT has 64 intervals with a control point at the beginning of each interval. The 64 intervals are uniformly distributed in the 12-bit range. The control points are: 0, 64, 128 ... 4032	
LUT Value	Controls the i'th value of the LUT selected by LUTSelector, at the position i defined by LUTIndex. Values in 12 bit.	
LUT Preset Selector	Selects a LUT preset.	Identity Inverse Binarize DigitalGain2 EnhancedContrast
LUT Preset Load	Loads a LUT preset selected by LUTPresetSelector and applies it to the LUT selected by LUTSelector.	

CounterAndTimerControl

Name	Description	Values
Counter Selector	Selects the Counter to be configured.	Counter 0 Counter 1
Counter Event Source	Selects the internal signal or physical input Line that will be the source to increment the Counter.	Off Acquisition Trigger Acquisition Trigger Missed Acquisition Start Acquisition End Frame End Exposure Start Exposure End Line 0 Line 1 Line 2 Line 3 Counter 0 Start Counter 1 Start Counter 0 End Counter 1 End Timer 0 Start Timer 1 Start Timer 0 End Timer 1 End Exposure Trigger Exposure Trigger Missed ReadOut Start
Counter Event Activation	Specifies the activation mode of the Counter Event Source signal.	Rising Edge Falling Edge Any Edge

Name	Description	Values
Counter Reset Source	Selects the internal signal or physical input Line that will be the source to reset the Counter.	Off Counter Trigger Acquisition Trigger Acquisition Trigger Missed Acquisition Start Acquisition End Frame End Exposure Start Exposure End Line 0 Line 1 Line 2 Line 3 User Output 0 User Output 1 User Output 2 User Output 3 Counter 0 Start Counter 1 Start Counter 0 End Counter 1 End Timer 0 Start Timer 1 Start Timer 0 End Timer 1 End Exposure Trigger Exposure Trigger Missed ReadOut Start
Counter Reset Activation	Specifies the activation mode of the Counter Reset Source signal.	Rising Edge Falling Edge Any Edge

Name	Description	Values
Counter Trigger Source	Selects the internal signal or physical input Line that will be the source to start the Counter.	Off Acquisition Trigger Acquisition Trigger Missed Acquisition Start Acquisition End Frame End Exposure Start Exposure End Line 0 Line 1 Line 2 Line 3 User Output 0 User Output 1 User Output 2 User Output 3 Counter 0 Start Counter 1 Start Counter 0 End Counter 1 End Timer 0 Start Timer 1 Start Timer 0 End Timer 1 End Exposure Trigger Exposure Trigger Missed ReadOut Start
Counter Trigger Activation	Specifies the activation mode of the Counter Trigger Source signal. The activation modes Level High and Level Low are recommended only for Counter Trigger Sources like Line 0, 1, 2, 3 or User Output 0, 1, 2, 3.	Rising Edge Falling Edge Any Edge Level High Level Low
Counter Reset	Does a software reset of the selected Counter. Starts the counter unless a Counter trigger is active. CounterReset can be used to reset the Counter independently from the CounterResetSource. To disable the counter temporarily, set CounterEventSource to Off. Note that the value of the Counter at time of reset is automatically latched and reflected in the CounterValueAtReset.	



Name	Description	Values
Counter Value	Reads or writes the current value of the selected Counter. Writing to CounterValue is typically used to set the start value.	
Counter Value At Reset	Reads the value of the selected Counter at the time of its reset by the Counter Reset Trigger or by the Counter Reset command. It holds the last counter value latched before resetting the counter.	
Counter Duration	Sets the duration (or number of events) before the Counter stops counting. When the counter reaches the CounterDuration value, it stops counting. At the same time, a CounterEnd signal is generated, the CounterStatus changes to CounterCompleted and CounterActive is set to Low.	
Counter Status	Returns the current status of the Counter.	Counter Idle Counter Trigger Wait Counter Active Counter Completed Counter Overflow
Timer Selector	Selects the Timer to be configured.	Timer 0 Timer 1
Timer Duration	Sets the duration (in microseconds) before the Timer stops counting. When the Timer reaches the TimerDuration value, it stops counting. At the same time, a TimerEnd signal is generated, the TimerStatus changes to TimerCompleted and TimerActive is set to Low.	
Timer Value	Reads the current value (in microseconds) of the selected Timer.	
Timer Delay	Sets the delay (in microseconds) to apply at the reception of a Timer Trigger Source signal before starting the Timer.	
Timer Reset	Does a software reset of the selected Timer. Starts the timer unless a Timer trigger is active.	
Timer Status	Returns the current status of the Timer.	Timer Idle Timer Trigger Wait Timer Active Timer Completed

