

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 1 Start Counter 0 End Counter 1 End Timer 0 Start Timer 1 Start Timer 0 End 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 |

GigEVision

| 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 GreyDiagonalRampMoving SequencePattern1 SequencePattern2 White(FPGA) VerticalGrayscale(FPGA) Chessboard(FPGA) Black(FPGA) Grayscale(FPGA) Framecount(FPGA) ColorStripe(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. | |