Name	Description	Values
Timer Trigger Source	Selects the internal signal or physical input Line that will be the source to start the Timer.	Off Acquisition Trigger Acquisition Trigger Missed Acquisition Start Acquisition End Frame End Exposure Start Exposure End Line 0 Line 1 Line 2 Line 3 User Output 0 User Output 1 User Output 2 User Output 3 Counter 0 Start Counter 1 Start Counter 0 End Counter 1 End Timer 0 Start Timer 1 Start Timer 0 End Timer 1 End Exposure Trigger Exposure Trigger Missed ReadOut Start
Timer Trigger Activation	Selects the activation mode of the trigger to start the Timer.	Rising Edge Falling Edge Any Edge Level High Level Low

## TestControl

Name	Description	Values
Test Pending Ack	Tests the device's pending acknowledge feature. When this feature is written, the device waits a time period corresponding to the value of TestPendingAck before acknowledging the write.	
Test Event Generate	Generates a Test Event.	

## TransferControl

Name	Description	Values
Transfer Queue Current Block Count	Returns the number of Block(s) currently in the transfer queue.	
Transfer Queue Max Block Count	Controls the maximum number of data blocks that can be stored in the block queue of the selected stream.	
Transfer Control Mode	Selects the control method for the transfers.	Automatic

GigE Vision

Name	Description	Values
Gev MAC Address	MAC address of the logical link.	
Gev Current IP Configuration Persistent IP	Controls whether the PersistentIP configuration scheme is activated on the given logical link.	
Gev Current IP Configuration LLA	Controls whether the Link Local Address IP configuration scheme is activated on the given logical link.	
Gev Current IP Configuration DHCP	Controls whether the DHCP IP configuration scheme is activated on the given logical link.	
Gev Current IP Address	Reports the IP address for the given logical link.	
Gev Current Subnet Mask	Reports the subnet mask of the given logical link.	
Gev Current Default Gateway	Reports the default gateway IP address to be used on the given logical link.	
Gev Persistent IP Address	Controls the Persistent IP address for this logical link. It is only used when the device boots with the Persistent IP configuration scheme.	
Gev Persistent Subnet Mask	Controls the Persistent subnet mask associated with the Persistent IP address on this logical link. It is only used when the device boots with the Persistent IP configuration scheme.	
Gev Persistent Default Gateway	Controls the persistent default gateway for this logical link. It is only used when the device boots with the Persistent IP configuration scheme.	
Gev SCDA	Controls the destination IP address of the selected stream channel to which a GVSP transmitter must send data stream or the destination IP address from which a GVSP receiver may receive data stream.	
Gev GVCP Pending Ack	Enables the generation of PENDING_ACK.	
Gev SCP Host Port	Controls the port of the selected channel to which a GVSP transmitter must send data stream or the port from which a GVSP receiver may receive data stream. Setting this value to 0 closes the stream channel.	
Gev SCPS Packet Size	This GigE Vision specific feature corresponds to DeviceStreamChannelPacketSize and should be kept in sync with it. It specifies the stream packet size, in bytes, to send on the selected channel for a GVSP transmitter or specifies the maximum packet size supported by a GVSP receiver.	
Gev SCPD	Controls the delay (in GEV timestamp counter unit) to insert between each packet for this stream channel. This can be used as a crude flow-control mechanism if the application or the network infrastructure cannot keep up with the packets coming from the device.	

## BrightnessAutoControl

Name	Description	Values
Brightness Auto Exposure Time Limit Mode	Controls if the limits BrightnessAutoExposureTimeMin and BrightnessAutoExposureTimeMax are active. When disabled, the range of ExposureTime is only limited by sensor properties and AcquisitionFrameRate. When enabled, the range of ExposureTime is limited additionally by BrightnessAutoExposureTimeMin and BrightnessAutoExposureTimeMax. When a brightness auto features is active, the ExposureTime can vary within this range.	Off On
Brightness Auto Exposure Time Min	Minimum limit of ExposureTime when ExposureAuto is enabled.	
Brightness Auto Exposure Time Max	Maximum limit of ExposureTime when ExposureAuto is enabled. When brightness auto features are active, the upper range of ExposureTime will be limited by BrightnessAutoExposureTimeMax, even if the frame rate would allow for longer exposure.	
Brightness Auto Gain Limit Mode	Controls if the limits BrightnessAutoGainMin and BrightnessAutoGainMax are active. When disabled, the range of Gain is only limited by sensor properties. When enabled, the range of Gain is limited additionally by BrightnessAutoGainMin and BrightnessAutoGainMax. When a brightness auto features is active, the Gain can vary within this range.	Off On
Brightness Auto Gain Min	Minimum limit of Gain when GainAuto is enabled.	
Brightness Auto Gain Max	Maximum limit of Gain when GainAuto is enabled.	
Brightness Auto Percentile	Defines the percentage of pixels that must be brighter than BrightnessAutoTarget. BrightnessAutoPercentile is a parameter for brightness auto features like ExposureAuto and GainAuto.	
Brightness Auto Target	Sets the target value for brightness auto features like ExposureAuto and GainAuto. The percentage of pixels, that must be brighter than BrightnessAutoTarget, is defined in BrightnessAutoPercentile. The value of BrightnessAutoTarget relates to the current PixelFormat.	
Brightness Auto Target Tolerance	Tolerance for BrightnessAutoTarget (in 8 bit). Defines an acceptance interval that surrounds BrightnessAutoTarget. If the brightness auto algorithm reaches a value within this acceptance interval, the algorithm has converged.	
Brightness Auto Framerate Limit Mode	Controls if how the AcquisitionFrameRate is limited. When the BrightnessAutoFramerateLimitMode is Fixed, the AcquisitionFrameRate will not change when a brightness auto feature is active.	Fixed

## PWMControl

Name	Description	Values
PWMSelector	Selects which pulse width modulation module (PWM) to configure.	PWM 0
PWM Trigger Source	Selects the internal signal or physical input Line that will be the source to start the PWM. On default, the PWM is active as long as the signal is High. Changing the PWM Trigger Activation to Level Low, the PWM is active as long as the signal is Low.	Off Acquisition Active Exposure Active User Output 0 User Output 1 User Output 2 User Output 3 Counter 0 Active Counter 1 Active Timer 0 Active Timer 1 Active Line 0 Line 1 Line 2 Line 3
PWM Trigger Activation	Specifies the activation mode of the PWM Trigger Source signal.	Level High LevelLow
PWM Frequency	Specifies the frequency of the PWM pulse signal in Hz.	
PWMDutyCycle	Specifies the duty cycle of the PWM. The PWM Duty Cycle defines the fraction of one pulse (in %) in which the PWM signal is High.	

## ImageCorrectionControl

Name	Description	Values
Color Correction Matrix	Sets the matrix for color correction. Color correction can be enabled or disabled using Color Correction Mode.	HQ
Color Correction Mode	Controls if the color correction is active. Color correction is only available, if the selected Pixel Format is a debayered color format. If color correction is active, the Color Correction Matrix is used to enhance color rendering.	Off On

ImageFormatControl

Name	Description	Values
Sensor Width	Effective width of the sensor in pixels.	
Sensor Height	Effective height of the sensor in pixels.	
Width Max	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.	
Height Max	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.	
Width	Width of the image provided by the device (in pixels).	
Height	Height of the image provided by the device (in pixels).	
Offset X	Horizontal offset from the origin to the region of interest (in pixels).	
Offset Y	Vertical offset from the origin to the region of interest (in pixels).	
Decimation Horizontal	Horizontal sub-sampling of the image. This reduces the horizontal resolution (width) of the image by the specified horizontal decimation factor.	
Decimation Vertical	Vertical sub-sampling of the image. This reduces the vertical resolution (height) of the image by the specified vertical decimation factor.	
Test Pattern	Selects the type of test pattern that is generated by the device as image source.	Off Grey Horizontal Ramp Grey Diagonal Ramp Moving SequencePattern1 SequencePattern2 White (FPGA) Vertical Grayscale (FPGA) Chessboard (FPGA) Black (FPGA) Grayscale (FPGA) Framecount (FPGA) Color Stripe (FPGA)

Name	Description	Values
Pixel Format	Format of the pixels provided by the device. It represents all the information provided by PixelSize, PixelColorFilter combined in a single feature.	Mono8 BayerRG8 BayerRG10p BayerRG12p BayerRG10 BayerRG12 RGB8 BGR8 RGB10p32 BGR10p32
Pixel Color Filter	Type of color filter that is applied to the image.	None BayerRG BayerGB BayerGR BayerBG
Pixel Size	Total size in bits of a pixel of the image.	Bpp1 Bpp2 Bpp4 Bpp8 Bpp10 Bpp12 Bpp14 Bpp16 Bpp24 Bpp30 Bpp32 Bpp36 Bpp48 Bpp64
Sensor Name	Returns the product name of the imaging sensor.	
Sensor Pixel Width	Returns the physical pixel size (in um) in x direction.	
Sensor Pixel Height	Returns the physical pixel size (in um) in y direction.	



DigitalIOControl

Name	Description	Values
Line Selector	Selects the physical line (or pin) of the external device connector or the virtual line of the Transport Layer to configure.	Line 0 Line 1 Line 2 Line 3
Line Mode	Controls if the physical Line is used to Input or Output a signal.	Input Output
Line Inverter	Controls the inversion of the signal of the selected input or output Line.	
Line Status	Returns the current status of the selected input or output Line.	
Line Source	Selects which internal acquisition or I/O source signal to output on the selected Line. LineMode must be Output.	Off User Output 0 User Output 1 User Output 2 User Output 3 Acquisition Active Exposure Active Counter 0 Active Counter 1 Active Timer 0 Active Timer 1 Active PWM 0 ReadOut Active
Line Format	Returns the current electrical format of the selected physical input or output Line.	Tri State Opto Coupled LVTTTL
Line Status All	Returns the current status of all available Line signals at time of polling in a single bitfield.	
User Output Selector	Selects which bit of the User Output register will be set by UserOutputValue.	User Output 0 User Output 1 User Output 2 User Output 3
User Output Value	Sets the value of the bit selected by UserOutputSelector.	
User Output Value All	Sets the value of all the bits of the User Output register. It is subject to the UserOutputValueAllMask.	

Name	Description	Values
User Output Value All Mask	Sets the write mask to apply to the value specified by UserOutputValueAll before writing it in the User Output register. If the UserOutputValueAllMask feature is present, setting the user Output register using UserOutputValueAll will only change the bits that have a corresponding bit in the mask set to one.	

### ChunkDataControl

Name	Description	Values
Chunk Mode Active	Activates the inclusion of Chunk data in the payload of the image.	
Chunk Selector	Selects which Chunk to enable or control.	Offset X Offset Y Width Height Pixel Format Exposure Time Gain
Chunk Enable	Enables the inclusion of the selected Chunk data in the payload of the image.	
Chunk Offset X	Returns the OffsetX of the image included in the payload.	
Chunk Offset Y	Returns the OffsetY of the image included in the payload.	
Chunk Width	Returns the Width of the image included in the payload.	
Chunk Height	Returns the Height of the image included in the payload.	
Chunk Pixel Format	Returns the PixelFormat of the image included in the payload.	Mono8 BayerRG8 Mono10p BayerRG10p Mono12p BayerRG12p Mono10 Mono12 BayerRG10 BayerRG12
Chunk Exposure Time	Returns the exposure time used to capture the image.	
Chunk Gain Selector	Selects which Gain to return.	Analog All Digital All
Chunk Gain	Returns the gain used to capture the image.	

## TransportLayerControl

Name	Description	Values
Payload Size	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.	